Pacific Pests, Pathogens & Weeds - Fact Sheets

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Brown marmorated stink bug (405)

Photo 1. Eggs of the marmorated stink bug, *Halyomorpha halys*, with first stage nymphs.

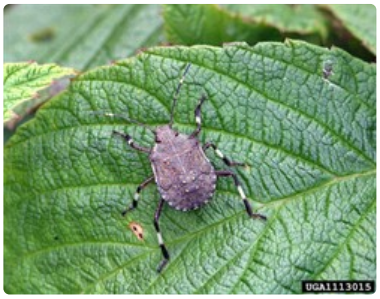

Photo 2. Late stage nymph of the marmorated stink bug, *Halyomorpha halys*, showing the banding on legs and antennae.

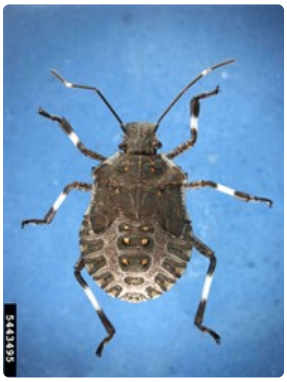

Photo 3. Late stage nymph of the marmorated stink bug, *Halyomorpha halys*, showing the banding on legs and antennae.

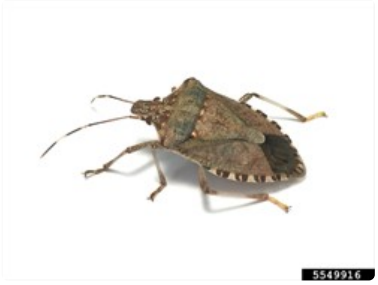

Photo 4. Adult marmorated stink bug, *Halyomorpha halys*. Note the black and white markings to the outer edge of the body.

Common Name

Brown marmorated stink bug, also known in Asia as the yellow-brown stink bug.

Scientific Name

Halyomorpha halys

Distribution

Widespread. Asia, North America (throughout the US and Canada), Europe, Oceania. It has been recorded from Guam, but not from other Pacific island countries. It has been intercepted in Australia and New Zealand. It is originally from Asia, but has been introduced recently into the US and Europe.

Hosts

In the US it is often found in woodlots - small parcels of trees planted for various uses (fuel, birds, wildflowers, walking). In addition, many fruit trees, row crops, vegetables and woody ornamentals are attacked. More than 100 hosts have been recorded, including the following: apple, capsicum, cherry, green bean, grape, maize, peach, pear, raspberry, soybean, and tomato.

Symptoms & Life Cycle

The nymphs and adults damage plants by injecting toxic saliva while feeding causing symptoms on leaves, stems and fruits. On fruits, corky spots, sunken areas, distortions (catface symptoms), and premature death occur. Seeds fail to develop.

Eggs are smooth, cream to yellow-orange, and laid on the undersides of leaves in clusters of 20-30 (Photo 1). The eggs hatch to nymphs with dark heads, orange abdomens with black stripes (Photo 1). As they moult they take on the colours of the adult, with dark banding on the legs and antennae (Photos 2&3). There are five nymph stages. The adults are 12-17 mm long by 7-10 mm wide, shield-shaped, mottled brown on the top, with black and white markings to the outer edge of the body; they, too, have banded legs and antennae (Photo 4). At 30°C it takes about 35 days from egg to adult.

Spread occurs by flight on the wing over relatively short distances, during day and night. Over long distances, spread occurs as 'hitch-hikers' in cargo on ships, and via the international trade in plants.

Impact

Since its introduction to the US in 2010, it has caused crop losses on pip fruits (apples and pears), stone fruits (cherries, peaches and nectarines), nuts (hazelnut, pecan), grains (wheat), vegetables (maize and sweetcorn, capsicum, tomato, okra, eggplant, cucurbits, beans), and row crops (soybean). Damage of over 50% is common in some crops. 'Stink bug taint' is a potential problem in grapes grown for wine. Increase use of pesticides has also been recorded, and there have been secondary pest outbreaks because natural enemies have been destroyed. Furthermore, in temperate regions, large numbers of adults create a nuisance in autumn as they aggregate and invade homes, and other types of buildings, to overwinter. As its name implies, it emits a strong, unpleasant smell when disturbed.

Detection & inspection

Look for the brightly coloured early nymphs or the mottled (or marbled) brownish upper side of late nymphs and adults. However, because there are species with similar characteristics, it is important for specimens to be examined by a specialist.

The bug is attracted to UV traps, and there is a pheromone. A number of counting methods have been developed for tree and field crops; they are either based on sweeping or beating foliage on a set number of plants.

Management

BIOSECURITY

Countries not yet infested by the stink bug should consider all likely pathways for entry, and apply quarantine measures accordingly. Risk of introduction of eggs and nymphs on produce for the market is not considered likely, because the bugs does not survive well at low temperatures. However, there is risk from nymphs in the international trade of nursery plants. Greatest risk comes from the habit of adults to aggregate in autumn, and then find shelters to overwinter in cracks and crevices in (non-plant) materials, such as luggage, machinery, furniture and cars, which are then transported in ocean-going cargo containers or packing crates. Once established in a new destination, further spread follows roads and railways.

NATURAL ENEMIES

A large number of egg and adult parasitoids are known, with egg parasitoids of *Trissolcus* species (family Platygastridae) being especially common and effective in Asia. Their impact is being studied for potential release in the US. Ladybird beetles and earwigs are known predators.

CULTURAL CONTROL

No effective cultural control measures have been suggested for this bug.

CHEMICAL CONTROL

In most situations, the bug has been managed with sprays of neonicotonoids and pyrethroids. Note, there are accounts of resistance developing to pyrethroid insecticides. Also, pesticides may impact on IPM programs, resulting in outbreaks of scales, mites and aphids. In some field crops, such as maize, the bugs enter from woodlot borders and only the first few metres of the crop require spraying; the exact distance is determined by scouting.

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Information from CABI *Halyomorpha halys* (brown marmorated stink bug) (2019) Crop Protection Compendium. (www.cabi.org/cpc); and from Plant Health Australia. (https://www.planthealthaustralia.com.au/wp-content/uploads/2016/04/Brown-Marmorated-Stink-Bug-FS.pdf). Photos 1&2 Gary Bernon, USDA APHIS, Bugwood.org. Photo 3 Kristie Graham, USDA ARS, Bugwood.org. Photo 4 Susan Ellis, Bugwood.org.

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