

## **Training in Identification of Western Flower Thrips**

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Western Flower Thrips (WFT - *Frankliniella occidentalis*) was first recorded in Australia in the mid 1990's. In the late 2001 they were have found in cotton crops in the St George region (also on grapes), and in early 2002, also in the Namoi, Darling Downs (Dr Melina Miles) and in Emerald (Dave Kelly). WFT are found in cotton in the USA. In California, they are a pest but rarely cause concern and so are regarded more as a beneficial as they eat mite eggs. In the southeastern USA where the cotton season is shorter, they are regarded primarily as a pest. Across the USA WFT in cotton is generally quite susceptible to insecticides. The populations found in Australian cotton, however, have come from horticultural crops where there has been intense insecticide selection and hence they are highly resistant to many insecticides. Dr Grant Herron has a major project to evaluate the insecticide resistance of this pest in horticultural crops and glasshouses. Ironically, WFT is also a predator of mite eggs, as are the local thrips species is important as WFT is visually very similar in appearance to the two other local pest thrips species *Thrips tabaci* and *Frankliniella schultzei*, so resistance may also make them a pesticide resistant predator.

Given the potential for WFT to become a pest in cotton we approached CRDC for funding to bring Dr Laurence Mound to Narrabri to provide training on the identification of this species. Identification is important as WFT is visually very similar in appearance to the two other local pest thrips species *T. tabaci* and *F. schultzei* as well as a number of other species that sporadically occur in cotton. Dr Mound is internationally recognized for his work with thrips taxonomy, biology and ecology.

Dr Mound came to the ACRI on the 3<sup>rd</sup> of October and ran a one-day training coarse. In attendance were Melina Miles, Jamie Hopkins from QDPI, Robin Gunning, Sally Lancett and Emma Cottage NSW Agriculture Tamworth, Villiami Heimoana (NSW Agriculture, Narrabri) and Tom Lei, Kellie Baguley, Deon Cameron, Simone Heimoana and Tanya Smith (CSIRO Plant Industry). An abbreviated key was devised based on the characteristics of the species known to occur on cotton.

A sampling plan was developed for thrips collections through the 2002-2003 season (see below). At present samples have been collected but are awaiting ID (some samples have been done but it is a slow process as thrips must be cleared then individually mounted on microscope slides for identification).

In terms of this project however the funding provided was very useful in providing the capacity for a number of researchers and technical staff to be able to identify WFT should it emerge as a problem.

### **Proposed sampling for Western Flower Thrips – 2002/03**

1. CSD Seed Treatment sites (NSW and Darling Downs)
  - a. Weekly samples of plants from each treatments collected, thrips washed off and stores in vials by CSD
  - b. Plants scored for damage symptoms according to CSD normal system
  - c. Samples sent to Lewis at ACRI to arrange counting and ID (funding from CSD as per normal and data returned to CSD and Melina)
  - d. At some site aim to rear thrips larvae through so can check species – mainly an issue in insecticide treatments where adult species complex may not accurately reflect that of the nymphs. Melina will check Mantha's thesis to see how to do this
  - e. (Melina can you contact John Marshall locally).

2. Robin Gunning and Sally Lancett – provide a good picture of regional distribution of WFT
  - a. Retain thrips that come in with egg collections, store in 70% alcohol
  - b. Send samples across to Lewis to arrange counting and ID (data returned to Robin and Sally)
3. Cotton - Melina and Lewis
  - a. More intensive to follow seasonal pattern - Select a site, preferably unsprayed or low spray regime, and monitor fortnightly. Wash whole plants when they are young (up to about 7-8 true leaves – and collect say 30 seedlings, scaling down to about 5 plants when bigger), thereafter sample terminal (top five nodes) and wash and also sample open flowers. ID locally. (Simone - at Narrabri we will use the UTC in our thrips trial in Block 17 for this)
  - b. Less intensive – at 3 times during the season collect from a number of sites to see what is generally around. Use sampling protocol as in 3a. Sample at seedling, peak flowering and cut-out. ID locally
4. Other crops / hosts
  - a. ACRI / DD - Tanya Smith and Bernie Franzmann to retain any thrips found in their samples of weeds and other crops collected when looking for aphids (organise ID locally ie Tanya at Narrabri and Melina at DD?)(Melina – could you please discuss locally with Bernie – I mentioned it to him)
  - b. Darling Downs only – specifically follow thrips numbers on grain crops and lucerne (count and ID locally)

### **Collaborators**

Melina Miles, Richard Lloyd, James Hopkinson and Bernie Franzmann (QDPI)

Robin Gunning and Sally Lancett (NSW Agriculture)

Robert Eveleigh, John Marshall and Jo Towers (Cotton Seed Distributors)

Lewis Wilson, Tom Lei, Simone Heimoana, Tanya Smith (CSIRO PI)