

TURFGRASS INSECT CONTROL

W. E. Wallner
Extension Specialist in Entomology
Michigan State University

Several insects damage grass by feeding either on the roots or the grass blades. Proper damage diagnosis is important since control measures are different for both groups. The more important lawn insects, the damage they produce and methods for their control follows:

Root Damaging Insects

Pest

White Grubs: These are the immature stages of a number of beetles viz; May or June beetles, Japanese beetle, Asiatic garden beetle, etc. These grubs are C-shaped, vary from 1/4 to 1 inch in length and have white bodies with brown heads. They infest the soil in the root zone and damage grass by destroying the roots. Grass dies in irregular patches; at first small areas which later increase in size. Severely infested areas of grass can be pulled up easily because the grubs have completely devoured the roots. Moles, skunks, and birds feed on these grubs and may increase damage to lawns in the process. By controlling the grubs damage by these animals can be eliminated.

If a grub problem is suspected, it can be detected by cutting 3 sides of a 1 foot strip of the suspect area 2 or 3 inches deep with a spade. Expose the soil beneath the grass by forcing the spade under the grass laying it back using the uncut side of the grass strip as a hinge. Check several areas in the manner and if there are 5 or more grubs per 1 foot strip, chemical treatment is necessary. These grubs can be found from early fall to early summer; during midsummer they cannot be found because they are in the adult stage which does not feed on grass but on the leaves of trees and shrubs. Most grubs spend 2-3 years underground before emerging as beetles.

Wireworms: These slender, 1/2 to 1 inch long, dark brown larvae are the immature stage of click beetles. They lack legs but are capable of boring into underground stems and feeding on the grass roots. Wireworms generally prefer acid soil and often become a problem in sodded areas which previously were committed to other agricultural crops. Wireworm damage results in dead areas of sod but usually proceeds at a slower rate than white grub damage. Wireworms remain in the ground from 1 to 6 years before transforming to adults.

Control: The most accurate and dependable method of controlling white grubs or wireworms is to apply a granular insecticide. Since the various granular insecticides differ in size, weight, and percentage of chemical, they must be applied at a different rate. A fertilizer spreader can be used to apply the granules, but the rate of delivery must be adjusted. This can be done by putting in a weighed amount of insecticide, treating a known area

(100 sq. ft.), weighing the granules remaining in the spreader and subtracting this from the original amount. Repeat this until the desired rate is achieved. One application of the following insecticide will effectively control grubs and wireworms for about 4 years. The rate suggested is on the basis of 1 acre (43,560 sq. ft.).

100 lbs. Chlordane 10% Granules: Use as low a percentage granule as possible to insure uniform coverage of the lawn surface. This chemical will not dissolve in water, but over a period of time moves down to a depth of 1 to 3 inches in the soil. Therefore, treatment will not kill grubs immediately; normally 1-2 weeks is required for the chemical to move into the root zone where the grubs are active. Watering-in treatments after application is suggested.

Insects Damaging the Grass Blades

Sod Webworms: The larvae of small moths, sod webworms are particularly troublesome on new lawns. They feed on the grass blades; first causing trails of unevenly cropped grass which later enlarge rapidly, turn brown and die. Sod webworms are active only at night and spend the daytime in silken tubes at the base of the plant. The various sized larvae (are up to 3/4 inches long), have brown heads, and pinkish or cream-brown bodies with dark spots along their backs. Adult webworms are small gray or tan moths (millers) which hide in the grass or shrubbery during the day. They are most active in early evening when the females drop eggs on the lawn from which new larvae develop. There are two or three broods of moths each year with winter being passed by partly developed larvae in their silken tubes.

Cutworms: These dull-brown, gray or almost black larvae 1-1½ inches long sometimes damage damp lawns with rank growing grass. They cut off the grass near the soil and cause small irregular brown spots in the lawn. Close inspection of the thatch or soil in these spots will reveal the curled-up larvae which normally feed during the night.

Control: The most effective controls for webworms and cutworms is a drenching chemical spray not only to the grass but the area beneath it. The time of year for control of cutworms will vary with their abundance. Normally, the period of May through mid-July is when highest populations occur and damage is apparent.

Apply sprays during late afternoon and do not water for at least 3 days. Any one of the following sprays will control webworms and cutworms. All rates are given to be mixed in 100 gallons of water and applied to an area of 5,000sq.ft.

1½ qts. 22% Zectran emulsion

or

2 qts. 25% Diazinon emulsion

or

4 lbs. 50% Carbaryl (Sevin) wettable powder

or

2½ pts. Ethion 4E

or

1 lb. 80% Dylox soluble powder

or

Diazinon 2½% Granules - apply 5 lbs. of formulated granules to 1000 sq. ft.

For sod webworm control, it is particularly important that a drenching spray be applied in order to reach the larvae in their tubes. Mowing the lawn and raking dead grass from the damaged areas before applying sprays will increase effectiveness. A treatment applied late in May will control overwintering larvae. However, treatment later in the summer may be necessary should the infestation re-occur.

Leafhoppers: Leafhoppers pierce grass leaves and suck out the juices. Established lawns are off color with whitened patches due to the depletion of the green chlorophyll of the grass by leafhopper feeding. There are many types of leafhoppers which feed on grass, most hop or fly short distances when disturbed, are about 1/5 inches long and light green, yellow or brown-gray in color.

Control: Complete coverage of grass blades is essential. Do not water the grass for at least 3 days after applying insecticide sprays. Any one of the following chemicals will control leafhoppers on lawns, but it may be necessary to repeat sprays should leafhopper populations reoccur. The rates suggested are to be mixed in 100 gallons of water and applied to 5,000 sq. ft.

2 qts. 25% Diazinon emulsion
or
4 lbs. 50% carbaryl (Sevin) wettable powder
or
1 qt. 57% malathion emulsion

Other Insects and Organisms Associated with Lawns

Ants: While ants do not feed on grass, lawns may be disfigured by the mounds which they construct. They may also destroy grass seeds in the soil thus reducing vigorous natural reseeding.

Control: Ants can be controlled with the same chemicals used for grub control. However, since ants are seldom a widespread problem, spot treatment of mound areas gives good results. Either of the following methods will reduce ant numbers.

Spray - dilute in 1 gallon of water
2 tsp. 25% Diazinon emulsion
or
2 tbsp. 40% Chlordane wettable powder
Dust or granules - apply directly to anthills:
2% Diazinon Granules
or
5% Chlordane dust

Clover Mites: Clover mites are closely related to the spiders and normally cause little turf damage. However, during April and May and again in late fall, these brownish-red creatures about the size of the head of a pin increase in numbers. They become a nuisance by clustering on the sides of, or invading, homes.

Control: Spraying building foundations, lawns or other areas where mites cluster will reduce the problem. Large amounts of spray are seldom required for such treatment. Any one of the following chemicals mixed in 1 gallon of

water will adequately control clover mites.

2 tbls. 18.5% Kelthane wettable powder
or
2 tsps. 25% Dizainon emulsion
or
4 tbls. 25% Malathion wettable powder

Cicada-Killer Wasps: During late July and August these yellow and black wasps about 1½ inches long dig nests or burrows in lawns and mound soil around the entrance. These mounds may be numerous and detract from the appearance of the lawn. The wasp stings and paralyzes a cicada, places it in the nest and then lays an egg on it. The cicada serves as food for the developing wasp larva. Cicada-killer wasps may sting people if handled or molested.

Control: Treat only the mound or nest areas during early evening when wasps are not active. Where possible, spray or dust directly into the burrows. Do not water after applying treatments. For control use one of the following insecticides.

Sprays - dilute in one gallon of water:

2 tsp. Diazinon emulsion
or
2½ tbsp 40% Chlordane wettable powder

Dusts or granules - apply directly to mound areas:

2% Diazinon Granules
or
5% Chlordane dust

Earthworms: Earthworms may disfigure lawn areas with their castings. In most cases treatment is not warranted. The presence of high earthworm numbers attract moles and skunks which feed on them and in the processes severely damage lawn areas.

Control: If severe earthworm casting and/or mole or skunk damage occurs, chlordane at the grub-proofing rate will alleviate the problem. Such treatment will not completely eliminate earthworms and after 2 years they will gradually begin to increase.

GENERAL WARNINGS

All pesticides are poisonous in some degree to warm-blooded mammals. They should be handled cautiously to prevent poisoning pets, livestock, children, or the user. When using any chemical, observe the following safe-use procedures:

1. Always read the label before using any chemical. Note warnings and cautions each time before opening the container.
2. Keep chemicals out of the reach of children, pets, and irresponsible people. Pesticides should be stored in their original container outside the home in a locked cabinet or shed.
3. Avoid inhaling pesticide sprays or dusts and, as directed on the label, wear protective clothing and mask. A handkerchief fitted to the face and long-sleeved shirts and gloves will help prevent excessive inhalation and contact with the material.
4. Do not spill sprays or dusts on the skin or clothing. If they are spilled, wash yourself immediately with soap and water and launder your clothing before wearing it again.
5. Dispose of empty pesticide containers in trash or by burning or burying them. When burning them avoid inhaling the smoke.
6. Use separate equipment for applying hormone-type herbicides and separate equipment for applying pesticides in order to avoid accidental injury to susceptible plants.
7. Do not apply an insecticide listed in this folder to vegetables, fruits, livestock, or garden soils unless the label or up-to-date Michigan State University Cooperative Extension Service literature says you can safely do so.
8. If applying an insecticide in combination with a fertilizer read the label carefully. Do not reapply unless suggested in the label. Unnecessary applications or excessive treatment rates may cause injury to grass or nearby shrubs and produce unwarranted soil contamination.