

Insecticide Resistance Management Strategies

Developed by the CropLife Australia Insecticide Resistance Management Review Group
Valid as at 25 June 2015

Crop(s): Sweet Corn
Insect (s): Corn earworm (*Helicoverpa armigera*) aka *Heliothis*

COMMENTS:

1. The critical stage of infestation is during silking. Even low levels of heliothis infestation are unacceptable at the silking stage. Because sweet corn is less attractive to heliothis before flowering and it is picked soon after silking is completed, there is a relatively short period of protection required.
2. Control of heliothis at the tasselling stage (occurs prior to silking stage) can be important in some regions as the tassel can act as a nursery for heliothis, which can then move onto the young developing cobs. Control of heliothis at this stage is not as difficult as at the silking stage.
3. Use of biological insecticides, Bt and Nuclear Polyhedrosis Virus (NPV), in the early stages of crop development is encouraged.
4. Monitor crops regularly, at least weekly during silking and do not spray unless pest thresholds are exceeded.
5. Labels of new products place a limit on the number of applications. If further control is required on one planting, chemicals from different mode of action groups within the same window should be used.
6. **Do not** retreat a spray failure with a product from the same chemical group.
7. **Do not** use mixtures of insecticides for controlling heliothis.
8. Cultivation after harvest to destroy pupae will greatly assist in managing heliothis.
9. Seek local advice on pest incidence and on the risk of resistance developing from insecticide programs used to control heliothis in crops other than Sweet Corn.
10. To help prevent the development of resistance to any one specific active ingredient (see table below), observe the following instructions:
 - (i) Use in accordance with the current IRMS for your region;
 - (ii) 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 insect generation;
 - (iii) 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.
 - (iv) 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;
 - (v) Incorporate IPM techniques into the overall pest management program and
 - (vi) Monitor insect populations for loss of field efficacy.

Mode of Action Group as specified on product label	Active ingredient
1A	Methomyl, Thiodicarb
3A	Synthetic pyrethroids (several)
5	Spinetoram
6	Emamectin benzoate
28	Chlorantraniliprole

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CODE: H = high pressure period
 M = medium pressure period
 L = low pressure period

Region	January	February	March	April	May	June	July	August	September	October	November	December
North Queensland	No Crop		Vegetative phase	Eamectin Benzoate		Methomyl, Thiodicarb, SP's		Chlorantraniliprole		Spinetoram		No Crop
Heliothis pressure	L	L	L	L	M	H	H	H	H	M	L	L
South East Queensland	Spinetoram	Chlorantraniliprole		Methomyl, Thiodicarb, SP's		No Crop		Vegetative phase		Eamectin Benzoate		Spinetoram
Heliothis pressure	H	H	H	H	H	M	M	L	L	L	L	L
Central NSW / Northern Victoria	Spinetoram		Chlorantraniliprole		Methomyl, Thiodicarb, SP's		No crop		Vegetative phase		Eamectin Benzoate	
Heliothis pressure	H	H	H	H	H	M	M	L	L	L	L	L
Tasmania	Chlorantraniliprole		Spinetoram		No crop		No crop		No crop		Eamectin Benzoate	
Heliothis pressure	M	M	M	M	L	L	L	L	L	L	L	L
In all regions	Nuclear Polyhedrosis Viruses (NPV's), <i>Bacillus thuringiensis</i> (Bt) and Methomyl at the ovicidal rate can be used season long with no resistance management implications											

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