

**TECHNICAL  
GUIDE**

**NEW**

# **Efficon<sup>®</sup>**

Insecticide – Powered by Axalion<sup>®</sup> Active



**A new standard  
for piercing and  
sucking pest control**

**■ BASF**

We create chemistry



NEW

# Efficon®

Insecticide – Powered by Axalion® Active

## A new standard for piercing and sucking pest control

Efficon® Insecticide introduces both a new mode of action and exceptional level of effectiveness against whitefly, so it is set to become an important new addition to vegetable and cotton growers' standard pest control rotation.

The combination of Efficon's very flexible use patterns and systemic movement through the xylem means it can be used to protect new growth early in the season and will also work effectively after canopy closure when spray penetration is harder to achieve.

Efficon's innovative mode of action will strengthen resistance management, while its compatibility with the release of beneficial predators enhances IPM programs.

### Contents

Product profile / Use profile	3
Modes of action	4
IPM fit / Resistance management	5
Axalion® Active	6 - 7
Compatibility	8
Trial results	9 - 15
Application Rates/Timing/Method	17
Application guidelines	18 - 21
Proposed label registrations	22
Key advantages	24



### Product profile

Active ingredient	Dimpropyridaz 120 g/L
Mode of action	Group UN
Formulation	Soluble liquid (SL)
Adjuvant	Addition of an adjuvant not required
Compatibility	Fungicides and insecticides as listed on page 6.
Withholding periods	1 day: all registered vegetable crops 28 days: cotton
IPM status	Highly compatible with a range of IPM systems, with minimal impact on beneficial species.
Pack size	10 L

### Use profile

#### Crop and pest registrations

	Silverleaf whiteflies	Greenhouse whiteflies	Green Peach Aphids	Cabbage Aphids	Cotton/ Melon Aphids
Brassica vegetables			✓	✓	
Cotton	✓	✓			✓
Cucurbits	✓	✓			✓
Leafy vegetables			✓	✓	
Fruiting vegetables	✓	✓			

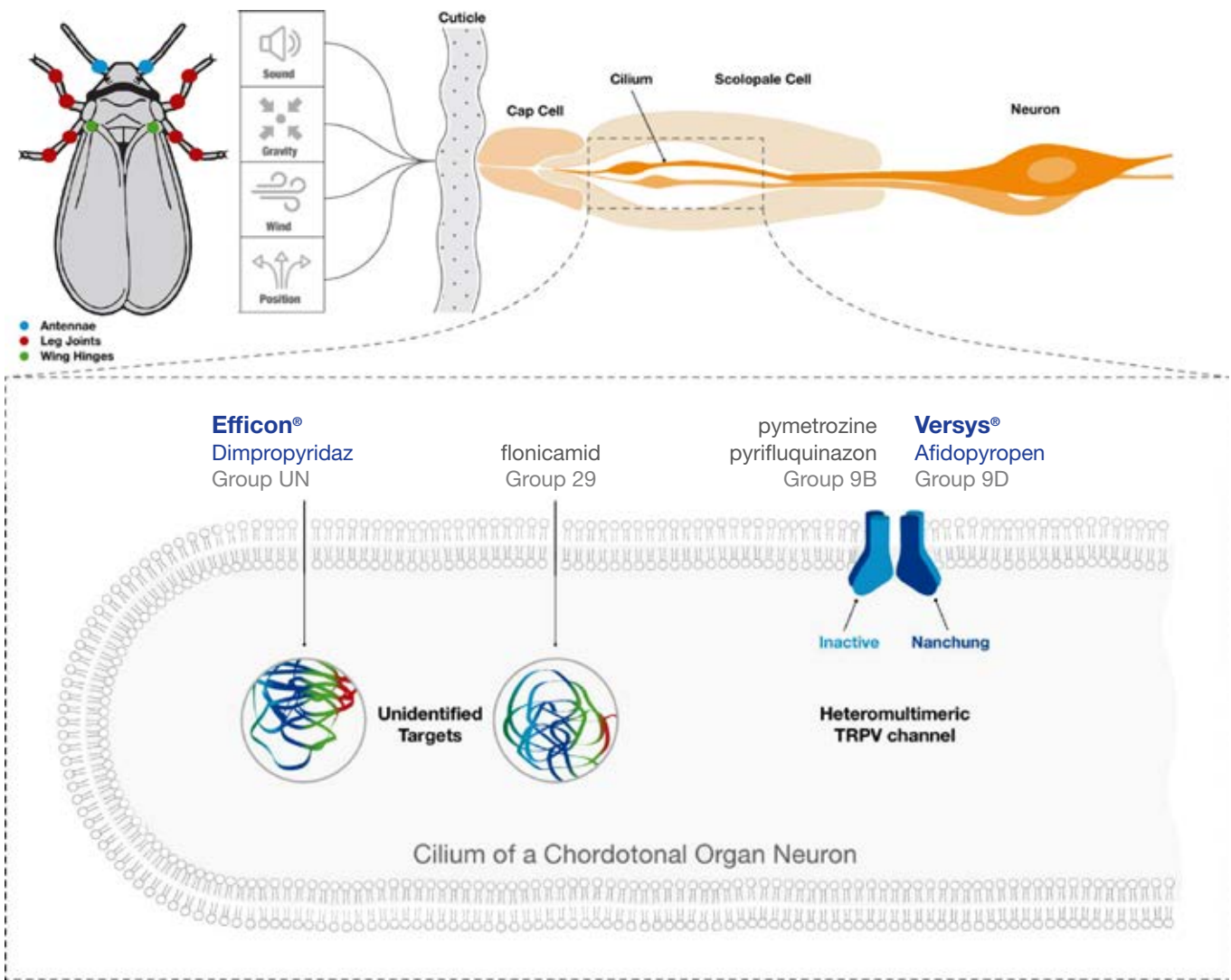


# Modes of action

Efficon’s active ingredient dimpropyridaz inhibits TRPV channel activation in the chordotonal organs of target pests from a unique site of action.

Both Groups 9 and 29 insecticides also inhibit TRPV channel activation, but dimpropyridaz does so indirectly by acting upstream of those other modes of action.

## Chordotonal organs



Chordotonal organs are stretch sensors that insects rely on for their hearing and balance and which are critical for coordinated movement. When they stop receiving accurate feedback from those organs, affected pests become uncoordinated and unable to feed and die.

Like Versys®, Efficon causes rapid feeding cessation in adults which in turn reduces the risk of virus transmission from the insects to the crop plants.

## Efficon affects all life stages in different ways:

- Treated eggs will hatch but emerging nymphs will not settle, can’t feed and die
- Adults still emerge from treated larvae and pupae, but fall off the leaf and die
- Treated adults stop feeding almost immediately and die in 1–3 days

# IPM fit

Efficon will strengthen IPM programs both by adding a new mode of action to the chemical rotation and by complementing the use of beneficial predatory insects.

Efficon has low toxicity to bees and bee larvae. Two semi-field and two field tests using the higher application rate before flowering showed no biologically relevant effects on bee mortality, foraging activity, and colony development.

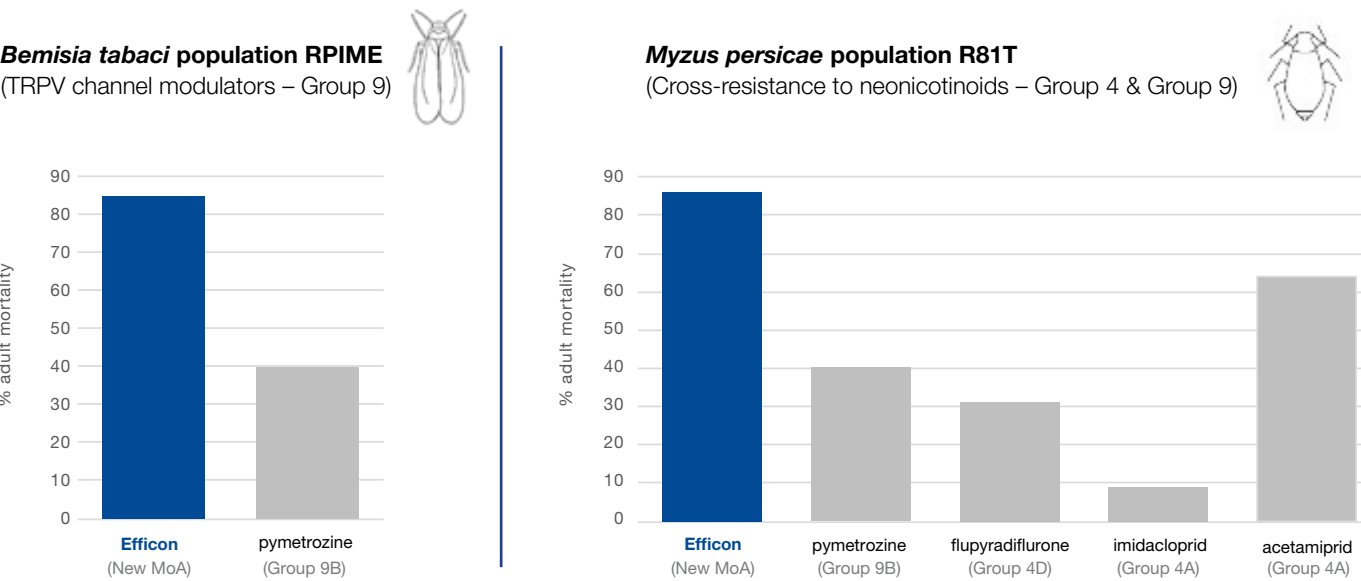
Efficon also has low impact on most predatory and parasitic beneficial species and is compatible with their release as a complementary control measure.

# Resistance management

Trials have shown that Efficon will control insects with reduced sensitivity to insecticides from other mode of action groups. No cross-resistance has been found or is anticipated.

Like all other insecticides, Efficon should be used in rotation with insecticides with other modes of action. It should not be applied more than twice in a row before rotating to a different mode of action and not more than a total of 4 times in a single crop.

## Mortality in resistant populations after 24 hours



Source: Cross-resistance studies 2019 (G Martin, J Sanz-Gomez, University of Murcia, Spain)

There is no known cross-resistance to Efficon’s novel MoA.

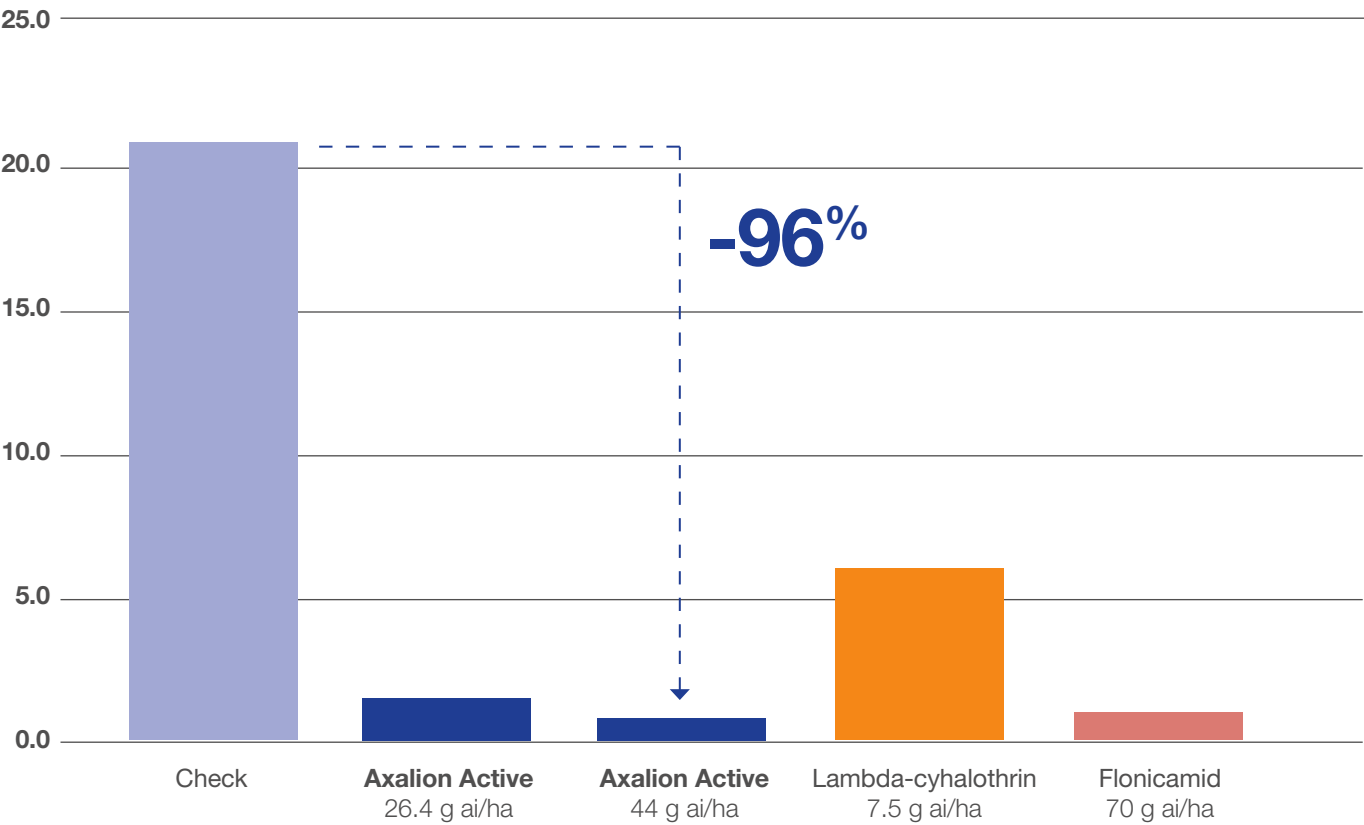




# Reduction of virus transmission with Axalion® Active: Open field trials

## Aphid virus transmission activity in open field sugar beets

Percentage of infested plants with beet yellow virus (BYV) after 87 days:



Axalion Active exhibited a **reduction** of beet yellow virus transmission up to **96%** with a use rate of 44 g ai/ha.

Source: BASF Trial, 2019. Trial ID: DEV-I-2020-ES-103-A-02.0-ES-ESN-728 Crop: Sugar Beet; Variety: Beetle; Target Pest: APHIFA / MYZUPE; Water Volume: 300 L/ha LWA Factor: n/aNr.; Applications: 1 App.; Date: 19.06.; Crop GS: 36-37

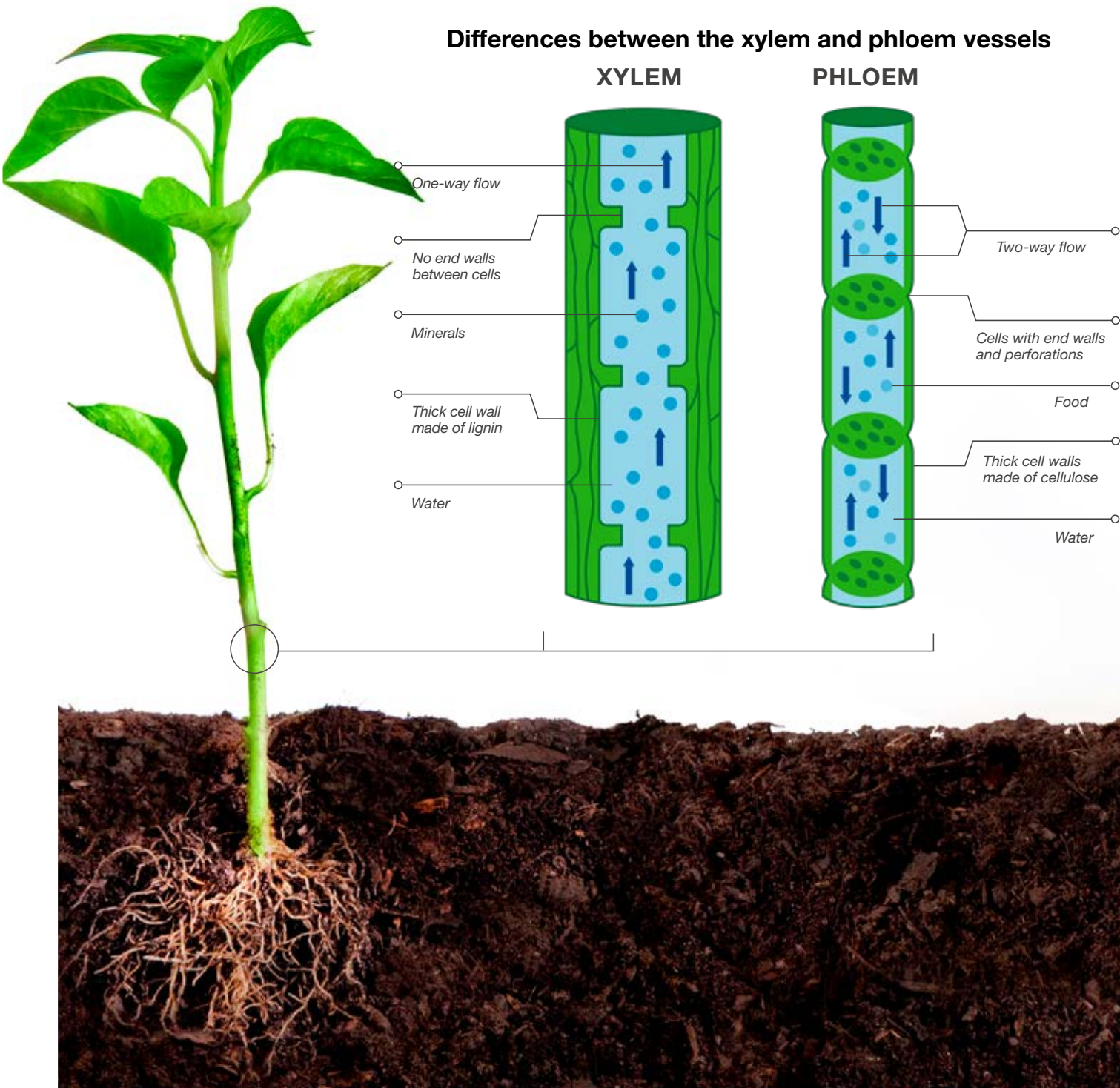
NB: Trial included for comparative purposes only. Sugar beet is not a registered crop in Australia.



# The systemic action of Axalion® Active works through the xylem channels

This allows it to easily move throughout the plant towards the leaves where pests are feeding, including new growth. The xylem transports water and other soluble minerals upward from the root system, as well as the point of contact, making Axalion Active ideal for a wide range of application methods and timing.

Together with its translaminar activity, Axalion ensures more complete coverage. It offers longer residual activity, protecting new plant growth.



# Compatibility

Testing has shown that Efficon is phycially compatible with the products listed in the tables below when products are used as directed on their labels and mixed in the correct mix order.

Testing is ongoing. Please contact BASF about products not listed here, but also test all mixtures before mixing commercial quantities.

## Compatible fungicides

Acrobat®	Flute® 50	Sercadis®
Aero®	Fontelis®	Serifel® Biofungicide
Amistar Top®	Kocide® Blue Xtra™	Switch®
Belanty®	Luna® Sensation	Talendo®
Colliss®	Merivon®	Tri-base Blue®
Dithane® Rainshield	Polyram®	Vivando®
Filan®	Pristine®	Zampro®

## Compatible plant growth regulator

Regalis® Plus
---------------

## Compatible insecticides

Belt® 480
Chess®
Cimegra®
Danisaraba®
Success® Neo

## 3 Way mixes

Acrobat® SC + Polyram®
Acrobat® SC + Polyram®
Movento® + Hasten™
Versys® + Hasten™

## Incompatible

Bravo® Weather Stik
Captan 800 WG
Mancozeb 750 WG

(Sediment formation)



Untreated



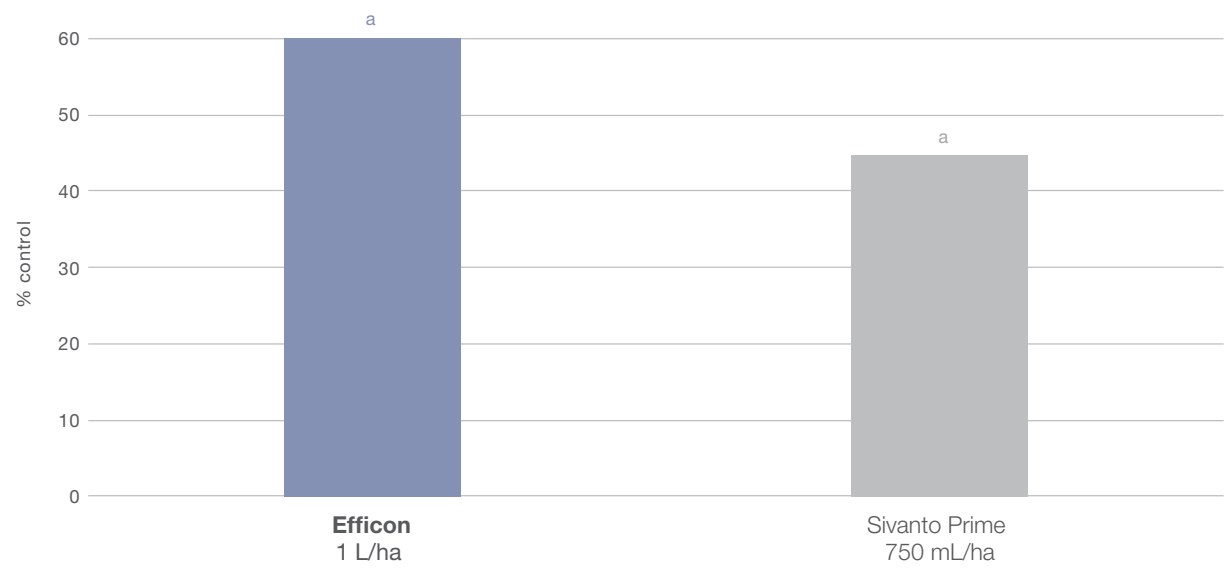
Treated with Efficon

# Trial results

Trials have confirmed that Efficon affects all life stages of both whiteflies and aphids but the measurable impact on treated larvae and pupae is delayed until they emerge as disoriented adults are unable to feed on the crop.

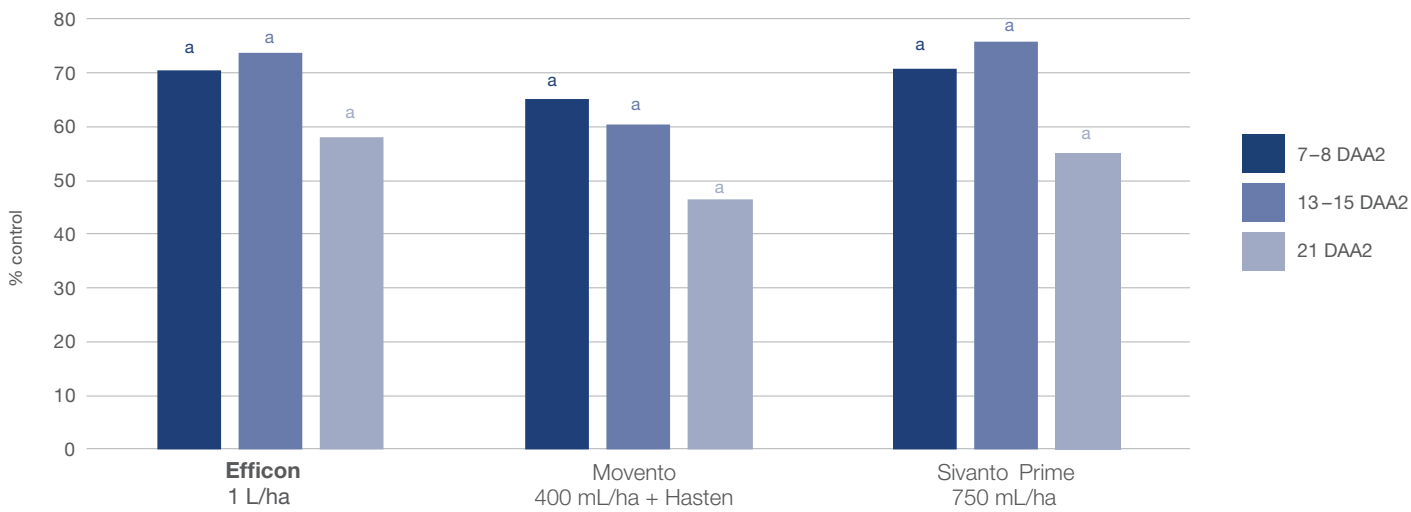
## Fruiting vegetables and cucurbits - Silverleaf whiteflies

Control of SLWF adults



Multi trial analysis: 7DAA2 in cucumbers and tomatoes. Gatton and Bowen QLD.  
Trials: DEV-I-2017-AU-201-C-02.1-AU-ASQ-004; DEV-I-2017-AX-201-C-02.1-AU-AAU-001; DEV-I-2018-AX-201-C-02.1-AU-AAU-X02.

Control of SLWF nymphs

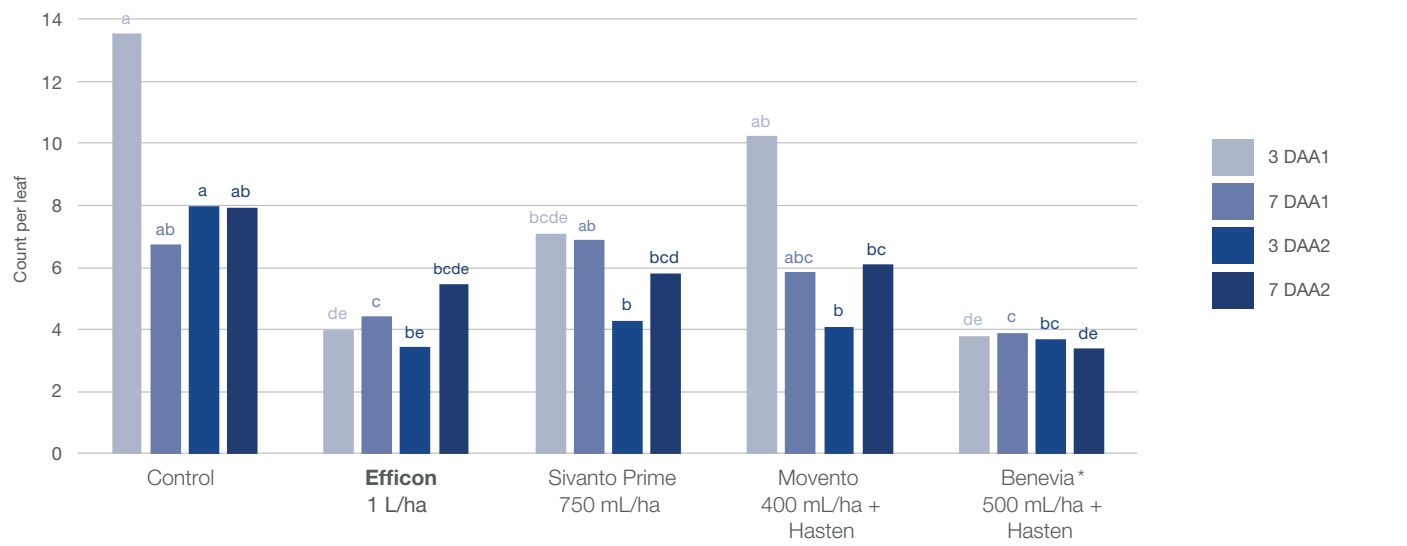


Multi trial analysis: 2x applications in cucumbers, eggplants and pumpkins. Gatton, Bundaberg and Coominya QLD.  
Trials: DEV-I-2018-AX-201-C-02.1-AU-AAU-X02; DEV-I-2018-AX-201-C-02.0-AU-ASQ-003; DEV-I-2019-AX-201-A-02.0-AU-ASQ-514



Tomatoes - Silverleaf whiteflies

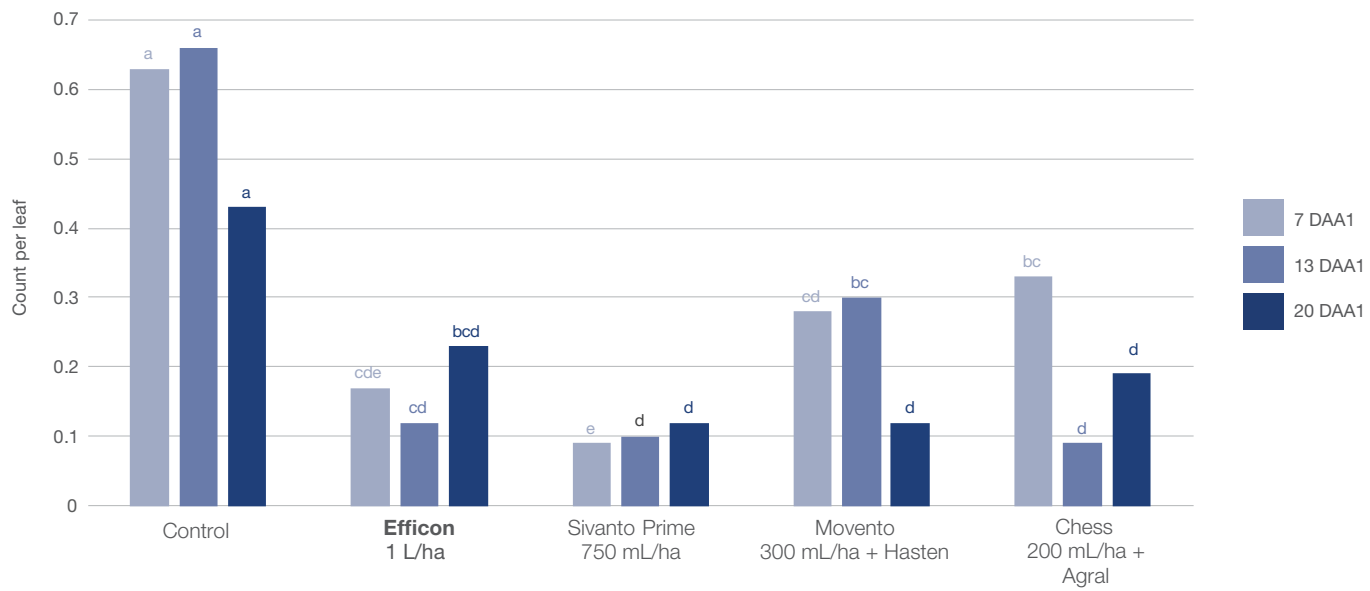
Control of SLWF adults



Trial: DEV-I-2017-AX-201-C-02.1-AU-AAU-001. 2x applications 7 days apart. Tomato cv SV0215TH. Bowen QLD.

Tomatoes - Greenhouse whiteflies

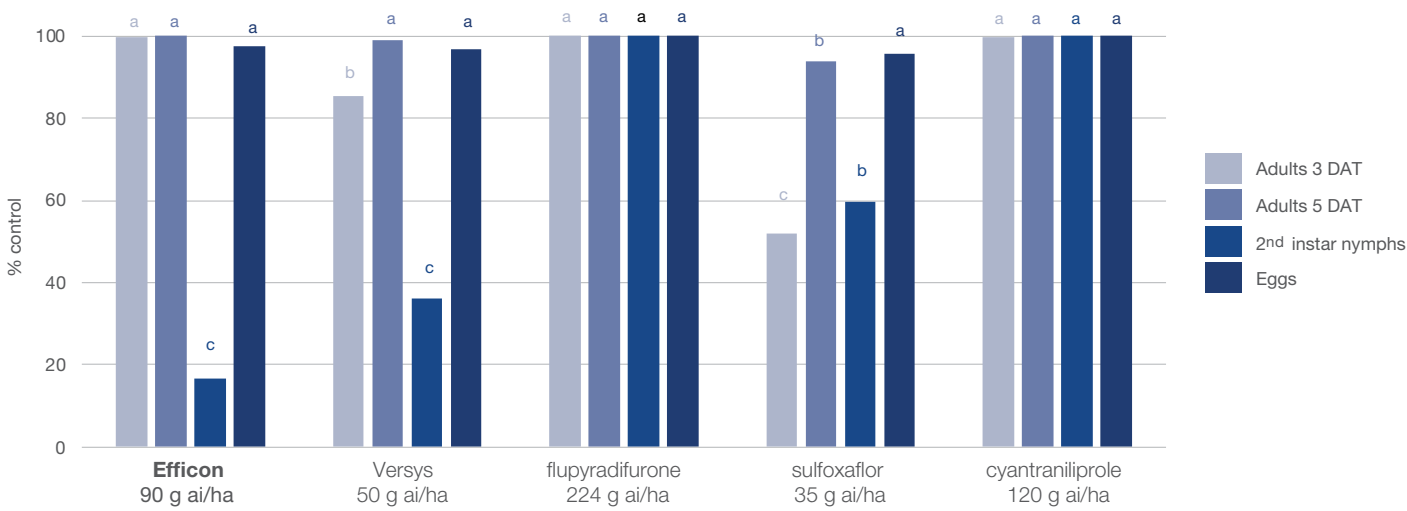
Control of GHWF adults



Trial: DEV-I-2019-AX-202-A-02.1-AU-ANV-004. 1x application. Tomatoes cv H4401. Rochester VIC.

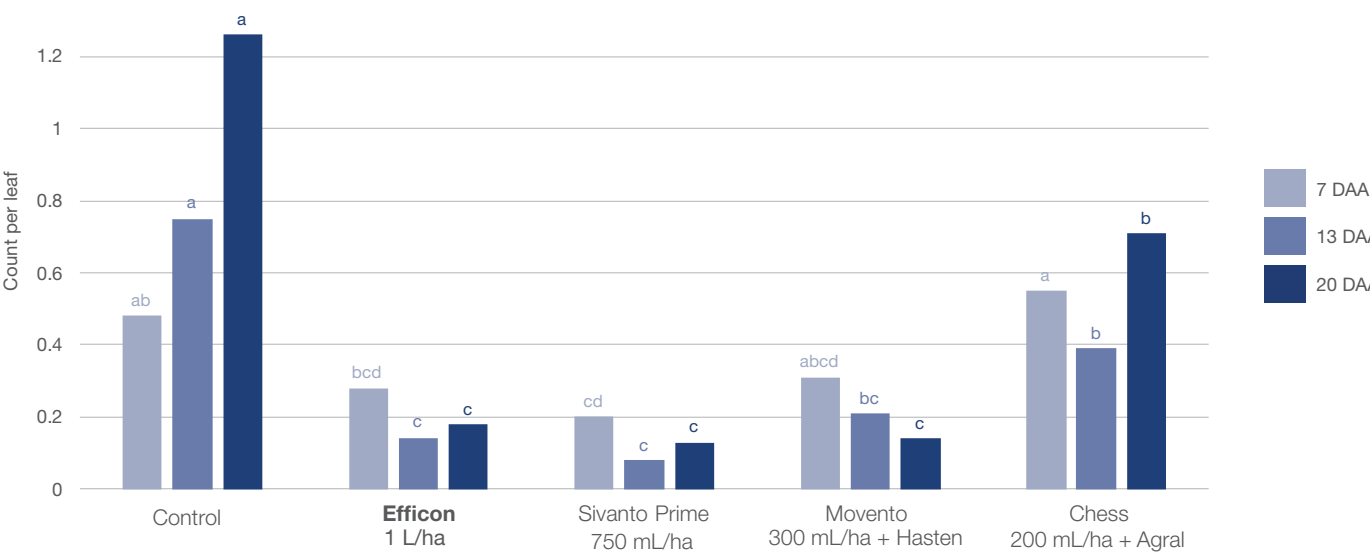
Cotton

Control of SLWF adults, nymphs and eggs



2019 RTP Laboratory trial.

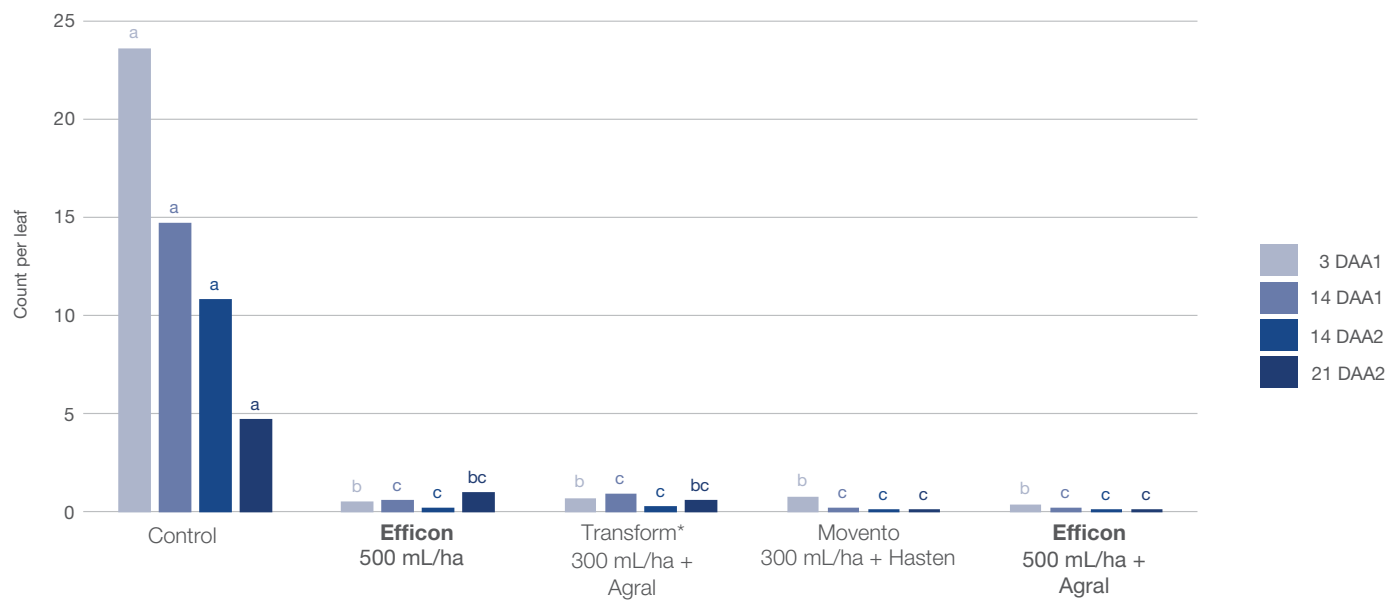
Control of GHWF nymphs



Trial: DEV-I-2019-AX-202-A-02.1-AU-ANV-004. 1x application. Tomatoes cv H4401. Rochester VIC.

Broccoli - Green peach aphids

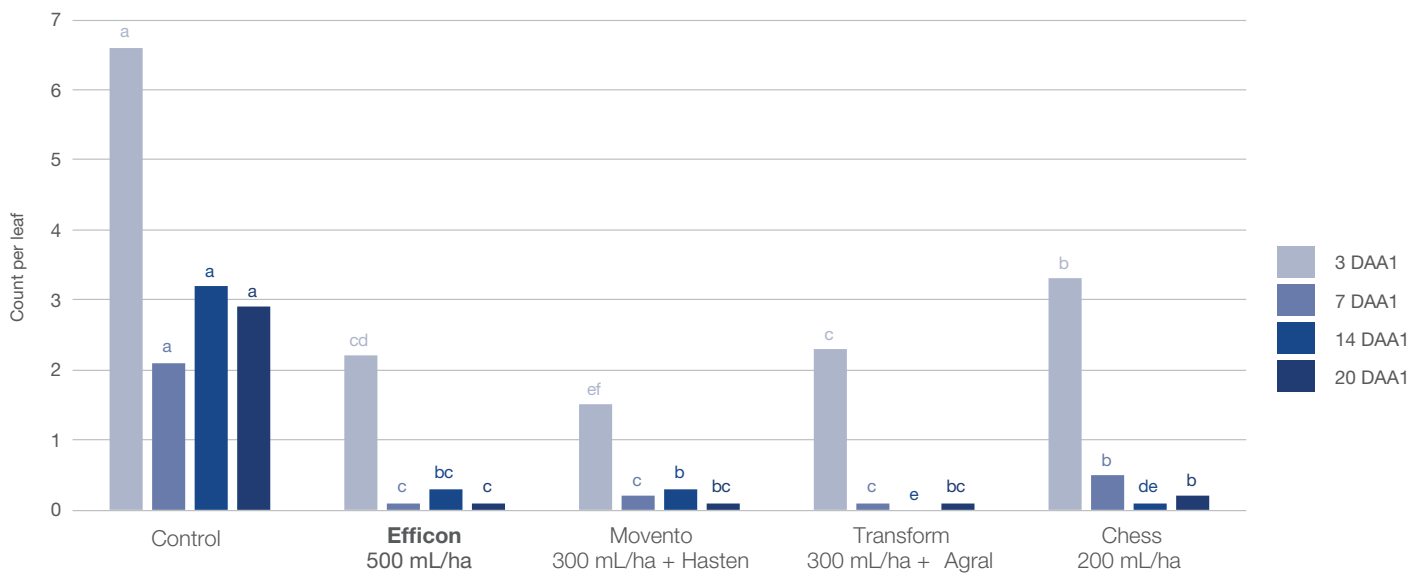
Control of GPA adults



Trial: DEV-I-2017-AU-201-A-03.0-AU-ASQ-003. 2x applications 14 days apart. Broccoli cv Aurora. Gatton QLD.

Brussels sprouts - Green peach aphids

Control of GPA nymphs

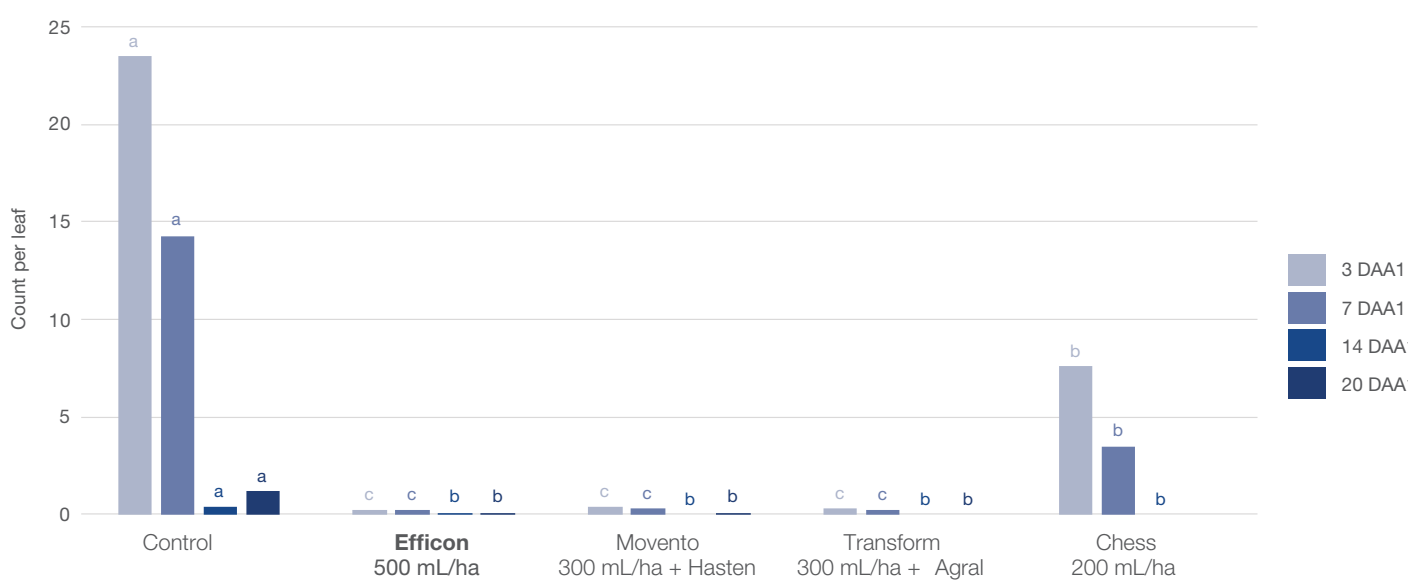


Trial: DEV-I-2017-AU-201-C-02.1-AU-ASQ-004. 2x applications 10 days apart. Cucumber cv Gremlin. Gatton QLD.



Brussels sprouts

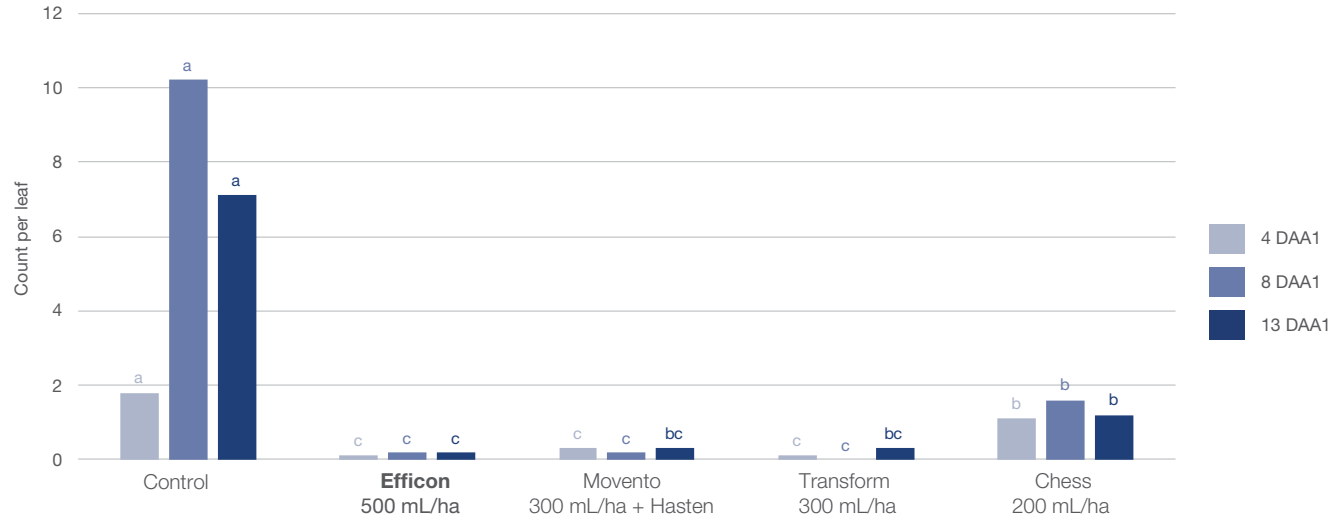
Control of GPA nymphs



Trial: DEV-I-2017-AU-201-C-02.1-AU-ASQ-004. 2x applications 10 days apart. Cucumber cv Gremlin. Gatton QLD.

Broccoli - Cabbage aphids

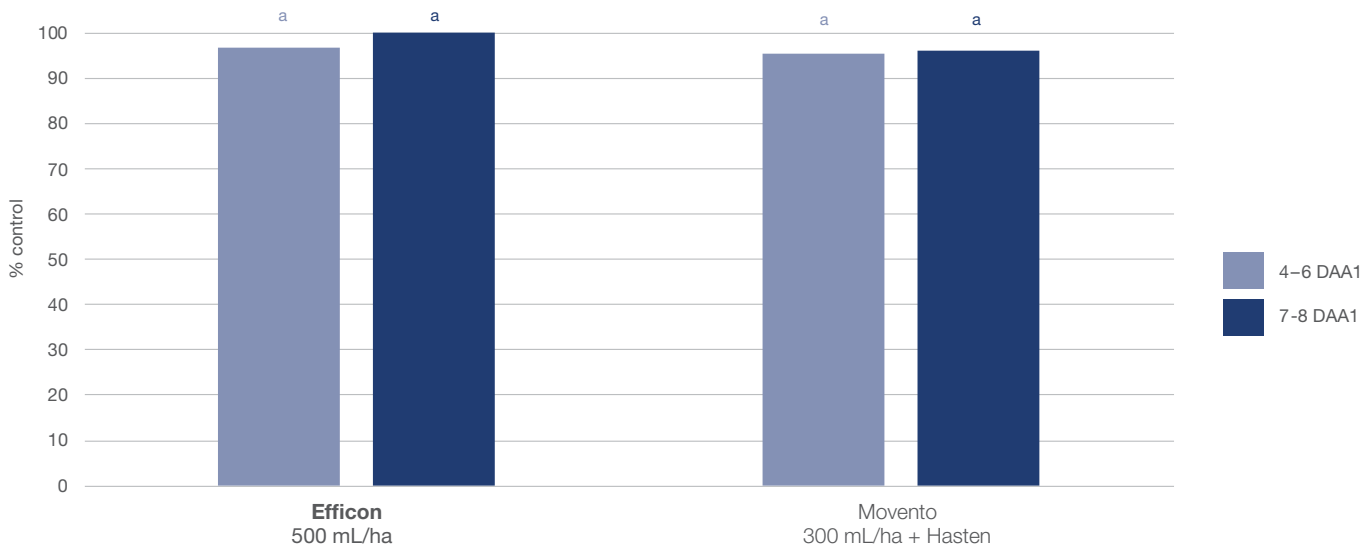
Control of cabbage aphid adults



Trial: DEV-I-2019-AA-203-A-01.1-AU-ASV-001. 1x application. Broccoli cv Kuba. Werribee South VIC.

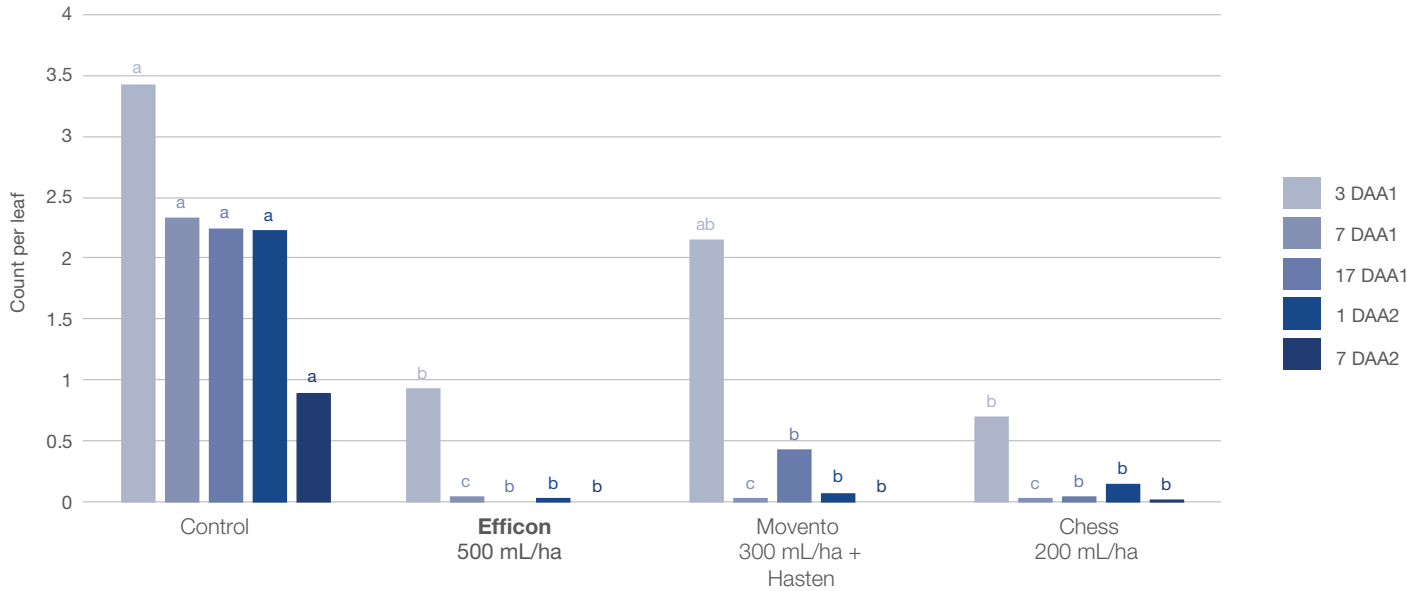
Cucurbits - Cotton/melon aphids

Control of GPA adults



Multi trial analysis in zucchini and pumpkins. Gatton QLD.  
Trials: DEV-I-2017-AX-201-A-02.1-AU-AAU-X01; DEV-I-2017-AX-201-A-02.1-AU-ASQ-X02.

Turnips - Cabbage aphids

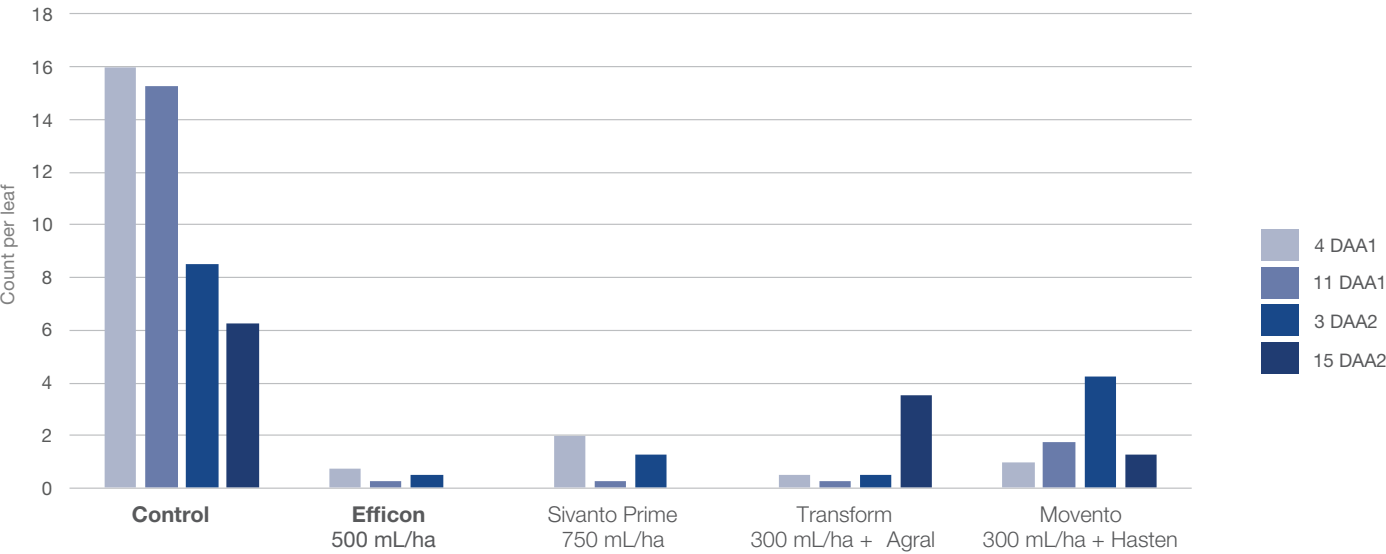


Control of cabbage aphid adults

Trial: DEV-I-2019-AU-203-A-01.1-AU-ASA-001. 2x applications 17 days apart. Turnip cv Sessantina. Waterloo SA.

Zucchini - Cotton/melon aphids

Reduction in total cotton/melon aphid numbers



Trial: DEV-I-2017-AX-201-A-02.1-AU-Aau-X01. 2x applications 11 days apart. Zucchini cv Congo. Gatton QLD.





## Application guidelines

With the option of using two pairs of consecutive Efficon sprays and a very wide application window, Efficon can be used both to establish early pest control and provide crucial systemic protection late in the season.

### Rates

---

<b>Whiteflies:</b>	1 L/ha
<b>Aphids:</b>	500 mL/ha
<b>Application:</b>	Minimum 200 L/ha water

### Timing

---

- Monitor crops and begin applications as local threshold levels are reached.
- Efficon will provide residual control of target pests for up to 21 days.
- Apply Efficon again after 14 days where necessary.
- Vegetable crops can be treated up to 1 day before harvest.
- DO NOT spray Efficon more than twice before rotating to another insecticide MoA.
- DO NOT apply Efficon more than 4 times per crop.

### Method

---

- Full coverage to the point of runoff.
- Max of two sprays before rotating.
- No more than 4 sprays per crop.

# Application guidelines

## Brassicas

### Application rates:

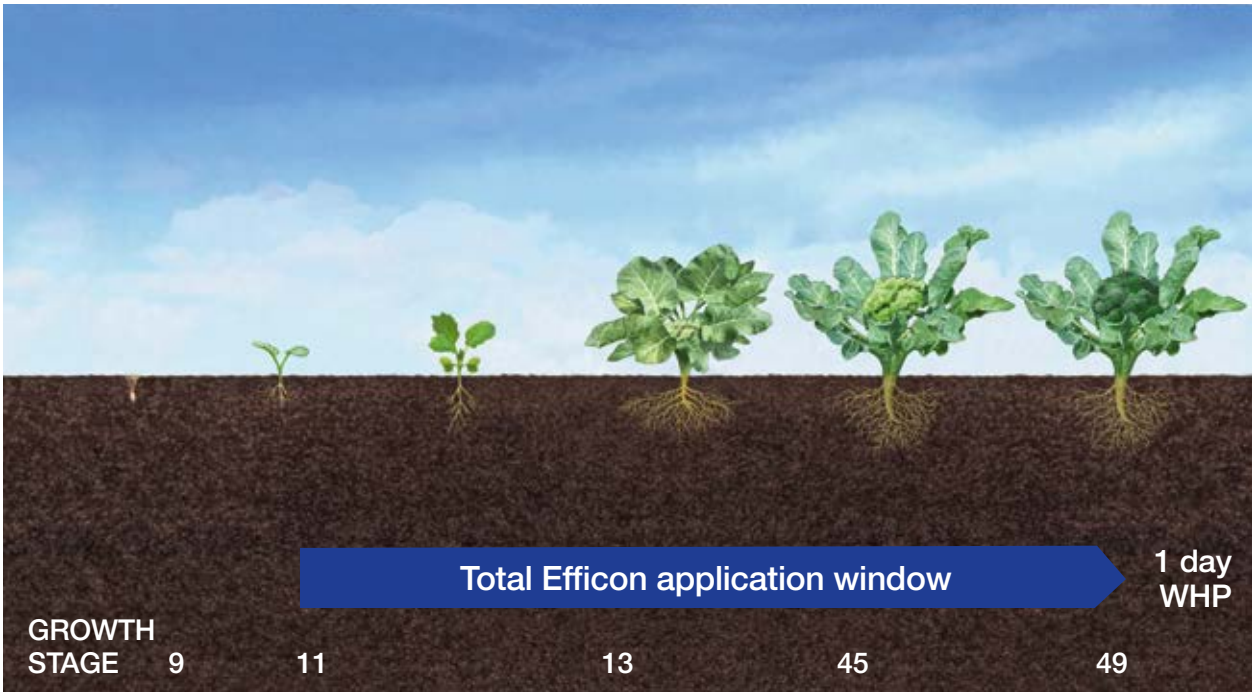
Green peach aphid (*Myzus persicae*),  
Cabbage aphid (*Brevicoryne brassicae*) **0.5 L/Ha**

### Application timing:

Apply a maximum of 2 sprays before rotating to an alternative insecticide.  
Do Not apply more than 4 applications per crop.  
Apply in sufficient water to ensure thorough coverage of the target crop up to the point of runoff.

Efficon Insecticide will provide residual control of aphids out to 21 days. Continue to monitor crops and make subsequent applications after 14 days where necessary.

### Suggested use pattern:



Application can be at any stage of the crop cycle

## Cucurbits

### Application rates:

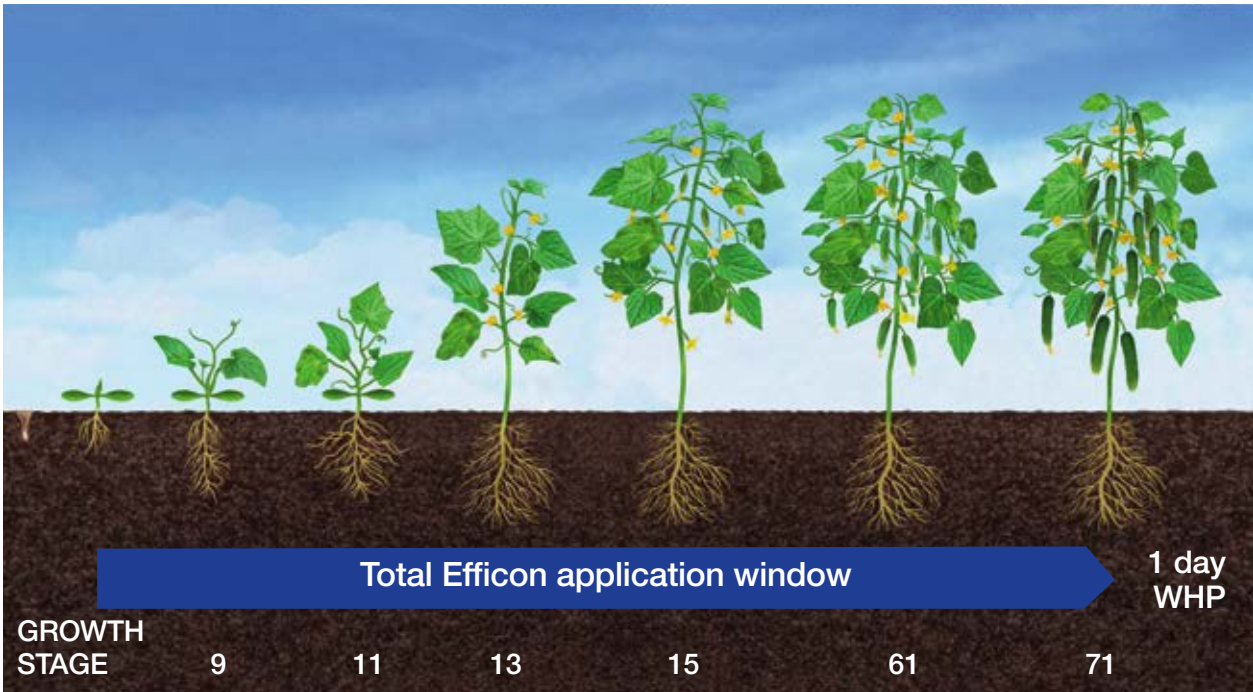
Silverleaf whitefly (*Bemisia tabaci*),  
Greenhouse whitefly (*Trialeurodes* spp) **1 L/Ha**  
Cotton/melon aphid (*Aphis gossypii*) **0.5 L/Ha**

### Application timing:

Apply a maximum of 2 sprays before rotating to an alternative insecticide.  
Do Not apply more than 4 applications per crop.  
Apply in sufficient water to ensure thorough coverage of the target crop up to the point of runoff.

Efficon Insecticide will provide residual control of whiteflies and aphids out to 21 days. Continue to monitor crops and make subsequent applications after 14 days where necessary.

### Suggested use pattern:



Application can be at any stage of the crop cycle



# Application guidelines

## Leafy vegetables

### Application rates:

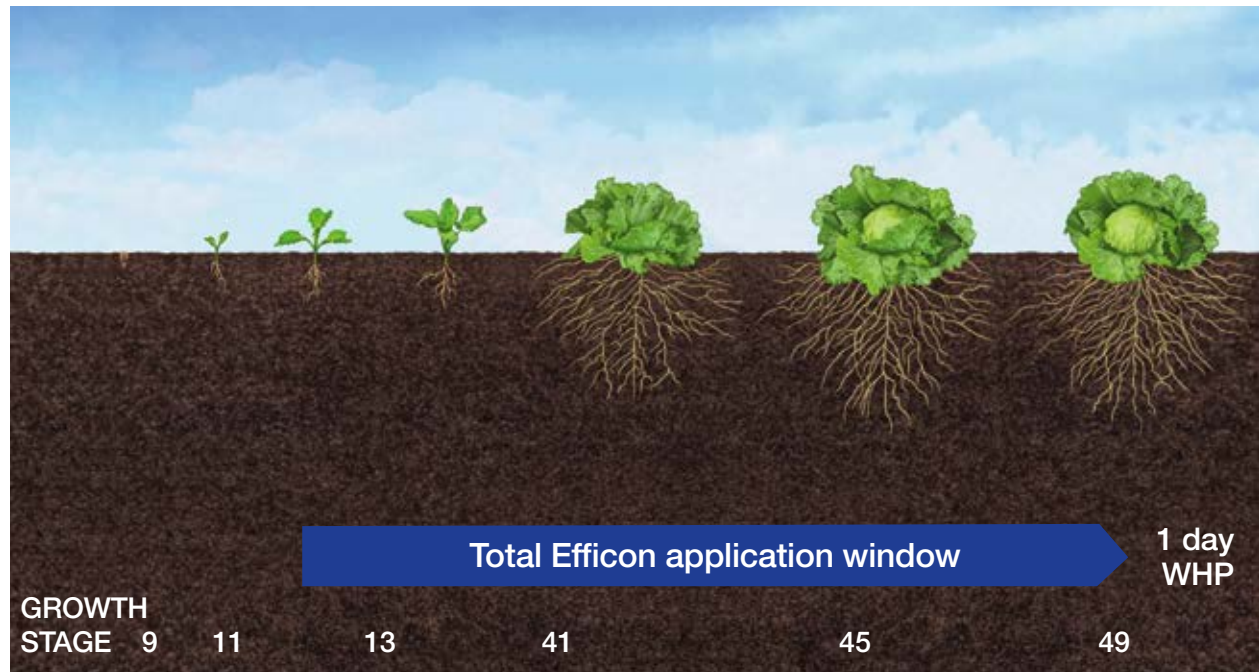
Green peach aphid (*Myzus persicae*),  
Cabbage aphid (*Brevicoryne brassicae*) **0.5 L/Ha**

### Application timing:

Apply a maximum of 2 sprays before rotating to an alternative insecticide.  
Do Not apply more than 4 applications per crop.  
Apply in sufficient water to ensure thorough coverage of the target crop up to the point of runoff.

Efficon Insecticide will provide residual control of aphids out to 21 days. Continue to monitor crops and make subsequent applications after 14 days where necessary.

### Suggested use pattern:



Application can be at any stage of the crop cycle

## Fruiting vegetables

### Application rates:

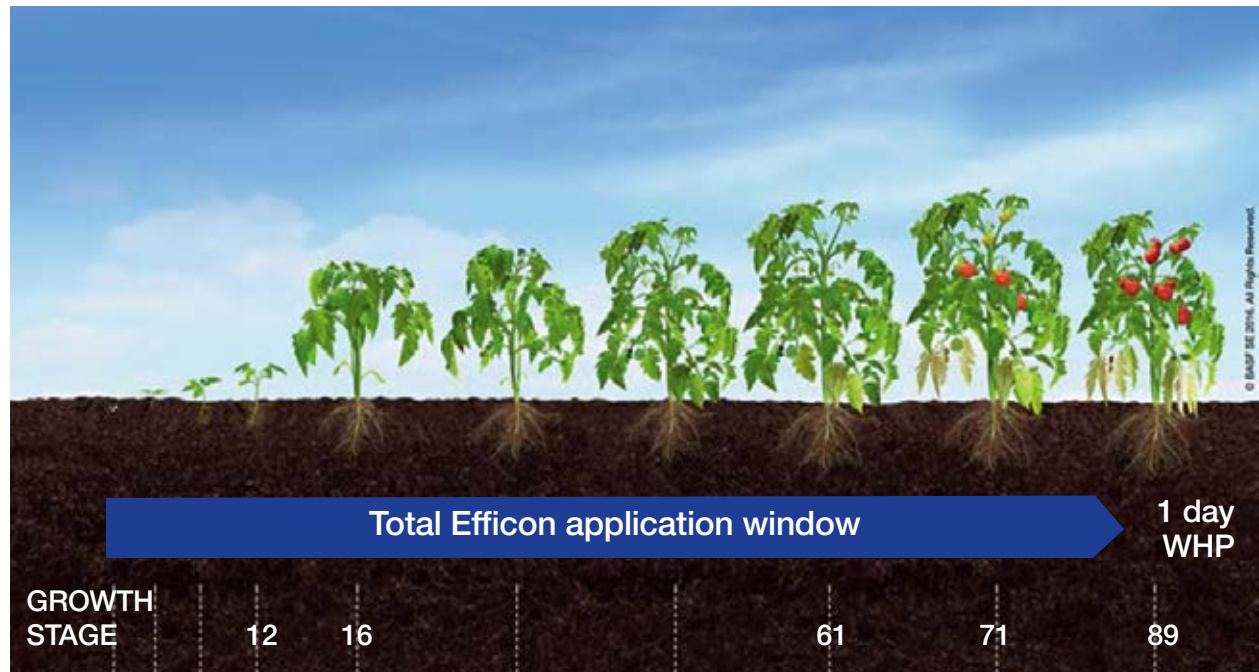
Silverleaf whitefly (*Bemisia tabaci*),  
Greenhouse whitefly (*Trialeurodes* spp) **1 L/Ha**

### Application timing:

Apply a maximum of 2 sprays before rotating to an alternative insecticide.  
Do Not apply more than 4 applications per crop.  
Apply in sufficient water to ensure thorough coverage of the target crop up to the point of runoff.

Efficon Insecticide will provide residual control of whiteflies and aphids out to 21 days. Continue to monitor crops and make subsequent applications.

### Suggested use pattern:



Application can be at any stage of the crop cycle



# Application guidelines

## Label registrations

	PESTS	RATE	WHP
<b>Brassica vegetables</b>  incl. broccoli, broccolini, Brussels sprouts, cabbage, cauliflower, kohlrabi	Green peach aphids  Cabbage aphids	500 mL/ha	1 day
<b>Cotton</b>	Silverleaf whitefly	1 L/ha 500 mL/ha	4 weeks
<b>Cucurbits</b>	Greenhouse whitefly  Cotton/melon aphid	1 L/ha 500 mL/ha	1 day
<b>Leafy vegetables and leafy brassicas</b>  incl. chard (silver beet), cress spinach, lettuce (head and leafy), bok choy, Chinese cabbage, choy sum, gai lan, kale, leafy mustard, pak choy, rocquette	Silverleaf whitefly  Greenhouse whitefly	500 mL/ha	1 day
<b>Fruiting vegetables</b>  incl. Capsicums, chillis, eggplant, okra, tomatoes		1 L/ha	1 day





**NEW**

# Efficon®

Insecticide – Powered by Axalion® Active

## Key Efficon advantages

- ✓ A new mode of action providing rapid and reliable control of target pests
- ✓ Favourable to beneficials allowing compatibility with IPM programs
- ✓ Controls pests with reduced sensitivity to other insecticides
- ✓ Rapid feeding cessation reduces virus transmission
- ✓ Strong protection after crop closure due to systemic, oral and contact activity

For more information on Efficon® Insecticide,  
visit **[crop-solutions.basf.com.au](https://crop-solutions.basf.com.au)** or contact  
your local BASF representative on **1800 558 399**

  
We create chemistry

**ALWAYS READ AND FOLLOW LABEL DIRECTIONS.**

© Copyright BASF 2023 ® Registered trademark of BASF. \* Registered trademark 213306 03.23