Green Vegetable Bug (GVBs)

Nezara viridula

Damage symptoms

Nymphs and adults cause warty growths and brown staining of lint in developing bolls. Damage symptoms cannot be distinguished from those caused by mirids.

Sampling

Sample what?

Sample for adults and nymphal instars of the pest. GVB instars four and five inflict the same amount of damage as adults. Third instar GVBs cause half the damage of adults, and a cluster (more than 10) of first and second instars cause as much damage as one adult. It is important to correctly identify which instars are present to determine whether or not the population has reached the threshold.

Instar	Instar length (mm)	Description
1	1	Predominately orange
2	2	Black with 1 or 2 white spots
3	4	Mosaic pattern of green, black and red spots
4	7	More green spots, wings begin to develop during late 4th instar
5	10	Spots start to diminish to green, wings well developed
Adult	15	All green with wings

Monitor fruit retention as well as for the presence of the pest.

Frequency

Sample at least weekly.

The crop is most susceptible to damage from flowering through until one open boll/m. Monitor fruit retention and pest presence from the beginning of squaring.

Methods

GVBs are most visible early to mid morning making checking easier at this time. Visual sampling and beat sheets are equally effective checking methods while the crop is squaring. From flowering onwards when the crop is most susceptible to damage, beat sheeting is twice as efficient for detecting GVBs.

GVB will use turnip weed as a host in spring. (Lewis Wilson, CSIRO)

Although beat sheet sampling is efficient it may tend to give a lower population than the actual number in the field. It has been found that the first and second instars tend to hide in the bracts and may be difficult to dislodge.

Even when pests are not observed, cut or squash 14 day old bolls to check for the presence of feeding damage. This will take the form of warty growths and/or brown staining of the developing lint.

Thresholds

Sampling Method	Flowering to First open boll	First open boll to Harvest
Visual	0.5 adults /m	0.5 adults /m
Beat Sheet	1.0 adult /m	1.0 adult /m
Damage to small bolls (14 days old)	20%	20%

Convert nymph numbers to adult equivalents and include in the counts. Fourth or fifth instars are each equivalent to 1.0 adult, each third instar counts as 0.5 adult and clusters of 10+ first/second instars count as 1.0 adult.

Key beneficial insects

Parasites – *Trissolcus basalis, Trichopoda giacomellii*

Selecting an insecticide

The insecticide products registered for the control of GVBs in cotton in Australia are presented in Table 8. Mid-season use of dimethoate for GVB control could have implications for managing insecticide resistance in aphids.

Survival strategies

Resistance profile

No GVB resistance to insecticides has been detected in Australia.

Overwintering habit

GVB adults enter a dormant phase during late autumn. They overwinter in a variety of sheltered locations such as under bark, in sheds, and under the leaves of unharvested maize crops.

Alternative hosts

In Queensland there are two GVB generations during the warmer part of the year. The preferred weed hosts of the first, spring generation include turnip weed, wild radish and variegated thistle. Early mungbean crops are also a favoured host in spring. The second generation breeds in late summer and early autumn. Pulse crops – particularly soybeans and mungbeans – are key hosts for this generation. GVB populations are usually much lower in mid summer, mainly due to a lack of suitable hosts. In NSW there is a summer/autumn generation, similar to the second generation in Queensland.

Further Information: DEEDI, Toowoomba, Moazzem Khan, (07) 4688 1310 or 0428 600 705

TABLE 8: Control of green vegetable bug

Active ingredient	Concentration and formulation	Application rate of product	Comments
Green vegetable bug *Nezara viridula*			
Dimethoate	400 g/L EC	0.34–0.5 L/ha	Apply when pests appear.
Endosulfan	350 g/L EC	2.1 L/ha	Apply at first sign of infestation. Ensure pesticide application management plan (PAMP) is completed.
Fipronil	200 g/L SC	0.0625–0.125 L/ha	Apply when pests appear. Use higher rate when higher infestations are present.
Clothianidin	200 g/L SC	0.125-0.25L/ha + Maxx Organsilicone Surfactant 0.02L/L of water	Use higher rate when heavy infestations is expected and longer control is required. Treated insects may still be on plant 2 or 3 days after application but will have stopped feeding.