FALL ARMYWORM (FAW)

scientific name: *Spodoptera frugiperda*
Similar species: Armyworm (AW)


LARVA (FAW)


ADULT (AW)

FIELD KEYS

Hosts: bermudagrass, bluegrass, bentgrass, ryegrass, fescues
Site symptoms: Small to larger areas of sunken or thinned turf that gets larger with time. Turf often has flocks of feeding birds.
Plant symptoms: The undersides of leaves are skeletonized by small 1st instar feeding with full grown larval feeding on all above-ground plant parts. Frequently larva leave partly eaten plant parts scattered on soil or thatch surface.
Site keys: Low, wet or transitionally shaded areas.

SPECIMEN ID

Fully grown FAW larvae can reach 2 inches long with four small black spots on the top of each segment and dark stripes down each side. Adults are gray brown moths with 1-inch-long, narrow, football-shaped bodies and 1½ inch wing spans. The forewings are dull gray mottled with darker spots and the hindwings are yellow to white at the edges and almost translucent in the centers.

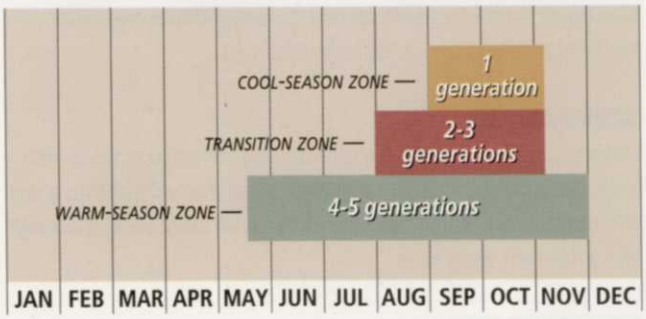
SCOUTING TIPS

Although FAWs can occasionally be found as far north as the Canadian border, they are primarily a pest of the middle and lower portions of the country, where they can be abundant. FAWs are very cold sensitive so they annually migrate to northern regions by flying into weather fronts sweeping up from warmer regions. The moths frequently lay egg masses on trees and other vertical surfaces, with the newly-hatched larvae lowering themselves down to the turf on silken strands. FAWs have short life cycles of as little as 3-4 weeks, so warmer regions can have multiple generations per year.

CONTROL STRATEGIES

Cultural: FAWs have lots of natural predators, ranging from parasites to birds. Larval populations can be monitored using soap or insecticide flushes or by collecting and quantifying when larva feed at night. Minor infestations late in the year often do not require treatment.
Chemical: If FAWs are a consistent pest try to correlate data on population numbers with the time of year and observed damage when making control decisions. Tall cut turf can tolerate a higher population than can shorter cut sites. FAWs rarely damage large areas of turf. Their larvae are often localized; the damaged turf can recover quickly if spot treatments of insecticides like MACH 2 are used.

SPECIES ACTIVITY, BIOLOGY & LIFE CYCLE



Growth stages: egg - grub (several instars)* - pupa - adult
** - treatable stages*
Life cycle: 1 year life cycle (multiple generations in warmer regions)
Sequence: adult - egg - larva - pupa - adult

DISTRIBUTION

SURFACE FEEDERS

BLACK CUTWORM (BCW)

aka: Greasy cutworm
scientific name: *Agriotis ipsilon*
Similar species: Variegated cutworm, Bronzed cutworm

FIELD KEYS

Hosts: bentgrass, ryegrass, and most other grasses
Site symptoms: Small roughly circular areas of eaten turf often surrounding an aeration hole or tunnel or cavity dug in soil or thatch.
Plant symptoms: Larvae eat plants at or near the soil line.
Site keys: A problem pest on golf greens and tees and other highly maintained bentgrass locations.

SPECIMEN ID

Larvae range from ¼ inch translucent first instars to large, 2-inch long, dull gray to black stripped caterpillars that will roll into a coil when disturbed. Adults are gray moths with black wing markings and a 1½ inch wing span.

SCOUTING TIPS

Look for small circular or depressed areas around aeration holes or shallow dug tunnels in soil or thatch. Mature larvae are night feeders that can be seen with a light or can be dislodged from their holes or tunnels during daylight with a soap or insecticidal flush. BCWs can produce from 2 to 6 generations per year depending on the region. Look for active larger larvae feeding on turf at night. Monitor larval populations with flushes and be aware that BCW is a pest on many agriculture crops so reinfestation can occur rapidly. Look for adult females feeding on neighboring flowering shrubs or trees at night.

CONTROL STRATEGIES

Cultural: If BCWs are using aeration holes as hiding places, delay aeration practices to less favorable periods after active larval growth stages or try backfilling holes with topdressing.
Chemical: In most areas, where BCWs are a consistent problem in turf, consider beginning control applications when concentrations of larger immatures reach one per three square feet. Use a soap flush to monitor for larvae every week. Treat with MACH 2 as soon as several small larvae are found. On golf courses, also treat 15-30 feet around greens and tees to prevent reinvasion. Resample in 40-50 days.

SPECIES ACTIVITY, BIOLOGY & LIFE CYCLE

Growth stages: egg - caterpillar (several instars)* - pupa - adult
** - treatable stages*
Life cycle: 1 year cycle (multiple generations)
Sequence: larva - adult - egg - pupa - adult - egg - larva

DISTRIBUTION

BLUEGRASS SOD WEBWORM (BSWW)

LARGER SOD WEBWORM (LSWW)

aka: Lawn Moth, Snout Moth
scientific names: *Parapediasia teterrella, Pediasia trisecta*
Similar species: Additional members of the cool season SWW species - Corn Root Sod Webworm, Sliver Striped Sod Webworm, Stripped Sod Webworm, Vagabond Sod Webworm

FIELD KEYS

Hosts: Bluegrass, fine fescues, bentgrass, ryegrass
Site symptoms: Small areas of thinning turf turn off color and increase in size daily. These smaller patches coalesce into larger areas of thinning, brown turf. Birds feed on affected areas leaving peck holes and small gray to tan moths can be seen flying low over turf at dusk.
Plant symptoms: Above-ground plant structures show damage from insect feeding activities and frass or green fecal pellets can be found near the centers of smaller damaged areas.
Site keys: Sunny to transitionally shaded well-managed sites that tend to be on the dry side.

SPECIMEN ID

Immatures are gray, green, or tan segmented worms with black spots on their bodies, tan to black heads, and range from ½ to 1-⅛ inch long when fully grown. Adults are small gray to tan ½ to 1-inch long moths with ⅝ to 1-⅜ inch wing spans and have readily visible snoutlike projections from their heads.

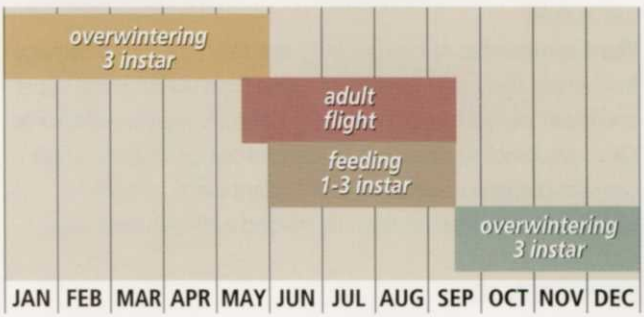
SCOUTING TIPS

Although the presence of adults flying low in a characteristic zigzag pattern when disturbed or at dusk is definitive, it may not correlate to treatable larval populations. Once adults have been seen, monitor larval populations with soap or insecticidal flushes beginning about two weeks after peak adult activity. Turf can vary widely in its ability to tolerate higher populations of SWWs, but heat or moisture-stressed sites almost always suffer greater damage. Since grasses are SWW's primary food source and their life cycles are quite short, small populations can rapidly increase over several generations to cause substantial damage.

CONTROL STRATEGIES

Cultural: Manage turf for vigorous growth. Overseed or renovate damaged areas with high-endophyte ryegrass or tall fescue varieties. Small adult populations late in the year usually do not require treatment, but should be monitored the following spring.

SPECIES ACTIVITY, BIOLOGY & LIFE CYCLE



Growth stages: egg - larva (up to ten instars)* - pupa - adult
** - treatable stages*
Life cycle: 1 year life cycle (multiple generations)
Sequence: larva - pupa - adult - egg - larva

DISTRIBUTION

Chemical: Where scouting is ongoing, correlate larval population data with observed damage to develop site specific treatment thresholds. If this information is not available, consider control applications once damage has been observed or when populations reach 2-15 larvae per square yard (9 sq ft).

SURFACE FEEDERS

TROPICAL SOD WEBWORM (TSWW)

scientific name: *Herpetogramma phaeopteralis*
Similar species: Subterranean Sod Webworm

FIELD KEYS

Hosts: bermudagrass, St. Augustine, Kikuyu-grass, centipedegrass, zoysiagrass, bahiagrass
Site symptoms: Small areas of thinning turf turn off color and increase in size daily. These smaller, unkempt- looking patches coalesce into larger areas of thinning brown turf. Birds feed on affected areas leaving peck holes and small moths can be seen flying low over turf at dusk.
Plant symptoms: Above-ground plant structure shows damage from insect feeding activities that range from skeletonized upper and lower leaf surfaces to complete leaf consumption with some silken webbing. At pupation, unlike cool-season species, larvae can spin cocoons made of webbing, plant parts, and soil.
Site keys: Sunny to transitionally shaded well-managed sites.

SPECIMEN ID

Immatures are cream-colored segmented worms with yellow brown heads that range from ½ inch long at hatch to ¾ inch long when fully grown. Adults are dusky brown moths with ¾ inch wing spans and a wedge or arrowhead-shaped appearance at rest.

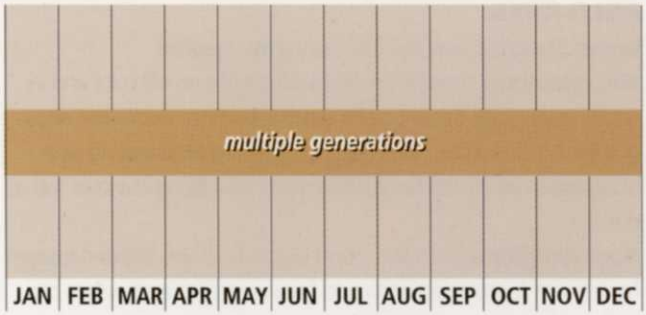
SCOUTING TIPS

Like other SWW species the presence of adults flying at dusk is definitive, it may not correlate to treatable larval populations. Adult TSWWs feed on nectar and other sweet food sources, so they also can be seen in flowering or fruit bearing shrubs or trees near infested sites. Once adults have been seen, monitor larval populations with soap or insecticidal flushes beginning about two weeks after peak adult activity. Turf can vary widely in its ability to tolerate higher populations of TSWW, but sites with consistently warm temperatures and high humidity or rainfall frequently suffer greater feeding damage. Larval damage at infested sites can be similar to armyworm damage - where actively feeding high larval populations can literally mow down grass.

CONTROL STRATEGIES

Cultural: Manage turf for vigorous growth. Overseed or renovate damaged areas with high-endophyte regionally-appropriate grass species or varieties that show tolerance, like common bermudagrass. Because TSWW is a true warm season species and because it has a relatively short life cycle, once it has been identified at a site, managers should maintain a consistent scouting regimen.

SPECIES ACTIVITY, BIOLOGY & LIFE CYCLE



Growth stages: egg - larva (up to eight instars)* - pupa - adult
** - treatable stages*
Life cycle: 1 year life cycle (multiple generations)
Sequence: larva - pupa - adult - egg - larva

DISTRIBUTION

Chemical: Where scouting is ongoing, correlate larval population data with observed damage to develop site specific treatment thresholds. If this information is not available, consider control applications once damage has been observed.