



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 2 - Management in the Vineyard

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The brown marmorated stink bug (BMSB) has become a state-wide problem in Maryland vineyards, and its range and damage is increasing. The full impact on vineyards and wine quality potential of this newly introduced pest is unclear. TimelyVit — Part 1 — was created to give growers background on the pest and this TimelyVit will address some management options. Regretfully, it must be stressed that this is a new “introduced” pest and very little is currently known of its management, thresholds for management.

BMSB as a vineyard pest

- 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.

Tolerance or thresholds

- All BMSB instars have been found to be causing direct damage to grapes.
- At harvest, BMSB may be present in the clusters and transported in lugs to the winery.
- Crushing stink bugs with the fruit could result in a stink bug odor or taint so it is best to be conservative and try to **eliminate or greatly minimize** the insects from the fruit before processing. (Please see TimelyVit BMSB 3 Damage to Fruit and Juice/Wine Taint)

Monitoring in the vineyard

- All life stages (nymphs thru adult) have been found in vineyards and ALL can damage fruit and taint the juice.
- There are currently no commercially available traps that can predictably attract the BMSB.
- Simple observation is usually adequate to determine presence.
- The insects have been found both in the foliage and the clusters, although those in the clusters are most important close to harvest.

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Management in the vineyard

- Fruit and foliage should be monitored regularly for presence of eggs, all instars, and adults.
- Egg masses should be physically destroyed when observed.
- As grapes are produced in clusters it is hard to establish thresholds of economically acceptable damage.
- Vigilant scouting for the amount of damage and subsequent fate of the fruit (healing, rots) etc. is necessary to assess actual and potential damage at specific sites at a specific developmental stages.
- Fruit should be sorted in the vineyard when harvesting to remove stink bugs prior to placing in the lug.
 - Sometimes shaking the wire or the cluster itself may help to disturb the insect inducing flight.
- It is strongly recommended to sort fruit prior to crushing or de-stemming, removing additional stink bugs.
- **If you only notice populations on the clusters (not in the foliage) very close to harvest, a directed fruit zone spray may be all that is necessary; in this setting, several 0 day PHI materials are options – see below.**
- 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 and may not be lethal.
- As there has not been much research and development conducted on control of this new pest, the following are suggested control measures are the result of observations in commercial fruit orchards.
- The good news is that there are some pesticides that are effective and have a short (0, 1) days to harvest interval.
 - The pyrethrins, pyrethroids, and neonicotinoids seem to have good activity and short preharvest intervals (PHI).
 - Pyrethrin is a natural product with a short residual life. Pyrethroids were originally based on pyrethrin chemistry, but have been engineered to have a longer residual life.
 - Both have a rapid knockdown of pests but neither is likely to keep high populations of SB from **reinvading** the vineyard. However, if sprayed just before harvest, they may suffice to eliminate bugs that are actually present.
 - Warning** - The use of broad spectrum insecticides, while likely effective, also has the risk of flaring secondary pests, e.g. leafhoppers, mealybugs and/or mites.
 - The insecticides below should be used at the highest recommended rates.
 - Surround — kaolin clay — acts as a retardant interfering with the mobility of insects. In orchard and vineyard demonstrations, both alone and in combination with insecticides, it has potential for reducing BMSB damage.
 - Insecticides below should be used at the highest recommended rates.
 - As usual, always have a copy of the label present when using and always follow label instructions and be aware of maximum application rates in a single season and using.***

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Mid-Season Thru Harvest

- The following are recommended insecticides for midseason through harvest. (Follow PHI)
- The suggested treatment in blocks that are ready to harvest: Spray one of the following insecticides as close as possible before harvest (FOLLOW REI and PHI) and then pick the fruit as soon as legally possible after the treatment.

Product	Active Ingrid.	Use*	REI	PHI	Restrictions
Brigade 2EC	bifenthrin		12 hours	30 days	6.4 oz/A/season
Hero	bifenthrin		12 hours	30 days	10.4 oz/A/season
Danitol	fenpropathrin	R	24 hours	21 days	2.66.pt/A/season
Assail	acetamiprid		12 hours	7 days	5.3 oz/A/season
Actara	thiamethoxam		12 hours	5 days	7 oz/A/season
Malathion	malathion		72 hours	3 days	2 appl. MAX /year
Baythroid XL	cyfluthrin	R	12 hours	3 days	12.8 oz/A/season
Belay	clothianidin		12 hours	0 days	12 oz/A/season
Clutch	clothianidin		12 hours	0 days	12 oz/A/season
Scorpion35SL	dinotefuran		12 hours	1 day	10.25 oz/A/season
Venom	dinotefuran		12 hours	1 day	10.25 oz/A/season
Mustang Max	zeta <i>plus</i> cypermethrin		12 hours	1 day	10.4 oz/A/season
Surround	kaolin clay		4 hours	0 days	rec before veraison

(*Use: R = Restricted)

Sources:

- Dr. Doug Pfeiffer, Fruit Entomologist, Virginia Tech, Blacksburg, VA
- Dr. Chris Bergh, Associate Professor of Entomology, Virginia Tech, Winchester, VA
- Dean Polk, Professor and Statewide Fruit IPM Agent, Rutgers, NJAES
- Dr. Greg Krawczyk, Senior Research Associate, The Pennsylvania State University
- Dr. Tracy Leskey, USDA, Kearneysville, WV

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