

Bean Leafroller, *Urbanus proteus* (Linnaeus) (Insecta: Lepidoptera: HesperIIDae)¹

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Introduction

Bean leafroller is a common late summer pest of beans in Florida. It is especially common in home gardens. If bean leaves are rolled, or leaf edges look ragged, check for bean leafroller larvae.

Distribution

The bean leafroller is found throughout Florida and in coastal areas from South Carolina west to eastern Texas. It also invades most of the southeastern states, and regularly invades the southernmost areas of the Southwest. It cannot tolerate prolonged freezing temperatures, however, and in the United States it persists only in the southern coastal plain, perhaps only in southern Florida. The range of bean leafroller also includes Mexico, Central America and the Caribbean, south to Argentina.

Description

Egg

Eggs of bean leafroller are deposited singly or in small clusters of two to six eggs on the lower epidermis of foliage. Initially the eggs are white in color, but soon turn yellow. The egg is a slightly flattened sphere, and measures about 1 mm in diameter. Eggs hatch in three to four days.



Figure 1. Eggs of the bean leafroller, *Urbanus proteus* (Linnaeus). Credits: L.J. Buss, University of Florida

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Larva

There are five larval instars, and 15-20 days are required for the larval stages. Initially the larva (Figure 1) is yellowish with a brownish-black head and prothoracic shield. The head is quite large relative to the body, and remains this way throughout development. With the molt to the second instar the dorsal surface of the insect becomes marked with numerous small, black spots. Beginning with the third instar, lateral yellow lines become quite distinct. The last two instars are similar to the preceding: brownish-black head, black prothoracic shield, yellowish body sprinkled with black spots but lighter below, and yellow lateral lines. Also evident are orange spots on the head near the base of the mandibles, and red on the ventral portion of the thoracic segment. The body tapers sharply toward both the anterior and posterior ends.



Figure 2. Bean leafroller larva. Credits: L.J. Buss, University of Florida

Pupa

The larva pupates on the plant, within the shelter formed by the larva from leaf material. The pupa measures about 20 mm in length. The pupa is yellow to brown, and is covered by a bluish-white pubescence. Duration of the pupal stage is seven to 20 days.

Adult

The bean leafroller moth (Figure 2) is fairly large, measuring about 50 mm in wingspan. The most pronounced feature is the prolonged extensions, or "tails," of the hind wings. Not surprisingly, the butterfly is commonly known as the "longtail skipper." The forewings and hind wings are chocolate brown dorsally and pale brown ventrally. The forewings also are marked with five to seven square



Figure 3. Pupa of the bean leafroller, *Urbanus proteus* (Linnaeus). Credits: John Capinera, University of Florida

or rectangular spots, white above and light brown below. Green iridescent scales are present on the wings and body.



Figure 4. Bean leafroller adult. Credits: John Capinera, University of Florida

Life Cycle

The bean leafroller can complete its life cycle in about 30 days. It breeds in southern Florida throughout the year, but is relatively infrequent in northern Florida until June, and only becomes abundant late in the season, usually September-October. In Florida, large numbers of adults are frequently observed migrating southward in the autumn. They make a similar northward migration in the spring and summer, but it is less apparent.

Damage

Bean leafroller feeds (Figure 3) on legume crops such as cowpea, lima bean, pea, snap bean and soybean, but is also known from wisteria, *Wisteria* spp.; tick trefoil, *Desmodium* spp.; butterfly pea, *Clitoria* spp.; and hog peanut, *Amphicarpa bracteata*. Larvae are defoliators, feeding only on leaf tissue of legumes. Initially the larva cuts a small, triangular patch at the edge of the leaf, folds over the flap, and takes up residence within this shelter. The larva leaves the shelter to feed, and lines the shelter with silk. These flaps are used until the third or fourth instar, when the larva constructs a larger shelter formed by folding over a large section of the leaf by webbing together two separate leaves. Again, the leaf fold is used for shelter, the larva leaving to feed. Larvae feed nocturnally.



Figure 5. Bean leafroller leaf damage. Credits: James Castner, University of Florida

Sampling

Populations are normally sampled by visual observation because the larvae are sheltered within leaf folds and difficult to dislodge by sweeping, and because the leaf damage caused by shelter-building activity is readily apparent.

Action Threshold

Larvae consume about 190 sq cm of foliage during their development. Beans can tolerate up to about 30 percent leaf loss without reduction in yield, so about four larvae must complete their development on a "typical" bean plant with 2175 sq cm of foliage

to inflict a damaging level of defoliation. Because about one-half of the individuals perish in each life stage, densities of 140 eggs or 70 first instar larvae per plant must occur to cause damage.

Biological Control

In Florida, *Chrysotachina alcedo* (Loew) (Diptera: Tachinidae) was reared from larvae, and predation was observed by a *Polistes* spp. wasp (Hymenoptera: Vespidae) and *Euthyrhynchus floridanus* (Linnaeus - Figure 4) stink bugs (Hemiptera: Pentatomidae). Also, a nuclear polyhedrosis virus was found to infect and kill up to 40 to 50 percent of larvae late in the season when larvae were numerous.



Figure 6. *E. floridanus* feeding. Credits: University of Florida

Insecticides

Most insecticides applied to the foliage are very effective for leafroller suppression. This should only be necessary for late-season bean crops. The microbial insecticide *Bacillus thuringiensis* currently is not recommended.

For additional insecticide information see:

Insect Management Guide for Vegetables (http://edis.ifas.ufl.edu/TOPIC_GUIDE_IG_Vegetables)

Insect Management Guide for Soybeans (<http://edis.ifas.ufl.edu/IG064>).

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