

Silverleaf Whitefly in Cotton – The Queensland Situation 98/99-99/00

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Introduction

The silverleaf whitefly (SLW), *Bemisia tabaci* B-biotype was first discovered in Australia in 1994 (Gunning *et al.*, 1995). This biotype is a major pest of cotton and other crops in many overseas countries and is a considerable threat to cotton in Australia. Another indigenous biotype of *B. tabaci* (IBW), that is not considered a pest, is common in Queensland.

This paper reports the results of sampling for these biotypes in the cotton areas of Queensland during the past two years.

Methods

We have sampled a number of cotton crops in the Emerald, Biloela, Theodore, Warra, Dalby, Oakey, St. George and Goondiwindi areas. Monthly collections of 100 leaves from the 5th node of plants were randomly selected from each field. In addition, sampling from weed and ornamental hosts was carried out in the towns centred on these areas.

Pupae collected were held at 25°C to allow adult whiteflies and/or parasitoids to emerge. Identification of whitefly biotypes was carried out using RAPD PCR (De Barro and Driver, 1997).

Results

Table 1 shows the results of sampling cotton crops over the past two seasons.

We did not find SLW in any of the cotton crops sampled. However IBW was found in several crops.

Table 1. Sampling cotton crops – Number of leaves (5th node) collected and number of silverleaf whitefly (SLW) and indigenous biotype whitefly (IBW) pupae per leaf.

| Collection area | Season | Leaves | SLW | IBW |
|-----------------|--------|--------|-------|-------|
| Emerald | 98/99 | 1000 | 0.000 | 0.000 |
| | 99/00 | 900 | 0.000 | 0.252 |
| Biloela | 98/99 | 600 | 0.000 | 0.023 |
| | 99/00 | 1000 | 0.000 | 0.020 |
| Theodore | 98/99 | 1400 | 0.000 | 0.090 |
| | 99/00 | 1500 | 0.000 | 0.000 |
| Warra | 98/99 | 400 | 0.000 | 0.000 |
| | 99/00 | 400 | 0.000 | 0.040 |
| Dalby | 98/99 | 1500 | 0.000 | 0.000 |
| | 99/00 | 1700 | 0.000 | 0.043 |
| Oakey | 98/99 | 500 | 0.000 | 0.000 |
| | 99/00 | 600 | 0.000 | 0.002 |
| St George | 98/99 | 1100 | 0.000 | 0.000 |
| | 99/00 | 1200 | 0.000 | 0.000 |
| Goondiwindi | 98/99 | 1200 | 0.000 | 0.000 |
| | 99/00 | 1400 | 0.000 | 0.458 |

At the end of last season one hybrid *B. tabaci* was found in a crop at Emerald. Hybrids are a result of breeding between SLW and IBW.

Both whitefly biotypes were found on ornamentals and weeds in all towns except Goondiwindi where only IBW was present.

Parasitism levels above 50% were common for both biotypes and 100% was occasionally recorded.

Discussion

The presence of a hybrid in a cotton crop at Emerald indicates that SLW is in the area. A few hybrids were also found on ornamentals in Biloela. Discovery of hybrids adds weight to the theory that high populations of IBW are hampering the establishment and spread of SLW in cotton crops (De Barro and Hart, 2000).

During 1998 SLW caused considerable damage to two cotton crops in Bowen. Although Bowen is not a traditional cotton cropping area, these large populations show that where conditions are suitable SLW will be a major pest in Australia. The outbreak in the Bowen area was probably largely influenced by the continuous planting of crops highly suitable for SLW development. However, in traditional cotton areas in Queensland there is little change to the situation that was reported in the last conference (Franzmann *et al.*, 1998).

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