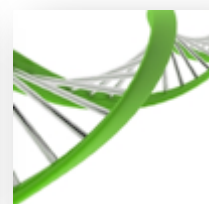
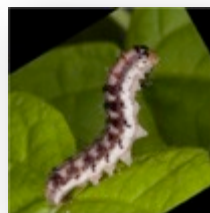




Insecticide Resistance Action Committee

# Diamide Working Group feedback

Tuesday March 18, 2014



# Diamide Working Group Feedback

## Members

Team Leader: Robert Senn, Syngenta

Deputy Leader John Andalaro, DuPont

Jan Elias; Jim Adams, Jim Dripps, Luis Teixeira, Nonaka Nobuyuki, Ralf Nauen

## Team Objectives

- Maintain currency of the global diamide guidelines based on new experiences and new products
- Refocus country diamide working group support with intent to hasten company's completion of MoA communication plan, internal and external training plan, IRM implementation strategies, and align IRM label language in high risk markets.
- Standardization of new IRAC approved methods
- Create baseline insect susceptibility data for future comparisons.
- Integrate Diamide working group into Lepidoptera working group

# Diamide Working Group Feedback

1. Global company alignment on resistance management message.
  - Resistance management guidelines
  - Resistance management label language
  - Promotion of Group 28 icon
  - Identification of high resistance risk situations & priorities
  - Agreed response to development of resistance
2. Local engagement of resistance message in countries
  - Country working group formation
  - Joint IRM projects
3. Engagement of local influencers & researchers
  - IRM Workshops
  - IRM research projects
4. Resistance management education of end users
  - Workshops & printed materials

# Company alignment on IRM Guidelines



Insecticide Resistance Action Committee  
www.irac-online.org

## Insecticide Resistance Management

### Global Guidelines for IRAC Group 28 (Diamide) Insecticides

Issued: December 2008

Version: 1.1

Prepared by: IRAC Group 28 (Diamide) Working Group

## Global IRM Principles for IRAC Group 28 Insecticides

◆ USE THESE GUIDELINES FOR LABEL DEVELOPMENT, PRODUCT POSITIONING, AND DEVELOPMENT OF LOCAL IRM PROGRAMS.

Group 28 Insecticides control insect pests by affecting ryanodine receptors in muscle cells. The risk for resistance development exists and can occur rapidly. Therefore, it is critical that preventive measures are taken, with the objective of minimizing selection for resistance development. Rotation of *effective* compounds with *different* modes of action minimizes the potential for resistance development to any given MOA.

1. **Position Group 28 Insecticides in Integrated Pest Management and Insecticide Resistance Management Programs** (see IRAC General Guidelines, Appendix III).

- 1st Priority was agreement of global guidelines for resistance management.
- Need to be restrictive: reducing resistance risk. but also .....
- Flexible: variation in agronomy worldwide.
- Agreed IRM guidelines are based on reducing prolonged exposure of target pests to single insecticide mode of action. Recommending:
  - Limiting diamide exposure
  - Insecticide MoA rotation
  - Non-chemical control
- Guidelines are available for download on IRAC website: [www.irac-online.org](http://www.irac-online.org)

# Company alignment on IRM Label Language



**GROUP 28 INSECTICIDE**

## Example 2: Short Version

**Insecticide Resistance Management (IRM)**

General Recommendations:

\_\_\_ (product name) contains \_\_\_ (active ingredient name), a Group 28 Insecticide.

Unless directed otherwise in the specific crop/insect sections of the label, the following practices are recommended to prevent or delay the development of insecticide resistance to \_\_\_ (product name) and to Group 28 insecticides:

- Apply \_\_\_ (product name) or other Group 28 insecticides using a "window" approach to avoid exposure of consecutive insect pest generations to the same mode of action. Multiple successive applications of \_\_\_ (product name) are acceptable if they are used to treat a single insect generation.
- Following a "window" of \_\_\_ (product name) or other Group 28 insecticide, rotate to a "window" of applications of effective insecticides with a different mode of action.
- The total exposure period of all "Group 28-active windows" applied throughout the crop cycle (from seedling to harvest) should not exceed 50% of the crop cycle.
- Incorporate IPM techniques into the overall pest management program.
- Monitor insect populations for loss of field efficacy.

For additional information on insect resistance, modes of action and monitoring visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org>.

## Example 3: Shortest Version – Minimal Text Required on Label

**Insecticide Resistance Management (IRM)**

General Recommendations:

In order to avoid fast resistance development, avoid treating consecutive generations of the target pest with the same product or products with the same mode of action. Apply \_\_\_ (product name) using a "window" approach, alternating blocks of treatments with \_\_\_ (product name) followed by blocks of treatments with other effective products with different modes of action. The total exposure period of all "Group 28 active windows" applied throughout the crop cycle cannot exceed 50% of the crop cycle.

For additional information on insect resistance, modes of action and monitoring visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org>.

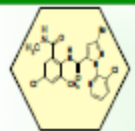
### INTRODUCCIÓN Y OBJETIVOS

- En 2010 aparecen en el mercado español los primeros insecticidas del grupo de las diamidas (modo de acción IRAC 28).
- Estos insecticidas actúan, modo de acción, sobre los receptores de rianodina. Actualmente existen dos materias activas de este grupo con registro en diversos cultivos.

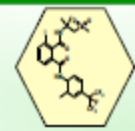
Existe el riesgo de aparición de resistencia al grupo 28, y puede desarrollarse rápidamente si no se toman medidas específicas. El grupo 'Diamidas, Grupo 28' se marca como objetivo realizar acciones para la sostenibilidad de esta familia de insecticidas en España, concretamente se plantea:

- Desarrollar y recomendar estrategias de prevención de resistencias (IRM) para diamidas de fácil aplicación por los técnicos y agricultores.
- Detectar mercados de alto riesgo de aparición de resistencias donde priorizar las acciones.
- Realizar un seguimiento continuado de la situación, adaptando las propuestas y realizando una comunicación efectiva.

#### Moduladores receptores de rianodina



Chlorantraniliprol

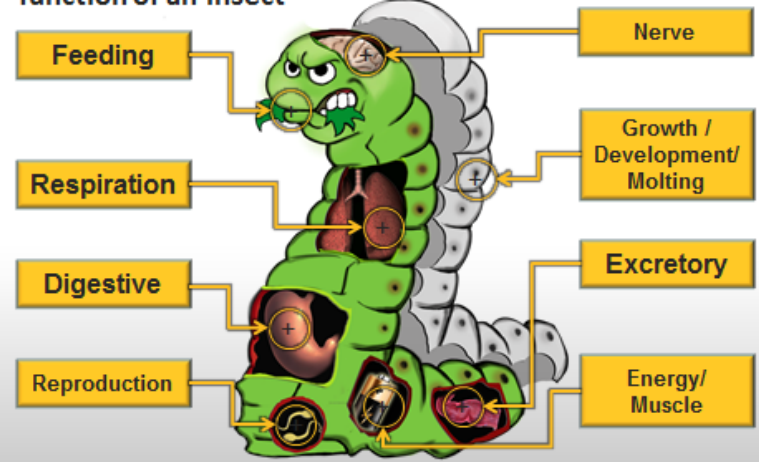


Flubendiamida

Desarrollo del insecticida, comercial de este...

## Insecticide Mode of Action (MoA)

A specific Mode of Action will target a specific part/function of an insect



## IRAC 杀虫剂的抗性管理 (IRM) 策略

田间在发生的故事.....

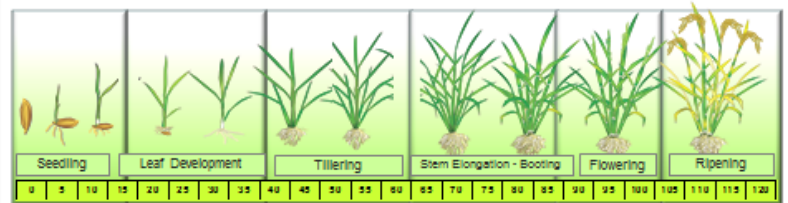


为啥没效了?

哈!我产生了抗性, 变强大了, 因为...

同样药剂或同一作用机理的药剂连续使用(或者不按标签剂量和推荐使用), 使抗性(红色)群体逐渐增多

## Insecticide Resistance Management (IRM) Strategy in Rice



	1 <sup>st</sup> Generation	2 <sup>nd</sup> Generation	3 <sup>rd</sup> Generation
Stemborer	35 Days	35 Days	35 Days
Brown Plant Hopper	32 Days	32 Days	32 Days
Green Leaf Hopper	30 Days		

Insecticide Application (Need-Based)			
Option 1	MoA 1	MoA 2	MoA 3
Option 2	MoA 1	MoA 2	MoA 1

# Diamide Working Group Feedback

1. 2013: 7 diamide telecons took place
2. Jim Dripps (Lepidoptera WG) participated
3. Croplife member joined country working groups mainly in Asia
4. Focus on country working group support: labelling, IRM crop programs, monitoring, resistance confirmation, ...

- Active invitation/appointments in order to get wider country working groups participation
- Labelling: adapt IRM labelling to basic standard (e.g. Follow diamide WG recommendations?)
- Lepidopetra in rice
- Lepidoptra in soybean in Brazil
- Educational tools (targeted e.g. also for retailers/dealers)