The Green Vegetable Bug *Nezara viridula*

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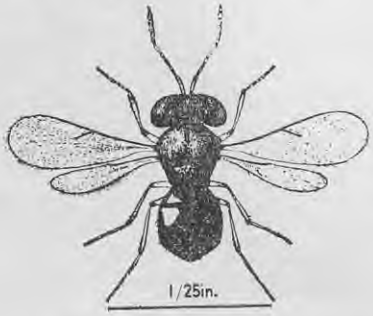
THE green vegetable bug *Nezara viridula* L., a cosmopolitan insect, was first recorded as a pest in New Zealand in April, 1944, when specimens found attacking beans in the New Plymouth area were submitted by the Fruit Inspector of the Department of Agriculture. It had been reported as occurring in New Zealand by Kirkaldy in 1909, but in that instance the bug was confused with the native pentatomid *Glaucias amyoti* Wh., which may easily be mistaken for *Nezara*. If the original record of *Nezara* had been correct, it certainly would have manifested itself as a serious pest before 1944. *Nezara* probably reached New Zealand in 1941.

IN 1946 *Nezara* was reported from mid-Northland, and now most areas north of Whangarei are affected to some degree by its depredations. It is found in the northernmost isolated settlements such as Te Hapua, indicating its powers of dispersal across what would appear to be unfavourable areas. Recent reports indicate moderate infestations in the Te Kaha area, Bay of Plenty.

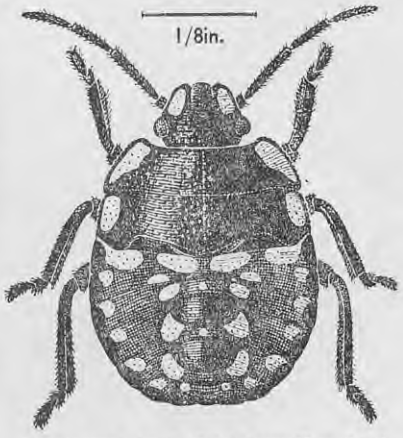
Apart from its powers of dispersal by flight, *Nezara* is spread in its nymphal stages during the distribution of flowers, fruit, and vegetables.

The green vegetable bug belongs to that group of insects which grow by a succession of moults, the green adult emerging at the last moult. The immature stages or nymphs differ greatly from the adult in both colour and shape. When the bugs hatch from the eggs they are little larger than a pinhead and spherical. During immature stages they are brightly coloured, being marked with black, red, orange, yellow, and green. In the last of the nymphal stages two distinct colour forms occur, one of which is predominantly green, the other predominantly black, but intermediate colour forms also occur. The adult bug invariably is green during its active breeding period, but as winter approaches purplish-brown specimens may be found. The adult is shield shaped and, unlike the nymphal forms, has two pairs of fully-formed wings and can fly actively. Scent glands on the lower surfaces of the bugs produce an unpleasant odour, especially when they are handled roughly.



[*R. Blick photo (after Priesner).*
Microphanurus basalis adult female wasp.

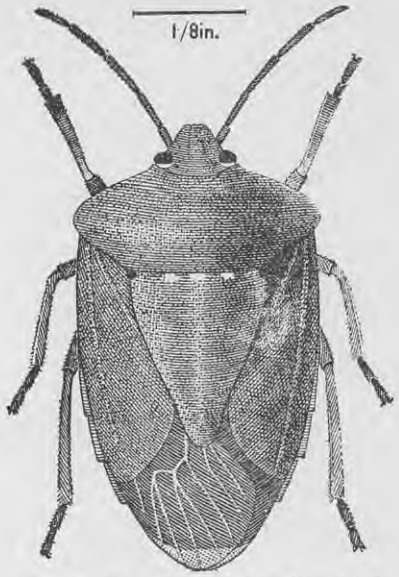
Two other bugs may be mistaken for *Nezara* in their immature and adult stages. The adults of both *Nezara* and the native *Glaucias amyoti* are about ½in. long, but *Nezara* has three white dots along the front margin of the central triangular plate; these dots are absent in *Glaucias*. The second bug which may be mistaken for *Nezara* is *Cuspicona simplex* Wlk., a native of Australia which has been introduced accidentally. Like *Glaucias*, it is a shinier green and does not have the three white dots, but the adults seldom exceed ¼in. long.



[*Photograph by R. Blick from New South Wales Department of Agriculture Insect Pest Leaflet No. 5.*
A fourth-stage nymph of *Nezara viridula*.

Distribution and seasonal irregularities affect the number of generations and the time taken for each generation of *Nezara*. Probably in all areas in New Zealand the breeding cycle is interrupted during winter. Overwintering adults may emerge from hibernation and begin mating early in spring. About a week after mating the eggs are laid.

The eggs, which are about the size of a pinhead, are deposited in groups in parallel rows glued firmly together and to the surface on which they rest. The groups, which usually consist of 60 to 80 eggs, are for the most part approximately round, but if laid on a narrow leaf, they may be drawn out into a strip four or five eggs in width.



[*Photograph by R. Blick from New South Wales Department of Agriculture Insect Pest Leaflet No. 5.*
An adult of *Nezara viridula*.

Eggs are usually deposited on the lower surfaces of leaves. When first laid they are pale yellow, but as the embryo develops the eggs show a central pink spot which gradually spreads and darkens as hatching approaches.

The incubation period is about 10 days. When ready to emerge the bugs push off the circular caps on the tops of the eggs and crawl out, leaving a raft of tiny clear cups. The young bugs, which are about 1/10in. in diameter and brightly marked with orange and black, usually remain clustered together on or near the empty egg raft for several days. Before the adult bugs emerge the nymphs moult on five occasions, during which time they are brightly coloured.

The life cycle of the bug is estimated to occupy about 8 weeks during the most favourable summer conditions of Northland. Here all stages of the bug are present for at least 6 months of the year, and probably at least two generations of the bug occur in addition to those which over-winter. The adult bugs hibernate in long grass, foliage, and hedges.

During the breeding season *Nezara* in all its stages feeds actively by pushing the fine sucking mouth parts into plant tissues and withdrawing the sap. No obvious mutilation accompanies their depredations, but growth stops and tissues already formed die away.

Plants attacked include not only those which are grown commercially, but also weeds, grasses, and native shrubs. *Nezara* has been observed breeding very successfully in weedy, neglected gardens and alongside roads in areas which are miles from cultivated land.