Bagrada Bug

Bagrada hilaris (Burmeister 1835)

Family: Pentatomidae
(Stink bugs)
Order: Hemiptera
(true bugs)

Common names: bagrada bug, painted bug, painted stink bug, African stink bug
Bagrada Bug

Female

Male

Photo by G. Arakelian
Bagrada Bugs are Prolific

Photo by Gevork Arakelian

Photo by Ron Hemberger
Bagrada Bug Distribution and Spread

Distribution in Africa

First found in LA county in 2008

It is a major cabbage pest in Botswana, Malawi, Zambia and Zimbabwe.
Bagrada bugs in San Pedro, California
Relative Size of the Bagrada Bug

Size comparison of Bagrada bugs and Convergent Lady Beetles

\[\frac{1}{4}\text{” or 6-8 mm}\]

Photo courtesy of: What's That Bug?
The Bagrada bug spreads
Bagrada Bug Spreading in CA
Bagrada Bug Host Range

Crops: Brassicaceae: arugula, broccoli, Brussels sprouts, cabbage, Chinese cabbage, cauliflower, collard greens, cress, horseradish, kale, mustard, radish, rapeseed (canola), rutabaga, turnips, wasabi, & watercress. Ornamentals include candytuft, Lunaria (honesty) purple rock cress, stock, sweet alyssum, & the weeds London rocket, & shepherd’s purse. Other hosts are sorghum, Sudangrass, corn, cucurbits, potato, cotton, okra, pearl millet, sugar cane, wheat, and some legumes and those yet to be observed in the western hemisphere.
Hemiptera Life Cycle

Incomplete Metamorphosis

1. Eggs

2. 6-8 nymphal stages: moulting each time, and are wingless

3. Adult stage: winged & sexually mature
Life stages of the Bagrada Bug

Adults are 5-7 mm (¼ inch) in length

Photos courtesy of F. Haas, icipe

Photo courtesy of Elliotte Rusty Harold
The Harlequin bug spread from Mexico into the southern US around the time of the Civil War. It also feeds on members of the Brassicaceae family.
The Harlequin Bug

The harlequin cabbage bug, also known as calico bug, fire bug or harlequin bug, is a black stinkbug of the family Pentatomidae, brilliantly marked with red, orange and yellow. It is destructive to cabbage and related plants in tropical America as well as throughout most of North America, especially the warmer parts of the United States. In addition to cabbage it can be a major pest to crops such as broccoli, radishes and the ornamental flower cleome. Nymphs are active during the summer and in the South the bug can achieve three generations a year. In the North there is only one generation annually and the insects overwinter as adults.

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Bagrada vs. Harlequin bug

Found in the neighborhood of Mount Washington near downtown Los Angeles, Los Angeles County, California, USA, July 26, 2009
The proboscis, sheathed within a modified labium to form a "beak" or "rostrum" which is capable of piercing tissues (usually plant tissues) and sucking out the liquids — typically sap.
The rostrum is described as “needle-like” in its ability to piece plant tissue
Bagrada Bug Crop Damage

Bagrada Bug damage to broccoli

Damage to cauliflower seedling

Feeding on a fig

Photo by John Palumbo, Univ. of Arizona

Photo by Judi V. Cugat

Photo by Joselito Villero
Bagrada Bug Crop Damage

Bagrada bugs on peppers (Photo by Brendan Kreute, PCA in Ventura Co)
Wild Mustards

Bagrada bugs aggregate and feed on black mustard
Multiple life stages of Bagrada bug aggregate on many plants, including non-hosts, in the fall when pest populations are high and food is scarce.
Bagrada bug adults infected and killed by commercially available formulations of three insect pathogenic fungi. Fungal spores penetrate the insect, spread through the body, kill the insect, and emerge from the cadaver producing more spores.
Bagrada eggs laid in soil are more difficult to control. Covering well irrigated bare soil with a thin sheet of clear plastic for several weeks during warm weather will control hatching nymphs and may also control eggs if the soil temperature is high enough.
### Pesticide Control of Bagrada bugs

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<tbody>
<tr>
<td>Bifenthrin¹</td>
<td>Brigade, Sniper, and Discipline (pyrethroids)</td>
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<tr>
<td>Warrior II</td>
<td>Sygenta ® a pyrethroid</td>
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<tr>
<td>Mustang</td>
<td>FMC® a pyrethroid</td>
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<tr>
<td>Asana XL</td>
<td>DuPont™ a pyrethroid</td>
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<tr>
<td>Hero</td>
<td>FMC® a pyrethroid</td>
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<tr>
<td>Renounce</td>
<td>Bayer™ a pyrethroid</td>
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<tr>
<td>Perm-up</td>
<td>United Phosphorus, Inc. a pyrethroid</td>
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<tr>
<td>Alias</td>
<td>MANA™ a neonicotinoid</td>
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*Figure 3.* Insecticides reported as effective against *Bagrada* bug adult infestations when applied as chemigations on cole crops in Yuma and Imperial Valley in 2010. ¹ several formulations including Brigade (7), Sniper (5) and Discipline (1).

Table courtesy of John C. Palumbo, Ph.D., of the University of Arizona, Yuma Agricultural Center