

INSECTICIDE RESISTANCE MANAGEMENT (IRM) STRATEGY for DIAMONDBACK MOTH (DBM) for SOME VEGETABLE BRASSICA CROPS in WESTERN AUSTRALIA (UPDATE No. 14, SEPTEMBER 2009)

This strategy is part of integrated pest management (IPM) for vegetable brassica crops - cauliflower, broccoli, cabbage and Brussels sprouts.

FEATURES OF THE INSECTICIDE RESISTANCE MANAGEMENT STRATEGY:

1. It is important to **monitor crops regularly**.
2. The industry aims to promote **co-ordinated use of insecticides** to control DBM, *Plutella xylostella*.
3. **Using chemicals in a random manner** will cause **DBM to rapidly develop resistance** to chemicals. Help to avoid this by adopting this IRM strategy.
4. **Delay resistance development** in DBM by **rotating** these different groups and **restricting** their use to certain periods of the year = **Windows**. See over for details.
5. **Avoid broad spectrum sprays** (e.g. OP's and SP's) early in a crop cycle **to encourage beneficial insects** for DBM control.
6. Labels of some products place a **limit on the number of times** they can be applied.
7. **Do not use mixtures** of insecticides for controlling DBM (eg Bt's & SP's).
8. **Good crop hygiene** - planting clean seedlings & incorporation of post harvest crop residue - will help to reduce DBM pressure.

INSECTICIDE GROUPS AND THEIR MODES OF ACTION

Group 11C: Bt (<i>Bacillus thuringiensis</i>) is a stomach poison best used early in crop growth. It is a biological insecticide specific to grubs and relies on being eaten by small grubs (less than 5 mm long). Good spray coverage is essential for best results. Bt's are not harmful to beneficial insects; apply after irrigation . Bt's are easily broken down by sunlight.
Group 5A: Spinosad attacks the insect's nervous system. It is less harmful to beneficial insects. Products are Success ² and Entrust.
Group 28: Chlorantraniliprole (rynaxypyr[®]) and flubendiamide have ingestion action and stop insects feeding. They are less harmful to beneficial insects. Products are Coragen and Belt.
Group 6A: Emamectin has ingestion action and stops insect feeding. It is less harmful to beneficial insects. Product is Proclaim.
Group 13A: Chlorfenapyr is a gut-ingested larvicide with minimal contact action. Product is Secure.
Group 22A: Indoxacarb is a gut-ingested larvicide with minimal contact action and is less harmful to beneficial insects. Product is Avatar.
Group 2C: Fipronil is a broad spectrum insecticide that works by contact and ingestion action. Products are Regent and Regal.
Group 3A: Synthetic pyrethroids (SP) are contact insecticides. Products include Dominex, Bulldock, Cypermethrin, Deltashield 27.5, Ballistic, Sumi-Alpha Flex, Pounce, Klartan, Trojan, Karate and Matador. To encourage beneficial insects , avoid applying SP's early in the season.
Group 1B: Organophosphorous (OP) insecticides are contact insecticides. Products include Orthene Xtra, Lancer, Lorsban, Nitofol, Monitor, Hy-Mal and Tokuthion.
Group 1B: Mevinphos is also an OP insecticide. The product is Phosdrin. It is an extremely toxic chemical with restricted availability and use. It is a fast acting contact spray and effective against large grubs. Use as a clean-up spray only when a DBM infestation gets out of control. Only use as a last resort.

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This strategy suggests best practice insecticide use by growers and is regularly updated in consultation with growers and CropLife Australia.

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