

Pyriproxyfen Windows 2023/24

Industry data from Silverleaf Whitefly (SLW) resistance monitoring continues to show pyriproxyfen (e.g. Admiral®) resistance with low to moderate levels of resistance. This is a very concerning trend as pyriproxyfen is a cornerstone product for managing SLW populations in Australia, with low impact on beneficial insects.

To continue to manage the risk of SLW developing widespread pyriproxyfen resistance and potential product failure, Cotton Growers' Associations nominate a voluntary 30-day window for each region in which pyriproxyfen can be applied. The nominated windows from the 2023/24 season are shown in Table 1.

The aim of narrowing the pyriproxyfen window is to minimise consecutive generations of SLW being exposed to resistance selection and ensure the product is being applied once per season when most effective.

Table 1. CGA-nominated voluntary pyriproxyfen application windows for the 2023-24 season.

Cotton Growers' Association	Open Date	Close Date
Central Highlands CGIA & Dawson Valley CGA	No window required*	
Darling Downs CGI (Central Downs)	30 January	28 February
Darling Downs CGI (Chinchilla - Brigalow - Tara)	20 January	20 February
Darling Downs CGI (Murgon-Byee)	10 February	10 March
Darling River Food and Fibre	25 January	25 February
Dirranbandi CGA	15 January	15 February
Gwydir Valley CGA	18 January	18 February
Lower Namoi CGA	28 January	28 February
Macintyre Valley CGA	25 January	25 February
Macquarie CGA	1 February	1 March
Mungindi WUCGA	17 January	17 February
Southern Valleys CGA	7 February	7 March
St George CGA	25 January	25 February
Upper Namoi CGA	25 January	25 February
Walgett CGA	25 January	25 February
Far North Qld	No window required*	
Northern Cotton Growers CGA (NT)	No window required*	
Kimberley (WA)	No window required*	

* Resistance monitoring data indicates pyriproxyfen resistance is not currently a concern for this region.

The purpose of developing a 30-day application window is to regionally coordinate pyriproxyfen usage for the 2023-24 season. The TIMS Committee welcomes all CGAs to adjust their nominated pyriproxyfen window to accommodate seasonal conditions.

The TIMS Committee and Insecticides Technical Panel will continue to evaluate Silverleaf Whitefly resistance monitoring data for the current (2023-24) cotton season, and reassess the ongoing need for regional pyriproxyfen windows, depending on changes in resistance frequencies.

What are the implications of widespread SLW resistance?

The inability to manage SLW could have very serious consequences for the industry.

Silverleaf Whitefly contaminate lint with honeydew, where the main sugar, trehalulose, has a low melting point and is hygroscopic (attracts moisture). In the spinning mills, visually “clean” cotton can cause problems as heat generated through friction causes the trehalulose to melt. It then attracts moisture and sticks to machinery, necessitating shut-down for cleaning.

- Sticky cotton will affect your back pocket

Because of the risk to the value of the entire Australian cotton industry, sticky cotton has a typical discount of about \$232/bale and is difficult to find a market for. Less serious but still costly, are colour discounts 41 grade ~ \$66/bale, 51 grade ~ \$100/bale

- Sticky cotton will affect Australia’s reputation and could reduce its value over time

Because of the cost and impact of shutting down high production plants, spinners will actively avoid buying cotton from regions where there might be sticky cotton. Consequently, cotton producing regions that develop a reputation for supplying honeydew contaminated lint incur significant discounts, for years after the sticky problem is under control.

It is important that the Australian cotton industry upholds best management of SLW to maintain its reputation for producing uncontaminated, high-quality cotton.

Pyriproxyfen is an insect growth regulator and should not be used as a knock-down

Pyriproxyfen should be used between peak flowering and just prior to row closure, if control is warranted (approximately 1350 to 1550 day degrees).

Pyriproxyfen is an Insect Growth Regulator (IGR). It does not kill adult SLW, but provides population control by preventing eggs from hatching and progression to adult stage, as well as sterilising adult female insects. This means it will take at least 10-14 days before the population declines.

Pyriproxyfen provides up to 2 weeks residual and has been shown to be effective even on high populations of SLW. It would be expected to give 4-6 weeks of control.

Due to the delayed action of pyriproxyfen, it is not recommended for use as a knock down product in open cotton.

Beneficial populations still need to be preserved

Management of SLW populations must consider more than just insecticide use. Effective SLW management involves a whole season, IPM approach. In particular:

- Control overwinter weed hosts including volunteers and ratoons
- Base all pest control decisions on industry recommended sampling and thresholds.
- Avoid “insurance” sprays
- Select softest available product, based on target pest, and IRMS.

The use of insecticides that disrupt beneficial insects will greatly increase the risk of having a SLW problem later in the season.

Consider planting windows when developing a pyriproxyfen window

Area Wide Management (AWM) has been shown to be effective in controlling SLW populations.

The industry is encouraging an AWM approach to be adopted, and the use of a regional 30-day pyriproxyfen window is supportive of this.

When looking at dates for your region, keep in mind the impact that a wide planting window may have on dates for first open boll, and how that may impact the effectiveness of a 30 day application window for pyriproxyfen, and an AWM approach overall.

Alternative products

There are several products that have a place for SLW management, including spirotetramat (Movento), buprofezin (Applaud) and acetamiprid.

Note widespread, but low-level resistance to spirotetramat was detected in 2023. Whitefly have a dominant target site resistance mechanism to spirotetramat, meaning resistance can develop rapidly and reversal of resistance is unlikely. The IRMS has been modified to reflect this risk, consult the cotton pest management guide for further information.

Further information

Your CGA's assistance in supporting and encouraging area wide discussions around Silverleaf Whitefly management will assist in extending the commercial life of pyriproxyfen and ensuring that cotton growers have access to adequate control mechanisms for Silverleaf Whitefly to produce high-quality lint.