



**Dr. Mike Hurdzan: maintenance more important than design**

timely completion? Are you prepared if the newly-built system fails in some way? If you succeed, will you be warmly thanked or richly rewarded, or will they simply expect more of you next time?

**2) Is there a safety or liability problem?** If not, will one be created: a foreseeable danger to golfers, maintenance persons or adjacent landowners? ("Changes can cause a chain reaction of liability down the road," Nugent adds.)

**3) How do you make it the most enjoyable** for the most amount of people? Is there a group of golfers that hasn't been addressed?

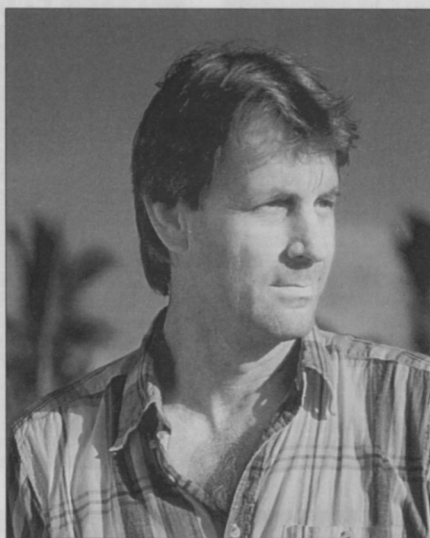
**4) Can you develop a unified plan?** Do you have proper installation training, adequate equipment, installation time, experienced workmen or foreman?

**5) Do you harbor no false expectations?** Will you be able to *guarantee* your final product to your greens chairman and members?

Hurdzan maintains that the design is often not the source of the problem(s). "If you've got money to spend, a good golf course begins with drainage. Irrigation is second, grass cultivars third," he observes. "Encouragement of wildlife is also becoming a big part of golf course aesthetics. And not one of those things involves changing tees, greens and bunkers."

Jarrell, who is re-establishing many of his greens ("there are some design changes involved"), is familiar with problem holes.

"You have to evaluate the scope of the problem and react accordingly," he notes. "When I rebuilt two greens, I hired two temporary guys for three to four weeks. We did two greens in May and opened



**Supt. Mark Jarrell: spending \$3500 re-grassing each green**

them in July, and two more greens in August and opened them in October."

**Design factors**—Greens are the most controversial part of the golf course, says Hurdzan. "Everyone wants an instant playing surface, but it's a three- to five-year process. The mat layer between grass and sand is the single most important thing, and it takes two to three years to develop. Growing in a green and long-term maintenance

are two different things."

Tees, Hurdzan contends, should be three sets of markers wide and drainage should be emphasized. "People appreciate new tees. They're easy to do, hard to screw up," he says.

Fairways could cause troubles with the bulk of the club's membership because irrigation design has dictated narrower fairways. "Modern golf courses should go back to the old Augusta style: maximum fairway, 50 to 70 yards wide, minimum rough."

Jarrell has an added advantage: internationally recognized golf course architect Joe Lee is a member of Palm Beach National. "He's constantly helping us make decisions," Jarrell states.

Yet, every golf course superintendent does not have that luxury. So when the decision to change a problem hole is imminent, every effort must be made to handle the project, as Nugent says, "in the best, cheapest, least disruptive" manner. In certain instances, it will mean doing it yourself; most of the time, however, it must involve the opinion of an expert in golf course design.

—Jerry Roche

## Do it or bid it?

■ *Realistically assess the scope of the project by going through a potential risk evaluation. Honestly determine if the following sources of potential liabilities are high, medium or low. Check each block and add up your score for problems that might arise:*

SOURCE OF PROBLEM	Probability of trouble		
	High (3pts.)	Medium (2 pts.)	Low (1 pt.)
1. Unskilled work crew mistakes			
2. Improper installation equipment			
3. Insufficient installation equipment			
4. Inadequate installation training			
5. Inexperienced in recognizing problems			
6. Extended installation period required			
7. Workman compensation claims			
8. Improper irrigation functioning			
9. No guarantee of workmanship			
10. Perhaps no product warranty			

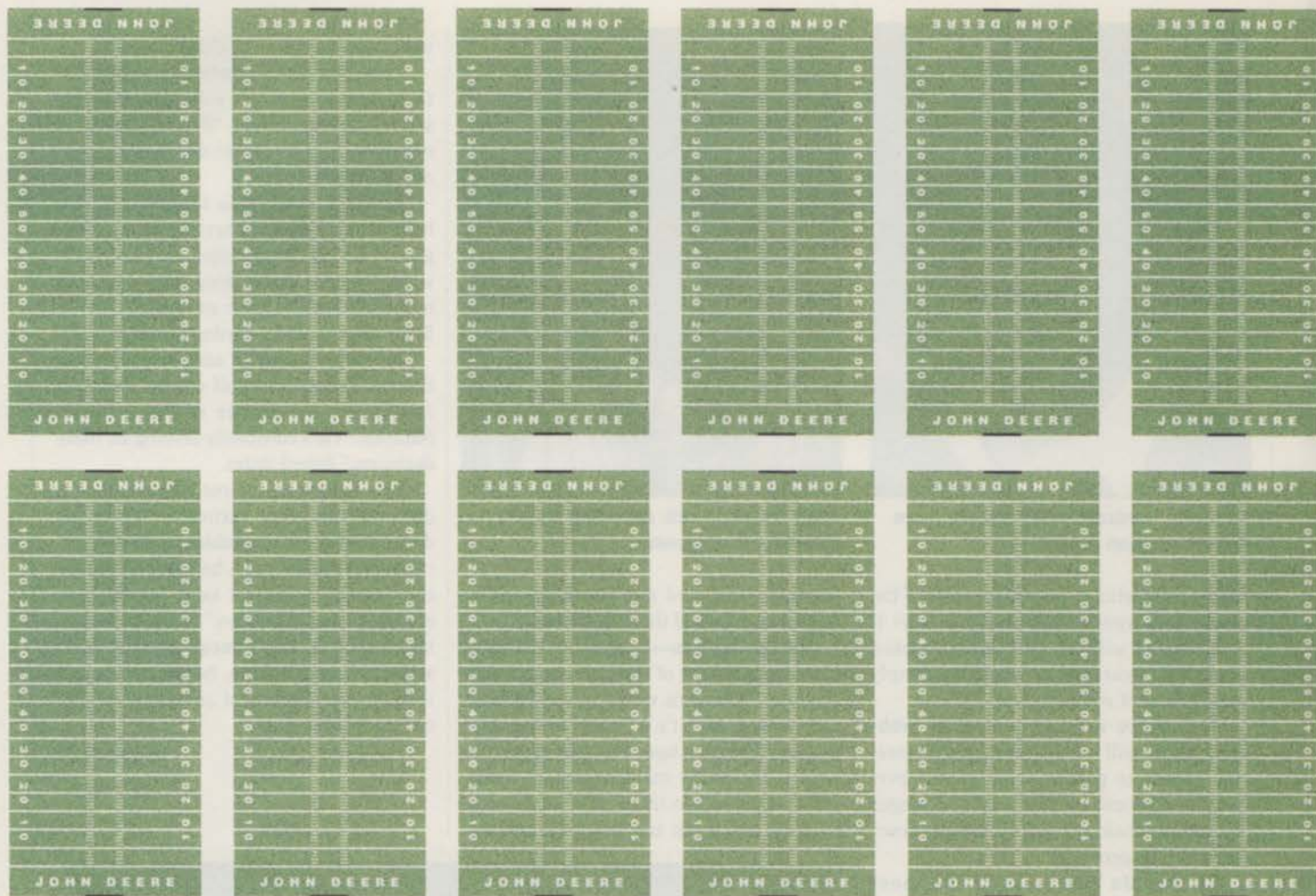
### SCORING

**15 or less:** do it yourself

**16 to 20:** try to lower risks by examining your weaknesses and correcting them.

**21 or more:** contract it out

*Source: Dr. Michael Hurdzan*



# This John Deere rushes for yards in an average day

If you've ever gotten that irrepresible urge to go for the world mowing record (maybe by trying to cut every natural turf field in pro football in one day) you've come to the right ad.

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# BIOTURF NEWS

## Organic programs give customers a choice

**Green industry professionals with solid backgrounds in chemical turf care find value in organic alternatives.**

■ Joel Simmons, Glenn Bonick and Phil Catron have different green industry backgrounds, but they share a common experience: at one time, all three used synthetic control products as the sole method of controlling turf problems.

Today, they're all offering organic-based lawn care programs as an alternative to chemical turf care.

Remember, we said *alternative*. None of these professionals is saying chemical control products should be completely eliminated, unless the individual customer demands it.

Simmons is a turf scientist and businessman who believes it's both essential and possible to combine chemical control products with well-planned and well-prescribed organic programs.

A Penn State grad, Simmons—president and owner of Earthworks Natural Lawn & Garden Care, Inc. of Martins Creek, Pa.—has plenty of experience in chemical-based turf care, having been the extension agent for Northampton County.

For the last 15 years, he and his partner, Jerry Brunetti, have owned and managed Agri-Dynamics, a company that formulates biological disease and pest control programs for agriculture.

Now, Simmons and Brunetti also run Earth Works, and both companies share a single focus: soil biology as the key to all turf problems.

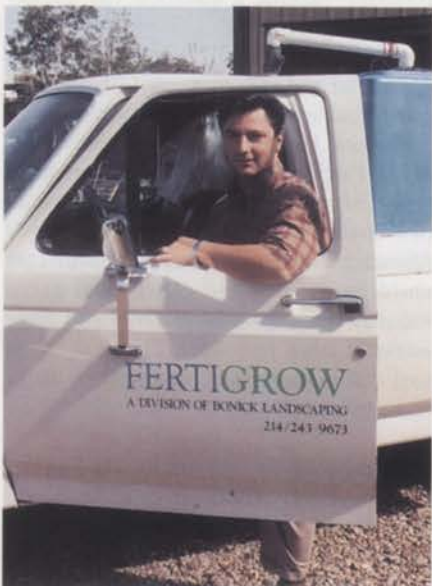
"We've spent years working with agronomic issues," says Simmons, "in an attempt to further understand the complex dynamic of the soil and how it affects

the growing of various crops, in particular, turf."

Simmons says Earth Works is ready for "a major push" toward customizing programs for golf courses and lawn care service companies, thanks to years of research and product formulation.

The Earth Works approach, says Simmons, is different in that it stresses the importance of rock minerals, which restore the soil's mineral content; and humic acid, for root stimula-

**Beecher Smith, left and Phil Catron: focusing on residential natural lawn care.**



**Bonick: Dallas pro offers customers 'low impact' option.**

tion and soil conditioning.

Simmons seeks a "happy medium" between chemical and biological turf management programs. "It's not us against them," insists Simmons, who stresses that the best lawn care programs feature a balance of the two approaches, provided "we focus first on agronomics."

According to Earth Works, synthetic fertilizers upset the carbon/nitrogen balance by oxidizing the soluble fractions of organic matter in the soil profile, leaving a dry, dead and compacted soil behind.

A biological soil management pro-



gram returns organic matter to the soil in the form of humus, by proper balance of soil cations, combined with sufficient secondary and micro-nutrients and biological remedies to antagonize insect fungal and nematode outbreaks.

Simmons believes we have to make a closer examination of the soil and its biological aspects before treatment, to minimize damage to microbial matter resulting from repeated pesticide applications.

The soil, says Simmons, is an "incredibly integrated system. If we can reduce stress, we will reduce disease, pest and weed problems."

Earth Works offers a variety of programs: a natural organic; natural organic and liquid fertility program; and a transitional IPM program.

Simmons is beginning work with golf course superintendents, and is pleased with early, "significant" results.

**Natural/Organic Program  
Earth Works 5-4-5**

**1st Year**

**March**—14 lbs./1000  
**June**—8 lbs./1000  
**Sept.**—8 lbs./1000  
**Nov.**—10 lbs./1000

**Gypsum**

70 lbs./1000

\$.01/sq.ft./yr.  
 \$2.50/1000/app.  
 \$10/1000/yr.  
 +gypsum

**2nd year**

12 lbs./1000  
 6 lbs./1000  
 6 lbs./1000  
 8lbs./1000

**Hi-Cal lime**

50 lbs./1000

**COSTS**

\$.008/sq. ft./yr.  
 \$2/1000/app.  
 \$8/1000/yr.  
 +Hi-Cal lime

**3rd year**

10 lbs./1000  
 5 lbs./1000  
 5 lbs./1000  
 8 lbs./1000

**Hi-Cal lime**

50 lbs./1000

\$.007 sq. ft./yr.  
 \$1.75/sq.ft./app.  
 \$7/1000/yr.  
 +Hi-Cal lime

*The above chart describes one of the natural/organic programs offered by Earth Works. The company alternates Hi-Cal lime and gypsum for each consecutive year at 25 lbs./1000. Use lower rates if liming has been practiced. If pH is above 7.0, use gypsum only. According to Earth Works, input costs for the entire program will go down as chemicals are reduced to spot treatments.*

■ Glenn Bonick, a 30-year-old ex-champion skier from Dallas (yes, there *are* lakes there!) has been in business now for 10 years.

He went into the cutting business right out of high school, and eventually bought the property he was renting. He now employs 30 during peak season. The crews maintain lawns in high-end residential neighborhoods within a 10-mile radius, and commercial accounts farther out.

Fertigrow is Bonick Landscaping's new organic lawn care division, and, like most organic companies, it offers a choice: a "low impact" program for "cost-effective management" is composed of six visits each year, using advanced fertility and problem-solving techniques.

The "organic" program offers completely natural turf and ornamental care. The goal is a balance of organic materials, minerals, water, air and living organisms. Lawns, trees and shrubs are monitored and treated organically, as needed.

Fertigrow's "IPM" program combines organic and synthetic methods as needed and only where needed.

Like Simmons, Bonick believes the soil is "the root of the problem." And though organics are the focus of Fertigrow, Bonick will not hesitate to recommend a chemical approach if he thinks one is required.

Bonick admits, however, that he's not entirely comfortable with the going terminology. Words like organic and integrated pest management can result in pigeon-holing, much like some politicians hate to be

labelled as "liberals" or "conservatives". Bonick prefers "plant health care" to "pest management," and likes to say that he and others like him are simply "improving the environment," period.

Bonick is a certified landscape professional, one of the charter members of the Texas Association's certification program. Two of his crew are certified. His maintenance forman, Ron Traugher, has been with Bonick for three years.

Bonick is gradually bringing the maintenance crew up to speed on IPM, dreading as he does the prospect of a customer—or reporter—asking a question the worker can't answer.

Bonick has used BT (*Bacillus thuringiensis*) for sod webworm control, an especially troublesome pest in pecan trees.

Beyond the technical accomplishments of the Fertigrow program, Bonick is most proud of his efforts to design and install new landscaping for the Dallas Children's Advocacy Center, for abused or neglected children. Bonick and other local green industry firms donated material and three weeks of labor to rework 12,000 sq. ft. of turf and ornamentals, including a water management system.

■ In business for himself for the last five years, Phil Catron—president of NaturaLawn, Inc. of Frederick, Md.—sells organic-based lawn care franchises across 12 northeastern and southeastern states, from Maine to Michigan to South Carolina.

NaturaLawn franchises offer customers

two programs: one is a 100 percent organic-based soil amendment program; the other consists of an organically-based soil amendment combined with integrated pest management (IPM) treatments of biological, biorational or synthetic products. All organic products are formulated exclusively for NaturaLawn franchises.

"We are a very focused company, offering residential lawn care only," says Catron, who believes the success of companies like NaturaLawn is grounded in a philosophy of giving the public what it wants: a choice in lawn care.

NaturaLawn is regimented about training. Franchisees must attend as many as 18 scheduled training sessions each year.

Catron believes that he and vice president of operations, Beecher Smith, are being rewarded for their patience, now that their audience is growing. "Things that were pooh-poohed are now having a major impact on the industry," says Catron.

There are currently 22 NaturaLawn locations, and three corporate-owned units, and the company plans to move into Canada in the near future.

The business averages three inquiries for franchises per day. A franchise costs \$29,500 and can include a financing package.

Catron—a ChemLawn alumnus—and NaturaLawn were recently the subject of a story in *In Business* magazine, which noted the company's success due to "rapidly growing consumer interest in safer ways to care for lawns and control pests..."

—Terry McIver

# Successful natural programs require time, money and patient customers



Bonifant, left, and Henneberg: natural programs attract a relatively small audience.

■ Successful natural lawn care programs require time, money and patient customers, according to two green industry professionals who offer a natural alternative to interested clients.

Daniel Henneberg is president, and Bern Bonifant, vice president of Natural Lawns lawn care, Maryfield, Va. The two recently offered some advice to attendees at the 1992 Green Industry Expo in Indianapolis.

Natural Lawns uses dry products, although there are liquid alternatives on the market. Natural fertilizer source materials include dehydrated poultry manure or other animal proteins; and vegetable sources such as soybean meal, wheat germ or vegetable oil.

Henneberg warns that some natural products exude a very strong odor—something the customer should know before the product is applied—and products like feather meal might cause an allergic reaction in more sensitive customers.

**A look at cost**—According to Bonifant, cost per unit of nitrogen can run from three to nine times the cost of a high-grade synthetic.

“As you move into larger size proper-

ties, such as a 15,000 sq ft home site or a 70,000 ft. office complex, you're going to run into significant difficulty with trying to do that with an all natural program because of the cost of the materials,” says Bonifant.

The company's total audience for natural programs is no more than 20 percent of its customer base.

**The company's total audience for natural programs is no more than 20 percent of its customer base.**

“I don't want to say it can't be done,” he says. “But it involves targeting to particular customers in particular areas.”

Natural Lawns services the Washington, D.C. metro area, one that might be considered full of potential customers for organic products, given that every other person is striving to be “politically correct.” Still, Bonifant says the company's total audience for natural programs is no more than 20 percent of its customer base.

**How they perform**—“The lawns on the natural program will be thick, with good color,” says Bonifant, “but they are also going to have a large number of weeds through the lawn.”

One way Bonifant and Henneberg suggest to curtail weeds is to raise the mow-

ing height to three inches for bluegrass, three-and-a-half inches for tall fescue.

Natural Lawns has used milky spore for grub control, but not lately due to problems with effectiveness.

In the area of disease control, Bonifant says natural fertilizers have substantially reduced diseases. “We get a lot less disease occurring in less severe forms than on comparable properties using comparable types of fertilization.”

Seeding is important. Natural Lawns advises customers seeking natural alternatives to replace weak stands of turf. They're big fans of “endophyte-enhanced” seed varieties, which Bonifant says have “substantially reduced levels of insect presence and damage.”

**Where are they?**— Bonifant says potential natural program areas include:

- sensitive areas: where lawns abut lakes, streams, surface waterways;
- wildlife habitats;
- high-sensitivity areas, such as hospitals, nursing homes and day care centers;
- colleges, which seem to foster anti-pesticide attitudes; and
- special use areas such as community swimming pools and playgrounds.

—Terry McIver

**Biological Control Insecticides for Safe Use in Sod and for Landscape Ornamentals**

**Beneficial Insecticidal Nematodes**

<b>Targets</b>	<b>Trade Names</b>	<b>Manufacturers</b>	<b>Circle No.</b>
Immature forms of: Sod webworms, white grubs, including Japanese beetles, strawberry crown borer, raspberry crown borer, mole crickets, banana moth,	Horticultural Scanmask	Biologic Chambersburg, PA (717) 349-2789	320
	Exhibit	Ciba-Geigy Greensboro, NC (919) 547-1160	321

**Beneficial Insecticidal Bacteria**

<b>Targets</b>	<b>Trade Names</b>	<b>Manufacturers</b>	<b>Circle No.</b>
Japanese beetles in sod	Doom	Fairfax Biological Clinton Corners, NY (914) 366-3705	322
Elm leaf beetle, cottonwood leaf beetle, elm calligrapha, imported willow leaf beetle	M-Trak	Mycogen San Diego, CA (800) 745-7476	323
Lepidoptera on bedding plants, ornamentals, shade trees, nursery trees, and in forests	Cutlass and Condor	Ecogen Langhorne, PA (215) 757-1590	324
Sod webworms, Lepidoptera on bedding plants, ornamentals, shade trees, nursery trees, and in forests	Steward	Sandoz Agro Des Plaines, IL (800) 445-4823	325
Sod webworms, Lepidoptera on bedding plants, ornamentals shade trees, nursery trees,	Dipel 2X	Abbott Laboratories North Chicago, IL (800) 323-9597	326
Mosquitoes and black flies	Vectobac 12 AS	"	
Fungus gnats	Gnaterol	"	

Source: Dr. John D. Briggs, Ohio State University

**Organic terms defined**

■ For the uninitiated, here are the most commonly-used terms when talking about organic turf care:

**Organic fertilizer:** A material containing carbon and one or more elements other than hydrogen and oxygen essential for plant growth.

**Natural organic fertilizer:** Materials derived from either plant or animal products containing one or more elements (other than carbon, hydrogen and oxygen) essential for plant growth.

**Natural inorganic fertilizer:** A mineral nutrient source that exists in or is produced by nature and may be altered from its original state only by physical manipulation.

**Natural fertilizer:** A substance composed only of natural organic and/or natural inorganic fertilizer materials and natural fillers.

**Natural base:** A fertilizer containing a minimum of 50 percent by weight of natural fertilizer materials.

**Organic base:** A fertilizer containing a minimum of 50 percent by weight of organic fertilizer materials and 50 percent by weight of primary nutrients which are derived from organic fertilizer materials.

*Note: Avoid safety comparisons between organic, natural and synthetic products. Such comparisons include but are not limited to: references to toxicity, drift, odor and exposure.*

*When referring to organic or natural fertilizers and/or pesticides, analysis should be given.*



## PRODUCTS

## Mycogen/Lubrizol a done deal; ant toxin research with S.C. Johnson shows promise

■ Mycogen Corporation announced in December that it had completed transactions valued at \$135 million with the Lubrizol Corporation to form a partnership to acquire Lubrizol's Agrigenetics Company Division.

The biological pest control company also said it and its Parasitix subsidiary and S.C. Johnson & Son, Inc. have discovered naturally occurring protein toxins with pesticidal activity against ants.

Mycogen and Lubrizol signed a letter of intent in April, but the deal was delayed pending recent stockholder approval.

Agrigenetics, the sixth largest seed company in the United States, has been conducting advanced agricultural plant biotechnology research since 1981. Its researchers were among the first to demonstrate that plants could be genetically engineered to become naturally pest-resistant.

The company's principal seed products

are corn, cotton, soybeans, sorghum, sunflowers, alfalfa, rape and safflower.

Mycogen develops, manufactures and markets environmentally compatible biological pest control products for agricultural and specialty markets. Its wholly-owned subsidiary, Soilserve, provides customized crop protection services to growers of high value crops.

Mycogen has 33 US patents covering its CellCap encapsulation system and newly identified strains of *Bacillus thuringiensis* (B.t.), the active ingredient used in many biopesticides and pest-resistant plant development programs.

As a division of Lubrizol, Agrigenetics had revenues of \$88.6 million in 1991, while sustaining a net loss of \$1.6 million, attributable mainly to its large research and development expenditures.

Mycogen, which also spends heavily on research and development, lost \$3.3 mil-

lion in 1991, on revenues of \$23.6 million. Mycogen cash reserves are approximately \$67 million.

Agrigenetics president, John Studebaker, and his senior management team have joined Mycogen, and were to relocate to the company's San Diego headquarters.

The co-discovery of toxic ant proteins is the first publicly disclosed result of a research and development collaboration between S.C. Johnson Wax and Mycogen that began in 1990.

S.C. Johnson Wax, headquartered in Racine, Wisc., operates in 46 countries world-wide, and is the maker of RAID brand insecticides.

Parasitix is a wholly-owned subsidiary formed by Mycogen to apply its core technology to develop products for the animal and human health markets and to manage its collaboration with S.C. Johnson Wax.

## Write to company for info on organic lawn care

■ Harmony Products of Chesapeake, Virg. now publishes "Growing Alternatives," a newsletter designed to provide information about new aspects of the turf care industry, with a focus on organic and natural products.

Harmony says future issues will offer

technical information, research news from universities, marketing suggestions for organic lawn care, and will cover current issues in the organic and natural turf care markets.

A recent issue of "Growing Alternatives" featured articles on control-

ling thatch organically, plus a cost comparison of organic and synthetic lawn care programs.

To receive the "Growing Alternatives," newsletter, call Harmony Products at (800) 343-6343.

## Bio-control agent attacks feeding lepidoptera

■ Steward biological insecticide, new from Sandoz Agro, Inc., contains *Bacillus thuringiensis* spores and crystals lethal to any insect of the order Lepidoptera, which includes armyworms, bagworms, budworms, leafrollers, loopers and caterpillars.

According to Sandoz, Steward is not harmful to customers, their children or their pets; other mammals, birds, fish and other insects.

Applications can be made and the turf used on the same day. Fruits and vegetables that have been treated with Steward need

only be washed before eating.

When larvae ingest Steward, the high pH of the insect's gut causes the crystals to break down into small, toxic protein units. These toxins adhere to the stomach lining, disintegrating the cells. Fluid flow and ionic balances are broken down. The insect quickly stops feeding and starts to die, while simultaneously, bacterial spores pass through the gut wall and germinate in the insect's blood.

As they continue to multiply, a form of poisoning known as septicemia develops.

Sandoz Agro, Inc. says Steward will control target insects for three to four days or longer after application. Control may last up to 10 days depending on weather, cultural and growth factors.

The company says Steward is most effective against smaller worms, and says it is important to spray when most of the worms are still in the first or second

For a 1000-sq. ft. area of turf, use one tablespoon of product in 2.3 gallons of water.

Circle No. 309 on Reader Inquiry Card

## PRODUCTS

## Neem tree yields growth regulator

■ Azatin, a new botanically-based insecticide from AgriDyne Technologies, Inc. of Salt Lake City, is registered for indoor and outdoor use in greenhouse, nursery and ornamental markets. The product is an extraction from the neem tree, which grows in India.

AgriDyne says, Azatin has shown excellent insecticidal activity against major greenhouse and ornamental pests. It effectively controls sweetpotato whiteflies, greenhouse whiteflies, leafminers, fungus

gnats, sawflies, mealy bugs, and a wide spectrum of Lepidoptera, especially cutworms, armyworms, webworms, cankerworms, leafrollers and gypsy moths. It also suppresses thrips, aphids and leafhoppers.

The insecticidal activity of the neem tree is attributed to azadirachtin, a compound found in small amounts in neem leaf, fruit and bark, but concentrated mainly in the seed. The compound has demonstrated control over 131 species of insects, 60 of which are common in the

U.S., according to the company.

The insecticidal activity of Azatin stems largely from the insect growth regulator IGR activity of azadirachtin. Azatin controls insects in all larval stages, and has the unique ability to control insects in the pupal stage. Azatin does not control egg or adult stages of insects, but its activity against larval and pupal stages of insect pests keeps adult populations in check, says AgriDyne.

Circle No. 310 on Reader Inquiry Card

## Fertilizer's naturally-occurring nitrogen source provides quick green-up

■ Earthgro, Inc. of Lebanon, Conn. has blended composted plant and animal sources with naturally-occurring minerals to create its Natural Organic & Mineral Lawn Food. This completely all-natural formula quickly provides a rich, lasting green, nourishes grass plants and encourages thick, lush top growth, according to Earthgro. The products contain no sewage sludge or synthetic elements.

Earthgro Lawn Food 8-2-4 contains a naturally-occurring mineral form of nitrogen that is water soluble, providing quick green-up. The balance of nitrogen from

natural organic sources is water-insoluble for sustained feeding throughout the season. Earthgro Lawn Food is compost-based, and contains the beneficial microorganisms and organic matter important to healthy soil development and strong root growth.

"Earthgro Lawn Food provides all of the environmental benefits of organic fertilizers with the addition of a natural, quick greening mineral that they lack," says Jim Wilkinson, Ph.D., Earthgro's manager of professional sales. "The Lawn Food's ability to cultivate dense and rapid

growth in an easy, cost-effective manner makes it absolutely ideal for use on residential lawns, golf fairways, athletic fields and commercial.

According to Earthgro, the product supports new growth in early spring, discourages browning in the summer and nourishes grass in the late fall. It also stimulates deep root growth through a slow-release, sustained feeding system while simultaneously crowding out unwanted weeds and crabgrass.

Circle No. 311 on Reader Inquiry Card

## Wastewater by-products yield new, all-natural organic fertilizer

■ Terrene is a completely natural organic fertilizer recycled from organic by-products of wastewater treatment, from Enviro-Gro Technologies of Lancaster, Penn.

According to Enviro-Gro, the nitrogen in Terrene is 90 percent insoluble, so plant nutrients resist leaching into the groundwater. The fertilizing benefits of Terrene stay in the soil and are released to the feeding plants over a longer period of time. The

natural breakdown of Terrene provides a controlled release of nutrients, allowing a steady green color and more uniform growth using less overall fertilizer.

Terrene is pelletized to a uniform granule size for ease of application, and can be used on trees, shrubs and flowers.

Enviro-Gro says Terrene's salt-free characteristic is a plus, eliminating any potential for burn.

In northern climates, apply Terrene three to five times per year at the rate of 15 to 20 lbs./1000 sq. ft., respectively. In southern climates, apply three to five times per year at the rate of 20 to 25 lbs./1000 sq. ft.

New lawns will need greater amounts of nutrients in the beginning.

Circle No. 312 on Reader Inquiry Card

## PRODUCTS

## Slow-release fertilizer uses urea, feather meal

Ringer Corporation is introducing Turf 16-2-4, a new hybrid fertilizer for use on golf course fairways and commercial lawn care applications.

According to the company, the formulation combines faster green up with slower

controlled release of nitrogen.

Urea, ammonium sulfate and feather meal are the three nitrogen sources used in Turf 16-2-4. The initial nitrogen release comes from urea, which is coated with a high-sugar, high-carbohydrate material. The

remaining nitrogen is slowly released over the next six weeks through the degrading of feather meal and increased microbial activity with the ammonium sulfate. Ringer says the result is a long, steady turf feeding period.

**Circle No. 313 on Reader Inquiry Card**

## Debut for co.'s first nematode-based larvicide

Ciba-Geigy in July released Exhibit, a nematode-based larvicide, for use in the green industry.

According to the company, the active ingredient in Exhibit is formulated using a naturally-occurring species of beneficial nematodes that coexists in the ecosystem with wildlife, beneficial

insects, domestic animals and humans.

The nematode's life cycle begins when it enters a target pest through a body opening and releases its deadly bacteria directly into the blood system of the host. The host pest dies within 48 hours, and nematodes develop rapidly into first-generation adults and reproduce.

Exhibit controls fungus gnats in greenhouses; root weevils on ornamentals; surface feeders on turf. It will not burn turf or ornamentals. Plants may be sold the same day they're treated, and there are no re-entry restrictions for the products.

**Circle No. 314 on Reader Inquiry Card**

## Organic thatch control alternatives

■ Thatch is composed of living and dead stems (stolons and rhizomes) and roots. This tangled mesh harbors insects and disease-causing organisms slows movement of water, fertilizer and pesticides and promotes shallow rooting. Lush growth is the major cause of thatch accumulation, which occurs when the rate of decomposition cannot keep up with new thatch formation.

Excessive thatch accumulation reduces overall quality and can even destroy turf if not properly managed through removal or decomposition.

Thatch decomposition is performed by microorganisms, as well as micro- and macro-fauna such as earthworms, nematodes and insects. The fauna assist decomposition of thatch through physical disruption, thereby providing increased surface area for decomposing microorganisms. Fungi initiate thatch decay, followed by bacteria, and then nematodes feed on the bacteria and fungi.

Microbial activity is influenced by:

- organic matter;
- acidity;

- aeration and moisture;
- temperature.

With the exception of temperature, turf managers can alter the conditions favorable to microbial activity. Because some management practices can reduce microbial activity and slow thatch decomposition, they should be avoided.

### Effect of organic matter

Microbial activity depends on the availability of organic matter and nutrients. Thatch is mostly carbon and difficult to "digest" by many microbes; however, by maintaining a supply of organic nitrogen, the activity of microbes is enhanced.

Organic nitrogen fertilizers and soil conditioners can increase available nitrogen and stimulate microbial activity.

### Acid and thatch

Optimum decomposition occurs at pH of 6 to 6.8, and adjusting the pH to within this range may help promote microbial activity and accelerate decomposition. Acidic conditions have been shown to promote thatch accumulation.

**Organic nitrogen fertilizers can increase available nitrogen and stimulate microbial activity.**

Long-term use of selected fungicides and fertilizers, which may alter pH can inhibit thatch degrading microbes.

### Aeration and moisture

Maintaining adequate oxygen levels through core aeration or vertical slicing favors microbial activity. Avoiding oxygen depletion also favors rooting and overall soil and plant health. Adequate, though not excessive, watering promotes thatch decay also. Decomposition of thatch is more rapid when organic debris is moist.

By eliminating practices that produce lush, excessive growth and by maintaining proper organic matter, oxygen, moisture and pH levels, an active microbial community will not only help reduce thatch buildup, but will also enhance overall plant vigor.

—Source: Brad Melvin, Ph. D., Bio Groundskeeper, Inc., writing in 'Growing Alternatives,' a newsletter of Harmony Products, Chesapeake, Virg.

# BIOTURF NEWS



## For the Latest Developments in Biological, Organic and Natural Turf Care!

With our October premier publication of *Bioturf News*, we at *LANDSCAPE MANAGEMENT* magazine continued our commitment to give you the best possible coverage of green industry happenings.

*Bioturf News* is our new, bi-monthly review of current research and development in "biological, organic and natural" turf care. In 1993, it will exist independently of *LANDSCAPE MANAGEMENT*.

Some alternative turf care products can't be ignored.

Independent University research has determined them to be viable forms of insect, weed and disease control.

Many of our readers have also formed opinions of biological and

organic products.

Some say biological and organic products are too expensive and take too long to show results.

Others believe customers should have a choice. And still others are probably wondering what all the excitement's about.

Our job, as an industry information source, is not to tell you what to think, but to simply relay the information to you—as soon as we can and in the best way possible—and let you take it from there.

There are two sides to every story. Your opinions count, and we want to know what you think of these products. Have you tried alternative turf care products? If so, what were the results?

To make *Bioturf News* the most useful green industry news source it can be, we will always welcome your questions and comments.



**Jon Miducki**  
Publisher



**Terry McIver**  
Editor



*Bioturf News* will be a bi-monthly newsletter reporting on biological, organic and natural products for the specialty turf market. But you have to subscribe in order to receive it. To receive your free, one-year subscription, please return the coupon below to:

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# UTILITY VEHICLES: The battle for multi-purpose supremacy

**The winners in the utility-vehicle shoot-out are those with 'go-anywhere, do-anything' designs.**

■ Utility vehicle manufacturers—never satisfied with last year's model—continue to make improvements in existing lines, or introduce new models that offer more options for the green industry professional.

Multi-purpose capability is more of a selling point, as landscape and golf course managers look for more economical ways to move people and equipment, and perform major landscape duties.

For example: Toro's Workman 3000 can be equipped with (*don't try to say it all in one breath*):

- a full bed or a 1/3 bed with stake sides;
- a Cushman Core harvester;
- a 200-gallon sprayer unit;
- infield conditioners;
- a 2/3 bed dump box;



**The Turf-Truckster by Cushman**

- a 60-inch rotary mower;
- a sand trap rake;
- debris blowers; and/or
- a spreader unit.

Rick Cairns of the Toro Company's Commercial Products Division calls it a trend toward polarization: one vehicle, multiple tasks.

**Why not offer a truck that can serve as a crew transport and be heavy-duty and versatile enough to tackle the big jobs?**

Other design considerations are weight capacity and bulk capacity.

"It's (the ability to do) more work with more attachments," says Cairns.

More utility vehicle customers are buying smaller vehicles to get around in, so why not offer a truck that will serve as a people transport, and at the same time, be heavy duty and versatile enough to tackle the big jobs?

Kawasaki's Mule vehicle line has a trailer hitch mount for towing; a windshield, cab doors and cab roof; sideboards; tool carriers and work light; a hydraulic tilt kit for the cargo bed; front bumper winch mount.

The Cushman Turf-Truckster, long an industry leader—a distinction Toro hopes to earn—has a wide range of equipment and attachments, including the high-capacity fifth wheel implements



**Utility trucks by Jacobsen**

## UTILITY VEHICLES FOR THE GOLF AND LANDSCAPE MARKETS

<u>Company name</u>	<u>Vehicle name</u>	<u>Features</u>	<u>Circle No.</u>
<b>Club Car</b>	Carryall VI	4-cycle, 9-hp engine; self-adjusting rack and pinion steering; mechanical brake cable system to drum brakes on each rear wheel; 133" long body.	<b>300</b>
<b>Columbia Par Car</b>	Utilitruck	14-gauge steel sides; flat bed made of rustproof aluminum; extends to 82"x43"; 200-lb. payload capacity.	<b>301</b>
<b>John Deere &amp; Co.</b>	AMT 600/626	4-wheel drive; 600-lb. capacity; 1000-lb. towing capacity; 4-cycle, single cylinder Kawasaki engine.	<b>302</b>
<b>E-Z-Go Textron</b>	Tuff 1	An extra-deep, 44"-wide 12-cubic ft. bed; 8.5 hp engine; 1000-lb. capacity; hydraulic shocks; continuously variable transmission.	<b>303</b>
<b>Kawasaki</b>	Mule 1000	45cc liquid-cooled, four-stroke engine; 1000-lb. capacity; variable belt-driven transmission; locking differential.	<b>304</b>
<b>Ransomes/Cushman</b>	Turf-Truckster	Three- and four-wheel models; live hydraulic systems standard; attachments for aeration, spraying, hauling and top-dressing.	<b>305</b>
<b>Toro</b>	Workman 3000	Multiple attachments; 540 rpm PTO; optional Cat. 1 hitch; 2600 lb. capacity.	<b>306</b>
<b>Yamaha USA</b>	Yamahauler	Design enables both box and flat-bed applications from a single, convertible vehicle; 8.6 hp engine; 1000-lb capacity.	<b>307</b>

for aerating, spraying, hauling, dumping or topdressing.

Dual outlets enable the Turf-Truckster to power remote hydraulic motors as well as give lifting and control of attached implements.

Jacobsen Textron's 2315 diesel and 2015 gas utility trucks haul 1,500 lbs. of passengers and cargo. A topdressing attachment covers a 31.5-inch swath. Two gas or PTO model sprayers are available, with one, 16-foot boom or two, 20-foot booms.

For clean aeration without core collection, a drum aerator is available. The aerator covers a 42-inch swath with a 6x6-inch pattern. The drums empty easily to help complete aeration with minimal disruption of play.

A universal mounting kit is also available to fit manufacturers' attachments on Jacobsen Textron trucks.

Worker comfort is also important, and the Columbia Utilitrucks are designed with a nod toward driver visibility and protection from the elements.

Cab options include front wipers, an interior dome light, an automotive rear-view mirror and easy-detach doors with sliding or stationary windows.

E-Z-Go's new utility vehicle is called the Tuff-1. Ron Skenes says it's the successor to the company's GXT-804 model. It has a deeper cargo bed, and dump capability. The Tuff-1 was released two months ago.

"People want dependability and versatility; we've been hearing that for a long

time," says Skenes, manager of marketing services for E-Z-Go Textron.

Skenes agrees that golf and landscape professionals want a utility vehicle that can hold its own in a variety of jobs, not just as a way to transport people.

"The more attachments (a utility vehicle can support), the more attractive it is to the landscape manager or superintendent," says Skenes.

Look for a wide variety of utility vehicles and golf cars at the January, 1993 Golf Course Superintendents Association of America show in Anaheim, Calif. If you don't find the utility vehicle you're looking for at *that* show, it probably hasn't been made yet.

—Terry McIver



**Kawasaki's Mule 1000**



**The Carryall VI from Club Car**



**Toro's Workman 3000**

# Advantage: Woods

No matter how you look at medium-duty Batwing® rotary mowers, Woods new MD315 has the advantage. Feature for feature the MD315 is a leader...and the ideal choice for a wide variety of commercial mowing applications. See for yourself.

## Construction: Advantage Woods

7-gauge center frame deck plate, 8-gauge wing frame deck plates, 1/4" steel side frames with adjustable full length skids and full length box frame sections across the entire machine...these are just some of the construction features that give this 40-80 hp tractor rated machine the heft to meet the rigorous demands of daily commercial use.

## Driveline: Advantage Woods

A 35R three joint input drive and Woods exclusive slide-through wing drive design results in the most compact, maneuverable cutter in its class.

## Gearbox: Advantage Woods

Designed, built and field tested by Woods, parts are always available for our U.S. manufactured

gearboxes. Our network of 4,000 dealers ensure prompt service and parts supply.

## Transport: Advantage Woods

The model MD315 wing sections hydraulically fold up and lock to a very compact 78" transport width. Road travel, gate clearance and storage are easier and safer.

## Cutting: Advantage Woods

Cutting height is conveniently adjusted from 1" - 15" and kept level across the entire 15' cutting swath with a single hydraulic cylinder. The MD315's six blades provide clean, even mowing, cutting and shredding of grass, weeds and light brush.

If you're looking for a medium duty Batwing mower that offers versatility, reliability and value...look no further than the new Woods MD315. For more information contact Woods at 815/732-2141.

Circle No. 147 on Reader Inquiry Card

**WOODS**

OREGON, ILLINOIS 61061

# Hold that trip to the local scrap heap; better fates await your old equipment

**Personal contact with prospective buyers smooths the hard sell; advertising helps, too.**

■ Unless your company headquarters is blessed with unlimited storage space, efficiently disposing of old, unwanted equipment can be better for your business operations.

For many landscape managers, unloading used equipment doesn't require a hard sell. Usually, just getting the word out does the trick. The chore is made smoother by simply maintaining personal and business contacts in the community.

"We've never had a problem moving used equipment out of here," reports Robert E. Bushouse of Green King Lawn Care/G&L Distributing in Kalamazoo, Mich. "I meet all the new guys starting out in the business in this area and then I set them up with equipment.

"Most of the established people are in the same position I am—they'd rather buy new equipment," Bushouse points out. But someone who has been in operation just one or two years welcomes the chance to buy bargain used equipment.

In addition to personal contacts, Bushouse keeps a lookout for new landscapers placing ads in the local newspaper. "If they advertise at all, I just plug them into our mailing list. If I have something really hot to sell, I'll send a post card out."

Although the distribution arm of his business helps provide additional visibility, Bushouse notes that people familiar with his sales of used equipment will call seeking specific items or referrals to other local businesses.

**Pots 'n' plants**—Bartering is a technique used at Las Colinas Landscape Services in Dallas, Texas. According to Mike Bratton, customers or vendors—such as a nursery—will make a trade in return for a piece of equipment.

"They'll come in and say, 'Hey, do you guys have any old mowers?' They'll give us pots or plants, and maybe some money will exchange hands," says Bratton. "Or, if I have a mower that's worth \$500, I'll get \$500 worth of trees."

Much of the equipment is used to its capacity. "Sometimes it's just flat worn out and we skeletonize some parts and scrap-metal the rest."

For example, the parts off two dead mowers will be used to keep five others running. The rest is tossed into a pile to be hauled, two or three times a year, to a scrap metal dealer. Las Colinas will get about 20 cents to 25 cents a pound for the several tons that they turn in annually, although the rates vary.

It helps, too, to have all the plastic and other stray materials separated from the targeted scrap, advises Sean A. Bennett, president of Bennett Enterprises in Lomita, Calif. "The cleaner the metal, the more you get for it."

To Bennett, making a scrap run is a form of recycling. The money earned by the scrap from his smaller full-service landscaping

## EQUIPMENT FOR SALE

**PIPE LOCATOR INEXPENSIVE!** Locates, traces underground drain, water pipe lines of clay, PVC, ABS, steel, cement. Finds sprinklers, valves, clogs

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**TREE SPADE:** 1983 FORD F-700, 5 speed truck mounted with a 50" vermeer hydraulic tree spade to transplant material up to 5" caliper. Equipped with large locking utility boxes with shelving and a truck cab top rack to extra protection. Total new paint job on truck and spade. Extra spade and a spare cylinder. Both truck and spade are in excellent condition. \$18,000.

operation pays for the time and energy needed to turn it in. "You break even or make a little bit."

Bennett's selling method of choice for used equipment is a local auction house. "They take 20 percent of what they sell it for." He also likes to buy items at auction because for him it works out better than purchasing new from a dealer. "Our men don't regard new equipment on a high level," he explains.

Some pieces are used over and over again. "Snapper decks will last forever and we'll just put new engines on them," says Bennett. "We won't throw something out until it's seen its final day. It'll see the scrap pile before it sees re-sale."

It's a similar situation at The Country Club of Colorado in Colorado Springs. Superintendent Stan Metsker prefers to trade used items in for new products, but often it's more economical to just keep the good parts and junk the rest. "It doesn't take that many parts to make it worth more than what you'd get for it."

A list of available used equipment circulates in Metsker's area, but the specialized nature of some of the golf course equipment makes it difficult to move. Therefore, Metsker usually opts to trade it in, keep the parts or give it away, depending on the circumstances.

Some items are kept on hand for emergencies. "I try to keep back-up for all my main-line equipment," says Metsker. "I have an old 16-inch rotary that I keep," he notes. "It's not that good, but at least it works. When I get a new mower that one will be out of here."

**Advertise**—At the Monroe Sod Farm in Davidson, Mich., Scott Monroe will place classified advertisements in *LANDSCAPE MANAGEMENT* and work the phones. "Direct contact with different people" is his preferred method.

Placing classified ads in the local daily and community newspaper is the approach favored by Richard Gaffney of Gaffney Landscaping in South Euclid, Ohio. He stresses, however, that timing is everything.

*continued on page 20*



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For more specific information about Greenskeeper 20-4-10 fertilizer with Barricade® herbicide, contact your Lebanon sales representative or local Lebanon distributor. Or call 1-800-233-0628. Because while other combination products may lay claim to season-long crabgrass control, only one is big enough to guarantee it.

Circle No. 116 on Reader Inquiry Card

"I was selling a Bunton walk-behind for \$600 the first day," he recalls. "Now doing that in the fall—no—you wouldn't get that kind of response at all."

Sometimes just keeping a marketable item in a visible spot will attract buyers. Gaffney had an old dump truck that he kept stored in a parking lot in an industrial Cleveland neighborhood. "I wasn't really trying to sell it, but people kept stopping in to ask about it." And one of those streetside shoppers eventually made an good offer.

Placing ads in the local daily paper and posting notices on the company bulletin board board will help move old equipment at Senske Supergreen in Yakima, Wash. Employees or local residents buy the items. "Once in a while we put them on consignment with our repair shop, but they really don't like to do that," reports turf agronomist Bo Hepler.

—James E. Guyette  
— is a freelance writer based in South Euclid, Ohio.

## WALKER DOES TOP LEVEL WORK ON THE ROOF



When Atlanta based landscape contractor, Scapes Landscape Management, wanted to improve efficiency in mowing the award winning Northpark Town Center Rooftop Park, they found Walker fit the job. Steven Coffey, owner of Scapes, told us:

We were surprised to find the Walker gave a better quality cutting job on the Zoysia turf grass than the walk behind reel mower we had been using. In fact, the building management asked us to continue using the "new" mower on their project after the first week we used Walker. Best of all, while improving quality, we cut our job time with the efficiency of the Walker rider. And Walker fits the job because it was compact enough to fit in the service elevator to ride to the third floor park.

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## What to do with old equipment:

- 1) Sell it:
  - a) advertise in local papers or LM
  - b) test the water with 'beginners'
  - c) store it in a visible location
- 2) Trade it in
- 3) Use it for barter
- 4) Put it up for auction
- 5) Sell it as scrap metal
- 6) Use it as back-up equipment
- 7) Keep components as extras for working equipment

## Maintenance prolongs lawn mower life

■ Treat lawn mower engines with the same respect you show your car's engine, says a machinery specialist at Penn State University.

Pay strict attention to owner's guide specifications, plus the viscosity and quality of oil used in the engine, says James Garthe, instructor in agricultural and biological engineering.

Keeping the air filter clean also extends your mower's life.

"If the air filter is dirty, minute particles of silicon can eventually get into the internal moving parts," Garthe says. "A dirty air filter also keeps air from getting to the engine and affects the air/fuel ratio that governs combustion. The engine has to work harder, wasting energy and fouling the spark plug with deposits."

Other hints that Garthe and PSU offer:

- Check spark plugs regularly. Careful scrape deposits from the plug with a pocket knife or wire brush.
- Change oil while it's still warm to drain suspended contaminants.
- If you keep your mowers in a damp location, consider coating them with a silicon spray to keep moisture out and discourage rust. Covering with a plastic tarp also keeps moisture—and rodents—out.