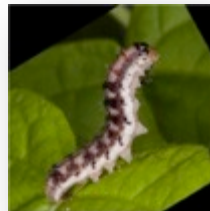




Insecticide Resistance Action Committee

Insecticide Resistance Management Philippine Update

**Florence Vasquez
Group Leader, IRAC Philippines**



IRAC Philippines

CROPLIFE MEMBERS' DIRECTORY

 <p>ALDIZ Incorporated 12-1905 and 1906, Citiland Condominium 10, Tower 8, 8817 H.V. dela Cruz St., Ayala Avenue North, Makati City 1226 Philippines Tel. Nos. 895 2634 to 35, 817-8271, 892 2787, 812-7028 Fax No. 819-2677</p>	 <p>FMC Philippines Inc. 4/F 111 Paseo de Roxas Bldg. 111 Paseo de Roxas 1229 Makati City Philippines</p>	 <p>BASF Philippines, Inc. Crop Protection Division 103 Progress Avenue, Phase 1 C2 Camarines Industrial Park 1 4037 Camarines City Tuguegarao (532) 889 4321, 85345 543 8881 Fax No. (532) 889 4362</p>
 <p>Jardine Distribution, Inc. JARDINE DISTRIBUTION, INC. Jardine Distribution Building, J&F Compound 2910 Farallan St., Corner Donnellita Highway, MAKATI City Tel. Nos. 8438211 to 19 Fax Nos. 8441147 8443652</p>	 <p>Bayer CropScience, Inc. 3/F River House, Carabang Industrial Estate, Carabang, Laguna 4028 Tuguegarao (53 2) 470 5428 (53 43) 543 3001 Fax (53 43) 543 3003</p>	 <p>MONSANTO imagine™ MONSANTO PHILS., INC. 7th Fl., Ayala Life FICU Center, Alabang Zapote Rd., Cor. Alabang Ave., Mactang Business Park, Alabang, Muntinlupa City Tel. Nos. 859 4543 Fax Nos. 859 8871</p>
 <p>DOW AGROSCIENCES B.V.-PHILS. 23F, 6750 Ayala Ave., Makati City Tuguegarao No. 8109588 Fax No. 8422912</p>	 <p>C.B. ANDREW ASIA, INC. Building Y-2, JF & Sons Compound, Veterans Road, PINEDEC Industrial Estate, Tagay City 1630 Philippines</p>	 <p>DUPONT FAR EAST, INC 108 Distribution Drive, Camarines Industrial Park 1, Carabang, Carabang, Laguna Tel. No. (542)8287841 to 83 Fax No. (542)8287843, (542)8287142</p>
 <p>SYNGENTA (PHILS.) INC. #12 Twin Strand Square Bldg, #23 Upper McKinley Road, McKinley Tech Tower Fort Bonifacio, Tagay City</p>	 <p>Sinochem Crop Protection (Phil.), Inc.</p>	



IRAC PHILIPPINES ACTIVITIES

Since 2011 IRAC Philippines Activities were coordinated with Croplife Philippines and other Stakeholders

**2011 Train the
Trainers**

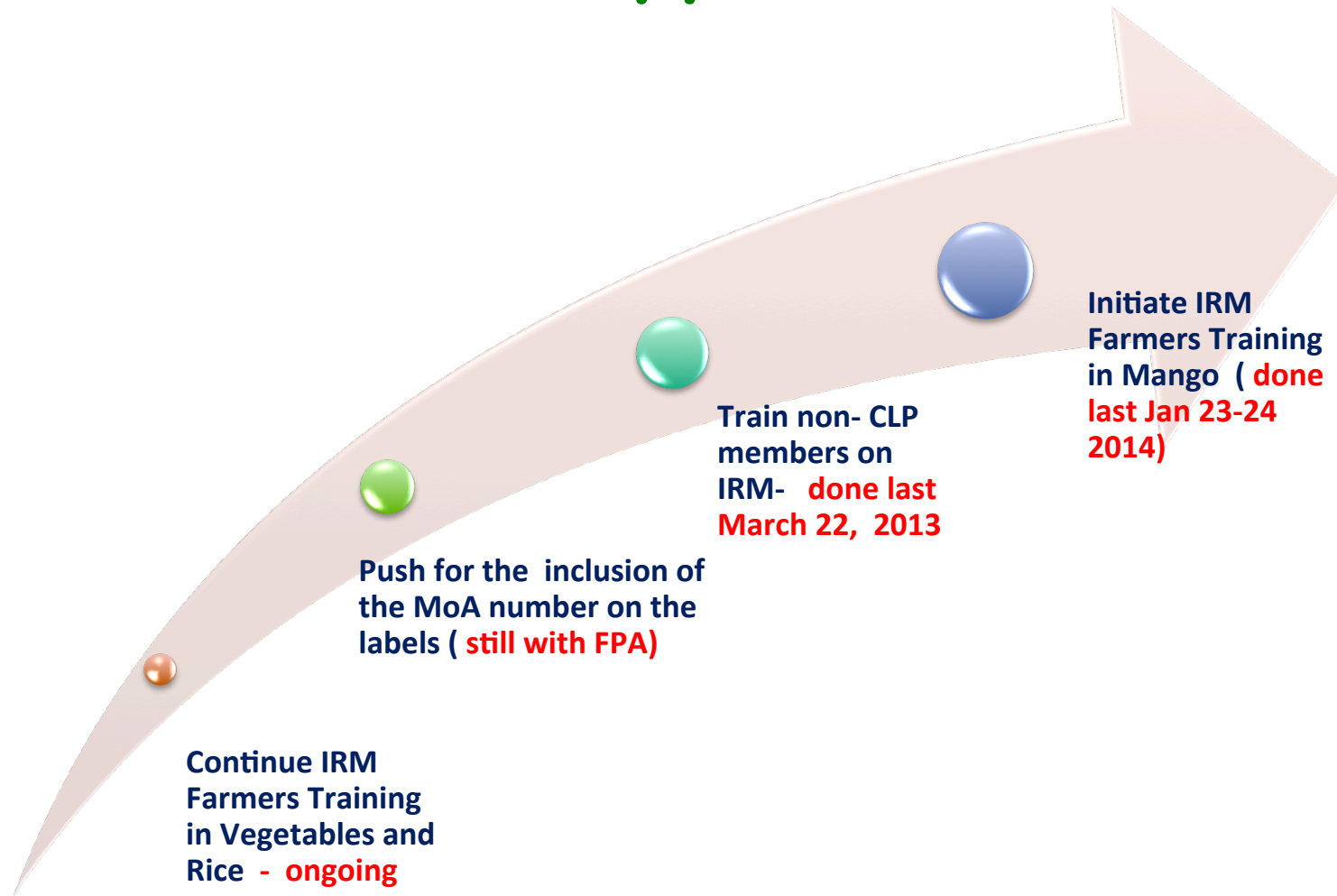
**Development of
Training Materials**

**2012 Hands on
Training on IPM/IRM**

**2012 IRM Farmers
Training**

**2013 Training
Programs**

IRAC Philippines Goals*



* Presented at the 2013 IRAC Meeting at UK



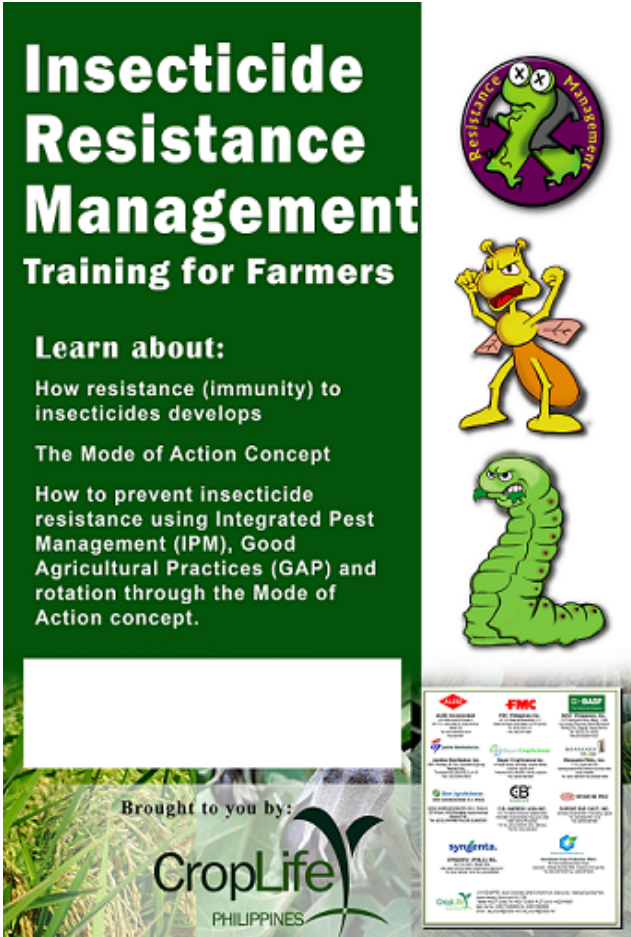
TRAIN THE FARMERS PROGRAM

2013 Train the Farmers Program

Target: 10000 vegetables and rice farmers in selected areas

130% achievement in 2013

Participating companies: All CLP members except for Monsanto



Insecticide Resistance Management
Training for Farmers

Learn about:

- How resistance (immunity) to insecticides develops
- The Mode of Action Concept
- How to prevent insecticide resistance using Integrated Pest Management (IPM), Good Agricultural Practices (GAP) and rotation through the Mode of Action concept.

Brought to you by:

CropLife
PHILIPPINES

The poster features three cartoon illustrations: a purple insect with 'X's on its eyes and 'Resistance Management' written around it, a yellow and orange insect with wings, and a green caterpillar. At the bottom, there is a grid of logos for various agricultural companies including FMC, BASF, Bayer, and others.

Croplife Phils IRM 2013 Award

To motivate companies to promote IRM program in rice and vegetables, IRM award was given to 3 top companies following the criteria set by Croplife Phils

In 2013 the IRM awardees are:

1st place: Bayer CropScience

2nd place: Sinochem

3rd place : Dupont



IRM TRAINING OF NON - CROPLIFE MEMBERS



Objective:

To create awareness of IRM to other non Croplife member association

Program of Activity

FINAL DRAFT OF SEMINAR-TRAINING WORKSHOP ON IRM FOR CPAP AND PICMA

Date: March 22, 2013

Venue: FPA Conference Hall, Diliman, Quezon City

8:00- 9:00	Registration	
9:00- 9:05	Invocation	Rosalino B. Rondon / CPAP
9:05- 9:10	National anthem	Krustle A. Hawod / CPAP
9:10- 9:20	Welcome	Ignacio Gabriel/CPAP
	Opening	Dr. Norlito Gicana/FPA
	Overview and Direction Setting	Florence Vasquez/ IRAC Phil
9:20- 9:50	IPM Principles and Practice	Dr. Candida B. Adalla /DA, Biotech PIU
9:50- 10:20	IRM Principles and Practice, with focus on mechanism of plant resistance	Dr. Emiliana N Bernardo, Prof Emeritus/UP LB
10:20- 11:30	Breakout sessions/ Coffee break	Ronald B. Arabit / IRAC Phil
11:30- 12:00	Resistance Issues in eggplant : Philippine Experience	Mario N. Navasero /UPLB
12:00 – 1:00	Lunch/ IRM video presentation	
1:00- 1:45	Maintaining Susceptibility to Vegetable Insecticides	Oscar D. Edralin / IRAC Phil
1:45- 3:00	Breakout sessions/ coffee break	Ronald B. Arabit / IRAC Phil
3:00- 3:30	Workshop	Mario N. Navasero /Oscar Edralin
3:30:4:30	Integration/ synthesis	Rizza Mae S. Mendoza /Krustle A. Hawod
4:30	Open Forum	
5:00	Closing	Aida V. Ordas /FPA





IRM IN MANGO

IRM in Mango

IRAC Philippines decided to expand its IRM program in mango due to several reasons as follows:

- Presence of high resistance risk pests (mango leafhopper , thrips, cecid fly)
- Since mango is a high value /export crop, farmers tend to ensure the quality of mango produce especially those for export hence use of insecticide in mango is abused
- Once an insecticide is newly registered, continuous use of the same product is practiced resulting to insecticide resistance

IRM TOT in Mango Program of Activities January 23-24, Pangasinan*, Philippines

- 2 days training (Dr Celia Medina/ UPLB, PHD Entomology, Mango expert and an advocate of resistance management)

- Lecture/classroom (1st day)
 - Development of insecticide resistance
 - Managing resistance and mode of action
 - Major pests of mango
 - Workshop

- Field work (2nd day)
- Workshop (to support IRAC Philippines aspirations)

* One of the mango areas in the Philippines

IRAC Philippines Aspirations on Mango IRM

Develop mango IRM Strategy following MoA rotation

Train mango growers effectively

Promote IRM to as many growers as possible



IRM STRATEGY IN MANGO

IRM for Mango Leafhopper



10DAFI



12 DAFI



17 DAFI



24DAFI



28 DAFI
(Full-bloom)



32 DAFI

Option 1

MOA A

MOA B

MOA C

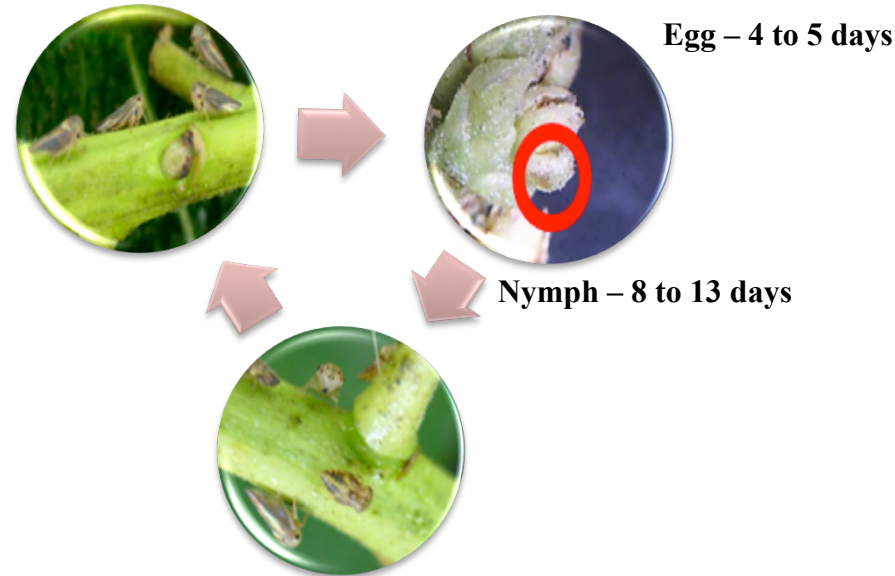
Option 2

MOA B

MOA A

MOA B

Note : MLH is critical from early flowering stage
 MLH completes 1 generation during the flowering stage.
 Do not apply from 28-32 DAFI (full bloom)

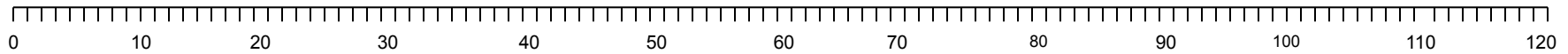


DAFI- days after flower induction
 No pesticide application at full bloom

1 generation = 12-18 days

IRM for Mango Cecid Fly

CROP STAGE



Option 1

Option 2



Note : Cecid fly is critical from 32 – 75 DAFI, Apply at 32 , 39 and 46 DAFI for best results

**1 generation is 10-12 days
There are 4 generations in a mango season**



IRM for Thrips Luzon



10 DAFI

12 DAFI

17- DAFI

24 DAFI

28 DAFI
(Full-bloom)

32 DAFI

Option 1

MOA A

MOA B

MOA A

Option 2

MOA B

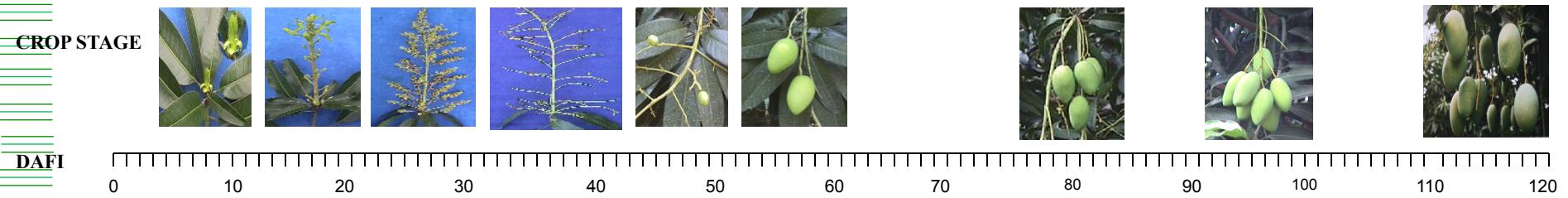
MOA A

MOA B



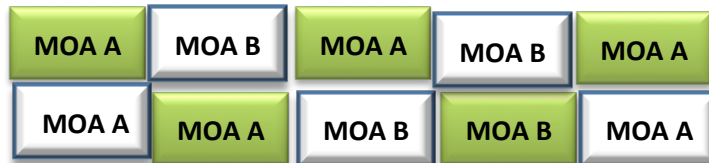
Note : Thrips is critical from early flowering stage
 Thrips complete 1 generation during the flowering stage
 Do not apply from 28-32 DAFI (full bloom)

IRM for Mango Thrips Mindanao



Option 1

Option 2



Note : Thrips in Mindanao is critical from 20 – 60 DAFI
Thrips complete 2 generations from flowering to early fruit development
Do not apply insecticides at full bloom (28-32 DAFI)





COMMUNICATION

CropLife Phils

CropLife PHILIPPINES
Representing the plant science industry

CropLife Phils

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CropLife Phils shared a link.
October 10, 2013

Insecticide Mode of Action (MoA)
Insecticide Mode of Action will target a specific part, function or system of an insect.

IRM Veggies & Rice

Like · Comment · Share 2 1

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Insecticide Resistance Management

SUSCEPTIBLE: Can be easily killed

MODERATELY SUSCEPTIBLE: Not easily killed

RESISTANT (IMMUNE): Cannot be killed under normal doses

Like · Comment · Share 2 1

CropLife Phils shared a link.
October 2, 2013

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Visit CropLife Philippines at Facebook to be updated on our local IRM activities



Thank you