



## Pacific Pests, Pathogens & Weeds - Fact Sheets

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### Tomato keeled treehopper (248)



Photo 1. Nymphs and adults, tomato keeled treehopper, *Antianthe expansa*.



Photo 2. Tomato plant (centre) infested with the tomato keeled treehopper, *Antianthe expansa*. The capsicum plants either side of the tomato have been killed by treehopper attack.

#### Common Name

Keeled treehopper

#### Scientific Name

*Antianthe expansa*

#### Distribution

Widespread. Central, and North America (Hawaii), Oceania. It is recorded from Tonga.

#### Hosts

Plants in the Solanaceae, including tomato capsium and eggplant. Plants in the nightshade family are said to be wild hosts (e.g., *Acnistus*). Cape gooseberry (*Physalis peruviana*) is a host of the treehopper in Hawaii.

#### Symptoms & Life Cycle

Eggs are laid in a double row of about 50 into slits cut by the female in woody branches and stems. The nymphs are reddish-brown with black spines, and the adults are about 5 mm long, green, with side extensions making them triangular-shaped from above (Photo 1). The back has a high ridge (the keel), the edge of which is black interspersed with light spots. The adults produce honeydew and attract ants.

The adults fly readily, but only for short distances. The eggs are either laid in the older, woody, parts of tomato, capsicum or eggplant stems, or in trees above them, in which case they fall to the plants below.

#### Impact

Large numbers of nymphs and adults occur on the succulent stems of hosts, sucking the sap and causing the stems and leaves to wilt and die (Photo 2). Damage also occurs when eggs are laid in splits in woody stems.

#### Detection & inspection

Look for the characteristic spiny reddish-black nymphs and the green keeled, triangular, adults, often in large numbers.

#### Management

NATURAL ENEMIES

An egg parasitoid, a chalcid wasp, *Anaphoidea* sp., has been recorded, but it is not known if it or other parasitoids occur in Tonga.

Note that ants may need to be removed if the natural enemies are to be effective in controlling treehopper populations.

#### CULTURAL CONTROL

- Remove solanaceous wild hosts or plant at distance from extensive stands of them.
- Handpick the treehoppers when first seen.

#### CHEMICAL CONTROL

Use plant-derived products, such as neem, derris, pyrethrum and chilli (with the addition of soap). Use horticultural oil (made from petroleum), white oil (made from vegetable oil), or soap solution (**see Fact Sheet no. 56**).

White oil:

- 3 tablespoons (1/3 cup) cooking oil in 4 litres water.
- ½ teaspoon detergent soap.
- Shake well and use.

Soap:

- Use soap (pure soap, not detergent).
- 5 tablespoons of soap in 4 litres water, **OR**
- 2 tablespoons of dish washing liquid in 4 litres water.

Commercial horticultural oils can also be used. White oil, soap and horticultural oil sprays work by blocking the breathing holes of insects causing suffocation and death. Oils and soaps must contact the insects.

If these are not effective use synthetic pyrethroids, but these will also kill natural enemies. Use synthetic pyrethroid insecticides to kill ants if they are present attracted to the honeydew.

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Information from King ABS, Saunders JL (1984) *The invertebrate pests of annual food crops in Central America*. Overseas Development Administration, London. Photos 1&2 Stone Foliaki, Deputy Director and Head of Agricultural Research and Information Division, MAF, Tonga.

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