

# The Harlequin Bug

## 1. Introduction

The harlequin bug, *Murgantia histrionica* (Hemiptera: Pentatomidae), is a serious pest of cole crops, especially in the southern United States from coast to coast. “Cole crops” is a general term used to describe several vegetables in the mustard family, including broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale and kohlrabi. These are the preferred plants attacked by the harlequin bug. In the absence of their favorite hosts, this pest also feeds on tomato, potato, eggplant and okra.

## 2. Identification and Life Cycle

The harlequin bug’s life cycle consists of three stages: egg, nymph (immature stage) and adult.

### Egg

Eggs are barrel-shaped and black and white striped. They are about 1/50-inch long (Fig. 1). Egg masses are typically laid on the underside of leaves, in groups of 12 and double rows of six.

### Nymph

Nymphs are black, orange and white. They are wingless and smaller than the adult (Fig. 2). They complete five instars (stages of development). After hatching from the eggs, the first instar nymphs stay on or around the eggshell. Then, they disperse around the host plant.



Figure 1: Egg mass of harlequin bug



Figure 2: Harlequin bug nymphs



Figure 3: Adult harlequin bug

### Adult

The adult harlequin bug’s body is red-orange with black markings. It is about 3/8-inch long (Fig. 3). Adult females live for an average of 41 days. Males live for an average of 25 days.

**The harlequin bug has been reported to feed on over 50 species of plants but shows a strong preference for cole crops. It feeds on alternate hosts only when cole crops are absent.**



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## Life cycle

Harlequin bugs typically complete two generations per year in the Midwest. Adults survive the winter under shelter in litter and plant debris. However, all stages of the bug can be found during the winter if temperatures are relatively warm and host plants are present. Thus, warm winter climates can lead to a high harlequin bug infestation in the spring.

## 3. Type of Injury Caused to Crops

Both nymphs and adults feed by piercing the plant tissues and sucking the sap. Feeding activity results in white blotches (Fig. 4). These blotches make leafy cruciferous crops (such as collards and kale) unmarketable. Under heavy feeding pressure, plants can wilt and die. Entire fields can be destroyed. The pest status of the harlequin bug has risen over the past few decades in the U.S., possibly due to a combination of factors. These factors include (1) a shift from the use of broad-spectrum insecticides toward the use of reduced risk- and bioinsecticides against various species of pest caterpillars and (2) warmer winters in some years.



Figure 4: Damaged leaf

## 4. Management Options

**Chemical control.** There are several insecticides registered for use on cole crops that are effective in controlling the harlequin bug. However, insecticidal options for organic producers are limited. For insecticide recommendations, please review the Midwest Vegetable Production Guide for Commercial Growers: <https://ag.purdue.edu/btny/midwest-vegetable-guide>.

**Nonchemical control.** Nonchemical strategies include field sanitation (handpicking, removal of infested plants, etc.), trap cropping (using trap plants to lure pests away from the cash crop) and, to a lesser extent, biological control using parasitic wasps. Various species of parasitic wasps can attack harlequin bug eggs. Remove weedy areas that include host plants, such as mustards, in early spring before populations increase. A combination of these practices can greatly reduce harlequin bug numbers. ■

## Bibliography

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