

# Harlequin bug in apple orchards

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## Introduction

The harlequin bug, *Dindymus versicolor*, is a native Australian plant bug in the Pyrrhocoridae family. Before synthetic insecticides were introduced in the 1950s, the harlequin bug was considered to be a significant pest of a range of cultivated crops including apples, figs, pears, stone fruits and berries. It was first recorded as a serious pest in NSW in the early 1930s (French, 1933). In apples, synthetic insecticide use between 1950 and the mid 1990s for controlling key pests such as codling moth (*Cydia pomonella*) may have suppressed harlequin bug numbers and it was no longer considered a significant pest. More recently, the increasing adoption of integrated pest management (IPM) and associated decline in the use of broad-spectrum insecticides are thought to have resulted in a resurgence of this pest.

## Pest identification

The adult harlequin bug is about 12 mm long and is very conspicuous (Figure 1). The head and inner margins and tips of the forewings are black, while the thorax and base of the forewings are reddish-orange. The underside of the body is tinged with yellow or green and bears some red and black markings.

The harlequin bug develops through five immature stages (i.e. instars) and is often found swarming in large numbers on native tree trunks, trellises, hail netting posts and in sheds. Mating adults can be seen moving in pairs joined at the abdomen and facing in opposite directions (Figure 2).



Figure 1. The adult harlequin bug is very conspicuous.



Figure 2. Mating harlequin bug adults can be seen moving in pairs joined at the abdomen and facing in opposite directions.

## Damage

The harlequin bug is a sap-sucker that uses a proboscis (needle-like mouthpart) to pierce the epidermis of the host plant tissue. In fruit, this feeding results in slight depressions on the skin of the apple and is associated with browning of the underlying flesh (Figure 3). The damage could be easily confused with that of boron deficiency.

## Life cycle

Harlequin bugs overwinter as adults or nymphs and are often found in large numbers under the loose bark on native trees (Figure 4) or amongst leaf litter or other debris around the orchard (such as wooden bins and timber stacks). In spring, adult females lay 60–80 eggs in the soil or on the leaves of orchard floor vegetation. Eggs hatch to produce wingless nymphs which seek out preferred plant hosts such as mallow. There can be two or three generations per year.



Figure 3. Mid-season harlequin bug feeding damage to Cripps Pink (Pink Lady) apples. Photo: Kevin Dodds.



Figure 4. Harlequin bug juveniles are often found swarming on tree trunks and timber posts in or near the orchard. Photo: Kevin Dodds.

## Management

### Cultural and physical

The severity of damage in some orchards seems to be associated with the bugs having easy access to the trees via weed growth within the tree row and/or canopy, low growing branches, nearby trellis posts or wires and irrigation pipes. Common orchard weeds such as marshmallow (*Malva* spp.; Figure 5), dock (*Rumex* spp.; Figure 6) and wire weed (*Polygonum* spp.; Figure 7) are known hosts and should be the focus of monitoring and weed control. Removing sheltering sites such as timber stacks and other rubbish from within the orchard should also help reduce bug numbers.

### Biological

There are no known biological control agents for the harlequin bug.

### Chemical

As there are presently no chemicals registered for the control of harlequin bug in orchards in Australia, management of the pest is dependent on the adoption of cultural practices.



Figure 5. Marshmallow (*Malva parviflora*).



Figure 6. Dock (*Rumex crispus*).



Figure 7. Wireweed (*Polygonum erectum*).

## References

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