



# MOVENTO®

# Brassicas Crop Guide

## New registration for DBM

Movento® 240 SC Insecticide is now registered in brassica and leafy brassica vegetables for the control of diamond back moth larvae (*Plutella xylostella*, DBM), in addition to sucking pests including green peach aphid, grey cabbage aphid and silverleaf whitefly. As the only Group 23 insecticide registered in Australia, the introduction of Movento for control of DBM provides an additional mode of action to manage insecticide resistance.

Movento works by interfering with fat reserves which are required for insects to grow. Therefore, Movento should be targeted on egg lays and first instar larvae. Control of older third and fourth instar larvae is less effective and targeting these life-stages is not recommended. Movento may cause sub-lethal effects on adults which show as reductions in fertility (a lower production of viable eggs) and fecundity (fewer eggs laid).



### KEY BENEFITS

- **New MOA for DBM control** – Movento offers a new mode of action (Group 23) and is highly effective against young DBM larvae. There is also no known cross-resistance with any commercial insecticide available in Australia.
- **Reliable control of other pests** – Movento provides reliable control of sucking pests including green peach aphid, grey cabbage aphid and silverleaf whitefly.
- **Rapidly absorbed** – Mixed with an appropriate adjuvant, most of the active ingredient spirotetramat (~75%) can be absorbed within two hours, however due to its mode of action it generally takes at least 5-7 days, and often longer, before evidence of activity begins to show.
- **2-way systemic** – Movento controls hidden pests other insecticides don't reach, because it is transported in both the xylem and phloem; good coverage is recommended.
- **IPM fit** – Movento is 'soft' on most beneficial insect species, including parasitic wasps (*Eretmocerus hayati* and *Trichogramma* spp.), pirate bugs, hoverflies and lacewings when used as directed. It is slightly harmful to earwigs, spiders and other predatory bugs.

### PRODUCT AT A GLANCE

<b>Active ingredient</b>	Spirotetramat (240 g a.i./L)
<b>Formulation</b>	Suspension Concentrate (SC)
<b>Activity group</b>	Group 23 – Tetriconic and Tetricamic acid derivatives
<b>Mode of action</b>	Movento inhibits the synthesis of lipids in insects' biochemical systems through ingestion, which prevents insects from growing properly
<b>Number of sprays/ spray interval</b>	Maximum of 3 sprays per crop in brassicas and 2 sprays per crop in brassica leafy vegetables, intervals between 7-10 days and not less than 7 days
<b>Adjuvant</b>	Emulsified oil penetrants such as Agridex® or Hasten® at 0.5 to 1.0 L/ha
<b>Withholding period</b>	3 days
<b>Pack sizes</b>	3 and 10 L

# Movento in brassicas

**Extensively trialled** – Movento was trialled extensively in broccoli, cabbage, cauliflower and Brussels sprouts under varying DBM pressure. Overall, Movento achieved comparable control to current industry standards including Belt® and Avatar®, when applied to young DBM larvae as per label.

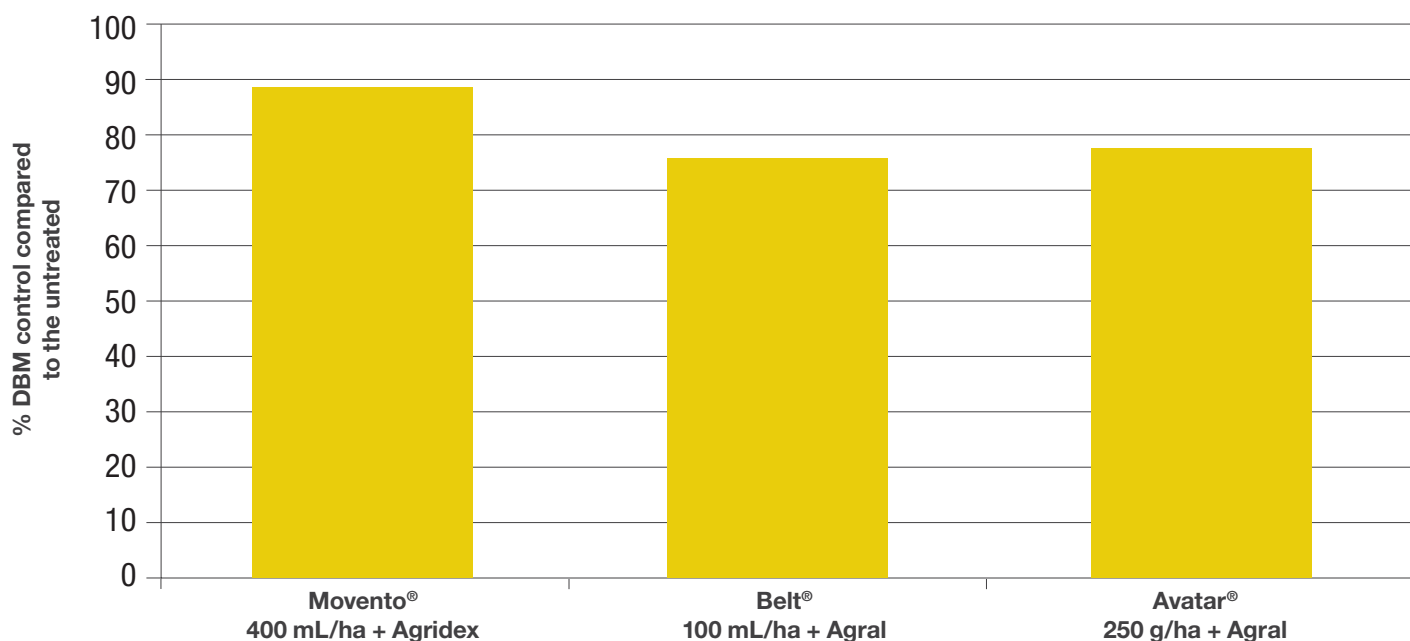
**Use early** – Apply Movento in the early stages of a brassica crop's development to coincide with insects in the early part of their life cycle.

**Control through ingestion** – As Movento controls brassica pests through ingestion, this process often takes 5-7 days or longer and insects will continue feeding until they moult, cessation of feeding is closely linked. However, the level of feeding damage recorded from DBM in several trials,

including one conducted in Brussels sprouts with Movento, is at least comparable if not better than current industry standards.

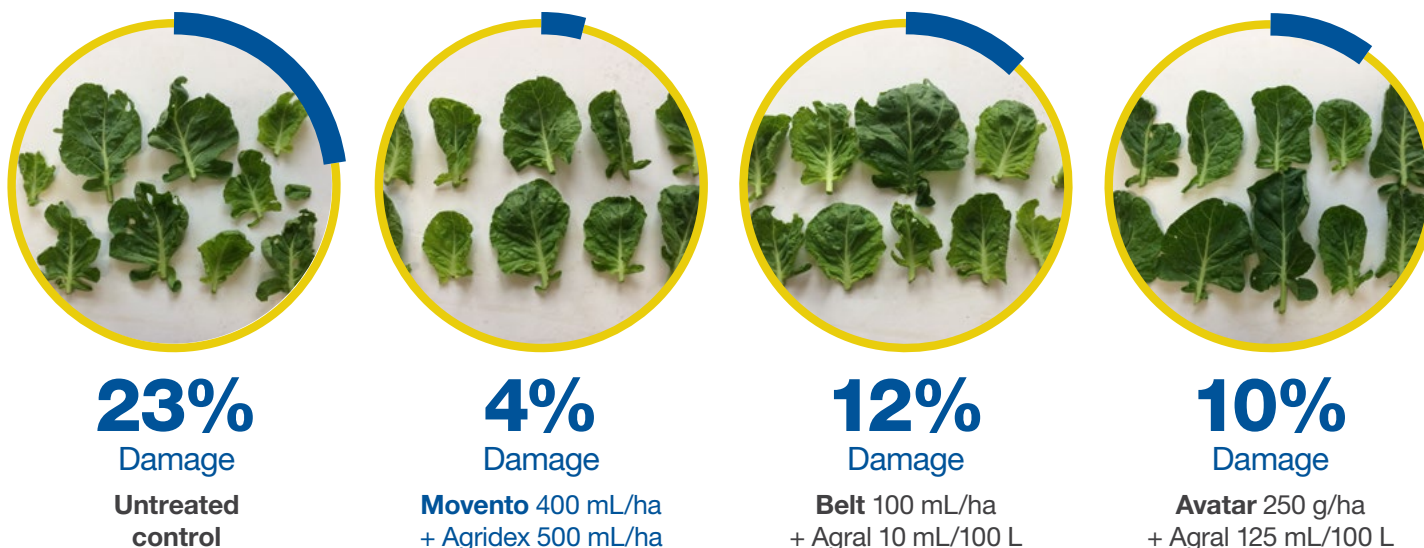
**Emulsified oil penetrants** – Agridex and Hasten at 0.5 to 1.0 L/ha are the recommended adjuvants. The non-ionic surfactants or wetting agents, such as Agral® and BS1000® are considerably less effective and are not recommended.

## DBM CONTROL WITH MOVENTO PLUS AGRIDEX



Average Based on larvae or larvae + pupae counts per leaf or plant in various brassica crops. Trial IDs: QB6915, QB8417, QB7115, QB1017, QB0118, QB8217

## BRUSSELS SPROUTS LEAF DAMAGE CAUSED BY DBM LARVAE AT 8 DAYS AFTER THE SECOND SPRAY APPLICATION (QB8217 – SOUTH AUSTRALIA).



## CONTROLLING DBM

**Egg lays and first instar** – Movento is most effective on the younger larval stages of DBM, so target foliar sprays on egg lays and first instar larvae.

**Correct rate** – 400 mL/ha OR dilute spraying 40 mL/100 L plus Agridex or Hasten at 0.5 to 1.0 L/ha with thorough coverage, particularly on older plants. If there is a mixed population of sucking pests with DBM larvae (even at low levels), apply Movento at 400 mL/ha plus Agridex or Hasten at 0.5 to 1.0 L/ha.

**Back-to-back** – For best results, apply as two ‘back-to-back’ foliar sprays to enhance residual control by increasing the level of active ingredient throughout the plant canopy for a longer period. This controls the young DBM larvae which prevents the population from building up.

**Window approach** – Applying Movento as ‘back-to-back’ foliar sprays follows a ‘window’ approach to prevent the development of resistance to any one specific active ingredient. This ‘window’ approach avoids exposure of consecutive DBM generations to the same mode of action. Multiple successive applications of a specific active ingredient is acceptable if they are used to target a single DBM generation.

**Don’t tank mix with other insecticides** – Do not tank mix with other insecticides for controlling DBM (except for a Bt if required). Therefore, a Movento tank mixture with Belt is no longer recommended. If there is a broad-spectrum of other lepidopteran pests present at the same time as DBM, consider using alternative chemistry such as Belt for broader activity, and

then apply Movento later in the season if the pest population is dominated by young DBM larvae and other sucking pests.

**Maximum number of applications** – Do not apply more than 3 applications to any one brassica crop and not more than 2 applications to any one brassica leafy vegetable crop.

Spray intervals should be between 7-10 days and not be less than 7 days. The appropriate spray interval should be guided by pest pressure, pest spectrum and average temperature, which dictates the development of the DBM life cycle.

## LIFE CYCLE DEVELOPMENT RATE IS TEMPERATURE DEPENDENT

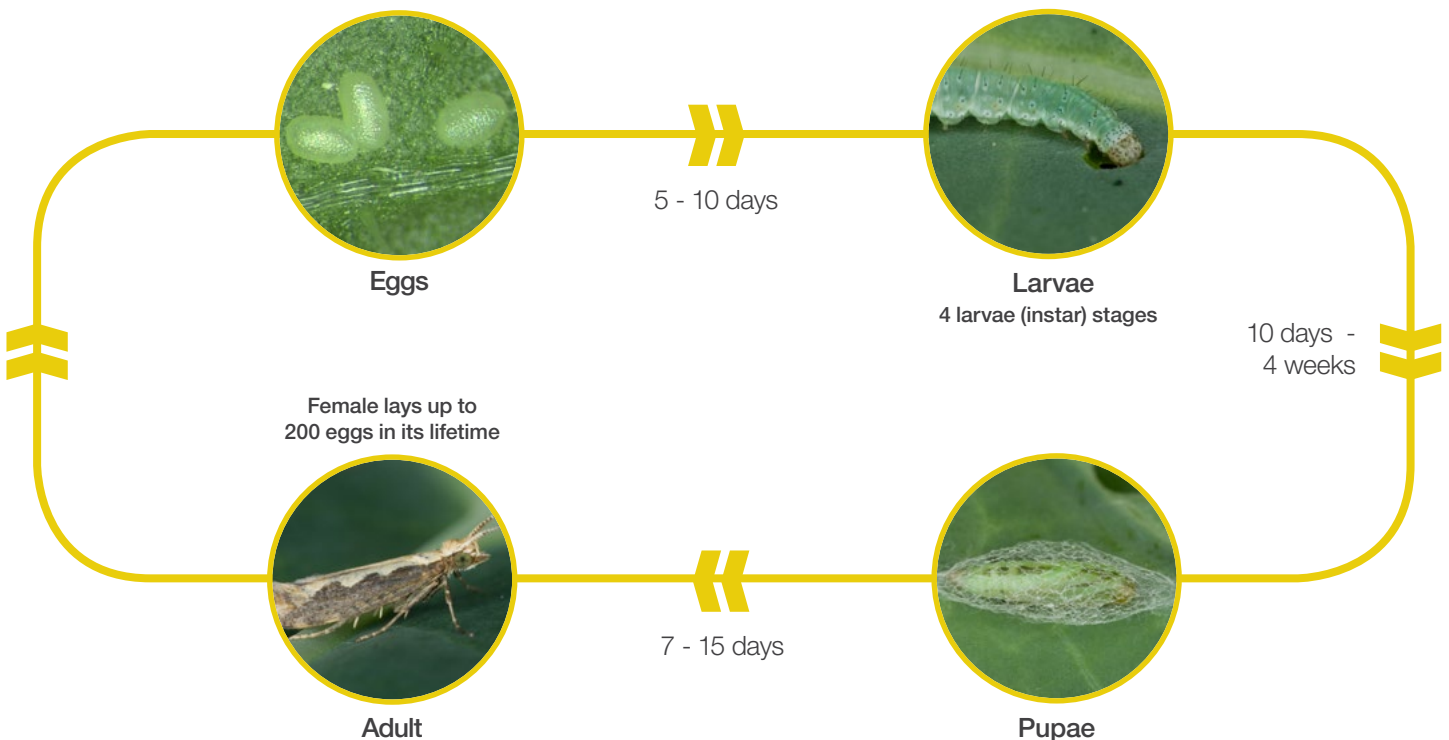
**12°C**  
takes approximately  
113 days

**15°C**  
takes approximately  
47 days

**25°C**  
takes approximately  
17 days






**28°C**  
takes approximately  
14 days

## DBM LIFE CYCLE



# Movento in brassicas

## EXAMPLE OF SPRAY STRATEGY WHERE PEST POPULATION IS DOMINATED BY DBM

Emergence	3rd True Leaf Unfolded	Rossette Development	Harvestable Parts Dev.	Harvest
				
0 - 1 week	2 - 4 weeks	4 - 7 weeks	6 - 9 weeks	10 -16 weeks
	<b>Movento</b> (Group 23 – max. number of 3 sprays back-to-back)			
No Group 28 applied as seedling treatment			<b>Belt®</b> (Group 28 – max. of 3 sprays)	
<i>Bacillus thuringiensis</i> (Bt e.g. Xentari®, DiPel® Group 11C)*				

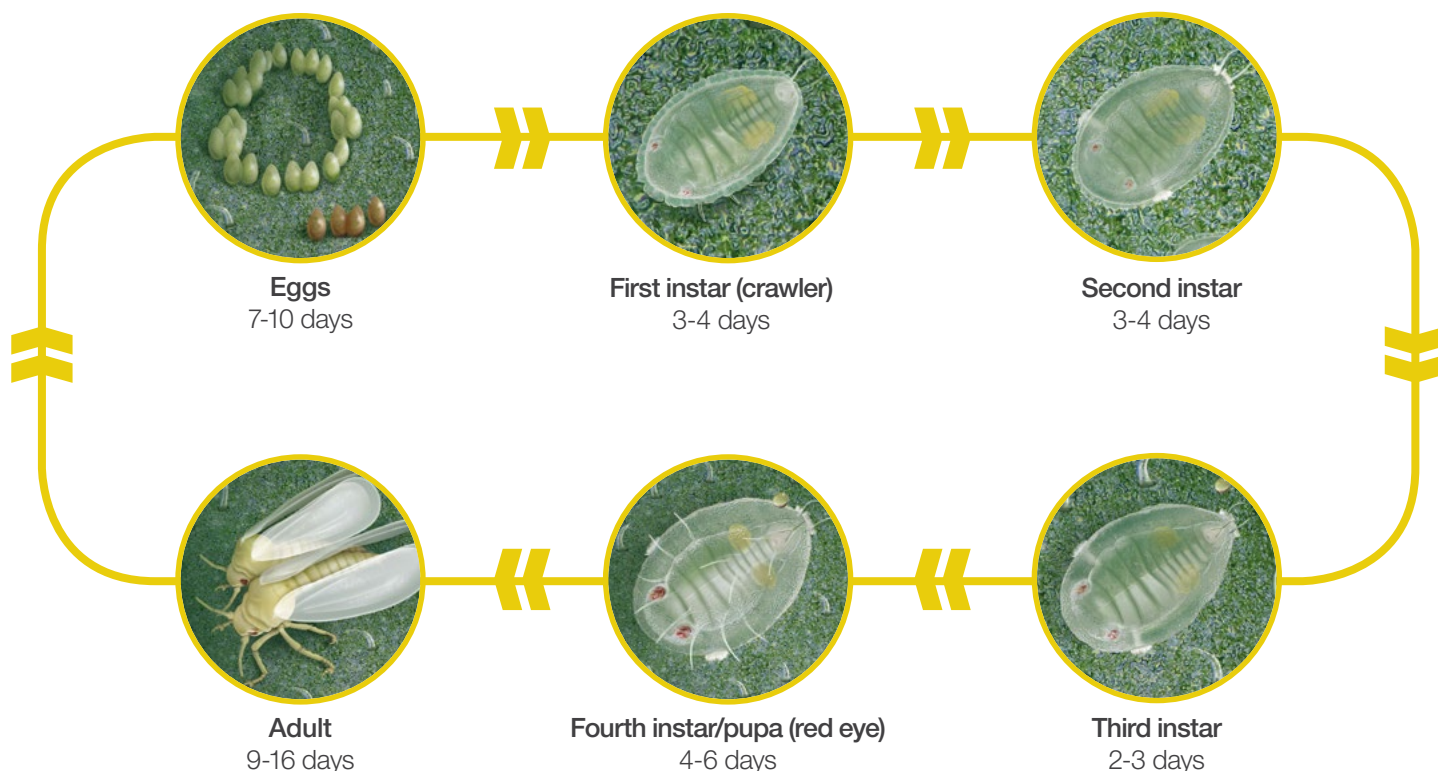
## CONTROLLING SILVERLEAF WHITEFLY

**Controls instars not adults** – Due to its long residual control, Movento controls the progeny of silverleaf whitefly fly-ins. Movento can cause sub-lethal effects on adults which expresses as reductions in fertility and fecundity.

**Correct rate** – 300 - 400 mL/ha OR dilute spraying 30 - 40 mL/100 L plus Agridex or Hasten at 0.5 to 1.0 L/ha with thorough coverage, particularly on older plants.

**Thorough coverage** – Sufficient water volumes are very important to obtain good coverage, especially in big crops with thick canopies.

## WHITEFLY LIFE CYCLE



**Total (days) Summer: 18-28 Winter: 30-48**



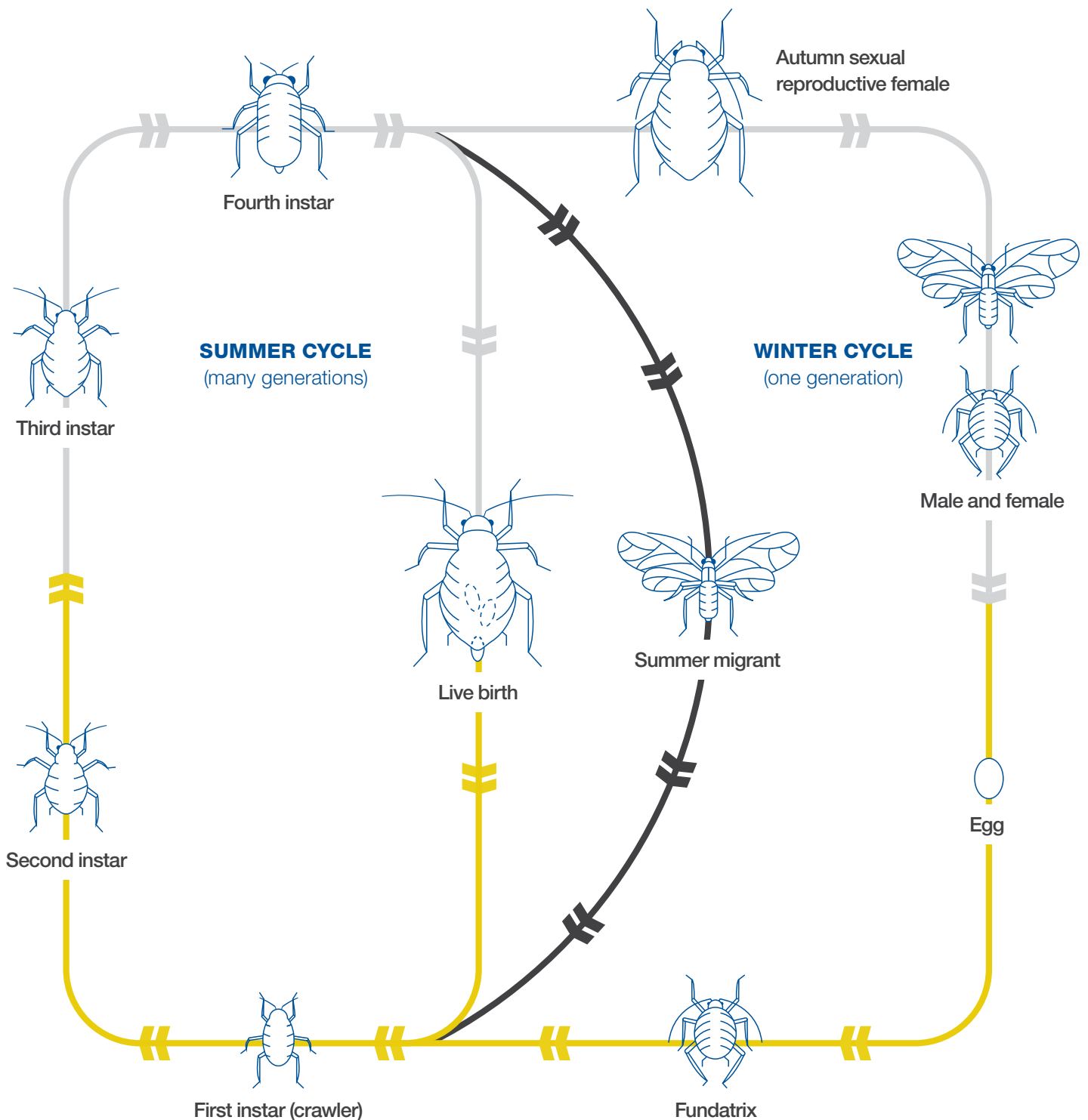
## CONTROLLING GREY CABBAGE APHID AND GREEN PEACH APHID

**Controls nymphs** – Apply Movento when winged aphids are first observed to reduce the establishment of colonies in-crop. Control of older pre-pupal nymphal stages is slightly less effective than control of aphid nymphs.

**Correct rate** – Grey cabbage aphid: 200 - 300 mL/ha OR dilute spraying 20 - 30 mL/100 L plus Agridex or Hasten at 0.5 to 1.0 L/ha and green peach aphid: 200 mL/ha OR dilute spraying 20 mL/100 L plus Agridex or Hasten at 0.5 to 1.0 L/ha.

**Honey dew may reduce activity** – If Movento is sprayed onto plants covered with honeydew, uptake and activity may be reduced.

### APHID LIFE CYCLE



# Directions for use

CROP	PEST	RATE	WHP	CRITICAL COMMENTS
<b>Brassica vegetables</b> (broccoli, broccolini, Brussels sprouts, cabbage, cauliflower, kohlrabi)	Green peach aphid <i>(Myzus persicae)</i>	200 mL/ha + adjuvant* OR <b>Dilute spraying</b> 20 mL/100 L + adjuvant*	H 3 days	<p>Monitor crops and commence applications once local thresholds are reached. Where applicable, use the higher rate when periods of high pest pressure or rapid crop growth are evident or when longer residual control is desired or when crops are dense or large (e.g. from the commencement of head formation).</p> <p>Continue to monitor crops and make subsequent applications as necessary. Do not re-apply within 7 days of a previous Movento spray.</p> <p><b>Do not apply more than 3 applications per crop.</b></p> <p>Ensure thorough spray coverage of the target crop. For dilute spraying apply to the point of run-off, using application volumes of up to 1000 L/ha – refer “Application” section in GENERAL INSTRUCTIONS.</p> <p><b>* Always add a specified spray adjuvant – refer “Adjuvant” section in GENERAL INSTRUCTIONS.</b></p> <p><b>Note:</b> The green peach aphid and silverleaf whitefly uses are subject to CropLife resistance management strategies. Refer to <a href="http://www.croplife.org.au">www.croplife.org.au</a> for more information.</p>
	Grey cabbage aphid <i>(Brevicoryne brassicae)</i>	200 – 300 mL/ha + adjuvant* OR <b>Dilute spraying</b> 20 – 30 mL/100 L + adjuvant*		
	Silverleaf whitefly <i>(Bemisia tabaci</i> Biotype B)	300 – 400 mL/ha + adjuvant* OR <b>Dilute spraying</b> 30 – 40 mL/100 L + adjuvant*		
	Diamondback moth <i>(Plutella xylostella)</i>	400 mL/ha + adjuvant* OR <b>Dilute spraying</b> 40 mL/100 L + adjuvant*		

## WITHHOLDING PERIODS (WHP)

**Harvest (H):** Brassica vegetables, brassica leafy vegetables: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION

**Grazing (G):** Brassica vegetables (including brassica leafy vegetables): DO NOT GRAZE TREATED BRASSICA CROPS

Growers should note that suitable MRLs or import tolerances do not exist in all markets for produce treated with Movento 240 SC. In some situations export requirements may be met by limiting application number and/or imposing a longer withholding period than specified above. If you are growing produce for export, please check with Bayer CropScience Pty Ltd, or your industry body for the latest information on any potential trade issues and their management before using Movento 240 SC.

CROP	PEST	RATE	WHP	CRITICAL COMMENTS
<b>Brassica leafy vegetables</b> including bok choy, Chinese broccoli (gai lum/ gai lan/kai lan), Chinese cabbage (pet sai/wombok/ haksukai), choy sum, gai choy/ am soy/kai choy, kale, mibuna, mustard (leafy) including Indian mustard and mustard spinach (komatsuma), pak choy, tat soy (field and protected cropping systems)	Green peach aphid ( <i>Myzus persicae</i> )	200 mL/ha + adjuvant*	H 3 days	Monitor crops and commence applications once local thresholds are reached. Where applicable, use the higher rate when periods of high pest pressure or rapid crop growth are evident or when longer residual control is desired or when crops are dense or large.  Continue to monitor crops and make subsequent applications as necessary. Do not re-apply within 7 days of a previous Movento spray.  <b>Do not apply more than 2 applications per crop.</b>  Ensure thorough coverage of the target crop – refer “Application” section in GENERAL INSTRUCTIONS.  <b>* Always add a specified spray adjuvant – refer “Adjuvant” section in GENERAL INSTRUCTIONS.</b>  <b>Note:</b> The green peach aphid and silverleaf whitefly uses are subject to CropLife resistance management strategies. Refer to <a href="http://www.croplife.org.au">www.croplife.org.au</a> for more information.
	Grey cabbage aphid ( <i>Brevicoryne brassicae</i> )	200 – 300 mL/ha + adjuvant*		
	Silverleaf whitefly ( <i>Bemisia tabaci</i> Biotype B)	300 – 400 mL/ha + adjuvant*		
	Diamondback moth ( <i>Plutella xylostella</i> )	400 mL/ha + adjuvant* OR <b>Dilute spraying</b> 40 mL/100 L + adjuvant*		Monitor crops and commence insecticide applications once local economic spray thresholds are reached. Apply at egg hatch in crops with nil thresholds for damage. Otherwise, apply at egg hatch or very soon after egg hatch to target young larvae.  Continue to monitor crops and make subsequent applications as necessary. Generally, spray intervals of 7-10 days are suitable. Do not re-apply within 7 days of a previous Movento spray.  <b>Do not apply more than 2 applications per crop.</b>  Concentrate spraying is not recommended for this use pattern.  Ensure thorough coverage of the target crop – refer to the “Application” section in GENERAL INSTRUCTIONS.  <b>* Always add a specified spray adjuvant – refer “Adjuvant” section in GENERAL INSTRUCTIONS.</b>  <b>Note:</b> This use is subject to a CropLife resistance management strategy. Refer to <a href="http://www.croplife.org.au">www.croplife.org.au</a> for more information.

#### ADJUVANT VEGETABLES AND HERBS (EXCEPT BULB VEGETABLES, ONIONS, BULB):

For dilute spraying methods, apply Movento 240 SC with Hasten® Spray Adjuvant\* according to the manufacturer’s label recommendation, i.e. generally apply Hasten at 0.5 to 1.0 L/ha. This can be achieved by adding Hasten at 200 mL/100 L of spray mixture, up to a maximum of 1.0 L/ha where application volumes exceed 500 L/ha.

(\*or other specified adjuvant – refer to Bayer CropScience for information).



## Want more information?

For more information on getting the best out of Movento, visit [crop.bayer.com.au/movento](http://crop.bayer.com.au/movento) or talk to your local Bayer Crop Science representative.



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