

The gypsies are coming

--ready or not!



Be ready this year with THURICIDE — the proven microbial insecticide!



WIDELY USED AND PROVED—Thousands of forest acres in the north-eastern United States area have been treated with Thuricide for control of gypsy moth larvae. Professional arborists and nurserymen have used

it with outstanding success. It is the leading microbial insecticide—worldwide—for protection of agricultural food and other crops.

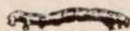
COMPATIBLE, READY-TO-MIX LIQUID—Thuricide comes to you in concentrated liquid form. There are no tedious mixing problems, no danger of nozzle clogging. Thuricide is highly stable, non-phytotoxic to foliage, and can be mixed with other insecticides.

THURICIDE IS SCIENCE'S ANSWER to the professional tree man's problem of gaining effective

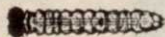
control over gypsy and oak moth larvae—without affecting other forms of life. Thuricide's powerful active ingredient (*Bacillus thuringiensis*) is derived from nature herself. It brings *sure death* to leaf-eating worms, yet there is no risk of toxic drift or residues.

ATTACKS WORMS' GUTS—Once worms ingest Thuricide-sprayed leaf, their digestive systems are quickly destroyed, feeding stops, and death is *inevitable*. Even if worms seem to hang around after spraying, no worry, they're actually starving! Man, birds, beneficial insects and pets, however, are left untouched by Thuricide's unique and selective "target action." For full particulars, see your Thuricide distributor. Or write Sandoz-Wander, Inc., Crop Protection Dept., Homestead, Florida 33030. Or call (305) 248-4671 collect.

USED NATIONWIDE BY ARBORISTS FOR CONTROL OF THESE LEAFEATERS, TOO!



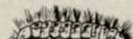
OAK MOTH LARVAE
Ca./trees & shrubs



CANKERWORM (Inchworm)
U.S./trees & shrubs



RED-HUMPED CATERPILLAR
Ca./trees & shrubs



FALL WEBWORM
U.S./trees & shrubs



TENT CATERPILLAR
U.S./trees & shrubs



Thuricide®

Number One Name in Microbial Insect Control!

Cut, rolled, and ready for pick up.

That's the way our one-man sod cutting system delivers sod. It's the Ryan Heavy-Duty Sod Cutter with its Sulky Roller Attachment.

This machine cuts and rolls up to 2 acres of premium-cut sod per 8-hour day, and is built to take the punishment of commercial use. That's why we gave it a heavy-duty name.

We started out



TURF EQUIPMENT

The Heavy-Duty Sod Cutter.



in this business back in 1948 with a uniquely-designed sod cutter. It became famous for its dependability. Today we make all kinds of quality-built turf-care equipment. But our reputation for dependability is still the same.

Write for more information on our dependable sod cutters. Ryan Turf Equipment, OMC-Lincoln, a Division of Outboard Marine Corporation, 2154 Cushman Drive, P.O. Box 82409, Lincoln, Nebraska 68501.

Glade Kentucky Bluegrass Now Available

Glade Kentucky bluegrass, a Rutgers University selection with improved shade tolerance, is now available through local wholesale seed distributors.

Doyle W. Jacklin, agronomist and marketing director of the Jacklin Seed Co., Spokane, Washington, said production of this low-growing, dense-sodding turf will be higher with this season's crop.

Glade was tested for more than nine years as P-29 by Rutgers in the cool season areas of the mid-west and eastern states. More tests are now underway in the southern states and in Australia, Europe and Japan.

Dr. C. Reed Funk, associate research professor in turfgrass breeding at Rutgers did the initial selection of P-29. Jacklin said at the time of its selection the company was searching for a variety with greater shade tolerance.

Glade has an excellent test record and shows a higher level of resistance to mildew, hence a better ability to grow in up to 60 percent shade as well as sun, Jacklin said. It features an improved disease resistance to stripe smut, leaf rust and powdery mildew and blends well with other Kentucky bluegrasses and fine fescues.

It has a moderate to dark green color and grows lower with medium leaf texture finer than Merion, but wider than Fylking. It has the ability to produce dense, closely-knit rhizomes and root systems.

Jacklin said its properties will give a more beautiful lawn in the sun as well as in areas mixed with trees where there is moderate shade.

Aquatic Environment Described In EPA Book

The Environmental Protection Agency has published a guide to understanding the problems of water pollution in the aquatic environment.

Entitled, "Toward a Cleaner Aquatic Environment," the book will help the student as well as the expert to broaden his understanding of the investigative techniques used in the study of the aquatic environment, says Kenneth M. Mackenthun, author.

Copies of the book are available from the Government Printing Office, Washington, D.C. 20402, for \$2.05. The stock number is 5501-00573.

WEEDS TREES and TURF

Wayne Carruth



A. Pete Nicas



Gary Johnson



Jack Murnighan



Stan Frederiksen



HERBICIDES
Where Is The Market?

**PULL OUT
SECTION**



While it slows down the growth of turf, it practically stops broadleaf weeds in their tracks. Which, naturally improves the quality of the turf, as well as the effectiveness of your maintenance program.

And MAINTAIN can be sprayed where machinery can't go. Up steep slopes. Around guard rails. Along fences.

At Washington National Airport in Washington, D.C., MAINTAIN was used on a dangerously steep bank between two levels of the airport. MAINTAIN saved the maintenance department 5 mowings, and the chance of injuries was reduced immeasurably because the equipment was not used as often.

Of course, the best way to find out what MAINTAIN can do for you is to try it. And the best way to do that is to get in touch with your U.S. Borax

distributor
or your nearest
U.S. Borax office:
234 Eglinton Ave.,
East Toronto
315, Ontario, Canada
1290 Avenue of the
Americas, N.Y., N.Y. 10019
1700 East Sherwin Avenue,
Des Plaines, Illinois 60018
300 Interstate N. Parkway,
Atlanta, Georgia 30339
3075 Wilshire Boulevard,
Los Angeles, Calif. 90010



With MAINTAIN® CF 125, you can get along without so much mowing, pruning, trimming and edging.

Because practically everything MAINTAIN touches grows slower.

Just how much slower depends on what the weather does to your greenery and what kind of greenery it is.

For example, 200 acres of grassed median in Pennsylvania were treated with MAINTAIN early last spring, just after the first mowing. The grass was cut once more before Labor Day, and that was it. MAINTAIN saved the State Department of Transportation approximately 5 mowings that year.

What's more, MAINTAIN works on trees, shrubs and vines as well as grasses.



With.

Without.

For More Details Circle (103) on Reply Card



The Herbicide Market

CUSTOM APPLICATION

Editor's Note: Diamond Shamrock has been a leading innovator in the turf chemical business. Their herbicide, Dacthal, was one of the first selective preemergent herbicides used for the control of crabgrass and poa annua—labeled nearly fourteen years ago.

With the addition of other herbicides and Daconil 2787 fungicide, Diamond Shamrock has adopted a total market strategy when considering the turf market. This concept includes not only the golf course and recreational areas, but a major effort has been made by Diamond to offer products to the turf custom applicator.

One of the men at Diamond responsible for this marketing approach, and their entire turf product line, is Wayne Carruth. Wayne is 33 years old, a graduate of Mississippi State University, and has been turf products manager for 2½ years. In a recent interview, Carruth gave us his views on custom application and where he thinks this trend is headed.

WTT: How does the custom application in turf compare to the agricultural applicators?

Carruth: Custom application is an

established and sought after service in all agricultural areas of the United States. Economics and techniques have changed in agriculture to the point that a midwest farmer may hire a local custom applicator with a Hahn Hi-Boy to spray a post-emergent weed killer on his corn. A western rancher may hire an applicator with a converted World War II B-17 to spray range land. Both men getting the job done quicker, cheaper and, possibly, better than they could have done it themselves. On the other hand, custom application in the turf industry has trailed agriculture. The home owner and industrialists are slowly adopting custom application but few golf courses are utilizing it.

WTT: Why are golf courses slow to adopt custom application?

Carruth: There are only a few applicators offering this service to the golf courses.

WTT: Do custom applicators specialize, or does a lawn applicator also spray industrial areas?

Carruth: Some applicators cover

both, but I usually divide turf applicators into two groups — those that specialize in lawns and those that specialize in industrial weed control and bare ground — however, I feel they both have a tremendous potential for growth.

WTT: Is this potential equal?

Carruth: Not totally, but it really depends on the area of the country you are referring to. The industrial applicator has been around the longest. Factories, schools, apartment complexes, and even drive-in movies have a need for weed control or sterilization — but no knowledge of what chemicals to use, or how to apply them. The custom applicator can complete these jobs effectively and economically because he has the equipment and the knowledge. What's more, he doesn't endanger the environment because he knows which chemical to use and at the correct rate. Let's face it . . . he won't use any more than he needs to, because his costs increase if he over-applies.

The custom lawn applicator, however, has the biggest market potential. There are millions of acres in lawns across the nation, and the average home owner doesn't really know how to care for his lawn. Not only that, but he doesn't want to spend the time required to maintain good turf.

WTT: Do lawn applicators offer essentially the same service?

Carruth: No—some offer a complete program of fertilization, weed and insect control, while others offer only a partial program of spring fertilization and crabgrass control. In my opinion, it's the applicator that offers the total program that will have the greatest success. If a home owner cares enough about his lawn to buy a custom program, he wants it to look good all season, not just in the spring.

WTT: Why has the home owner waited until now to adopt custom application for his lawn?

Carruth: Again I'll have to say, the service hasn't been offered
(continued on page NN)

Give crabgrass

One
week



Two
weeks



Four
weeks



(Like 2 feet in 10 weeks.
It'll also produce 3,000 seeds
to grow on you next time.
Balan[®] nips all this in the bud.)

a chance and it'll grow on you.



Untreated, there'll be a bigger crop next time, make no mistake. With your fertilizing and watering, crabgrass plants become fully-equipped seed factories in ten weeks.

Balan puts crabgrass out of business. Other annual weedgrasses, as well. A pre-emergence weed killer, Balan forms its protective zone where seeds germinate. Kills 'em, despite heavy rains and irrigations.

Works economically even on big areas. Costs \$15-30 an acre. (Certain

warm-season areas require two applications at a heavier rate for year-around control.)

Balan is convenient, too—granules are easily applied with your equipment. Make Balan's crabgrass control a key step in your lawn-care. See your turf supply and equipment distributor now. Or contact us for the name of the distributor nearest you.
ELANCO PRODUCTS COMPANY
• A division of Eli Lilly and Company • Dept. E-455, Indianapolis, Ind. 46206, U.S.A.



One of Elanco's dependable weed-control crew



(Balan®—benefin, Elanco)



The Herbicide Market GOLF COURSES

By **STAN FREDERIKSEN**
Manager, Turf Products
Mallinckrodt Chemical Works

SOME FIFTEEN MILLION or more golfers currently play the eleven thousand-plus United States golf courses. Almost twelve million play at least 15 rounds per year, and the number of both golfers and rounds is rapidly increasing.

Characteristic of American golfers is their continuing demand for better playing conditions, especially more carefully manicured turf. This, of course, stems from their determination to continually improve their scores. One of their strongest demands is that the turf be free from weedgrasses and broadleaf weeds. This overall attitude contrasts with that in Europe and some other areas, where less-than-perfect turf is accepted as part of the "challenge" of the game of golf itself, particularly on fairways and in roughs.

On the other hand, it coincides with that of golfers in Japan, where the demand for immaculate golf turf, including freedom from weeds, follows the traditional pattern of Japanese precision, neatness and care in grooming parks, gardens, home lawns and other aesthetic and recreational areas. Long before the advent

of herbicides, Japanese golf courses were hand-weeded by scores of maintenance crew members.

The late fifties and early sixties saw a strong surge of excellent weed control chemicals, including pre-emergence herbicides, which killed weedgrass seeds as they tried to germinate in soils, so that mature weedgrass plants would just never be seen. Full-season weedgrass-prevention thus became a reality.

Presently almost 1.5 million acres are devoted to golf course facilities in the United States. Of course, not all this acreage is in weed-free turf, or even in turf at all, because the facilities normally include forested and ornamentals areas, roads, the club house, maintenance buildings, tennis courts, parking areas, and the like.

At the same time, the recreational turf area on any course is sizeable and normally is considered, in order of maintenance quality, to consist of greens, tees, fairways and the rough. As freedom from weeds in roughs is of least concern, only a broadleaf weed control program is usually followed in these areas. Thus, the golf course market for herbicides is made up essentially of greens, tees and fairways.

Roughly half of the estimated eleven thousand golf courses are 9-

hole layouts. These 5500 courses, divided by 2, would yield approximately 2750 "18-hole equivalent" courses, which, added to the number of actual 18-hole courses, give an estimated total of about 8250 18-hole equivalent courses.

The average 18-hole course contains some 2½ acres of greens, 2½ acres of tees, and 40 acres of fairways, or a total of 45 acres of fine turf actually in play, and high quality-maintained for the golfer.

Simple arithmetic then shows the 8250 18-hole equivalent courses, with 45 treatable acres, each, to comprise around 371,000 acres, on which both preemergence weedgrass herbicides and postemergence broadleaf herbicides should be used routinely.

The dollar golf course herbicide market depends of course on such things as product used, cost (not per pound or gallon, but per application per acre per season), whether combination formulations are used (meaning a "one time" labor expense) or separate applications of individual chemicals, each requiring the expense of a separate application, the residual effect of the product used, and other factors.

Typically, any course will strive for 100% fine turf coverage of greens, tees, fairways and the clubhouse lawn. In this market bare ground is not wanted, and in many cases simply is not tolerated. The superintendent's weed control program, therefore, is essentially one of preventing weedgrasses (preemergence control) and eliminating already-growing broadleaf weeds (postemergence control) from the desirable turf cover. As to weedgrasses (crabgrass, goosegrass, poa annua and other annuals), excellent preemergence herbicides are available, including Pre-San (Mallinckrodt), Betasan (Stauffer), Balan (Elanco), Dacthal (Diamond Shamrock), and others. The facts to remember about these are:

1. They must be applied before the weedgrass seed germinates.
2. They must be well watered-in, to form an inch-deep or more soil "barrier" to stop the weedgrass seeds as they try to germinate.
3. The treated areas must not be disturbed, after a preemergence application, by turf renovation of any kind (aerating, vertical mowing, etc.) as this would break the "barrier" and bring to the surface weedgrass seeds in untreated soil where they would germinate and thrive, thus destroying the application's effectiveness.

Costs for pre-emergence materials
(continued on page NN)



Beautiful turf is no accident. Make it happen with Acti-dione® 4-season disease control

The old saying that beauty is more than skin-deep is nowhere more applicable than on a golf course. Beautiful turf will not retain its beauty unless it remains healthy. In addition to normal wear and tear from golf play and stress from variable weather conditions, fungi are an ever-present health threat to turf. There's little you can do about golf play and weather, but you can control fungal diseases. An effective, economical way to combat fungal growth all year long is to use Acti-dione® Thiram and Acti-dione TGF® in a four-season disease control program. With fungi out of the way, turf has a better chance to grow strong and healthy — to resist weed infestation, to bounce back from injury and to survive adverse weather conditions. See your TUCO distributor today for complete information and assistance in planning a four-season disease control program with Acti-dione turf fungicides.



Use Proxol* 80SP to help prevent insect damage



Division of The Upjohn Company, Kalamazoo, Michigan 49001

For More Details Circle (113) on Reply Card

In Spring, watch out for Leaf Spot

The same conditions that promote spring growth can open the door to leaf spot, dollar spot and melting-out. For best results, apply Acti-dione TGF every 7 to 10 days, starting right after the first mowing.

*Trademark

Why 74 hard-to-please businessmen

A whole lot of exciting things have been going on at Jacobsen lately.

So all 74 of us Jacobsen distributors (and over 200 of our salesmen) came in for a hard-nosed look. And we went home smiling. There were a lot of good reasons. Here are some of them.

First, the new Greens King. Jacobsen has

redesigned the 1974 model. The added features give even greater performance.

Then, the Turf King 76 and Turf King 84 were also redesigned. Which took some doing since they were proven winners to start with.

To round out the line with a smaller mower, Jacobsen is introducing the brand new Turf King 70. There's a lot more. Like the new riding sand

