# INSECT PESTS OF CONNECTICUT LAWNS

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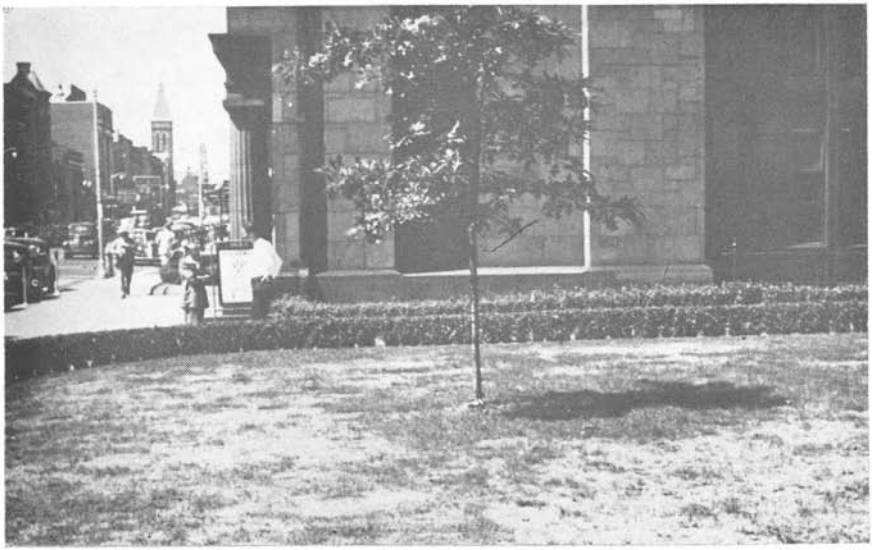

The formerly thick turf shows severe injury caused by chinch bugs.

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## Contents



### Diseases of Turf

Station Circular 208 presents information on management practices and other methods of control for diseases and related disorders of lawns. Address requests for Circular 208 to this Station, Box 1106, New Haven 4, Connecticut.

# Insect Pests of Connecticut Lawns


**John C. Schread**


The control of injurious insects is one of the serious problems of lawn maintenance in Connecticut. The culture of grasses in lawns creates a type of habitat ideal for several insects. These pests are by no means found in every lawn, but they do occur almost every season in outbreak numbers somewhere in the State. Most of them are not consistent enough in their attacks to justify annual preventative treatment. Therefore, identification and treatment before the lawn is seriously injured is of real importance.

Most of the insect pests of lawns originally lived in other surroundings. The Japanese beetle had little acquaintance with lawn grass in its native home, because the people of that country do not ordinarily cultivate lawns. The chinch bug originally lived on wild grasses and attacked small grains during the summer. The sod webworm was a pest of corn and, before that, probably lived on wild grasses.

Most of the lawn pests weaken or kill lawn grasses. Sometimes the injury is first noticed when the cultivated grass is weakened or killed and crabgrass or other weeds crop up.

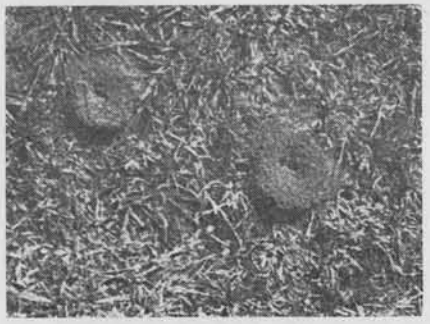

Figure 1. Mounds of dirt raised by ants may be unsightly.

## Ants

Ants may be living in a lawn for a variety of reasons. In the first place, most of the species common in Connecticut nest in the soil. The lawn is the least disturbed soil area available and thus makes a good home. A few species get most of their food from the excretions of root-feeding aphids, and their home and food supply are in the same place. An even smaller number of species feed on plants. All of these ants do some damage to the grass. The ant tunnels allow the soil to dry out and sometimes kill grass plants. The root aphids injure the grass. And the mounds of dirt excavated to make the nest choke grass and dull the blades of lawnmowers. (Figure 1).

Ants live in colonies and, like the bees, have different forms. The colony is usually started by a fertile winged female, which makes a small nest and lays a few eggs. From these the workers hatch and during the larval stage are fed by the female. When they develop, they take over the work of the colony. When the colony becomes large enough, winged males and females are produced.

### Ants in lawns

The CORNFIELD ANT (*Lasius alienus americanus* Emory) is very small, almost black, with a smooth and polished appearance. These ants are said to colonize aphids on grass roots. Each colony usually has only a single excavation with a single mound of sand or soil. Dozens of these mounds may be seen in a heavily infested lawn.

Several subspecies and varieties of the RED ANT (*Formica pallidefulva*) commonly nest in lawns. These are almost one-half inch long, very active, with a red head and thorax and black abdomen. These ants construct a large colony with several openings but do not pile the sand in definite mounds. The soil feels spongy and grass grows very poorly. These ants feed on the honeydew of aphids and scale insects on the leaves and branches of plants or shrubs, and also on other insects.

The MOUND-BUILDING ANT, (*Formica exsectoides* Forel), is capable of infesting a lawn, but the mound is usually disturbed before injury is severe. Its mound is large, often a foot high, and may cover several square feet. Numerous openings are used by the workers, which are similar to the other *Formicas* but slightly larger.

The PAVEMENT ANT (*Tetramorium caespitum* L.) may nest in lawns, alongside of sidewalks or stones, and even under sidewalks. It seldom damages the grass.

### Control of ants

Experiments have shown that treatment of ants with chlordane is a very effective method of control. This may be applied to individual nests, or to the entire lawn if the infestation is heavy. The material has been applied successfully as a dust or in water emulsion. Five per cent chlordane dust may be applied to individual openings in the nests, or spread evenly over the infested area at the rate of 5 pounds to 1,000 square feet. A light sprinkling may be used to wash the insecticide into the nests.

One ounce of chlordane emulsifiable liquid diluted in one gallon of water may be used to treat individual nests, or sprinkled over the lawn at the rate of 4 gallons of the diluted material to 1,000 square feet.

One treatment a year has been sufficient for control.

## White Grubs

Lawn grass furnishes an ideal location for growth of white grubs, which feed on grass roots in the soil. The adults of these grubs are beetles of the group known as Scarabs. As a rule, the adults emerge from infested turf in the summer, mate, and lay eggs in turf. The eggs hatch and the grubs feed on grass roots until winter weather freezes the soil. The grubs hibernate and resume feeding in the spring after the ground thaws. Most



species finish their life history in a single year, but some may require two or three seasons of feeding.

The destruction of grass roots stunts the grass (Figure 2). When the grubs become abundant, they may eat the entire lower part of the roots, leaving only about an inch of stub root untouched. The grass dies and may be rolled back easily because of the lack of roots (Figure 3). Seeds of crabgrass or broadleafed weeds present in the soil may germinate, creating the illusion that crabgrass and weeds have killed the grass.

The JAPANESE BEETLE (*Popillia japonica* New.) came from the Orient many years ago, and has become one of the most common insects in lawns in Connecticut. It spread across the state from the southwest to the northeast, killing hundreds of acres of grass. Damage was always most severe at the outer edges of the spreading infestation. More recently, the amount of injury has been declining in the same way. Part of this decline may be attributed to natural control. When the eggs are deposited in dry soil, many of them fail to hatch. Thus a year of drouth is usually followed by a year of low infestation. A bacterial disease of the larvae, known as milky disease, is present in all parts of the state, and kills many grubs when the infestation gets heavy. One of the wasp parasites (*Tiphia* sp.) has become well established and must be considered effective. Part of the decline in damage may be the result of treatment of hundreds of lawns to kill grubs.

The adult Japanese beetle is about half an inch long, metallic green in color, with bronze wing covers. It feeds on a variety of plants during July and the early part of August.

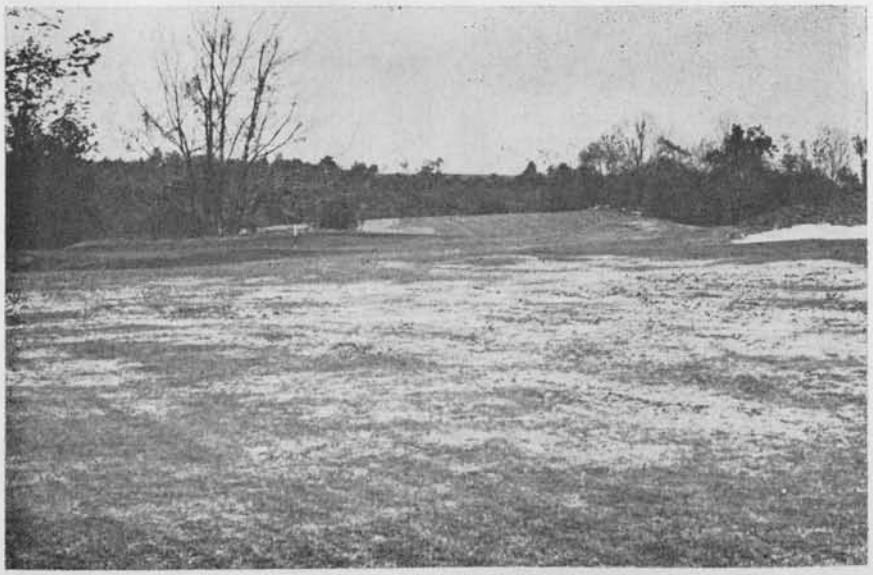

Figure 2. Japanese beetle grub injury may stunt grass, finally kill the turf over large areas.

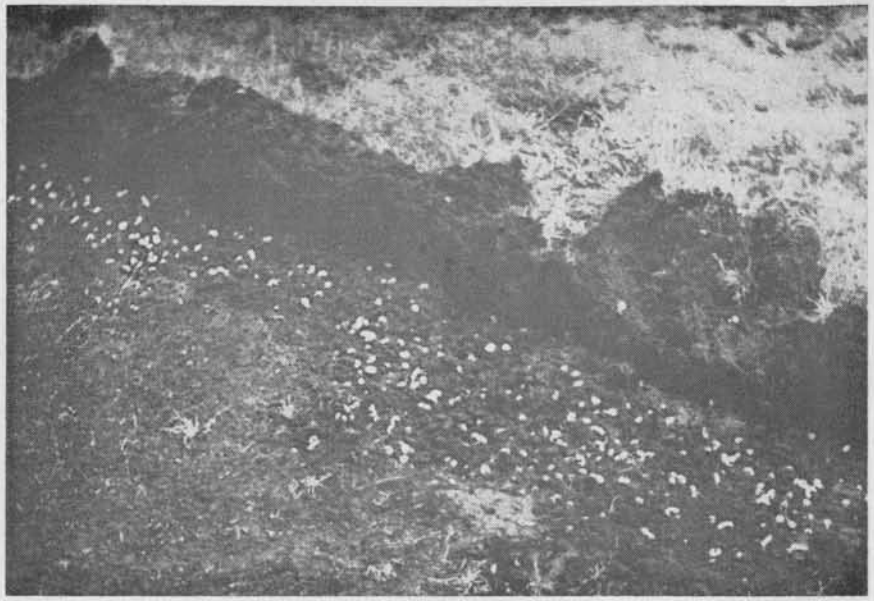

Figure 3. Rolling back the turf shows heavy infestation of Japanese beetle grubs. Many grass roots have been destroyed.

The ORIENTAL BEETLE (*Anomola orientalis* Waterh.) was brought into New Haven in nursery stock from the Orient about 35 years ago.

The adults are a little less than half an inch long, and vary in color from straw to almost solid black, with all gradations. The adults feed little but occasionally infest a rose blossom. The grubs are very destructive. They are not yet distributed all over the State.

The ASIATIC GARDEN BEETLE (*Antoserica castanea* Arrow) is about the same size as the Oriental beetle, and is chestnut brown. It flies mostly at night, and is attracted to lights. It feeds freely on herbaceous garden plants, also at night.

The Asiatic garden beetle is less fussy about the place it lays its eggs than are the Japanese or Oriental beetles, which prefer the best lawn in the neighborhood. The Asiatic garden beetle will lay eggs in borders or in pastures and meadows as well as in lawns (Figure 4).

The EUROPEAN CHAFER (*Amphimallon majalis* Ruz.) at present occurs only in a small part of Meriden, and a quarantine has been established to restrict its spread. The adults are medium brown, and a little more than half an inch long. They appear only at dusk on calm evenings, and do not feed. They fly towards a tree or post, circle around the top, mate, and the females return to the soil before daylight. The European chafers like meadows or wasteland just as well as lawns.



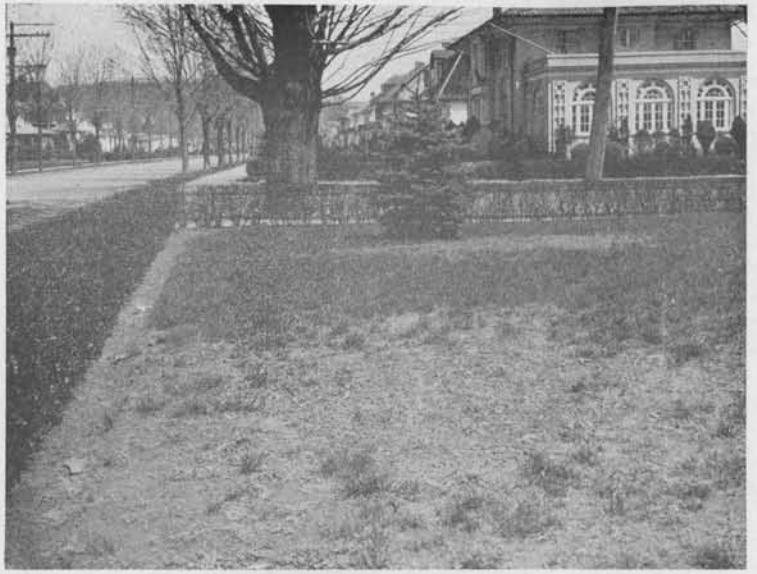

Figure 4. The Asiatic beetle may cause severe injury to lawn grasses.

**Control of Grubs**

Experiments for control of grubs in lawns have been described in detail in Circular 184. Briefly, the application of DDT, chlordane, dieldrin, or heptachlor has killed the grubs and has remained effective for several years. Chlordane has been used at the rate of 10 pounds per acre (200 lbs. of 5 per cent granules). Dieldrin and heptachlor have been effective at 5 pounds per acre (100 pounds of 5 per cent granules). DDT has been used at the rate of 25 pounds per acre (500 pounds of 5 per cent granules).

In terms of 1,000 square feet of lawn area, the approximate equivalents are 5 pounds of 5 per cent chlordane granules, 2½ pounds of 5 per cent dieldrin or heptachlor granules, or 12 pounds of 5 per cent DDT granules.

In our tests, the granular material was spread evenly over the turf. If the lawn was heavily infested, it was watered lightly immediately for faster action.

The treatments can also be made to the soil before grass seed is planted. However, the chemical may retard germination of seed.

Many people have worried about the possible hazard of this sort of treatment to earthworms and to birds. The rates of treatment are not heavy enough to cause serious injury to earthworms. However, treatment in the early spring can contaminate earthworms, and under extreme conditions cause some mortality of migrating birds. Observations on the feeding habits of birds indicates that there is little hazard if the treatments are made late in the summer or in the fall.

Figure 5. Castings of the Oriental earthworm on a heavily infested golf green.

## Earthworms

Earthworms have been recognized as the most beneficial of all soil-inhabiting animals since the time of Charles Darwin. There are some situations, however, in which the good they do is outweighed by the damage and inconvenience they cause. For example, earthworm castings injure turf and interfere with play on tennis courts, golf greens, and bowling greens (Figure 5). The Oriental earthworm, an introduced species, has been especially destructive wherever it occurs. Its destructiveness prompted special work on control of earthworms, which has been published in Bulletin 556.

In situations where control of earthworms is necessary, the application of chlordane emulsion in water, at the rate of 40 pounds of chlordane to the acre, reduced the population of earthworms below the nuisance level.

## Cutworms and Armyworms

Several species of cutworms and armyworms may infest lawns in Connecticut. They belong to a family of moths which have the habit of flying only at night and lay their eggs at night. Hundreds of the moths may be attracted to lights. This has suggested light traps as a means of control. Unfortunately, females seldom respond to the lights unless their eggs have already been laid in the grass. The caterpillars also usually feed at night. The armyworm caterpillars migrate when they have eaten all the food where the eggs were laid, which accounts for their common name.

These insects pass the winter either as a partly grown caterpillar or as a pupa in the soil. Damage by cutworms on plants set early in the spring is obviously the work of over-wintering larvae because there has not been time enough for the development through the egg stage. They



feed and grow rapidly as the weather warms and may have from one to four generations a year.

Ordinary infestations of cutworms or armyworms are usually not noticed in lawns. The few grass stems cut are not missed. Rarely there may be infestation enough to cause damage to the grass, as in the case of a major outbreak of armyworms. Lawns do serve as a reservoir for cutworms that migrate into flower beds and cut the plants.

Control measures in lawns are usually not required. Application of a 5 per cent dust of chlordane or DDT has controlled them in our tests.

## Moles

Moles are carnivorous animals that eat soft-bodied animals such as beetle grubs and earthworms. Thus they frequently become abundant in lawns heavily infested by beetle grubs. In the course of experiments to control grubs, it was observed that the moles disappeared when the grubs were killed. Thus a lawn in which there are few grubs usually also has very few moles.

Trapping moles has been suggested frequently as a good method of control. Traps do work very well and very quickly, if placed in a runway in daily use by the moles. These runways can be located by rolling or tamping down the runways the first thing in the morning, and setting the traps in those runways which have been raised again by noon.

## Leafhoppers

The leafhoppers are small, sucking insects living on a variety of plants including grasses. Although they occur in lawns, they prefer the coarser grasses, and especially grass that is not mowed regularly.

Leafhopper damage on leaves of grasses appears as small white areas where the sap has been removed. These may turn brown and resemble a spot of fungus disease. The adults jump and fly freely, and can be detected by walking through the turf.

It will probably be unnecessary to use control measures for this pest except in rare instances. A dust of 5 per cent DDT should kill them.

## Sod Webworms

Several species of the moths belonging to the genus *Crambus* deposit their eggs in lawns or grassland. The caterpillars live in silk-lined tubes built just under the surface of the soil. The larvae stay in these tubes during the day, and come out at night or on rainy days to feed. They bite off pieces of grass, usually close to the crown of the plants. They may eat the grass at once or carry it back to the nest to be eaten later.

Heavily infested turf has ragged spots of irregular size around the individual nests. In such spots the very active caterpillars can be found.

The moths themselves may be seen flying around at dusk. They have a wingspread of almost an inch, and are grayish or silvery-white. When they are resting, the wings are wrapped closely around the body.

Sod webworm may be controlled with DDT or chlordane. Granular formulations used at the rate of two pounds per 1,000 square feet of lawn

should give good results. Wettable powder or emulsion may be substituted. Because of the number of over-lapping generations occurring during the summer and fall more than one treatment may be needed.

## Chinch Bugs

The chinch bugs (*Blissus lencopterus hirtus* Montd.) are probably the most serious insect pests of bent grass lawns in Connecticut. Any cultivated grass that makes a thick turf provides conditions favorable for this pest.

The adult chinch bug is a sucking insect about one-sixth of an inch long, black with white wings. It hibernates under piles of leaves or other discarded plant material, in bunches of uncut wild grasses, or in fence rows. In May the adults migrate to lawns and lay eggs on the ground at the bases of grass plants. The eggs hatch into tiny red nymphs after about a week. These nymphs feed by inserting their beaks in grass stems and sucking out the plant sap. They are very active when disturbed, but usually live hidden in the dense turf. It takes about 6 weeks from the egg to the new generation of adults, and there are at least three complete generations each summer in Connecticut. Dry weather favors the insect, and a series of dry years has produced a major outbreak.

Injury occurring in early summer may be recognized as dead and dying reddish-brown patches varying in size and shape. A careful examination of the turf at the edges of these patches is necessary to find either the nymphs or adults which are causing the damage. The insects prefer hot sunny locations.

A fungous disease of the bugs kills many of them in wet seasons. Birds also eat some of them, but natural controls are not enough to keep them in check during times of drouth.

Spraying or dusting is most likely to be needed on bent grass lawns in very hot seasons. Application of 5 per cent chlordane dust at the rate of 5 pounds to 1,000 square feet usually kills all the nymphs and adults, and has enough residual toxicity to protect the lawn for the rest of the season. The dust, preferably in granular form, has been applied with an ordinary fertilizer spreader. Sprays of chlordane are equally effective, and have been used on large turf areas such as golf courses.

## Frit Fly

The frit fly (*Oscinella frit* L.) has long been a pest of grains and grasses in Europe. Recently this insect has appeared in well-kept turf in this area.

The adult flies are black and about a sixteenth of an inch long. They lay eggs on the grasses, and the hatching maggots bore into the stems. There are several generations a year.

The pest is of too recent origin here to allow an accurate estimate of its potential damage. If control is needed, dusting with DDT should be highly effective.