# B-biotype *Bemisia tabaci* in Australia

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## Introduction

The cotton whitefly *Bemisia tabaci* is a serious pest of fibre and horticultural and ornamental crops world wide. When present in sufficient numbers, it can cause extensive damage through direct feeding, the production of large quantities of honeydew and as a vector of many viruses. A new biotype was first identified in the USA, known as the B-type or poinsettia strain. Overseas, the B-type *B, tabaci* is a primary pest on cotton, other vegetable crops (curcubits, tomatoes, rock melons) and ornamentals. This strain is extremely virulent, insecticide resistant, adapts to temperate climates and has a host range of over 500 plants.

B-biotype *B. tabaci* were detected for the first time in Australia in October 1994 in both Darwin and Tamworth Robin Gunning. During 1994/95, the Cotton Research and Development Corporation funded a survey to determine the current Australian distribution of B-type *B. tabaci* and its insecticide resistance status.

Investigations suggest that the B-biotype *B. tabaci* was first introduced into Australia in late 1993, via poinsettias which were legally imported from California in the United States to Coffs Harbour (NSW). Our surveys show that this whitefly is well established and widespread in eastern Australia and eradication is not considered possible. The whitefly has not yet been detected in Victoria, South Australia or Western Australia, however it is very likely that infested plants have been sent to these states.

**Results and Discussion**

The current distribution of B-biotype *B. tabaci* is shown in the accompanying figure. The whitefly is widely distributed in NSW (Alstonville, Wollongbah, Moree, Tamworth, Coffs Harbour, Dubbo, Richmond, Blue Mountains, Sydney, Warren, Narromine, Coonabarabran), Queensland ( Cairns, Ayr, Emerald Kingaroy Dalby, Toowoomba, Bileola, Brisbane), the Darwin and Katherine areas of NT. The whitefly was also found in the ACT and Devonport in Tasmania. Infestations are largely confined to plant nurseries but the whitefly was found on field pumpkins (Tamworth) and on a sunflower crop at Moree. The whitefly was not found on cotton in the 1994/95 season. In 1995/96, B- types individual have been found on cotton at Emerald (November 1995), the Macquarie Valley (December 1995), Namoi Valley (Jan. 1996) and Moree (March 1996).

Preliminary insecticide bioassays have confirmed overseas experience that the B -type *B. tabaci* are resistant to most organophosphate, carbamate and pyrethroid insecticides. As a consequence, this insect may be difficult to control. B- type population appear at present, to be susceptible to endosulfan. Toxicological, biochemical and genetic studies are continuing at Tamworth to establish the resistance profile of Australian B-biotype *B. tabaci.*

A "user friendly" rapid biochemical detection method to identify B-type *B. tabaci* in the field from other whitefly types was successfully developed by Robin Gunning. The method is based on increased production of esterase isoenzymes in B-type *B. tabaci.* Biochemical identification kits were produced and distributed to the agriculture

department quarantine officer in each state. The kits have been very useful for whitefly identification.

## Conclusions

**The spread of this whitefly is expected to result in it becoming a major cotton pest in Australia due to insecticide resistance. Clearly further basic resistance research is required to ensure that resistance is managed effectively and that cost effective control is available to minimise the danger that this insect poses to the cotton industry.**

# Distribution of B-type *Bemisia tabaci* in Australia