BASF

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Technical guide

Versys®

Insecticide

A major win for vegetable growers

Versys® Insecticide gives vegetable and cotton growers an important and advanced new management option for aphids and silverleaf whitefly that will strengthen the whole IPM program.

Versys introduces a very efficient mode of action from a new subgroup that delivers control at low use rates and has less impact on beneficial insects and pollinators.

Adding Versys to the rotation will deliver superior insect control while also helping to maintain the effectiveness of other insecticides.

Contents

Product profile

Mode of action	Group 9D – Pyropenes
Formulation	DC – Dispersion Concentrate
Adjuvant	Versys contains a built-in adjuvant and can be mixed with an additional surfactant to maximise control of silverleaf whitefly.
Compatibility	Versys is compatible with a range of crop protection solutions. See page 7.
Rainfastness	Versys is rainfast within 1 hour of application.
IPM	Versys is highly compatible with a range of IPM systems and pollinator insects.
Pack size	1L

Use profile

Target pests

Control:	Green peach aphid	*Myzus persicae*
	Cabbage aphid	*Brevicoryne brassicae*
	Currant lettuce aphid	*Nasonovia ribisnigri*
	Cotton aphid	*Aphis gossypii*
	Melon aphid	
Suppression:	Silverleaf whitefly (SLWF)	*Bemisia tabaci* Biotype B

Crops

Brassicas, including broccoli, broccolini, Brussels sprouts, cabbages, cauliflower and kohlrabi

Leafy brassicas, including bok choy, Chinese cabbage, choy sum, gai lan, kale, leafy mustard, pak choy and rocket

Celery

Cucurbits, including melons, zucchinis, cucumbers, pumpkins and squash

Fruiting vegetables, including capsicum, chillies, eggplants, okra and tomatoes

Leafy vegetables, including chard (silver beet), cress and spinach

Lettuces, both head and leafy

Parsley

Potatoes

Sweet potatoes

Cotton

Ginger

Ornamentals

Rates

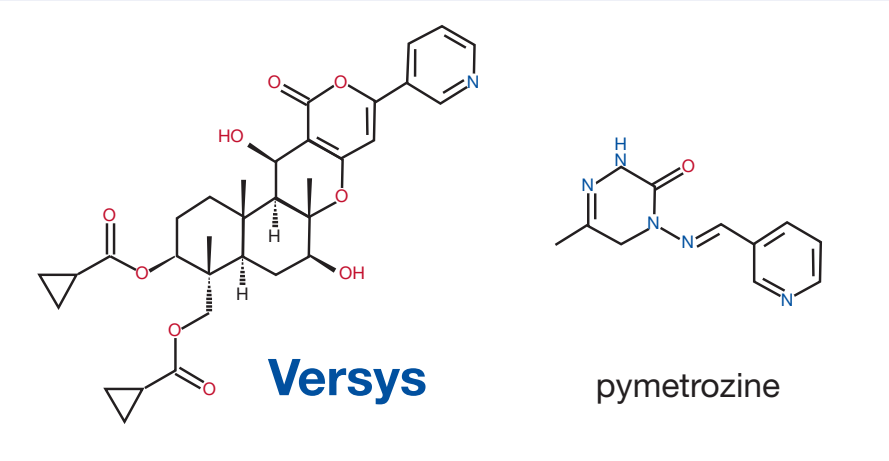
Aphids:	100 mL/ha
SLWF:	350 mL/ha + 0.2% v/v Hasten
Application:	In a minimum of 200L water/ha

Mode of action

Versys has been classified by the Insecticide Resistance Action Committee (IRAC) as the only representative of the newly created subgroup 9D.

The classification is based on Versys having:

- **A very different molecular structure** compared to other Group 9 insecticides.

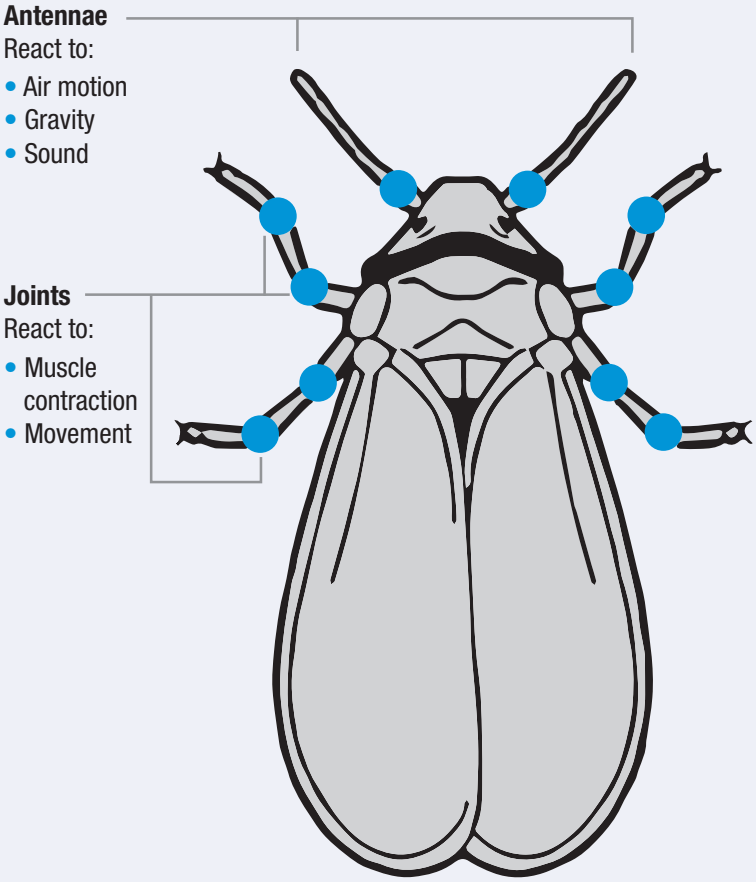


- **A unique binding site** compared to other Group 9 insecticides.
- **Proven efficacy against pests with resistance to pymetrozine,** which has a Group 9B mode of action.

Versys acts as a chordotonal organ TRPV channel modulator. Chordotonal organs are stretch sensors that insects rely on for their senses of hearing and balance and which are critical for coordinated movement.

When Versys selectively binds to TRPV channels, it causes the sensors to send continuous chordotonal nerve signals independent of joint movement. The result is that target pests stop feeding in as little as 15 minutes as they become deaf, disoriented and unable to control their legs and antennae. The resulting jittery movements can then create the appearance of 'dancing'.

Location of chordotonal organs

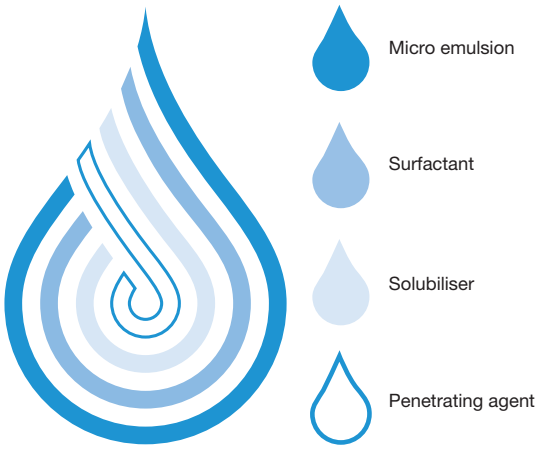


New formulation technology

Versys uses patented BASF polymer chemistry combined with unconventional microemulsion technology to enhance uptake efficiency.

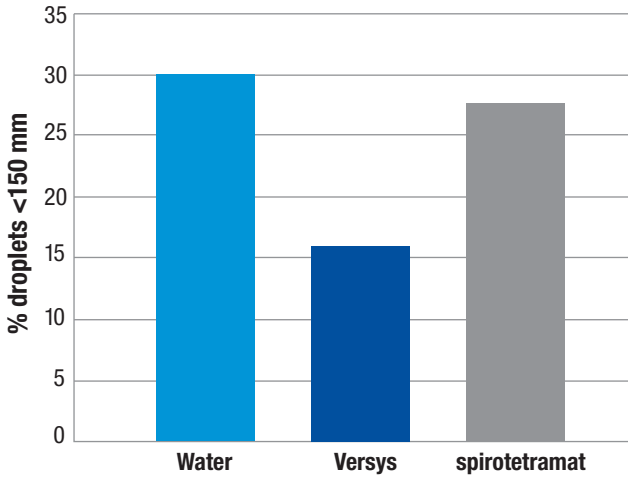
That combination means high levels of control can be achieved despite the application of very low levels of active ingredient.

The formulation is an interdependent combination of four components that creates larger droplets with excellent penetration of the leaf surface.



Reduced spray drift and wastage

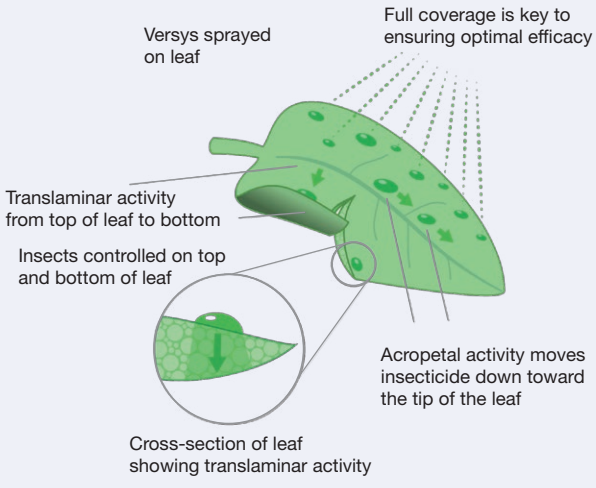
An exceptionally low percentage of very small droplets in the Versys formulation helps ensure that a higher proportion of the sprayed volume hits the target to minimise wastage and further reduce its environmental impact compared to alternative choices.



Translaminar and acropetal mobility

Versys has translaminar movement that can help control insects sheltering on the underside of the leaf. It also moves acropetally towards the leaf tip in plants provided:

- The water volume is high enough to ensure thorough coverage.
- Adjuvants are used when appropriate to improve penetration – especially of waxy leaves.



Versys and IPM

Versys has exceptionally low impact on beneficial insects, including pollinators.

Beneficial insects

Verysy has been tested and found to have low impact on:

Predatory mites	*Amblyseius swirskii* *Euseius tularensis* *Phytoseiulus persimilis*
Parasitic wasps	*Aphidius colemani*
Green lacewings	*Chrysoperla carnea*
Brown lacewings	*Micromus tasmaniae*
Ladybird beetles	*Coccinella septempunctata*

Comparative LD_{50}s for bees

The data in the table show that Versys is about 8000 times less toxic than Imidacloprid, 300 times less toxic than sulfoxaflor and comparable to spirotetramat.

Versys	Oral: >200 µg Contact: >200 µg
spirotetramat	Oral: >107 µg Contact: >100 µg
sulfloxaflor	Oral: 0.14 µg Contact: 0.38 µg
imidacloprid	Oral: <0.07 µg Contact: <0.02 µg

Source: British Crop Protection Council Pesticide Manual

Versys has been shown to exhibit low negative impact on bee populations, including colony health and development, and has been found to be compatible for use in the presence of many common beneficial arthropods, including predatory mites and parasitic wasps.

Resistance management

BASF Versys trials have shown no cross-resistance to other insecticides from Group 1 (carbamates and organophosates), Group 2 (synthetic pyrethroids), Group 4A (neonicotinoids) and Group 9B (pymetrozine) where resistance is present.

Like all other insecticides, Versys should be used in rotation with insecticides with other modes of action and should not be used more than 4 times – and not more than 2 times at the higher rate – in a single crop.

Compatibility

Versys is compatible with a wide range of crop protection solutions. The listed products have been tested and shown to have physical compatibility with Versys.

For specific advice about other products, please contact a BASF representative.

Fungicides	Insecticides
Acrobat®	alpha-cypermethrin
Aero®	bifenthrin
Cabrio®	chlorantraniliprole + thiamethoxam
Colliss®	chlorfenapyr
Filan®	chlorpyrifos
Polyram® DF	emamectin benzoate
Pristine®	flubendiamide
Vivando®	indoxacarb
Zampro®	lambda-cyhalothrin
azoxystrobin	spinetoram
chlorothalonil	spirotetramat
fludioxonil + cyprodonil	thiamethoxam
mancozeb	

Short withholding periods

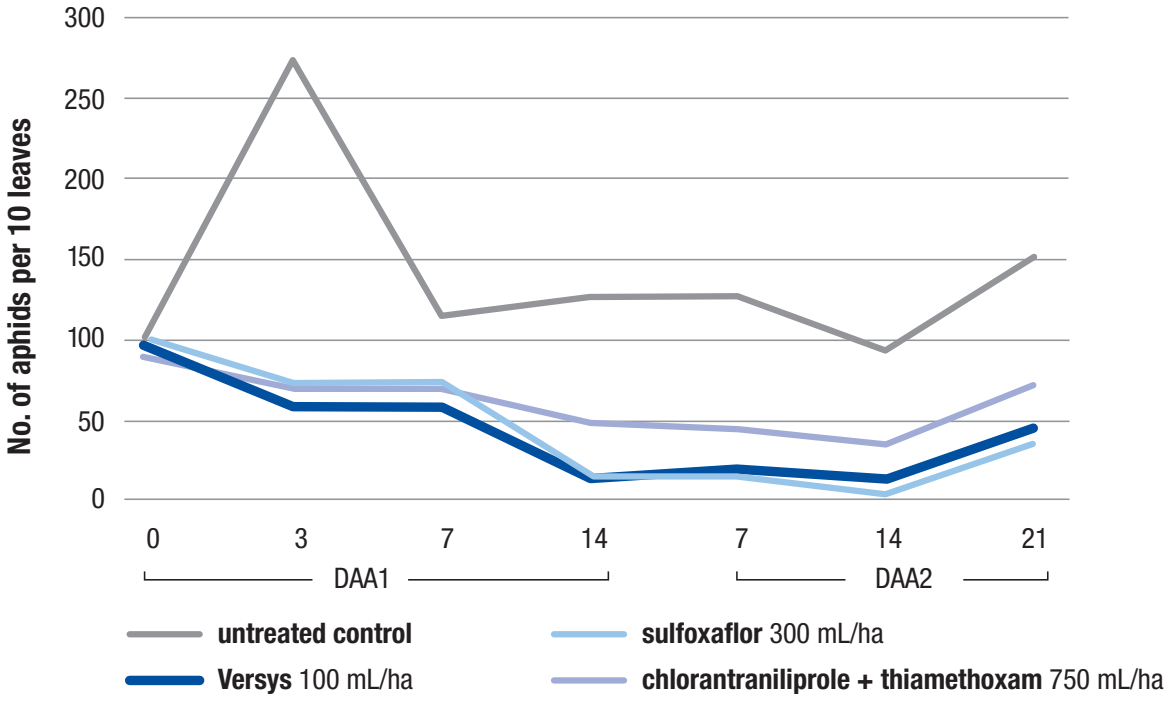
1 day	7 days
Brassicas	Cotton
Leafy brassicas	Potatoes
Other leafy vegetables	Sweet potatoes
Lettuces	Ginger
Celery	
Cucurbits	
Fruiting vegetables	
Parsley	

There is no WHP for ornamentals.

* Registered trademark

Versys green peach aphid control in broccoli

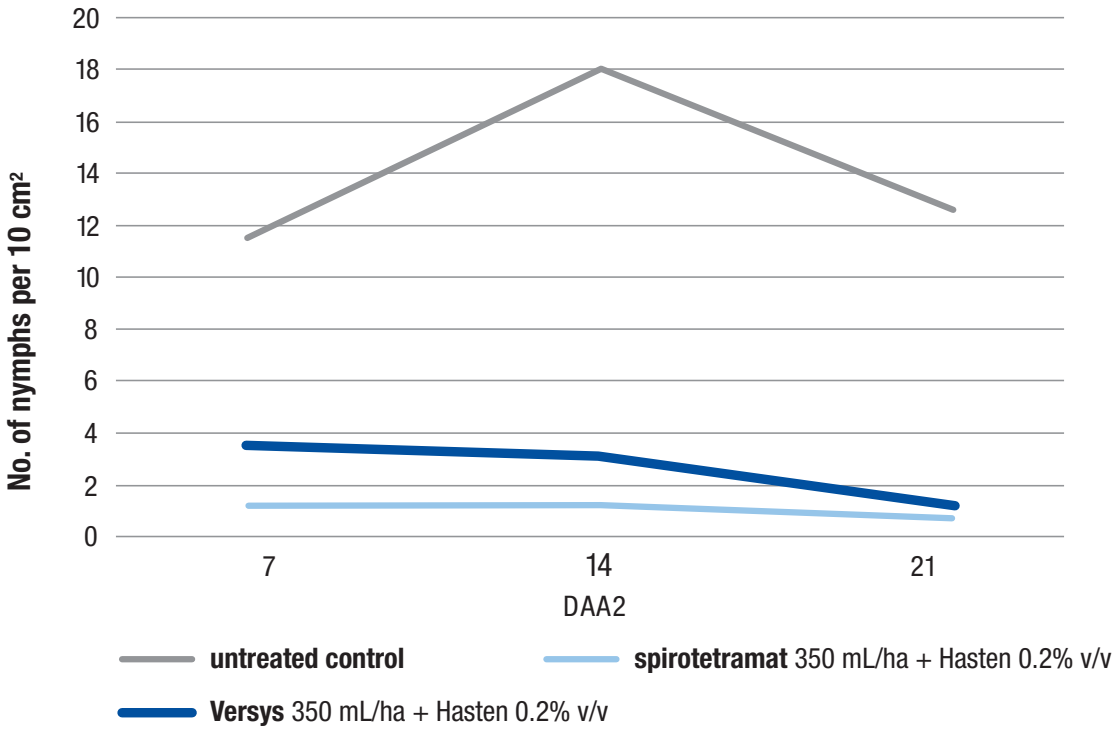
In this trial, Versys provided excellent early control against heavy aphid pressure and was still providing a 76% reduction in aphid numbers compared to the untreated control 3 weeks after the second application.



Caesar Horticulture Innovation trial in broccoli. Bowen, Qld 2015

Versys silverleaf whitefly (Biotype B) suppression in honeydew melons

As this graph shows, Versys can play an important role in the total management program for SLWF. Versys will reduce SLWF numbers while easing resistance pressure on other products and significantly reducing the total chemical load on each crop.

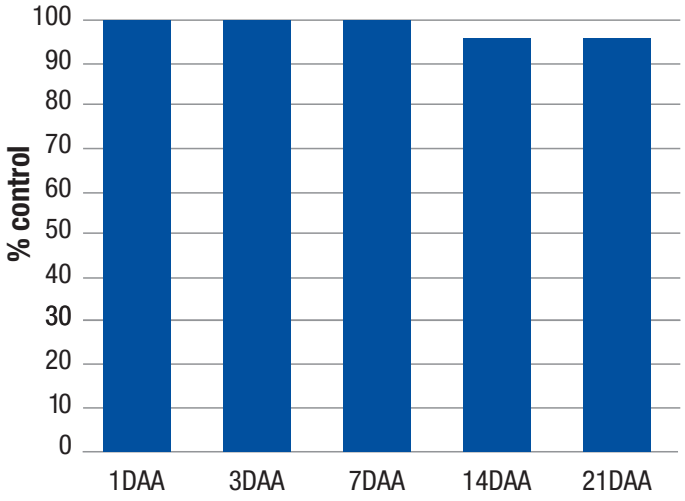


Peracto trial in honeydew melons. Bowen, QLD 2012

Long residual activity

Green peach aphids were introduced to treated leaves 1, 3, 7, 14 and 21 days after Versys application at 100 mL/ha in 300 L water to show residual activity.

Residual control can be expected to last from 14 to 21 days, depending on the level of insect pressure.



BASF ATAC Laboratory trial, North Carolina USA

Reduced virus transmission

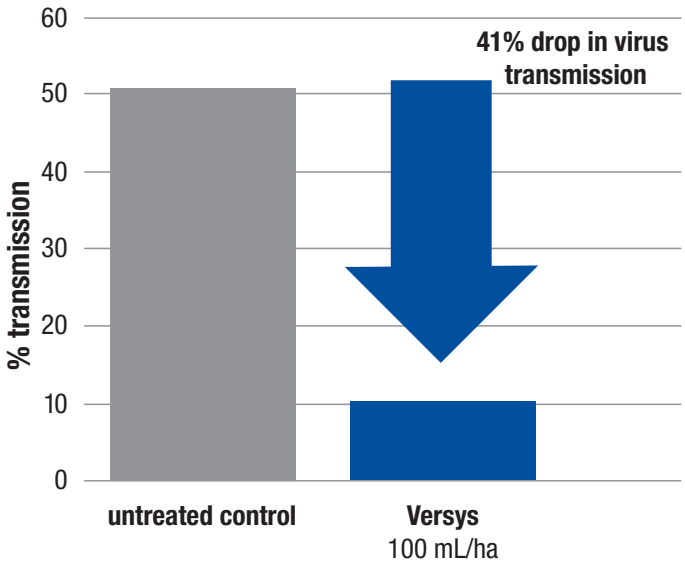
Aphids and SLWF are vectors of damaging viral diseases. Trials have shown that treatment with Versys reduces acquisition of the virus and the insects' ability to infect plants.

This effect is an additional benefit to the control of feeding damage and honeydew secretion that further enhances the impact of controlling aphid and SLWF numbers.

Treatment with Versys means there will be far fewer insects present, and those that remain are much less capable of transmitting viruses.

Reduced virus transmission in aphids

This trial showed an 41% reduction in virus transmission by aphids. Virus-free aphids were allowed to feed on treated plants infected with turnip yellow virus for 4 hours. They were then transferred to virus-free plant material to feed for 48 hours. The plant material was assessed 4 weeks later for virus transmission.

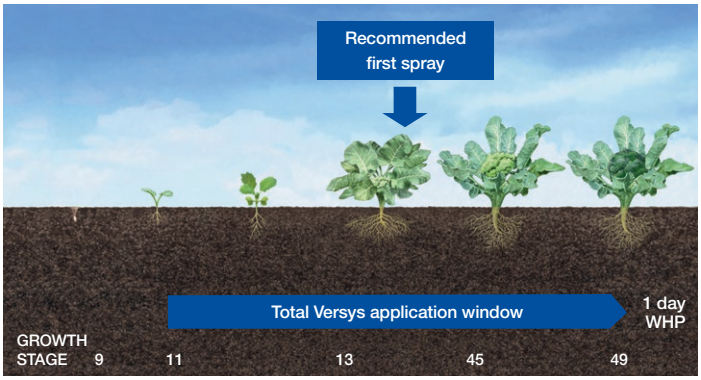


Application guidelines

- As already noted, Versys is ideal for inclusion in IPM programs and fully compatible with the use of beneficial insects.
- Do not apply more than 4 Versys sprays per crop, including a maximum of 2 sprays at the higher rate.
- Versys can be used over flowering (where applicable) but not while bees are actively foraging.
- Versys should be applied when aphids first establish to limit the transmission of viruses.
- It is important to monitor pest pressure so that Versys can be applied or re-applied as soon as pest thresholds are reached.
- Versys is recommended as the first spray following planting or following seedling treatments or plant drenches for aphid control.
- Versys fits well in existing spray programs used as the first application following the use of Imidacloprid or chlorantraniliprole | thiamethoxam seed treatments or plant drenches, followed by applications of Spirotetramat at head closure in leafy vegetables.
- Two applications of Versys are needed to maintain suppression of SLWF (Biotype B) populations.
- Versys is also suitable for multiple use in fruiting crops over flowering through to harvest.

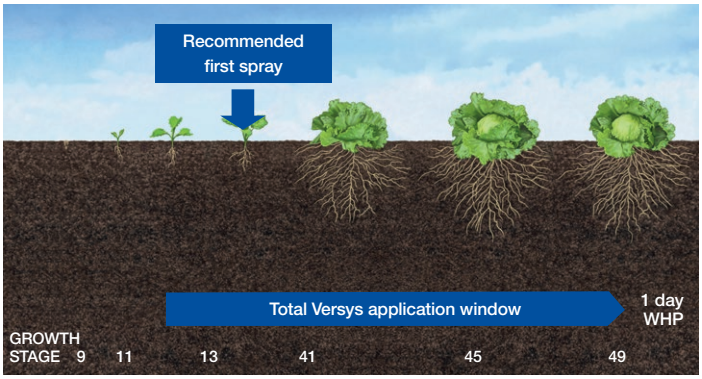
Brassicas

Versys is recommended as the first spray 4–6 weeks after the use of a seed treatment or plant drench, once control has declined. Further sprays can then be used up to 1 day before harvesting.



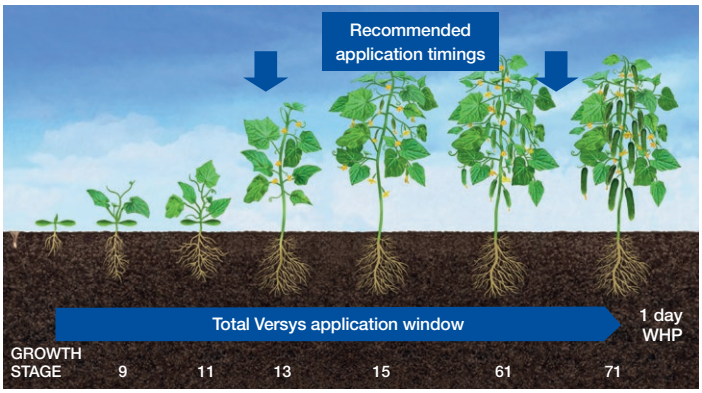
Leafy vegetables

Versys is recommended as the first spray 4–6 weeks after the use of a seed treatment or plant drench, once control has declined. Further sprays can then be used up to 1 day before harvesting.



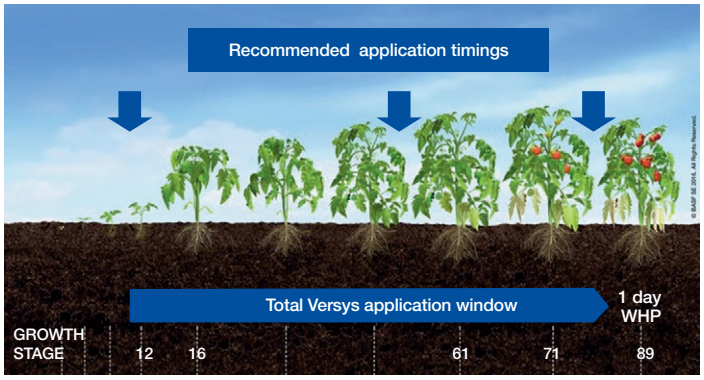
Cucurbits

Versys is recommended as the first spray 4–6 weeks after the use of a seed treatment or plant drenching, once control has declined. When aphids are present, it should be used early to minimise virus transmission. Versys is also recommended for use over flowering – but not when bees are actively foraging – to maximise bee pollination and subsequent fruit set. Its short withholding period makes Versys particularly suitable for use during fruiting in crops with multiple picking times.



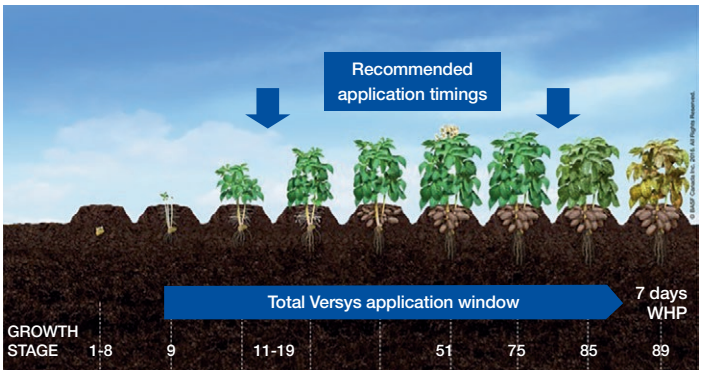
Fruiting vegetables

Versys is recommended as the first spray 4–6 weeks after the use of a seed treatment or plant drenching, once control has declined. Versys can also be used over flowering – but not when bees are actively foraging – to maximise bee pollination and subsequent fruit set. Its short withholding period makes Versys particularly suitable for use during fruiting in crops with multiple picking times.



Potatoes

Versys is recommended as the first spray 4–6 weeks after the use of a seed treatment or in-furrow treatment, once control has declined. When aphids are present, it should be used early to minimise virus transmission.



Key Versys advantages

- ✓ **New mode of action subcategory** to help manage resistance
- ✓ **Low impact** on beneficial insects and pollinator insects such as bees
- ✓ **Rapid feeding cessation** to minimise virus transmission
- ✓ **Affects all aphid life stages** from eggs to adults
- ✓ **Short WHPs for late control** – 1 day in most vegetable crops, 7 days for potatoes, sweet potatoes, ginger and cotton, and 0 days for ornamentals
- ✓ **High levels of residual control** for up to 21 days

Resistance management

Versys is in a new chemical subclass and has been classified as a Group 9D insecticide for resistance management. No more than 4 Versys sprays – with a maximum of 2 sprays at the higher rate – should be applied per crop. Versys should always be used in rotation with insecticides with different modes of action.

For more information, visit crop-solutions.basf.com.au or contact your local BASF representative