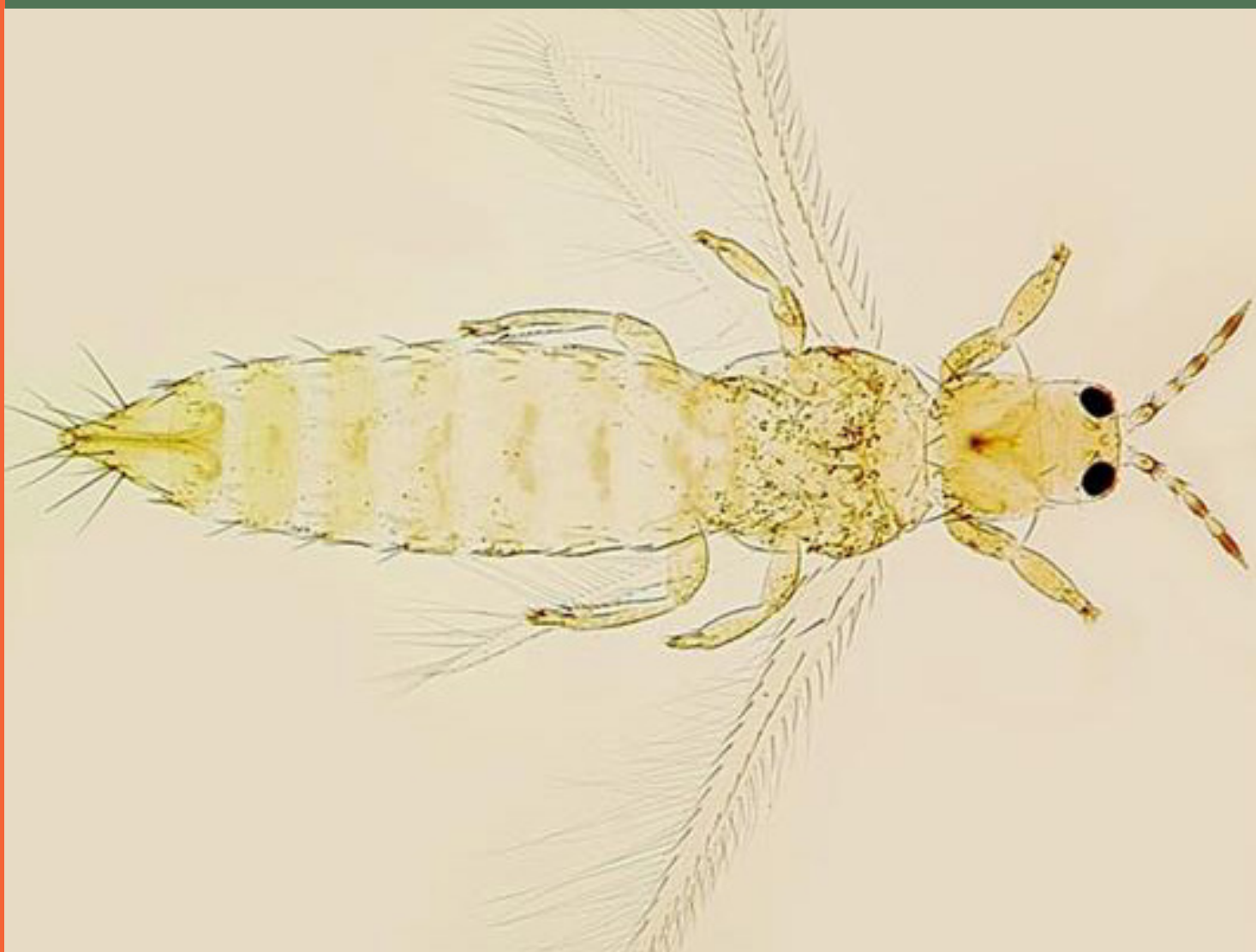


# Florida flower thrips (*Frankliniella bispinosa*)

## EXOTIC PEST DETECTION & SAMPLING GUIDE



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## Background

Florida flower thrips infests most angiosperms (flowering plants) and is a serious agricultural pest found overseas. It is native to the United States, generally being restricted to Florida and southern Georgia. This exotic pest species is not found in Australia. Florida flower thrips can act as a vector for tospoviruses, including tomato chlorotic spot virus, groundnut ringspot virus, impatiens necrotic spot orthotospovirus, and tomato spotted wilt virus. Florida flower thrips has a very broad host range and can feed on a variety of crops including citrus, blueberries, tomato, pepper, eggplant, cucumber, watermelon, squash, beans, strawberry, sweet corn, as well as ornamentals.

## How would I identify Florida flower thrips?

### Identification by morphology

Adults are cylindrical, generally yellow in colour, with noticeably segmented antennae, and two narrow wings covered with brown bristles (setae) (Figure 1). Larvae are smaller in size, wingless, have red eyes and are more prominently yellow in comparison to adults. Florida flower thrips eggs are ~0.4 mm in size, bean-shaped, pale yellow in colour and are oviposited directly onto host plants. A full lifecycle takes between 15-30 days, with adults surviving up to one month. Their short lifecycle can produce several generations within a year under suitable conditions.

### Identification by damage

Florida flower thrips are polyphagous and have a wide host range, feeding on flowers and fruit from multiple plant families commonly grown in horticulture. Like other thrips, Florida flower thrips are sap feeders. Where infestations are high, adult and larval feeding cause direct damage, which results in scarring, shrivelling, discolouration, textural changes and bud deformities. This can lead to premature fruit drop, fruit distortion, and reduced yields. Larval feeding is prominent around the petiole and main leaf vein where scarring, discolouration and silvery are frequently observed.

### How do I scout for Florida flower thrips?

If this species were to establish in Australia, activity would likely peak in autumn and spring, when temperatures are mild (note, this species is capable of surviving in high humidity). If an infestation is suspected, before flowering

scouting can be carried out by picking and inspecting the growing tips of plants in several random locations throughout the crop. During flowering remove flowers and visually inspect them for adult thrips, ensuring that the entire flower is surveyed. Close attention should be given to closed or partially open flowers where thrips are likely to hide. Larvae are difficult to see due to their light colouring and smaller size. Flower thrips oviposit eggs on or within fruit and eggs can also be found inserted into flowers.

For routine surveillance, deploy white or blue sticky traps at around crop height, with additional traps on adjacent crops or remnant vegetation. Research suggests that white or blue traps are most effective for flower thrips trapping, however if they are unavailable any available sticky trap should be deployed instead.

### Could it be confused with an endemic species?

In Australia, Western flower thrips (*Frankliniella occidentalis*) is a common crop pest in many horticultural regions. Western flower thrips has a similar appearance to Florida flower thrips, although it is slightly larger. Differentiation of thrips species in the field is difficult owing to their small size and morphological similarities between species.

Trained entomologists will differentiate species based on fine morphological details (e.g. sculptures on abdominal tergites) and this analysis requires a high-powered microscope. Molecular analysis may also be an option for identification.

Figure 1. Adult Florida flower thrips (*Frankliniella bispinosa*) segmented antennae



# What should I do if I suspect Florida flower thrips?

Florida flower thrips is a priority plant pest that is exotic to Australia. If thrips are found in combination with unusual feeding damage call the **Exotic Plant Pest hotline on 1800 084 881**. The hotline will divert you to the appropriate state biosecurity agency, which will investigate the suspect detection further. To support an investigation you should take note of:

- The detection location (take a GPS coordinate using your phone);
- The host plant on which the suspect detection has been made;
- Damage symptoms (e.g. unusual silvery around the petiole); and
- A photo of all life stages observed (taking close-up photos of the same specimen from multiple angles is most useful for identification).

## Taking a sample

Taking a sample will also assist in a biosecurity investigation. Collect damaged plant parts along with a larval or adult sample and place in a ziplock bag – double bagging of specimens is ideal. Label the bag with the date and collection location and keep in the fridge in case the sample is needed by the biosecurity agency.

Figure 2. Reporting decision making for Florida flower thrips (*Frankliniella bispinosa*)

You have detected damage including scarring, shrivelling, discolouration, bud deformities, premature fruit drop and reduced yields in a wide range of crops. **Should you report it?**



If you answer yes to EITHER of the following question, it could be one of the exotic flower thrips, Florida flower thrips (*Frankliniella bispinosa*) or European Flower thrips (*Frankliniella intonsa*). Report it!



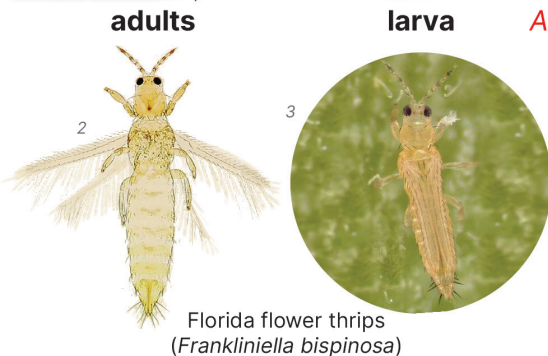
**1** You check around the petiole and main leaf vein of leaves, particularly around growing tips, and see silvery damage.



**2** During flowering, you thoroughly check inside flowers and find adult thrips about 1 mm long



There are many species of thrips that attack flowering plants in Australia, so detection of any thrips or associated damage should be reported!



### Additional possible signs

- Larvae and eggs are much more difficult to see; larvae are yellow and wingless and often feed along petiole and main leaf veins; eggs are laid on or within fruits and flowering bodies

<sup>1</sup> Ronald Smith, Auburn University, Bugwood.org, CC BY 3.0

<sup>2</sup> Laurence A. Mound, Australian National Insect Collection

<sup>3</sup> Lyle Buss, Insect Identification Lab, University of Florida  
Figure design and all other illustrated components: Elia Pirtle, eliapirtle.com

