



# Timely Viticulture

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"Timely Vit" is designed to give those in the Maryland grape industry a timely reminder on procedures or topics they should be considering in the vineyard.

## Brown Marmorated Stink Bug (BMSB) Part 1

By Joseph A. Fiola, Ph.D., Specialist in Viticulture and Small Fruit

The brown marmorated stink bug (BMSB) has been a localized problem in Maryland thus far but that may be expected to change in the future. The full impact on vineyards and wine quality potential of this newly introduced pest is unclear. This Timely Viticulture was created to give growers some background on the pest. The next TimelyVit will address some potential management options. Regretfully, it must be stressed from the beginning that this is a new "introduced" pest and very little is currently known of its biology, but it is evident that it has the potential to be a very significant pest.

### Background

- The brown marmorated stink bug, *Halyomorpha halys* (Stål), was introduced from Asia into the mid-Atlantic region, near Allentown, PA in the mid 1990s.
- In Asia, BMSB is known to attack high value crops, such as tree fruit.
- BMSB has spread and become a pest of homes and more recently fruits and vegetables in New Jersey, Maryland, Delaware, West Virginia, and Virginia.
- BMSB is "polyphagous" pest whose host range includes tree fruit, ornamentals, hardwood trees, and cultivated crops (soybean, corn.)
- First detection in orchards in the region was in 2003, and during the 2009 growing season, serious economic injury to peach, apple, and Asian pear.
- In 2010, BMSB has caused complete crop loss in some orchards in western MD, southeastern PA, and the eastern panhandle of WV.
- There are no established commercial monitoring methods, treatment thresholds, or control strategies for BMSB in any cropping system – these are being developed.
- BMSB populations and their damage are currently being monitored by UDSA scientist in MD, PA, and WV.
- BMSB have been observed in commercial and R&D vineyards in Frederick and Washington county MD, Southeastern PA, and Loudon county VA.
- This is a very recently introduced pest; there remain many questions about life cycles, overwintering, monitoring, and management of BMSB.
- There do not appear to be any native natural enemies that have, as yet, impacted BMSB populations.

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Brown Marmorated Stink Bug (BMSB) Part 1

Mid-Season Thru Harvest

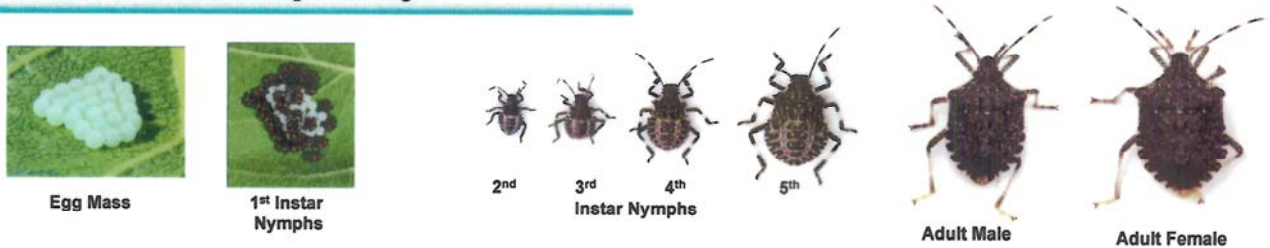
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- Extensive explorations in China have identified some potential biological control candidates.
- In the absence of a naturally occurring solution, major damage is possible from this pest.

Life cycle

- BMSB overwintered as adults in protected areas and enter orchards as early as late April early May.
- Life stages include eggs, 5 instar nymphal stages, and adults.
  - All stages have been noted in orchards at the same time
- Currently 2 generations per season have been documented in the region.

Brown Marmorated Stink Bug Life Stages



BMSB as a vineyard pest

- The potential problem is multi-faceted.
- The threat from BMSB in tree fruit begins in early May as overwintered adults enter orchards and feed on developing fruit.
- Unlike other stink bugs, it appears that all instars and adults feed on their hosts.
- Fruit injury from nymphal and adult feeding can continue until harvest.
- Stink bugs can cause direct injury to grapes by piercing and feeding on the berries.
- Injury caused by piercing and feeding on the berries can lead to increased susceptibility to Botrytis and other late season rots.
- The presence of BMSB in the clusters at harvest and transport in lugs to the winery.
  - Crushing stink bugs with the fruit could result in a stink bug odor or taint and/or off-flavor, as was the case with the multi-colored Asian lady Beetle (MALB). This has already occurred at a commercial winery in VA in 2009.
  - In studies with BMSB on caneberries in VA, the frass produced by stink bugs has also created a bad taste.
  - Again, because this is a recently introduced pest, we are largely ignorant of the actual impact of the bugs on finished wine.

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Mid-Season Thru Harvest

- ♦ Details such as the “thresholds” of how many stink bugs (e.g., per lug) are required to impart a detectable taint to wine are not known at this point. It is best to be very conservative and try your best to eliminate them.
- Many agricultural chemicals do not appear to have much or any activity against BMSB and those that do appear to have only short term effects.
- The good news is that there are some pesticides that are effective and have a short (0, 1) days to harvest interval – please see next TimelyVit.

Sources:

Dr. Tracy Leskey, USDA, Kearneysville, WV

Dr. Doug Pfeiffer, Fruit Entomologist, Virginia Tech, Blacksburg, VA

Dr. Chris Bergh, Associate Professor of Entomology, Virginia Tech, Winchester, VA

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