

Crops(s) **Brassica, brassica leafy vegetables**

Insect(s) **Diamondback moth, Cabbage moth (*Plutella xylostella*)**

Guidelines:

1. To help prevent the development of resistance to any one specific active ingredient (see table below), observe the following instructions:
 - a) Use in accordance with the current IRMS for your region. For growers in the Lockyer Valley region, please refer to the [Lockyer Valley Diamondback Moth Insecticide Resistance Management Strategy](#). For growers in Western Australia, please refer to the Western Australian Department of Primary Industries and Regional Development [two-window strategy](#).
 - b) Apply a specific active ingredient using a 'window' approach to avoid exposure of consecutive insect pest generations to the same mode of action. Multiple successive applications of a specific active ingredient are acceptable if they are used to treat a single pest generation.
 - c) Following a 'window' of a specific mode of action product, rotate to a 'window' of applications of effective insecticides with a different mode of action.
 - d) The total exposure period of any one mode of action 'active window' applied throughout the crop cycle (from seedling to harvest) should not exceed 50% of the crop cycle.
 - e) Incorporate IPM techniques into the overall pest management program and
 - f) Monitor insect populations for loss of field efficacy.
2. Always read and follow product labels and use the full recommended label rates of application. Some products place a limit on the number of times they can be applied per crop (see table below) and when they can be applied.
3. Monitor crops regularly and only apply insecticide when the pest threshold is reached.
4. When an insecticide with foliar activity on diamondback moth has been used as seed treatment or drench application in nursery production (as determined by label claims), rotate to alternative mode of action insecticide for a period covering at least one generation of diamond back moth. This may require a minimum of 2 applications of alternate mode of action insecticides. Please refer to [CropLife's Nursery insecticide strategy](#) for further detail.

Please note:

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5. Ensure spray equipment is properly calibrated and achieving good coverage with appropriate sized spray droplets.
6. Time the application to the most susceptible life stage of the target pest.
7. To encourage beneficial insects, use *Bacillus thuringiensis* (Bt) sprays and avoid broad spectrum insecticides where possible, particularly early to mid-crop cycle.
8. Be cautious of using insecticide tank-mixes where both active ingredients control DBM as this strategy is generally not considered best practice for resistance management. Refer to the [IRAC International Insecticide Mixture Statement](#) for more information on this subject.
9. **DO NOT** re-treat a spray failure with a product from the same chemical group.
10. Practice good crop hygiene to reduce DBM pressure - plant clean seedlings and incorporate crop residue as soon as practical after harvest.

| MoA Group* | Chemical sub-group | Active ingredient | Delivery method | No. applications permitted per crop per season |
|------------|-------------------------------|---|-----------------|--|
| 1A | Carbamates | methomyl (eg. Lannate® L), thiodicarb (eg. Larvin®) | Foliar | Not specified |
| 2B | Phenylpyrazoles | fipronil (eg. Regent) | Foliar | 4 per year within 8-week period |
| 3A | Pyrethroids | synthetic pyrethroids (various – eg. Dominex® Duo, Karate® Zeon, Sumi-alpha® Flex, Trojan®) | Foliar | not specified |
| 5 | Spinosyns | spinetoram (Success® Neo), spinosad (eg. Entrust®) | Foliar | 4 |
| 6 | Avermectins | emamectin benzoate (eg. Proclaim® Opti) | Foliar | 4 per any one crop |
| 11A | <i>Bacillus thuringiensis</i> | Bacillus thuringiensis (eg. Dipel®, Xentari®) | Foliar | not specified |
| 22A | Oxadiazines | indoxacarb (eg. Avatar® eVo) | Foliar | 4 |
| 22A + 15 | Oxadiazines + benzoylureas | indoxacarb + novaluron (Plemax®) | Foliar | 3 (included as application of 22A) |
| 23 | Tetramic acid derivatives | spirotetramat (eg. Movento®) | Foliar | 2 but 3 in brassica leafy vegetables |

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Cont. table

| MoA Group* | Chemical sub-group | Active ingredient | Delivery method | No. applications permitted per crop per season |
|------------|----------------------------------|---|-----------------|--|
| 28 | Diamides | chlorantraniliprole (eg. Coragen®), flubendiamide (eg. Belt®) | Foliar | 3 and no more than 2 consecutive applications (including mixtures of chlorantraniliprole and thiamethoxam) |
| 28 + 4A | Diamides + neonicotinoids | chlorantraniliprole + thiamethoxam (Durivo®) | Soil | 1 |
| 30 | Isoxazolines | isocycloseram (Simodis®) | Foliar | 2 |
| UN | <i>Clitoria ternatea</i> extract | clitoria ternatea extract (Sero-X) | Foliar | not specified |

*Refer: CropLife Australia Expert Committee on Insecticide Resistance Mode of Action Classification for Insecticides

Notes regarding the application of insecticides:

1. To ensure the most effective control of the pest:
 - a) Product labels should at all times be carefully read and adhered to;
 - b) Full recommended rates of registered insecticides should always be used; and
 - c) Ensure good coverage of the target area to maximise contact.

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