The Beat Sheet
Insect Pest Management for Australia's Northern Region

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Bean podborer harassing mungbeans

Damaging bean podborer (*Maruca vitrata*) populations of up to 100+ larvae/m^2 have been observed in flowering and podding mungbeans in the South Burnett, Dawson Callide and Central Highlands. Although podborer is not an uncommon pest in these regions during wet summers, very high populations can inflict devastating damage with zero pod set observed in some crops where the pest is uncontrolled. In wetter seasons, the pest has also been reported on the Darling Downs, albeit usually in lower numbers. Other crops at risk from podborer attack are adzuki beans, navy beans and pigeon pea.

Typical bean podborer damage to flowering mungbeans. Note the webbing surrounding the damaged buds and flowers.

Damage

Early warning signs are large numbers of the distinctive moths flying in the crop.. As the moths are flighty and often difficult to see when at rest, consider using a sweep net to catch them and to confirm the species. Flowers and buds that are webbed together are often the first visible sign of larval damage. However flowers infested with small larvae (≤5 mm) may show no visible signs of damage until they are cut open. After initially feeding inside the flowers, larvae move to adjacent pods. Larvae are a pale translucent cream with rows of distinctive black spots.

Bean podborer moth Maruca vitrata in typical pose with body raised at front and wings outstretched. (25 mm wingspan).

Thresholds

The current threshold is a nominal 3 larvae per square metre (based on experience, not research trials). However, sampling for the pest is problematic as beat sheet sampling can underestimate bean pod borer populations by a factor of 5. Because sampling is so difficult, the proposed threshold is probably very conservative (erring on the side of caution).

Monitoring for podborer

The most reliable way to estimate podborer numbers is to:

1) Determine the number of infested flowering racemes on 10-20 individual plants from different areas of the field. Often the damage is obvious, webbed buds/flowers, but open un-webbed flowers to check for small larvae.
2) Then multiply the mean number of infested racemes per plant by the number of plants per square metre, assuming one larva per infested raceme.

Many severely infested crops found by Entomologist Hugh Brier have populations up to 50 times the current nominal threshold.

Small bean podborer larva (3 mm) in flower. *Large bean podborer larva (16 mm) in pod.*

Management

Bean podborer can be controlled with the registered pesticide methomyl®, but where there is sustained podborer pressure, repeated sprays are often necessary. Podborers are also (co-incidentally) controlled by indoxacarb (Steward ®) sprays targeting helicoverpa. However, recent DEEDI trials and in-crop inspections show the synthetic pyrethroids (deltamethrin* and alpha-cypermethrin* do not control bean podborer (*registered in mungbeans against

green vegetable bug (GVB), and GVB and small helicoverpa respectively). This is despite previous trials (in the 1990's) showing good podborer control with synthetic pyrethroids.

Note the key to managing this pest is controlling early before larvae enter the pods.

Podborer can attack as soon as the first early buds appear but infections are typically most obvious at full flowering.
Hugh Brier is keen for any feedback regarding the success or otherwise of podborer control in crops, and also the location of significant outbreaks.

DEEDI entomologists are currently evaluating new generation pesticides for podborer and helicoverpa control in pulse crops. These trials aim to identify new pesticides with (a) greater efficacy, (b) a longer period of crop protection, and (c) less impact on beneficial insects than pesticides currently registered in mungbeans. The latter is important as trial data also suggest that more-selective pesticides significantly reduce the risk of flaring helicoverpa. Results to date are promising.

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Article by Hugh Brier