Insecticide Resistance Action Committee

IRAC International

Russell Slater (IRAC Chair) 19th September 2017: EPPO Resistance Panel
IRAC Mission

- Facilitate communication and education on resistance to insecticides and insect-resistant traits.

- Promote and facilitate development and implementation of resistance management strategies to maintain efficacy and support sustainable agriculture and improved public health.
13 Member Companies
(8 Croplife)

IRAC INTERNATIONAL

Executive Committee

Crop Protection
Public Health
Plant Biotechnology

IRAC Country Groups

IRAC Spain
IRAC Brasil
IRAC S.Africa
IRAC Australia
IRAC Asia
IRAC India
IRAC USA
IRAC Philippines
IRAC Argentina

Steering Group
Outreach
R. Database (MSU)
Methods
Mode of Action
Public Health
Biotechnology
Coleoptera
Sucking Pest
Lepidoptera

April 2017
Sep 2017
Working groups established to develop IRM guidelines for diamide insecticides, then expanded to provide lepidopteran IRM. Final stage has been to expand to cover other pests and crops.
IRAC Task Teams
Short lived collaborative teams with specific objectives

Executive Committee

Crop Protection  Public Health  Plant Biotechnology

IRAC Country Groups
IRAC Spain  IRAC Brasil  IRAC S.Africa
IRAC Australia  IRAC SE Asia  IRAC India
IRAC USA  IRAC Philippines  IRAC Argentina

Brazil Cotton, Corn & Soybean IRM
IRAC International
IRAC Brasil
Ministry of Ag,
Grower Representatives
Industry advisors
University experts

Puerto Rico IRM
IRAC USA
IRAC International
PRABIA

Tuta absoluta IRM
IRAC International
IRAC Spain
University experts
Industry advisors
IRAC Executive objectives 2017-18

• Enhance available information on pest resistance on IRAC web-site.
Greater focus on providing resistance information.
Aim to be a first destination and subsequent hub-site for resistance knowledge.
IRAC Executive objectives 2017-18

• Enhance available information on pest resistance on IRAC web-site.
• Complete agreement with IRAC member companies on MoA icon adoption.
Use the IRAC Mode Of Action (MoA) system to identify **Insecticide**, **Fungicide**, and **Herbicide** products that attack the same pest target sites and properly rotate to practice ideal IRM.

**Examples:**

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>FUNGICIDE</th>
<th>INSECTICIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fusilade DX</td>
<td>Scholar</td>
<td>Durivo</td>
</tr>
<tr>
<td>Herbicide</td>
<td>Fungicide</td>
<td>Insecticide</td>
</tr>
</tbody>
</table>

- Agreement on voluntary use of MoA icons within IRAC member companies.
- Awaiting ongoing Croplife Intl. discussions across insecticide, fungicide and herbicide labels before implementation.
IRAC Executive objectives 2017-18

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• Complete agreement with IRAC member companies on MoA icon adoption.
• Develop IRM classification scheme for biological and non-chemical insecticides.
Classification schemes for non-synthetic chemical insecticides and alternative methods of insect control

-Agreed that some form of classification for `Alternative` methods of control.
-IRAC MoA working group working on a draft proposal.
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• Develop IRM classification scheme for biological and non-chemical insecticides.
• Find long term solution for resistance record database.
MSU APRD database

- IRAC funded an update to the database with increased search functionality.
- Can now search for multiple parameters.
- Functionality much improved.
- Working on including a laboratory vs. field derived resistance search function.
- Working on regional descriptors (i.e. search by geographic region (Northern Europe) not just by country).

- Still a need to find a long term solution: Changes in MSU staff & need for more accurate database
- Ongoing discussions to find a long term way of recording resistance cases.
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• Provide an IRAC guidance document on IRM Modelling.
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- Working group established and first meeting in August.
- Agreed to develop two streams of information:
  - Page on IRAC web-site explaining fundamentals of insecticide resistance modelling for visitors with no background in modelling (hands on use of model, facts & figures, what you can expect, what do you need, etc.
  - IRAC position paper for those with more advanced knowledge: Different modes, parameter use, etc.
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• Development of an IRM online training tool.
Online IRM Training

• Online training in basic IRM.
• Target audience still needs to be defined:
  – Students, Farm managers, Pesticide Retailers, Company sales teams.
• Can we use existing training materials?
• Timelines, resources and funding still in discussion.
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• Develop RAC proposal for the generation of EU regulatory data and engage with pesticide regulators in Europe.

A joint FRAC, HRAC and IRAC workshop was held on the 13th September in order to discuss the process of generating resistance data in support of the registration and re-registration of pesticides in Europe. The outputs of this meeting and subsequent individual discussions within the RACs will be communicated once the recommendations are fully developed.
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• Develop RAC proposal for the generation of EU regulatory data and engage with pesticide regulators in Europe.
• Completion of Task Team activities (Puerto Rico & *Tuta absoluta*).
• Assess potential for New Task Team in Africa to address threat of invasive *Spodoptera frugiperda*?

Currently IRM implementation and advice is being provided by IRAC South Africa. No further imput from IRAC International is currently required.
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• Assess potential for New Task Team in Africa to address threat of invasive Spodoptera frugiperda?
• Formation of an IRAC Nematode working group

1st meeting on the 25th September
• IRAC is focused on providing practical resistance management advice to those that implement or advise on pest management.

• Growers, farm managers, independent advisors, extension services & industry representatives

IRM guidelines for conventional and transgenic corn, developed in collaboration with non-industry experts from Brazil

IRM programs for eggplant and rice used in train the trainers programs in China & the Philippines

IRM Leaflet providing Basic IRM advice for small holders.