


## Heliothis Resistance Management Strategy for grain and annual horticulture crops –

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Southern NSW and Northern Vic. 2006–07

	STAGE I	STAGE II	STAGE III		
	Up to Nov. 7	Nov. 8 – Dec. 31	Jan. 1 – Jan 31		From Feb. 1
All chemicals	<b>ENDOSULFAN – Tomatoes only</b>			Cultivate to destroy over-wintering pupae prior to 1 Oct. 	
	methoxyfenozone		methoxyfenozone		
	emamectin				
	FOLIAR <i>Bacillus thuringiensis</i> (BT) – max. of 2 per season				
	Nuclear Polyhedrosis Virus (NPV) avoid season-long use of low rates				
	Begins 20 Dec. ⇒	Indoxacarb (max. of 3 for tomatoes and one for other crops)			← Ends 28 Feb.
		<b>Horticulture only</b> – Pyrethroids and carbamates may be used in rotation in Stage II under severe pest pressure	(3A) PYRETHROIDS AND PYRETHROID MIXES (1A) CARBAMATES		
		(1B) ORGANOPHOSPHATES			
	Begins 20 Dec. ⇒	Spinosad – max. of 3 per season			← Ends 28 Feb.
	<i>H. punctigera</i>	1st generation	2nd generation		3rd generation
	<i>H. armigera</i>				
<b>Rotate chemistry to reduce insecticide resistance</b>					

### Key guidelines

1. Cultivate residues of summer crops where *Helicoverpa* spp. were present. Late season crops where pressure was heavy should be especially targeted. Cultivation must be completed before 1 October.
2. Use recommended spray thresholds relevant to pest species present and growth stage of crop. Eggs or very small larvae (<5 mm) should be targeted. Larger larvae are unlikely to be controlled.
3. Avoid broad spectrum sprays early in the season as these kill predators and may induce outbreaks of pests such as mites or aphids.
4. Where possible alternate products to avoid consecutive sprays from the same activity group.
5. Do not spray apparent control failures with a product from the same activity group.
6. Other important pests may be treated with the appropriate registered insecticide outside that product's recommended strategy stage, provided *Helicoverpa* spp. are not present.



# Product availability in the IRM strategy 2006–07

ACTIVITY GROUP	Active ingredient																							
	11C		2A	22A	5A	6A	16A	1B	1B	1B	3A	3A	3A	3A	3A	3A	3A	3A	3A	1A	1A	1A		
	Bacillus thuringiensis <sup>5</sup>	Nuclear Polyhedrosis virus	endosulfan	indoxacarb	spinosad	emamectin	methoxyfenozide	acephate	chlorpyrifos	methamidophos	alpha-cypermethrin	beta-cyfluthrin	bifenthrin	cypermethrin	deltamethrin	esfenvalerate	gamma-cyhalothrin	lambda-cyhalothrin	permethrin	tau-fluvalinate	carbaryl	methomyl	thiodicarb	
TYPE	Biol ++	Biol ++	Non carbamate and non pyrethroid insecticides							Pyrethroid and carbamate insecticides #														
CROP																								
Azuki beans	H	H <sup>3</sup>		H	H																	H	H	
Chickpea	H	H		H	H						H	H		H	H	H	H	H	H			H	H	
Lucerne	H	H <sup>2</sup>									H		H <sup>1</sup>		H	H	H				H	H		
Maize	H	H									H			H	H	H						H	H	
Mungbean	H	H <sup>2</sup>		H	H						H			H	H		H	H				H	H	
Sorghum	H	H			H						H	H		H	H	H	H	H				H	H	
Soybean	H	H <sup>4</sup>		H	H						H			H	H	H	H	H				H	H	
Sunflower	H	H <sup>2</sup>									H			H	H	H	H	H				H	H	
Sweet corn	H	H			H						H			H	H	H			H			H	H	
Tomato	H	H <sup>2</sup>	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	

H – Products registered or covered by a commercial permit for *Helicoverpa* spp. control at time of publication

++ Not restricted at any stage (Bt restricted to a maximum of 2 sprays per season)

# Pyrethroid and carbamate insecticides may be used in rotation in annual horticultural crops when insect pressure requires more than two sprays in stage II (Jan. 1 – Jan. 31)

<sup>1</sup> Lucerne seed crops only

<sup>2</sup> NPV for lucerne, mungbean, sunflower and tomatoes is Vivus Gold® only

<sup>3</sup> Covered by permit PER8543 (expires 1/9/2010)

<sup>4</sup> Covered by permit (PER9007 (expires 31/12/2010)

<sup>5</sup> Bt – different formulations and products are registered for different crops

## Key change

**A new label was approved for endosulfan by the APVMA in August 2005. Endosulfan has been deregistered for all foliar sprays to all grain crops. Tomatoes are the only crop covered by this strategy with registration for foliar sprays on the new label.**

This strategy is a guide only and not a recipe for insect control. Always follow the product label for specific use instructions. It does not endorse particular products, groups of products or cultural methods in terms of their performance. The information given in this strategy is provided in good faith and without any liability for loss or damage suffered as a result of its application and use.

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (November 2006). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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