

Procedures for maintaining lab colony of brown marmorated stink bug

Set-up: we have space for 8 cages: 4 cages on each of 2 shelves, in front of large window in the lab. Above the top row is a bank of 6 fluorescent lamps that are on a timer for 16:8 hours light:dark. Cages are nylon mesh, 13 x 13 x 24 inch, from BioQuip. We try to have no more than about 150 bugs per cage.

1. Starting bean seeds (usually once per week, 8 to 12 pots)

Best pots are round, 4" diameter at top and 3.5" tall

Get plastic shoe box, fill about half full with dry ProMix (from large green tub)

Slowly add warm water to ProMix, while tossing with hands until thoroughly moist

Fill pots with damp ProMix, **press gently, until about ¾ full**

Poke two holes, each 1-inch deep, using finger or forceps

Drop a bean seed ('Roma II') into each hole, then cover firmly with damp ProMix

Sprinkle 'Mosquito Bits' (*B.t. israelensis*) on surface, 1 teaspoon per pot (fungus gnat control)

Place pots on tray on top of growth chamber where air is warm

(optimum germination temperature for beans is 80-85 degrees F)

Place 4" plastic Petri dish under each pot (to catch drain water)

- General rules:

- need a saucer under every pot

- need each saucer to be larger than bottom of each pot

- Specific rules:

- Use deeper side of petri dish for 4" round pots

- Do NOT use shallower side of petri dish

- Use deli dish for large square pot

Water pots every day to maintain moist soil, until seedling emergence

2. Care of bean seedlings, not yet in cages

Seeds started on Monday should have plant emergence starting on Friday

As soon as emergence begins, move tray to sunny spot by window

Add thin layer of Mosquito Bits, 1 teaspoon per pot, every Monday

If older Mosquito Bits are moldy, scoop them off and dispose

Once plants get about 4-6 inches tall, insert a bamboo stake between the 2 plants, use twine or twist-tie to gently but securely hold each plant to the stake

Once plants get about 8 inches tall, pinch top bud to promote lateral growth

Water every 2-3 days

3. Set up cage with bean plants and stink bugs

Position cages to maximize exposure to sunlight and artificial light

Placement of plants within cage:

Plants need sunlight

Put shorter plants on window side of cage

Put taller plants on lab side of cage

Put fresh supply of raw peanuts (about ¼ cup) on top of each cage

Available from Crema Nut Co. on Goodale Blvd. in Grandview Heights

4. Daily colony maintenance of stink bugs and plants in cages

in adult cages: search for and remove all stink bug egg masses using cork borer; record number per cage (use these for sentinel egg study for parasitoid survey in field)

in nymph cages: top up water/cotton vials

Lift each pot to determine which are lightweight and thus too dry, then add water

Spray light mist of water on all plants inside cages (for benefit of stink bugs)

Wipe off any dirt or debris on trays in front of cages

Check lamps above cages for any bulbs not working; replace as needed

5. Weekly colony maintenance

In nymph cages: search for new adults, move to adult colony cage, record number

In adult cages: search for dead adults, record number found per cage; remove them

Add twine or twist ties to any plants that are getting too tall to stay erect

Remove any dead leaves, checking first to remove any stink bugs that are on them

Replace any dying plant with fresh plant

Check for presence of whitefly adults or fungus gnat adults

-if found, remove by aspirator, then freeze vial to kill; or spray soap

Check for presence of two-spotted spider mites, spray with soap or Acramite if found

6. Monthly colony maintenance

Transfer stink bugs and plants to clean cage

Put fresh supply of raw peanuts on top of cage

Scrub dirty cage with Alconox, rinse well, allow to air dry

7. Young nymph care

Place egg masses in closed 8-ounce plastic deli dish, with no food

Once nymphs molt to 2nd instar, leave in deli dish, add a small carrot, cut lengthwise to prevent rolling

Once nymphs molt to 3rd instar, move to nymph cage (same cage type and care as for adults)

8. Cleaning pots and bamboo stakes (usually once every 2 weeks)

Dump soil and plant remnants in compost drum outside

Brush loose soil from dirty pots with brush or paper towel into trash can, NOT into sink

Rinse pots and stakes in bucket of water; dump dirty water outside in garden area

Wash pots and bamboo stakes in warm water and Alconox detergent, then rinse well

Make solution of 10% bleach (e.g. 900 milliliters water + 100 ml Clorox)

Sanitize by soaking pots and stakes in the Clorox solution for 10 minutes

Rinse well, then spread out to air dry