

Insect Control in Athletic Turf

Mole Crickets

Description

Mole Crickets are light-brown crickets about 1 ½ inches long with short, stout forelegs and shovel-like feet. They feed at night on the roots of grass, and their burrowing also uproots seedlings and causes soil to dry out. One mole cricket can damage several yards of turf in a single night. The tawny mole cricket and southern mole cricket are the two species responsible for most of the damage in the southeastern United States. Both species do considerable tunneling, but the tawny mole cricket is most destructive, because it feeds almost entirely on turfgrass roots whereas the southern mole cricket feeds more on small soil insects.

Life cycle

Mole crickets have only one generation per year that is composed of 3 basic developmental stages; the egg, the nymph, and the adult. Mole crickets overwinter as nymphs or adults deep in the soil, but may come to the surface to feed even during winter months (causing tunnels). As soil temperatures increase in early March the crickets do more tunneling, and the crickets that over-wintered as nymphs finish developing into adults. Mole crickets then begin to fly, mate, and lay eggs throughout April and May. These eggs take around 20 days to hatch which typically occurs beginning in late May and can last throughout the summer months. After hatching, the nymphs feed and grow throughout the summer, which is when most turfgrass damage occurs. The nymphs go through 6 to 8 molting stages (much like a snake shedding its skin) before becoming an adult and overwintering.

Scouting and Control

- Keep records! Mole cricket damage often occurs in the same areas
- Look and listen for adult crickets in late spring, NOW!! Mole crickets that overwintered as adults begin flying and mating during March-April and their mating call can sometimes be heard at dusk. NO TREATMENT is typically recommended at this time.
- After the mole crickets have mated and egg-laying occurs, begin scouting for nymphs.
- Soapy water flush: Mix 1 teaspoon of dish detergent in 1 gallon of water and pour onto the turf. Nymphs and small adults will come to the surface if present. If the soil is excessively dry, a second drench may be necessary to flush out any mole crickets.
- **THIS IS THE TIME TO TREAT!!**

<u>Product</u>	<u>Rate</u>	<u>Remarks</u>
Top Choice, Chipco Choice (Fipronil)	87 lbs/acre	Broadcast; Season long control IRRIGATE within 24 hours
Merit (Imidacloprid) Generic Zenith	See label	Broadcast; Season long control IRRIGATE within 24 hours
Allectus (Imidacloprid +Bifenthrin)	125 lbs/acre	Broadcast; Season long control IRRIGATE within 24 hours
Advion (Indoxacarb)	50-200 lbs/acre	Bait: Apply in late afternoon for cricket flight at night. DO NOT GET WET (Rainfall, irrigation, heavy dew)
Pyrethroids (scimitar, talstar, deltagard)	See label	Must be watered in

Fire Ants

Description

Adult red imported fire ants are reddish to dark brown and occur in 5 forms: minor workers, major workers, winged males, winged females, and queens. Fire ant mounds vary in size and are typically proportional to the size of the colony. For example, a 2 ft diameter mound contains about 100,000 workers, several hundred winged adults, and one queen. If you break open a fire-ant mound, you find the “brood”- whitish rice-grain like larvae and pupae. These are immature ants that will eventually develop into adults.

Life cycle

During the spring, winged males and females leave the mound and mate in the air. After mating females become queens and may fly as far away as 10 miles from the parent colony, although most fly a much shorter distance. Only a very small percentage of queens survive after landing while most are killed by other foraging fire ants. If a queen survives, she sheds her wings, burrows into the ground, and lays eggs to begin a new colony. In late fall, many small colonies appear. Most of the colonies will only survive mild winters, and will die if the winter is harsh.

Control

Sanitation – Fire ants spend a great deal of time foraging for food. You can reduce ant foraging by eliminating food sources. Outdoor trash cans, dumpsters, grease bins, etc should be routinely cleaned and emptied.

Inspection and Observation – Fire ants can spread through new landscape material such as shrubs, pine and wheat straw, sod, soil, etc. Check these items carefully prior to bring them into your site. If you do find fire ants in materials contact the vendor immediately.

Chemical Control – There are 2 basic approaches, mound treatments and broadcast treatments.

Mound Treatments

Broadcast Treatments

Baits	Drenches	Baits	Broadcast (Contact insecticides)
Advion (Indoxacarb)	Talstar Flowable	Advion (Indoxacarb)	Topchoice, Maxforce (fipronil)
Ceasefire (fipronil)	Other pyrethroids (check label)		Talstar, Menace (bifenthrin)
Amdro			Allectus (imidacloprid + bifenthrin)

Things to remember when using baits:

- Apply fresh baits through clean spreaders.
- DO NOT water in baits. NO irrigation/rainfall for 24 hours before or after application.
- Baits are typically slow to work (~2 WEEKS)
- Do not disturb mounds, ants will relocate.

“Texas Two-step” for Fire ant control:

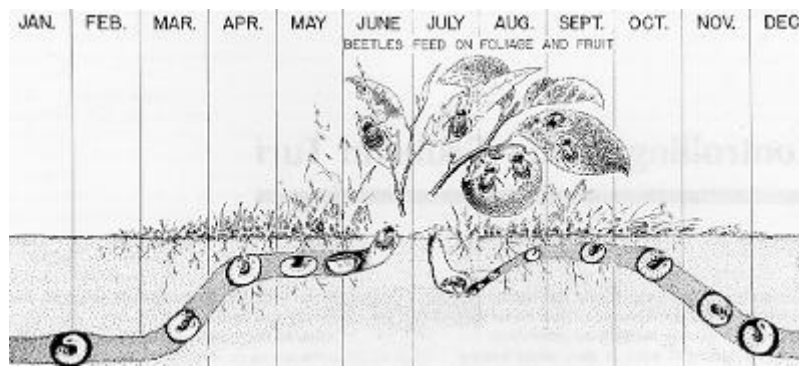
- Drench mounds and apply baits for long-term control.

White Grubs

Description

White grubs are the larvae of several kinds of scarab beetles. The Japanese beetle larvae is the most important species in NC, but other common species are green June beetles and masked chafers. All have white, blunted bodies with yellow/brown heads and brownish hind parts and legs. All species of grubs (other than the green June beetle) feed on turfgrass roots about 1-2 inches below the surface. The green June beetle feeds on decaying vegetation. Green June beetles also typically appear AFTER Japanese beetles. Damage is most commonly seen during late summer when grubs are actively feeding.

Life cycle



Jan-Feb: Grub overwintering

Mar-Apr: Grub nears soil surface to feed

May: Grub forms cell and prepares to pupate

June: Grub changes from pupa to adult and emerges from ground as beetle

July: Beetles lay eggs in ground, preferably grass.

August-October: Eggs hatch and feed on living roots of plants. Damage most significant during this time

Nov-Dec: Fully grown grubs burrow into soil and overwinter.

Control

Effective control of white grubs can be achieved through proper insecticide application at the proper time. Insecticides need to be applied during or after peak flight to control “egg hatch”.

<u>Chemical</u>	<u>Rate</u>	<u>Remarks</u>
Merit (imidacloprid)	3-4 tsp/1000 sq ft	Must be applied prior to egg hatch Typically get season-long control
Mach 2 (halofenozide)	See label	Must be applied prior to egg hatch Typically get season-long control
Meridian (thiamethoxam)	See label	Apply during peak flight and egg hatch
Sevin (Carbaryl)	3 oz/1000 sq ft	Curative “Rescue treatment” Must water in thoroughly
Dylox (trichlorfon)	3.75 oz/1000 sq ft	Curative “Rescue treatment” Must water in

Fall Armyworms



Description

The fall armyworm is the larval stage of a small moth. This insect is a tropical pest and does not overwinter in NC. They typically overwinter in warmer climates such as Florida and the gulf coast and migrate to NC in the spring. Mid-May is the earliest all armyworms have been observed in NC. The larva (damaging stage) varies from green to brown in color with a dark head. There is a very distinctive white/yellow “inverted Y” on the head that makes identification relatively straightforward. The armyworm feeds on many plants including grasses with damage occurring most commonly on bermudagrass, but also on fescue, ryegrass, bentgrass, and bluegrass. Damage typically occurs in mid to late summer and into fall as populations increase. Fall armyworms feed ONLY on above ground parts of the plant (leaf tissue) and in severe cases bermudagrass will take on a ‘dormant’ look. Bermudagrass can typically recover, but may be significantly weakened entering fall dormancy. Cool-season grasses can be killed completely.

Life cycle

Fall armyworm moths are most active at night and attracted to lights. Moths typically do not lay their eggs directly on turf, but rather on objects adjacent to turf. Site for egg-laying include landscape plantings, fence posts, metal objects, storage buildings, metal gutters, other light-colored objects, and even flags on putting greens. These eggs then hatch, and young caterpillars drop down on silken thread to the turf. Fall armyworms feed at any time, but prefer early morning and late afternoon. In severe cases, they look like an “army” of worms “marching” across turf. After consuming the turf, the caterpillars crawl into the soil to form pupae. After 10 to 14 days they emerge as moths and the process begins again.

Control

<u>Product</u>	<u>Rate</u>	<u>Remarks</u>
Provaunt (Indoxacarb)	0.06 – 0.25 oz/1000 sq ft	
Pyrethroids (Deltagard, Menace, Scimitar, Talstar, and Tempo)	See various labels	Must be thoroughly watered in.