



MoA: Insecticide Resistance Management

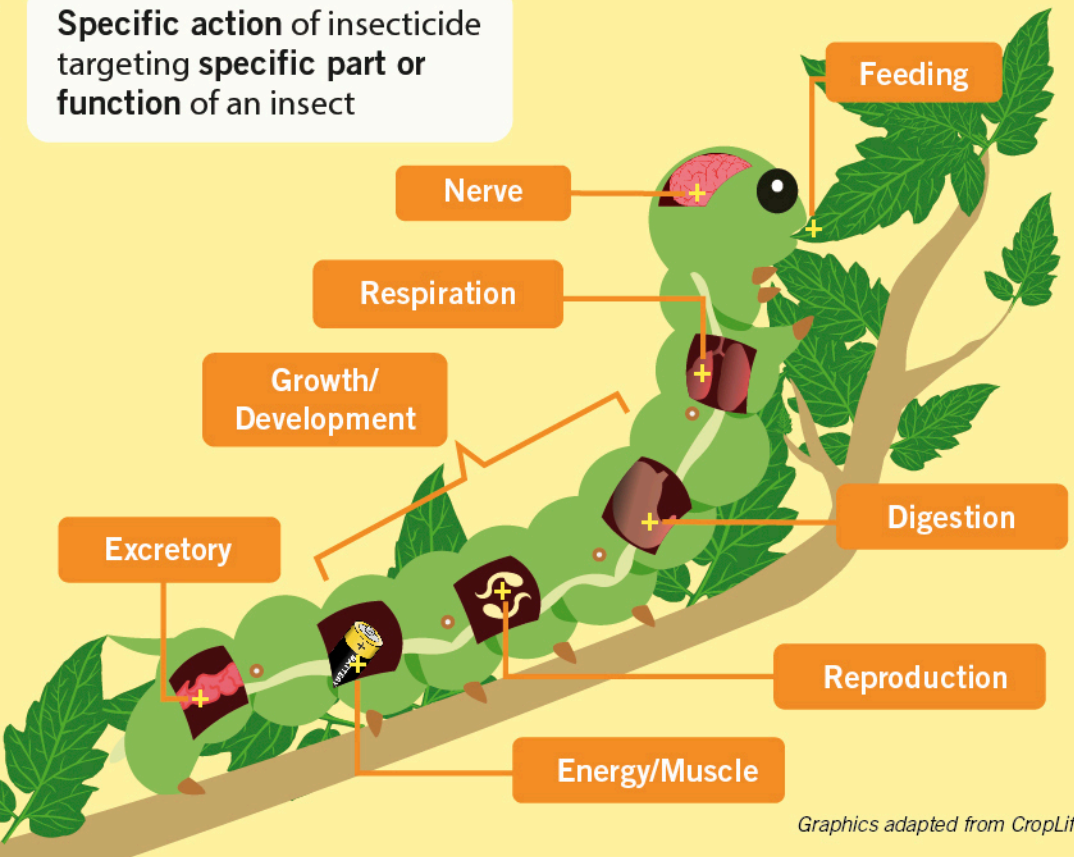
Technical guide



- What is MODE OF ACTION (MoA)?

ENGLISH

Specific action of insecticide targeting specific part or function of an insect

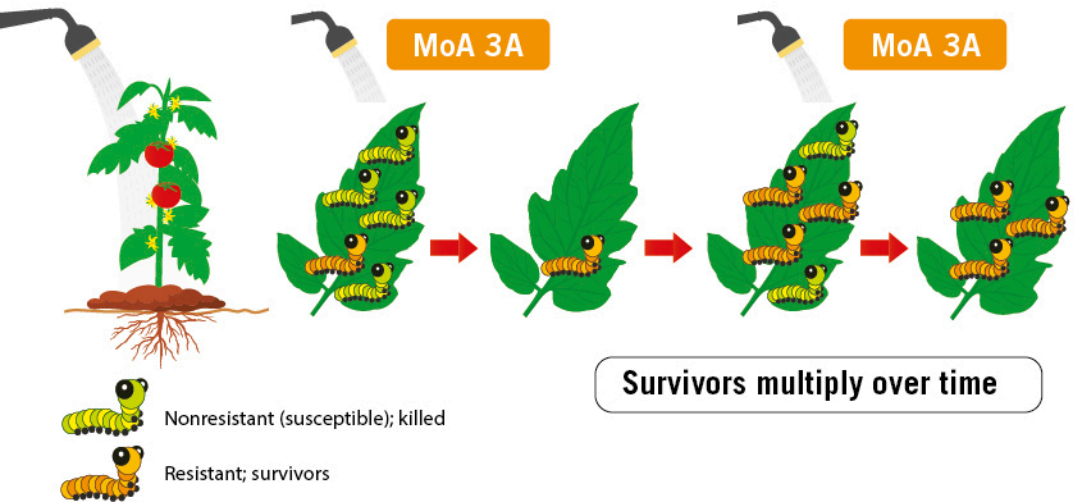


Graphics adapted from CropLife

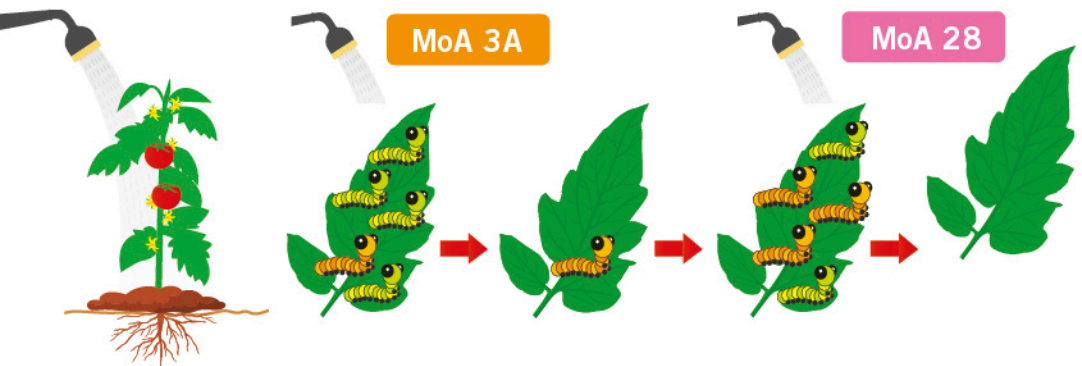
• What is RESISTANCE?

- The result of using the same type of MoA
- Insect pest survives to sprayed insecticide
- Sprayed insecticide lose its efficacy

Scenario 1: Only one type of MoA used throughout the growing season



Scenario 2: Alternating different MoA throughout the growing season



Survivors from the first MoA used are controlled by the alternated MoA

• How to prevent RESISTANCE?



Identify insect pest.
Ask local experts,
if in doubt.



Buy the right product for
the identified insect pest.



Alternate or rotate.
Use different MoA
against specific insect pest.



Always READ the label and FOLLOW the directions (dosage, timing).
APPLY carefully.

Best Tip: Integrated Pest Management

PREVENTION

(Practices to avoid pest eg.
crop rotation, trap crop)

MONITORING

(Daily field visit)

INTERVENTION

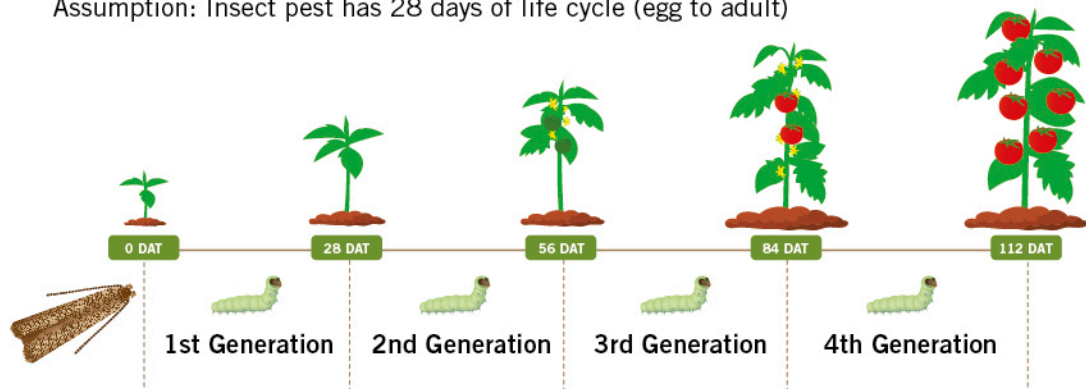
(Mix of practices when insect
pest is present. Do not rely
only on insecticides.)

• Why alternate or rotate MoA of insecticides?

Alternating or rotation of MoA is the key element of effective resistance management. - IRAC

SAMPLE SPRAY SCHEDULE

Assumption: Insect pest has 28 days of life cycle (egg to adult)



Insecticide Application

✗	MoA 3A	MoA 3A	MoA 3A	MoA 3A
	Cyhalothrin	Cyhalothrin	Cyhalothrin	Cyhalothrin
	Cyhalothrin	Cypermethrin	Deltamethrin	Lambda-cyhalothrin
✓	MoA 3A	MoA 5	MoA 3A	MoA 5
	Cyhalothrin	Spinosad	Cyhalothrin	Spinosad
	Cyhalothrin	Spinosad	Deltamethrin	Spinetoram
✓✓	MoA 3A	MoA 5	MoA 28	MoA 3A
	Cyhalothrin	Spinosad	Chlorantraniliprole	Cyhalothrin
	Cyhalothrin	Spinetoram	Chlorantraniliprole	Deltamethrin
	Lambda-cyhalothrin	Spinosad	Flubendiamide	Cypermethrin

MoA Group	3A (Pyrethroids, Pyrethrins)	5 (Spinosyns)	28 (Diamides)
Active Ingredient	Cyhalothrin, Lambda-cyhalothrin, Cypermethrin, Deltamethrin	Spinetoram, Spinosad	Chlorantraniliprole, Flubendiamide

More information on Insecticide Resistance Action Committee (IRAC)
<http://www.ircac-online.org/modes-of-action/>

<http://guides.eastwestseed.com>

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