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NEZARA-THE GREEN VEGETABLE BUG

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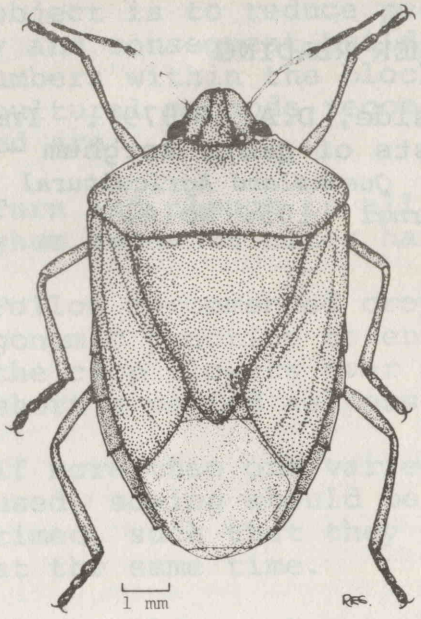
INTRODUCTION

Nezara, or the green vegetable bug, *Nezara viridula*, is a pest of most species of cultivated beans, many vegetables and other crops. Its feeding causes the stems and pods of legumes to be deformed and stunted and causes soft fruits and vegetables to rot. It is found in most tropical and sub-tropical countries.



Adult Nezara

DESCRIPTION

The adult is a green shield bug, 10-15 mm in length and 7-8 mm wide. It produces a strong, unpleasant smell when disturbed.

Adult Nezara are most easily seen early in the morning when they climb to the top of host plants. Later in the day Nezara shelters in the lower foliage. If the host plant is shaken vigorously the adults fall to the ground, rather than flying away.

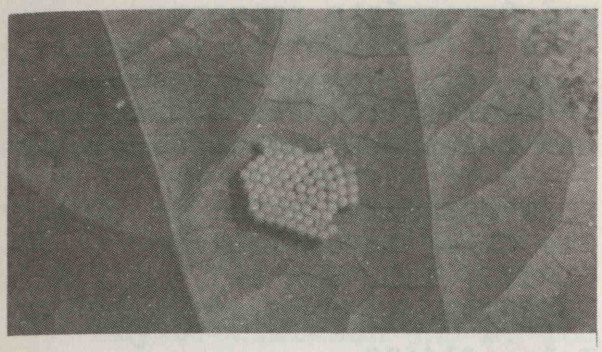
Nezara may be distinguished from other green shield bugs by the three white dots in a line along the base of the wings.

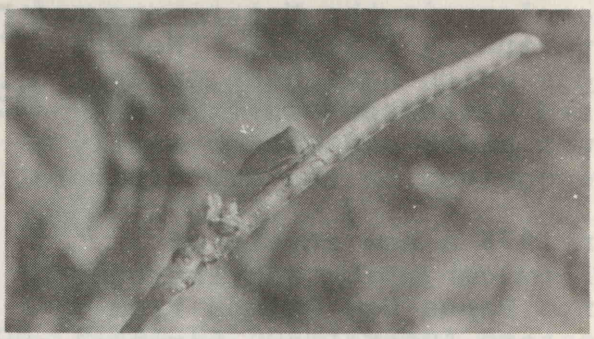
BIOLOGY

The life cycle of Nezara has three stages: egg, nymph, and adult. The eggs are laid in clusters on the undersurface of the host plant's leaves. The egg is barrel-shaped, about 1 mm in diameter and yellow in colour when first laid. As the egg matures it becomes orange. In the lowlands of Papua New Guinea the eggs hatch in 4-5 days.

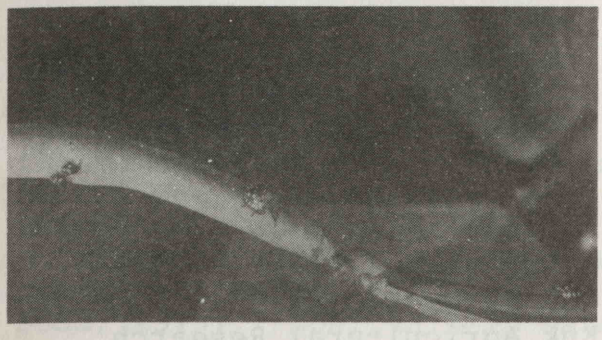
The nymphs which emerge are at first orange. As they grow they change colour, becoming black with yellowish and red patterns and finally taking the green colour of the adult when they mature. The wings become fully formed in the adult. There is no pupal or resting stage.

The life cycle from egg to adult takes 22-30 days in the lowlands and up to 55 days in the highlands.





Adult Nezara feeding on bean pod



Top left: Nezara egg mass on the under side of a bean leaf

Bottom left: Nezara nymphs on a cow-pea pod

ECONOMIC IMPORTANCE

Nezara is a true bug which feeds on immature seeds, fruits and occasionally sap. It has sharp pointed mouth parts which it pushes into soft plant tissue. It injects a digestive fluid into the fruit or seed and it is this feeding behaviour that damages the crops.

In Papua New Guinea beans are the preferred food of Nezara. It also feeds on weeds. The nymphs and adults of Nezara feed on developing beans through the pod wall. Seeds which have been fed on may be severely stunted, shrivelled or appear to be 'dented'.

On tomatoes attacked by Nezara hard corky growths appear where the fruit has been pierced. On other fruits brown spots may develop around the feeding holes which become infected by plant diseases. Nezara also attacks capsicum, tobacco, sunflower, mango, maize, rice and sorghum.

Nezara is most serious in very disturbed habitats such as market gardens and areas that are continually cultivated. It is not known when Nezara arrived in Papua New Guinea but it was established before World War II.

CONTROL

Cultural control

After harvesting a crop the plants remaining in the garden should be composted or burnt as soon as possible. This will reduce the numbers of Nezara attacking the next crop planted in the garden.

Biological control

The egg parasite *Trissolcus basalis* is found in Papua New Guinea, but it does not control populations of Nezara very well. *Trissolcus* is a tiny wasp about 2 mm long. The female *Trissolcus* lays her eggs directly into the eggs of Nezara. The young wasp

develops in the Nezara egg and eventually kills it. Nezara eggs which have been parasitized (attacked) in this way turn black and can be easily recognised in the egg clusters.

In 1978 a new strain of *Trissolcus basalis* was introduced into Papua New Guinea from Western Australia. Large numbers were reared in the laboratories at Bubia Agriculture Centre and then released in the Markham Valley. This new strain has not increased the number of parasitized eggs and Nezara numbers have not been reduced.

CHEMICAL CONTROL

The recommended insecticides for the control of Nezara are:

1. For village and backyard gardens, spray 0.05% dimethoate, formothion or acephate. At high volume application this would give approximately 500 g a.i. per hectare of whichever chemical is used.

   To prepare a 0.05% mix of dimethoate mix 17 ml of ROGOR (30% EC) or 13 ml of PERFEKTHION (40% EC) with 10 litres of water.

   To prepare a 0.05% mix of formothion mix 20 ml of ANTHIO (25% EC) with 10 litres of water.

   To prepare a 0.05% mix of acephate mix 7 g of ORTHENE (75% SP) with 10 litres of water.

   The use of a wetting agent such as Agral is recommended.

2. For commercial grain legume production, insecticides are recommended but because of their hazardous nature and for safety reasons, this recommendation is available only from your nearest entomologist. The addresses and telephone numbers are:

PORT MORESBY
The Chief Entomologist
D.P.I., P.O. Box 417
KONEDOBU

Tel: 214699

LAE
The Entomologist
Agriculture Research Centre
Bubia, P.O. Box 73
LAE

Tel: 424933

MOUNT HAGEN
The Entomologist
Kuk Agricultural Research
Station, P.O. Box 339
MOUNT HAGEN

Tel: 551235

KIMBE
The Entomologist
Dami Oil Palm Research Station
P.O. Box 165
KIMBE

Tel: 935194

RABAUL
The Entomologist
Lowlands Agriculture Research
Station, P.O. Keravat
E.N.B.P.

Tel: 926251

For details about the safe handling and use of pesticides see Entomology Bulletin no. 9, HARVEST Volume 6 (3): 149-152.

Copies of this Entomology Bulletin can be obtained from: The Publications Officer, Publications Section, D.P.I., P.O. Box 417, Konedobu.

(Illustration, p. 36: R.E. Sutherland)