Pacific Pests, Pathogens & Weeds - Fact Sheets

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Green vegetable bug (098)

Photo 1. Egg cases and first stage nymphs of the green vegetable bug, *Nezara viridula*.

Photo 2. Early nymph (probably 3rd instar), green vegetable bug, *Nezara viridula*.

Photo 3. Late stage nymph of the green vegetable bug, *Nezara viridula*.

Photo 4. Late stage nympth of the green vegetable bug, *Nezara viridula*.

Photo 5. Adult green vegetable bug, *Nezara viridula*. The bug is large, about 15 mm long.

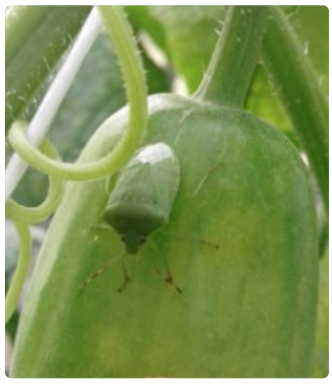

Photo 6. Adult green vegetable bug, *Nizara viridula* on cucumber.

Common Name

Green vegetable bug; green stink bug; green shield bug; southern green stink bug.

Scientific Name

Nezara viridula

Distribution

Worldwide. In temperate, sub-tropical and tropical countries. It is recorded from American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, and Tonga, Vanuatu, Wallis & Futuna.

Hosts

Common on brassicas, capsicum, cucumber and other cucurbits, and legumes, including yard long beans. It is also a pest of tomato. Many other plants, including weeds, are attacked by this insect, which has a very wide host range.

Symptoms & Life Cycle

The stink bug is common worldwide attacking a very wide range of vegetables, food legumes and some fruits. The bugs have needle-like mouthparts and use them to feed on developing flowers, fruits and seeds. The punctures produce brown or black spots. On yard long bean, for instance, the bugs suck the seeds and the pods become misshapen and shriveled. On tomatoes, fruits mature early and fruit size and weight is reduced.

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Eggs, cream to yellow, are laid in batches of 50 to 100 on the undersides of leaves (Photo 1). The nymphs are at first black and stay together around the egg shells, but as they grow and moult (there are five nymph stages) they develop charmore of their bodies become green (Photos 2-4), and the bugs stay alone. When adult they are about 15 mm long and 8 mm wide (Photos 5&6). The lifecycle takes about 35 days in the tropics. There is no information in Pacific islands countries about the plants that the bug breeds on. In other countries, soybean, thistles and rice are also major hosts.

The bugs are strong flyers and will fly away when disturbed. Also, when disturbed they release a strong foul smell, hence the name 'stink bug'.

Impact

Nezara is a major pest. Much of the damage caused by the insect is due to the reduction in seed germination. Studies done on cowpeas, a close relative of yard long bean, showed that damage to seeds can be high even with relatively few bugs, about 12 per metre of row.

Feeding punctures of the green vegetable bug also cause indirect damage. The punctures allow the entry of fungi and bacteria that cause secondary spots and rots.

Detection & inspection

Look for a large green bug with long needle-like mouthparts often feeding on the seeds of yard long beans, and other seed legumes and tomatoes. Look for nymphs, black with rows of white and later yellow spots. fLook for the bugs early in the day when they bask in the sun; later, at midday, they retreat into the canopy. There is a video on sampling using a beat sheet (http://www.youtube.com/watch?v=56OB-tE3x18).

Management

NATURAL ENEMIES

Although many parasitoids (small wasps and flies) and parasites have been recorded, few appear to impact on populations of the bug, except for one, *Trissolcus basalis,* an egg parasitoid. In Brazil, for instance, this insect is mass-reared for release in soybeans. It has been introduced into Australia on several occasions from different parts of the world, into Cook Islands, Hawaii, Kiribati, New Caledonia, New Zealand, Samoa, Solomon Islands, Tonga and Vanuatu, generally with positive results. However, Waterhouse & Norris (1987) suggest where it is present, but ineffective, additional strains should be sought.

In many counties, ants are said to achieve high levels of biocontrol. One ant common in Pacific island countries - the big-headed ant (*Pheidole megacephala*) - is said to take the eggs and young nymphs to its nest.

CULTURAL CONTROL

- Avoid planting crops of beans next to older infested ones as the bugs easily fly to the new crop.
- Weed around the crop, as many weeds are breeding hosts for the green vegetable bug.
- Plant a trap crops such as rattle pod, *Crotalaria*; the bug favours *Crotalaria* over many crop plants.

CHEMICAL CONTROL

- Use plant-derived products, such as derris, pyrethrum, chilli, possibly neem (see Fact Sheet no. 402), with the addition of soap.
- Note, a variety of *Derris*, brought many years ago to Solomon Islands from Papua New Guinea, is effective as a spray. It contains rotenone, an insecticide, so it should be used with caution. There may be varieties of *Derris* (fish poisons) in your country that can be tried (**see Fact Sheet no. 56**).
- Alternatively, use synthetic pyrethroids; they are likely to be effective, but will also kill natural enemies (wasps and ants).

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Information from CABI (2017) *Nezara viridula* (green stick bug) Crop Protection Compendium (www.cabi.org/cpc); and *Nezara viridula*(Linnaeus) Entomology & Nematology. UF/IFAS, University of Florida. (http://entnemdept.ufl.edu/creatures/veg/bean/southern_green_stink_bug.htm); and from Waterhouse DF, Norris KR (1987) *Biological Control Pacific Prospects.* Inkata Press. Photo 5 Cameron Prybol, Department of Biochemistry and Molecular Biology, The University of Georgia, USA.

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