

Cropping System Considerations:

- Sudan grass, cotton and Bermuda grass crops may be considered key sources of Bagrada bug infestations for fall cole crop plantings. Anecdotal observations suggest that cole crops planted adjacent to or near these crops may be at a high risk from Bagrada bug infestations.
- Desert habitat can also be a source of Bagrada bugs due to the abundance of cruciferous weeds (London rocket, shepherds purse, wild mustards) and other host plants that flourish from winter/monsoon rains.
- Fields established adjacent to or near grassy areas, weedy drains, river bottoms and residential areas may also serve as a source of heavy Bagrada bug numbers, again due to the availability of host plants.

Monitoring and Scouting:

- Inspecting plants during the early morning (6:00-8:00 am) may be misleading. Adults are generally most active in fall cole crops fields from mid-morning (10:00 am) to late afternoon day (4:00 pm) when temperatures exceed 90°F. When sampling for Bagrada, look for fresh feeding signs on cotyledons and young leaves (see images below). Be sure to carefully inspect cracks in the soil and dirt clods where adults commonly seek shelter when the temperature is hot. Sprinkler irrigation appears to repel the adults somewhat, so begin sampling soon after sprinklers are shut off.
- Transplanted cole crops: Begin scouting for Bagrada bug adults the next morning following transplanting. The bugs can be difficult to find on plants when sprinklers are on, so when sprinklers are turned off at night or early morning carefully inspect all the leaves for the presence of adults and fresh feeding symptoms. Also carefully inspect the soil underneath the plant.
- Direct-seeded cole crop plantings: Begin scouting immediately upon seedling emergence prior to the stand being "lined out" (3-4-days post-wet date in early September). Bagrada bugs have been observed feeding on broccoli seedlings just as the cotyledons are appearing. Damaged or desiccated seedlings that appear wilted can be a result of Bagrada feeding. On larger seedlings at the 1-2 leaf stage or larger, inspect for adults underneath cotyledons and leaves, as well as the stem at the soil surface.

Chemical Control:

- Preventing the adults from feeding on plant terminals and small cotyledons is critical to establishing and maintaining a quality stand. An action threshold has not yet been established, but anecdotal observations thus far suggest that feeding by 1 adult / 6 row ft of seedlings or transplants for greater than 2 days can cause significant damage resulting in stand losses or irreparable plant damage.
- Contact insecticides appear to provide the most effective control during stand establishment. Following insecticide treatments inspect the soil for dead adults. Also, adults will also feign death when disturbed.
- Soil-applied neonicotinoid (e.g., imidacloprid, Venom) and diamide (e.g., Durivo/Coragen, Verimark) insecticides do not adequately prevent feeding damage to newly transplant crops or emerging direct seeded crops.
- Pyrethroids (i.e., Capture LFR) banded over the seedline at planting have shown to provide ~5 days control of adults on direct-seeded broccoli.
- Aerial application or chemigation with pyrethroids during germination and stand establishment can provide effective, short-term knockdown of adult populations on newly emerged or transplanted crops.
- On transplants, chemigations should be initiated upon the first signs of adults or damage. Our trials to date have shown that treatments for flea beetles have coincided with the presence of Bagrada bugs.
- On direct-seeded crops, consider a prophylactic chemigation when seedling first emerge (3-4 days after wet date), particularly if the grower has planted to a stand. Subsequent irrigation runs will likely dilute the chemical and may require additional treatments. Aerial applications applied at night after sprinklers are shut off may provide excellent knockdown of adults entering fields.
- Once stands have become established, foliar sprays with pyrethroids (e.g., bifenthrin, Lambda cyhalothrin), chlorpyrifos, methomyl, and neonicotinoids (Venom/Scopriion) can provide effective adult control; length of control will likely depend on rates, coverage, spray frequency, tank-mix combinations, & duration of adult migration from outside the field.
- Research and anecdotal observations suggest that once plants reach the 6-leaf stage they should not be susceptible to damage to the terminal growing point. However, leafy brassica crops may be susceptible to cosmetic damage to leaves from bagrada feeding for much longer periods.



Bagrada bug feeding symptoms on 4 day old cauliflower transplant.



Bagrada bug feeding signs on broccoli cotyledons 2 days after emergence.



Fresh feeding signs on 2-leaf stage broccoli (left), older feeding signs on a week old cauliflower transplant (right).