Cotton Catchment Communities CRC
Queensland Government Department of Primary Industries and Fisheries

COTTON *TALES*

Central Queensland

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Detection of Q biotype *Bemisia tabaci* in Australia

The presence of Q biotype *Bemisia tabaci* species complex in Australia has been confirmed by Dr Robin Gunning, NSW DPI. Q biotype was collected from vegetables in the Bowen/Burdekin region during late 2008, as well as from cotton in southern Queensland (Goondiwindi) & north-western NSW (Wee Waa) during 2009. It is likely that Q biotype is more widely distributed than just these regions.

What are the implications?

Overseas studies indicate Q biotype has the capacity to develop resistance to many insecticides including insect growth regulators (IGRs) such as Admiral® and neonicotinoids like Confidor®. High levels of resistance to Admiral® have been detected in horticultural crops in a few locations in north Queensland and some field control problems have been observed for Admiral®.

Resistance testing from cotton production areas for the 2008-09 season has not shown any alarming resistance levels to Admiral® to date.

Overseas where populations are predominately of Q biotype, moderate to high resistance has developed to Admiral®. Where populations were mostly B biotype, Admiral® has retained high efficacy. This has been the case in Queensland where, according to Dr Gunning, B biotype populations remain susceptible to Admiral® and have a higher susceptibility to neonicotinoid insecticides, compared to Q biotype populations. At this stage Q biotype is showing markedly less resistance to pyrethroids than the B biotype.

In Israel, Q biotype has not developed resistance to Pegasus® despite several years of reliance on this product. In horticultural areas, significant resistance to Pegasus® was not found in either biotype.

Integrated Pest Management

Practicing good IPM principles can discourage Q biotype numbers from building up. Under natural conditions, B biotype will out-compete Q biotype. However, in an environment of high insecticide use, the more insecticide resistant Q biotype tends to displace B biotype, and once this shift occurs B may not recover to its former levels. Limiting the amount of chemical used against insect pests may favour the dominance of B over Q.

Q biotype, like B, has the capacity to vector the virus that causes cotton leaf curl disease. This disease is not present in Australia. The main risk is that any new whitefly incursions, whether Q or B biotype, could carry viruses that are not present in Australia.

Identification

Q biotype and B biotype can not be distinguished visually. They can only be distinguished by looking at small differences in their DNA or biochemical make-up.

WE NEED YOUR HELP

In order to determine the distribution of Q biotype, we are asking growers and consultants to send in whitefly specimens to the Queensland Primary Industries and Fisheries, Toowoomba. Please refer to details at the bottom of this article.

FURTHER READING

Whiteflies
http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/26_10277_ENA_HTML.htm

The Cotton Industry Biosecurity Plan Appendix 3 provides information on Q biotype (page 32) and Cotton Leaf Curl Virus (page 40).
http://www.planthealthaustralia.com.au/project_documents/uploads/Section%209%20Appendix%203%20Pest%20Risk%20Reviews.pdf

Follow this link to the Fact Sheet on Q biotype whitefly.
http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/26_13554_ENA_HTML.htm

WHITEFLY SAMPLING

Adult whiteflies: In fields where whitefly are present, collect a minimum of 30 adults from random plants throughout the crop. Place these in 65% alcohol (watered down methylated spirits) in a leak proof vial or bottle. Note that >70% alcohol is classified as a dangerous liquid and should not be sent via post or courier.

Immatures: In fields where whitefly are present, collect a minimum of 30 leaves from random plants throughout the crop. Aim to collect leaves that have large immature scales (4th instar/red-eye nymphs) on their underside. Collect only 1 leaf/plant. Pack the leaves into a paper bag and then inside a plastic bag.

For live material, send by overnight courier to:
Richard Lloyd
DEEDI, Primary Industries and Fisheries
203 Tor St, Toowoomba Qld 4350
Ph: (07) 4688 1315

Ensure samples are clearly labelled and include the following information:

- Collectors Name, Phone No., Fax No., Email address
- Farm Name, Field, Postcode, Region (e.g. Gwydir)
- Date of Collection
- Comments

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