

Avoid a sticky situation...

With crops approaching cut-out, it's time to make critical decisions regarding silverleaf whitefly (SLW) management. Hot weather over the last fortnight has seen SLW numbers increase in many valleys—indicating that a number of fields are likely to require control action soon.

SLW has evolved to become one of the most complex insects to manage in our cotton system because we are essentially controlling an insect not to protect the plant from damage, but to prevent its honeydew (poop) from contaminating open bolls. The amount of SLW honeydew secretions it takes to contaminate a crop is difficult to accurately define because factors such as the weather, crop stage and on-going SLW population dynamics all influence honeydew accumulation.

To help you with your decision making in the coming weeks please consider the following 10 points:

1. Honeydew contamination on cotton does happen.

While nearly all crop managers will have heard that sticky cotton can seriously impact Australian cotton's reputation and hence the price received by growers, over the last decade the incidence of stickiness has been isolated, leaving the impression that things would have to be really bad before a bale is affected. The truth is that stickiness can be a real problem. In spinning mills visually "clean" cotton can cause problems as heat generated through friction can cause sugars to melt. These melted sugars can then result in cotton sticking to machinery, eventually necessitating reduced speed, and hence efficiency, or total shut-down for cleaning. Consequently, cotton producing regions that develop a reputation for supplying honeydew contaminated lint risk losing an inherent premium on the world market. It is critical that the Australian cotton industry upholds best management of SLW to maintain its reputation for producing uncontaminated, high quality cotton. **Don't be complacent—ensure SLW are managed to prevent honeydew accumulating as the weather cannot be relied upon to fix it.**

2. Use the SLW matrix threshold to guide your decision making.

The matrix ([found in the CPMG](#)) will help you identify whether or not a population of SLW is increasing at a rate that is likely to present a honeydew contamination risk when your cotton bolls begin to open. In recent years, the matrix and associated sampling strategy has potentially underestimated SLW populations (particularly when conditions are hot and adult whitefly move deeper into the

canopy), and this deficiency is currently being addressed by further research. Nonetheless, the matrix is still the industry's best guideline for if and when control action is required. **Therefore, it is important to use the matrix as a guide for decision making, but to also consider the other factors covered in this list.**

3. Examine the lower canopy leaves for large nymphs.

Examine the lower canopy leaves for large nymphs. If your sampling of 5th node leaves indicates that SLW adults are in the crop and increasing, sample additional main stem leaves adjacent to the bottom 3-4 fruiting branches. An abundance of large nymphs on the leaf undersides indicates that the population is established and more adults will be emerging soon. **Note that honeydew is produced by both adults and nymphs.**

4. Examine the lower leaves for signs of honeydew.

A very light sparkle on the leaf topside when it is rolled in sunlight is a warning that honeydew is starting to accrue within the canopy. Over time, this sparkle will develop from pin prick spots to pencil sized dots. If this level of progression occurs within a week you need to consider your control options for SLW (taking into account when boll opening might commence). If a low level sheen appears on the lower leaves and you are near or have open cotton, SLW should be treated immediately with a product that is appropriate for the crop stage, population density and time to defoliation.

5. Consider resistance and your local pyriproxyfen usage window.

Low levels of resistance were detected two seasons ago to the industry's cornerstone control product – pyriproxyfen. In response to this problem TIMS have implemented a voluntary 30 day usage window that is tailored to the needs of each valley. The window aims to limit the chances of SLW being treated more than once if populations become mobile between fields and farms. A critical factor for resistance management is to ensure that pyriproxyfen is applied only once per season as repeat applications will rapidly increase resistance levels.

6. You do not have to spray just because of the window.

One of the drawbacks of having an application window is that some people feel compelled to spray SLW before the usage window closes. **Spraying below-threshold SLW is counter-productive for resistance management.** The window is scheduled to coincide with both the time at which SLW would normally be expected to reach the pyriproxyfen threshold and allow time for effective control before bolls begin to open. If SLW numbers are still below threshold at the end of the window and you are worried that control might still be necessary before defoliation, other products such as spirotetramat (Movento®), diafenthiuron (Pegasus®), acetamiprid/emamectin (Skope®), cyantraniliprole (Exirel®) or dinotefuran (Starkle) should provide effective control for any late season build-up depending on the situation's circumstances. Whilst not in the same category in terms of lasting efficacy when compared to pyriproxyfen, the use of these products on populations that have not built up as quickly late in the season should provide effective control given that crop maturity is not far away.

7. Consider your crop stage.

The aim for SLW IPM is to have the population at low levels by the time the first bolls open. This is why the pyriproxyfen window is centred around mid-season, to allow for the 16-20 day post-treatment period that will elapse before the population fully declines. During this post-treatment period SLW will continue to secrete honeydew, so avoid using pyriproxyfen near the end of the window period if your crop is more advanced and likely to have open bolls within 16-20 days of treatment.

8. Do not mix pyriproxyfen with a knockdown insecticide.

There have been isolated cases of crop managers “spiking” pyriproxyfen with a knockdown product (neonicotinoids or

pyrethroids) to hasten adult knockdown. This is a dangerous practice as it destroys natural enemy populations on which the lasting efficacy of pyriproxyfen depends, and also provides resistant individuals with greater opportunity to escape, passing on their genes to the next population. Pyriproxyfen works best when supported by good IPM practices.

9. Look after your friends.

The management of SLW is a lot easier in a farming system that has not been disrupted by broad spectrum insecticide use for other pests such as mirids. One of the reasons pyriproxyfen works so well is that it is highly selective and leaves the majority of SLW natural enemies in place after application. These natural enemies are very effective at “mopping up” any SLW that survive treatment (including potentially resistant individuals) and thus minimises the chance of SLW resurgence and can help delay resistance.

10. Don't drop the ball on other pests.

While SLW take their share of the limelight mid-season crop managers should be mindful that mites, mirids, aphids and stink bugs can also cause problems during flowering and boll filling. Ensure that your crop sampling is effective for these pests and that any control decisions are consistent with recommended thresholds and good practice for minimising disruption to natural enemies.

Finally, if there is a risk that your crop has honey dew contaminated open bolls what should you do?

At the end of the day we are all human and while we are doing our best to manage a dynamic biological system, things may not go to plan. If you suspect honeydew contamination might be affecting the open bolls in your crop there are steps that you can take that may help:

Rainfall and weathering can greatly assist with honeydew breakdown, so the number one thing you can do is to delay picking of suspect fields until last to increase the chances of rainfall falling on the crop. It is better to have the risk of a colour downgrade than be discounted for SLW honeydew contamination.

The other step you can take if you are concerned, is to talk to your ginner and/or marketer.

For more information please contact your local CottonInfo REO or CottonInfo IPM Technical Lead, Paul Grundy.

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