

# Organic Solutions for Harlequin Bugs and Other Stink Bugs

## A Factsheet from Toxic Free NC

### About Harlequin Bugs and Stink Bugs

The Harlequin bug is a type of stink bug that causes trouble for many gardeners in the Southeast. Other stink bug pests in North Carolina include the Green stink bug, Brown stink bug, and Southern green stink bug.

All are pests of many crops, but they especially love plants of the brassica family. The brassicas include cabbage, collards, broccoli, mustard, turnips, and kale. During heavy outbreaks, or when all their favorites are gone, Harlequin bugs will eat other garden plants such as squash, okra, tomatoes, corn, beans, and tree fruits.

Both adults and nymphs cause damage. They eat all parts of the plants, including stems, leaves, fruits, and seeds. They use piercing mouth parts to suck out plant juices. Damage on leaves and stems looks like uneven discolored spots around a hole. Young plants may wilt, turn brown, and die. Mature plants may survive but growth is slowed. Damage on fruits such as squash, tomatoes and okra appears as dark holes surrounded by bumps, pits, or white-yellowish spots. The lighter spots do not ripen to the same color as the rest of the fruit. Fruits may also dimple or grow in strange shapes.

### Identifying Harlequin Bugs and Stink Bugs

Adult stink bugs are about half an inch long and shield-shaped. Their colors range from dark brown, tan, to green. The Harlequin bug is black with orange, yellow and red markings.

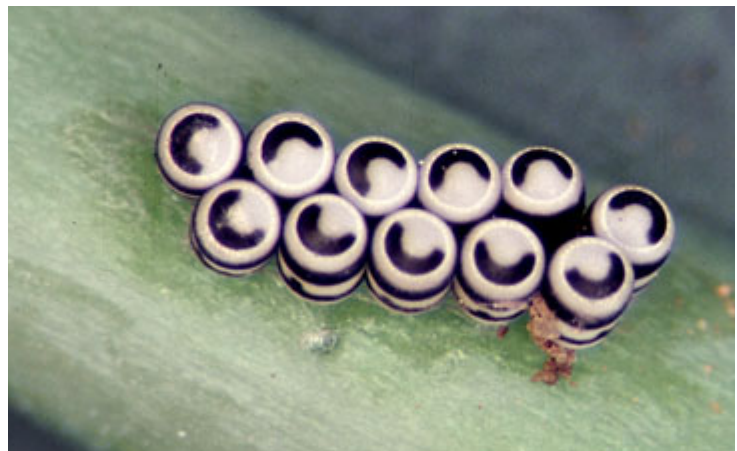
Nymphs are similar to adults but smaller and with a more rounded shape. Eggs are barrel-shaped. Eggs are laid in groups on stems and the undersides of leaves, and may be yellow, green, pink, or gray. [photo or illustration] It is important to note that not all stink bugs are pests.

Some predatory stink bugs, such as the spined soldier bug, actually attack other garden pests. They should be encouraged in the garden. The spined soldier bug looks similar to a brown stink bug, but has spikes standing out on its shoulders.



**Adult harlequin bug.**

Photo credit: Clemson University - USDA Cooperative Extension Slide Series



**Harlequin bug eggs.**

Photo credit: Whitney Cranshaw, Colorado State University

## Life Cycle

Stink bug adults spend the winter in old plants and other garden litter. They come out in the early spring to begin laying eggs. In early spring eggs take up to 20 days to hatch, but as the weather warms they may hatch in as few as 5 days. Nymphs mature into adults in 5 – 8 weeks. Populations tend to grow through the season, getting heaviest during early to mid fall. There are two to four generations per year in North Carolina, depending on the species.

## Prevention

**1) Grow healthy organic plants.** Strong plants can handle some damage from stink bugs better than weak, struggling plants. Make sure that your crops are getting enough sunlight and water. Ensure that the soil is well-drained, and rich in nutrients and organic matter.

**2) Grow resistant varieties.** Some types of brassica plants are naturally resistant to Harlequin bugs. NC Cooperative Extension recommends: Cabbage: Copenhagen Market 86, Headstart, Savoy Perfect Drumhead, Stein's Flat Dutch, Early Jersey Wakefield. Collards: Green Glaze. Cauliflower: Early Snowball X, Snowball Y. Radishes: Red Devil, White Icicle, Globemaster, Cherry Belle, Champion, Red Prince.

**3) Till in late fall.** Tilling crop leftovers into the soil once cold weather has arrived can reduce the number of adult stink bugs who survive the winter. Then fewer come back out the following spring.

**4) Control weeds in the garden area.** Stink bugs are attracted by weedy areas in or near the garden. Weeds should not be allowed to spread in the garden. Weedy areas around the garden should be mowed before spring planting and regularly after that to keep stink bugs from hanging around.

**5) Use row covers.** Keep stink bugs from finding your crop by covering your brassica plants with a lightweight "floating" row cover such as Reemay. These materials (as opposed to plastic or heavier fabrics) let water and air through and do not block very much sunlight. They can be found at garden supply stores or ordered from seed catalogs. The covers can lie directly on the plants (the plants will lift the cover as they grow), or you can support the covers with wire hoops. The trick is to keep the edges of the covers tightly buried or weighted so that the stink bugs cannot get in.



**Harlequin bug nymph and damage.**

Photo credit: Whitney Cranshaw, Colorado State University



**Green stink bug.**

Photo credit: Frank Peairs, Colorado State University

## Getting Rid of Harlequin Bugs and Stink Bugs Without Toxic Chemicals

**1) Scout and hand pick.** Scout and hand pick. Hand picking stink bug adults, nymphs and eggs early in the season can really help you control them later in the year. Likewise, hand picking in the fall can cut down the number of adult stink bugs that come back the following season. Scout the garden often throughout the year. When you find stink bug adults, nymphs, or egg clusters, crush them with your fingers. Or, since stink bugs really do stink when you squish them, it might be less smelly to drop them into a pail of soapy water.

**2) Plant a trap crop.** A trap crop is one planted to lure the stink bug away from your main crop. For instance, if you have had a problem with Harlequin bugs on your spring cabbage, next year plant mustard on the edge of the garden early in the season to lure the adults as they come out. Later, kill the “trap” mustard crop along with the pests by sealing them all together into plastic garbage bags and leaving them in the sun to bake for a few days. Then, plant your cabbage in another part of the garden. But beware – stink bugs can move fast, so make sure that you don’t just scare them out of the trap crop and into another part of the garden!

**3) Attract natural enemies.** Stink bugs have many natural predators who can be invited to hang around the garden. Wildflowers and herbs will attract parasitic flies and wasps. Predators such as birds, toads, spiders, and praying mantises will make their homes in perennial herb and flower beds and small shrubs near the garden.

**4) Release predators.** Minute pirate bugs eat stink bug eggs and nymphs, and praying mantises can attack adults. These can be bought and released into the garden. Look for them in garden supply catalogs.

**5) Organically acceptable insecticides.** As a last resort, you might choose to apply least-toxic insecticides that appear on the Organic Materials Review Institute’s list of products approved for Certified Organic farms, such as rotenone, pyrethrin, Neem oil, or insecticidal soap.

Even though these sprays are approved for organic farms, they can be hazardous, so be sure to follow instructions on the labels very carefully. Keep in mind, too, that these insecticides can kill pollinators and other “good bugs” you want to keep in your garden. Use as little as possible, and spray only in the early morning or late evening when the “good bugs” are less active. Insecticidal soap can burn the leaves of your plants, so do not spray them in direct sunlight or when temperatures are above 80°. Insecticides are usually only effective in slowing squash bugs down, not stopping them.

Sprays are usually only effective in slowing stink bugs down, not stopping them. Adult stink bugs and their eggs are very resistant to sprays. Spraying should be done soon after the first eggs hatch and the nymphs have come out. The sprays must come into contact with the nymphs to work, so try to cover the whole plant. Weekly sprays may be needed since new stink bugs hatch all season long. Obviously, even “organic” sprays come with risks and problems, so try the other tips here first, and you may be able to skip the sprays altogether.



**Green stink bug nymph.**

Photo credit: Clemson University - USDA Cooperative Extension Slide Series



**Spined soldier bug (i.e. the good guys – note the big pointy shoulder pads!)**

Photo credit: Frank Peairs, Colorado State University

## Sources

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*This factsheet was written with the needs of non-commercial home, school and community gardeners in mind. Certified Organic growers, or those seeking a certification, should check with their certifying agency before using ANY insecticide. Some organically acceptable insecticides are approved for use in Certified Organic systems only against certain pests or in certain situations.*