

Bagrada Bug (*Bagrada hilaris*): Serious Invasive Pest of Cole Crops and Mustard Greens



Recognition:

- Size: Adults are approx. 5-7 mm (about 1/3 size of Harlequin bug)
- Color: Primarily black with orange and white markings
- Adults are typically found in tandem mating pairs with end-to-end position. Female is larger.
- Immature stages (nymphs) may resemble ladybird beetles or ladybugs but lack spots, have longer antennae and sucking mouthparts.
- Eggs are slightly barrel-shaped and dirty white when first laid, gradually becoming more orange-red. Eggs are found in small clusters (<10) on undersides of leaves, on hairy stems of non-host plants and in soil cracks.

Host Plants:

- Primarily feed on members of the mustard family (Brassicaceae)
- Crucifers (including both head-forming and leafy greens); grasses (including corn, Sudan grass, Bermuda grass); flowering plants (sweet alyssum, sunflower)
- Various weeds, including shepherd's purse, London rocket, various wild mustards (shortpod mustard, black mustard, Sahara mustard), pepperweed.

Damage to Plants:

- Young crucifers are most susceptible, especially at germination.
- Feeding involves multiple insertions of needle-like mouthparts resulting in starburst-shaped lesions. Initial deformation or wilting of leaves.
- Ultimately damage results in 'scorched' leaves, blind terminals, forked or multiple heads on cauliflower, broccoli, cabbage, etc.
- When starving, these bugs will attack fruits of various plants, including melon and bell pepper.

Monitoring:

- Check plants during sunny days around mid-morning when temperatures rise above 75°F. These insects prefer warmer temperatures. Often hide on undersides of leaves or around the base of the stem or in soil cracks and crevices when temperatures are low or extremely hot (if soil is moist).
- Check plants for fresh feeding damage (light green starburst lesions). Older lesions are white and if heavy resemble scorching.

Life Cycle:

- Presumed to overwinter as adults, but may continue to reproduce if temperatures are mild and preferred food is available.
- Adults are usually found in pairs, end-to-end. Tend to fly when temperatures are quite warm >85°F.
- Each female can produce >100 eggs.
- Eggs – color varies with age progressing from dirty white to orange-red. Hatch in 3-4 days depending on temperature.
- Immatures – 5 nymphal instars. Newly emerged nymphs of all stages are orange-red but legs, head and thorax darken quickly. First instars usually remain near the empty eggshell and do not feed on plants. Older nymphs develop wingpads prior to becoming adults.
- During the fall (prior to planting of cole crops), bugs are present in large numbers and attempt to feed on almost anything green (including bell peppers, citrus, seedling potatoes, cotton, weeds) in order to bridge them into the crucifer growing season.
- Generations per year: multiple, depending on temperature.

Control Measures:

- At germination: sprinkling, chemigation, pre-treated seeds
- Cotyledon and Seedling (up to 6 leaves) stage: most vulnerable for head-forming cole crops
- Leafy Greens: depends on variety and local bug population, soapy water
- Insecticides: pyrethroids during stand establishment begin immediately upon detection; 2-3 leaf stage change to neonicotinoids (e.g. dinotefuran)

Distribution History:

- Found in Africa, India and Pakistan, also areas of Italy and southeast Asia
- First documented in the US in 2008 in greater Los Angeles area
- Spread throughout southern areas of California, Arizona, New Mexico, Nevada and Utah
- Unconfirmed presence in Texas (2012)

Contact Info:

Darcy Reed

Department of Entomology, University of California, Riverside, CA 92521

Email: darcy.reed@ucr.edu

Phone: 951-827-4518

