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LAWN INSECTS: How to Control Them



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LAWN INSECTS: How to Control Them

*Frank A. Hale, Associate Professor
Entomology & Plant Pathology*

Many insects and insect-like pests damage lawns and other turf. They cause the grass to turn brown and die, or they build unsightly mounds that may smother the grass.

Some pests infest the soil and attack the plant roots, some feed on the plants' leaves and stems, while others suck juice from the plants.

Other insects and insect-like pests inhabit lawns, but do not damage them. The pests are annoying and some of them attack people.

These pests can be controlled with insecticides. The recommendations in this publication are applicable not only to lawns, but also to such places as parks, roadsides, golf courses, athletic fields, cemeteries and to the areas around airport landing strips. However, they are not intended for the control of insects on turf areas that might be grazed by livestock.

Pests That Infect Soil and Roots

White Grubs

White grubs are the larvae of several species of beetles. They are whitish or grayish, have brownish heads and brownish or blackish hind parts and are usually found in a curled position when disturbed. They hatch from eggs laid in the ground by the female beetles. Most of them spend about 10 months in the ground; some remain in the soil two or three years. In mild weather, they live 1 to 3 inches below the surface of the lawn; in winter, they go deeper into the soil.

They burrow around the roots of the grass, then feed on them about an inch below the surface of the soil. Moles, skunks and birds feed on the grubs and may tear up the sod in searching for them.

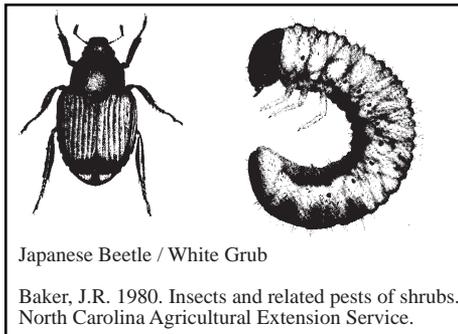
You can estimate the grub population of your lawn. Do this in early to mid-August or in the spring after the soil warms up

and the grubs are near the surface. With a spade, cut three sides of a strip 1-foot square by 2 or 3 inches deep. Force the spade under the sod and lay it back, using the uncut side as a hinge. Use a trowel to dislodge soil on the overturned roots that might contain grubs. Count the grubs in the exposed soil. Replace the strips of sod. In the same way, cut strips of sod in several other parts of the lawn, and count the grubs under each strip. To calculate the average number of grubs per square foot of lawn, divide the total number of grubs counted by the number of strips. The average number of grubs per square foot is a measurement of grub density. Economic thresholds based on grub density have been developed to assist in the decisionmaking process of whether to treat or not. A list of these economic thresholds is available in the Extension PB 1342, **Commercial Turfgrass Insect Control**.

The parent beetles differ in appearance, distribution and habits. The following are important in lawns:

May Beetles. - These beetles are brown or blackish-brown. More than 200 kinds are found in the United States. Sometimes they are called June beetles. The adults of the species emerge in the early spring. Most species begin emerging in May or June and can be active throughout much of the summer. Eggs laid in July and early August soon hatch into young, which are called white grubs. Some of them remain in the soil two or three years and may feed on the grass roots during several seasons.

Japanese Beetle - The beetle is about 1/2 inch long and has a shiny metallic-green body; it has coppery-brown wing covers and six small patches of white hair along each side and the back of the body, just under the edges of the wings. The adult insect feeds on many different plants.



These insects are found mostly in the Eastern States. The adult beetles begin to appear in late May and are active for four to six weeks. The young are sometimes called annual white grubs because the life cycle of the insect is completed in one year.

Asiatic Garden Beetle - The beetle is about 1/4 inch long, is chestnut brown and has a velvety appearance. The underside of the body is covered with short yellow hairs. The insect flies only at night and feeds on various kinds of foliage. They are most abundant from mid-July to mid-August. They complete their life cycle in one year.

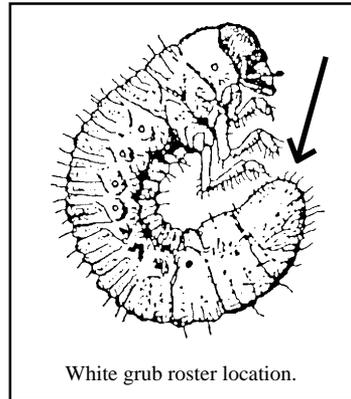
Oriental Beetle - The beetle is about 5/8 inch long, is straw-colored and has some dark markings on the body. The beetles have been recently detected in East Tennessee. At present, the distribution of this pest in Tennessee is uncertain. They appear in late June and July. Grubs prefer unshaded lawn and short grass.

Masked Chafers - These beetles are 1/2 inch long and brown. They live in the soil during the day and emerge at night; they are especially active on warm humid evenings.

The northern masked chafer is found from Connecticut south to Alabama and west to California. In Tennessee, the distribution of the northern masked chafer overlaps southern masked chafer, which is common in the Southeastern states. Masked chafers appear in late May, June and July and are active one or two months.

These annual white grubs have irregularly arranged spines on the underside of the last body segment (raster).

Rose Chafer - The beetle is 1/2 inch long and is yellowish brown; it has long spiny legs. Rose chafers feed on almost any vegetation and are very destructive to roses in bloom. They prefer areas in which the soil is light and sandy.



White grub roster location.

David Shetler

They are abundant in June and early July. The grubs are not so harmful to lawns as some of those mentioned above.

Green June Beetle - The beetle is nearly 1 inch long. The body is nearly flattened; it is velvety green and has bronze to yellow edges. The insects feed on the foliage of many trees and plants. The females often lay eggs in piles of grass clippings, mulched plant beds and in the soil. They are active in June, July and August. They produce one generation a year.

The grubs feed mainly on decaying vegetable matter. Their burrowing tends to disturb grass roots by separating them from the soil, causing the grass to dry out and die. The grubs can be especially damaging in newly sown lawns. Damage is most severe in dry seasons and is most apparent in the fall.

Sometimes after a heavy rain or during warm nights with heavy dew, the grubs come out of the soil and crawl on the surface of the ground. They have the unusual habit of crawling on their backs.

Ants

Ants build nests in the ground. Some ants form hills around the openings of their nests; fire ants can build large mounds. The anthills and mounds often smother the surrounding grass. If the ants nest about the roots of the grass, they may destroy them. Ants also destroy grass seeds in the ground and prevent good stands.

Some ants bite or sting people and animals. Imported fire ants and harvester ants are especially vicious.

Mole Crickets

Mole crickets are light brown, with a lower surface lighter than the upper and often tinged with green. They are about 1-1/2 inches long and have short, stout forelegs, shovel-like feet, and large, beady eyes.

Mole crickets feed on the roots of the grass. In addition, their burrowing uproots seedlings and causes the soil to dry out quickly. The type of mole cricket found in Tennessee is called the Northern mole cricket. It is not as damaging as some of the

species found in coastal states. It can be a pest, especially in golf course greens.

Wireworm

Wireworms, which are the larvae of click beetles, are 1/2 to 1-1/2 inches long and are usually hard, dark brown, smooth and slender. Some wireworms are soft and white or yellowish. Wireworms bore into the underground part of the stems and feed on the roots of the grass. The boring causes the plant to wither and die.

The adults are about an inch long, and brownish, grayish or nearly black. They are hard-shelled and their bodies taper somewhat at each end. When they fall on their backs, the beetles flip the middle part of the body against the ground, throw themselves several inches into the air and make a clicking sound.

Cicada-Killer Wasp

This insect is about 1-1/2 inches long and has yellow and black markings on its body. The wasps dig deep nests or burrows in the ground and mound the soil at the entrance to the nests. The female paralyzes a cicada by stinging it, then places it in the nest and lays an egg on it. When the egg hatches, the larva feeds on the cicada.

These wasps, which appear in late July and August, cause damage to lawns by their burrowing. While they fly around aggressively, they usually do not sting people unless they are provoked.

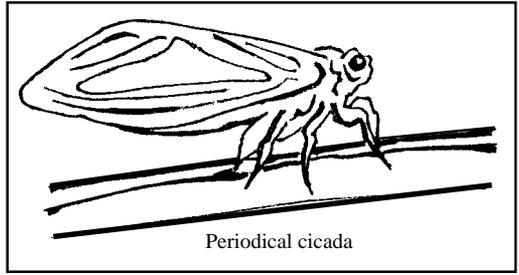
Wild Bees

Some kinds of wild bees occasionally damage lawns by digging up the soil, making holes and forming mounds that interfere with the growth of grass.

Periodical Cicada

The young, or nymphs, leave many small holes in lawns, especially under trees, when they emerge to become adults.

If you hear the day-long song of the cicada in the spring of a year in which a brood is scheduled to appear in your region, the holes in your lawn were probably made by the emerging nymphs.



Callie McPherson

If a large brood is emerging, control of adults or protection of ornamental trees and shrubs in the lawn is recommended (see Extension SP 341-F, **Periodical Cicadas**).

Billbugs

The young, or grubs, are small and white, and have hard brown or yellow heads. They feed on the roots of grass.

Adult billbugs are beetles $\frac{1}{5}$ to $\frac{3}{4}$ inch long. They have long snouts, or bills that carry at the tip a pair of strong jaws or mandibles with which the beetles chew their food. Their color is clay yellow to reddish brown to jet black. The beetles burrow in the grass stems near the surface of the soil and also feed on the leaves.

Several species of billbugs damage lawns. The bluegrass billbug is a pest of Kentucky bluegrass, while the hunting billbug causes damage to Zoysia grass.

Earthworms

When earthworms are numerous, they sometimes become pests in lawns. They make small mounds of castings that ruin the appearance of the grass.

An imported species, the oriental earthworm, is found in some of the eastern United States. It is 6 to 8 inches long and about $\frac{1}{5}$ inch in diameter. It is light green on the upper surface and has purplish-green line down the center of the back. It throws up abundant castings of soil.

Pests That Feed on Leaves and Stems

Sod Webworms

Sod webworms are about 3/4 inch long and light brown. Their bodies are covered with fine hairs.

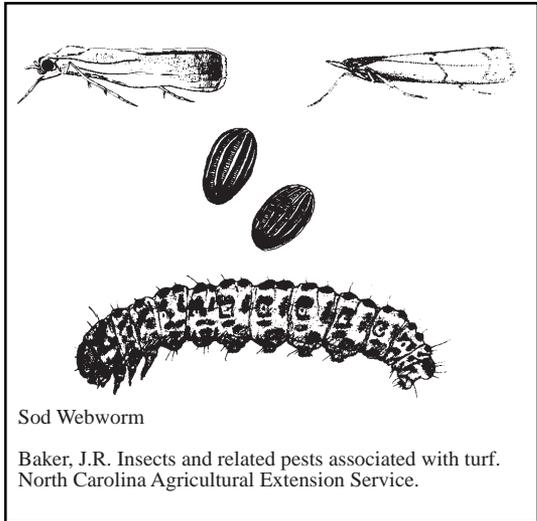
Sod webworms are the larvae of lawn moths. The adults are small, whitish or gray moths (or millers). They fold their wings closely about their bodies when at rest. They hide in the shrubbery or other

sheltered spots during the day. In the early evening, they fly over the grass and the females scatter eggs over the lawns.

The worms are active only at night. They live in protective silken webs or nets that they form about their bodies. As soon as they are hatched, they start feeding on the grass leaves. When they grow larger, they build burrows or tunnels close to the surface of the soil; they reinforce the tunnels with bits of dirt and pieces of grass, then line them with silk and live in them. They cut off blades of grass and eat them. Some species feed on the grass crowns at ground level and on the roots. As partly grown larvae, they overwinter in their silken webs.

Sod webworms prefer new lawns. They attack bentgrass, bluegrass, fescue and other grass. Irregular brown spots are the first signs of damage. If the infestation is heavy, large areas of grass may be damaged severely or destroyed in only a few days.

Several species infest lawns. The dirty white sod webworm larvae live in silk-lined tubes about 3/8 inch in diameter that extend 2 to 3 inches into the soil.



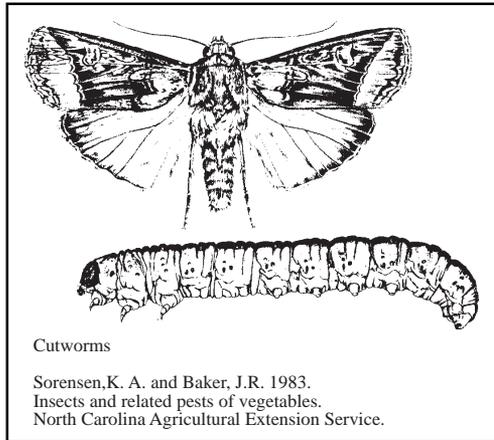
You can find the worm by pouring a soap solution of two teaspoons of liquid dishwashing detergent in a gallon of water over a 4 foot-square area. If there are four to six or more of them, apply an insecticide.

Armyworms

Armyworms are the larvae of moths. They are 1-1/2 inches long; they are greenish and have blackish stripes along each side and down the center of the back.

The adults are brownish gray. Their wings measure about 1-1/2 inches across when expanded.

The armyworm and the fall armyworm are common species. When they are numerous, they may devour the grass down to the ground. Their feeding causes circular bare areas in lawns.



Cutworms

Cutworms are dull-brown, gray or nearly black caterpillars and are 1-1/2 to 2 inches long. Some cutworms are spotted, others are striped. Usually they hide in the soil during the day and feed at night. They are the larvae of night-flying brown or grayish moths.

Cutworms infest lawns occasionally. They feed on the leaves or cut off the grass near the soil and may do severe damage to seedlings of bermudagrass, bentgrass and ryegrass.

Billbugs

Billbugs feed on stems and grass leaves. For a description of the insects, see billbugs in the previous section.

Grasshoppers

Grasshoppers do not feed on the grasses of a well-kept lawn except when they are very numerous and forage is scarce. They usually migrate to lawns from croplands or wastelands.

Control measures in lawns are seldom necessary.

Frit Fly

This insect is present in a number of states across the country. It occasionally attacks lawns. The adult fly is black and about 1/16 inch long. The female lays eggs on the grass and the hatching maggots bore into the stems.

Pests That Suck Plant Juice

Chinch Bugs

Most chinch bug damage is caused by the young bugs, or nymphs. Yellowish spots appear in the infested lawn; they turn rapidly into brown, dead areas.

Nymphs hatch from eggs laid by the female adults. At first a nymph is about half the size of a pinhead. It is bright red and has a white band across the back. As it grows, it sheds its skin four times. The full-grown nymph is black and has a white spot on the back between the wing pads. The adults are about 1/6 inch long.

The species *Blissus leucopterus hirtus*, the hairy chinch bug, infests lawns in the eastern part of the United States.

The adults overwinter in thatch or leaf litter and lay eggs in the leaf sheaths or on the roots in the early spring. The eggs hatch in the spring and nymphs infest lawns until late fall.

False Chinch Bug

The false chinch bug is frequently mistaken for a chinch bug. It feeds on grasses in the same way as the chinch bug, but rarely is a lawn pest.

The nymphs are greenish-gray; the adults are gray.

Leafhoppers

Leafhoppers are tiny triangular or wedge-shaped insects that fly or hop short distances. They are less than 1/5 inch long and are green, yellow or brownish gray.

Many species of leafhoppers infest lawns. They suck the sap from the leaves and stems of the grass. New lawns may be damaged so extensively that reseeding is necessary. Damage to established lawns is evident in whitened patches. It is often mistaken for damage due to dry weather or disease.

Mites

Several species of mites attack grasses. They suck the sap and cause the leaves to be blotched and stippled. Severe infestations can kill the plants.

The Banks grass mite occurs throughout most of the United States and occasionally attacks lawns. It is not ordinarily a pest in well-managed lawns.

Clover mites feed on clover and other lawn plants. They are very tiny and brown. Although they feed only on plants, they are a nuisance when they enter homes. This usually occurs in spring and fall.

Spittlebugs

Spittlebugs seldom damage well-managed lawns. The nymphs live inside masses of spittle and suck the juices from the plants. The adults resemble leafhoppers in appearance and habits, but they are more robust. Two species are sometimes found in lawns.

The meadow spittlebug is found in Tennessee. The nymphs are yellowish green. The adults are about 1/4 inch long, are gray or brown and have dark-brown markings. They usually feed on clover or weeds.

The two-lined spittlebug occasionally infests lawns in Tennessee. The nymph is ivory and its head and thorax are brownish. The adult is about 3/8 inch long, is dark brown or black and has two orange stripes on its wings. These insects feed on bermudagrass, St. Augustinegrass, centipedegrass and several

other plants. Thatch control is important in preventing and controlling spittle bugs in lawns. Proper dethatching and fertilization practices can disrupt the humid conditions essential for spittlebug development. Chemical control measures in lawns are seldom necessary.

Pests That Inhabit but Do Not Damage Lawns

Earwigs

Earwigs are beetle-like insects. They are about 3/4 inch long and are reddish-brown. The insect has a prominent pair of forcep-like cerci at the rear of the body. The cerci of the male are curved. Earwigs hide during the day and forage at night.

These insects are found occasionally in lawns. Sometimes they breed in enormous numbers in piles of lawn clippings. They feed on all kinds of food.

Ticks

Several kinds of ticks infest lawns. They drop on the grass from dogs and rodents. Most of them attack people. Pain may result from their bites. Some ticks transmit diseases, including Rocky Mountain Spotted Fever, Human Monocytic Ehrlichiosis, Lyme Disease and tularemia.

Chiggers

Chiggers, or “red bugs,” invade lawns from surrounding grassy or woody areas. These mites are annoying to people. They attach themselves temporarily to the skin and release a poison that causes severe irritation and intense itching. They are very tiny and are seldom seen.

Thrips

Thrips are found in lawns and sometimes in homes. They come from nearby grass or flowers. These tiny black or brown insects may inflict painful bites on people working about the lawn. Control measures in lawns are seldom practical.

Slugs and Snails

Slugs and snails may often move about on the lawn and may injure adjacent plants. They are night feeders and leave mucous trails on plants and sidewalks.

Millipedes and Centipedes

Millipedes (thousand-legged worms) and centipedes (hundred-legged worms) are dark brown and have many segments. Most of them coil up when disturbed.

Millipedes and centipedes do not usually damage lawns. Occasionally, millipedes congregate in yards after heavy rains. Their food is chiefly decaying vegetable matter.

Some of the larger centipedes may bite people. Most species are not dangerous. Control of centipedes in lawns is seldom necessary.

Sowbugs and Pillbugs

Sowbugs and pillbugs are light gray to slate-colored; they are 1/2 inch long; they have segmented bodies and seven pairs of legs. When disturbed, pillbugs roll up into tiny balls.

Sowbugs and pillbugs are usually found on damp ground under stones, boards, dead leaves or in damp basements. They feed on organic matter in the soil and sometimes on grass and other plants.

Control measures in lawns are seldom necessary; if they should be needed, apply one of the insecticides recommended for control of grubs.

Spiders and Scorpions

Spiders are found about the lawn, on flowers, plants and shrubbery. Most spiders are harmless to people and are even beneficial because they capture and devour large numbers of harmful insects. They do not damage the grass or other vegetation. Two poisonous spiders found in Tennessee are the black widow spider (see Extension PB 1193) and the brown recluse spider (see Extension PB 1191). Consult a physician at once if bitten by either of these spiders.

Scorpions appear occasionally on lawns and about the yard. There are two species of scorpions in Tennessee. Their sting is similar in intensity to that of a bee or wasp. Control measures in lawns are seldom necessary for scorpions.

Fleas

Fleas occasionally spread to lawns from infested dogs, cats or nearby animal quarters. They may attack people or pets.

Control

The user is cautioned to read and follow all directions and precautions given on the label of the pesticide formulation that will be used.

Insecticides are sold under various trade names by garden supply houses, and hardware, seed and drug stores.

Granules are ready-made formulations that are used dry. Apply them with lawn fertilizer spreader.

Wettable powders and other formulations are used in sprays. Mix the purchased product with water and apply with a garden-type compressed-air sprayer or a knapsack sprayer. The quantity of water to use depends on the type of sprayer you have. If a wettable powder is used, agitation of the mixture is necessary.

A quart jar attachment for a garden hose will provide good distribution of an insecticide on a lawn. Use an attachment that delivers a coarse spray and large volume of water. Usually a quart jar full of an insecticide mixture will cover about 500 square feet of lawn. Baits are usually purchased ready mixed.

Control of soil insects is sometimes difficult. Therefore, it is important to apply the pesticide at the time of the year when the insect is most susceptible to control. This information will be on the pesticide label.

To control underground lawn pests, apply an insecticide and, immediately afterward, water the lawn according to label.

To control aboveground lawn pests, apply an insecticide to the grass. Follow label directions on whether to irrigate or not after application.

Use of Pesticides

Pesticide use is governed by a federal law which is administered by the U.S. Environmental Protection Agency. This law requires manufacturers to register pesticides and makes it illegal for people to use them except in accordance with the instructions on the label.

You may, if you wish, use less of any pesticide than the maximum amount the instructions permit. However, always remember: (1) Be sure the pesticide comes in contact **ONLY** with plants or areas you intend to spray, and (2) be sure to spray the pesticides uniformly. You can always get reliable, free information about any pesticide by calling your Agricultural Extension Service county office. (See Extension PB 1342, **Commercial Turfgrass Insect Control**).

Special Precautions

Store pesticides in original containers, out of reach of children and pests and away from foodstuff.

Apply pesticides selectively and carefully. Do not apply a pesticide when there is danger of drift to other areas. Avoid prolonged inhalation of a pesticide spray or dust. When applying a pesticide, it is advisable that you be fully clothed and use all the personal protection equipment stated on the label.

Do not apply insecticides to a lawn when people or animals are on it. Follow label directions and observe the reentry interval before allowing people or pets on to the lawn.

After handling a pesticide, do not eat, drink or smoke until you have washed. If a pesticide is swallowed or gets in your eyes, follow the first aid treatment given on the label and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Triple rinse empty pesticide containers and dispose of them by wrapping them in several layers of newspaper and place them in your trash can.

It is difficult to remove all traces of a herbicide (weed killer) from equipment. Therefore, to prevent injury to desirable plants, do not use the same equipment for insecticides and fungicides that you use for a herbicide.

Common and Scientific Names

Common Name

Scientific Name

Ants.....	Formicidae (many species)
Armyworms.....	Noctuidae (several species)
Asiatic garden beetle.....	<i>Maladera castanea</i> (Arrow)
Banks grass mite.....	<i>Oligonychus pratensis</i> (Banks)
Bees.....	Hymenoptera (several species)
Bermudagrass mite.....	<i>Eriophyes cynodontiensis</i> Sayed
billbugs.....	<i>Sphenophorus</i> spp.
Centipedes.....	Chilopoda
Chiggers.....	<i>Trombicula</i> spp.
Chinch Bug.....	<i>Blissus leucopterus leucopterus</i> Say
Cicada-killer wasp.....	<i>Sphecius speciosus</i> (Drury)
Clover mite.....	<i>Bryobia praetiosa</i> Koch
Cutworms.....	Noctuidae (Several species)
Earthworms.....	Annelida
Earwigs.....	Dermaptera
False chinch bug.....	<i>Nysius ericae</i>
Fleas.....	Siphonaptera (several species)
Frit fly.....	<i>Oscinella frit</i> (L.)
Grasshoppers.....	Orthoptera (Many species)
Green June beetle.....	<i>Cotinis nitida</i>
Hairy chinch bug.....	<i>Blissus leucopterus hirtus</i> Montandon
Hunting billbug.....	<i>Sphenophorus venatus vestitus</i> Chitterden
Japanese beetle.....	<i>Popillia japonica</i> Newman
Lawn armyworm.....	<i>Spodoptera mauritia</i> (Boisduval)
Leafhoppers.....	Cicadellidae (several species)
May beetles.....	<i>Phyllophaga</i> spp.
Meadow spittlebug.....	<i>Philaenus spumarius</i>
Millipedes.....	Diplopoda
Northern masked chafer.....	<i>Cyclocephala borealis</i> Arrow
Northern mole cricket.....	<i>Neocurtilla hexadactyla</i> (Perty)
Oriental beetle.....	<i>Anomala orientalis</i> Waterhouse
Periodical cicada.....	<i>Magicicada</i> spp.
Rose chafer.....	<i>Macroductylus subspinosus</i> (Fabricius)

Scorpions.....	Scorpionida
Slugs and snails.....	Gastropoda
Sod webworms.....	<i>Crambus</i> spp. and others
Southern masked chafer.....	<i>Cyclocephala lurida</i> Bland
Sowbugs and pillbugs.....	Crustacea
Spiders.....	Araneida
Thrips.....	Thysanoptera (several species)
Ticks.....	Acarina
Two-lined spittlebug.....	<i>Prosapia bicincta</i> (Say)
Wireworms.....	Elateridae (several species)

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture,
and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.

Agricultural Extension Service

Billy G. Hicks, Dean