

## Insect Pests of Turfgrass

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### Armyworms

**Identification:** Armyworms, which attain a length of ½ inches, are also caterpillars of moths. Their bodies are greenish when small, but become brown when fully grown. Several stripes usually are apparent, extending from the head to the rear. The adult is a mottled brownish-gray moth with a wingspan of nearly 1 ½ inches. Armyworms occur throughout Georgia.

**Life Cycle and Biology:** Armyworm caterpillars pupate in the soil. The moths emerge within a couple of weeks. They are active mainly at night. There are three to six generations a year in Georgia. Female moths lay clusters of eggs on grass blades, lawn furniture, white or light colored walls, and other objects near lawns. Caterpillars hatch and begin to feed on the turf.

**Damage:** Damaged turf appears ragged with individual blades showing signs of chewing damage. When numerous, armyworms may devour the grass down to the ground. Young larvae skeletonize grass blades; older larvae feed on entire blades.

**Control Strategies:** The irrigation technique described below for sod webworm also is effective for sampling armyworm populations. Populations tend to increase after drought conditions; maintain a consistent soil moisture level to help manage this pest. Time insecticide applications to control armyworms during the early evening when caterpillars are feeding.

### Billbugs

**Identification:** Adult billbugs are weevils 1/5 to 3/4 inch long. The reddish-brown to black adults have a pair of jaws at the tip of a long snout or "bill". The young are white, legless grubs about 3/8 inch in length with the rear end wider than the head. The "hunting billbug" is the most common type found in Georgia. It occurs throughout the state.

**Life Cycle and Biology:** Adults feed above ground and deposit eggs in the stems of host grasses. Hatching larvae feed within the stems; larger larvae feed on the crown; mature larvae feed on the roots of the turf. One generation occurs annually, but adults and larvae may be found at any time of year.

**Damage:** Zoysiagrass and bermudagrass are most often injured, but feeding may occur on many grasses. When infestations are heavy, roots of grass are destroyed and the turf is killed in irregular patches. Early damage resembles dollar spot disease in small spots of dead or dying grass. The most damage occurs in June and July. Damage from billbugs differs from white grub or mole cricket injured turf in that infested soil usually stays firm.

**Control Strategies:** Varieties of turf resistant to billbug damage are available and should be considered when establishing a new lawn in an area with a history of billbug problems. Maintaining constant soil moisture and moderate fertility levels during the fall months into winter helps mask damage by low-moderate infestations. An insecticide application in mid- to late-May and repeated in June can help reduce adult activity.

### Cinch Bugs

**Identification:** Adults are about 1/5 inch long and light in color with small black triangular patches on the wings. The wings are carried folded over the back. The nymphs are from 1/20 to 1/5 inch long and vary in color from reddish with a white band across the back to black as they near adult size. Chinch bugs occur throughout the state.

**Life Cycle and Biology:** The eggs are laid in leaf sheaths or crevices in nodes and other protected places. The young develop into adults in four to six weeks. There are three to four generations a year. The bugs insert their slender beak into the grass and suck the plant juices.

**Damage:** Typical injury appears as spreading patches of brown, dead grass. St. Augustine grass is the most seriously injured, but other lawn grasses, including zoysia, bermuda, and centipede grasses, also are subject to attack. Chinch bug infestations and damage are most often first noticed during hot dry periods in sunny areas of the lawn.

**Control Strategies:** A common method of determining population levels of chinch bugs is the "flotation technique". A coffee can, or similarly sized can, with its ends cut away, is pushed two to three inches down into turf in a suspected area of chinch bug infestation. The can is filled with water and kept full for about five to seven minutes by adding more water as necessary. All stages of chinch bugs, if present, will float to the top. A threshold level of 20 to 25 chinch bugs per square foot can cause damage. This monitoring technique should be repeated in several spots at the edge of the suspected area to increase chances of finding the bugs. Treat if populations are at or above the damage threshold. Pesticides should not be applied to turf in dry soil to avoid potential chemical injury. Irrigate the lawn several hours to a day before treating.

### Cutworms

**Identification:** Cutworms, also the caterpillar stages of certain moths, grow to a length of 1 ½ to 2 inches. The caterpillars are mottled, dull brown, gray, or nearly black and usually appear plump and greasy. If disturbed, the caterpillar usually curls into a C-shaped ball. The front wings of the moth are dark brown to gray, are mottled or streaked, and have a wingspan of 1 ½ to 2 inches. Cutworms also occur throughout the state.

**Life Cycle and Biology:** Eggs are laid on grass and weed stems or behind the leaf sheath of such plants. Caterpillars usually remain below the ground surface, under clods, or other shelters during the day; they feed at night. Cutworms pupate in the soil. Three to as many as seven generations occur each year. Cutworms can be active all year.

**Damage:** Foliage or stems may be cut off (hence the name cutworm) by the caterpillars. Circular spots of dead grass or sunken spots are indicative of cutworm infestation.

**Control Strategies:** The irrigation technique described below for sod webworm also is effective for determining cutworm population levels. Insecticide treatment should be made when this technique flushes three to eight larvae per square yard. Due to their nocturnal behavior, it is best to time control measures for early evening when caterpillars are feeding. Do not irrigate turf after treatment is applied for control of caterpillars. For these pests, you want the material to remain at the surface rather than have it move down into the soil.

### Mole Crickets

**Identification:** Mole crickets are light brown, up to 1 ½ inches long, have short, stout forelegs, spade-like feet, and large eyes. The young resemble the adults except that they are much smaller, have no wings, and are sexually immature. Three species occur in Georgia. Two, the tawny mole cricket and the southern mole cricket, are pest species. Mole crickets occur primarily in the sandy soils of the Coastal Plain.

**Life Cycle and Biology:** Adults lay eggs in underground cells in the spring. The eggs hatch in two to four weeks, depending on the weather. Nymphs feed and grow through the summer and mature into adults in the late fall or winter. Mole crickets spend the winter deep in the soil, but come to the surface to feed during warm periods. Adult crickets leave the soil on warm spring nights to fly around, sometimes in huge numbers, looking for mates and egg-laying sites. There is one generation per year, and most adults die by early summer. Tawny mole cricket mating flights occur in March and early April; southern mole cricket flights occur in April and in early May. Cold or wet spring weather may delay flights.

**Damage:** The most damaging species of mole crickets feed on grass. Other species don't feed directly on grass, but their tunneling activity damages turf. Both young and adults burrow beneath the soil and make tunnels similar to, but much smaller than, those made by moles. This loosens the soil and causes it to dry out quickly. It also clips the roots of the grass plants. Left unchecked, mole crickets will build up in an area and completely destroy the grass, leaving bare ground.

**Control Strategies:** Insecticidal control of mole crickets is most effective in summer (late June or early July) when most of the mole cricket eggs have hatched and nymphs are still small. Granular or spray insecticides are the formulations of choice for summer application. In late summer, mole cricket baits or insecticides with longer residual activity will be more effective. Effective control in spring and fall is difficult because of unpredictable weather, cricket activity, and their large dispersal flights. At these times of year, treat only severely damaged areas where grass is dying out. Spot treat with an appropriate insecticide. Bait formulations are most effective in spring and fall.

### Sod Webworms

**Identification:** Sod webworms are caterpillars of small brown to dull gray moths. Webworms grow to a length of nearly ¾ inch and vary in color from pinkish white to light green to yellowish brown with a light to dark brown or black head. They are covered with fine hairs. The moths have a wingspan of about ¾ inch. They fold their wings closely about their bodies when at rest and have a prominent forward projection on the head. Sod webworms are found throughout Georgia.

**Life Cycle and Biology:** Moths hide in shrubbery or other sheltered spots during the day. They fly over the grass in early evening. The female scatters eggs over the lawns as she flies. Two to three generations occur each year. Sod webworms feed only at night.

**Damage:** Damaged grass blades appear notched on sides and are chewed raggedly. Irregular brown spots are the first signs of damage. Large areas of grass may be damaged severely, especially under drought conditions. A heavy infestation can destroy a lawn in only a few days. Damage tends to become visible in mid to late summer and in highly maintained lawns. Sod webworms are partial to newly established lawns. Favored turf types are bermuda, centipede, bahia, zoysia, and St. Augustine grasses.

**Control Strategies:** Sod webworm populations (and those of other soil-inhabiting insects) can be monitored using the "irritation technique". One ounce of dish detergent is mixed with one gallon of water and the solution is poured over a one square yard area where an infestation is suspected. The detergent irritates the insects, causing them to come to the surface quickly. Damage thresholds vary in different areas. A rough guide is 15 or more larvae per square yard. Insecticide application should be timed for treatment two weeks after peak moth activity and should be made during early evening hours when caterpillars begin feeding.

### Spittlebugs

**Identification:** Spittlebug adults, commonly called froghoppers, are about ¾ inch long, dark brown or black, and have two orange stripes across their wings. The nymph is ivory-colored with a brown head. Nymphs live inside masses of spittle or froth, hence the name "spittlebug". They occur throughout Georgia.

**Life Cycle and Biology:** Adult females deposit orange eggs in bits of hollow stems and other debris. Nymphs hatch in about two weeks and begin to feed immediately by sucking juices from the grass. They cover themselves with a frothy mass known as spittle. There may be one or several nymphs in each spittle mass. The masses are found from just below the soil surface to a few inches above it. Two generations occur annually in Georgia. Overwintering eggs hatch in March and April. This generation reaches maturity by June. Adult activity is also noticeable in August and September, when the second generation matures.

**Damage:** Spittlebugs are associated with heavy thatch. A heavily infested area will feel "squishy" when you walk across it due to numerous spittle masses. Centipede grass is especially prone to spittlebug infestation; other warm season grasses also are susceptible. Populations often begin and increase in shady areas. The second generation appears to cause more injury. Populations, and therefore, damage, can be especially high during years with high spring and summer rainfall.

**Control Strategies:** Don't allow a heavy thatch layer to accumulate. Adult spittlebugs feed on a number of shrubs and other plants, so avoid locating host plants that attract the adults, especially hollies with *Ilex cassine* in their parentage, near susceptible turfgrasses. Time insecticide treatment in heavily infested areas for July. Mow and irrigate the grass several hours before applying treatment late in the day.

### White Grubs

**Identification:** These grubs are plump, C-shaped insects with three pairs of legs. They are whitish with dark areas near the rear. They have a distinct, brown head. The adults are beetles commonly referred to as chafers, May beetles, June beetles, Japanese beetles or green June beetles. They occur throughout the state of Georgia.

**Life Cycle and Biology:** Adult female beetles lay their eggs in the soil. The grubs hatch and spend most of their life beneath the soil feeding on underground plant parts. Most have rather long life cycles. The grub stage can last from several months to two or three years. Most species of grubs found in Georgia have a one year life cycle.

**Damage:** Grub feeding destroys roots, leaving the tops to wither and die. In heavy infestations, roots are pruned off to the extent that turf can be rolled back like a carpet. Symptoms of grub damage include yellowing or browning of the grass and signs of drought stress when moisture levels are good. Grass may feel spongy when infestations are heavy.

**Control Strategies:** Time insecticide applications to target the early stage grubs. Applications during July and August are recommended for the newer products. During this time of the year, the grubs are small and are near the soil surface feeding at the root zone. Later in the season, when grubs are bigger, sample to determine if curative treatments may be required. Use a spade to cut three sides of a strip one foot square by two or three 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 from the overturned roots. Count the grubs in the exposed soil. Replace the strip of sod. Following the same procedure, cut strips of sod in several other parts of the lawn and count grubs under each strip. Calculate the average number of grubs per square foot of lawn by dividing the total number of grubs by the number of strips. If the average number lies between five and ten grubs in non-irrigated turf or greater than 20 grubs in highly maintained, irrigated turf, control measures may be required. Irrigating a few days before treatment will bring grubs closer to the soil surface where pesticides can reach them. Irrigate thoroughly after treatment to get the material into the root zone where grubs are feeding, but not so much as to cause run-off.