

NJDA Non-Diapause
Laboratory Rearing and Colony
Maintenance of the Brown
Marmorated Stink Bug,
Halyomorpha halys

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General Rearing & Maintenance

- Long day **photoperiod**: 16L:8D
- **Temperature** maintained @76-78 F
- Relative **humidity** maintained @60-70%
- Rearing containers, boxes and cages are misted twice daily
- Green bean pods are replaced 3x/week
- Supplemental diet packs are replaced 2x/week or as needed



“Home Grown” Green Beans

- Beans are grown year round in the greenhouse
- Fresh **green bean pods** are the primary BMSB food source
- Four large plants are potted per week for colony maintenance
- Smaller plants are used for egg deposition and collection



Supplemental Artificial Diet

- Brown Marmorated Stink Bugs (nymphs & adults) are regularly supplied with an egg based **artificial diet** originally formulated for the tarnished plant bug, by Dr. Allen C. Cohen

(Cohen, A. C. 2000. New Oligidic Production Diet for, *Lygus hesperus* Knight and *Lygus lineolaris*(Palisot de Beauvois). *J. Entomol. Sci.* 35(3): 301-310.

- The diet is freshly prepared in the lab and dispensed into porous parafilm pouches of multiple sizes



Adult Oviposition Cages

- New adults are set up, in metal screened cages (13 ½ “ W x 12 ½ “ H x 16 ½ “ D)

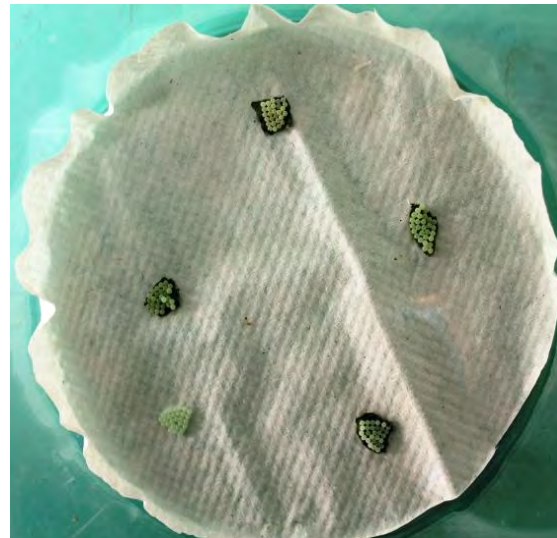
bi-weekly

- 50 adults (mixed sexes)
- Bean plant (for oviposition)
- Euonymus plant (for resting)
- Cardboard crating (for hiding)
- Paper towels lining the bottom
- Beans and diet elevated on wire screening
- Three cages (50 adults) are maintained and replaced every two weeks for routine rearing



Egg Collection

- Eggs are collected daily
 - Females prefer to oviposit on underside of green bean leaves
 - The five largest egg masses are placed on paper toweling in a vented round plastic container (5 ½" H X 5 ¼" diameter)
 - Surplus eggs are held at **55-60 F & 50%-60% RH**
 - Bean plants for oviposition are replaced weekly



Maintenance of Early Instars

- Eggs generally hatch in **5 – 6 days**
- Following the first molt (**2nd instars**) are provided with young tender beans and a small artificial diet pack 3 X per week
- All egg masses and **early instar (1st and 2nd) nymphs** are misted twice daily



Late Instars and New Adults

- In approx. **18-21 days (3rd instar nymphs)** from five smaller rearing containers are combined and transferred to a large Plexiglass box (14 " W x 14 " H x 16 " D)
- **Each box contains:**
 - Euonymus plant (for resting & molting)
 - Cardboard crating (for hiding)
 - Paper towel lined bottom
 - Beans and diet placed on screen for feeding




Laboratory Colony Details

- PABIL “**non-diapausing**” colony started in 2011 from overwintering BMSB adults collected from Atco(Camden Co.), New Jersey
- Colony is now in its’ **20th generation** and counting
- Development from **egg to adult** approx. **38-40 days**
- **Pre-oviposition** period: **10-14 days**
- **Adult recovery**: 30%-35%



Factors Contributing to Rearing Success

- a. **No introduction of new field material?**
 - If it ain't  ... don't fix it
- b. TPB supplemental diet?
- c. “Home grown” green beans?
- d. TLC?
- e. All of the above