

Brown Marmorated Stink Bug Monitoring in Stanislaus County Cling Peach Orchards Annual Report to the Cling Peach Board, 2015

Roger Duncan, UC Cooperative Extension Advisor, Stanislaus County

Purpose:

The brown marmorated stink bug (*Halyomorpha halys*) (BMSB) originated in East Asia and was first identified in the US in Pennsylvania in 2001. It has now spread to over 40 states. A large BMSB population was discovered in Midtown Sacramento in early Sept. 2013, and subsequent surveys have shown that they now infest all of downtown and midtown Sacramento, as well as areas near Yuba City. In 2014, there were additional finds in San Joaquin and Santa Clara Counties, meaning that Stanislaus County was next in line as detections moved south each year. As it is only a matter of time before BMSB becomes widely established in the North San Joaquin Valley, it is important for peach growers and pest control advisors to learn how to monitor and identify BMSB in order to prevent severe feeding damage. This project was initiated in 2014 to gain experience trapping BMSB and to train PCAs how to develop an early warning monitoring system in peaches. The current project is a continuation of the 2014 study.

Materials & Methods:

Beginning in April 2015, six peach orchards in Stanislaus County and one in southern San Joaquin County were monitored for BMSB. Because BMSB populations are most commonly spread over long distances by vehicles, new infestations are often discovered in or near residential areas (Figs 3 & 4). Therefore most of the monitored orchards were adjacent to or near urban areas.

Monitored peach orchards included:

- River Road, Escalon - Rick Zollezi
- Claribel Road, North Modesto – Gary Darpinian
- Claratina Road, North Modesto – Tony Rodin
- Hopper Road, Waterford – Tom Dickens
- Gilbert Road, Ceres – Superior Fruit Ranch
- Faith Home Road, Ceres – Pete Grubek
- Euclid Road, Hughson – Darrell Starn

Orchards were monitored once per week from April through September. Monitoring consisted of BMSB pheromone traps, five-minute timed searches, beat tray samples and fruit inspections. Pheromone traps were four-foot tall black corrugated pyramids (Fig. 1) with an inverted, clear plastic contained on top (Fig 2). The new Dead-Inn Stink Bug Xtra Combo lures were placed inside each container. The combo lures include a BMSB aggregation pheromone and the synergist methyl decatrienoate (MDT, 66 mg; AgBio, Inc.). The plastic container has an entry cone opening allowing the stink bugs to crawl in but it is difficult for them to find their way back out.

In addition to pheromone trapping, searches were conducted by slowly walking through each block and inspecting fruit, leaves and branches for signs of stink bugs or feeding injury. Limbs were gently beaten with a

padded wooden handle and dropping insects were caught on a tray and inspected. Captured stink bugs were transported to the Stanislaus UCCE lab for close inspection and identification.

Figs. 1 & 2. BMSB pyramid traps with green cone and pheromone lures.



Below are examples of monitored orchards near residential or other urban areas.

Figure 3. Tony Rodin (cv. Ross) Orchard, North Modesto

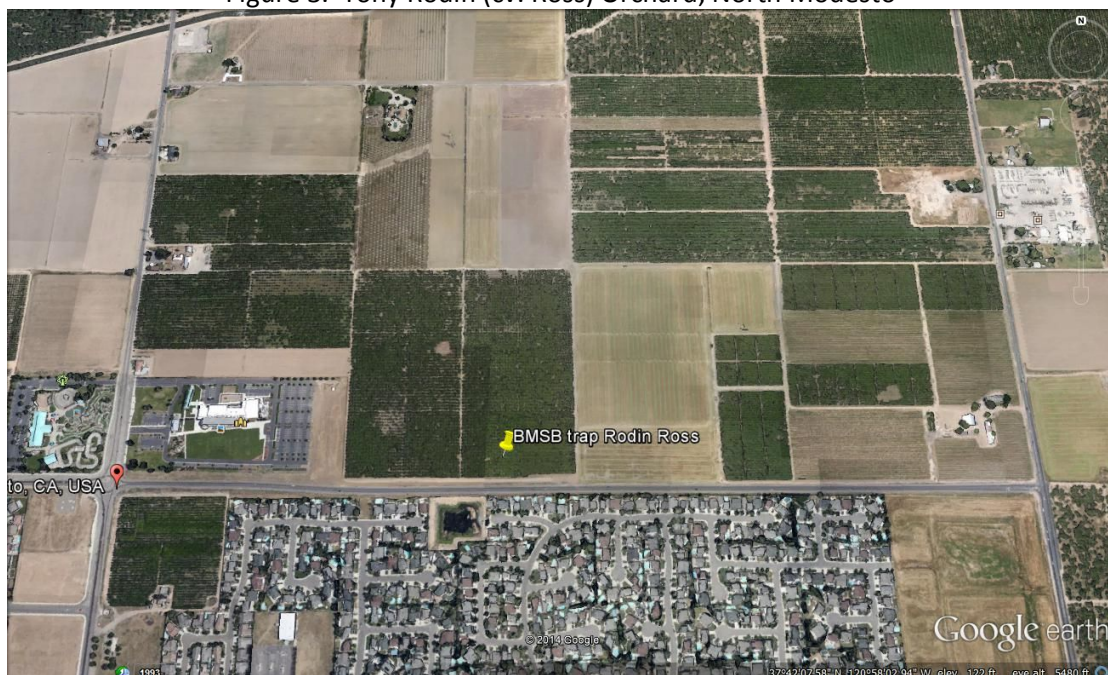
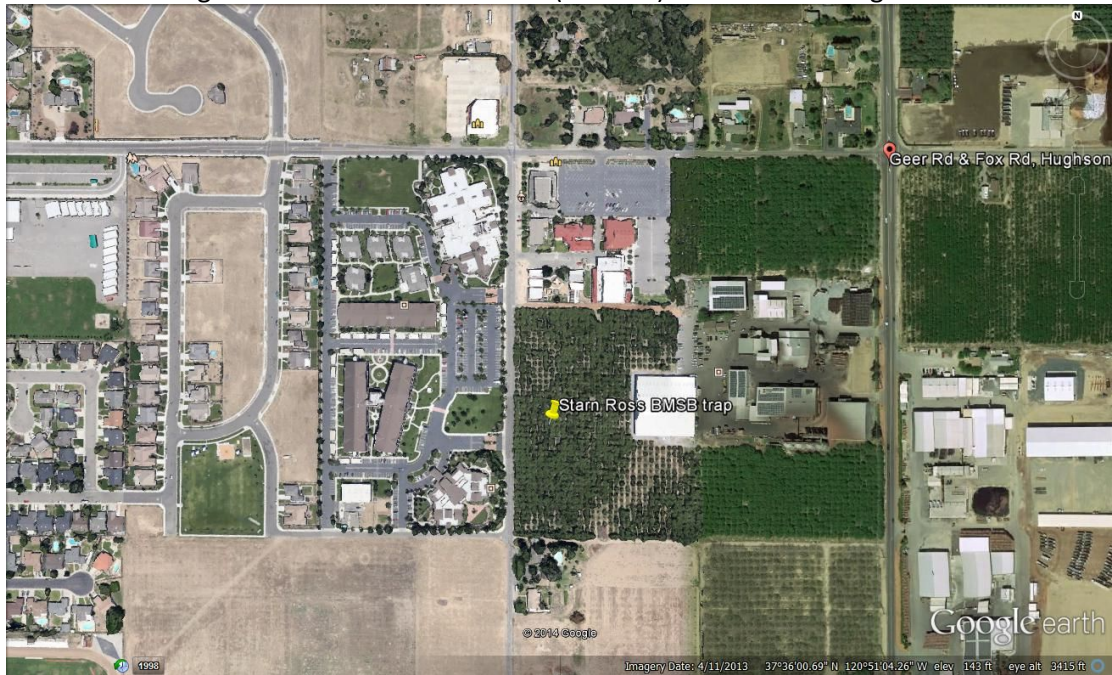


Figure 4. Darrell Starn Orchard (cv. Ross) Monitored in Hughson



Results:

A small number of stink bugs were captured occasionally in one of the seven monitored orchards, primarily in the pheromone traps. All captured stink bugs were identified as Consperse Stink Bugs and not BMSB. Very little stink bug damage was detected in any of the monitored orchards in 2015.

In early July, 2015, we discovered a BMSB infestation in several Trees of Heaven behind a hotel off of Freeway 99 in Modesto. This was the first confirmed report of an established BMSB population found in Stanislaus County. All stages of BMSB development were present (eggs, nymphs & adults), indicating that the infestation had been there for at least a few months.



Fig. 5. 1st instar nymphs after existing eggs



Fig. 6. BMSB adult feeding on Tree of Heaven seed pod

In order to test the effectiveness of the pheromone traps, we hung a Dead-Inn trap with a combo lure in an infested Tree of Heaven on July 24. In addition, we hung another trap in a Magnolia tree across the street (approximately 100 yards away). Traps were checked weekly. It took almost three weeks to catch our first BMSB in the pheromone trap that was hung within an infested tree (one insect). Subsequent weekly checks revealed catches of 3 - 5 BMSB per trap per week. No BMSB were ever caught in the trap across the street.

Conclusions. No signs of brown marmorated stink bugs were detected in any of the monitored peach orchards. Five-minute searches and beat tray sampling, while detecting a few consperse stink bugs, never detected any BMSB. Pheromone traps are the current standard for monitoring populations of BMSB in other states. However, the very low number of insects captured in a trap hung within an infested tree and the fact that no BMSB were caught in a trap hung 100 yards away from a large infestation indicates that the current pheromone traps and lures have very limited use as an early detection system. It appears that traps have to be within a very short distance of a large infestation to be effective. Until a better lure is developed, peach growers and their PCAs would be better off conducting routine visual searches of their orchards rather than relying on these pheromone traps.