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Plant & Food RESEARCH

RANGAHAU AHUMĀRA KAI



# Main characteristics to distinguish *Bactericera cockerelli* from other psyllids in New Zealand

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## Introduction

*Bactericera cockerelli* (Sulc) (Homoptera, Psylloidea), or the tomato-potato psyllid (TPP) as it is commonly referred to in New Zealand, is a new invasive pest species of vegetable and fruit crops in New Zealand. To date, there is no published key available to help identify *B. cockerelli* from native and other introduced psyllid species found in New Zealand. The aim of this poster is to enable people to recognise *B. cockerelli* in the field using photos and to provide a key showing the main morphological characteristics to distinguish *B. cockerelli* under the microscope.

## In the field:

Small white waxy beads (psyllid sugar) is the symptom that you are most likely to see on the plants. The eggs are yellow, oval-shaped and stand on stalks. Eggs can be hard to spot, but look on the leaf margins where they are easiest to see. The nymphs feed most often on the undersides of the leaves and will move when disturbed. The adult psyllid is about 3 mm in size with distinct white markings. When first hatched the adults are light yellow/brown in colour, but after five days they become grey/black and banded in white. The adults jump when disturbed.



(A) Psyllid sugar; (B) *Bactericera cockerelli* egg; (C) *B. cockerelli* nymphs; (D) *B. cockerelli* adult.

## Under the microscope:

Psyllids belong to the superfamily Psylloidea. The Psylloidea contains six families of which four are recorded from New Zealand (Psyllidae, Calophyidae, Homotomidae and Triozidae). *B. cockerelli* belongs to the Triozidae family.

Species belonging to the Triozidae family have trifurcate branching on the basal vein of the forewing in contrast to the other psyllid families in New Zealand, which have bifurcate branching. In New Zealand the largest genus within the Triozidae family, *Trioza*, has 35 published species.

*Bactericera cockerelli* can be distinguished from nearly all of the above species of *Trioza* by the number of inner apical spurs on the tibiae of the hind legs. All but one of these *Trioza* species has 3 such spurs. Two species from undescribed introduced genera on the host tree *Casuarina* resemble *B. cockerelli* in having 2 inner apical metatibial spurs.

The forewing of *B. cockerelli* has additional features that set it apart from two of the remaining genera. The membrane is transparent with no colour patterns and the cubital cell is short and compact. The only species left beside *B. cockerelli* is *Trioza advertentia* (Tuthill).

The lack of well-developed genal cones sets *B. cockerelli* aside from the last remaining New Zealand psyllid species, *Trioza advertentia*.

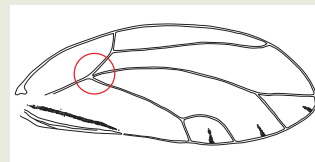
As a confirmation, the very distinct markings (white marginal and inner patch) on the vertex and the absence of long setae on vertex and dorsal thoracic surfaces (as seen in picture D) is another characteristic that sets *B. cockerelli* aside from *T. advertentia*.



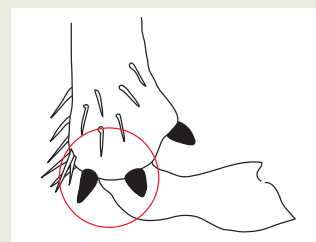
Adult male *Bactericera cockerelli*.



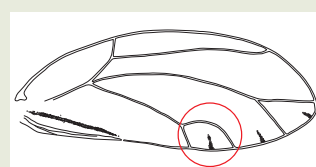
Adult female *Bactericera cockerelli*.



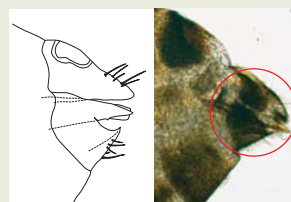
*Bactericera cockerelli* forewing (trifurcate branching circled).



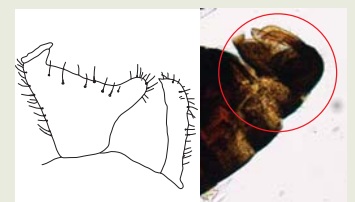
*Bactericera cockerelli* hind-leg tibia (with 2 inner apical spurs circled).



*Bactericera cockerelli* forewing (cubital cell circled).



*Bactericera cockerelli* female genitalia.



*Bactericera cockerelli* male genitalia.

## Acknowledgements

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