



Insecticide Resistance Management Strategies
Developed by the CropLife Australia Insecticide Resistance Management Review Group
 Valid as at 7 June 2017

Crop(s) : Sorghum, Maize, Summer Grain Legumes
Insect(s) : Heliothis/Cotton bollworm/Native budworm (*Helicoverpa* spp.)

Guidelines:

1. To help prevent the development of resistance to any one specific active ingredient (see table below), observe the following instructions:
 - Use in accordance with the current IRMS for your region. Guidelines for use in chickpeas are also associated with the TIMS cotton IRMS.
 - 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.
 - 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.
 - 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.
 - Incorporate IPM techniques into the overall pest management program and
 - Monitor insect populations for loss of field efficacy.
2. Always read and follow product labels. 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. Ensure spray rig is properly calibrated and achieving good coverage with appropriate sized spray droplets.
5. Time the application to the most susceptible life stage of the target pest.
6. To encourage beneficial insects, use *Bacillus thuringiensis* (Bt) or NPV sprays and avoid broad spectrum insecticides where possible, particularly early to mid-crop cycle.
7. Be cautious of using insecticide tank-mixes where both active ingredients control *Helicoverpa* spp. as this strategy is generally not considered best practice for resistance management. Refer to document [IRAC International Insecticide Mixture Statement](#) for more information on this subject.
8. DO NOT re-treat a spray failure with a product from the same chemical group.
9. Practice effective pupae busting as soon as practicable after harvest.

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 Phone: 02 6273 2733 Email: info@croplife.org.au Website: www.croplife.org.au

Mode of Action Group as specified on product label	Active ingredient	Number applications permitted per crop per season from product label	Labelled crops
1A	methomyl, thiodicarb	not specified	All cereal grains, oilseed, pulses
3A	synthetic pyrethroids (various)	not specified	All cereal grains, oilseed, pulses
6	emamectin benzoate	2	All pulses
11A	<i>Bacillus thuringiensis</i>	not specified	All cereal grains, oilseed, pulses
22A	indoxacarb	1	chickpea, faba bean, mung bean, soybean, azuki bean
28	chlorantraniliprole	2	chickpea, mung bean, soybean
Not categorised	Nucleopolyhedrovirus (NPV)	no limit but avoid season long use of low rates	All cereal grains, oilseed, pulses

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