Hand-weeding areas like this doesn't make sense today. Not when Roundup® herbicide can do the job faster and better and give you more time to handle more customers.

Here's how: one-shot Roundup controls over 100 weeds right down to the roots, including poison ivy, poison oak and kudzu. One gallon of 2% spray solution can treat up to 30 tree rings for about a nickel each, or 1,000 feet of fenceline for less than $2.00.*

It also pays to use Roundup when you're working around expensive ornamentals—because Roundup won't wash, leach or carryover in the soil. And Roundup is virtually odorless and environmentally sound.

Use Roundup wherever you've been hand-weeding—around patios, flower beds, curbs, walkways, driveways, mulched areas, fences and steps. The choice is simple. You can spend valuable time hand-weeding. Or you can use Roundup to help you make more money. Now, that's using your head.

*Based on the cost of Roundup only to treat low growing vegetation.

FOR A FREE TRIMMING AND EDGING GUIDE FOR ROUNDUP CALL TOLL FREE 800-621-5800. IN ILLINOIS, CALL 800-972-5858.

ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR ROUNDUP.

Roundup® is a registered trademark of Monsanto Company.

© Monsanto Company 1984 RSP-4-104D
Life cycle of the chinchbug shows a treatment made in May will be effective in controlling nymphs, before they become adults and lay eggs, and before damage is greatest in July.

Confirms as the bloom of red bud appears. While an application of Oftanol® in March may be successful in preventing summer infestations of larvae, the probability of success is increased by waiting until April.

Greenbug — The only stage of the greenbug known to overwinter in northern states is the egg. Shiny black eggs deposited the previous fall may be found adhering to grass blades, fallen tree leaves or other debris. Treatment for greenbug is not appropriate during late winter.

Sod Webworm — The most common sod webworm species on northern turfgrasses overwinter as larvae in the thatch or upper inch of soil. Feeding does not resume until hibernation (dipause) is broken by early spring warmth. Treatment for sod webworm is usually not appropriate during late winter.

SPRING (April-May)

Chinchbug and Billbug — As warm days of May approach, movement of chinchbug and billbug adults increases rapidly. Generally, egg laying begins during May, but may occur as much as a month early in some areas. Occasionally on warm afternoons, adult billbugs can be seen wandering about on sidewalks.

Generally, application of insecticides to prevent infestations of chinchbugs and billbugs should be completed by the first week in May, before significant numbers of eggs are laid. This time may vary as much as a week or more depending upon the spring weather.

Grubs — Overwintered grubs return to the surface and begin feeding on turfgrass roots in April. Increased activity and damage from moles, skunks, and raccoons foraging on grubs can also be expected. Feeding by mammals and grubs continues through May.

A single application of Oftanol® (2 lbs. Al/acre) made during April has been successful in controlling overwintered grubs and preventing subsequent infestations during late summer. Application made during May may not provide immediate control, however, prevention of the late summer infestations may be expected.

Infestations of grubs can also be controlled during April or May by spot or general treatment with Diadizinon (5.5 Al/acre), Turcam® (bendiocarb, 2 lb. Al/acre), or Proxol (Trichlorfon, 8 lbs. Al/acre). Golf course superintendents may also use Nematicide/Insecticide (ethoprop, 10 lbs. Al/acre). Irrigation or rainfall should follow such applications, to move the insecticides to the target grub as soon as possible.

Although milky spore disease products for control of Japanese beetle grubs may be applied anytime there is no frost in the ground. Spring is a good time for such applications because the soil is open and frequent rains help carry the spores deep into the soil. Remember, such products are effective against the Japanese beetle grub only.

Infestations of large grubs (larvae of June bugs) have been occurring on a three-year cycle in some areas of Michigan and Minnesota. Locations of such infestations should be identified because reinfestation is likely every three years.

Controls, such as Oftanol®, Diadizinon, Proxol®, or Turcam should should be applied in August or September during years when large numbers of adults are seen. Eggs are laid in May and June; therefore treatment should be applied in late summer, early fall of that year or early the next spring while the larvae are small. Later applications against full-grown larvae have given inadequate control.

Mole Crickets — Mature adult mole crickets emerge from the soil in May and engage in mating and dispersal flights. Eggs are laid in chambers hollowed out in the upper six inches of soil.

Though some variation in results has been experienced, application of Oftanol® (2 lbs. Al/acre) during this time has been generally successful in preventing summer damage. Irrigation following treatment is advisable.

Black Turfgrass Ataenius — Adults of the black turfgrass ataenius can be seen flying about in April and are often found in clipping catchers after early continued on page 36
An advanced carbamate insecticide that roots out and ruthlessly destroys white grubs, chinch bugs, sod webworms, mole crickets and other lawn and turf "terrorists". This tough operator doesn't get trapped in thatch, thus assuring positive grub control. TURCAM® is odorless...works well in spray equipment...won't damage turf or ornamentals. You'll find that TURCAM packs a federally-approved nationwide label, too.

Powerful reasons for assigning TURCAM to your toughest pest control problems.

For more information on TURCAM, including full labeling and recommendations for use, contact your local distributor or write to:

WNOR-AM
NOR-AM CHEMICAL COMPANY
3509 Silverside Road, P.O. Box 7495
Wilmington, DE 19803

Circle No. 141 on Reader Inquiry Card
BOOKSTORE

645-MANAGEMENT OF TURFGRASS DISEASES by J.M. Vargas
Identifies turfgrass diseases by description and illustration. Includes a holistic approach to healthy turf and lawns. Presents practical management strategies for golf courses, lawns and athletic fields. 204 pages, illustrated $24.95

615-TURF MANAGEMENT FOR GOLF COURSES by James B. Beard
Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course operations including course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully illustrated. $45.00

110-120 TURF MANAGERS' HANDBOOK by Drs. William Daniel and Ray Freeborg
This specially designed manual by leading turf specialists is a comprehensive, organized approach to turfgrass science and care. An easy, on-the-job reference for planning, purchasing, hiring, construction and plant selection. $39.95 hardcover, $23.95 paperback

665-ARBORICULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE by Richard W. Harris
Provides comprehensive coverage of complete planting, site analysis, preparation and special planting methods, fully-detailed coverage of fertilization, irrigation and pruning guidelines on preventive maintenance, repair and chemical control, how-to's of diagnosing plant problems, practical data on non-infectious disorders, diseases, insects and related pests and pest management. $34.95

300-LANDSCAPE DESIGN: A PRACTICAL APPROACH by Leroy Hannebaum
Geared for the commercial designer/salesperson, this is a one-stop guide to the landscape design process. Covers the entire highly competitive field including design analysis techniques, pointers on land forms, specialized business landscaping methods, environmental design guidelines, specifications, estimates, bids. $19.95

365-RESIDENTIAL LANDSCAPING I by Theodore D. Walker
Provides an in-depth discussion of the planning, design and construction phases of residential landscaping, illustrated with the work of professional landscape architects. Covers everything from analyzing the site to constructing the landscape. $22.50

485-WOODY ORNAMENTALS by Parykta, Joyner, Rimespach, Carver
Illustrates plant identification characteristics. Organized in two basic sections: plant identification and plant disorders, this text utilizes 430 color photos, 430 line drawings and 41 black and white photos to simplify identification. Goes into detail on plant identification and description as well as plant problems such as diseases, chemical, insects, animals and physiological disorders. $27.95

880-THE GOLF COURSE by Geoffrey S. Cornish and Ronald E. Whitten
The first book ever to give the art of golf course design its due, and golf course architects the credit and recognition they deserve. 320 pages and approximately 150 color and black and white photographs. Traces the history and evolution of the golf course, analyzes the great courses, shows how they were designed and constructed. $35.00

675-HILLIERS' MANUAL OF TREES & SHRUBS by H.G. Hillier
A new fourth edition of this highly successful textbook presents essential concepts pertaining to gardening, horticulture, soil and climate, storage in the soil and use by the plant. Basic underlying principles that govern irrigation practices are stressed. Generalized concepts are discussed and newly formulated practices are examined. $29.95

395-LANDSCAPE ARCHITECTURE by John Ormsbee Simonds
A Manual of Site Planning and Design. This long-awaited second edition outlines and analyzes the complete landscape process from site selection to finished project. In simple and clear terms it describes various planning constraints imposed by the forms, forces and features of the natural and built landscape. $34.95

345-COST DATA FOR LANDSCAPE CONSTRUCTION 1984 Kathleen W. Kerr. Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. $28.75

405-WOODY ORNAMENTALS by Carver
A complete account of the facts, characteristics, habits, potential uses and recognition they deserve. 320 pages and approximately 150 color and black and white photographs. Traces the history and evolution of the woody plant, analyzes the great plants, shows how they were selected and constructed. $35.00

350-ADVANCES IN TURFGRASS PATHOLOGY by Dr. B.G. Joyner & Dr. P. Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky Bluegrass in Minnesota, initial and field fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. $27.95

625-ADVANCES IN TURFGRASS ENTOMOLOGY edited by H.D. Niemczyk and B.G. Joyner
A complete account of the facts presented at the 1980 Symposium on Turfgrass Insects. 200 photographs, tables and graphs make this volume an indispensable reference for anyone connected with the turfgrass industry or research. $24.95

635-IRRIGATION PRINCIPLES AND PRACTICES by Hansen, Israelzen and Shrimpton
A practical text for irrigation system designers, irrigation equipment manufacturers, irrigation contractors, irrigation consultants, irrigation operation managers, irrigation system installers. $29.95

310-IRRIGATION PRINCIPLES AND PRACTICES by Hansen, Israelzen and Shrimpton
A practical text for irrigation system designers, irrigation equipment manufacturers, irrigation contractors, irrigation consultants, irrigation operation managers, irrigation system installers. $29.95

655-TURFGRASS: SCIENCE AND CULTURE LABORATORY MANUAL by Beard, D. Paul, Johns and Karnok
Class tested for over three years, this manual furnishes a wealth of practical exercises which can be easily adapted to your particular course structure. Exercises involve students in vegetative and seed identification, equipment and irrigation system selection and operation, problem solving of typical turf problems involved in turfgrass operations and the diagnosis of problems with emphasis on weeds, diseases and insects. Encompasses both warm and cool season turfgrasses. $10.95

100-120 TURF MANAGERS' HANDBOOK by Drs. William Daniel and Ray Freeborg
This specially designed manual by leading turf specialists is a comprehensive, organized approach to turfgrass science and care. An easy, on-the-job reference for planning, purchasing, hiring, construction and plant selection. $39.95 hardcover, $23.95 paperback

675-HILLIERS' MANUAL OF TREES & SHRUBS by H.G. Hillier
A new fourth edition of this highly successful textbook presents essential concepts pertaining to gardening, horticulture, soil and climate, storage in the soil and use by the plant. Basic underlying principles that govern irrigation practices are stressed. Generalized concepts are discussed and newly formulated practices are examined. $29.95

345-COST DATA FOR LANDSCAPE CONSTRUCTION 1984 Kathleen W. Kerr. Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. $28.75

350-ADVANCES IN TURFGRASS PATHOLOGY by Dr. B.G. Joyner & Dr. P. Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky Bluegrass in Minnesota, initial and field fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. $27.95

625-ADVANCES IN TURFGRASS ENTOMOLOGY edited by H.D. Niemczyk and B.G. Joyner
A complete account of the facts presented at the 1980 Symposium on Turfgrass Insects. 200 photographs, tables and graphs make this volume an indispensable reference for anyone connected with the turfgrass industry or research. $24.95

655-TURFGRASS: SCIENCE AND CULTURE LABORATORY MANUAL by Beard, D. Paul, Johns and Karnok
Class tested for over three years, this manual furnishes a wealth of practical exercises which can be easily adapted to your particular course structure. Exercises involve students in vegetative and seed identification, equipment and irrigation system selection and operation, problem solving of typical turf problems involved in turfgrass operations and the diagnosis of problems with emphasis on weeds, diseases and insects. Encompasses both warm and cool season turfgrasses. $10.95

310-IRRIGATION PRINCIPLES AND PRACTICES by Hansen, Israelzen and Shrimpton
A practical text for irrigation system designers, irrigation equipment manufacturers, irrigation contractors, irrigation consultants, irrigation operation managers, irrigation system installers. $29.95

345-COST DATA FOR LANDSCAPE CONSTRUCTION 1984 Kathleen W. Kerr. Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. $28.75

350-ADVANCES IN TURFGRASS PATHOLOGY by Dr. B.G. Joyner & Dr. P. Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky Bluegrass in Minnesota, initial and field fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. $27.95

625-ADVANCES IN TURFGRASS ENTOMOLOGY edited by H.D. Niemczyk and B.G. Joyner
A complete account of the facts presented at the 1980 Symposium on Turfgrass Insects. 200 photographs, tables and graphs make this volume an indispensable reference for anyone connected with the turfgrass industry or research. $24.95

655-TURFGRASS: SCIENCE AND CULTURE LABORATORY MANUAL by Beard, D. Paul, Johns and Karnok
Class tested for over three years, this manual furnishes a wealth of practical exercises which can be easily adapted to your particular course structure. Exercises involve students in vegetative and seed identification, equipment and irrigation system selection and operation, problem solving of typical turf problems involved in turfgrass operations and the diagnosis of problems with emphasis on weeds, diseases and insects. Encompasses both warm and cool season turfgrasses. $10.95

310-IRRIGATION PRINCIPLES AND PRACTICES by Hansen, Israelzen and Shrimpton
A practical text for irrigation system designers, irrigation equipment manufacturers, irrigation contractors, irrigation consultants, irrigation operation managers, irrigation system installers. $29.95

345-COST DATA FOR LANDSCAPE CONSTRUCTION 1984 Kathleen W. Kerr. Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. $28.75
BOOKSTORE

575-MODE OF ACTION OF HERBICIDES by Floyd M. Ashton and Alden S. Crafts
Provides worldwide body of information on each class of herbicide. Cross-indexed tables of common and trade names of herbicides are included. New herbicides accepted since 1972 are listed in this revised second edition. Excellent practical reference for specialists in field of weed science. $58.95

700-RECREATION PLANNING AND DESIGN by Seymour M. Gold
A comprehensive look at recreation needs for parks and how they can design the park facility for the community. Book's content can help justify construction and maintenance needs. $39.50

565-WESTCOTT'S PLANT DISEASE HANDBOOK
by Walter C. Muenchser
Second edition. Premier text for identification and basic natural history for weeds found in the continental United States and Canada. Ecological data on weed biology combined with excellent keys and plant descriptions makes this an essential reference book. $37.50

ADDITIONAL TITLES

340 - CONSTRUCTION DESIGN FOR LANDSCAPE ARCHITECTS $39.50
410 - DISEASES & PESTS OF ORNAMENTAL PLANTS $32.50
510 - DISEASES OF SHADE TREES $23.50
565 - DISEASES OF TURFGRASSES $30.00
350 - HANDBOOK OF LANDSCAPE ARCHITECTURAL CONSTRUCTION $48.50
510 - HORTUS THIRD $125.00
690 - INSECTS THAT FEED ON TREES & SHRUBS $47.50
370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS $20.95

545 - MODERN WEED CONTROL $21.50
700 - THE PRUNING MANUAL $15.95
720 - SHRUB IDENTIFICATION $8.00
750 - TREE IDENTIFICATION $9.95
760 - TREE MAINTENANCE $35.00
640 - TURF IRRIGATION MANUAL $22.95
620 - TURF MANAGEMENT HANDBOOK $18.00
650 - TURFGRASS MANAGEMENT $21.95
630 - TURFGRASS: SCIENCE & CULTURE $27.95
570 - WESTCOTT'S PLANT DISEASE HANDBOOK $36.50

CLOSEOUTS

ORDER THESE TITLES AT SPECIAL REDUCED PRICES!

455 - THE GRAFTERS HANDBOOK $16.95
460 - GREENHOUSE ENVIRONMENT $21.20
335 - LANDSCAPE DESIGN THAT SAVES ENERGY $8.50

Mail this coupon to: Book Sales
Harcourt Brace Jovanovich Publications
One East First Street, Duluth, MN 55802

Name ____________________________
Street Address ____________________________
P.O. Box Number ____________________________
City/State/Zip ____________________________
Signature ____________________________ Date ____________
Phone Number ____________________________

Please send me the following books. I have enclosed payment* for the total amount.

Purchase Order Number ____________________________

Please charge to my Visa, MasterCard or American Express (circle one)

Account Number ____________________________ Expiration Date ____________________________

BOOK NUMBER AND TITLE QUANTITY PRICE TOTAL PRICE

*Please add $3.00 per order plus $1.00 per additional copy for postage and handling.

Please allow 6-8 weeks for delivery.
Prices subject to change.
Quantity rates available on request.

Total Enclosed ____________________________

(postage & handling)

WTT 54

MAY 1984/WEEDS TREES & TURF  35
TURF

Fire ant spread continues, millions bitten monthly

The imported red fire ant reportedly bites more than 2.5 million Americans each month. Its painful bite makes this insect the nuisance pest of the 80's.

According to Ricks Pluenneke in Fort Worth, TX, red fire ant mounds range from small to two-feet in height and two or more feet wide.

Imported red fire ants.Both black and red imported fire ants entered the U.S. from South America in 1918 through the port of Mobile, AL. The black version hasn't been nearly as successful in spreading across the South as its cousin has. The red imported fire ant reached Texas in 1953 and currently occupies portions of Florida, Georgia, South Carolina, North Carolina, Oklahoma, Arkansas, Tennessee, Mississippi, Alabama, and Louisiana. Experts expect the pest to find its way to the humid portions of California and Arizona during this decade.

Farmers have reported as many as 200 mounds per acre of pasture.

The ants construct a network of tunnels and chambers in the mound and in the soil beneath the mound. They move to the most comfortable portion of the den with changes in temperature and moisture. "Extremely wet weather is a good time to treat because the ants come out of the ground to work on the mound," says Dr. Craig Sheppard, research entomologist for the Coastal Plain Experiment Station, Tifton, GA. "The ants are harder to control in extremely hot, dry weather or in the middle of a summer day, because they are deeper in the ground at these times."

Baits, drenches and fumigants have been tried to control the ants. Baits are effective during warm days when the ants are actively feeding. American Cyanamid developed the bait Amdro specifically for the fire ant.

Drenches are useful at any time. Pluenneke recommends five gallons of insecticide solution per mound, making sure to flood all tunnels and chambers.

Most soil insecticides can be used for drenches, including Dursban, Orthene, Oftanol, Diazinon, Mocap and others. Orthene 75S, for example, is mixed with water at the rate of one ounce in five gallons of water. Ortho recommends a four-foot diameter area around the mound be soaked as well as the mound. Disruptions to the mound should be avoided or the ants will attempt to hide the queen, says Sheppard.

A combination of controls on a regular basis may be needed to prevent reinvasion from adjacent untreated areas.

Application of Oftanol® during April or May has successfully prevented larval infestations during the summer. Diazinon (5.5 lbs. Al/acre) applied to fairways when Vanhoutte spirea first mowing of golf course greens. These adults begin laying eggs in early May, or about the time Vanhoutte spirea first comes into bloom.

When necessary, a wide range of insecticides including Diazinon, Dursban®, Proxol®, Aspion, Sevin® (carbaryl) and others applied at labelled rates may be used to obtain control.

Sod webworm—Overwintered larvae of the sod webworm begin feeding as soon as the grass begins to grow. Usually damage is insignificant, but areas which do not green-up may be infested. These areas frequently have probe marks from starlings who feed on the larvae.

Black Cutworms—Moths of the black cutworm begin laying eggs...
When your job depends on stopping gypsy moths and other pests, depend on ORTHENE.

ORTHENE® Tree & Ornamental Spray (common name: acephate) is the professional way to kill gypsy moth larvae... plus a wide range of other insects. It kills on contact, then keeps killing with residual action.

What other insects? ORTHENE also works on aphids, bagworms, birch leafminer, tent caterpillar, Douglas fir tussock moth larvae, webworms, scales, California oakworm, spring and fall cankerworms, Nantucket pine tip moth larvae and adult root weevil.

See your ORTHO Distributor or send in the coupon for more information — make your job easier, with ORTHENE.

AVOID ACCIDENTS: For safety, read the entire label including precautionary statements. Use all chemicals only as directed. Copyright © 1984 Chevron Chemical Company. All rights reserved.
Life cycle of the mole cricket indicates adult treatment is most effective in May and nymph treatment in late June.

on golf course greens and other turf areas in the spring. These eggs hatch producing larvae that feed on grass blades during the night. While visible damage is uncommon on home lawns, damage can be significant on golf course greens in late May.

Generally, the insecticides effective against the sod webworm are also effective against cutworms. The principle of controlling these pests is to apply the insecticide late in the afternoon to the grass and allow the cutworm to feed on and contact the treated foliage. Irrigation following liquid application is therefore not advisable.

Greenbug—Greenbug eggs begin hatching as early as April, but significant infestations do not develop until later in the year. Aphid numbers are too low to detect.

Winter Grain Mite—Damage from this mite is often first noted in April when home lawns are receiving spring pesticide and fertilizer applications. By late May, the mites will have laid their eggs and died. Mites do not appear again until the eggs hatch in October.

If treatment is necessary, liquid Diazinon or Dursban® will provide control.

Clover Mite—Incidents of visible damage to home lawns were seen during April in several Ohio cities and Denver, CO. Usually a nuisance pest in and around homes, the clover mite appeared in large numbers (5,000 per square foot) across entire lawns and on turf next to building foundations. Symptoms of injury were the same as the winter grain mite. Turf next to foundation was often killed.

The clover mite has a slightly pink body, eight pale-colored legs. The first pair of legs are extremely long and protrude well out in front of the mite. The absence of bright red legs distinguishes the clover mite from the winter grain mite.

Treatment with liquid Diazinon (2.5 lbs. Al/ac) or Dursban® (1 lb. Al/ac) readily provides control.

SUMMER (June-August)

Chinchbug—Chinchbug eggs begin hatching in May and continue into June when bright red nymphs appear. The number of chinchbugs increases rapidly reaching a peak during July when northern lawns can sustain severe damage.

During August the nymphs molt into adults that mate, lay eggs, and produce a second generation. Some northern areas have only one generation each year.

A wide range of insecticides, such as Dursban®, Diazinon, Aspon®, and Sevin® may be used at labelled rates to control existing infestations. Treatments should be applied before injury is severe, otherwise, damaged areas may not recover.

Billbug—Billbug larvae feed in grass stems during June but move to the plant crowns and roots during July. This feeding causes brown spots that frequently resemble the symptoms of some fungus diseases. During August the larvae burrow deeper into the soil to pupate and transform into adults.

Infestations discovered during this time may be treated with applications of insecticides such as Diazinon, Turcam®, and Proxol® at rates used to treat existing grub infestations. Irrigation or rain following applications is needed for optimal results. If larvae are feeding in the root zone, control may be difficult to achieve. Oftanol® applied during June controls feeding larvae and also provides control of late summer grub infestations.

Grubs—By June, grubs have stopped feeding and are in the pupal stage three to four inches deep in the soil. Beginning in mid-June and continuing through mid-July, the adults of various species emerge and burrow into the soil to lay eggs. Hatching and appearance of young larvae occur during July and August.

Oftanol® applied in June provides control of developing grubs during August as well as chinchbugs and/or billbug larvae present in the turf at the time of application. Existing infestations of grubs found in August may be treated with Proxol®, Turcam®, Oftanol®, Diazinon, or
PROXOL KILLS GRUBS AND SURFACE FEEDERS. FAST!

KILLS WHITE GRUBS, ATAENIUS, SOD WEBWORMS, ARMYWORMS, CUTWORMS.

You don’t have to wait over a month for a grub control to work. Economical Proxol 80SP insecticide readily penetrates thatch, to work fast for an effective broad spectrum kill.

Proxol's fast action lets you program for grub control. When you need it. Where you need it. There’s no need to treat your entire acreage. But when grub problems arise, you can spray affected areas for fast Proxol control at an economical cost. As an added convenience, you can even mix Proxol with other non-alkaline chemicals.

And you can rest easy with Proxol. Players are not exposed to a granular residue left on the turf. Proxol is easy on the environment, too. There’s no unpleasant odor to offend players. No long-term residual buildup in the soil.

Proxol kills grubs and surface feeders. Fast!

Over 150 U.S. distributors and 8 regional TUCO Distribution Centers assure convenient product availability.

For more information, call toll-free:
Outside Michigan — 800-253-8600
Inside Michigan (collect) — 616-385-6613
Nematicide/Insecticide (golf courses only) at standard label rates. At least one-half-inch of irrigation following treatment maximizes insecticide effectiveness.

Mole Crickets—Mole crickets lay eggs through mid-June. Depending upon location, eggs hatch from early June through August with peak hatch during June.

In areas where damage occurred previously, sprays of Baygon® (propoxur), Sarolex® (diazinon), or granular Mocap® (ethoprop) at labelled rates have shown effectiveness when applied in early June. Irrigation of one-half-inch or more should be applied after treatment.

Bait formulations with Baygon®, Malathion, or Sevin® have also been effective when applied during late June. Irrigation should not be applied for three to four days after application of baits.

Black Turfgrass Ataenius—Eggs laid by beetles during May hatch in June and the larvae begin feeding on the turf roots immediately. From late June to mid-July, symptoms of injury include wilting of the turf, in spite of irrigation. In July, larvae move deep into the soil, pupate and emerge as adults. In states such as Ohio, these adults lay eggs during August producing a second generation of larvae capable of damaging turf.

If a preventative program was not applied, existing infestation may be spot or generally treated with Proxol®, Turcam®, Diazinon or Nematicide/Insecticide at label rates.

Black Cutworm—By June, larvae of the black cutworm are large enough to cause visible damage to golf course greens. These larvae pupate in the soil or thatch and emerge as moths that lay eggs on the turf in July. The larvae of this second generation are present on greens in August.

Cutworm larvae can be controlled with a wide range of insecticides such as Dursban®, Proxol®, Aspon®, Sevin® and others, at label rates. Irrigation following liquid applications is generally not advisable.

Greenbug—Damaging populations of greenbug can occur from June through August. Populations and incidents of damage frequently varies from area to area, continued on page 44.