



## Stalk Borer

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### Introduction

Stalk borer, *Papaipema nebris* (Guenée), is a moth in the family Noctuidae in the order Lepidoptera. The larvae of this species are a pest in the stems and stalks of plants with large stems. Stalk borer has a wide host range, including corn, soybean, sunflower, milkweed, and thistle, and may even infest tree twigs and branches.

### Description

Young stalk borer larvae are creamy white with a dark, blotchy brownish-purple band circling the body near the head (Fig. 1). Several brownish-purple stripes run lengthwise down the body. The head capsule is light brown with dark lateral bands. Mature larvae are creamy white to light purple-gray, and lack the distinctive banding and striping seen in younger larvae. They measure up to 3 cm (1.25 inch) long.



Figure 1. Larval stalk borer in tunnel (James Kalisch, University of Nebraska, Bugwood.org).

Adult stalk borers are brownish-gray moths with a thin, pale line in the lower third of the

forewing (Fig. 2). Some individuals may have a speckled appearance due to scattered pale-colored scales. There usually are two clusters of whitish spots above the line on each forewing, but in some individuals the spots are dark brown or indistinct. The wings are held-tent-like above the body and there is a raised tuft of hair on the thorax above the head. The antennae are pale. The wingspan measures 2.5-3 cm (1-1.25 inch) long.



Figure 2. Adult stalk borer (Mark Dreiling, Bugwood.org).

### Life History

Stalk borer has a complete life cycle of egg, larval, pupal, and adult stages. Adult females lay eggs singly or in clusters on grassy weeds or plant debris in late summer or early fall. Preferred sites for egg laying are often near waterways or field edges, but females may lay eggs in fields overrun with grassy weeds. The

larvae hatch in the spring and feed initially in grass stems, then move to corn and plants with thicker stems as they grow larger. They reach maturity in about ten weeks and then pupate in the soil. Adult moths appear from August through October. There is one generation a year.

## Common Host Plants

Stalk borer is an occasional pest of tomato, corn, pepper, and potato. It can also be found in numerous species of non-crop plants.

## Distribution

Stalk borer can be found throughout the eastern half of the United States.

## Damage

The larvae bore into and tunnel through the plant stem, causing abnormal, ragged, or twisted growth (Fig. 3). Some infested plants may continue to live with the center of the plant dead, while others will wither and die. Infested plant stalks have a noticeable entrance hole measuring up to 6 mm (0.25 inch) in diameter through which the larva pushes out its fecal matter.



Fig. 3. Extensive tunneling damage in a plant stem by stalk borer larva (James Solomon, USDA Forest Service, Bugwood.org).

## Cultural Control

Stalk borer develops in large stemmed weeds, so weed management is key to its control. Mow or otherwise destroy weeds surrounding chosen garden sites before and after planting.

For stalks suspected of harboring stalk borer larvae, split the stalk above the entrance hole so the larvae can be located and killed. Larvae can be punctured with a wire, or physically removed and killed. Bind the split stalk to support it and keep the plant well-watered to enhance plant survival. Destroy all plants after harvest to kill any larvae that may remain.

## Organic/Biological Control

No commercial organic or biological controls effective against stalk borers are available at this time.

## Chemical Control

No effective insecticides are available for stalk borer in home gardens. Stalk borer larvae inside their stems are well protected from insecticide applications.

## Revised

Theresa A. Dellinger, November 23, 2021.

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