

How to avoid winter cash flow problems

Winter can be a bleak season, particularly in the North and Midwest. Cold weather, gray skies and short days make January and February seem to drag on endlessly.

During these months a large percentage of the population spend their days anticipating the arrival of spring. Among them are lawn care businessmen with winter cash flow problems.

Winter can be a desperate time for lawn care businessmen with cash flow headaches. Operating expenses pile up and employees still have to be paid, yet the money isn't coming in as fast as it did in the spring and summer.

Winter is a difficult time for seasonal businesses, but it doesn't have to be that way. Innovative lawn care businessmen have developed ways to avoid winter cash flow problems, while still maintaining a healthy work environment throughout the winter.

Theodore Hadeed, president of Agro-Lawn Systems, Inc., Landover, Md., has increased his winter cash flow by incorporating a winter application (fertilization and liming) into his lawn care program. "Our cash flow is very good up to the end of December because of our winter treatment," he said.

Agro-Lawn has also improved its cash flow situation by requiring customers to pre-pay. "We require a down payment for the first treatment," Hadeed said. "After the first treatment is completed we give them a bill. The first bill must be paid before we provide a second application."

"So basically we get paid for the treatments before they are done," he added. "This cures some of the cash flow problems and we don't have any loss (due to non-payment)."

In an attempt to better cope with winter cash flow problems, other lawn care operators have diversified their services to include snow removal, chimney sweeping, landscaping and firewood sales.

Larry Kapp, of Kapp's Green

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Major turf conferences to be held next month in Ohio, Illinois, New Jersey, Texas and Washington

Following this month's first Professional Lawn Care Association of America Conference and Trade Show in Louisville, there are at least five major regional turf conferences that have scheduled extensive lawn care sessions next month.

These five conferences are: the Landscape Maintenance Symposium sponsored by the Associated Landscape Contractors of America (ALCA) December 1-3 in Seattle; the Ohio Turfgrass Conference December 2-4 in Colum-

bus; the Texas Turfgrass Conference December 8-10 in College Station; the New Jersey Turfgrass Expo '80 December 8-11 in Cherry Hill; and the Illinois Turfgrass Conference December 16-18 in Springfield.

ALCA. Programming at the Landscape Maintenance Symposium will be centered around the meeting's theme, "A Framework for Planning and Managing in the '80's" according to program chairman Rod Bailey, Evergreen Services Corp., Bel-

leville, Wash.

The Symposium will be held at the Washington Plaza Hotel, Seattle. It is designed for owners, managers and staff of maintenance-oriented businesses looking for paths to survival and success in the decade ahead. The three days of meetings will be keynoted by publisher Dick Morey, speaking on "Where in the '80's?" in which he will cover trends in the industry and relevant aspects of outside trends. Successive sessions will follow on theme of the changes and trends which will develop in the coming decade.

Other sessions in the Symposium will include two "industry directions panels"—one covering markets and services, and the second on products and equipment. Both panels will feature industry contractors and suppliers, as will many of the other sessions—Long-Range Planning, Organization Planning and Human Development, Your Chart of Accounts, Hidden Costs in Maintenance, Business Tricks of the Trade and Financial Forecasting, Financing and Cash Flow.

For further information, contact:

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LAWN CARE INDUSTRY

Serving lawn maintenance and chemical lawn care professionals.

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LCI SURVEY

Businessmen spent \$57.1 million on mowing equipment last year

Readers of LAWN CARE INDUSTRY spent more than \$57 million on tractors, mowers and trimmers last year, according to a recent survey conducted by the magazine.

In a similar survey conducted last year, readers of the magazine spent \$32.9 million in the same basic categories.

In the walk-behind mower cate-

gory, 56.3 percent of the readers said they spent an average of \$1,381 in 1979, for a readership projection of \$7.5 million.

In the riding mower category, 21.6 percent of the readers said they spent an average of \$5,319, for a readership projection of \$11 million.

In the less-than-10-horsepower tractor category, 6.8 percent of the readers said they spent an average of \$2,088, for a readership projection of \$1.4 million.

In the 10-20 horsepower tractor category, 16.8 percent of the readers said they spent an average of

\$4,840, for a readership projection of \$7.9 million.

In the 21-30 horsepower tractor category, 7.4 percent of the readers said they spent an average of \$7,633, for a readership projection of \$5.5 million.

In the 31-50 horsepower tractor category, 6.8 percent of the readers said they spent an average of \$15,929, for a readership projection of \$11 million.

The results of this survey are based on a 53.6 percent response to 500 questionnaires mailed to readers of LAWN CARE INDUSTRY earlier this year. For a copy of the survey, contact: Bob Earley, Editor/Publisher, LAWN CARE INDUSTRY, Harcourt Brace Jovanovich, Inc., 757 Third Ave., New York, NY 10017.

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MOWING EQUIPMENT PURCHASES, 1979

Equipment	% sample purchasing	average per purchaser	projection to LCI readership
Walk-behind mowers	56.3%	\$ 1,381	\$ 7.5 million
Riding mowers	21.6	5,319	11.0 million
Less-than-10 h.p. tractors	6.8	2,088	1.4 million
10-20 h.p. tractors	16.8	4,840	7.9 million
21-30 h.p. tractors	7.4	7,633	5.5 million
31-50 h.p. tractors	6.8	15,929	11.0 million
Larger tractors	6.3	16,918	10.0 million
Hedge trimmers	37.9	298	1.1 million
String trimmers	38.9	462	1.7 million

Source: 1980 LCI Survey

DUSTRY, page 12.
business, technical
in faces in his job
by our readers.

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TRANSITION

LCI offices move; Earley to publisher

Effective with its November issue, **LAWN CARE INDUSTRY** has moved its primary editorial and sales offices to New York.

The magazine has been published by Harvest Publishing Co., Cleveland, since its inception in 1977. Harvest is a wholly owned subsidiary of Harcourt Brace Jovanovich, Inc. The magazine is now being published directly by Harcourt.

In addition, Robert Earley has been named editor/publisher of **LAWN CARE INDUSTRY**. He has previously been editor/associate publisher. He will be working directly with Tom Greney, Harcourt group vice president in charge of **LAWN CARE INDUSTRY** and its two sister publications — **WEEDS TREES & TURF** and **PEST CONTROL**. Another magazine in the Harvest group — **GOLF BUSINESS** — will continue to be published by Harvest.

LAWN CARE INDUSTRY, **WEEDS TREES & TURF** and **PEST CONTROL** were moved to New York to be more closely aligned with Harcourt's business magazine operation. Harcourt is the largest publisher of business and professional magazines and jour-

nals in the country. With more than 70 titles. It is the third largest publisher when measured in terms of volume.

Earley will continue with his present editorial and sales responsibilities. He has been editor of the magazine since 1977, and had previously been managing editor of **WEEDS TREES & TURF** and associate editor of **GOLF BUSINESS**. He has also in the past been associate editor of **GOLF COURSE MANAGEMENT**, published by the Golf Course Superintendents Association of America, Lawrence, Kans.; managing editor of **HEATING/COMBUSTION EQUIPMENT NEWS**, Cleveland; and managing editor of **CRYOGENICS & INDUSTRIAL GASES**, Cleveland. He also has daily newspaper and advertising agency experience, and holds a B.S. in journalism degree from Northwestern University, Evanston, Ill.

He is a trustee of the Ohio Turfgrass Foundation, and is on the board of directors of the Professional Lawn Care Association of America. He is also immediate past president of the American Society of Business Press Editors.

New address for the magazine is: **LAWN CARE INDUSTRY**, Harcourt Brace Jovanovich, Inc., 757 Third Ave., New York, NY 10017, (212) 888-2892.

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POSTMASTER: Send Form 3579 to **LAWN CARE INDUSTRY**, P.O. Box 6017, Duluth, Minnesota 55806.

MEMOS

NFSA brochure promotes lawn care: The National Fertilizer Solutions Association recently published a brochure entitled "The Fluid Fertilizer Concept for the Lawn and Turf Industry."

The brochure says that fluid fertilizers have fast become the modern method of fertilizer application in the commercial lawn care and turf fertilization industry, and estimates that more than 60 percent of the industry is currently using the fluid fertilizer application technique.

The brochure goes on to say that "the reasons for the large and still growing usage of fluid fertilizers by the lawn and turf industry are many, but they can be summarized by discussion of the major advantages they offer, namely: uniform distribution, prescription formulation, agronomic advantages and handling and application efficiencies. . . .

"Through the use of fluid fertilizers, uniform distribution is virtually assured. With fluids, every drop is exactly the same, resulting in a completely uniform and homogeneous mixture. This same uniformity is carried through to the application as a result of the basic principle behind the movement and distribution of fluids. That principle is the use of a pump to force the fluid under pressure through an orifice or spray gun nozzle. Thus, at a given pressure and with spray gun nozzle of a certain size, the rate of flow is constant. . . .

"Prescription formulation with fluid fertilizers means that they can be precisely mixed to meet the precise nutrient needs of the plant. The importance of prescription formulation as a key advantage of fluid fertilizers is very evident when considering the increasing need for secondary and micronutrients. . . .

"One of the key agronomic advantages offered by fluid fertilizer is the broad range of choices of materials to supply the major elements of nitrogen, phosphorus and potassium. . . .

"Fluid fertilizers offer a number of handling and application efficiencies. Application is fast and easy since all you have to lift is the end of a hose. No handling time is wasted unloading equipment, lifting bags, or cleaning up the waste and mess from spillage on surrounding sidewalks and pavement."

The NFSA printed the brochure to show the potential of the lawn care industry to its members—mostly farm fertilizer dealers—and to promote the benefits of fluid fertilizers to lawn care companies that are presently applying dry fertilizer applications. For a copy of the brochure, write: NFSA, 8823 N. Industrial Rd., Peoria, IL 61615.

Weeds as energy? Common weeds and grasses may prove to be valuable sources of energy, according to researchers at Battelle's Columbus, Ohio laboratories.

As part of experiments sponsored by Battelle, researchers are growing such crops as milkweed, ragweed and orchardgrass to determine their potential as renewable energy sources. The crops have the potential either to be burned for their energy value or converted into products such as oil and rubber. Researchers are analyzing them for their yields, germination and seedling vigor. Following harvesting, the crops will be weighed and examined for their biomass potential.

International Seeds markets bluegrass. In our July issue, we listed bluegrass rankings from Purdue University in tests there, and also marketers of the various varieties.

Harry W. Stalford, product manager for International Seeds Inc., Halsey Ore., wrote to tell us that his company had Merit and Vantage Kentucky bluegrasses released to it by O. M. Scott & Sons, Marysville for production and marketing. He adds that Merit and Vantage are available on a commercial basis through ISI distributors.

A steep decline in the middle quarters? Consumer spending provided the underpinning for the economy in 1979 and thereby averted a recession. This support has now been withdrawn, and 1980 is turning into a classical business cycle downswing.

According to a recent article in *Business Week* magazine, retrenchment by consumers has triggered production cutbacks. Inventories will have to be cut to stay in line with the lower sales level. This process almost assures continued downward momentum in business activity and the beginning of a reduction in inflationary pressures.

As recently as April, the consensus of economic experts was for only a two to three percent annual rate of decline in real Gross National Product for the two middle quarters of this year, with a gradual and modest recovery beginning before year-end. In recent weeks, these forecasts have been scaled downward: Now the view is that the second and third quarters will be worse than anticipated previously. A number of private economists and economic consulting companies are factoring in five to eight percent annual rate declines in real Gross National Product in one or both of the middle quarters. They say that is a serious recession.

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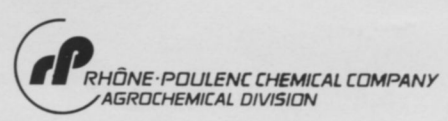
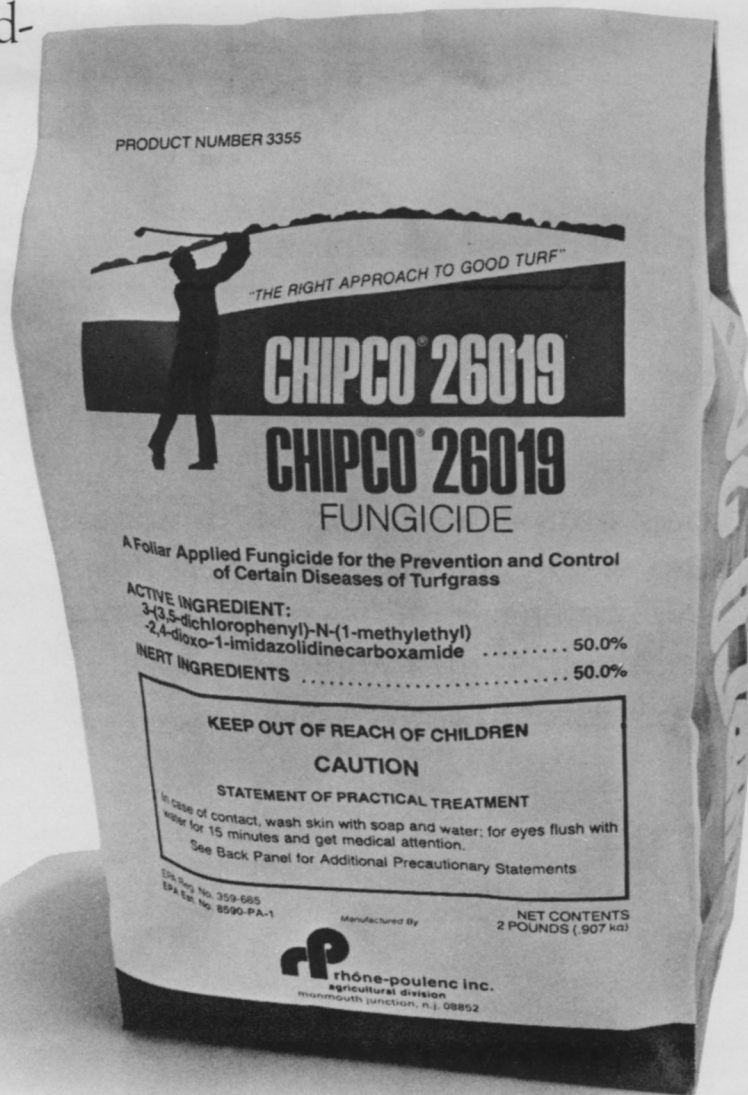
Chipco 26019 Fungicide is easy to work with, too. It mixes well, with no residual left in the tank. And it presents no problems of phytotoxicity to turf.

Chipco® 26019 Fungicide builds profits.

Think what Chipco 26019 Fungicide will do for your business. Because you know it's really going to work — for up to 21 days — you can get a lot more aggressive about going after fungicide business.

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If you'd like to have this competitive tool working to expand your business, ask your chemical distributor for the profit-building addition to the popular Chipco line of turf fungicides and herbicides: Chipco 26019 Fungicide. Rhône-Poulenc Chemical Co., Agrochemical Division, Monmouth Junction, New Jersey 08852.



Please read label carefully, and use only as directed.

Soil properties affect herbicide performance

Environmental factors and soil properties may determine how effective many of our surface applied herbicides are. Environmental factors such as too much rain may wash herbicides away while too little rain may cause the herbicide to never gain its total effectiveness. Soil properties such as pH can also affect herbicide performance. When some herbicides are sprayed on soils with a low pH, they may be strongly absorbed and unavailable for their intended job. Thus, the movement and reaction of herbicides in the soil are important factors to consider when herbicide failure occurs.

In order to discuss the movement and reaction of herbicides in

the soil, I will break them down into two basic groups, ionic and nonionic. The ionic group can be further divided into three subgroups; cationic, basic, and acidic. The nonionic group can be divided into two subgroups; volatile and nonvolatile.

Ionic herbicides undergo a process known as ionization when they are dissolved in the soil solution. This process means that an ionic herbicide may separate into electrically charged particles. These electrically charged particles may become positively charged (cations) or negatively charged (anions). Since soil particles are generally thought to be negatively charged, a herbicide that ionizes and forms cations will

be bound very tightly to the soil particles. Paraquat is a good example of a herbicide that ionizes to form cations. Cationic herbicides should only be applied as foliar sprays.

As mentioned earlier, other ionic herbicides may be categorized as being basic or acidic. The triazine herbicides such as atrazine or simazine are good examples of basic type herbicides.

Soil pH is a measure of the amount of hydrogen ions in the soil solution. A low pH means a lot of hydrogen ions are in the soil solution and thus the soil is said to be acidic. Liming helps to neutralize these hydrogen ions and raise the pH of the soil. If the soil is unlimed and the pH is low, the basic type herbicides can associate with the hydrogen ions in the soil and form positively charged substances. As mentioned earlier, soil particles are generally thought to be negatively charged.

Thus the positively charged substances just mentioned can become strongly absorbed to the soil particles in acid soils. In neutral or alkaline soils, though, the basic type herbicides will not associate with the hydrogen ions and are held much more weakly by the soil particles. The herbicides are then free to do their intended job. Thus it is important to maintain a good soil pH when using basic type herbicides.

The last group of ionic herbicides are those which are considered acidic. This group includes chemicals like the phenoxy acids such as 2,4-D and the benzoic acids such as dicamba. These herbicides react almost opposite to how the basic type herbicides react. When these compounds are applied to the soil surface they react with the soil solution to form negatively charged particles called anions. Since the soil particles are negative also, these herbicides are not tightly bound in the soil.

The nonionic herbicides do not usually ionize in the soil solution. Therefore they do not exhibit a positive or negative charge. As mentioned earlier, this group of herbicides can be split up into

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Bill Langer - C.G.C.S., Director of Turf Management, Callaway Gardens, Pine Mountain, Georgia

The image shows a man, Bill Langer, standing on a golf course. He is wearing a white short-sleeved shirt, dark trousers, and a white cap. He is holding a framed award in his right hand. To his left is a large white bag of Sta-Green Greens & Tees Fertilizer. The bag has a green and white design with the text 'Greens & Tees Fertilizer' and 'NET WT 50 LB (22.7 kg)'. The background is a lush green golf course with a body of water and trees in the distance.

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STA-GREEN

For maximum effectiveness, volatile herbicides should be incorporated into cool, dry soils.

those that are volatile (lost from the soil surface to the atmosphere) and those that are nonvolatile.

The volatile group of herbicides includes those chemicals within the group of compounds known as the thiocarbamates. This includes herbicides such as EPTC, vernolate, and butylate. These compounds are really lost to volatilization and must be incorporated into the soil to be most effective. Increased volatilization may occur when soil temperature and soil moisture increases. For maximum effectiveness these herbicides should be incorporated into cool, relatively dry soils.

The dinitroaniline herbicides such as trifluralin and benefin fall between the volatile and non-volatile group of nonionic herbicides. These herbicides have very low water solubilities and do not leach to any significant degree. Sunlight may decompose these herbicides, therefore soil incorporation is necessary to achieve effective weed control.

The urea herbicides such as linuron, fluometuron, and diuron are considered nonvolatile. They are much more water soluble than the dinitroaniline herbicides. Their absorption and activity is related to the organic matter and clay content of the soil. The higher the organic matter and the finer the soil texture the higher the rate of chemical that is required.

The anilide herbicides such as anachlor and metolachlor are also considered nonvolatile. Their absorption and activity is similar to that of the urea herbicides. Both the urea and anilide herbicides are applied preemergence since rainfall will slowly move them into the soil.



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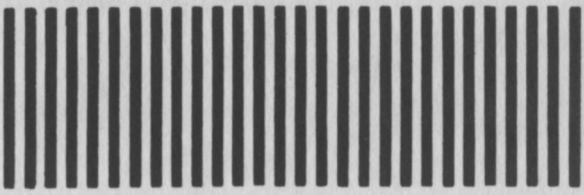
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NEWSMAKERS

Perf-A-Lawn Corp., New Carlise, Ohio, announces these recent promotions: Ron Wilson, formerly franchise director, has been named vice president in charge of franchising; Mike Hiller has been named vice president in charge of sales and marketing; Mark Tamn has been named director of franchise training and development. Richard Deering is president of Perf-A-Lawn which presently has branches in 28 markets, both franchise and company-owned.

Samuel W. Funderburk is president of **Pro Lawn**, Acworth, Ga.

The Ortho Agricultural Chemicals Division of **Chevron Chemical Co.** has appointed R. H. (Dick) Foell to the position of product manager for herbicides. His experience will be focused on the management of Ortho's growing herbicides line, including Paraquat, Diquat and introduction of Ortho's newest herbicide, Bolero. Foell has been with Chevron 27 years, holding various operations, sales and management positions throughout the U.S.

The company also announced the appointment of A. C. (Art) Assad to the position of product manager for insecticides, responsible for Chevron's broad line of

regional director. Mays, with 11 years of experience in the lawn business, will have responsibility for all operations in the company's Lincoln/Omaha, Denver and Cleveland markets. He will also be responsible for commercial operations in Columbus along with all corporate technical services.

Louis Mattoon is president of **Green Lawn Fertilizer Corp.**, Kansas City, Mo. Joe Jackson is secretary/treasurer. The company offers liquid chemical lawn care services.

Steve Nuss is owner of **Highland Park Lawn Co.**, Grand Island, Neb. Mike Small is spray manager and Larry Decker is manufacturing manager. The company offers liquid chemical lawn care, and sodding and seeding services.



Mid-East Power Equipment Co., Lexington, Ky., recently took top honors as Jacobsen's 1980 'Distributor of the Year.' Jacobsen, based in Racine, Wis., honored representatives of the company at its annual distributors meeting in Pheasant Run, Ill.

At awards presentation were, far left, Richard Dittoe, Jacobsen vice-president, marketing; Tom Bruns, president; John Bakhaus, Mid-East Power Equipment president, second right, and John Spence, general manager.



Foell



Assad

insecticides including Orthene, Monitor, Dibrom, Plictran, Naled and Phosphamidon. He has been with Chevron for 15 years, holding various sales, development and management positions.

Three new management additions have been announced to strengthen Columbus, Ohio-based **Barefoot Grass Lawn Service**, a subsidiary of **The Toro Co.**, Minneapolis, for its planned major expansions.

John Dunham has been appointed regional director, with full responsibility for the company's operations in the upper Midwest. With more than 12 years of experience in the lawn business, Dunham comes to Barefoot from the Pro Turf Division of **O. M. Scott & Sons**, Marysville, Ohio. He will also be involved in corporate technical and training aspects of the business.

A. Maris Franke has joined the Barefoot staff as director of management information systems. Franke will have responsibility for both headquarters and franchise data processing functions.

Patrick J. Norton recently joined the company as director of finance and administration. Prior to joining Barefoot, he served as vice president of finance with Inspection Technology and held a management position with Arthur Andersen & Co., both in Cleveland.

Page Mays, Columbus market manager, has been promoted to

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The self-propelled **Lawnaire® III**, for example, makes it easy to aerate like a pro. Just fill the ballast drum with water to add up to 50 pounds of weight, and get up to 2½" of penetration. The 19-inch width of the Lawnaire III Aerator helps you make quick work of big lawns, with 30 spoon tines penetrating the turf every 7 inches. Transporting the Lawnaire III is quick and easy, too, with the optional Tote Trailer.

The gutsy 7-hp Ryan **Ren-O-Thin® IV** and economical 5-hp **Ren-O-Thin III** Power Rakes handle those big dethatching jobs with a wide 18" swath.

Both feature a floating front axle and micro-screw height adjustment for setting the proper dethatching depth you need. And a choice of three optional blade reels let you, or your customers, dethatch according to turf conditions.

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CONFERENCES from page 1

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Ohio. There are 17 lawn care sessions scheduled at this conference, to be held at the Ohio Center and Hyatt Regency in Columbus. Sessions include: "Fuel Management for Lawn Care in the '80's," John Latting, vice president, Latick, Inc., Normal, Ill.; "Pre-Emergence and Post-Emergence Herbicide Alternatives for Turfgrass Weed Control," Dr. Thomas Watschke, Penn State University.

Also: "Complications in Turfgrass Weed Control," Dr. Robert Shearman, University of Nebraska; "Pesticide Spills—How to Handle and Legal Considerations," Win Hock, Penn State University; "Nitrogen Sources and a Look into Fertilizer Technology in the 1980's," Dr. Charles Darrah, ChemLawn Corp., Columbus.

Also: "The Impact of Governmental Regulations on the

Lawn Care Industry," Bob Robinson, ChemLawn Corp., Columbus; "Toxicological Concerns in Pesticide Usage Around the Landscape," Dr. Robert Yearly, Ohio State University; "Nitrogen Nutrition and Helminthosporium Disease Relationships in Kentucky Bluegrass," Dr. Clint Hodges, Iowa State University; "Lawn Disease Management—A Practical Approach," Dr. Joe Vargas, Michigan State University.

Also: "Panel: Incorporating a Disease Management Program into Lawn Care Services," John Latting, Dr. Roger Funk, Davey Lawnscape Service, Kent, Ohio; Allan Duey, Jay-Lan, Inc., Sioux City, Iowa; and Mike Brown, L & M Lawn Care, Canton, Ohio; "Versatility in Liquid Lawn Care Programming," Dr. Roger Funk; "Versatility in Dry Lawn Care Programming," Page Mays, Barefoot Grass Lawn Service, Columbus.

Also: "Effective Training Programs for the Lawn Care Indus-

try," Gordon Ober, Davey Lawnscape; "Methods of Detecting Insect Infestation," Dr. Harry Niemczyk, Ohio Agricultural Research and Development Center, Wooster; "Types of Insurance Available to Custom Applicators," Robert Hadley, attorney, Turner and Smith Associates, Columbus; and "Renovation Techniques—What's Working?" Dr. Robert Shearman.

For further information, contact: Dr. John Street, Ohio Turfgrass Foundation, 1827 Neil Ave., Columbus, OH 43210, (614) 422-2592. Former Ohio State football coach Woody Hayes will be banquet speaker.

Illinois. This conference will be held at the Prairie Capital Convention Center, Springfield. There are a number of excellent general sessions of interest to the lawn care businessman, and five specific lawn care sessions. These are:

"Government Regulations in the Lawn Care Industry," Bob Earley, editor/publisher, LAWN CARE IN-

DUSTRY, New York; "Lawn Renovation," Rick White, Village Green Lawn Spraying, West Chicago; "Insect Pest Update," Dr. Roscoe Randell, University of Illinois; "Iron Fertilization of Kentucky Bluegrass," Allan Yust; and "Disease Update," Dr. Malcolm Shurtleff, University of Illinois.

For further information, contact: Dr. David Wehner, Illinois Turfgrass Foundation, P.O. Box 501, Urbana, IL 61801, (217) 333-7847.

For further information about the New Jersey conference, to be held at the Cherry Hill Hyatt House, contact: Dr. Henry Indyk, Cook College, Rutgers University, Box 231, New Brunswick, NJ 08903, (201) 932-9453.

For further information about the Texas Turfgrass Conference, to be held at the Rudder Conference Center at Texas A & M University, College Station, contact: Dr. Richard Doble, 349 Soil & Crop Science Center, Texas A & M University, College Station, TX 77843, (713) 845-4826.

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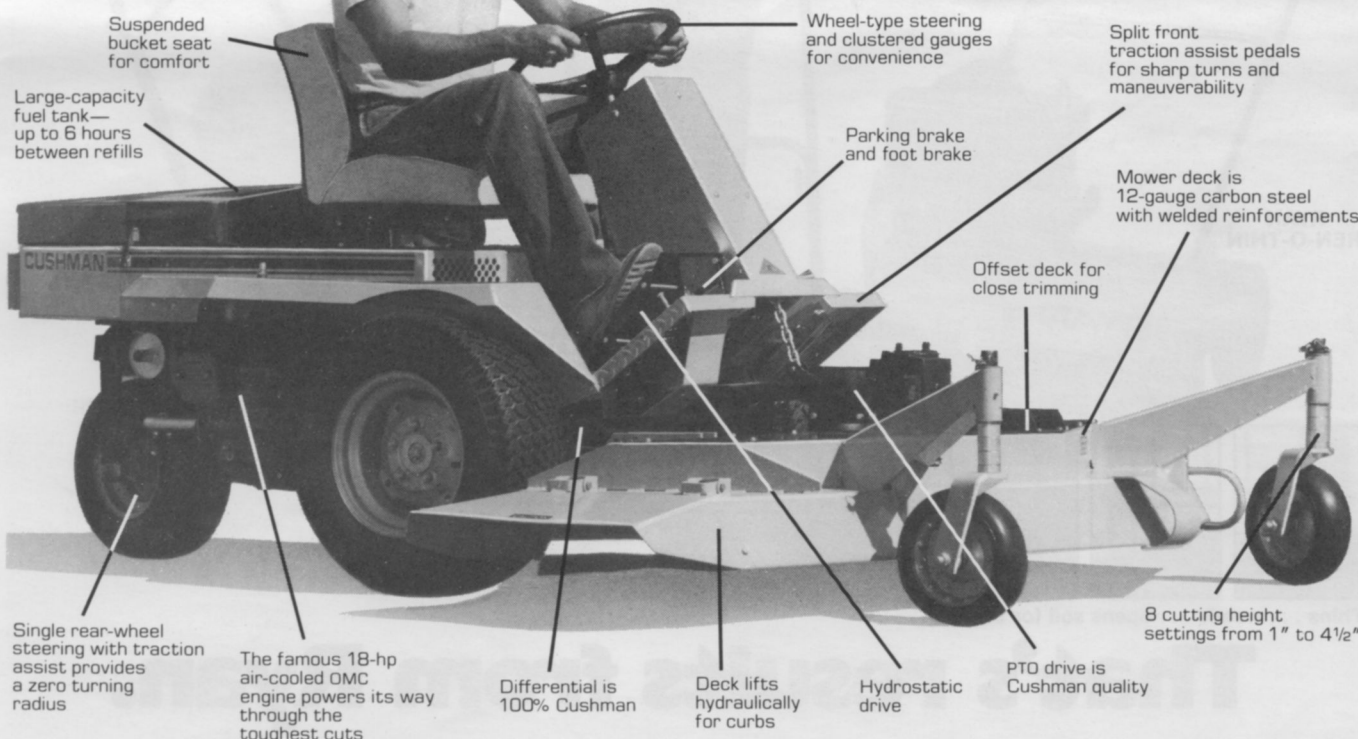
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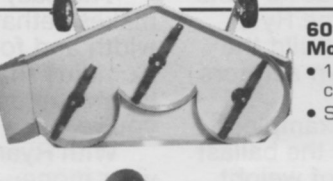
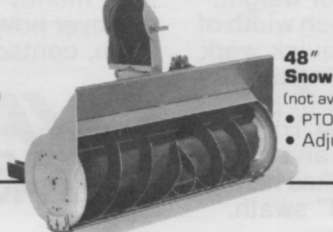
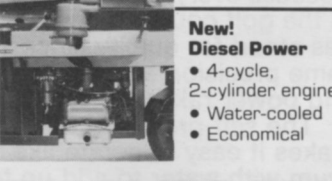
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ALLIED CHEMICAL

Fertilizer research program announced

A \$3.4 million fertilizer "forward research" program has been announced by the Allied Chemical Corp., Houston, Texas. Up to \$1.2 million has been earmarked for further foliar fertilizer technology research over a three-year period, and the studies are underway.

According to Dr. Ramon Garcia, manager of Agricultural Research and Development, this is part of Allied's expanded program to support fundamental fertilizer research projects in three main areas.

The three main thrust areas are fertilizer efficiency, energy conservation and breakthrough technology for yield increases.

"Foliar fertilizer research projects are included in each area, but are concentrated most heavily in the yield breakthrough technology work," Garcia said.

According to agronomist Don Johnson, "Allied Chemical has established Foliar foliar fertilizer successfully as a commercial application on turf and some farm crops. "However, basic research questions still need to be answered, and the technology of foliar fertilizer use as it relates to everyday practices of custom applicators and farmers need to be improved," he said.

Dr. John Clapp, of Allied, pointed out that "the principle of foliar application of nutrients during the seed filling stage has been proven scientifically sound. Considerable yield increases have been obtained in greenhouse, field and commercial applications. Our goals now include increasing consistency."

Garcia said an important portion of the "forward research" program will be carried out by universities across the country, under grants from Allied Chemical. Studies are currently being discussed with Texas A&M University, the University of Michigan, Washington State University, University of Minnesota, University of Missouri, Iowa State University, Kansas State University and the University of California. Other universities will also participate.

New housing starts top 17 million in Seventies

A total of 17.7 million new housing units were built in the past decade, according to a Cahners Advertising research report. Further, 65 percent of all new housing units built in the decade were single-family units.

Nineteen-seventy-two proved to be the year with the greatest number of total housing starts with 2,356,700; followed by 1971 with 2,052,200; 1973 with 2,045,300; and 1978 with 2,020,300.

In all, new single-family homes accounted for 11,420,500 (65 percent) of all the new family units; multi-family units totaled 5,196,200 (29 percent); and two- to four-family units accounted for 1,051,800 (six percent) of all new housing starts in the decade.

The biggest year for both multi-family and two- to four-family units was 1972.

FEBRUARY 8-13

ALCA annual meeting set for New Orleans

The 1981 Annual Meeting and Trade Exhibit of the Associated Landscape Contractors of America (ALCA) will offer a wide variety of topics during several sessions and workshops scheduled for the five-day convention in New Orleans February 8-13.

The annual meeting will be held at the Hyatt Regency New Orleans Hotel. A major trade exhibit and equipment demonstration will also be featured, and a full social program.

The theme for the meeting will be "Getting the Right Numbers," according to program chairman Ray Gustin III, Gustin Gardens, Gaithersburg, Md.

Keynote speaker for the ALCA convention will be nationally known business economist and management consultant Gunther Klaus. His presentation on "The New Management" will challenge attending landscape contractors to sharpen their own business management procedures, and develop "the right numbers in their own operation."

A major part of the programming will be devoted to a series of sessions on computers and computer applications. There will be two panel programs with industry speakers—landscape contractors with experience (both good and bad) working with computers. There will also be several outside experts making presentations, including Frank Ross of Ross-Payne & Associates, Chicago and Dale Saville, computer operations manager for the J. P. Stevens Co.

A full series of five workshops is scheduled, including one with a panel of landscape contractors debating a panel of landscape architects. Other technically oriented workshops will cover subject matter in the fields of design/build landscaping, landscape maintenance, interior landscape and land reclamation. All of the workshops will be followed by question/answer "buzz sessions."

For further information, contact: ALCA, 1750 Old Meadow Rd., McLean, VA 22102.

HOUSING STARTS IN THE 70's

	Single Family	2-4 Units	Multi-family 5+	TOTAL HOUSING STARTS
YEAR				
1970	812,900	84,800	535,900	1,433,600
1971	1,151,000	120,300	780,900	2,052,200
1972	1,309,000	141,300	906,200	2,356,700
1973	1,132,000	181,300	795,000	2,045,300
1974	881,000	68,100	381,000	1,330,700
1975	892,800	63,900	204,800	1,161,500
1976	1,162,900	86,100	287,700	1,536,700
1977	1,451,300	122,000	413,100	1,986,400
1978	1,433,300	125,000	462,000	2,020,300
1979	1,194,100	122,000	429,000	1,745,100
1970-79	11,420,500	1,051,800	5,196,200	17,668,500
% or total	65%	6%	29%	100%

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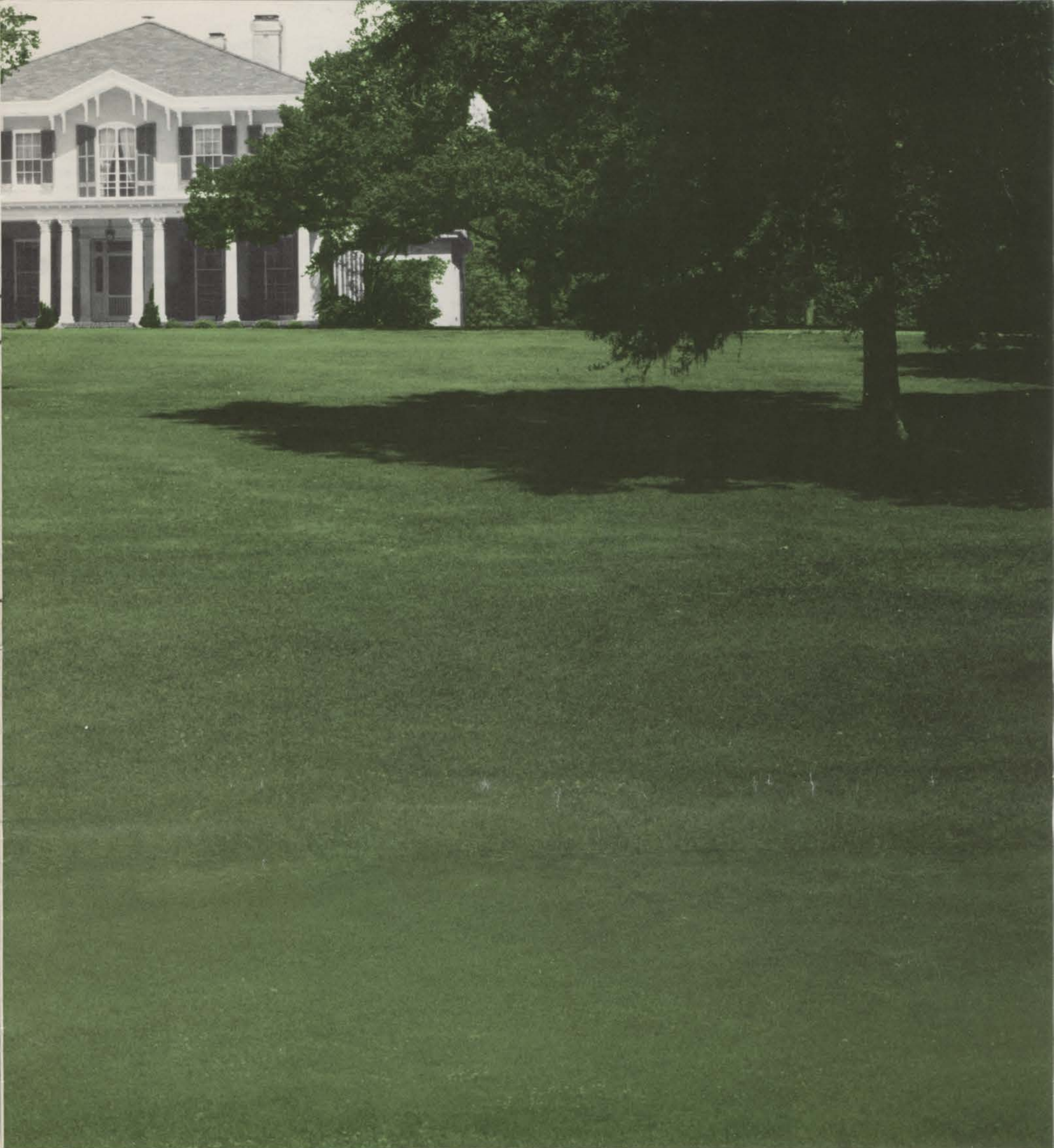
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PBI Gordon Corp. Kansas City, Kansas	Betamec-4	National	Rockland Chemical Co. West Caldwell, New Jersey	Rockland 4-E, 12.5-G and 7-G	Northeast
Lakeshore Equipment and Supply Co., Inc. Elyria, Ohio	Lescosan 4-E, 12.5-G and 7-G	National	Agway, Inc.	Betasan 7-G	Northeast
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No. 1 against crabgrass

Overcoming tank mix compatibility problems

The mixing of turfgrass chemicals in spray tanks is an integral part of any liquid lawn care operator's program. It is a daily function which offers a number of benefits to the lawn care specialist. Mixing pesticides and/or pesticides and fertilizers in spray tanks reduces labor and equipment costs and in some cases, increases the effectiveness of chemicals.

Unfortunately, tank mixing also may reduce the effectiveness of some materials or cause damage to the target plant once the chemicals have been applied, according to Dr. Robert Miller, vice-president of ChemLawn Corp., Columbus, Ohio.

Regardless of its advantages or

disadvantages, the process should not be taken lightly. Lawn care businessmen should constantly be wary when mixing pesticides, fertilizers, fungicides, herbicides or insecticides in spray tanks.

Miller, speaking at the New Jersey Turfgrass Expo, said, "There are no simple guidelines to use in mixing turfgrass chemicals. Good judgement and a great amount of caution are the best methods to avoid problems."

Compatibility of tank mixtures. If two or more pesticides can be used in combination without impairment of toxicity, physical properties or plant safety, then they are considered compatible. If problems develop from using the

combination (phytotoxicity, excessive foaming, sludge formation, etc.), they are considered incompatible. There are numerous types of incompatibility including physical or chemical, phytotoxic, placement and timing.

Physical incompatibility. When mixing two or more pesticides reduces the effectiveness of one or all components, the mixture is chemically incompatible. "Most organic fungicides and insecticides should not be combined with alkaline compounds with a pH higher than 7.0," Miller said. "Alkaline reactions significantly reduce the effectiveness of carbamate fungicides and the insecticidal value of some compounds."

"For this reason, lime for the control of algae should not be used with maneb fungicides such as Fore, Manzate, Tersan LSR and Dithane M-45," he added. "This is also true for Dyrene, Zineb, Thiram, Captan and most organic insecticides."

"Dinocap (Karathane), suggested for the control of powdery mildew, is also chemically incompatible with Sevin and oil-base sprays."

Chemical incompatibility is frequently the cause of poor performance by multiple combinations of pesticides. Characteristics of chemical incompatibility include excessive foaming, salting out, unstable mixtures and the formation of gelatin like materials.

Before combining any pesticides, Miller recommends reading the label on the package or container. If information on compatibility is not specified, it is wise to avoid combinations of products until compatibility tests are completed.

Phytotoxic incompatibility. When two or more compounds used in combination result in plant injury, they are incompatible because of phytotoxic effects. For example, mixing organic fungicides with emulsifiable concentrates (EC) insecticide formulations with xylene as the solvent, may cause plant injury.

A general rule when combining pesticides of unknown compati-

Before combining any pesticides, read the label on the package or container. If information on compatibility is not specified, it is wise to avoid combining pesticide products until compatibility tests are completed.

bility is to test the combination on expendable turf areas before using them on large turfgrass areas.

Placement incompatibility. Incorrect placement of pesticides is frequently the reason for poor disease and insect control. Placement incompatibility is often overlooked because it is less obvious than other types of incompatibility.

When two or more chemicals are used together and applied in one operation, each must end up in the proper place if it is to do the job for which it was intended.

"Some fungicides are protectants and must be uniformly distributed over the leaf surfaces to protect against invasions of pathogens such as *Piricularia* (gray leafspot) and *Helminthosporium* leafspot," Miller said. "Failure to establish a foliar blanket of fungicide protection results in poor control of destructive turfgrass diseases."

Regarding grub control, insecticides must be washed off the grass and into the soil to be effective. "Therefore," Miller said, "a combination of Maneb (Tersan LSR) for the control of leafspot and Diazinon for grub control is ineffective because of placement incompatibility."

Timing incompatibility. Another type of incompatibility which is sometimes overlooked is the need to apply each component

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of the mixture at the proper time.

An example of this type of incompatibility is the use of pre-emergence herbicide for crabgrass control and an insecticide for grub control. If the herbicide for crabgrass control is applied at the proper time, the insecticide for grub control will not be effective because the application is made too early in the year.

Damage potential of mixtures. Treating lawns with a combination of chemicals increases the probability of turfgrass injury compared to using each component several days apart. This additive effect occurs whether each component is applied individually at one time or if they are applied in a mixture.

Remember, chemicals safe to use under good conditions may cause injury if used under adverse conditions like high temperature or moisture stress.

Compatibility tests. The first step in determining compatibility is to read the label, according to Miller. "If the label states that the pesticide should not be mixed, discard the idea," he said.

"However, the label will not always tell you if it can be mixed with other chemicals. In these cases, first make a jar test. Simply make the mixture in a quart jar and observe what happens over the next half hour," he added. "If unusual separation or settling out of materials occur, it probably is not wise to make the mixture."

The second step is to test the mixture on a turf plot before applying it to the customer's lawn. "You always should follow this procedure when using a mixture for the first time," Miller said.

Compatibility charts also serve as valuable aids. However, Miller warns, "It is wise to use the grass test even if the chart shows the mixture to be compatible."

Precautions for mixing pesticides. There are a number of precautions the lawn care professional should follow when mixing pesticides, according to Miller.

These include:

- Never mix pesticides in concentrated form. Mix them in a tank already filled with water and with the agitation system running.
- Do not mix organic fungicides with other pesticides that contain xylene as a solvent.
- When mixing pesticides of different formulation, the order of mixing should be wettable powders followed by flowable products, water soluble powders, surfactants and emulsifiable concentrates.
- Do not mix pesticides with materials that cause high tank pH levels without thoroughly investigating compatibility.
- When using a pesticide mixture for the first time conduct a jar and a grass test before using the mixture on critical grass areas.
- When tank mixing pesticides and fertilizers use urea in preference to other water-soluble nitrogen sources.

Legality of tank mixtures. The Environmental Protection Agency (EPA) has ruled that tank mixtures of pesticides and pesticides and fertilizers are permissible provided:

- The label of any product in the mixture does not state the pesticide should not be used in mixtures.

- The use of the mixtures otherwise conforms to all other label restrictions.

"The EPA had considered requiring a label for tank mixtures," Miller said, "but wisely decided against it because of the inconvenience and unnecessary expense to consumers. It is likely that tank mixtures will remain legal unless problems develop from widespread misuse of them."

"Some states require that commercial applicators label tank mixtures of chemicals," he added, "however, this process seldom involves more than a simple reporting system in which the applicator registers his intent to use the mixture or mixtures, pays a small registration fee and reports the content of the mixture on the customer invoice."



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If you are considering purchasing a microcomputer—and many lawn care businessmen across the country are these days — and don't have the slightest idea where to begin, there is a 72-page shopping guide called *Microshopper*.

Including plenty of illustrations and written in nontechnical terms, this guide discusses business systems and software from 100 manufacturers. "Hardware" is the computer equipment itself, "software" is the computer programming. Although the book may not tell you which piece of equipment is the answer to your company's particular problem, it will help you come up with questions to ask the salesman. And it provides a glossary of technical jargon microcomputer salesmen are most likely to use.

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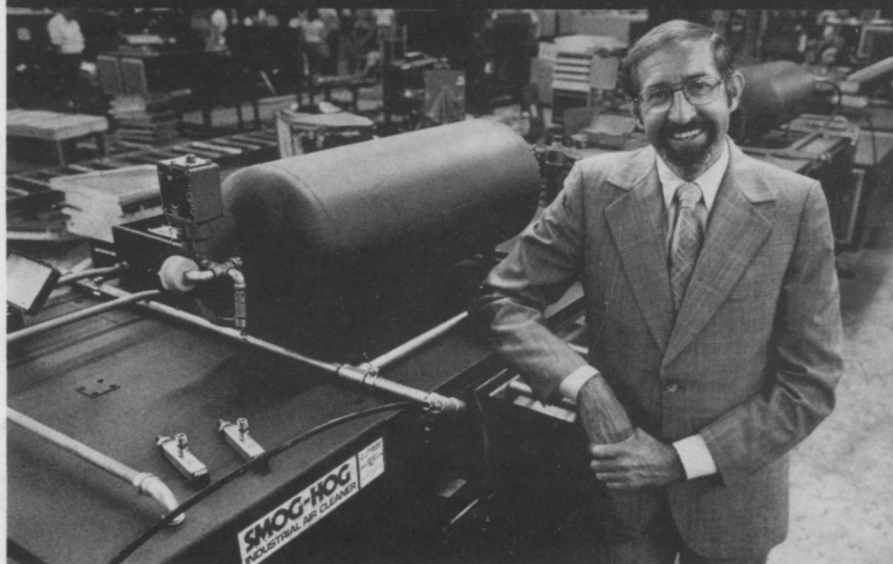
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Inside the industry

Every chemical lawn care company in the country has just about the same customer program, doesn't it?

No.

by Don Moreland
Associate Editor

Stripped of his spotless vehicle, clean-cut image and professional air, the lawn care businessman is left only with his product—the lawn care program.

And although the customer's initial decision to purchase a lawn service is influenced by these and other factors (i.e. advertising, image), the businessman's ability to retain customers is principally determined by the strength of his lawn care program.

Put simply, a strong lawn care program does not insure business success, but a shoddy program most certainly insures business failure.

But what are the components of a successful lawn care program? LAWN CARE INDUSTRY contacted businessmen from across the United States and discussed their programs. A description of a 'typical' lawn care program follows, along with a case by case summary of eight programs used in various regions of the country.

Almost 40 percent of lawn care companies offer a four application program, according to a recent LAWN CARE INDUSTRY survey. Further, the survey indicates that 14.1 percent provide three applications per season, 12.6 percent offer six applications and 1.9 percent provide seven applications.

The number of applications offered is largely determined by the

length of the lawn care season in various regions of the United States.

In the North, where the season runs from mid-March through early November, only four applications are required. Whereas, in the South, where the season runs eight or nine weeks longer, six applications are needed.

The 'typical' four-part program consists of fertilization, pre-emergence crabgrass control and broadleaf weed control in the spring; fertilization, broadleaf weed control and surface insect control in the early summer; fertilization, weed control and insect control in the summer; and fertilization and broadleaf weed control in the fall.

Overall, 93 percent of companies surveyed by LAWN CARE INDUSTRY provide weed control, 87 percent provide insect control and 83 percent provide pre-emergence crabgrass control. Further, 65 percent of the companies surveyed offer disease control and 55 percent provide soil testing services.

Seeding (65 percent), liming (57 percent), dethatching (53 percent) and aeration (51 percent) are other services which continue to grow in popularity as lawn care operators attempt to diversify their programs.

The 'typical' lawn care program also features a money-back

guarantee. The guarantee offered by ChemLawn Corp., Columbus, Ohio, is representative of the industry. It states, "If you ever find that you're not satisfied with ChemLawn results, give us a call. We'll keep working until you are satisfied. At no additional cost to you. Or we will refund the cost of your last application."

PERF-A-LAWN CORPORATION

Applications: four-six
Features: Mole cricket injections
Add-Ons: None

Richard Deering, president of Perf-A-Lawn, New Carlisle, Ohio, developed three very different lawn care programs to meet the specific needs of his branches in the North, mid-South and South.

The company's offices in Florida offer six applications per year, spaced five weeks apart. "You can't run over a five week cycle in Florida because the chemicals leach out of the sand," Deering said.

Six applications are also required because insects are so prevalent in the region. "You have to treat for insects all six applications," Deering added, "with mole crickets being the key insect problem."

Mole crickets are a particularly thorny problem because the insecticides which control the pest must be injected into the soil under high pressure to be effective. Thus, a separate truck with a hydrojet spray unit is required.

The lawn care operator's problems are also compounded because each southern turfgrass in the area (bahia grass, St. Augustine grass and bermudagrass) requires different treatments.

"The basic difference between the programs for the various southern grasses is in the amount of weed killer and micronutrients used," Deering said. "You have to adjust the fertilization rate and micronutrients per grass. It's a real

nightmare."

Deering said it took his company about three years to develop a viable lawn care program for the region. "We just recently ironed out the last of the program's problems," he said.

In the mid-South (Georgia to

Kentucky), Perf-A-Lawn offers a five application program consisting of pre-emergence crabgrass control and fertilization in round one; pre-emergence crabgrass control, weed killer and fertilization in round two; weed control, fertilization and insect control in round three; fertilization and insect control in round four; and an application of a balanced fertilizer in round five.

In the North, Perf-A-Lawn offers a four application program consisting of pre-emergence crabgrass control and fertilization in the spring; insect control, fertilization and weed control in the summer; and an application of a balanced fertilizer in the fall. "We also offer an optional fungicide service in the North at no additional charge," Deering said.

Regarding spraying schedules, Deering said his technicians will start spraying February 1 in the South, February 15 in the mid-South and March 15 in the North.

Surprisingly, the price difference per application is less than 20 percent from region to region. Treatment for a 5,000 square foot lawn in the North costs between \$20 to \$22 per application as compared to \$25 to \$26 per application in the South.

"Chemical costs are increased because of the long season in the South," Deering said, "but your fixed overhead costs are reduced because you're running longer."

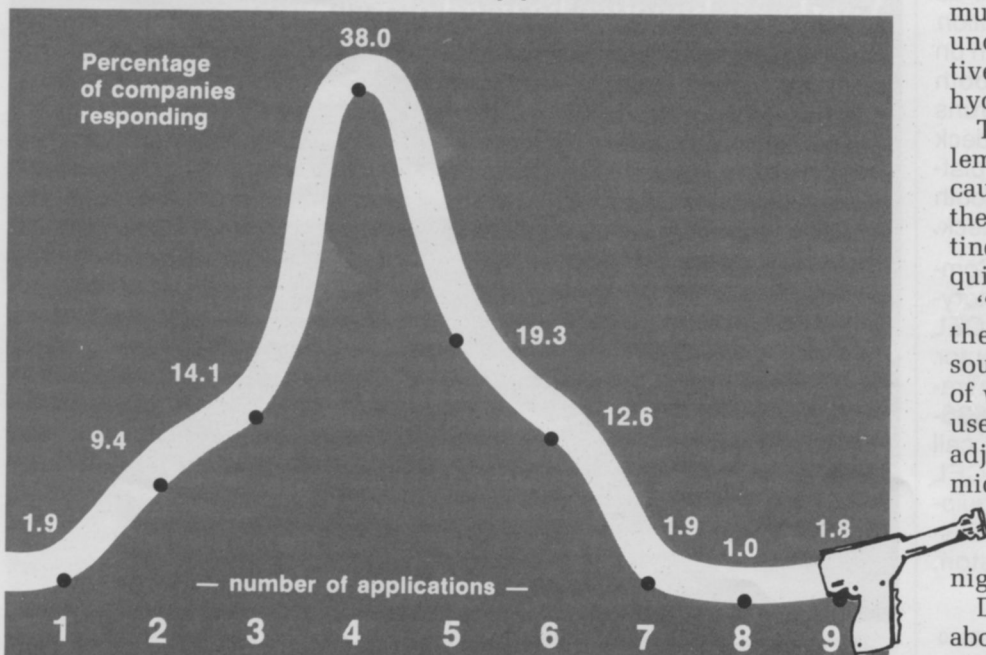
EVERGREEN LAWN CARE

Applications: Four
Features: Free grub control
Add-ons: None

Ever-Green Lawn Care, Alexandria, Ind., has had excellent customer response to an optional fifth application in the fall. "We have four regular applications and an optional fifth treatment for lawns which could use a heavy fertilization in the fall or which have a definite crabgrass problem," Kevin Kellermeyer, owner of the company, said.

"A lot of companies in this area are forcing their customers to take five treatments or they don't get any at all," he added, "but we don't feel that five treatments are always necessary."

"And I think the customer ap-



A recent survey conducted by LAWN CARE INDUSTRY showed that 38 percent of the chemical lawn care companies in the country offer four chemical applications in their typical program. About 20 percent of the company's offer five applications, 14 percent offer three applications, 13 percent offer six applications and nine percent offer two applications.

precipitates the fact that we actually give them a choice and get them involved in the decision-making process. We don't want to cram it (fifth application) down their throats and make them accept it."

The average lawn serviced by Ever-Green measures about 14,000 square feet, according to Kellermeyer. The four application program for a lawn this size costs about \$161.

Unlike a number of lawn care companies, Ever-Green does not require a minimum square footage before servicing a lawn. "If a customer has two square inches of grass and he wants it sprayed, we'll spray it," Kellermeyer said. "We turn down nobody because their lawn is too small." However, Ever-Green does charge a minimum price of \$20 per application.

Another interesting feature of Ever-Green's program is free grub and insect control. "Any insect problems that require an additional application are free," Kellermeyer said.

The exception is for customers who purchase less than the four application program. "We charge extra for insect control if the customer doesn't purchase the whole program."

Also, Ever-Green requires their customers to purchase at least two applications. "Obviously it benefits their lawn if they take the full program," Kellermeyer said, "but some customers only want two applications. However, we will not guarantee our program if they take anything less than the full program."

SPRAY GREEN TREE & LAWN SERVICE

Applications: Four
Features: Tree service
Add-ons: Dethatching

Spray Green Tree and Lawn Service, St. Charles, Mo., plans to add a fifth application of lime and soil conditioners to their full service program in 1981.

"Our fifth application was optional this year," co-owner John L. Cross, said, "but next year it's going to be standard because we've had so many people want it automatically this year."

Spray-Green's four application program consists of fertilization and weed control in round one; fertilization, insect control and weed control in round two; fertilization and weed control in round three; and insect control, fertilization and weed control in round four.

Cost for the four application program is \$19.50 per application for a 5,000-square-foot lawn. Discounts are also available for larger turf areas. A 10,000-square-foot lawn costs \$30 per application and a 20,000-square-foot lawn runs \$52.50 per application.

Spray-Green also offers dethatching (\$15 per 1,000 sq/ft), seeding, aeration (\$15 per 1,000 sq/ft) and insect control for trees and shrubs as part of their service.

"We've found that we have gotten a lot of business because

Do you have a minimum square footage you will service?

Yes — 28.2%

No — 71.8%

other lawn care companies don't spray trees and shrubs," Cross said. "People want one company to take care of all their landscaping needs."

GRASSHOPPER LAWNS, INC.

Applications: Six to eight
Features: Check backs
Add-ons: None

Grasshopper Lawns, Inc., Watertown, Conn., offers three very different programs to meet the needs of virtually any lawn care customer.

Their 'Master Program' is designed for turf areas which are in poor condition. It includes aeration and rolling fertilization, seeding, grub proofing and crabgrass control in the spring; fertilization, weed control and insect control in the early summer and summer; and fertilization in the fall.

Their 'Master Program' also includes several check-backs throughout the season and comes with a guarantee. Cost is six to 10 cents per square foot.

The company's Green Grass Program is designed to maintain healthy lawns. Like the Master Program it comes with several check-backs throughout the season and costs two to three cents per square foot.

KAPP'S GREEN LAWN

Applications: Four
Features: Landscaping
Add-ons: Shrub trimming

The cornerstone of Larry Kapp's business has always been landscape maintenance, but he has recently discovered a new profit center in chemical lawn care. Kapp is owner of Kapp's Green Lawn with branches in Fort Wayne, Ind., Munster, Ind. and Pittsburgh, Pa.

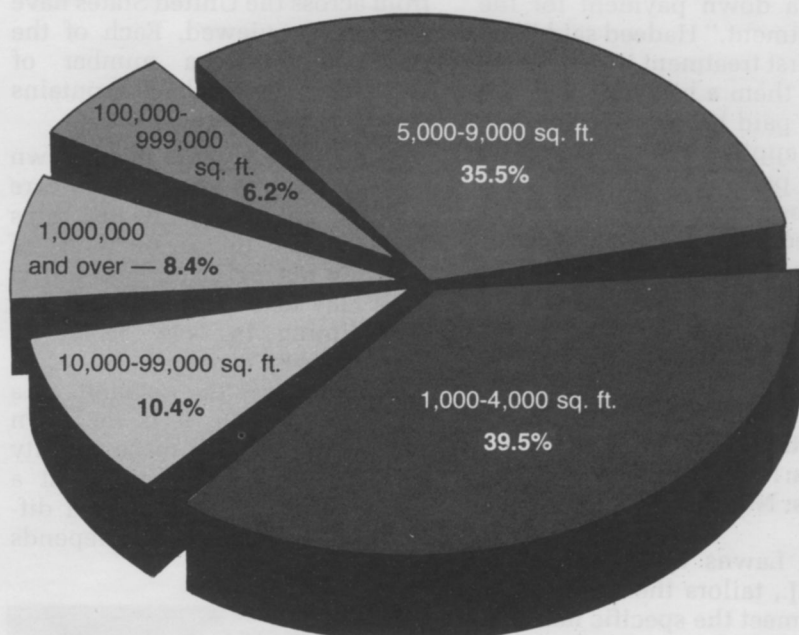
Kapp's Green Lawn developed out of Kapp's Yard Service, a very successful full service landscape maintenance operation in Fort Wayne, Ind.

"Our landscape maintenance customers are automatically put on the Kapp's Green Lawn Program," he said. Kapp describes these customers as his "bread and butter" accounts.

"They are the ones whose bills run two or three thousand dollars each," he said, "and we feel that one of these is worth about 100 chemical lawn care accounts."

The company's four-part lawn

If yes, please specify:



A recent survey by LAWN CARE INDUSTRY showed that 39.5 percent of the chemical lawn care companies in the country have set their minimum square footage they will service at between 1,000 and 4,000 square feet, and that 35.5 percent have a minimum of 5,000 to 9,000 square feet.

care program includes pre-emergence crabgrass control and fertilization in the spring; fertilization, insect control and weed control in the early summer; fertilization and weed control with an insect check in the summer; and fertilization and weed control with an insect check in the fall.

"We check for insects during the third and fourth applications," Kapp said, "but we do not apply insecticides unless insects are present."

AGRILAWN, INC.

Applications: Five
Features: Discount coupons
Add-ons: Seeding and aeration

Robert Habermehl, president of Agri-Lawn, Inc., Owensboro, Ky., recently changed from a four to five application program to avoid the problems caused by rapid turf growth in the spring.

"Basically, what we did is lowered our spring rate of nitrogen and added the extra fertilization late in the fall," he said. "We changed our program because we started to get complaints from customers about having to mow too often. We also received some complaints about disease."

Unlike some companies, AgriLawn does not require its customers to purchase the complete five application service. "If they feel they can only afford two applications, that's fine," Habermehl said. "We just as soon get something from them as opposed to nothing."

Cost for the five application program is about \$140 per year for a 10,000-square-foot lawn. The company also offers aerating and seeding services for \$150 to \$200 per lawn.

AGRO-LAWN SYSTEMS, INC.

Applications: Five
Features: Warm season program
Add-ons: Seeding, aerating

Agro-Lawn Systems, Inc., Landover, Md., offers three

programs—a premium program, warm season grass program and half-acre plus program for large turf areas.

The premium program is designed to maintain already healthy lawns. It includes fertilization, weed control and pre-emergence crabgrass control in the spring; fertilization, weed control, insect control and fungus control as needed in the early summer; weed control, insect control and fungus control as needed in the late summer; fertilization and weed control in the fall; and fertilization and liming in the winter.

The minimum charge is \$28 per application which does not include dethatching or seeding. "Seeding runs from \$10 per 1,000 square feet," company president Theodore Hadeed said, "and dethatching runs two cents per square foot and up. The cost varies if there is a light thatch or a heavy thatch." Ninety percent of AgriLawn's customers are on the premium program.

Agro-Lawn's warm season program consists of treatments from May through August. "We have quite a few clients with warm season grasses and these types of lawns have to be treated differently than bluegrass lawns," Hadeed said.

"Warm season grasses have to be fed in the summer months when they're growing. You can't treat them in the fall or winter."

The three-part program consists of fertilization and weed control in early May; fertilization, insect control and weed control in June; and fertilization, weed control and insect control in August. A fourth treatment of lime is optional.

The company also offers a half acre plus program for estates and other large turf areas. "The half acre plus program is basically fertilization and weed control in the fall and spring," Hadeed said. "The customer also has a choice of a summer treatment of insect and weed control or a winter treatment of fertilization and liming." This

PROGRAMS *from page 13*
basic maintenance program costs one-and-one-half cents per square foot.

Unlike many lawn care companies, Agro-Lawn requires pre-payment for their services. "We require a down payment for the first treatment," Hadeed said. "After the first treatment is completed we give them a bill. The first bill must be paid before we provide a second application. So basically we get paid for the treatments before they are done."

Hadeed said the pre-payment policy reduces cash flow problems and eliminates losses due to non-payment.

SUPER LAWN OF WAYNE

Applications: Five
Features: No charge for fungicides
Add-ons: None

Super Lawns of Wayne, Fairfield, N.J., tailors their basic program to meet the specific needs of each customer's lawn, according to Art Kolmodin, president of the company.

"You have to keep in mind that there is some variation in our program according to the individual needs of the lawn," he said. "In other words, we don't just go out and hit every lawn with the same treatment."

Super Lawns' basic five-application program consists of aeration, rolling, seeding, fertilization and pesticide treatments from March through November.

"If we see there is a fungus problem on a lawn we will put fungicides on at no additional charge," he added. Cost of the program is about four cents per square foot.

A second, less complete program is also available from Super Lawns. The second program consists of insect control, weed control and fertilization five times per year. It does not include aeration, rolling, seeding or fungus control and costs about two-and-one-half to three cents per square foot.

"We also have what we call a one time service," Kolmodin said.

"That's for the person who wants us to come in during the spring for aeration, rolling and seeding. They want us to start things off for them, but they want to take over during the summer."

A variety of lawn care programs from across the United States have just been reviewed. Each of the programs share a number of similarities, yet each also contains a number of differences.

The key to success in the lawn care industry is for the lawn care professional to tailor his programs to meet the unique demands of lawns in his region of the country. This may take the form of extensive liming in New Jersey to greater insect control in Florida.

But whatever the demands of a particular region, it is the lawn care businessman's responsibility to offer the best programs at a reasonable cost. It is often a difficult task, but his success depends on it.

INSECTS

Controlling grubs in the Southwest

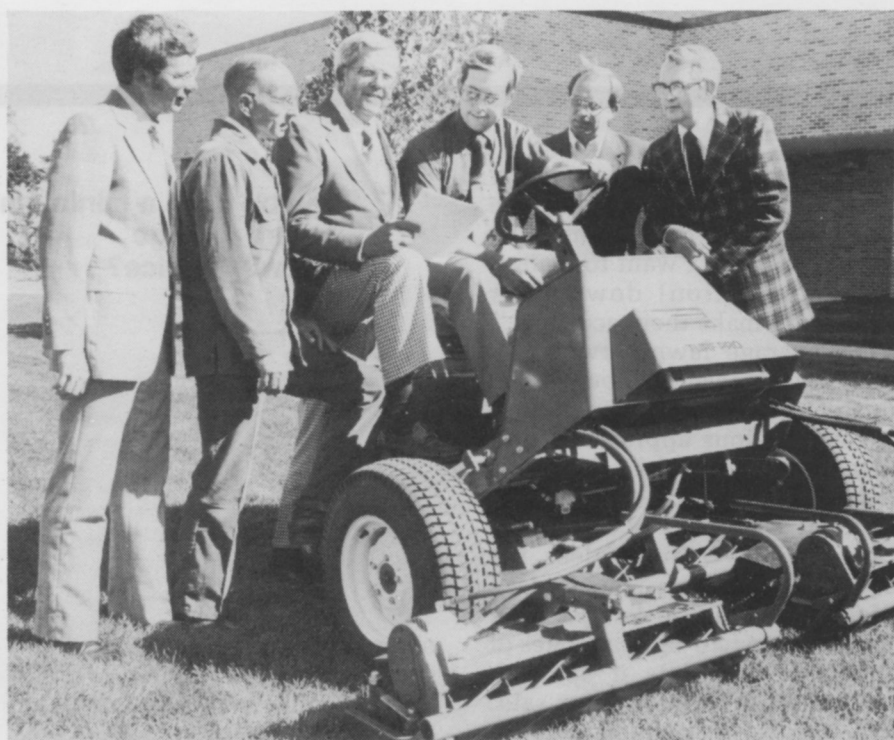
White grubs, the larvae of June beetles, inflict heavy damage on turfgrasses in Texas and many parts of the South and Southwest.

These insect pests feed on the roots of grasses, with severe infestations capable of destroying a turfgrass stand in a single season.

A recent field study in Dallas compared established stands of a total of 25 varieties of St. Augustinegrass, bahiagrass, buffalograss, zoysiagrass and bermudagrass.

Scientists with the Texas Agricultural Experiment Station noted that even though each of these plots represented a different grass and had not been fertilized, irrigated, or had disease control for at least two years, the current year's grub population accounted for 51 percent of the variability in turf quality.

The problem of controlling white grubs is complicated considerably by the difficulty in



The University of Nebraska's turf research program recently received a boost from a national manufacturer of turf care equipment when Midwest Toro of Omaha loaned the university a \$9,286 industrial mower for one year. Shown with the reel-type mower (from left): Dr. Roy Arnold, director of the Nebraska Agriculture Experiment Station; Dr. Roger Uhlinger, head of the Institute of Agriculture and Natural Resources; Robert Finnman, owner Midwest Toro; Dr. Robert Shearman, turf researcher; Keving Weidler, president of the Nebraska Turf Foundation; and R. Ed Kinbacher, turf researcher. Photo courtesy of Institute of Agriculture and Natural Resources.

knowing exactly when to apply treatments, says Dr. Robert L. Crocker, entomologist with the Experiment Station at the Dallas Center.

It is unwise to treat turfs too early because beetles emerging afterward from the surrounding area will lay eggs in the treated grass. Likewise, delaying treatment too long may result in severe damage to the turfgrass root system.

Depending solely on the calendar to indicate when to treat has not proved to be a reliable method since each year's emergence schedule is unique.

Previous research at Dallas indicated that June beetle flights are triggered by rainfall; recent data of 1978 and 1979 tend to confirm this, Dr. Crocker said.

A situation often arises where damaging numbers of white grubs are not treated until winter or spring. Considerable turf damage in such a case may already have

occurred. And treatment is primarily an attempt to salvage the stand.

Tests with a number of insecticides in both April and December failed to achieve control of large larvae. In all the experiments the plots were thoroughly watered immediately following application of the chemicals to insure soil penetration.

Of dates tested, best control in Dallas was on Sept. 20 of last year. Of all the materials tested, only Diazinon 25E proved effective in white grub control under the test conditions in Dallas.

Although addition of the nonionic wetting agent Aqua-Gro did not impart any potency to materials which otherwise appeared to be ineffectual against the grubs, Diazinon 25E at the recommended rate with Aqua Gro gave greater control (100 percent) than was achieved by Diazinon alone at the recommended rate.

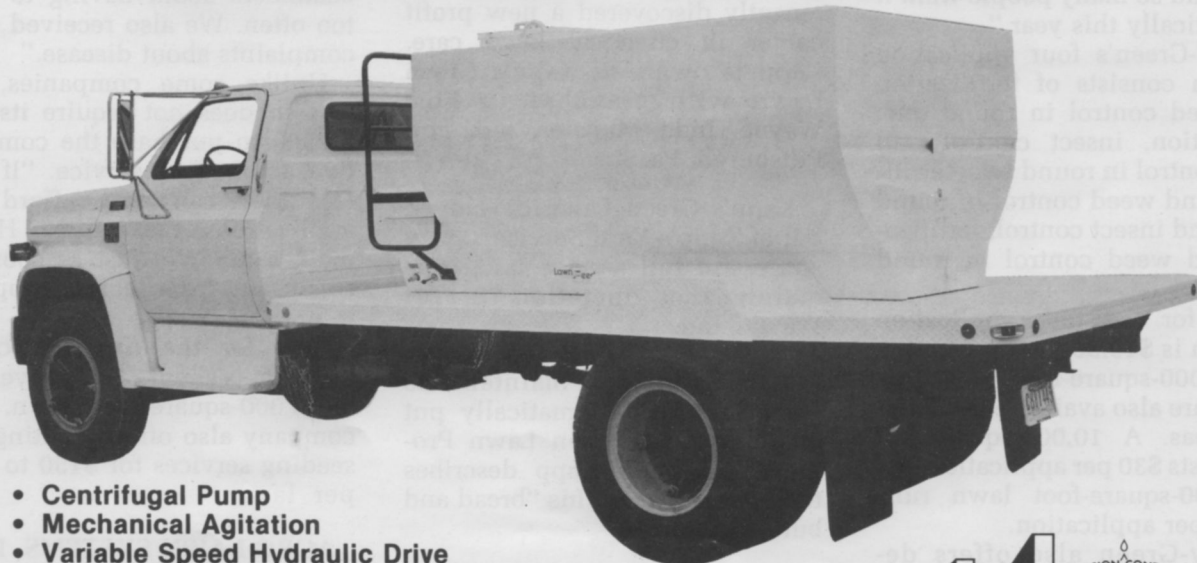


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Identification and control of thatch-related turf problems

by Randy Bellinger

The problem of thatch is an ever-prevalent concern in lawn maintenance today. Whether it be on residential, commercial, or industrial property, dethatching is becoming more important and a more popular part of our services. We hope that this popularity has come about as a result of an effort to educate the customer as to what thatch is, where it comes from, what its effects are, and how to get rid of it.

What is thatch? For many years there has been a misconception as to what thatch really is. Many articles were published describing thatch as a build up of grass clippings. The cure—bag your grass.

Thatch is made up primarily of two things—roots and stems. Roots and stems take a long time to degrade or decompose because they contain a large amount of cellulose fiber. Cellulose gives the stem and roots a woody tissue, and therefore may take months to decompose. The grass plant is continuously producing more and more roots and stems and result in a build up of thatch.

Grass clippings, on the other hand, do not really add much in the way of thatch build up. Grass clippings are made up of 90 percent water by weight. This leaves only 10 percent which is material which must be decomposed. Since grass clippings do not contain a large amount of cellulose and fibrous material, their degradation rate is very rapid. The only time in which clippings may contribute to thatch build up is if the turf is allowed to grow tall and a large amount of leaf surface is removed—a hay field affect.

What are the effects of thatch? If you walk out across someone's lawn and it feels like you're walking on a sponge, that lawn most likely has a thatch problem. The best way to check for thatch is to use a soil probe or to cut a wedge out with a knife. The thatch layer is a very porous layer which allows great amounts of air to pass through. One of the most recognizable symptoms of a thatch lawn is its susceptibility to drought. The roots and stems will be growing within the thatch layer rather than in the soil. The soil is where the greatest amount of water holding capacity is located. However, a crust can sometimes form on the soil just below that thatch layer which will not permit water to penetrate. The result of this condition is drought.

Disease and insects are more prevalent in lawns with heavy thatch build up. The thatch layer makes a perfect place for insects and diseases to overwinter and multiply. Thatch will build up a considerable amount of heat which triggers disease earlier and supplies diseases with a longer optimum range in which to produce and sporulate. Temperature and moisture are two key items which diseases and insects require to become active. By eliminating thatch we can help reduce chances of survival.

Another item of service in which

thatch can have effect is weed control. We've heard it time and time again—organic matter can tie up the chemicals we use for weed control.

When we dethatch an area we first have to determine the degree of severity the lawn will have to encounter in order to get it back into shape. We do this by taking core samples of different areas of the lawn. If the thatch is one inch or less we will put the lawn on a fall dethatching program. We feel that a lawn should be dethatched once a year, and the best time is in the cool of the fall. Dethatching is a stress to the grass plants, so you want to time the dethatching for a period where minimal stress is occurring and which will allow the maximum amount of recovery time.

If a lawn has more than one inch of thatch we then recommend dethatching in the spring and fall until we can get it under control, and then keep it on a fall program.

The equipment we use for small areas such as home lawns and commercial accounts is a Ryan Ren-o-Thin followed directly behind by two Toro vacuums. We like to have four people on a dethatching crew. One person is operating the Ren-o-Thin, one is operating each vacuum, and one person is working as a bag person. Extra bags are used so the machines don't have to stop while the bags are being emptied into large trailers. By using this method, we are able to dethatch a 15,000-20,000 square foot lawn in less than one hour.

For industrial areas where large acreages are concerned we prefer to reduce thatch by means of aerification. We will go over the acreage in two directions to insure adequate coverage. Aeration actually does two jobs in one. It pulls a

core of soil out of the ground allowing the crust to be broken, and therefore opening new passages for water and air. This, of course, will help roots to make their way into the soil. The soil core which is thrown on top becomes broken up by mowing or rain and settles down into the thatch region. The microorganisms in the soil help to speed up the degradation process of the thatch.

We are also equipped with a machine this year which is large enough to dethatch industrial areas if we should need to do this. This machine will dethatch and pick up all in one motion. When the five cubic yard hopper is full it lifts hydraulically nine feet into the air and empties into our dump truck to be hauled away.

The equipment and knowledge are here today to do most everything, and so it is up to us as professionals to make use of every resource available to further upgrade our profession.

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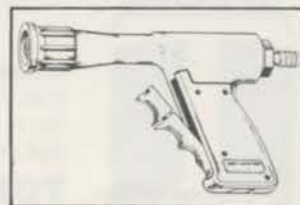
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Lawn, Fort Wayne, Ind., has extended his season by offering tree and landscape services to his customers. "We're able to put in trees and shrubs right up until we close down in December," he said. "We're also raking leaves right up until the end of November."

Kapp is also owner of Kapp's Yard Service, a successful full service landscape maintenance operation in Fort Wayne, Ind.

There are also a number of non-revenue producing ways lawn care businessmen can keep the winter months productive. A number of both large and small companies train their personnel during the winter. For example, Davey Lawnscape, Kent, Ohio, provides a one-week, 40-hour training course in January and February for new technicians.

Further, a LAWN CARE INDUSTRY survey indicates that 77 percent of all lawn care companies surveyed

utilize in-house training. And many conduct these training sessions in the winter.

A number of companies also retain their employees during the winter to overhaul equipment and prepare marketing material for the coming season.

"We spend December, January and February getting our equipment back together and getting our advertising out," John L. Cross, co-owner of Spray Green Tree & Lawn Service, St. Charles, Mo., said.

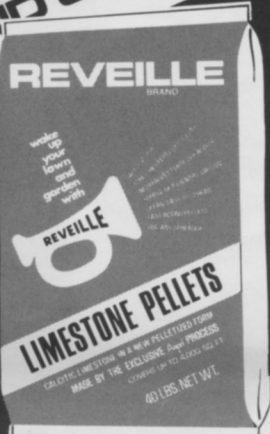
"That's really the only time our cash flow is down very low," he added.

However, Paige Fuller, of Full-Care, Inc., Sellersburg, Ind., had the best suggestion for avoiding winter cash flow problems. "Since my husband has a full-time job with the phone company, we just shut down until spring," she said.

"So this isn't our only source of income. If it was we would be starving."



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TOOLS, TIPS & TECHNIQUES

Satisfying wage and hour standards

Satisfying requirements of the federal Wage and Hour Commission can sometimes be difficult for the lawn care businessman who experiences extensive overtime during rush periods of the lawn care season, and also slow periods of work.

Below is how Jerry Faulring, president of Hydro Lawn, Gaithersburg, Md., does it. He is also president of the Professional Lawn Care Association of America, and told LAWN CARE INDUSTRY:

"This is what we implemented last year to satisfy requirements of the Wage and Hour Commission. Our people are year-round salaried employees which is not the case with all companies. However, those with seasonal help may be able to draw some ideas from the plan. The agreement assumes that total salary meets or exceeds the minimum wage times the straight hours plus overtime hours times 1½ the minimum wage. This agreement applies and is required for only non-management or non-supervisory personnel."

Here is Faulring's plan:

MAXIMUM YEARLY WORKING HOURS

12/15 — 2/18	WINTER — 11 weeks	8:00-4:30 Lunch	8.50 hr .50
	Work Day —		8.00 hr
	5 Day Work Week		40.00
3/1 — 4/30 and 9/1 — 10/17	ROUNDS 1 & 4 (14 weeks)	7:00-6:00 Lunch	11.00 hr .50
	6 Day Work Week		63.00 hr
5/1 — 8/31 and 10/7 — 12/15	ROUNDS 2, 3 & 5 (27 weeks)	7:00-6:00 Lunch	11.00 hr .50
	Work Day —		10.50 hr
	5 Day Work Week		52.50 hr
WINTER:	11 weeks x 40:00 hrs	=	440.00 hr
ROUNDS 1 & 4	14 weeks x 63.00 hr	=	882.00 hr
ROUNDS 2, 3 & 5	27 weeks x 52.50 hr	=	1417.50 hr
Total Maximum Yearly Working Hours		=	2739.50
Total Maximum Over 40 Hours			659.50
STRAIGHT TIME			2080.00

Faulring adds:

"2739½ hours are the maximum number of working hours during a calendar year that employees are allowed to work. Employees working in excess of this number are not compensated for their time, and we announce this. Employees working less hours than the maximum, who meet their production quotas and adhere to all other conditions of their employment agreement receive their full annual salary. The pay they receive for hours not actually worked is treated as an incentive bonus for high productivity and efficiency."



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EPA

Ammonia proposal could hurt industry

The Fertilizer Institute has urged the House Appropriations Subcommittee on HUD and Independent Agencies to reject funding an EPA proposal which would classify ammonia as a toxic pollutant under the Clean Water Act. Approximately 80 percent of all U.S. ammonia is used for nitrogen fertilizer manufacture.

The industry already has reduced ammonia discharge by about 90 percent, according to Ed Wheeler, president of the Fertilizer Institute, at a cost of more than \$100 million. "To remove the remaining miniscule amount would require industry expenditures of not less than \$300 million over the next five years. EPA has totally failed to show any environmental benefits commensurate with this sum," Wheeler stated.

Ammonia does not fit the concept of a "toxic pollutant" under the Federal Clean Water Act, Wheeler added.

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MEETING DATES

National Lawn Care Business Conference, Sheraton Twin Towers, Orlando, Fla., November 10-13. Contact: Erik Madisen, Jr., Box 1936, Appleton, WI 54913, 414-733-2301.

New York State Turfgrass Association Conference & Trade Show, Rochester War Memorial and Genesee Plaza Holiday Inn, Rochester, N.Y., Nov. 11-13. Contact: Ann Reilly, executive secretary, NYSTA, 210 Cartwright Blvd., Massapequa Park, NY 11762, 516-541-9034 or 6902.

First Professional Lawn Care Association of America Convention, "Lawn Care Business Management in the 1980's." Commonwealth Convention Center, Louisville, Ky., Nov. 12-14. Contact: Glenn Bostrom, PLCAA, Suite 1717, 435 N. Michigan Ave., Chicago, IL 60611, 312-644-0828.

VPI & SU Turfgrass Insect Minicourse, Dulles Airport, Washington, D.C., Nov. 12-14. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

VPI & SU Landscape Management Minicourse, Turfgrass Research Center, Blacksburg, Va., Nov. 17-19. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

VPI & SU Turfgrass Herbicide Minicourse, Turfgrass Research Center, Blacksburg, Va., Nov. 19-21. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

Ohio Turfgrass Conference and Show, Ohio Center, Columbus, Ohio, Dec. 2-4. Contact: John R. Street, Cooperative Extension Service, The Ohio State University, 1827 Neil Ave., Columbus, Oh 43210.

New Jersey Turfgrass Expo '80, Cherry Hill Hyatt House, Cherry Hill, N.J., Dec. 8-11. Contact: Dr. Henry W. Indyk, general chairman, Soils & Crops Department, P.O. Box 231, Cook College, New Brunswick, NJ 08903, 201-932-9453.

VPI & SU Turfgrass Short Course, Turfgrass Research Center, Blacksburg, Va., Dec. 8-12. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

VPI & SU Turfgrass Small Engine Repair Minicourse, Turfgrass Research Center, Blacksburg, Va., Dec. 15-17. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

21st Illinois Turfgrass Conference and Regional Show, Prairie Capital Convention

Center, Springfield, Ill., Dec. 16-18. Contact: Illinois Turfgrass Foundation, P.O. Box 501, Urbana, IL 61801.

The Institute for Agricultural Irrigation, California State University, Fresno, Calif., Jan. 5-16. Contact: The Irrigation Institute, 13975 Connecticut Ave., Silver Spring, MD 20906, 301-871-1200.

Southeastern Pennsylvania Turf School & Trade Show, Westover Country Club, Jeffersonville, Pa., Jan. 13-14. Contact: Dr. William H. White, Philadelphia County Cooperative Extension Service, SE Corner Broad & Grange Streets, Philadelphia, PA 19141, 215-424-0650.

North Carolina Turfgrass Conference, Royal Villa Hotel, Raleigh, N.C., Jan. 13-15. Contact: Leon T. Lucas, Department of Plant Pathology, Box 5397, North Carolina State University, Raleigh, NC 27650, 27650, 919-737-2751.

27th Rocky Mountain Regional Turfgrass Conference, Lory Student Center, Colorado State University, Ft. Collins, Colo., Jan. 15-16. Contact: D. Butler, Department of Horticulture, Colorado State University, Ft. Collins, CO 80523, 303-491-7070.

Virginia Turfgrass Conference & Trade Show, John Marshall Hotel, Richmond, Va., Jan. 20-22. Contact: John R. Hall, extension specialist, VPI & SU, 426 Smyth Hall, Blacksburg, VA 24061, 703-961-5797.

Western Pennsylvania Turf & Grounds Maintenance School & Trade Show, Howard Johnson Motor Lodge, Monroeville, Pa.,

Jan. 20-22. Contact: Philip L. Sellers, Allegheny County Cooperative Extension Service, 311 Jones Law Building Annex, 311 Ross Street, Pittsburgh, PA 15219, 412-355-4275, or George Morgan, Wildwood Golf Club, 2195 Sample Road, Allison Park, PA 15101, 412-487-1234.

Turf and Landscape Conference, sponsored by the New York Turf Landscape Association and the Long Island Gardeners Association, in conjunction with the Hudson Valley and Long Island Cooperative Extension Service, Tappan Zee Inn, Mountain View, Ave., Nyack, N.Y., Jan. 28. Contact: Frank Claps, 136 Laurel Ave., Larchmont, NY 10538, 914-834-6846.

ALCA Annual Meeting & Trade Exhibit, Hyatt Regency, New Orleans, La., Feb. 8-13. Contact: John Shaw, executive director, Associated Landscape Contractors of America, 1750 Old Meadow Road, McLean, VA 22101, 703-893-5440.

Capital Area Turf & Ornamental School, location to be announced, Feb. 18-19. Contact: Harold E. Stewart, Dauphin County Cooperative Extension Service, 75 South Houcks, St., Suite 101, Harrisburg, PA 17109, 717-652-8460.

Connecticut Groundskeepers Association Conference, Hartford Civic Center, Hartford, Conn., Feb. 25. Contact: Glenn S. Moore, Connecticut Groundskeepers Association, P.O. Box 3916, Amity Station, New Haven, CN 06525.

PROGRAMS

High attendance makes field day a big success

Over 400 lawn care professionals and members of the press recently attended the 4th annual Field Day sponsored by Lofts Pedigreed Seed Inc., Martinsville, N.J.

The day's activities began with an observation of Loft's more than 3,000 research plots, followed by a slide presentation demonstrating the various aspects of seed production. Following, was a plant disease clinic held by Dr. Noel Jackson of the University of Rhode Island and a demonstration of seeding equipment and practices led by Loft's director of research, Richard Hurley.

The program also included a discussion on *Fusarium roseum* control, with Robert O'Knefski, Cooperative Extension Agricultural Agent of Nassau County, Dr. Reed Funk, Rutgers University and Dr. Noel Jackson.

TURF OVERVIEW

Liming neutralizes acid content of soil

The primary reason for liming turf is to neutralize soil acidity. Limestone neutralizes acidity because of its carbonate content, not its calcium or magnesium content. Therefore, to neutralize acidity, you want a limestone that is high in carbonate content.

Limestone also has other benefits. It is a source of two essential plant nutrients, calcium and magnesium. If your soil needs both calcium and magnesium and if it is also acid and needs to be limed, select a limestone that contains both calcium and magnesium carbonate. This is called a dolomitic or high-magnesium limestone.

If, however, your soil is very high in magnesium and needs only calcium and is not acid, use a limestone that contains only calcium carbonate. This is called a calcite limestone.



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Introducing FOLIAN®, the easy-to-use liquid fertilizer that's safe and effective on any kind of turf.

FOLIAN is a complete fertilizer. Its special formulation of N-P-K, sulfur and iron gets nutrients directly into grass tissue. And FOLIAN will not cause tip burn when used as directed.

Convenient to use

FOLIAN is the only turf-builder you'll ever need. It saves you time because there's no mixing or agitation required before using FOLIAN. And FOLIAN can be applied in more concentrated form than most other liquids. As a result, you can service more lawns per truckload

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Greens lawns fast

Because of its patented formulation and foliar activity, FOLIAN greens up turf quickly—faster than dry fertilizers or suspensions. And at the recommended rates, FOLIAN supplies enough residual fertilizer in the soil to keep grass green and healthy for many weeks.

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Your customers will love the results

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Best of all, FOLIAN makes your lawn care service more valuable. It means repeat business from satisfied customers and greater confidence in you.

Give FOLIAN a try and discover how it can mean more green for both of you.

To find out more about how to get started using FOLIAN, call toll-free 800-228-2178 Omaha, Neb., 800-446-1841/800-446-1845 Hopewell, Va. or write Allied Chemical Corporation, Dept. AG, Box 2120, Houston, TX 77001.

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PRODUCTS

16 hp tractor with hydrostatic drive

Two new models have been added to the 1981 Bolens line of lawn and garden tractors—the H16XT and the G16XT. The Bolens line is manufactured by FMC Corp.'s Outdoor Power Equipment Division.

Both models are powered by a 16 horsepower, twin cylinder Briggs and Stratton engine for powerful, extra smooth operation. All Bolens lawn tractors are ruggedly built



and can be fitted for a variety of tasks. Other key features include: adjustable seat which tilts forward to prevent snow and rain accumulation; wide rear flotation tires that are easy on operator and lawn; and headlights for day/night operation.

The H16XT features the Bolens exclusive foot pedal hydrostatic drive providing variable forward and reverse speeds to meet any need. The G16XT features a rugged gear transmission with four forward speeds and one reverse allowing the operator to match the tractor speed to the job for efficient operation.

Write 827 on reader service card

New pre-emergence herbicide formulation cuts costs \$3/acre

The lawn care industry now has an innovative, more economical weapon for its arsenal of crabgrass preventers, it has been announced by USS Agri-Chemicals, a division of United States Steel.

Called USS Vertagreen 10% Concentrated Balan for Professional Use, this advanced material is formulated for liquid spray systems and will reduce costs by approximately \$3 per acre when compared with other pre-emergence herbicides.

James P. LaGessee, the company's national manager, told LAWN CARE INDUSTRY that the new product carries the only label of its type with EPA approval and is being introduced to the lawn care industry as rapidly as possible. It is available now, well ahead of the 1981 application period.

Offered as a dry material, 20 pounds of USS Vertagreen 10% Concentrated Balan will treat one acre of lawn with two pounds of active herbicide. It is compatible with most N-P-K base fertilizers and contains a special wetting agent to insure proper tank mixing.

The product was tested during the crabgrass season earlier this

year and proved very effective on control areas. The results prompted its commercial release at this time.

LaGessee said: "The big story is in the economics. With cost savings of \$3 per acre, lawn care companies can realize added profits in the thousands of dollars over a single season. USS Vertagreen 10% Concentrated Balan is an advancement in pre-emergence crabgrass prevention that will immediately attract the more progressive elements of the industry, large and small."

Write 828 on reader service card

Fertilizer/pesticide line designed for lawn care industry

Country Club Turf products from Lebanon Chemical Corp. has published a new, four-page brochure that outlines its new full line of products for professional use. The product guide features brief descriptions of all products and how to use them most effectively. Included are technical specifications for each product.

New professional products include granular fertilizers with crabgrass control and a new granular fertilizer with insect control. The products were especially designed for professional lawn care businessmen. They feature granules for ease of application, economy, full weight for even coverage and high nutrient quality which includes micronutrients. Agronomic assistance is available to help build grass fertility programs and technical representatives will make calls to help solve troublesome problems, the company said.

Write 826 on reader service card

Computer program designed specifically for lawn businessmen

A computerized software program to go with an IBM 5120 mini-computer is now available from Continental Software, Inc. The compu-

ter package is designed specifically for management needs of the lawn care industry, and is being introduced in a booth at the Professional Lawn Care Association of America Conference and Trade Show this month in Louisville.

The computer package is designed to handle customer routing, customer route management, accounts receivable, marketing management, custom analysis reports, invoicing, receivables aging, pricing analysis, customer past-due reminders, square foot profitability analysis and more.

The company said that the economics of the computer package dictate that any lawn care business with 2,000 to 7,000 customers would be a candidate for this type of system. It offers flexibility to expand a lawn care business without having to expand personnel. Detailed further information is available.

Write 830 on reader service card

FMC offers complete line of lawn sprayers

A complete line of reliable lawn sprayers is now being offered for sale by FMC Corp. Realizing the potential of the lawn care industry, the company now offers sprayers in 200, 300, 600 and 1,200 gallon sizes.

Featuring the reliable Bean high pressure pump, this line of sprayers incorporates FMC tanks, hose reels, guns, hose and safety equipment. The pump was designed for turf spraying. Featuring raised seats and hardened stainless steel valves, the pump can reliably handle most lawn care chemicals. FMC's relief valve also allows reliable low-pressure as well as high-pressure spraying.

Tanks manufactured by FMC include a 200-gallon cross-linked density polyethylene and 300, 600

to page 20

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ROCKLAND Fertilizers contain combinations of IBDU, NITROFORM and new SULFUR COATED UREA. Some available formulations — 25-5-15, 30-2-5 and 20-4-10.

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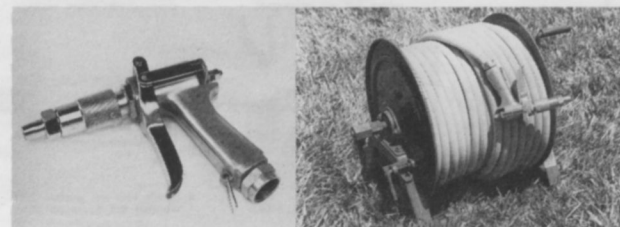


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PRODUCTS from page 19

and 1,200 gallon fiberglass models. The fiberglass tanks are made utilizing five layers of resin, chopped strand and fiberglass mat. Unique drains are molded around the filler opening and a polyethylene strainer/mixing basket is standard. FMC hose reels feature mechanical or electrical rewind with capacities of up to 500 feet. FMC swivels feature replacable seals for a leak-proof system.

Guns and hose available for the lawn care industry can be custom-tailored to do the job. Three guns are available and they all feature a stainless steel ball and seat assuring positive on/off. Hose is available in plastic or rubber in 1/2, 5/8

and 3/4 inch with lengths from 100 to 500 feet.

A water meter is standard on all lawn care units. It is a low-pressure meter but can be bypassed easily for high-pressure operation. This new line of sprayers is featured at the Professional Lawn Care Association of America Conference and Trade Show this month in Louisville.

Write 825 on reader service card

Prevent scalping with new rear-mount mower

A gear-driven, rear-mount mower with a 'free-floating' hitch suspension to prevent scalping is avail-

able from Woods, a Division of Hesston Corp.

The model RM 500 mower features three blades and blade spin-



dles with lubricated tapered roller bearings for longer, maintenance-free operation.

Write 701 on reader service card

White grubs sabotage lawn care programs

Infestations of white grubs, which cause damage to turf by feeding on the roots of grass, appear to be on the rise, according to many entomologists.

Various species of beetles and chafers lay their eggs in July and August in the best grass available, where the young grubs feed until fall, when they burrow deep into the ground to overwinter. They burrow upward to grass roots when spring comes and continue feeding on roots until late May, when they transform into the pupal stage. Adults then emerge from the ground in early July.

These pests pose a strong chal-

lenge to the lawn care specialist because, unlike other insect pests, grubs do their damage in an area where it is difficult to move many insecticides — beneath the thatch layer.

For years, many golf course superintendents have controlled the grub problem with Proxol 80 SP, an organophosphate insecticide which is now being introduced to the lawn care market by TUCO, Division of the Upjohn Co.

Proxol is particularly effective against grub infestations because of its superior ability to move through thatch layers to where grubs live and do their damage, according to TUCO product manager L. E. Jones.

"Studies have shown that Proxol has much less tendency to be bound to thatch than other organophosphate insecticides," says Jones. "It provides lawn care specialists with an effective alternative to chlorinated cyclodiene insecticides, many of which have been banned by the EPA."

An added advantage, according to Jones, is that Proxol controls principal damage-causing insects without significantly affecting beneficial insects when used at recommended rates.

"Proxol causes no long-term residual buildup," explains Jones. "It offers an additional advantage in that the EPA has approved it for use at reduced application rates to control sod webworms, cutworms and armyworms. Proxol's low effective rates mean economical insect control."

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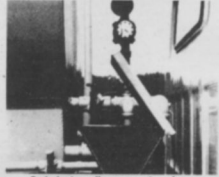
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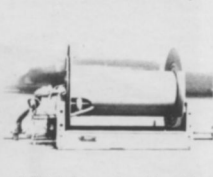
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Reducing weed problems with management programs

A sensible weed control program should first involve developing a good cultural management program. A balanced, full season fertilization program, coupled with proper mowing, irrigation, and rootzone management, can result in a strong and healthy turf capable of eliminating or reducing weed problems through competition. Then, if it becomes necessary to use herbicides, use them judiciously, follow label directions very carefully, and use them only as an aid to the cultural management program.

Herbicides are available which will give very good control of the weedy grasses, crabgrass and goosegrass. Effective control of these weeds can be achieved by carefully following label directions for the use of the herbicides bensulidene (Betasan), DCPA (Dacthal), benefin (Balan), and siduron (Tupersan). Most broad-leaf weeds can be controlled with the proper use of 2,4-D, MCPA, MCPP, or dicamba. Tri-mixtures of 2,4-D + Dicamba + MCPP are readily available on the market. Again, careful adherence to labeled directions is important.

However, the use of herbicides alone does not solve the problem which allowed weed invasion in

system of translocated, hormone-type chemicals such as 2,4-D, MCPP, and silvex have been well documented. Of increasing concern is the injury to the root system of turfgrasses by residues of preemergence herbicides. This group of chemicals has been associated with root degeneration and eventual loss of large areas of turfgrass.

Investigation by Drs. DiPaola and Beard recently help explain why preemergence herbicides have been implicated in extensive turfgrass sod loss. They showed that the root system of Tifgreen bermudagrass sloughs off during the flush of new foliage growth during the break from dormancy in the spring. A new root system

Turfgrass managers should remember that herbicides are plant toxins and therefore injurious to both the weed and the turfgrass plant. The destructive effects on the root system of translocated, hormone-type chemicals such as 2,4-D, MCPP and silvex have been well documented. Of increasing concern is the injury to the root system of turfgrasses by residues of preemergence herbicides.

begins forming a few days later following the initiation of new leaf growth. It then becomes understandable how root degeneration (root pruning) can easily occur since the recommended application of preemergence-type herbicides normally coincides with the root die-back and new root development period in the spring for turfgrasses.

A recent thesis by Seagle showed root tip cellular damage in Penncross bentgrass to be severe

following treatment with the herbicides benefin and terbutol (Azak). The herbicides bandane, bensulide, DCPA, and siduron caused slight to moderate injury but root tips appeared to recover from this injury. When these same herbicides were exposed to roots of Tifgreen bermudagrass, cell damage was severe with DCPA, siduron and terbutol. Moderate cell injury occurred with bandane and bensulide, and slight damage occurred with benefin.

A sensible weed control program should first involve developing good cultural management programs. A balanced, full season fertilization program, coupled with proper mowing, irrigation and rootzone management, can result in a strong and healthy turf capable of eliminating or reducing weed problems through competition.

the first place. Occurrence of weeds usually can be associated with errors or failures in some aspect of turf management. Mistakes commonly made include mower scalping, improper fertilization, poor rootzone soil management, growing non-shade tolerant species in shady locations, injury with pesticides, and many more. Correcting these mistakes permits taking advantage of the competitive characteristics which allow a grass to succeed as a turfgrass.

Laymen often employ the simplest and most direct method, herbicides. However, many widespread misconceptions exist regarding herbicides. Turfgrass managers should remember that these chemicals are plant toxins and therefore are injurious to both the weed and the turfgrass plant.

During recent years the effects of herbicides have become of major concern in the health and survival of the root system of turfgrasses. The destructive effects on the root



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"Seed germination was terrific, especially with the weather we had," Charles told us. "Everyone always says it looks nice."

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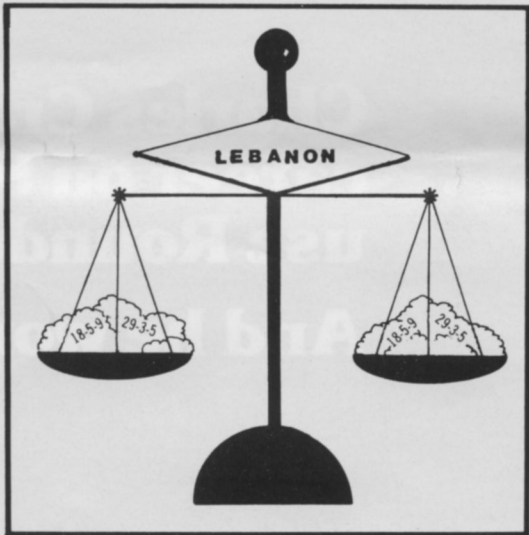
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I don't want to miss any letters or phone calls, so I'll start off with the most important information:

My new address and phone is: Bob Earley, editor/publisher, LAWN CARE INDUSTRY, Harcourt Brace Jovanovich, Inc., 757 Third Ave., New York, NY 10017, (212) 888-2892.

A few new things there; let me take them one at a time. First, I have been named publisher of the magazine. My editorial and

sales duties will remain about the same, with some added duties dealing with the direction of the magazine. I will be working directly with Tom Greney, our new group vice president, who is based in Chicago. He will be meeting many of you when he attends the Professional Lawn Care Association of America Conference and Trade Show this month in Louisville.

Second, my address and phone number have changed. The magazine will now be based in New York, and we have become part of Harcourt Brace Jovanovich, Inc., of which Harvest Publishing Co. is a wholly owned subsidiary. Harcourt is the largest business magazine publisher in the country, with more than 70 magazines. It is the third largest business magazine publisher in terms of sales volume.

The reason for the move is simple: LAWN

CARE INDUSTRY and its sister magazines — WEEDS TREES & TURF and PEST CONTROL — will now be more closely aligned with all of Harcourt's business magazines, and all of the back-up support the company has to offer. It will allow us to continue doing the job we have been doing with LAWN CARE INDUSTRY since we started the magazine more than three years ago, and it means that we will be able to provide even more services for the lawn care industry and its suppliers.

I'm excited about the move and about the future. Don't forget to mark down that new address and phone number.

Bob Earley

LONG BEACH

California landscape show set for March

The 1981 Landscape Industry Show, sponsored by the California Landscape Contractors Association (CLCA) is set for March 26-27 at the Long Beach Convention Center.

Show chairman is Robert Baier of Plant Control Corp., Irvine, Calif. He said that a new floor plan for the exposition will allow for 65 more booths to accommodate new exhibitors. In addition, there will be more open space for exhibitors of heavy equipment and others requiring unobstructed space.

The 500-booth exposition attracts thousands of landscape and irrigation contractors from throughout California and the western states. Exhibitors at the 1980 show included not only suppliers to the landscape industry, but also suppliers of services, materials and equipment for the business operations of contractors from computer services and communications systems and legal consultants.

Interested exhibitors should contact the show manager at CLCA, 1419 21st St., Sacramento, CA 95814, (916) 448-2522.

COMPANIES

Rapid growth prompts HMC plant expansion

As part of a major expansion drive, HMC the Green Machine has announced its plan to move to a new manufacturing plant in Long Beach, Calif.

The new plant will house all of the company's administrative offices, engineering, production and warehousing facilities plus international division. In addition to providing increased capacity, the move is designed to centralize various departments now housed at five separate locations in Torrance, Calif. HMC's sales efforts will continue to be handled by its marketing arm headquartered in Houston.

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the success you can achieve with our diverse line. We supply more than 20 products which can be selectively combined according to your particular needs to produce maximum results.

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we'll give you the name of your nearest distributor. You'll be glad you did. Distributor inquiries welcomed.

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Marie Pompei

Agronomist and Research Consultant based at Lofts' headquarters in New Jersey. Evaluates turf performance and responds to customer inquiries.



Debbie Gutierrez

Assistant Manager, Domestic and International Sales, checks Baron production and distribution from Lofts' Great Western Division in Oregon.



Vanessa Jensen

Assistant Manager and Golf Course Sales, Lofts/Maryland, administers distribution and customer service in the Mid-Atlantic states. (Shown here calling on Angie Cammarota, Superintendent of Hobbits Glen Golf Course, Columbia, Maryland.)



Andrea Landry

Executive Sales Coordinator, supervises Lofts' nationwide customer service, coordinating operations coast to coast.

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From production through distribution to delivery, every single step is accomplished within Lofts' facilities. And because we have complete control over each phase of the operation, we can do it all efficiently . . . to give you the best possible service.

The women pictured here are only four of the Lofts specialists who work in different ways to ensure your order runs smoothly. Their efforts assure the availability and prompt delivery of a consistent, high quality bluegrass . . . Baron.

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