

IPM Fact Sheet Series

UMass Extension Fruit Team

Fact Sheet #

Apple – Obliquebanded Leafroller (*Choristoneura rosaceana*)

Overview

Obliquebanded Leafroller (OBLR) attacks mainly apple and occasionally pear, peach, and cherry. Larvae feed on fruit skin, often close to the apple stem or where two apples are in contact. OBLR roll up leaves and hide in these shelters. Injuries occurring early in the season cause pronounced deformations of the fruit and are impossible to differentiate from the damage of green fruitworms. Late season fruit feeding causes small pits in the fruit surface that may go undetected until after long-term storage.

ID: Adult moths (Figure 1A) are light beige, often tinged pink with tan to chocolate colored bands running across the width of their bodies. Larvae (Figure 1B) are yellowish green to olive green with head capsules varying from light brown to black, with many possible shades in between. Adult females are approximately 24mm (0.94 inches) in length (tip to tail). Males are smaller, measuring approximately 20 mm (0.79 inches) in length.

Life Cycle

Obliquebanded leafroller (OBLR) overwinters as second or third instar larvae wrapped in close fitting cocoons (hibernacula). In the spring, larvae leave their hibernacula and feed on opening buds. OBLR pupates at the feeding site. This lasts from 10 to 12 days. Adults emerge around mid-June. Adults mate and eggs are laid on leaves shortly thereafter. Once larvae hatch, they move to new leaves to feed and eventually pupate. Adults emerge in late August, mate, and lay eggs. The resulting larvae will overwinter as second or third instar larvae.

Damage:

Overwintered OBLR larvae feed on developing shoots, leaves and fruits. Young fruits that are damaged by larvae either, abort before maturity or can remain on the trees but are grossly deformed. This latter damage is indistinguishable from that caused by green fruit worm feeding. Summer-generation larvae feed on foliage and ripening fruits. Fruit feeding leaves the surface pitted with shallow tunneling. If left unchecked, this generation can cause damage at harvest that may not show up until later, in storage.



Figure 1 (A) Obliquebanded leafroller adults in wing trap, **photo credit:** J. Clements, (B) Obliquebanded leafroller larvae, **photo credit:** H. Faubert, URI.



Figure 2 OBLR larvae feeding on developing fruit. Notice shallow tunneling, distinctive of this pest's feeding. **Photo credit:** J. Clements.

Management Strategies

Monitoring: Scout for larval shelters from tight cluster to petal fall. Examine 10 bud clusters per tree for OBLR larvae and apply the bioinsecticide *Bacillus thuringiensis, kurstaki* (e.g., Dipel™) if more than 3% of the clusters examined are infested. Monitor OBLR adults with pheromone traps (Figure 3) and use a degree-day developmental model to time insecticide sprays against hatching larvae.

Control Strategies

Cultural/Biological

- Thinning of fruit and pruning water sprouts in midsummer is helpful in reducing fruit damage.

Chemical

- Refer to the [New England Tree Fruit Management Guide](#) for specific materials and rates recommended for managing this pest.
- Thinning of fruit and pruning water sprouts in midsummer is helpful in reducing fruit damage.
- Pre-bloom applications, beginning at tight-cluster of apple, of materials containing *Bacillus thuringiensis, kurstaki* (DiPel, Javelin, etc.) may reduce populations of larvae when they are still small. Pre-bloom applications of other insecticides should only be considered when OBLR damage has been historically high.
- When making petal fall insecticide applications, be sure to choose a material that is effective against larger OBLR larvae (Bt is not effective against larger larvae).
- Time insecticide applications to target summer-generation larvae, not adults. Use trap capture information to determine best timing of Bt for newly emerging larvae and other materials for later instar larvae.
- Apply insecticide starting at 360 DD (base 43F) after 1st adult trap capture. This pest may require 2-3 sprays 10-14 days apart.
- If repeat spray applications are needed, rotate insecticides from different IRAC groups to reduce the chance of resistance development in the pest.

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Figure 3 Left: "Wing" trap used to monitor OBLR. Right: Sustained trap capture of OBLR adults in wing trap. **Photo credit:** J. Clements.