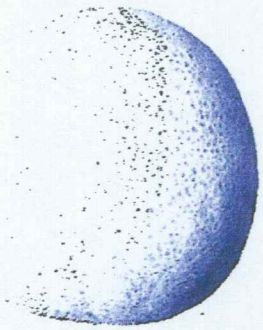
Pasadena Community Garden

Spring 2019 Newsletter
Water Wise Gardening: Decisions, Decisions

So it is high planting season, and you are probably making decisions now about what to plant in your plot. Remember, though, that April and May's gorgeously clement weather and your vivid imagination can make your life difficult come July and August. What you plant now will require your considerable attention in the hottest months of the year. By making a few modifications in choosing plants, you'll enjoy a less labor-intensive, less water-demanding season.

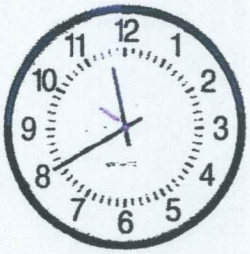
Flowers
Instead of water demanding dahlias and roses, try out some native California flowers instead. One good choice is the monkey flower. Varieties of this plant abound, and you can easily find it at good native plant nurseries, such as the Theodore Payne Foundation in Sunland and Santa Ana Botanical Garden in Claremont. This perennial varies in color from reddish-toffee to butter yellow, depending on the conditions of your soil. Particularly prolific in early summer, the plant will reward you with months of pretty blooms if deadhead the spent blooms. Hummingbirds love it.

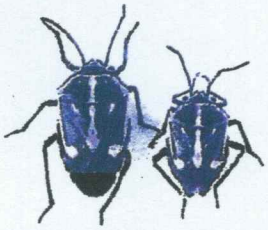
Vegetables
Of course you will put in tomatoes. Consider other vegetables that will reward your efforts with far less water, labor, time, and effort: peppers, eggplant, black-eyed peas (cowpeas), and cantaloupe.



Irrigation
Don't spray your plants and/or soil with water and call it watering. Use your hose wisely, making sure the water goes to the root system, drip irrigation or *ollas* (porous terra cotta pots that are buried in your garden bed and from which plants draw water as needed).

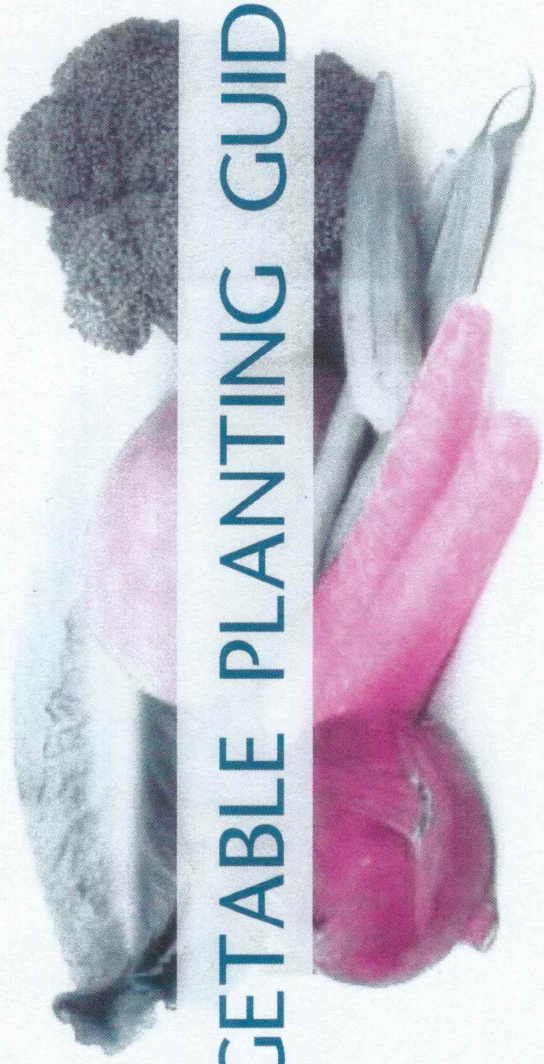
The When of Watering
It is always better to water early in the morning, as it delivers water to the plant when it needs it and allows plant leaves to dry out, keeping foliar (leaf) diseases in check (early as in before 8AM). Also, *you are probably watering too often.* Twice a week is fine once plants get established, even in hot months. Deeper, infrequent watering will force your plants to develop strong roots.





Pests
As always, keep an eye out for any pests. Pull out cool-weather crops and replace with warm-weather crops or you will surely get invaded by destructive bugs like aphids or the dreaded BEGRADA BUG. Click on this link to learn more about it and what to do if you spot it.

VEGETABLE PLANTING GUIDE



PLANTING PERIOD GUIDE

- Optimal
- Acceptable
- Not Recommended

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Asparagus	■	■	▒									
Beans (bush)			■	■	■	■	■	■	▒			
Beans (pole)			■	■	■	■	■	■				
Beets	■	■	■	■	■	▒	▒	▒	▒	■	■	■
Broccoli	■	■	▒						▒	■	■	■
Brussel Sprouts	■	■	▒						▒	■	■	■
Cabbage	■	■	▒							■	■	■
Cantaloupe				■	■	■						
Carrots	■	■	■	■	■	▒	▒	▒	■	■	■	■
Cauliflower	■	▒								■	■	■
Celery	▒							■	■	■	■	▒
Chives	■	■	▒							▒	▒	▒
Collards	■	■	▒							■	■	■
Corn				■	■	■	■	■				
Cucumbers				■	■	■	■	■				
Eggplant				■	■							
Endive	■	▒	▒							■	■	■
Favas	■									■	■	■
Jicama				■	■							
Kale	■	■	▒							■	■	■
Kohl Rabi	■	■	▒							■	■	■
Leeks	▒	▒							■	■	■	■
Lettuce	■	■	▒							■	■	■
Lima Beans				■	■	■	■	■				
Mustard	■	■	▒							■	■	■
Okra				■	■	■						
Onions	■	■									■	■
Parsley	■	■	■							■	■	■
Parsnip	■	■								■	■	■
Peas	■	■	▒							■	■	■
Peppers				■	■	■						
Potatoes	■	■	■	▒	▒	▒						
Pumpkin				■	■	■						
Radish	■	■	■	■	■	▒	▒	▒	▒	■	■	■
Rutabaga	■	■	▒							■	■	■
Spinach	■	■	▒							■	■	■
Squash (summer)		■	■	■	■	■	■	■	▒			
Squash (winter)			■	■	■	■						
Sunflowers			▒	▒	■	▒						
Swiss Chard	■	■	■	■	■	▒	▒	▒	▒	■	■	■
Tomatoes			▒	■	■	▒	▒					
Turnips	■	■	▒							■	■	■
Watermelon				■	■	▒						
Zucchini		■	■	■	■	■	■	■	▒			

Grangetto's
FARM & GARDEN SUPPLY

This table lists the recommended times to sow vegetable seeds for the typical Southern California climate. When buying transplants, remember to adjust for the age of the plant (about 1-2 months).

Source: Digital Seed

Contact: Craig @ craigjohnson395@sbcglobal.net

Garden Manager

The Bagrada bug is relatively new to California and is very prolific. Its favorite host plants are in the Brassica or mustard family and include cabbage, broccoli, cauliflower, mustard, arugula, and kale, among others, but as you can see it also likes chard, and we've read that it is partial to sweet alyssum and sunflowers. It sucks fluids out of leaves and seriously damages plants, especially seedlings.

The good news is that it's primarily a warm-season pest, and most Brassicas are a winter crop in our area. We recommend members with the above identified plants inspect them and, if the plant is past its productivity, remove it.

If you find this pest in your garden smash it ... but not before you call a member of the Garden Managers' Committee! Then, here's what to do:

- Carefully and slowly remove infested plants from your garden bed.
- Carefully place the entire plant, along with infestation, in a plastic bag and completely close the bag so bugs cannot escape. Note that the bug moves more slowly in cooler weather, and it will fly (possibly to other garden beds) if disturbed on hot afternoons.
- Take the bag out of the garden and dispose of it in a dumpster that is not near vegetation.
- Since the UC Davis website notes that Neem oil is partially effective in controlling young Bragada bugs, you could also spray the soil after you remove the infestation.

And remember to keep your beds clean, allow air to circulate through them and check for pests often. Also, don't leave overly ripe fruit or dead leaves in your bed to rot.

Good luck.

Garden Managers' Committee

BAGRADA BUG

Integrated Pest Management for Home Gardeners and Landscape Professionals

The Bagrada bug, *Bagrada hilaris*, also called the painted bug, is a stink bug that attacks various vegetable crops, weedy mustards and several ornamental plants within the mustard family (Brassicaceae) such as sweet alyssum, stock, and candytuft. It is particularly devastating to young seedlings and leafy mustard greens (Figure 1).

Bagrada bugs often infest wild mustard weeds, which are pervasive in California on hillsides and in agricultural corridors in late winter to early spring. Populations rapidly increase in the weeds when seasonal temperatures rise. Record numbers of bugs can invade newly planted cole crops after mustard weeds dry out in late summer.

The Bagrada bug is an invasive pest species, native to Africa, which has spread to India, Pakistan, parts of Southeast Asia, and Italy. In the United States, it was first found in Los Angeles County in 2008. By 2011, the pest had disseminated throughout Southern California to include San Diego, Imperial, Orange, Riverside, San Bernardino, and Ventura counties. In September 2012, the pest moved northward to Santa Barbara and San Luis Obispo counties and recently (2013) the Bagrada bug was found in Fresno, Tulare, and Monterey counties. Other states where this stink bug is currently found include: Arizona, New Mexico, Nevada, Utah, and Texas.

IDENTIFICATION

Adult bugs are black with orange and white markings; the shield-shaped body is about 1/4 inch (5-7 mm) long and about half as wide at the broadest part (Figure 2). Adults may be confused with harlequin bugs (Figure 3), *Murgantia histrionica*, but are smaller at about 1/3 – 1/5 the size. Eggs are barrel-shaped and deposited singly or in small clusters of about six (Figure 4). Eggs are initially white but turn orange or red prior to hatching. Females lay eggs in the soil beneath host plants but may also oviposit on leaves or on hairy stems of non-host plants. In addition, eggs are often laid on plant protective coverings such as mesh screens or floating row covers. Research suggests that, depending on temperature and food source, a female bug can lay up to 150 eggs within two to three weeks. Eggs can hatch in as little as four days. The nymph passes through five instars. Newly molted nymphs of all stages are orange-red but legs, head, and thorax darken quickly to black (Figure 5). The brightly colored nymphs may be confused with lady beetles but lack their shiny, hardened wings. Older nymphs develop dark wing pads and white spots on the abdomen prior to becoming adults.

LIFE CYCLE

The rate of development and number of generations per year is dependent upon climatic conditions and available food plants. In Southern California, there are multiple generations each year and populations generally peak late in summer and fall. All life stages may be present together on plants, especially when pest densities increase, generations overlap, and food sources decrease. Even though Bagrada bugs prefer cool-season cole crops, their development is favored by warmer temperatures. Adults tend to fly when temperatures are above 85°F. Bagrada bugs may hide in leaf litter or topsoil during cool periods and cold winter months.

The Bagrada bug's main hosts are plants in the mustard family, and it requires these host plants for optimal

Figure 1. Bagrada bugs and feeding damage on mustard greens.

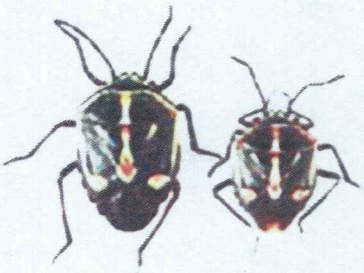


Figure 2. Adult Bagrada bugs are black with orange and white markings. The female is larger than the male.

reproduction. This group includes cruciferous weeds such as various wild mustards, shepherd's purse, London rocket, and pepperweed. Globally, the Bagrada bug is a serious pest of cole crops — cultivated plants in the *Brassica* genus such as cabbage, cauliflower, broccoli, kale, turnip, and mustard greens. It also attacks related cruciferous crops such as radish and arugula. Ornamental landscape plants such

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as alyssum, candytuft, nasturtiums, rockcress, stock, and wallflower can be infested.

Bagrada bugs may become secondary pests of other plant families, particularly when densities are high and crucifers are scarce. For example, it infests weeds such as lambsquarters, purple nutsedge, *Euphorbia* spp, perennial sowthistle, fleabane, and field bindweed. It causes feeding damage on the fruits of bell pepper, melon, papaya, tomato, and capers. Vegetative and flowering growth of corn, sudangrass, sorghum, sunflowers, potato, cotton, and some legumes, including snap beans, may also be consumed. The Bagrada bug forms large clusters on many different types of plants in the late summer when pest populations are high and food is scarce. When preferred hosts are unavailable, the bug can be found on plants that are not reproductive hosts; and it may or may not attempt to feed. For example, large numbers of Bagrada bugs have been found in Ventura County on strawberry crops but feeding damage has not been reported.

DAMAGE

Adults and nymphs of the Bagrada bug feed on leaves, stems, flowers, and seeds. They insert their needle-like mouthparts into plant tissues, inject digestive enzymes, and suck the juices. On leaves and stems, starburst-shaped lesions form. Leaves eventually have large stippled areas and may wilt and die. Ultimately damage may result in "scorched" leaves, stunting, blind terminals, and forked or multiple heads on cauliflower, broccoli, and cabbage. Bagrada bugs are particularly damaging to small plants and may kill seedlings.

MANAGEMENT

Early detection is important because Bagrada bug populations can build up quickly. Levels of infestation may be correlated with proximity to natural and cultivated areas infested with wild mustard or to neighboring vegetable farms. Landscape plants, native plants, and weeds may need to be monitored to prevent pest migration. Bagrada bugs may not be readily observed until damage has begun, so look carefully for fresh feeding damage (light green starburst lesions), which may be easier to spot than the insects themselves at early stages of infestation. Home gardeners and landscapers should carefully inspect their plants and shipping containers prior to planting. A good time to inspect is right after watering when pests hiding in the space between the potting mix and the sides of the container may be flushed out and more easily detected.

When the bugs are common on plants, they may be monitored by beating or shaking plants over a tray or a sheet of paper. More frequent scouting may be necessary when temperatures rise above 75°F. Bagrada bugs tend to be most active and visible during the warmer parts of the day; therefore, monitoring should occur at those times. When temperatures are low or on cloudy days, these bugs may hide on the undersides of leaves, around stem bases, or in soil cracks and crevices.

Cultural Control

Remove weed hosts in and near planting areas. Bagrada bug adults, eggs, and nymphs in the soil or container media can be controlled by steam or chemical treatment before planting. Removal of plant residue after harvest can reduce carryover between crops.

In gardens where the Bagrada bug is present in very high densities, it may be advisable to remove very attractive host plants such as sweet alyssum (*Lobularia maritima*) and replace them with plants not in the mustard family. Sweet alyssum can attract bugs into the garden and also serve as a source of infestation for other plants in the garden or landscape.

Mechanical Control

Picking the bugs off plants by hand is only feasible if pest populations are very low. When infestations are heavy, it may be possible to vacuum the bugs with a portable vacuum cleaner. It is often easier to tap the plant onto a sheet and collect/vacuum the bugs rather than removing them individually.

Figure 3. The harlequin bug is orange and black with no white markings. It is about ½ inch long--more than three times larger than Bagrada bug.

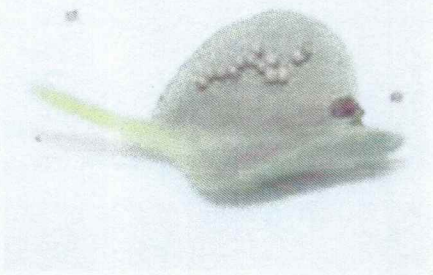

Figure 4. Bagrada bug eggs are whitish when first laid and often in clusters of several eggs.

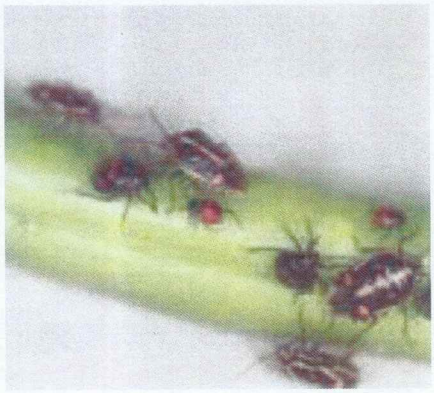

Figure 5. Bagrada bug nymphs and adults. Young nymphs are bright red, but later begin to develop wing pads.