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Controlling Lawn and Turf Insects

Entomology
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Detecting the presence of an insect is the first step in good insect control. Be sure to examine an area of grass that contains living as well as damaged grass plants. The most serious turf insects feed on living plants and are not found in dead areas. Insects found in completely dead patches generally are not responsible for the damage.

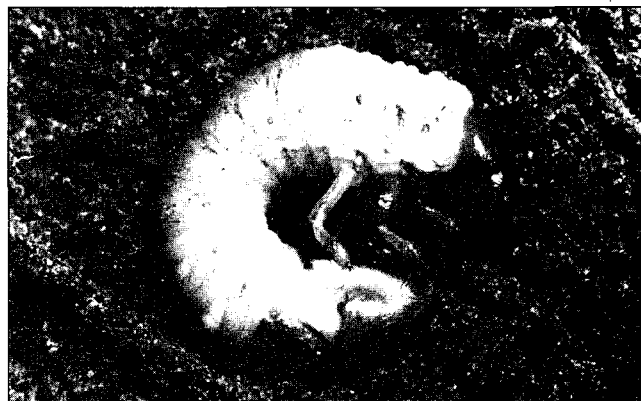
If the turf looks wilted and water-starved, a root-feeding insect may be involved. Peel the sod back, examine the roots, and look for any root-feeding pests. Some insects hide in the thatch and then feed on the grass blades. Damage from this type of feeding appears as brown patches when the blades are clipped off. You must search in the thatch to find the insect. Others live on the blades and withdraw the plant's sap. Close examination of the grass blade will reveal this type of pest.

ROOT FEEDERS

White Grubs

These are the larvae of the common May beetles or June bugs which fly to lights in the spring. The beetles lay eggs in spring and summer. The grubs are whitish with brown heads. They feed on the roots of the grass and heavy infestations will loosen the sod so that it can be rolled back. The grubs are usually found curled in a "C" shape. The damage will appear as irregular patches of yellowed or dead grass.

The most common grub species in Minnesota feeds on the roots for three years before becoming adults. The first year grubs grow up to 1/2 inch long and produce little damage. The second year, they range from 1/2 to 3/4 inch in length, and damage becomes more apparent. This second year is the best time to control grubs since damage usually is not extensive and an insecticide will be effective. The third year, the grubs grow to 1 inch long and damage becomes very apparent, particularly in July and August.



White grub

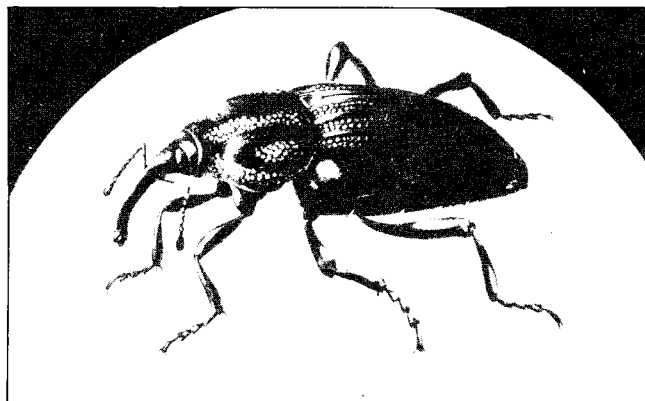
To determine if you have a grub problem, examine a square foot sample of lawn along the border where dead or damaged grass meets healthy grass. If you find two to five grubs that are less than 1/2 inch long in the sample, control may be desirable. Do not treat in the fall because grubs move down into the soil for the winter.

Skunks and moles are known to use grubs for food. However, in Minnesota night crawlers account for a sizable portion of their diet. Therefore, grub control often will not correct damage to lawns by skunks and moles.

Bluegrass Billbug

Adult billbugs are long-snouted, 1/4 inch long, gray-to-black beetles with a strongly tapered abdomen. They can be found walking on hard surfaces in early spring prior to depositing eggs in grass stems. The plump, legless white larvae which hatch, first-feed on stems and then on available roots. Infested lawns have off-colored, irregularly shaped areas which rapidly yellow and finally turn brown. Areas of advanced infestation contain individual plants which offer little resistance when pulled. Larvae complete feeding in late July and August, and emerge as adults in August to overwinter in protected locations.

Billbugs are best controlled in May as the females are laying eggs. Application of an insecticide is suggested about 10 days after adults are sighted (mid-May). The immature stage can also be controlled when they are feeding on the roots. Take a square foot sample of lawn along the margin where dead or damaged grass meets healthy grass. Approximately 10 larvae per square foot are considered sufficient to cause noticeable damage. Treatment is not suggested in late July or in August because the larvae complete their feeding and move 1 to 2 inches into the soil to pupate.



Bluegrass billbug

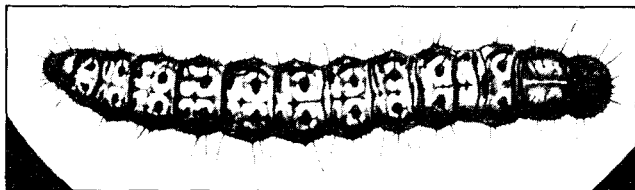
BLADE FEEDERS

Sod Webworms

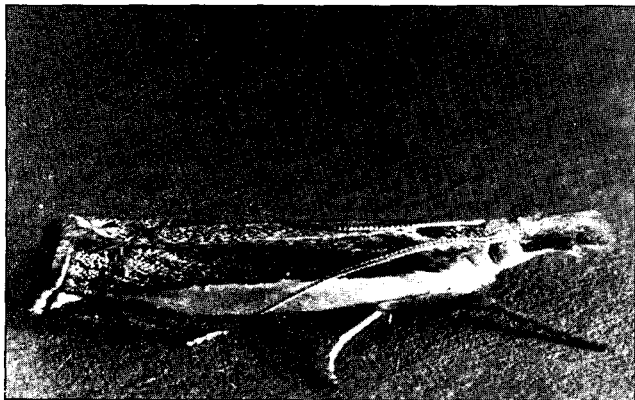
The adults of sod webworms are frequently called lawn moths. They are light-colored moths which make short, erratic, darting flights and are attracted to lights at night. When resting they fold their wings back closely against their bodies, which gives them a very narrow appearance.

The moths lay their eggs in the lawn. The worms which hatch from these eggs begin to feed at night on the grass leaves. During the day the worms hide in silk-lined tunnels or burrows at or slightly into the soil surface. When fully grown, the worms are a dirty white to light brown with darker spots and are about $\frac{3}{4}$ inch long. Some species damage plant crowns or roots as well as leaves. Heavy infestations of the second generation may seriously damage large areas of turf.

Although webworm adults are commonly seen, damage is uncommon in Minnesota. Flooding an area with water will force the worms to the surface where they can be counted. This is best done in June and again in early August since sod webworms have two generations per year. If you find a population of 15 worms per square yard control may be desired. Water the lawn thoroughly a day or so before applying an insecticide. Then delay further water for at least three days after treatment.



Sod webworm



Sod webworm adult

Cutworms

Some species of cutworms prefer grasses and may occasionally become damaging. They are most likely to be found in uncut grass or in lawns next to unmowed areas. The worms feed on the grass leaves or cut the grass off at the soil surface at night. During the day they hide in the soil or under debris. Full-grown worms are about $1\frac{1}{2}$ inches long and may be gray or brownish. One common grass-infesting species has conspicuous bronze stripes. Cutworm populations can be estimated and controlled as described for sod webworms.

Leafhoppers

During some seasons these very tiny green or gray insects become so numerous that when disturbed into flight, they rise like a cloud of dust. They are sap-sucking insects and their damage usually appears as irregular patches in which the grass is yellowed or bleached out. Established lawns are seldom seriously damaged. Most of the grass-infesting leafhoppers are less than $\frac{1}{4}$ inch long, narrow, and tapered from head to tail. Control is suggested for new lawns only.

Greenbugs

Greenbugs are aphids that can damage established turf. The insects are small and yellow to green, and they can be found by sweeping your hand over suspected areas. Greenbugs are carried into Minnesota by southerly winds, so they can show up overnight. Damage is almost always to areas of the lawn shaded by trees or shrubs. Bluegrass is a prime target for greenbug attacks. Control is suggested when greenbug populations are first noted. This usually occurs in late July or August.



Green bugs

Chinch Bugs

Chinch bugs on turf are rare in Minnesota. Obtain positive identification before attempting control. Immature bugs are red but become dark as they mature. Adults are $\frac{1}{5}$ inch long, have a head that is narrower than the thorax (shoulder), and have light-colored forewings with a conspicuous black triangle midway along the outside margin.



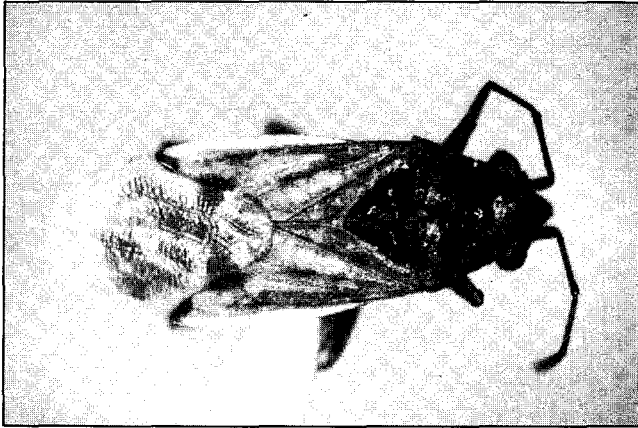
True chinch bug

INSECTS THAT LIVE IN THE GRASS

There are a few very common insects or insect relatives that live in grass but do not cause direct feeding damage.

False Chinch Bug

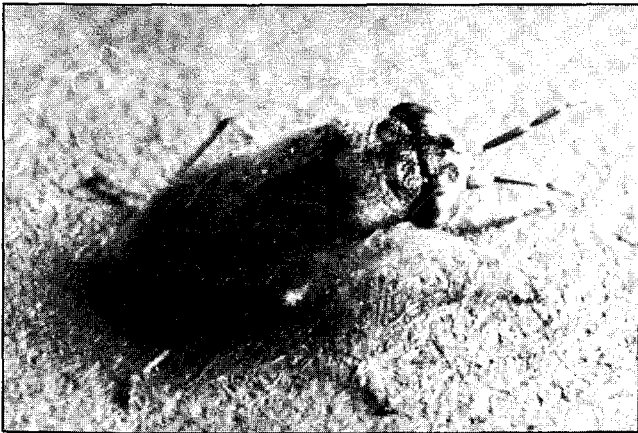
False chinch bugs are approximately $\frac{1}{4}$ inch long, brown, and generally found in dead areas of the turf. They can be distinguished from the true chinch bug by the absence of a conspicuous black triangle on the outer wing margin and by a head that is about the same width as the thorax (shoulder). Control is not recommended since they do not cause damage.



False chinch bug

Big-Eyed Bug

Big-eyed bugs are also confused with the true chinch bug. However, the head of the big-eyed bug is as wide as the thorax (shoulder) and the eyes are very noticeable. The big-eyed bug feeds on other insects and control is not recommended.



Big-eyed Bug

Ants

Ants are to be expected in lawns. Their preference for nesting in areas of sparse vegetation can lead to the assumption the the ants are causing the poor lawn development. This is not true. Ants do not feed on plants and so pose no threat to lawns. Control is not justified on the basis of protecting the lawn.

Night Crawlers

Night crawlers are beneficial and should be tolerated whenever possible. However, large populations can cause lumpiness and, in extreme cases, reduce the value of the turf for recreation. Vertical mowing can help reduce the lumpiness and also the amount of food available for night crawler development. Pesticide application also can be used to reduce the night crawler population.

Control Measures

Spread the granules uniformly over the lawn. A fertilizer spreader may be used if it is calibrated properly. Emulsifiable concentrates and wettable powders must be mixed with enough water to adequately cover the area to be treated. Use a compressed air sprayer to apply at least 2 or 3 gallons for each 1,000 square feet. The hose-on type sprayer which delivers a coarse droplet spray may be used. Usually an area of about 500 square feet can be covered with 1 quart of insecticide mixture. Most wettable powders don't work well in the hose-on sprayers; it's best to use the emulsions.

To control root feeding insects such as grubs and billbug larvae, thoroughly water the lawn immediately after treatment. For blade feeding insects, do not water for two to three days following treatment. Allow the lawn to dry after treatment before letting children and pets play on it.

CAUTION: All insecticides must be handled with respect. Read and follow directions and precautions on the container labels. Avoid contaminating the skin and clothing. Do not breathe the dust or spray. After applying insecticides change clothes and wash thoroughly with soap and water. Store pesticides in a safe place where children and pets can't obtain them. Dispose of empty containers safely.

Insecticides

Pests	Insecticide	Amount per 1,000 square feet	Remarks
White grubs WATER THOROUGHLY FOLLOWING APPLICATION	diazinon 48% EC*	4 fluid ounces	Use granular formulations when thatch is heavy. Will also help control ants. Do not use if water pH is greater than 7.0. May also be available combined with fertilizer in ready to use form.
	2% G**	6 pounds	
	5% G	2 1/2 pounds	
	14% G	1 pound	
	trichlorfon 40.5% EC (Dylox, Proxol) 80% SP*** Oftanol 1.5%	6 ounces 3 3/4 ounces 4.3 ounces	
Bluegrass billbug	diazinon	as listed for white grubs	Withhold water 2 to 3 days following treatment for adults (mid-May). Water thoroughly following application for larvae (mid-June).
	Oftanol 1.5% G (combined with fertilizer in ready to use form)	4.3 ounces	
Sod webworms	diazinon 50% WP***	4 ounces	Most effective if applied in the evening during August when adult activity is high.
	48% EC	4 fluid ounces	
	2% G	5 pounds	
	5% G	2 pounds	
	trichlorfon 40.5% EC (Dylox, Proxol) 80% SP	1/4 to 3/8 pints 2 1/4 to 3 3/4 ozs	
	chlorpyrifos 5.3 EC (Dursban)	4 fluid ounces	
	Aspon	10 2/3 fluid ounces	
	carbaryl 80% WP (Sevin) 50% WP	1/4 pound 1/2 pound	
Cutworms			As listed for sod webworms.
Leafhoppers	carbaryl 80% WP (Sevin) 50% WP	1/4 pound 1/2 pound	Apply when leafhoppers are abundant, particularly if the lawn is newly established.
	diazinon 48% EC	1 1/4 fluid ounces	
	50% WP	1 1/4 ounces	
Greenbug	acephate 9.4% EC (Orthene)	3 tbsp/gallon	Use 6 gallons of finished spray per 1,000 sq. ft.
Ants	diazinon 25% EC	8 fl oz per 3 gallons cover 125 sq ft.	Spot treat nest for best results. Will also control night crawlers.
	50% WP	42 oz per 3 gallons	
	2% G	1 tsp/ant hill	
	5% G	2 lbs/1000 sq ft.	
	carbaryl 50% WP (Sevin)	18 tbsp in 15 gallons water to cover 500 sq ft.	
Nightcrawlers	carbaryl 50% WP (Sevin)	18 tbsp in 15 gallons water to cover 500 sq ft.	Water in immediately after application. Will also control ants.

*EC = Emulsifiable Concentrate
 **G = Granular
 ***SP = Soluble Powder
 ****WP = Wettable Powder

Read the pesticide label and follow the instructions as a final authority on pesticide use.

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