

Southern Armyworm, *Spodoptera eridania* (Stoll) (Insecta: Lepidoptera: Noctuidae)¹

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The *Featured Creatures* collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Distribution

This insect is native to the American tropics, occurring widely in Central and South America and the Caribbean. In the United States, the southern armyworm is found principally in the southeastern states; its range extends as far west as Kansas and New Mexico. It also is reported from California but is of no consequence there.

Life Cycle and Description

The number of generations is estimated at four annually in Florida. In northern Florida, moths can be found throughout the year, withstanding several days of freezing weather (Mitchell and Tumlinson 1994). However, larvae are found in northern Florida only in the summer months, and like most insects, are most abundant in the summer. About 30 to 40 days is required for a complete generation.

Eggs

The shape of the eggs is a flattened sphere. Eggs measure about 0.45 mm in diameter and 0.35 mm in height. The eggs are greenish initially, turning tan as they age. Eggs are

laid in clusters and covered with scales from the body of the moth. Duration of the egg stage is four to six days.



Figure 1. Eggs of southern armyworm, *Spodoptera eridania* (Stoll).
Credits: Lyle J. Buss, UF/IFAS

Larvae

The larvae undergo six instars as they grow to attain a length of about 35 mm. The head capsule widths are about 0.25–0.30, 0.40–0.50, 0.60–0.80, 0.95–1.15, 1.35–1.85, and 2.35–2.85 mm, respectively (Redfern 1967). Larvae are green or blackish green with a uniformly light brown or reddish-brown head throughout the period of development, although their color pattern is quite variable. Larger larvae bear a narrow white line dorsally and additional stripes laterally. Each side normally bears a broad yellowish or

1. This document is EENY-106, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date August 1999. Revised November 2005, May 2017, October 2018, and July 2022. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication. This document is also available on the *Featured Creatures* website at <http://entomology.ifas.ufl.edu/creatures>.

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whitish stripe that is interrupted by a dark spot on the first abdominal segment, although in some cases this spot is weak. A series of dark triangles is usually present dorsolaterally along the length of the body. Larvae usually are found on the lower surface of leaves and are most active at night. Duration of the larval stage is normally 14 to 20 days.



Figure 2. Southern armyworm, *Spodoptera eridania* (Stoll), neonate (newly hatched) larvae on tomato.
Credits: Lyle J. Buss, UF/IFAS



Figure 3. Southern armyworm, *Spodoptera eridania* (Stoll), second and third instar larvae on tomato.
Credits: Lyle J. Buss, UF/IFAS



Figure 4. Late instar larva (dark form) of the southern armyworm, *Spodoptera eridania* (Stoll).
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Figure 5. Mature larva (light form) of the southern armyworm, *Spodoptera eridania* (Stoll).
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Pupae

Larvae pupate in the soil, usually at a depth of 5-10 cm. The pupae are mahogany brown in color and measure about 16 to 18 mm in length and 5 to 6 mm in width. Duration of the pupal period is 11 to 13 days.

Adults

The moths measure 33 to 38 mm in wingspan. The forewings are gray and brown, with irregular dark brown and black markings. The wing pattern is highly variable; some individuals bear a pronounced bean-shaped (reniform) spot near the center of the wing, whereas others lack the spot or instead bear a broad black band extending from the center of the wing to the margin. In males, the spot usually takes the form of a dark streak, whereas in females the dark spot is weak or absent. The hind wings are opalescent white.



Figure 6. Adult female of the southern armyworm, *Spodoptera eridania* (Stoll).
Credits: Lyle J. Buss, UF/IFAS

The biology of the southern armyworm is poorly documented, but Chittenden and Russell (1910) give key features. Additional description is given by Crumb (1929). The key presented by Levy and Habeck (1976) is useful for distinguishing southern armyworm larvae from related species. A key to the *Spodoptera* moths of the Western Hemisphere, including this species, is given by Todd and Poole (1980). A sex pheromone has been identified and evaluated in the field (Mitchell and Tumlinson 1994).



Figure 7. Adult male of the southern armyworm, *Spodoptera eridania* (Stoll).
Credits: Lyle J. Buss, UF/IFAS

Host Plants

This species has a very broad host range, including important vegetable, fruit, field, and ornamental crops. Among the vegetables injured are beet, cabbage, carrot, collard, cowpea, eggplant, okra, pepper, potato, sweet potato, tomato, and watermelon. Other crops damaged include avocado, citrus, peanut, sunflower, velvet bean, tobacco, and various flowers. Many weeds are consumed, but pigweed, *Amaranthus* spp.; and pokeweed, *Phytolacca americana*, are especially favored. Grasses are rarely eaten. There are numerous reports of armyworm infestations beginning with pigweed and pokeweed, with adjacent crops damaged only after the more favored weeds are consumed.

Damage

Larvae are defoliators and feed gregariously while young, often skeletonizing leaves. As they mature they become solitary and also bore readily into fruit, often damaging tomato in Florida. When stressed by a lack of food, they will eat the apical portions of branches, bore into stem tissue, and attack tubers near the surface of the soil.



Figure 8. Foliar damage caused by larvae of the southern armyworm, *Spodoptera eridania* (Stoll).
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Figure 9. Tomato fruit feeding injury by the southern armyworm, *Spodoptera eridania* (Stoll).
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Natural Enemies

Several wasp parasitoids commonly associated with caterpillars of other species, including *Cotesia marginiventris* (Cresson), *Chelonus insularis* Cresson, *Meteorus autographae* Muesebeck, and *Meteorus laphygmae* Viereck (all Hymenoptera: Braconidae) also attack southern armyworm. *Meteorus autographae* was the dominant parasitoid in a Florida study (Tingle et al. 1978). Also reared from southern armyworm are *Campoletis flavicincta* (Ashmead) and *Ophion flavidus* Brulle (both Hymenoptera: Ichneumonidae); *Euplectrus platyhyphenae* Howard (Hymenoptera: Eulophidae); *Choeteprosopa hedemanni* Brauer and Bergenstamm, *Euphorocera claripennis* (Macquart), *Gonia crassicornis* (Fabricius), *Winthemia quadripustulata* (Fabricius), and *Winthemia rufopicta* (Bigot) (all Diptera: Tachinidae).

Undoubtedly, predatory insects such as stink bugs (Hemiptera: Pentatomidae) prey on southern armyworm, but this seems to be undocumented. Larvae also are susceptible to infection by the fungus *Beauveria bassiana* (Gardner and Noblet 1978).

Management

Southern armyworm is best controlled with foliar insecticides when larvae are small. Insecticides vary considerably in their toxicity to larvae, and larvae are difficult to control with botanical insecticides. Berger (1920) reported some success at southern armyworm suppression by application of bran bait containing insecticide. However, this is primarily useful for large, mobile larvae that have left the plant and are on the soil surface.

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