



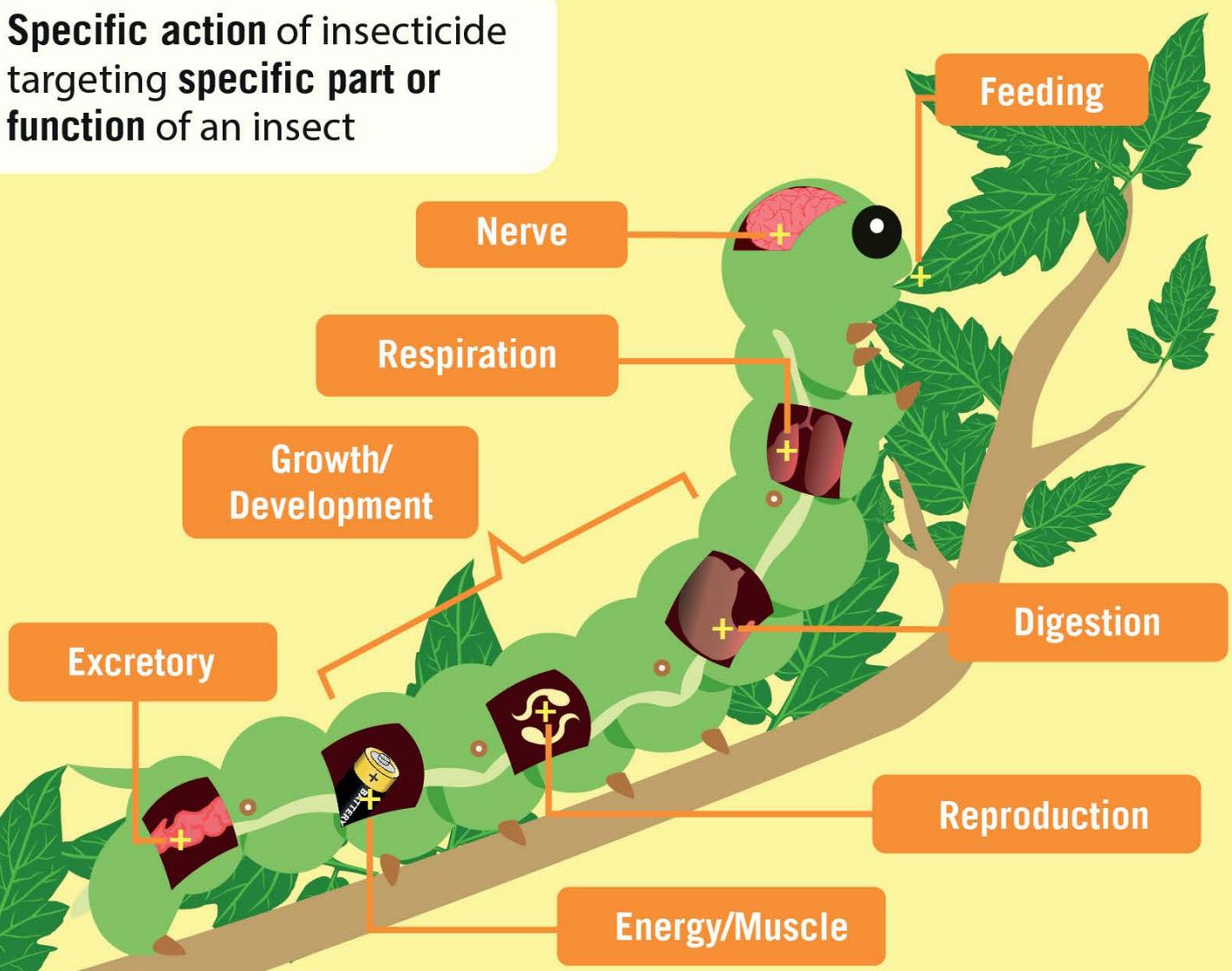
# MoA: Insecticide Resistance Management Technical guide

- What is MODE OF ACTION (MoA)?



ENGLISH

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

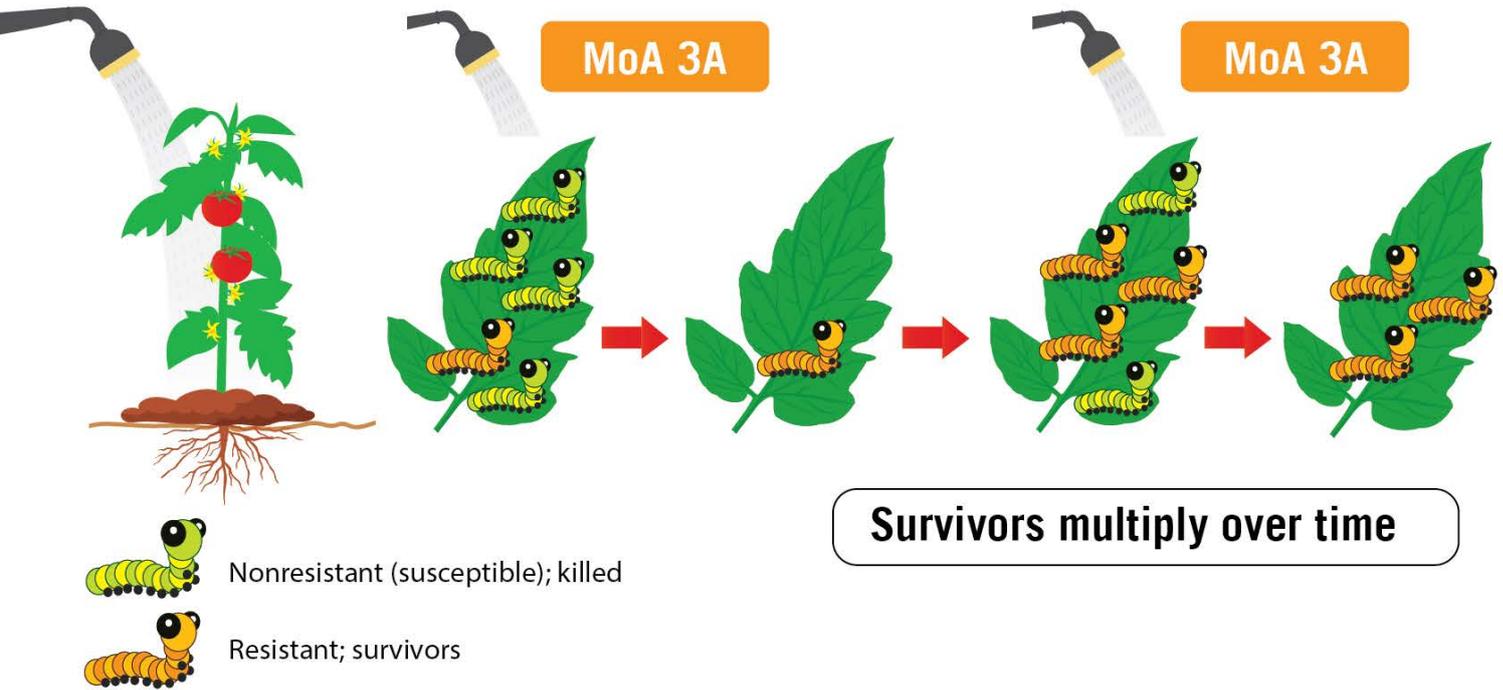


Graphics adapted from CropLife

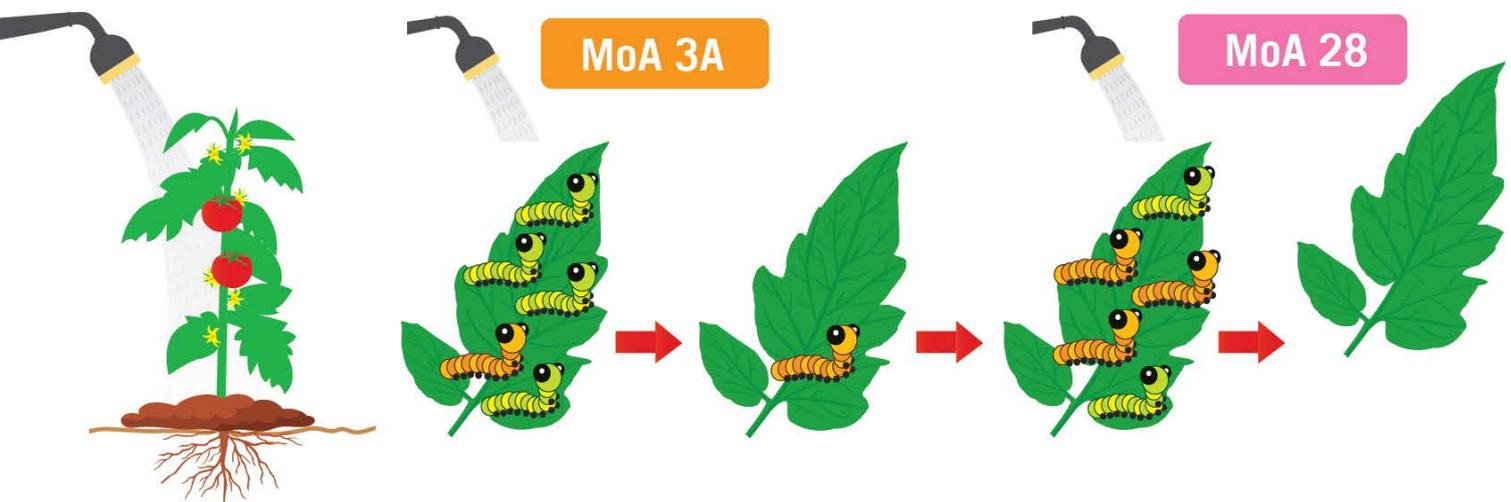
# • What is RESISTANCE?

- 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



# • How to prevent RESISTANCE?



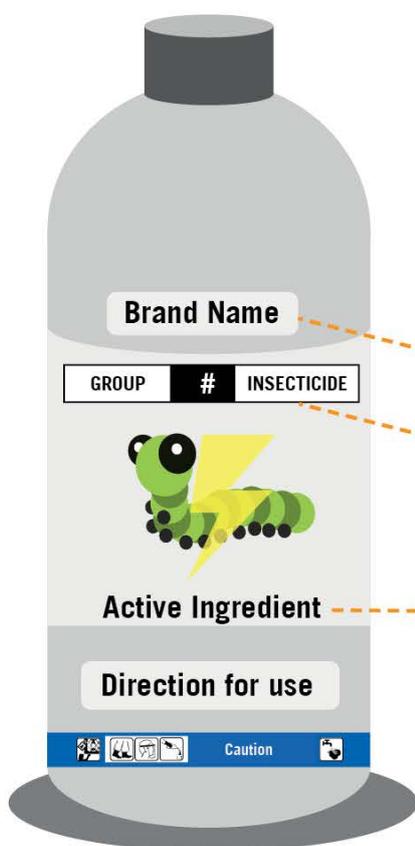
Identify insect pest.  
Ask local experts,  
if in doubt.



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

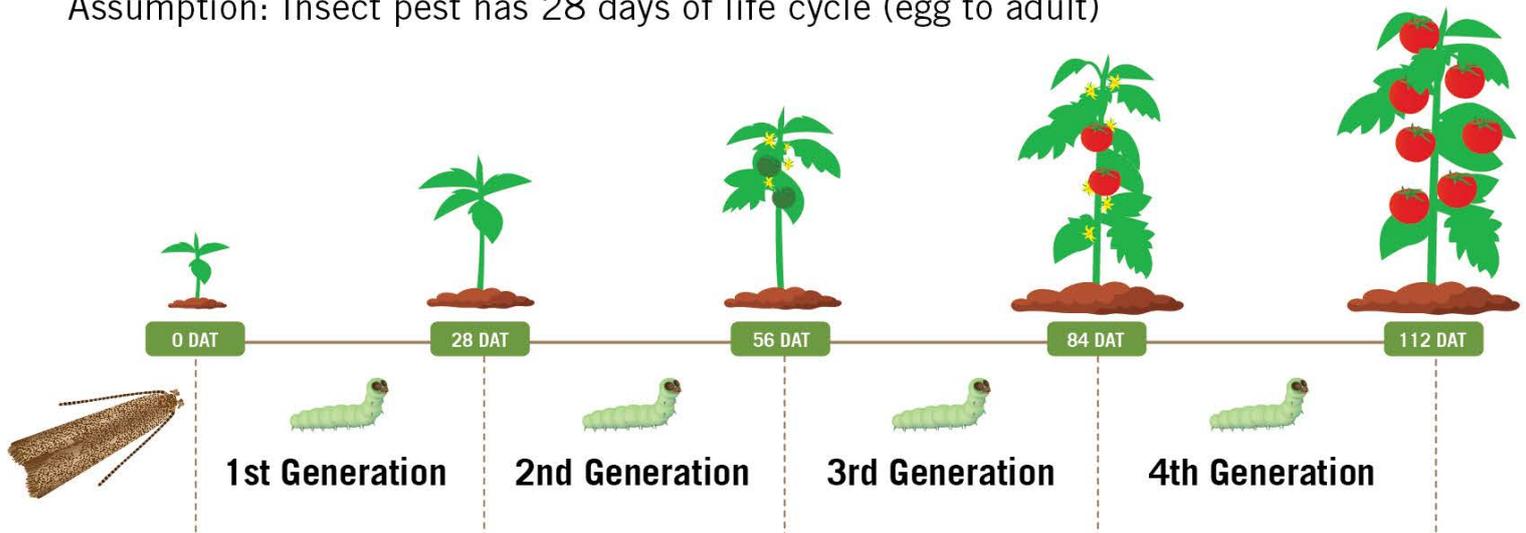
(Mix of practices when insect  
pest is present. Do not rely  
only on insecticides.)

# • 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

	<b>MoA 3A</b> Cyhalothrin Cyhalothrin	<b>MoA 3A</b> Cyhalothrin Cypermethrin	<b>MoA 3A</b> Cyhalothrin Deltamethrin	<b>MoA 3A</b> Cyhalothrin Lambda-cyhalothrin	
		<b>MoA 3A</b> Cyhalothrin Cyhalothrin	<b>MoA 5</b> Spinosad Spinosad	<b>MoA 3A</b> Cyhalothrin Deltamethrin	<b>MoA 5</b> Spinosad Spinetoram
		<b>MoA 3A</b> Cyhalothrin Cyhalothrin Lambda-cyhalothrin	<b>MoA 5</b> Spinosad Spinetoram Spinosad	<b>MoA 28</b> Chlorantraniliprole Chlorantraniliprole Flubendiamide	<b>MoA 3A</b> Cyhalothrin Deltamethrin Cypermethrin

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

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

<http://growhow.eastwestseed.com>

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