Foliage Feeders On Alabama Peanuts

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Foliage Feeders On Alabama Peanuts
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Foliage-feeding caterpillars are destructive insects that feed on peanut leaves to grow and develop into adult moths. The full-grown worms, the fifth and sixth larval stages, consume the most foliage and are usually the most difficult to control with insecticides.

Peanut foliage-feeders vary considerably in their susceptibility to insecticides. Therefore, the peanut grower or the scout must be able to correctly identify the caterpillars. The key in this publication should enable peanut growers and scouts to easily identify the caterpillars found in Alabama peanut fields.

Life Cycle

The caterpillars typically found on peanuts in Alabama are the immature or larval stages of moths from the Noctuid family (Figure 1). As the name implies, the adults or moths are more active at dusk or during the night. Some of these moths lay eggs singly on the peanut plant, while others deposit clusters of eggs on the foliage (Figure 2). The eggs hatch in 2 to 3 days into tiny caterpillars (Figure 3). This “worm” is the feeding stage, which, in a 10- to 14-day period, goes through several changes in size called “instars.” The last instar, usually the sixth, is the full-grown caterpillar and will be 1½ to 2 inches long.

Although peanut growers may occasionally find others, only eight species of caterpillars found on peanuts in Alabama are of economic importance. These are listed on page 6 with full descriptions and scientific names.

The third stage of development of these insects is the pupal or resting stage. Pupae may occur in the soil or in webs attached to the foliage. The pupal stage lasts from 7 to 10 days.

The adult or moth emerges from the pupal case. After mating, the female will begin laying eggs. The complete cycle of egg-larva-pupa-adult is one generation and takes 28 to 30 days in South Alabama during the summer months.

How To Scout

A peanut field should be scouted at least once a week beginning in June and continuing until harvest. The scout should check enough sites (at least ten) to cover all areas of a field. Usually one sample for each 2 to 5 acres, depending on the shape of the field, is adequate. Although relative defoliation, or leaf loss, can be determined visually, an actual count of the number and kind of caterpillars present must be made to determine when to treat and which material to use.

Randomly select 3 linear row feet of peanuts as a sampling site for foliage-feeding caterpillars (Figure 4). Shake or beat the peanut foliage with your hands to dislodge caterpillars that are on the plants. Identify and count the caterpillars on the ground under the peanuts on each side of the row. Proceed through the field, checking your other randomly selected sites and recording the number found for each site checked. Average the totals and divide by 3 to get the number per row foot.

Figure 1. Adult (moth).
Figure 2. Egg cluster.
Figure 3. Tiny caterpillars hatching.
Figure 4. Scout peanuts weekly.
Identification Of Peanut Caterpillars
General Characteristics Of Caterpillars

Even though caterpillars are immature stages, they have three body regions as adult insects do. The body of a caterpillar is divided into the head, the thorax, and the abdomen (Figure 5).

The major features of the head are the jaws or mandibles, six small ocelli (eyes) on each side of the head, small antennae, and numerous small hairs or spines. An inverted "Y"-shaped suture divides the head into two halves (Figure 6).

The thorax consists of the next three segments. Each of these has a pair of "true" legs ending in a claw. These are hardened, segmented appendages similar to the legs of adult insects.

The abdomen consists of the last ten segments. Fleshy prolegs can occur on the third through sixth abdominal segments (Figure 5). All caterpillars will also have one pair of prolegs on the last (tenth) segment. The number of pairs of the prolegs is used to identify several foliage feeders. Hairs or prominent tubercles appear on the dorsal surface on many caterpillars (Figure 7).

Directions For Using This Key
All the features described are visible with the unaided eye or with a hand lens.

Since characteristics may not be fully developed on a small caterpillar or may be difficult to see, select full-grown caterpillars for identification.

Collect several specimens from the field to compare for identification. Start at 1a in the key. Read the
description and compare it to your insect. If that statement does not fit your insect, skip to the next statement. If a statement that fits your insect directs you to another statement, follow the directions to that number. Move on through the key until you arrive at an identification for your specimen.

When you reach the name of your insect, turn to page 6, where a full description of the caterpillar is listed. Compare the overall characteristics, such as size, color, and behavior, to your specimen. Compare your specimen to the pictures shown of that insect.

Until you become skilled in identification, confirm your findings by submitting samples to your county Extension agent. You will occasionally find a caterpillar that does not fit this key. Submit these specimens to the county Extension agent to determine if you have found a new species or one that occurs rarely in peanuts.

**Identification Key**

**For Major Peanut Caterpillars**

1. a) Caterpillar with two sets of prolegs on A5 and A6: **Soybean looper** (Figure 8).
   
   b) Caterpillar with three sets of prolegs on A4, 5, 6: **Green Cloverworm** (Figure 9).
   
   c) Caterpillar with four sets of prolegs on A3–A6: Go to 2.

2. a) Caterpillar active or wiggly when prodded; green or black with seven white longitudinal stripes: **Velvetbean caterpillar** (Figure 10).
   
   b) Caterpillar sluggish or rolls into “C” shape when prodded (Figure 11): Go to 3.

3. a) Body covered with rough (granulose) skin; color overall “dirty” brown: **Granulate cutworm** (Figure 12).
   
   b) Head capsule uniform color, usually yellow-orange; dark tubercles on body with hairs rising from tips: **Corn earworm** (Figure 13).
   
   c) Head color dark or splotched; sutures forming white to cream-colored inverted “Y”: Go to 4.

4. a) Tubercles on top of abdominal segments, dark and conspicuous; large black spot on first abdominal segment above spiracle: **Fall armyworm** (Figure 14).
   
   b) Inconspicuous tubercles on abdominal segments; small, dark spot above spiracle on second thoracic segment; cuticle shiny smooth: **Beet armyworm** (Figure 15).
   
   c) Dark triangular markings on second thoracic segment and abdominal segments with irregular narrow white line passing through distinct yellow subdorsal lines: **Yellow-striped armyworm** (Figure 16).
Summary Descriptions

Soybean looper, *Pseudoplusia includens* [Walker]. The head and body are green in color. The thoracic legs are sometimes black. This caterpillar has well-developed prolegs on abdominal segments 4 and 6 and crawls in a true looping motion. Punctate white stripes occur the length of the body, dorsally and laterally. The body tapers from back to front. The full grown caterpillar is 1.2 to 1.5 inches in length. The pupal case is enclosed in a web and usually is found under a leaf.

Green cloverworm, *Platypena scabra* (F). The color of the body is uniformly green. This caterpillar has three pairs of prolegs on abdominal segments 4 through 6. The head capsule is without marks. It crawls much like a looper, but is active when prodded.

Velvetbean caterpillar, *Anticarsia gemmatalis* [Hubner]. This is a slender caterpillar from 1.5 to 2.0 inches long varying in color from light to dark green. It has prolegs on abdominal segments 3, 4, 5, and 6. It feeds primarily on leguminous crops and weeds. This caterpillar is a hearty eater which crawls in a semi-looping motion and is active when disturbed.

Granulate cutworm, *Feltia subterranea* (L). This caterpillar has a characteristic dingy brown to gray cuticle and is about 1.6 inches in length. It has four pairs of prolegs on A3 through A6. Under slight magnification, raised blunt cones can be seen on the rough skin. These caterpillars usually feed at night, climbing up on the plant, and stay on the soil during the day, under clods or plant debris.

Corn earworm, *Helicoverpa zea* [Boddie]. The color of this caterpillar is extremely variable, ranging from ‘grassy’ green to reddish brown. The full-grown caterpillar will be about 1.8 inches long. It has 4 pairs of prolegs on A3 through A6. The head capsule is uniformly colored, and the body has prominent dark tubercles on abdominal segments 1, 2, and 8. The moth lays single eggs, usually in the terminal bud of the peanut plant.

Fall armyworm, *Spodoptera frugiperda* (J. E. Smith). This caterpillar varies in color, but more often is brownish to black and about 1.5 inches in length. This caterpillar has four pairs of prolegs on A3 through A6. The head capsule is generally brown with darker reticulations and light tan to white adfrontal areas. Tubercles on the back are large, conspicuous, and generally gray to brown in color. A mid-dorsal white line is not continuous from head to rear. Eggs are laid in groups of fifty to 100 and have a white fuzzy covering.

Beet armyworm, *Spodoptera exigua* (Hubner). The color of this caterpillar varies from olive green to black. The full-grown caterpillar is 1.2 inches long. The head is brown with conspicuous reticulations. The skin is very smooth and shiny with small tubercles. A dark spot on the second thoracic segment is usually conspicuous but may not be observed in dark specimens. The caterpillar has four pairs of prolegs on A3 through A6. Eggs are laid in clusters of fifty to 100 with a fuzzy covering.

Yellow-striped armyworm, *Spodoptera ornithogalli* (Guenee). This caterpillar exhibits conspicuous white adfrontal areas and a fuscous head capsule. The body color varies considerably. The full-grown caterpillar reaches 1.8 inches in length. Abdominal segment 1 usually has a dark circular spot laterally. Dark triangular areas with a white line passing through them occur on abdominal segments 1 through 8. Below this is a bright yellow stripe. The caterpillar has four pairs of prolegs on A3 through A6.

Damage Thresholds

Peanut plants are extremely resilient, having the ability to recover from all types of stresses, including defoliation from insects. However, there is a point at which defoliation will lower yield. On the average, 30 percent is the maximum defoliation allowable to prevent yield or quality loss. Studies have shown that, before bloom and near harvest, peanuts can tolerate higher levels of defoliation (Figure 17).

Peanuts are most sensitive to yield loss by defoliation at 75 to 85 days after planting or during the peak pod-fill stage. Depending upon variety and weather factors, these time periods may shift from one year to the next.

However, treatments to control foliage feeders on peanuts are recommended based on the number of caterpillars per linear row foot, not defoliation. Observations and experience have shown that levels of caterpillars less than 4 to 6 per row foot generally will not cause more than 30 percent defoliation under normal growing conditions.

Figure 17. Excessive defoliation of peanuts.
Control Recommendations

Extension Circular ANR-360, "IPM For Peanuts," contains the current insecticide recommendations for the specific caterpillars that you have identified. Ask your county Extension agent for a copy of this circular.

Glossary of Terms

adfrontal sutures: seams on the head capsule where head plates join.

cuticle: insect skin.
dorsal: top or back of the caterpillar.
fuscous: dark brown, a mix of red and black.
prolegs: a fleshy abdominal leg.
reticulations: a mottled pattern of color.
spiracles: external openings of the respiratory system.
tubercle: an elevated area on the body from which a hair-like structure arises.