



Brown marmorated stink bug

Brown marmorated stink bug (BMSB) is an exotic pest, known to cause damage to a range of crops in other countries. This year dead and alive brown marmorated stink bugs (BMSBs) were detected in Australia in several shipping containers from Italy. The Department of Agriculture and Water Resources implemented off-shore treatment measures between January and April to ensure that the risk of more live BMSBs arriving in Australia was minimised. While this pest is currently not established in Australia, it is one of Australia's top 40 high priority plant pests. This column provides answers to common questions about this bug, and why it should be taken seriously as a threat to Australian viticulture.

What is BMSB?

Brown marmorated stink bug (*Halyomorpha halys*) is a mottled brown, shield-shaped stink bug (Figure 1), originating from eastern Asia. It has recently been introduced to North America and Europe, where it is having a considerable impact both on agriculture and as a nuisance pest. The adults and larvae can potentially be confused with a number of other brown-coloured stinkbugs that are present in Australia. To assist with identification, the Department of Agriculture and Water Resources has produced a field guide, available from its website.

What damage can BMSB do to wine-grapes?

BMSB is known to survive in grapevines and has been observed at all life stages in vineyards, where they cause physical damage to grapes (Basnet et al. 2015). This damage then makes the fruit susceptible to secondary infection by bunch rots, which in turn affects yield and quality. In the US, it is reported that the presence of five BMSB per grape bunch may lead to 37% loss in yield of Chardonnay and 30% in Concord (juicing grapes) (Smith et al. 2014).

What impact can BMSB have on wine?

As with other stink bugs, BMSBs release a strong and unpleasant odour when disturbed. The volatile molecules (such as trans-2-decenal) excreted by BMSB have potential to taint grape juice and wine if BMSBs end up in harvested grapes. Trans-2-decenal has a strong aroma described as 'green' and 'coriander-like'. To date, fining treatments have not been found to be successful in removing trans-2-decenal from tainted wine.

Are there risks of taints from the fumigation of shipping containers conducted to kill BMSB?

The BMSB treatments approved by DAWR include sulfuryl fluoride, methyl bromide or heat treatment. When used for fumigation, methyl bromide is highly volatile and is dispersed into the air. Sulfuryl fluoride splits into a metal halide and SO₂ and is unlikely to leave any residue. If winery equipment is received from a shipping container that has been fumigated, normal cleaning is recommended, but risks of taint are considered low.

What should I do if I think I spot BMSB?

If growers or winemakers think they have seen BMSB (or any other exotic pest) in the vineyard or winery they should phone the **Exotic Plant Pest Hotline** on **1800 084 881**. It can be useful to take a photograph of and catch the pest to aid with identification.

When receiving goods from overseas, it is also very important keep an eye out for pests and other biosecurity risks. Pests can be found in shipping containers, on machinery and inside cartons and packaging, including timber pallets.

If any type of live pest is seen while unpacking or moving goods:

- Collect and contain a specimen
- Re-seal any opened boxes, re-pack the container where possible, and shut the container doors
- Don't move the container, especially to an outside area
- Report it quickly to the **See. Secure. Report. hotline** on **1800 798 636** for assistance.

For more information on BMSB or other technical issues, please contact the AWRI



Figure 1. Adult Brown Marmorated Stink Bug. Photo source Mohammed El Damir, Bugwood.org.

helpdesk on 08 8313 6600 or helpdesk@awri.com.au.

References and further reading

- Basnet, S., Kuhar, T. P., Laub, C. A. and Pfeiffer, D. G. 2015 Seasonality and distribution pattern of brown marmorated stink bug (Hemiptera: Pentatomidae) in Virginia vineyards. *J. Econ. Entomol.* 108: 1902-1909.
- Mohekar, P., Lapis, T. J., Wiman, N. G., Lim, J., Tomasino, E. 2017a. Brown marmorated stink bug taint in Pinot Noir: Detection and consumer rejection thresholds of trans-2-decenal. *Am. J. Enol. Vitic.* 68, 120-126.
- Mohekar, P., Osborne J., Wiman, N. G., Walton, V., Tomasino, E. 2017b. Influence of winemaking processing steps on the amounts of (E)-2-Decenal and Tridecane as off-odorants caused by brown marmorated stink bug (*Halyomorpha halys*) *J. Agric. Food Chem.* 65 (4): 872-878.
- Smith, J.R., Hesler, S.P., Loeb, G.M. 2014. Potential Impact of *Halyomorpha halys* (Hemiptera: Pentatomidae) on grape production in the Finger Lakes region of New York. *J. Entomol. Sci.* 49: 290-303.

