We were helping LCOs stay ahead of the pack before there was a pack.

Back when you could count lawn care operators on one hand, Dow perfected a highly effective insecticide for use in turf. Research showed that this insecticide, called chlorpyrifos, gave immediate control over a broad spectrum of surface feeding insects. And it kept on controlling them for weeks.

That was the start of DURSBAN* insecticides. They were developed and registered for turf applications before any other use. And as the lawn care profession grew, the reputation of DURSBAN spread. LCOs across the country, looking for cost-effective insect control, have found the answer in DURSBAN.

They know that it stays where it's applied, because it bonds tightly to organic material in soil as soon as it dries. So it won't cause damage to non-target species. Won't wash away with rain or watering. And retains its control power for 6 to 8 weeks. They like its broad-spectrum label for turf, ornamental and shade tree insects.

DURSBAN effectiveness has been thoroughly researched and confirmed in decades of testing at leading universities. And DURSBAN is the only turf insecticide on which human toxicity testing has been conducted. So lawn care applicators can apply it with complete confidence, and customers need not worry about the safety of their pets and children after the treated surface has dried.

Dow's partnership with lawn care professionals and golf course managers goes far beyond supplying advanced products. We also conduct many types of market and product research, and share the results for your benefit. We produce helpful training materials for applicators, operators and others. In cooperation with the PLCAA, we have prepared materials to answer frequently asked consumer questions concerning the effect of chemicals on the environment.

DURSBAN insecticides. Developed for lawn care operators—preferred by lawn care operators. Available as emulsifiable concentrates or wettable powders. If you're not using DURSBAN, you could get left behind. Talk to your distributor today.

DURSBAN* Years ahead of the rest.

*Trademark of The Dow Chemical Company
**Warm Season Turf Renovation**

Dr. Charles Peacock of the University of Florida discusses the differences between turf renovation and reestablishment and how and when to renovate.

**Nutrient Needs of Turf**

Dr. Ray Freeborg and William Daniel of Purdue University list how to determine soil nutrient deficiencies.

**Updated 1985 Fertilizer Guide**

Richard Rathjens and Roger Funk of Davey Tree Expert Co. outline turf, tree and ornamental fertilization.

**Team Management In Business**

The first installment in a three-part series on team management addresses hiring and retention of personnel. Parts II and III will appear in the September and October issues, respectively.
Rated First for quality . . . density . . . wear and shade tolerance. Rated high in disease resistance. Performs under heat and drought conditions. Recovers well after severe flooding. Drought resistant. Requires less fertilizer to maintain good health. Can be mowed down to ½ inch in height. (In shade, maintain at 2 inches.)

Strong deep rhizome structure aids fast recovery from injury.

When you're looking for a top quality Kentucky bluegrass that stands up under heavy traffic, makes maximum use of fertilizers, is aggressive in its growth so it chokes out weeds, takes up to 65% shade and can be mowed to as close as half an inch . . . then you need Warren's A-34 BenSun®.

It's the hardy Kentucky bluegrass that's providing better, safer playing fields coast-to-coast in some of the nation's leading stadiums — including San Francisco's Candlestick Park, Denver's Mile High Stadium and Milwaukee's County Stadium, as well as many famous college and university stadiums.

For the professional groundkeepers that run these operations, there's no room for compromise. When toughness and beauty count, they go with the PROs — Warren's A-34 BenSun® Kentucky Bluegrass Seed and Sod supplied by Warren's Turf Professionals.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mowing Height</td>
<td>As low as ½&quot; in direct sun; 2&quot; in shade.</td>
</tr>
<tr>
<td>Fertility Requirements</td>
<td>4 to 8 pounds of N per year per 1000 square feet.</td>
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<tr>
<td>Seeding Rate</td>
<td>1 to 2 pounds per 1000 square feet.</td>
</tr>
<tr>
<td>pH Tolerance</td>
<td>Ranges of 5.5 to 8.8.</td>
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<tr>
<td>Shade Tolerance</td>
<td>Up to 65% shade at 2&quot; mowing height.</td>
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<tr>
<td>Salt Tolerance</td>
<td>E.C. levels up to 4.5.</td>
</tr>
<tr>
<td>Germination Time</td>
<td>7 to 10 days is normal (at 70°F).</td>
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<tr>
<td>Heat Tolerance</td>
<td>Excellent</td>
</tr>
<tr>
<td>Cold Tolerance</td>
<td>Tolerates temps 0°F or below.</td>
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<tr>
<td>Disease Resistance</td>
<td>Superior</td>
</tr>
<tr>
<td>Weed Resistance</td>
<td>High density restricts weed encroachment.</td>
</tr>
<tr>
<td>Texture</td>
<td>Medium</td>
</tr>
<tr>
<td>Color</td>
<td>Medium to lush deep green.</td>
</tr>
</tbody>
</table>

“Wherever you put down roots, go with the PROs.”

Warren's®
Turf Professionals
When you're hot... it's not
Introducing the liquid-cooled 16-hp 330 Diesel from John Deere
Heat. It’s Enemy Number One for man and machine. It can rob you of stamina and your tractor of productivity.

That’s why John Deere built liquid cooling into its new commercial diesel tractor. To help keep it running efficiently and economically, even when you’re sweltering under 100-degree heat.

The new John Deere 330 Diesel is powered by a 3-cylinder 16-hp engine and backed by a 2-year limited warranty. Glow plugs in the precombustion chambers provide fast, reliable starts. A full-pressure lubrication system with replaceable filter delivers oil to vital engine components.

The heavy-duty rear-end features a 1¾-inch axle shaft. Large beveled gears in the differential last longer, deliver power more smoothly.

The new 330 is easy to operate, with hydrostatic drive, hydraulic equipment lift and shoe-type brakes.

It’s comfortable to drive, too. Cushioned, high-back seat, clustered controls and wide, 2-position footrests are standard. An enclosed steering system and tight 26-inch turning radius deliver superb maneuverability.

Visit your John Deere dealer today... and get a little something to take your mind off the heat. The new 16-hp liquid-cooled 330 Diesel.

For the name of the dealer nearest you, call 800-447-9126 toll free (800-322-6796 in Illinois). Or write John Deere, Dept. 76, Moline, IL 61265.

Circle No. 228 on Reader Inquiry Card

Nothing Runs Like a Deere®
Cutting down on toxic waste

Toxic waste can be reduced significantly, say Battelle Memorial Institute scientists, by modifying manufacturing and handling processes. A group of four scientists studying waste generation recently reported that with certain changes, “Waste can be reduced, recycled and reused, or eliminated in attractive and cost-effective means. The group concentrated on manufacturing processes.

Meanwhile, the Environmental Protection Agency is concentrating on the most commonly used pesticides for detoxification of rinsates. EPA is exploring mandatory recycling of pesticide containers. Reusable bulk containers are being tried by some larger distributors and users of landscape pesticides. See Government Update in this issue.

Drought spotlights wetting agents

Drought conditions impacted an unusually large portion of the U.S. this spring and summer causing a resurgence in interest in wetting agents.

Mallinckrodt’s Bill Rhymes blames soil conditions and hard water for inefficient water use in U.S. landscapes and golf courses. “When a soil or other growing medium wets slowly or nonuniformly, it is due to the physical properties of the soil as well as the water. Hydrophobic organic components of soil and a preponderance of capillary pore space combine to restrict the rate of water movement into such soils. Water’s high surface tension, due to strong cohesive forces, restricts movement into capillary pore space. These same characteristics delay water movement out of the soil causing localized wet spots.”

The solution to both dry and wet spots, Rhymes claims, is to increase the rate of water movement by providing a link between hydrophobic soil and hydrophilic water. He claims the link is a wetting agent.

Rhymes offers these guidelines for buying wetting agents. 1) Don’t buy water. Check the percent active ingredient. 2) Select one with a history of success, ranked consistently high in university tests. 3) Wetting agents must be well watered in (liquid) or uniformly mixed with the soil (granular). Wetting agent left on the plant surface can be phytotoxic.

Rhymes says wetting agents also improve drainage, reduce runoff, and eliminate dew for several days following application.

U.S. firms arrange European ties

Uncertainty over currency exchange rates is causing U.S. corporations to establish direct links with European companies. Du Pont recently agreed to acquire Amonn Fitochimica of Italy to direct market agrichemicals in key European markets. Jacobsen Manufacturing recently signed a direct marketing agreement with a British distributor to eliminate one step of distribution. The net result will be a more international market for U.S. and European products and better prices.
Subdue. The most effective fungicide against Pythium blight and damping-off.

Pythium weather. High temperatures, high humidity and high anxiety. Once Pythium takes root, it can destroy turf within hours.

Unless you take a grass-roots approach to Pythium. With Subdue!

Subdue works both on contact and systemically.

Subdue fights Pythium blight and damping-off—as well as downy mildew (yellow tuft)—in two ways. On contact, Subdue destroys the fungi in the soil. Systemically, Subdue prevents disease from within grass plants. That's because Subdue is water soluble—easily absorbed by roots. So Pythium—and now, downy mildew—don't have a chance.

Subdue also controls costs.

Subdue's systemic action means longer, more effective residual protection. Fewer applications. Lower chemical costs. And savings in maintenance and labor. And Subdue's low application rate—1 to 2 fluid oz per 1,000 sq. ft. for 10 to 21 days on established turf—makes Subdue the most cost-efficient protection you can buy.

Before Pythium weather strikes, subdue it. Use Subdue in a preventive maintenance control program. And get a good night's sleep.

Ciba-Geigy, Ag Division, Box 18300, Greensboro, NC 27419.

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HOW TO AVOID SLEEPLESS NIGHTS DURING PYTHIUM WEATHER.

SUBDUE

Circle No. 274 on Reader Inquiry Card
Seed shortages likely; prices could go up

The pendulum swings both ways. That's what seed producers in the Pacific Northwest are finding out this year as over-production of past years has caught up with the industry and shortages are predicted.

"Two years ago, we were crying in our beer about over-production of Kentucky bluegrass," says Bob Petersen of E.F. Burlingham and Sons, Forest Grove, OR. "Now, the acreage is down, so I would anticipate a tight situation this year."

Kent Wiley of Pickseed West, Tangent, OR, says that his company is virtually sold out of all its proprietary "The worst disaster is in Kentucky bluegrasses," Wiley notes. "Last winter, the ground froze before greenunder, and the grass stayed in a burn state. Production is off about two-thirds in the Peluce area south of Spokane. We're figuring all the bluegrasses together will go down from 40 to 30 million pounds."

Adds Mike Robinson of Seed Research, Albany, OR, "Most of the bluegrasses are sold out. And I think the bentgrasses will be very tight for another year, especially since Emerald is out of production now."

"There's also a short supply of perennial ryegrass because the demand is way up. Old crops have been completely sold out in some varieties."

Even though Doyle Jacklin of Jacklin Seed, Post Falls, ID, is expecting a good fair crop of proprietary bluegrasses, he sees prices going up. "This hot, dry weather has affected common Kentucky bluegrass," Jacklin says. "Since all our accounts are keyed on the availability of common varieties, proprietaries will also go up in most cases—even though we have a pretty fair crop of proprietary Kentucky bluegrass looking at us."

Bill Rose of Turf Seed, Hubbard OR, explains some of the research being conducted by Pure Seed Testing during the company's third annual field day earlier this summer. Nearly 300 people turned out for the event.

WATER

Summer rains welcome to Fla. Green Industry

The mid-June arrival of rain was met with open arms by nurserymen, landscape, golf course superintendents—just about everyone involved with turf or plantlife along Florida's gulf coast. The beginning of the rains hopefully gives relief from an extended drought and the severe water use restrictions it spawned.

The Florida drought, which began in August 1984, affected more than 3 million people in the 16 counties of the Southwest Florida Water Management District. SFWMĐ spokesman Bob Bryant cautions, however, "we're not out of the woods yet. What we need is an entire summer of significant rainfall."

Bryant says his district's ground water supply was 35 to 20 inches below normal prior to the coming of rain. "The evaporation and transpiration losses were phenomenal," he tells WEEDS TREES & TURF. Record high temperatures late this spring aggravated the problem.

Although some irrigation was allowed for newly installed sod and landscaping, the watering of established residential lawns was restricted to early mornings just twice weekly. Violators faced fines of $500.

Florida Green Industry spokesmen tell WT&T the drought "hurt business." Says John Blaser, operator of Blaser's Landscape Contractors, Tallahassee, FL, "When people can't plant and water, they won't buy plants."

Marvin Gross of Marvin's Garden & Landscape Service, Sarasota, says "the Green Industry just about stopped because of the drought and the restrictions."

Elsewhere, the driest March-May period in 96 years of record keeping took the Tennessee Valley into summer with a 10 inch rainfall deficit. "There has been no curtailment in the use of water so far," says a spokesman for the TVA, "but it could cause us some problems late in the summer."

TREES

Budworms plague trees in Colorado

The Denver Post reports budworms are killing thousands of trees across Colorado in what foresters are calling one of the most severe and prolonged infestations of the century.

The budworms which kill Douglas firs and some spruces by feasting on their needles, infest three million acres and have killed more than 60 percent of the trees in some remote areas of the Front Range, according to the U.S. Forest Service. Because of monetary considerations, the Forest Service is letting the infestation "run its course."

Budworms appear in droves about once a decade. But only twice this century have foresters recorded a budworm infestation lasting longer than five years. The current attack has proved especially troubling because it began in 1974 and doesn't appear to be abating, says the Forest Service.