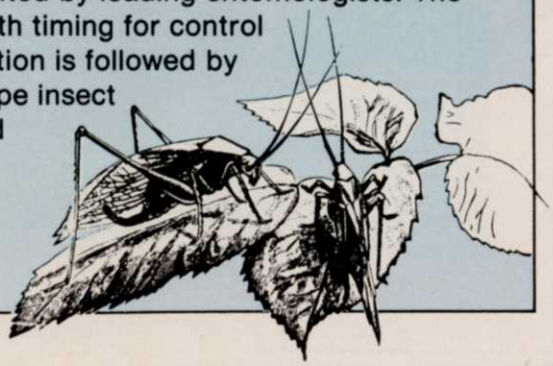
Turf

by Dr. Harry Niemczyk

The INSECT CONTROL GUIDE will be updated and published each May. For this premier edition, the authors are Dr. Harry Niemczyk, professor of turfgrass entomology, Ohio State University, Wooster, and Dr. R. E. Partyka, director of horticulture, Chemscape, Columbus, Ohio. Photos were contributed by leading entomologists. The Guide was written with timing for control in mind. The turf section is followed by a section on landscape insect control, i.e. trees and ornamentals.



A useful approach to dealing with insect pests of turfgrasses is to consider them as they occur throughout the growing season. While insects are present in the turfgrass environment throughout the year, the key to preventing visible damage from them is knowing the optimal time to apply control measures. These times are keyed to vulnerable periods during the pests life cycle.

Depending on whether the preventive, predictive or curative approach to control is taken, controls for a certain pest may be directed at the different stages of that pest as they occur over the growing season. With the chinchbug, for example, preventive controls may be directed at the overwintering adult in early spring to prevent the laying of eggs, that lead to the damaging summer generation. The curative approach would be to wait until the eggs hatch and then treat for the young (nymphs) during early summer. Whatever the approach, knowing the life cycle of the insect and when the various stages occur, is essential.

The purpose of this guide is to point out some major pests to look out for in 1983 and cover some of the controls that may be used during these times. No endorsement of named products is intended nor is criticism implied for those not mentioned.

LATE WINTER (MARCH)

A. Chinchbug and Bluegrass Billbug - Both of these insects overwinter as adults in the thatch but some move to sheltered sites near buildings or other protected locations. On warm days the insects begin moving about.

When summer damage from chinchbug and/or bluegrass billbug is expected, summer infestations can be prevented with an application of Dursban® (chlorpyrifos) 1 lb AI/Acre (active ingredient/acre) or diazinon 2.5 lb AI/Acre, made as soon as these insects begin to move about. In 1983 this could be as early as the first or second week of March.

B. Grubs — The larvae of this group of pests normally overwinter 6 inches or deeper in the soil. However, during the mild winter of '82-'83, many remained near the surface. This means early grub activity can be expected along with skunks and racoons who will tear up the turf searching for the grubs.

Application of Oftanol® (isofenphos) at 2 lb AI/Acre during March or when frost is gone from the ground, provides control of overwintered grubs as they return to the surface. There is limited confidence that such a treatment will provide adequate control of fall grub infestation. On the other hand, treatment at this time kills overwintering chinchbugs and billbugs and prevents infestation of these insects during the summer.

C. Mole Crickets — The biology of mole crickets varies considerably with the species and is still under study in many areas. Generally, these insects overwinter as adults deep in the soil, however some do overwinter as nymphs. Feeding activity resumes in March. Both adults and nymphs feed at night near the surface on turf roots, organic matter and other insects. During the day mole crickets return to permanent burrows.

In years when feeding of overwintered mole crickets resumes earlier than normal, Oftanol® at 2 lb AI/Acre has been used with some success. Generally, such applications are better made during May.

D. Winter Grain Mite — This dark bodied, red-legged mite actively feeds on grass blades throughout the winter. Symptoms of injury are very similar to those from winter dessication. Damaged areas may also have a gray color appearing as though hit by a late frost.

When unacceptable damage from the winter grain mite is discovered in March, infestations can be readily controlled with a single application of liquid Dursban® 1 lb AI/Acre or diazinon 2.5 lb AI/Acre.

E. Black Turfgrass Ataenius — This golf course pest overwinters as an adult in the soil under debris in roughs or other protected areas. With the mild winter and expectations of a very early spring in 1983, a few may be seen flying about on warm afternoons in early March.

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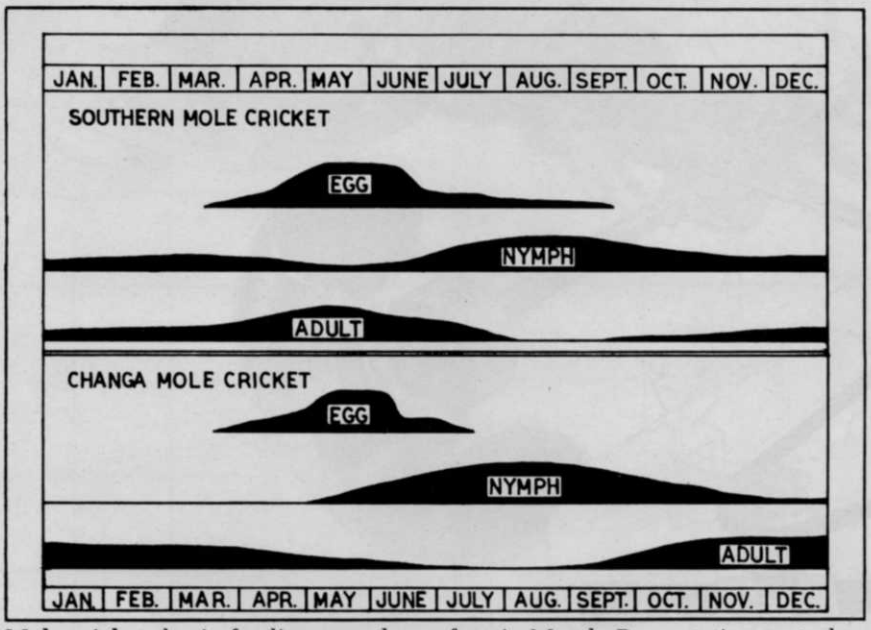

Mole crickets begin feeding near the surface in March. Preventative control would focus on stopping adults before they lay eggs.

Usually this activity begins when crocus starts blooming and intensifies 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 successes is increased by waiting until April.

F. 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 at this time.

G. 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 at this time.

SPRING (APRIL-MAY)

A. Chinchbug and Billbug — As the warm days of May approach, movement of chinchbug and billbug adults increases rapidly. Generally, egg laying begins during May but in 1983 this may occur a month early. Occasionally on warm afternoons, adult billbugs can be seen wandering about on sidewalks.

Generally, application of insecticides to prevent infestations of these two pests (mentioned above) should be completed by the first week in May; before significant number of eggs are laid. This time may vary as much as a week or more depending on the spring.

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

A single application of Oftanol® at 2 lb AI/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 infestation may be expected.

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

Although milky 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.

C. 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 6 inches of soil.

Though some variation in results has been experienced, application of Oftanol® at 2 lb AI/Acre during this time has been generally successful in preventing summer damage. Irrigation following treatment is advisable.

D. Black Turfgrass Ataenius - Adults of the black turfgrass ataenius can be seen flying about in April and are often found in the clipping catchers after early mowing of golf course greens. These adults begin egg laying in early May, or about the time Vanhoutte spiraea first comes into bloom.

Application of Oftanol® during April or May has successfully prevented larval infestations during the summer. Diazinon at 5.5 lb AI/Acre applied to fairways when Vanhoutte spiraea first comes into bloom, kills egg-laying adults and also prevents the development of summer larval infestations.

E. Sod Webworm — Overwintered larvae of the sod webworm

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

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

F. Black Cutworms — Moths of the black cutworm begin laying eggs 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 (mentioned above) 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 come in contact with the treated foliage. Irrigation following liquid application is therefore not advisable.

G. 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.

H. 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, diazinon or Dursban® will provide control.

SUMMER (JUNE-AUGUST)

A. 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 labeled rates to control existing infestations. Treatments should be applied *before* injury is severe, otherwise, damaged areas may not recover.

B. 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,® Proxol® at rates used to treat existing grub infestations. Irrigation or rain following application 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.

C. Grubs — By June grubs have stopped feeding and are in the pupal stage 3-4 inches deep in the soil. Beginning in mid-June and continuing through 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 Nematicide/Insecticide (for golf courses) at standard label rates. At least 0.5 inch of irrigation following treatment maximizes insecticide effectiveness.

D. Mole Crickets — Mole cricket egg laying continues through mid-

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Greenbug damage to bluegrass, but not fescue, under tree canopy.

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) or Sarolex® (diazinon) or granular Mocap® (ethoprop) at labeled rates have shown effectiveness when applied in early June. Irrigation (½ inch or more) should be applied after treatment. Bait formulations with Baygon®, Dursban®, Malathion or Sevin® have also been effective when applied during late June. Irrigation should not be applied for 3-4 days after application of baits.

E. 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 preventive program was not applied, existing infestations may be spot or generally treated with Proxol®, Turcam®, diazinon or Nematicide/Insecticide at label rates.

F. 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 labeled rates. Irrigation following liquid applications is generally not advisable.

G. Greenbug — Damaging populations of greenbug can occur from June through August. Populations and incidents of damage frequently varies from area to area, even within a city. Symptoms of injury include turf under the dripline of trees and in open areas having a burnt orange color. When such symptoms are seen, numerous aphids (40 or more) may be seen on a single grass blade. Close examination of damaged turf is necessary because the aphids are small. If left untreated, a heavy infestation can kill the turf.

Greenbug infestations may be controlled with liquid treatments of Dursban®, 1 lb AI/Acre or diazinon at 2.5 lb AI/Acre. If reinfestation occurs following treatment with these insecticides, Orthene (acephate) EC at labeled rates has been effective.

FALL (SEPTEMBER-OCTOBER)

A. Chinchbug — In northern areas such as Ohio, the second generation of chinchbug is at peak numbers in September. Nymphs complete their development to adults by late October. Most chinchbugs overwinter in the turf but some move to protected areas before winter.

Generally, infestation levels at this time are not high enough to warrant the use of insecticides. Early fall rains and infection by a parasitic fungus usually provides sufficient suppression.

B. Billbug — During September billbug adults that developed from summer larvae are often seen wandering about on sidewalks, driveways or other paved surfaces. Before winter, these adults seek shelter in thatch, along sidewalk edges, or near the foundation of houses and overwinter there. However, if many, if not most, overwinter in the turf.

C. Grubs — Most species of grubs are in the third of their 3 stages of development and are feeding actively. When soil temperatures decrease in late October the larvae burrow deep into the soil to overwinter. However, during the mild winter of 1982-83, the larvae remained in the top 3 to 6 inches of soil.

Treatments of existing grub infestations can be accomplished as late as early-to mid-September using standard grub insecticides and sufficient (½ inch or more) irrigation. Treatment after this time may or may not kill the grubs before they move deeper into the soil to overwinter. Whenever treatment is applied, the grubs should be in the top one to two inches of soil.

D. Black Turfgrass Ataenius — By September adults of the current generation begin to fly into protected areas, such as golf course roughs, to overwinter. Larvae that have not completed development to adults before frost are killed.

E. Mole Crickets — Mole cricket nymphs develop through the summer and most become adults by fall. However, recent studies in Florida show some egg laying continues throughout the year.

F. Greenbug — Severe infestations of greenbug have been known to occur as late as the first week of December. Areas having a history of infestations should be reexamined when mild temperatures extend late into fall. Heavily infested, turf probably will not survive through winter.

Late fall infestations may be controlled with the same insecticide used to control the pest during the summer.

ANSWERS TO TURF INSECTS

A. masked chafer (adult)
B. hairy chinchbug (nymph)
C. bronzed cutworm (larva)
D. winter grain mite
E. hyperodes weevil (adult)
F. Rhodesgrass scale
G. Japanese beetle (adult)
H. hyperodes beetle (larvae)
I. ground pearls
J. hairy chinchbug (adult)

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