

Pest Alert

Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Old World Bollworm (*Helicoverpa armigera*)

The Old World bollworm can feed on crops, such as corn, cotton, small grains, soybeans, peppers, and tomatoes. Damage occurs when the larvae bore into the host's flowers and fruit and feed within the plant; the larvae may also feed on the leaves of host plants. This invasive pest can be found both in field and greenhouse settings.

Distribution and Spread

Old World bollworm is found in many areas of Africa, Asia, Europe, Australia, and the islands of the Western Pacific Region. It has also been reported in Brazil and may be present in other South and Central American countries. Old World bollworm was found on a single farm in Puerto Rico in September 2014. This was the first time the pest has been detected in the United States.

Adults can fly up to 6 miles to find sufficient host material on which to lay eggs. They can be carried longer distances by wind. In Europe, for instance, the Old World bollworm migrates annually into Scandinavia from the Mediterranean.

Description

The Old World bollworm has four life stages: egg, larva, pupa, and adult. Eggs are very small with ribs that run lengthwise across their surface. They change from yellowish-white to dark brown just before hatching. Larvae can measure up to 1.7 inches long and range in color from bluish green to brownish red, darkening after each molt. Pupae are dark tan to brown



Old World bollworm adult (*Julieta Brambila, USDA APHIS PPQ, Bugwood.org*)



Old World bollworm adult (*Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org*)



Old World bollworm larva (*Antoine Guyonnet, Lépidoptères Poitou-Charentes, Bugwood.org*)

in color and 0.6 to 0.9 inches long. Adults have a wingspan of 1.4 to 1.6 inches and vary in color. Males are usually yellowish-brown, light yellow, or light brown, and females are orange-brown.

Related Species

Old World bollworm is similar to many other species of cutworms, including the corn earworm (*Helicoverpa zea*). Based on looks alone, it is not possible to tell them apart. A qualified entomologist must dissect the insect or use DNA analysis to accurately identify the species.

Life Cycle

Adults emerge from late March to June and lay eggs on a variety of host plants. Larvae go through five to seven developmental stages. Once mature, the larvae drop to the ground and pupate to overwinter in the soil, emerging as moths in the spring.

This species can have overlapping generations, meaning different life stages can be present at the same time. The number of generations per year can vary greatly depending on climate. Typically, this pest can have 2 to 5 generations per year in

temperate regions, and as many as 11 generations per year in tropical regions.

Symptoms and Signs

Look for Old World bollworm adults, larvae, or signs of damage on the flowers, fruits, and leaves of host plants and report any suspect findings. In some cases, it may be necessary to cut open the fruit to detect the pest.

The symptoms and signs of Old World bollworm may vary depending on the crop. In tomato, Old World bollworm larvae bore into the young fruit, causing it to fall from the vine. Larger larvae may also bore into the older fruit. In corn, the bollworm lays its eggs in the silks. Once hatched, the larvae bore into the ear and eat the developing grain, damaging the end of the ear. In cotton, the larvae bore holes into the base of flower buds, hollowing them out and causing the bracteoles (small, leaf-like structures) to spread out and curl downwards. Larvae also bore into young bolls, causing them to fall, and larger larvae may bore into maturing green bolls. Larvae may also eat the leaves and shoots of cotton plants.

Control

Old World bollworm can be effectively controlled using commercially available insecticide sprays and genetically modified crops that contain Bt insecticidal properties. Both Bt cotton and corn are widely used in the United States. In 2016, 86 percent of commercial cotton-producing acres were planted with Bt cotton, and 80 percent of commercial corn-producing acres were planted with Bt corn. Many of the best management practices for controlling other cutworm species, such as the corn earworm (*H. zea*) which is widely distributed in the United States, should also control Old World bollworm, with few modifications.



Old World bollworm damaging tomato (Central Science Laboratory, Harpenden Archive, British Crown, Bugwood.org)



Old World bollworm damaging corn (Antoine Guyonnet, Lépidoptères Poitou-Charentes, Bugwood.org)

Report Your Findings

It is important to properly identify Old World bollworm, given its similarity to many other species. Growers can use a commercially available pheromone lure to detect this pest. However, non-target insects, including the native corn earworm, are also attracted to this lure.

If you observe signs of damage or find an insect that you suspect is the Old World bollworm, please contact your local Extension office or State Plant Regulatory Official as soon as possible. To locate an Extension specialist near you, go to the U.S.

Department of Agriculture (USDA) website at www.nifa.usda.gov/Extension. A directory of State Plant Regulatory Officials is available on the National Plant Board website at www.nationalplantboard.org/membership.

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