

# Insect Pest Guide

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## Turf and Pasture Pests

### Armyworms (*Noctuidae*)

Moth larvae are major chewing pests of turf and grains. There are

several species of these caterpillars, including the Fall Armyworm and the Spring Armyworm. All are semi-social agricultural and garden pests (Figure 1).



**Figure 1:** Armyworms (*Noctuidae*).

- Life Cycle: Overwintering pupae molt in spring, adult moths lay masses of eggs on host plants (mainly grasses), 4-week larval feeding period before becoming pupae. There are multiple generations yearly.
  - Behavior: Caterpillars travel in groups to seek out new food sources (hence the name armyworms), skeletonize leaves as young larvae and devour entire leaves and stems as larger larvae, cause brown spots in lawns.
  - Food Source: Grains, corn, turfgrass, plants with thick canopies are especially susceptible.
- Management: Parasitoid wasps, lacewings devour caterpillars and other pests [1].

### Grasshoppers (*Acrididae*)

Chewing insects of many plant species including weeds and grasses. Grasshoppers can grow in population during warm and dry seasons and therefore pose a threat to grasses and agricultural plants. Since there are many grasshopper species, there is a wide range of preferred food. Grasshoppers have nymph stages which are smaller grasshoppers that lack wings (Figure 2).



**Figure 2:** Grasshoppers (*Acrididae*).

- **Life Cycle:** During spring, eggs are laid on the undersides of crop leaves, in grasses and in weedy fields and hatch into nymphs which feed on the plants. Nymphs molt and become pupae in the soil before hatching into adults. There is 1 generation yearly.
- **Behavior:** Able to migrate quickly to new plants. While not social, grasshoppers live in large “communities” that include multiple species. They communicate with their wings and hind legs, making loud noises audible to humans.
- **Food Source:** Grasses, weeds, pumpkins, squash, sunflower, corn, grains, tomatoes, sweet potatoes, etc.

- **Management:** Lacewings eat grasshoppers. Pesticide application may be necessary to control large populations during dry seasons. Grasshoppers can kill plants by eating all the vegetation and stems. Apply insecticides to the undersides of plant leaves [2,3].

### **Red Imported Fire Ants (*Formicidae*)**

Eusocial pest insects of urban developments, fields, pastures and farms. Fire Ants are most active during warm months, even when it is dry. They build large communal mounds that block harvesting tools, disrupt power technology, and break electrical machinery that are used as mound sites. Fire ants are attracted to electrical currents (Figure 3).



**Figure 3:** Red Imported Fire Ants (*Formicidae*).

- **Life Cycle:** The queen lays up to 1000 eggs daily, which become tiny larvae to which the workers tend. After pupating, they either become reproductive adults (including new queens and male drones), or female workers.

- **Behavior:** Aggressive. They will bite and sting any object that enters their nest using formic acid to produce a fiery burn. Workers gather soil and begin digging tunnels to produce a mound. Mounds continue to grow and become large obvious

piles. The tunnels reach down to the water table. Many workers forage outside of the hive to scout for enemy ants and find food.

- Food Source: Human food, other insects including ants, seeds, nuts, fruits, very small lizards and even birds, carcasses.
- Management: Apply a dry pellet type pesticide that the ants ingest and kills the queen. With larger populations or farm/garden operations, use a powder that is mixed with water

through a sprinkler system to spray the field and eradicate the fire ants [3].

### **Bermudagrass Stem Maggot (*Muscidae*)**

Fly larva pest of Bermudagrass and Stargrass. The fly is native to Asia but appeared in the United States in 2010. The fly is small and yellow (Figure 4).



**Figure 4:** Bermudagrass Stem Maggot (*Muscidae*).

- Life Cycle: Eggs are laid on Bermudagrass. After hatching, the larva migrates to the upper stem shoot, where it burrows and begins devouring stem material. The top leaves of the grass die off, but the remainder of the plant remains green. After feeding is complete, the maggot emerges and drops to the earth to pupate. The fly emerges from the ground. It takes around 2.5 weeks for the life cycle to complete.
- Behavior: Maggots create a tunnel in the stem, below the dead leaves. The maggot may be seen if this part of the plant is opened. Maggots do not usually infest grazed pasture, since they are eaten by the livestock with the grass.

- Management: Grazing. Harvest the grass during the larval stage which will kill the maggots. Apply an insecticide to prevent adult flies from emerging and laying new eggs [4].

### **Timber and Grove Pests**

#### **Pecan Nut Casebearer (*Pyralidae*)**

Caterpillar of small plain moth which feeds on pecan nuts and buds. It is found in all Pecan growing areas of Texas and eastern New Mexico. The Casebearer is an extremely deadly pest of pecans, especially considering that damage is done to the pecans themselves, the economically important plant product (Figure 5).





**Figure 5:** Pecan Nut Casebearer (*Pyrallidae*).

- **Life Cycle:** Around 100 eggs laid on pecan nuts, which hatch after 4 days. The larvae eat buds for 2 days then move to the pecan nutlets to feed. Caterpillars burrow into nuts to become pupae then adults. There are 2 generations yearly.
- **Behavior:** Burrow into pecan nuts (causing damage to the economically important product). The larvae leave silk and frass near infested nuts.
- **Food Source:** Pecan buds and nuts

- **Management:** Pheromone traps determine population, insecticide application before the larvae enter the nuts (soon after hatching) [5].

#### **Emerald Ash Borer (*Buprestidae*)**

One of the jewel beetles, known for their bright color, the EAB feeds only on ash and causes many deaths. Their larvae create visible tunnels in the bark of ash trees. Adults eat leaves and do minimal damage (Figure 6).



**Figure 6:** Emerald Ash Borer (*Buprestidae*).

- **Life Cycle:** Adults feed on ash leaves and mate, before laying eggs in the bark of ash trees. Larvae hatch and tunnel into the bark where they devour nutrients and weaken the trees severely. Adults emerge through D shaped holes.
- **Behavior:** Tunneling larvae. Adults do little to no damage.
- **Food Source:** Xylem and phloem of ash trees.

- **Management:** Timed pesticide application during mating/egg laying. Must be applied before larvae enter the trees [6].

#### **Codling Moth (*Tortricidae*)**

The number 1 pest of fruits including apples and pears. A dusky brown moth whose larvae feed on fruit flesh. The larvae are light pink with brown heads (Figure 7).



**Figure 7:** Codling Moth (*Tortricidae*).

- **Life Cycle:** Larval cocoons overwinter in the soil or on tree bark. The larvae pupate inside the cocoon and emerge as adults during early to mid-spring. Adults lay around 30 small eggs on leaves, branches and fruits/nuts, where larvae hatch and burrow into the fruits.
- **Behavior:** Burrowing larva. The larvae leave holes in the apples and pears and leave frass inside the fruits. Larvae develop more quickly in warm climates, resulting in more generations.
- **Food Source:** Apples and pears
- **Management:** Codling moths must be managed when the

population is small to prevent increased generations. It is best to apply pesticides or beneficial insects during the egg stage or just as larvae are hatching [7].

### Horticulture Pests

#### Squash Bug (*Coreidae*)

Known as leaf footed bugs for their enlarged hind legs. Squash bugs are major pests that migrate from squash to other nearby plants. They are sucking insects which are harmful to all plants since a large community can drain plants of nutrients. They are found in communities of adults and nymphs living together (Figure 8).



**Figure 8:** Squash Bug (*Coreidae*).

- **Life Cycle:** Eggs are laid in clusters on squash and pumpkin leaves and stems. After hatching, nymphs stay in groups and suck the nutrients from plants. Adults stay on plants near the young bugs to feed.
- **Behavior:** Will attempt to bite. Squash bugs will rest on the floor under plants and hide under leaves to remain hidden.
- **Food Source:** Squash, pumpkins, sunflowers
- **Management:** General insecticide application, especially

during egg laying [8].

### Tomato Hornworm (*Sphingidae*)

Larvae are highly voracious and destructive tomato pests. These emerald, green caterpillars grow in size quickly and completely defoliate young tomato plants and consume enough leaves on large plants to cause wilting. The caterpillars primarily ingest leaves and stems, but also harm tomato fruits, making them additionally undesirable since the fruits cannot be sold or used (Figure 9).

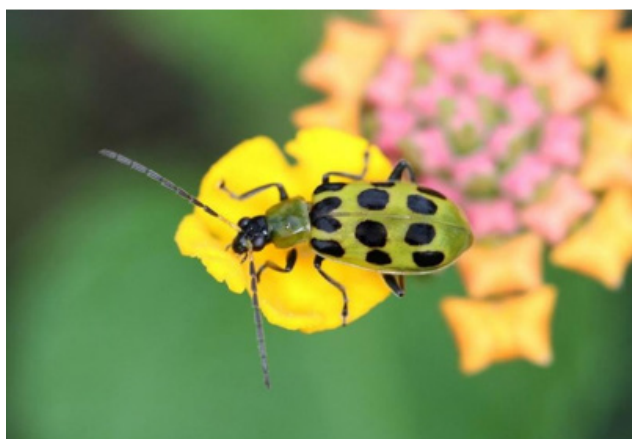


**Figure 9:** Tomato Hornworm (*Sphingidae*).

- **Life Cycle:** During spring and summer, overwintering adult moths lay eggs in clusters on tomato leaf undersides. The larvae hatch and immediately attack tomato leaves. There are 4 to 5 instars. Larvae drop to the ground to pupate and adults hatch in the fall before overwintering.
- **Behavior:** Caterpillars are semi-aggressive and may attempt to bite when handled. They are usually found on the stems and branches of tomato plants.

- **Food Source:** Tomato family plants including eggplant and potato.
- **Management:** Release parasitoid wasps (*Braconidae*, *Sphecidae*, *Ichneumonidae*) which use these caterpillars as a food source for their many eggs. Set up pheromone traps to keep adults from reproducing. Use pesticides sparingly since tomatoes host beneficial wildlife [9].

### Cucumber Beetle (*Chrysomelidae*)



**Figure 10:** Cucumber Beetle (*Chrysomelidae*).



As a member of the leaf beetle family, cucumber beetles spend much of their time on the underside of vegetable leaves. A chewing pest of cucurbits, they can be found in large numbers during late spring and summer. They can be mistaken for lady beetles due to their green and spotted or striped wings. The larvae are corn pests. They can spread fecal bacteria to the plants known as bacterial wilt (Figure 10).

- **Life Cycle:** After overwintering in weedy fields, adults move to gardens and farms when plants begin to emerge. They lay eggs in the soil or at the base of the plant. After hatching, larvae feed on corn roots for a few weeks before pupating then emerging as adults which feed on plants above ground.
- **Behavior:** Beetles are attracted to feeding stimulants released by their host plants near the buds and new leaves. This results in a bigger infestation. Adults also attack cucumber

fruits.

- **Food Source:** Corn roots as larvae, cucumbers and similar plants as adults, including sweet potato. Adults will eat flower heads.
- **Management:** Soldier beetles, some parasitoid flies and wasps, insect pathogens, trap crops, insecticides that modify behavior, feeding hormones (to attract the beetles to weeds or non-host plants) [10,11].

### Aphids (*Aphididae*)

Semi-social sucking pests of many flowers, shrubs and trees. They drain plants of their nutrients and prevent beneficial insects from using plants as a food source. They are used as “livestock” by ants, including fire ants, which also are pests (Figure 11).



**Figure 11:** Aphids (*Aphididae*).

- **Life Cycle:** Adult females lay eggs near the colony on branches/stems and leaves in spring and summer. Eggs hatch into nymphs which grow as they feed and live with the adults. Nymphs are smaller copies of adult aphids. They eventually molt and grow into adults, with females gaining wings and mating.
- **Behavior:** Live in colonies. They allow ants to tend to them, providing their waste in the form of honeydew, a sweet secretion which ants use as food.
- **Food Source:** Plant juices and nutrients. They feed on a wide variety of crops, flowering plants and trees, including fruit and nut trees. There are aphids that primarily attack pecans and cause leaf discoloration.
- **Management:** Lady beetles are available for purchase, and both the larvae and adults will eradicate aphid populations in agricultural and garden settings. Insecticide soaps, and acidic pesticides are effective methods [12].

### Colorado Potato Beetle (*Chrysomelidae*)



**Figure 12:** Colorado Potato Beetle (*Chrysomelidae*).

Insect pests in the leaf beetle family. Adult beetles are golden yellow with white and black striped wings. They are dome-shaped and feed on potato leaves but will migrate to plants that are related to potatoes, including tomatoes and eggplants (Figure 12).

- **Life Cycle:** After overwintering underground in fields and gardens, adults appear when potato plants emerge (Spring), laying their egg masses under leaves. When the larvae hatch after 2 weeks, they are humpbacked and dark red with black heads and spots on their sides. They feed on the leaves all over the plant, defoliating plants completely as they grow in size. Fully grown larvae are bright red or salmon pink. Larvae take about 10 days to complete development if temperatures are in the 80's during their feeding. The final instar larvae burrow into the soil to pupate, before hatching into adults. Fall adults will overwinter.
- **Behavior:** Semi-social insects that stay clustered but disperse as they feed.
- **Food Source:** Potatoes, tomatoes, eggplants, nightshade.
- **Management:** Remove weeds in the nightshade family that serve as hosts for larvae to weaken the population. Grow varieties of potato plants that mature quickly to mitigate the damage caused when beetles feed on young plants. Alternate crops with a plant on which the Potato Beetles do not feed.

Incorporate their natural enemies including stinkbugs and lady beetles [13].

## Acknowledgement

None.

## Conflict of Interest

No conflict of interest.

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11. Cucumber Beetles.
12. Aphids.
13. Colorado Potato Beetles.