Plant & Food RESEARCH
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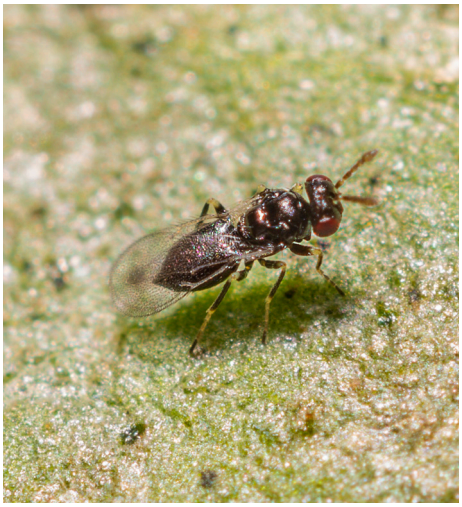
Tamarixia triozae: a parasitic wasp of tomato potato psyllid

RELEASE GUIDE

RELEASE SITE CHECKLIST:

- → Check that tomato potato psyllid nymphs are present and ideally present year-round,
- → Presence of eggs and adults is also important, to indicate availability of nymphs for the parasitic wasp in the future
- → Tomato potato psyllid host plants are present year round
- → No insecticides are applied at or near the release sites.
- → Release *Tamarixia* on a fine day
- → Record the location of your release sites.



SELECTING A RELEASE SITE

To maximise the initial survival and establishment of the parasitic wasp, *Tamarixia triozae*, in the field, release sites need to be:

- → Where year-round populations of tomato potato psyllid (TPP) occur and
- → No insecticides are applied in or near the release sites.

For convenience we refer to the wasp as *Tamarixia* throughout this guide.

Choose a reasonably sheltered position where TPP nymphs are present (Figure 1b). *Tamarixia* prefer to feed on smaller nymphs and parasitise larger nymphs. Ideally there should be a range of different TPP life stages (eggs, nymphs and adults, Figure 1) present at your release site, as this gives a good indication that there will be nymphs present at that site in the future.

For the long-term successful establishment of *Tamarixia* there must be populations of TPP available year round in consecutive years at the release site.

Figure 1. (a) A tomato potato psyllid adult and eggs and (b) a nymph.
Photographs: (a) M Heffer, Plant & Food Research; (b) R. Lamberts, Plant & Food Research.

The host plants of TPP are mainly within the Solanaceae family. Major crop host plants include tomato, potato, capsicums, chilli peppers and tamarillos. Non-crop host plants include African boxthorn (*Lycium ferocissimum*) and the native poroporo (*Solanum aviculare* and *Solanum S. laciniatum*) (Figure 2, over page).

TIMING OF RELEASE

TPP numbers peak during summer and early autumn, which provides a good window for the release of the parasitic wasp. If TPP populations are high, *Tamarixia* will more easily find a suitable host and increase their population.

Tamarixia develop best at temperatures between 5˚C and 35˚C, with optimum development at around 24˚C.

To give *Tamarixia* the best start at your release site, release them on a fine day.

African boxthorn
Lycium ferocissimum
Growth form[4]: Perennial (evergreen)
Distribution[4]: Throughout New Zealand, predominantly in coastal areas
Found in survey locations: Hawke's Bay, Canterbury
Images: John Barkla/Jessica Dohmen-Vereijssen (inset)

Poroporo
Solanum laciniatum **or** *S. aviculare*
Growth form: Perennial (evergreen)
Distribution: Throughout New Zealand
Found in survey locations: Canterbury
Image: Phil Bendle/Anna-Marie Barnes (inset)

Thorn-apple
Datura stramonium
Growth form: Annual
Distribution: North Island and upper South Island
Found in survey locations: Hawke's Bay
Images: H. Zell

Apple of Peru
Nicandra physalodes
Growth form: Annual
Distribution: North Island, upper South Island (occasional)
Found in survey locations: Hawke's Bay
Image: Peter de Lange

Jerusalem cherry
Solanum pseudocapsicum
Growth form: Perennial (evergreen)
Distribution: Occasionally throughout New Zealand in frost-free areas
Found in survey locations: Hawke's Bay
Image: John Sawyer

Field bindweed
Convolvulus arvensis
Growth form: Perennial
Distribution: Throughout New Zealand
Found in survey locations: Hawke's Bay
Image: Mike Lusk

Chinese boxthorn
Lycium barbarum
Growth form[5]: Perennial (deciduous)
Distribution[6,7]: Occasionally throughout New Zealand
Found in survey locations: Hawke's Bay
Image: Pancrat

TPP life stages on African boxthorn in Canterbury.
Image: Jessica Dohmen-Vereijssen

Figure 2. Non-crop host plants on which all life stages of tomato potato psyllid have been found (from https://nzpps.org/journal/68/nzpp_poster_684410.pdf).

RELEASING *TAMARIXIA TRIOZAE*

Once the site has been selected and you have received your parasitoids in a vial, transport them to your site as soon as possible. Ensure that the *Tamarixia* are not exposed to extreme temperatures during transport, storage, or at the release site.

Find TPP nymphs at your release site. Open the vial close to the TPP nymphs. The parasitoids can be released from the vial either by aiming the opening of the vial towards the nymphs and gently flicking the base of the vial, or by attaching the vial directly onto the plant or stake using a twist tie.

Note down the date, time of release, weather conditions and location of the release. Recording the location of the release site is especially important when it comes time to do your post-release surveys in the following summer to determine if the *Tamarixia* have survived over winter at your release sites.

Development of this guide was made possible with funding from Ministry for Primary Industries' Sustainable Farming Fund, Tomatoes NZ Inc., Vegetables New Zealand Inc., Potatoes New Zealand Inc., NZ Tamarillo Growers Association and Heinz-Wattie's NZ Ltd.

FURTHER INFORMATION //

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