Cotton Catchment Communities CRC
NSW DEPARTMENT OF PRIMARY INDUSTRIES

COTTON *TALES*

Gwydir Valley "What's happening in the north west"

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2008/09
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Silverleaf Whitefly

Susan Maas (QDPI&F) and Lewis Wilson (CSIRO)

This season Silverleaf Whitefly (SLW), have been an increasing problem in Northern NSW. SLW is considered a particular pest due to its resistance to many insecticides and capacity to rapidly reproduce on cotton. While SLW adults and nymphs cause some mid to late season damage to terminals, leaves and stems, the principal concern is the contamination of lint through their excretion of 'honey dew'. Whitefly honey dew is considered to be worse than aphid honey dew, because it has a higher boiling point, so is more difficult to remove in processing.

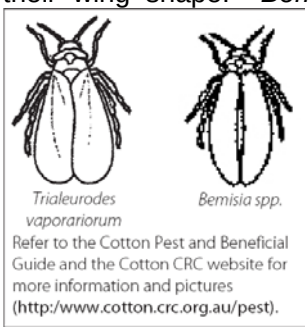
If Australia were to get a reputation for producing 'sticky cotton', there could be serious marketing consequences for the entire industry.

It is essential that SLW are managed on an area wide basis within an IPM framework. This includes:

- Implementation of a resistance management protocol.
- Commitment to using the appropriate products at the recommended crop stage and pest density and under the right environmental conditions.
- Preservation of beneficials by avoiding broad spectrum insecticides early season.
- Communication between industries to ensure complementary practices (eg crop residue destruction) are being undertaken.

Poor insecticide selection can flare SLW!

It is important to verify which whitefly species are present before implementing any management strategies. *Trialeurodes vaporiorum* (greenhouse whitefly) can be visually differentiated from *Bemisia tabaci* by comparing their wing shape. *Bemisia* biotypes (SLW & Eastern Australian native whitefly) can only be differentiated by a biochemical test. *(Refer to page 16 of 2008/09 Cotton Pest management guide for details on species verification sampling).*



Refer to the Cotton Pest and Beneficial Guide and the Cotton CRC website for more information and pictures (http:/www.cotton.crc.org.au/pest).

The species composition may change during the season so should be verified more than once.

Once the presence of SLW is confirmed, effective monitoring is the key to successful management. Sampling should commence weekly at flowering and occur twice weekly from peak flowering (1300 day degrees).

- Calculate crop age in day degrees (DD). The day degree calculator is available from CottAssist website.
- Choose a mainstem leaf from the 3rd, 4th or preferably 5th node below the terminal. Keep shadow off, & turn each leaf over by the tip of the leaf blade or the petiole.
- Score a leaf with 2 or more whitefly adults as infested.
- Score a leaf with 0 or 1 adult as uninfested.
- Calculate the percentage of infested leaves.

TIP: As leaves are assessed for SLW, they can be picked & used to monitor populations of aphids & mites.

Use the Threshold Matrix (from the 2008/09 cotton Pest management guide pg. 16) to compare the % of leaves infested (derived from sampling) with thresholds relevant to the crop's age (day degrees). The Matrix does not apply in situations of population explosion due to mass migration. An increase in the rate of SLW population growth tends to occur when crops reach peak flowering. Sampling aims to detect this change & intervene only if required, timed to maximise product effectiveness. The matrix strategy identifies two opportunities for control based on either low-medium or high population densities.

1. Low- medium density populations can be suppressed prior to open cotton (Zone 2A on matrix). This presents the most economic & low-risk control of SLW, through use of non Insect Growth Regulators (IGR). Diafenthiuron (Pegasus®) can control or provide useful suppression of low–medium density populations. Apply before SLW density exceeds 45% infested leaves. (The Pegasus® label indicates the product may not give satisfactory control at densities >25% infested leaves. This is based on overseas models & equates to ~45% infested leaves using sampling as described above.). In early sown crops, endosulfan may be used to control aphids and some other pests through until flowering. When used for these purposes, endosulfan can suppress the development of low to medium SLW populations. The window for endosulfan application by ground rig closes on the 15 January. Refer to label directions and the IRMS.

2. Application of IGR is recommended for control of high density populations between 1450 and 1650 DD prior to the onset of boll opening. Pyriproxifen, (Admiral®), is highly effective against SLW and very selective, allowing survival of predators and parasitoids. Delaying application of IGR beyond 1650 DD and > 50% infested leaves (> 2 adults/leaf) could result in yield loss, lower efficacy of the IGR, substantial lint contamination or all of the above.

ENSURE ONLY A SINGLE APPLICATION OF ADMIRAL® OCCURS WITHIN A SEASON.

There is a very high risk of SLW developing resistance to pyriproxifen. Resistance levels causing spray failure have occurred in horticultural situations as a consequence of multiple uses within a season.

Do not attempt to control whiteflies before 300 day degrees (peak flowering) to limit the risk of pest resurgence.

For more information go to http://www.cottoncrc.org.au/content/Industry/Publications/Pests_and_Beneficials/Whitefly.aspx

Conserve beneficial insects by avoiding or delaying the use of broad spectrum chemistry for as long as possible.

Whitefly Meeting - Do I need to control them?
Friday 13th February, 8.00am
'Milo', Newell Hwy Moree. Newport entrance
Tim Burley DA, NSW DPI Moree, 02 67506309, 0437374981