AgNOVA TECHNOLOGIES

An American Vanguard Company

AgNote

STARKLE®

Starkle contains 200 g/kg dinotefuran (MOA Group 4A)

Starkle® 200 SG and Beneficial Insects Technical Update 2025/26

1. Starkle 200 SG Insecticide is registered for the control of mirids, silverleaf whitefly (SLW) and green vegetable bug (GVB) in cotton; and green mirids in mung beans (see label for details and rates).

Starkle use for mirid control in cotton

2. Starkle is a cost-effective product with registration for the control of mirids, SLW and GVB in cotton. Early use of Starkle provides excellent control of mirids.
3. Starkle does not flare SLW when applied at 90 g/ha[1].
4. In previous seasons, many users found the SLW population did not reach treatment threshold where two applications of Starkle were made for mirid control.
5. At a rate of 90 g/ha, Starkle has an overall rating of moderate for beneficial species (Table 5, 2025/26 Cotton Pest Management Guide). Important parasitoids and predators of SLW are *Eretmocerus, Encarsia*, big-eyed bug, minute pirate bug, lacewing larva, banded ladybird and brown smudge bug (CottonInfo fact sheet "Managing Silverleaf Whitefly in Australian Cotton").

Impact rating for Starkle (Excerpt of Table 5, 2025/26 Cotton Pest Management Guide)

Beneficial species	Rating
Encarsia	Not indicated but Total (wasps) **M**
Minute pirate bug	Not indicated but Total (predatory bugs) **M**
Lacewing larva	**VL** (Adults)
Banded ladybird	**VL** (Other ladybird beetles)
Brown smudge bug	Not indicated but Total (predatory bugs) **M**
Big-eyed bug	**VH**
Eretmocerus	**VH***

VL = very low, M = moderate, VH = very high, *Based on laboratory leaf assay experiments

6. Since the launch of Starkle into cotton for mirid control, there have been no reports from the field of Starkle reducing the population of *Eretmocerus*.
7. *Eretmocerus* is an obligate parasite *(www.cabi.org/isc/datasheet/8927)*. In the absence of a population of SLW, *Eretmocerus* is unable to parasitise and build to a useful population.
8. Beneficial populations can establish quickly once the host pest arrives. The Horticulture Australia funded project "Getting the most out of *Eretmocerus hayati*, an effective natural enemy of silverleaf whitefly" (*https://ausveg.com.au/app/uploads/2017/09/VG08051-Final-Report-Complete.pdf)* reported that:

E. hayati is

- Highly mobile
  - can travel 1000 m/day
  - flies short distances, uses wind to move long distances
- Quick to colonise fields
  - 1–3 days after SLW hosts present
- Highly fecund and long-lived
  - females produce up to 230 offspring
  - adults live for about 20 days

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9. Starkle (dinotefuran) is highly water soluble and acropetally systemic. The product is taken up rapidly by the plant, which largely contributes to pest mortality and the length of residual activity. The half-life of dinotefuran on leaf surfaces subject to sunlight is very short (approximately 1 hour[2]) which means that the product breaks down rapidly on treated plant surfaces. Therefore, in the field, dinotefuran toxicity to susceptible species not feeding on plant material is reduced and is not expected to be relevant within a short time. Since there is rapid uptake of the active ingredient into the plant, this short half-life has no effect on the excellent pest efficacy provided by the product.
10. Surrounding areas untreated by insecticides will assist in the quick establishment of *Eretmocerus* once the SLW host is present.

    A replicated trial was conducted near Wee Waa, NSW in 2019[3] to investigate the influence of Starkle on an *Eretmocerus hayati* population released into a commercial cotton field. *Eretmocerus* were released and allowed to colonise a field of cotton with a known population of SLW. *Eretmocerus* parasitism of SLW was assessed following application of Starkle. *Eretmocerus* parasitism on SLW nymphs was statistically equivalent between the untreated control and Starkle. The data from this field trial indicates that Starkle does not have a negative impact on the level of *Eretmocerus* parasitism of SLW in cotton when applied at the mirid rate. Under laboratory conditions, Starkle was toxic to *Eretmocerus* spp.
11. It is important to remember the role of other beneficial species present in the field and their impact on SLW and other pests, as well as the impact of various insecticide control options on these species.

    The impact of Starkle on beneficial species is rated as very low on lacewings, low on spiders and moderate on predatory beetles, predatory bugs, all wasps and thrips (Table 5, 2025/26 Cotton Pest Management Guide).

[1]When both mirids and SLW are present and SLW is at or above industry spray thresholds, use the appropriate SLW rate.

[2]PUBLIC RELEASE SUMMARY on the Evaluation of the new active Dinotefuran in the Product Starkle 200 SG Insecticide.

[3]008-16-F3-18-340, Kalyx Australia – "Effect of Starkle on *Eretmocerus hayati* for Silverleaf Whitefly in Cotton. Wee Waa, NSW, 2018"

For more information scan the QR code or contact your local Area Sales Manager