

SOUTH PACIFIC COMMISSION

GREEN VEGETABLE BUG



Left: *Adult green vegetable bugs on bean.*



Right: *Green vegetable bug nymphs on tomato fruit.*

The **GREEN VEGETABLE BUG** (*Nezara viridula*) is found in many countries of the world and is thought to have originated in Southern Europe. In the Pacific it is present in American Samoa, Australia, Caroline Islands, Cook Islands, Fiji, French Polynesia, Guam, Hawaii, Japan, Kiribati, Mariana Islands, Marshall Islands, New Caledonia, New Zealand, Niue, Papua New Guinea, Pitcairn Island, Solomon Islands, Tonga and Western Samoa. The only island group where green vegetable bug has been looked for and not found is Tuvalu but it also may not have reached some other islands within the countries of the South Pacific Commission's region.

BIOLOGY

The adults vary in size and colour. Usually they are green shield shaped insects approximately 10–15 mm long by 7–8.5 mm wide (frontispiece). *Nezara viridula* can be distinguished from the other shield bugs of similar appearance in the Pacific region by its dull rather than shiny appearance and the presence of three white dots in a line between the wing insertions.

Adults prefer sunny positions and can be seen feeding on crops during the day. When disturbed, they will drop off the plant or fly away and if provoked will exude a brown, foul-smelling fluid. They are often attracted to lights at night.

After mating, about 60–80 eggs are laid in a group usually on the undersides of the leaves of the host plant. Each egg is barrel shaped, almost 1 mm in diameter and yellow when

first laid, becoming dark orange as the embryo develops. (Fig. 1).

The nymphs are orange and black when they emerge but soon change to a shining black with white markings. As the hind wings develop, the pattern changes to green with black, red and white patches (frontispiece).

The life cycle takes approximately 36–50 days.

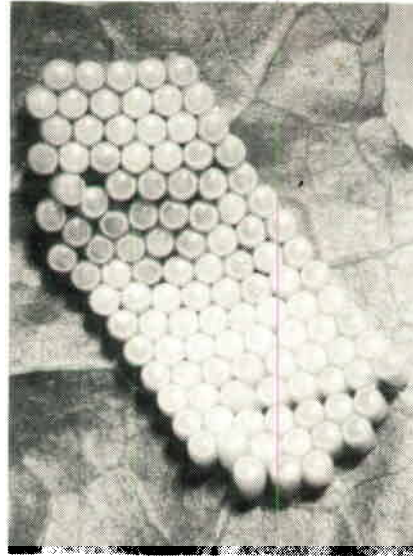


Fig. 1: Green vegetable bug eggs on bean leaf.

DAMAGE

Nezara viridula belongs to the group of insects called Hemiptera which have sharp tubular mouth parts that they insert into soft plant tissue. They inject digestive fluid into the plant and suck up the dissolved sap. On legumes this method of feeding causes malformation and stunting of stems and young pods (Fig. 2). The bugs pierce walls of young pods and as a result the

seeds inside become pitted and shrivelled. On tomatoes hard corky growths appear where the fruit has been pierced. On other fruit, brown spots may develop around the feeding punctures because of entry of rot-causing pathogens.



Fig. 2: Green vegetable bug feeding damage to bean pods.

Many plants are attacked including beans (*Phaseolus* spp), cacao (*Theobroma cacao*), castor oil (*Ricinus communis*), cotton (*Gossypium* sp.), cowpea (*Vigna unguiculata*), egg plant (*Solanum melongena*), grenadilla (*Passiflora quadrangularis*), lettuce (*Lactuca sativa*), maize (*Zea mays*), passion-fruit (*Passiflora* spp), pea (*Pisum sativum*), peanut (*Arachis hypogaea*) peppers (*Capsicum* spp), pigeon pea (*Cajanus cajan*), rice (*Oryza sativa*), tobacco (*Nicotiana tabacum*), tomato (*Lycopersicon lycopersicum*) as well as many weeds such as Lantana (*Lantana camara*) and nighthshade (*Solanum* spp).

CONTROL

Biological Control

Nezara viridula is kept in relatively low numbers in most of the Pacific area by a small egg parasite *Trissolcus basalis* (Fig. 3). This tiny wasp originated in Egypt and was introduced into Australia, then to Fiji, French Polynesia, Solomon Islands, Tonga, New Caledonia and Hawaii. The adult wasp is 1–2 mm long, shiny-black with reddish-brown legs. The life cycle takes 10 days. *Nezara viridula* eggs which have been parasitised turn black (Fig. 4).

Cultural control

Prompt destruction of old crop residues and weed control help prevent *Nezara viridula* from invading new crops.

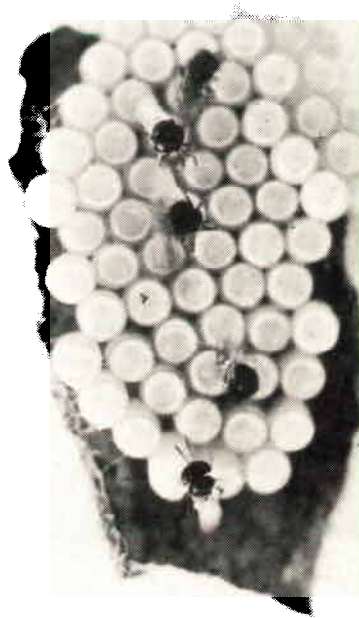


Fig. 3: *Trissolcus basalis* on green vegetable bug eggs.

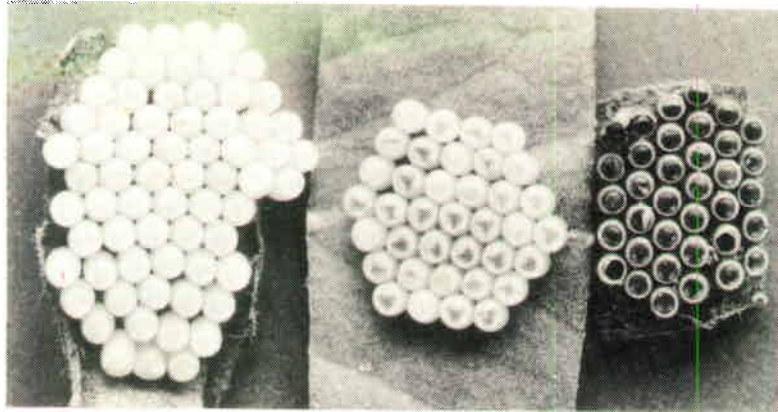


Fig. 4: Green vegetable bug eggs. Left: freshly laid and unparasitised
Middle: ready to hatch
Right: parasitised

Chemical control

Where *Trissolcus basalis* is absent, or in areas where in spite of its presence green vegetable bug populations become large, chemical control may be needed. Malathion, carbaryl, orthene, naled, trichlorfon and dimethoate are among insecticides which have been recommended to control this insect. Local advisory services should be consulted for up to date control measures.

Chemical control is likely to be more effective when applied at the early stages of infestation and when aimed at the small nymphal stages rather than the later nymphs or adults.

All pesticides are hazardous; the safety precautions for their handling should be carefully observed as well as the

waiting period before the produce can be marketed or consumed.

QUARANTINE PRECAUTIONS

In those countries without green vegetable bug, all plant imports from infested areas, especially fresh vegetables, should be examined thoroughly and the necessary quarantine precautions taken. Most infested plant material can be fumigated with methyl bromide, but some plants (e.g. lettuce) are damaged by this treatment. It would be inadvisable to import large quantities of such plants to an area where green vegetable bug does not occur, especially where thorough physical examination of the plants is impossible.

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Further information may be obtained from the Plant Protection Officer, South Pacific Commission.

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