



Insecticide Resistance Action Committee

Communication & Education

48th IRAC International Meeting
19th March 2013
- Session 2A -



Communication & Education Team

Team Members:

- Alan Porter (Leader)
- Alejandro Arevalo
- Dan Vincent
- Jim Drips
- John Andalaro
- Lixin Mao
- Mark Hoppe
- Ralf Nauen
- Ronda Hamm
- Tamar Danon
- Tom Sparks
- Russell Slater

C&E Team:

- F2F in Indianapolis in March followed by 5 conference calls during 2012/13
- Strong team of 12 members with good representation across the WGs
- **However, success relies on the support of all IRAC members**
- Includes technical IT input for the website, eTools etc. from Intraspin

IRAC C&E Tools



15 Years of the IRAC Website

Where we were in 1998



GENERAL RESOURCES

[\[Home\]](#)

[• THERE'S ONLY ONE ALTERNATIVE •](#)

[• RESISTANCE IS EVERYONE'S PROBLEM •](#)

[• RESISTANCE - THE FACTS •](#)

[• RESISTANCE MANAGEMENT SLIDE SHOW •](#)

[• UNDERSTAND? TAKE THE QUIZ •](#)

[RESISTANCE - WORLDWIDE SURVEY](#)

[IRAC TEST METHODS ... pdf](#)

[IRAC PUBLICATIONS](#)

[MODE OF ACTION CLASSIFICATION](#)

[POSTER AND LEAFLETS *New!*](#)

Dimensions:

- Images = 9
- Pages = 3
- Documents = 15

Features:

- Basic web presence
- Hosted by NCSU
- Plantprotection.org

15 Years of the IRAC Website By 2000.....



[About](#) [General](#) [Country](#) [Project](#) [International](#) [Section](#) [Grower](#) [Useful](#) [Current](#) [Members](#)
[IRAC](#) [Resources](#) [Groups](#) [Groups](#) [Newsletter](#) [Section](#) [Links](#) [Activities](#) [Only](#)

The Insecticide Resistance Action Committee was formed in 1984 to provide a coordinated crop protection industry response to the development of resistance in insect and mite pests. The mission of IRAC is to develop resistance management strategies supporting the use of crop protection and vector control products in a way that maintains efficacy and results in sustainable agriculture and improved public health.

Update
May 2002
[E-mail us](#)

Search this site:

Find

IRAC Conference
Call July 16, 2002

IRAC Codling
Moth Workshop,
Thessaloniki, 10/02

What's New:

[Design an IRAC Cartoon Bug and Win \\$500 Travel Voucher](#)
[E-mail us](#) for details
Visit the new [Resistant Pest Management Newsletter](#)

New on the Website:

[Summary of Actions and Notes](#) from IRAC India
[Living with resistance in cotton pests in India](#)
[IRAC International Poster \(2.7Mb\)](#)
[IRAC Australia - MOA Classification and RM Strategies](#)
[IRAC Codling Moth Presentation - R2001 Meeting](#)
[IRAC Spain - Brochure](#)
[Recent IRAC Country Meeting Minutes \(US, Australia and India\)](#)
[37th IRAC Int Meeting Minutes](#)
[Presentations from the 37th IRAC Int Meeting](#)

Features:

- First full website
- Navigation bar
- Multiple documents

15 Years of the IRAC Website By 2003.....



IRAC Resistance Management for Sustainable Agriculture & improved Public Health

Home | Diary | FAQ | Links | Contact | Site Map

Insecticide Resistance Action Committee

Search: Go

About IRAC | **Resources** | **IRAC International** | **Country Groups** | **Growers**

Resistance Management from IRAC

The Insecticide Resistance Action Committee (IRAC) is an inter company group formed in 1984 to provide insecticide and acaricide resistance management strategies to help reduce the development of resistance in insect and mite pests. IRAC believes that Resistance Management should be an integral part of Integrated Pest Management and provides for Sustainable Agriculture and improved Public Health.



This new IRAC website has been designed to make it easier to navigate and locate Resistance Management information - the "drop-down" menus above lead to further details. We hope you find the site a useful resource.

Links to recent Insecticide Resistance Management Information

-  [General Principles of Insecticide RM from IRAC](#)
-  [New IRAC Posters](#)
-  [IRAC Test Methods - New format, July 2005](#)
-  [IRAC Intl. Meeting, Florence April 2005 \(Members only\)](#)
-  [IRAC Information used at the BCPC, Glasgow, November 2005](#)
-  [IRAC Intl. Regulatory Team Minutes, January 2006 \(Members Only\)](#)
-  [IRAC Intl. C & E Team Minutes, March 2006 \(Members Only\)](#)
-  [IRAC Intl. Conference Call - Action Log, March 2006 \(Members only\)](#)
-  [IRAC US Meeting Minutes, April 2006 \(Members only\)](#)

IRAC & IRM in the Spotlight

-  [Latest IRAC eConnection - Issue 10](#)
-  [Outlooks on Pest Management - IRAC Review Article](#)

quicklinks

- [MOA Scheme 05](#)
- [New Group Guide](#)
- [EPPO Guidelines](#)
- [IRAC Methods](#)
- [IRAC Posters](#)
- [IRAC Website](#)
- [FRAC Website](#)
- [MSU Database](#)
- [IRAG Website](#)
- [PM Newsletter](#)

upcoming events

- [IRAC Conf Calls](#)
- [IRAC C & E Team](#)
- [IPM Conference](#)
- [IUPAC meeting](#)
- [ECE Conference](#)
- [Bemisia & Whiffly Genomics Workshop](#)



© 2003 intraspin.com

Features:

- Hosted by Intraspin
- IRAC branding/logo
- www.irc-online.org

15 Years of the IRAC Website By 2007.....

Features:

- Increase in content
- Download/Resources
- eTool databases

15 Years of the IRAC Website By 2009.....

The screenshot shows the IRAC website homepage. At the top left is the IRAC logo with a fly icon. To the right, it says "Welcome alan. [logout](#)". Below the logo is the tagline "Resistance Management for Sustainable Agriculture and Improved Public Health". A navigation menu includes "HOME", "ABOUT", "NEWS", "EVENTS", "TEAMS", "COUNTRIES", "TOOLS", and "RESOURCES", followed by a search box. A yellow banner reads "WELCOME TO THE INSECTICIDE RESISTANCE ACTION COMMITTEE WEBSITE".

LATEST NEWS

MAR 22 New Aphid Test Method from IRAC

IRAC Test Method (No. 019) for aphids has just been finalised, approved and posted in the Methods Team area of the IRAC website. The method is suitable for monitoring resistance in a number of different aphid species and product classes, the details of which along with a method description are outlined in the Test Method document.

[MORE NEWS >](#)

SUBSCRIBE TO OUR RSS FEED
Get IRAC news sent directly to your inbox or feed reader.

SUBSCRIBE TO IRAC'S NEWSLETTER

Your Name:
Your E-mail:

IRAC is an international group of 150+ members of the Crop Protection Industry organised by sector and region to advise on the prevention and management of insecticide resistance.

 Learn more about IRAC	 IRAC Mode of Action	 IRAC Test Methods
<ul style="list-style-type: none">> View the IRAC Organisational Chart> Download the IRAC Constitution> Check-out the Executive Members> Start a new IRAC Country Group!	<ul style="list-style-type: none">> Download the MoA Poster> Try the interactive eClassification> Download the MoA Classification> Visit the MoA Team webpage	<ul style="list-style-type: none">> Try our interactive eMethods tool> Learn about the IRAC Methods> Visit the Methods Team webpage

To access the old site for reference, please visit <http://old.irac-online.org>.

Features:

- Improved design
- Team pages
- Full CMS

15 Years of the IRAC Website

Where we are in 2013

IRAC Resistance Management for Sustainable Agriculture and Improved Public Health

HOME IRAC NEWS EVENTS TEAMS COUNTRIES PESTS TOOLS RESOURCES

WELCOME TO THE INSECTICIDE RESISTANCE ACTION COMMITTEE WEBSITE

GLOBAL COLLABORATION

Working information and strategies for resistance management around the world.

LEARN MORE

ABOUT IRAC

IRAC is an international group of more than 150 members of the Crop Protection Industry organized by sector and region to advise on the prevention and management of insecticide resistance.

Launch Presentation

RESISTANCE MANAGEMENT RESOURCES

Resistance is a heritable change in the sensitivity of a pest population, reflected in the repeated failure of a product to achieve the expected level of control when used as instructed for that pest species.

Learn more about resistance

- CROP PROTECTION
- BIOTECHNOLOGY
- PUBLIC HEALTH
- MODE OF ACTION
- METHODS
- PEST LIBRARY
- IRAC POSTERS
- IRAC PUBLICATIONS
- IRAC PRESENTATIONS

LATEST NEWS

UPDATED DIAMONDBACK MOTH POSTER

The IRAC Lepidoptera WG has just updated the popular Diamondback Moth (*Plutella xylostella*) poster that outlines the basic biology, resistance mechanisms and management along with general IRM strategies and modes of action available to control this pest. See the poster.

CONTINUE READING

SUBSCRIBE HERE

Subscribe to the IRAC eConnection to receive our latest news in your inbox.

Your Name:

Your Email:

SUBSCRIBE

EVENTS

FEB 24 79TH AMCA ANNUAL MEETING, ATLANTIC CITY, FEBRUARY 2013

MAY 20 1ST INTL. WHITEFLY SYMPOSIUM, CRETE, MAY 2013

Home | Disclaimer | Contact | web design by iPraxion.com

Dow Dow AgroSciences **VESTERGAARD FRANDSEN** **Nihon Nohyaku**

Dimensions:

- Images = 160
- Pages = 150
- Pub. Docs. = 240
- WG Minutes = 180

Features:

- More engaging site
- Intuitive doc. links
- Searchable resources

Recent Website Improvements Team Pages e.g. Methods

The screenshot shows the IRAC website's 'METHODS TEAM' page. At the top, the IRAC logo is displayed with the tagline 'Resistance Management for Sustainable Agriculture and Improved Public Health'. A navigation menu includes links for HOME, IRAC, NEWS, EVENTS, TEAMS, COUNTRIES, PESTS, TOOLS, RESOURCES, and a search bar. Below the navigation, the 'METHODS TEAM' section is highlighted. It contains a paragraph describing the team's role in developing and validating methods for resistance detection. To the right of this text is a search box titled 'SEARCH FOR AN IRAC METHOD:' with dropdown menus for 'Search by species...' and 'Search by MoA...', a 'SEARCH' button, and a link to 'See all Methods'. Below the search box are sections for 'Spreadsheets' (listing an eMethod References Template), 'Documents' (listing a Data Recording Form and Test Methods Overview), 'Presentations' (listing Methods WG presentations), and 'Posters' (listing an IRAC Methods Overview Poster). At the bottom of the team section, two team leaders are introduced: Tatjana Sikuljak and Harald Kohler, each with a small portrait photo and their respective titles.



Method No 019 Aphid (*Myzus persicae*) video



Method No 022 (*Tuta absoluta*) video



Method No. 005 Rice Planthoppers video

Recent Website Improvements Pest Pages

IRAC Resistance Management for Sustainable Agriculture and Improved Public Health

HOME IRAC NEWS EVENTS TEAMS COUNTRIES PESTS TOOLS RESOURCES

WELCOME TO THE INSECTICIDE RESISTANCE ACTION COMMITTEE WEBSITE

PEST INFORMATION

This is IRAC's latest addition to the website. Clicking on the pest images will take you to specific pest pages. Presented for each pest is information on biology, distribution, resistance status and links to relevant IRAC resources. In addition there are links to useful non-IRAC material and published papers.

 MELON & COTTON APHID	 TOBACCO WHITEFLY	 CODLING MOTH
<i>Aphis gossypii</i>	<i>Bemisia tabaci</i>	<i>Cydia pomonella</i>
 ASIAN CITRUS PSYLLID	 COLORADO POTATO BEETLE	 EUROPEAN GRAPEVINE MOTH
<i>Diaphorina citri</i>	<i>Leptinotarsa decemlineata</i>	<i>Lobesia botrana</i>
 GREEN PEACH APHID	 BROWN PLANTHOPPER	 EUROPEAN RED MITE
<i>Myzus persicae</i>	<i>Nilaparvata lugens</i>	<i>Panonychus ulmi</i>
 BEET ARMY WORM	 FALL ARMYWORM	 TWO-SPOTTED SPIDER MITE
<i>Spodoptera exigua</i>	<i>Spodoptera frugiperda</i>	<i>Tetranychus urticae</i>
 DIAMOND-BACK MOTH	 POLLEN BEETLE	
<i>Plutella xylostella</i>	<i>Meligethes aeneus</i>	
 TOMATO LEAF MINER		
<i>Tuta absoluta</i>		

IRAC Resistance Management for Sustainable Agriculture and Improved Public Health

HOME IRAC NEWS EVENTS TEAMS COUNTRIES PESTS TOOLS RESOURCES

WELCOME TO THE INSECTICIDE RESISTANCE ACTION COMMITTEE WEBSITE

POLLEN BEETLE

Meligethes aeneus

It *aeneus* is an important pest of oilseed rape particularly in Western Europe. The larvae are up to 3 mm long and white with brown sclerotised plates. Eggs are laid in the flower buds of the host plant and the larvae develop within the flowers. Oviposition damage to the buds of oilseed rape can cause the flowers to drop off. Both adults and larvae feed on the pollen and nectar in the flowers.

Resistance to pyrethroids has been reported in this species since 1999. Initial reports suggest that pyrethroid resistance first occurred in North East France and over the following years has spread to other countries in Europe. Investigations into the mechanism of resistance has primarily identified enhanced metabolism by P450 monooxygenases as the prime mechanism of resistance to pyrethroids. More recently a target site mutation has also been identified in some resistant populations from Denmark and Sweden.

KNOWN RESISTANCE
Pyrethroids – Group 3A

IRAC SUSCEPTIBILITY TEST METHODS
Method No: 011 - *Meligethes aeneus* (adults) - pyrethroids
Method No: 021 - *Meligethes aeneus* (adults) - neonicotinoids
Method No: 023 - *Meligethes aeneus* (adults) - OPs
Method No: 027 - *Meligethes aeneus* (adults) - insectoacaris

EXTERNAL LINKS

- Insecticide resistance in pests of oilseed rape
- Characterising metabolic resistance in pyrethroid-insensitive pollen beetle (*Meligethes aeneus* F.) from Poland and Switzerland. Pest Management Science 67, 239-243 (2011)
- Controlling pollen beetle and combining insecticide resistance in oilseed rape (HGCA)
- Pest Spotter from Bayer Crop Science – Pollen Beetle biology and insecticides
- Pyrethroid resistance monitoring in European populations of pollen beetle (*Meligethes* spp.): a coordinated approach through the Insecticide Resistance Action Committee (IRAC)
- Pyrethroid resistance and insecticide resistance susceptibility of European populations of *Meligethes aeneus* (Coleoptera: Nitidulidae) collected in winter oilseed rape

Documents

- Pollen Beetle RM References June 2010
- Controlling pollen beetle and RM in GSR – UK 2010
- Pollen Beetle – Overview (French) 08
- Pollen Beetle (advice from HGCA) 2011

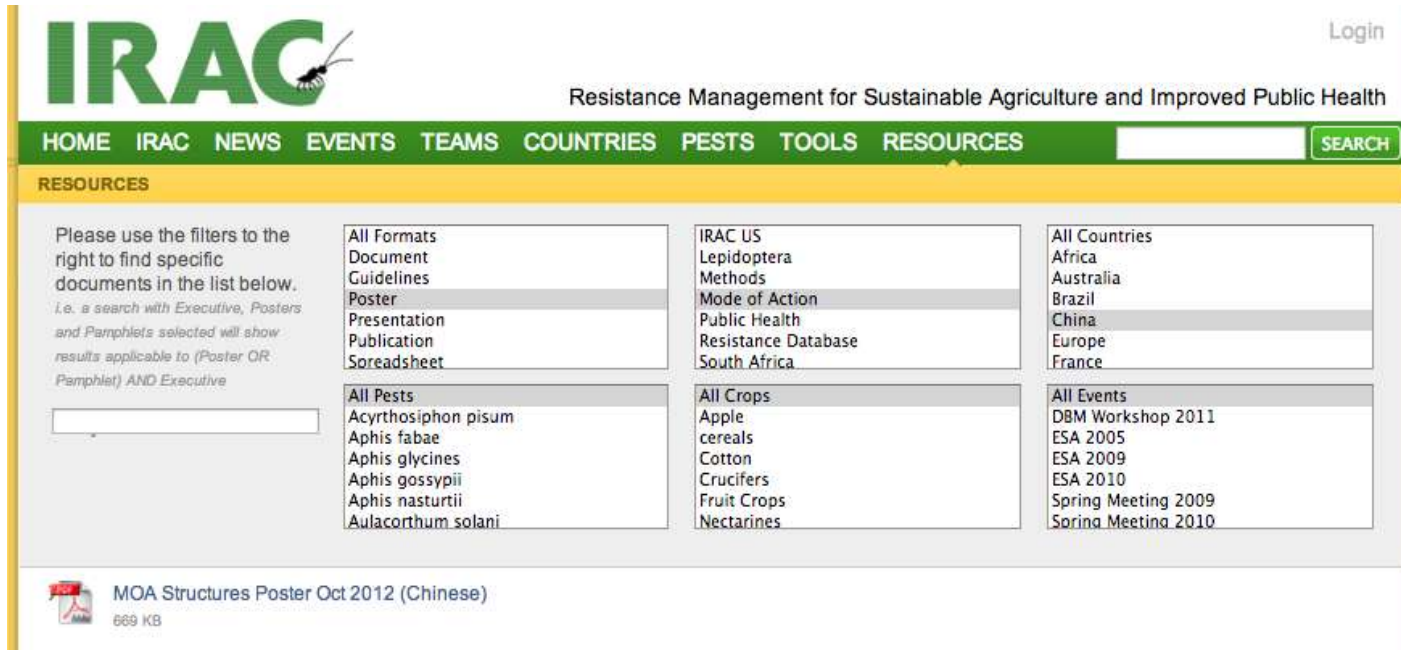
Publications

- Oil Seed Rape WG (2011)
- Coleoptera WG Overview (2012)

Presentations

- Pollen Beetle Group – Overview (French) 08
- Pollen Beetle Monitoring Poster 2008
- Oilseed IRM Poster March 2011
- Pollen Beetle Monitoring Poster 2010
- Pollen Beetle Monitoring Poster 2008
- Pollen Beetle Monitoring Poster 2007
- Pollen Beetle Monitoring Poster 2011

Recent Website Improvements Resources – Filter & Search



The screenshot displays the IRAC website's Resources page. At the top left is the IRAC logo, and at the top right is a 'Login' link. Below the logo is the tagline: 'Resistance Management for Sustainable Agriculture and Improved Public Health'. A green navigation bar contains the following menu items: HOME, IRAC, NEWS, EVENTS, TEAMS, COUNTRIES, PESTS, TOOLS, and RESOURCES. A search bar with a 'SEARCH' button is located to the right of the navigation bar. The main content area is titled 'RESOURCES' and features a list of documents with various filters. On the left, a text box instructs users to use filters to find specific documents, with an example search: 'Executive, Posters and Pamphlets'. Below this is a search input field. The filters are organized into three columns:

- Format:** All Formats, Document, Guidelines, Poster (selected), Presentation, Publication, Spreadsheet.
- Region:** IRAC US, Lepidoptera, Methods, Mode of Action, Public Health, Resistance Database, South Africa.
- Country:** All Countries, Africa, Australia, Brazil, China (selected), Europe, France.
- Pest:** All Pests, Acyrthosiphon pisum, Aphis fabae, Aphis glycines, Aphis gossypii, Aphis nasturtii, Aulacorthum solani.
- Crop:** All Crops, Apple, cereals, Cotton, Crucifers, Fruit Crops, Nectarines.
- Event:** All Events, DBM Workshop 2011, ESA 2005, ESA 2009, ESA 2010, Spring Meeting 2009, Spring Meeting 2010.

At the bottom left, a document preview is shown for 'MOA Structures Poster Oct 2012 (Chinese)' with a file size of 669 KB.

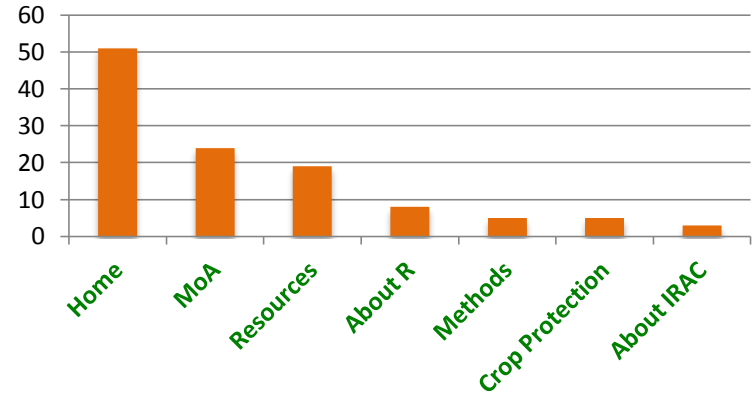
Filter & Search based on document tagging

Website Visitor Statistics

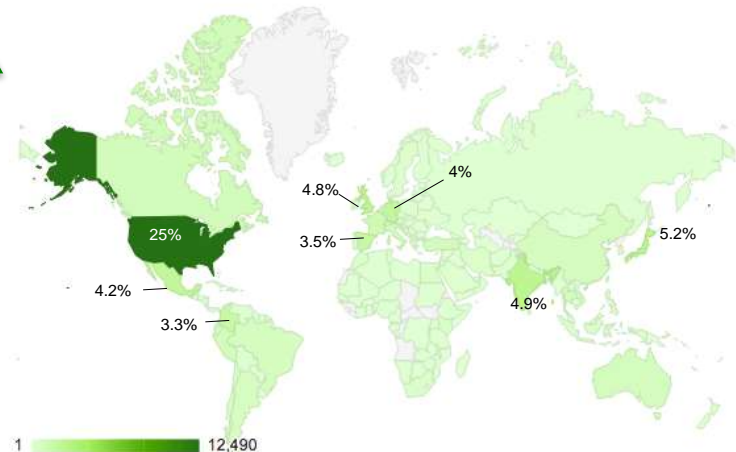
Visitor Statistics 2008 – 2012 (x1000)



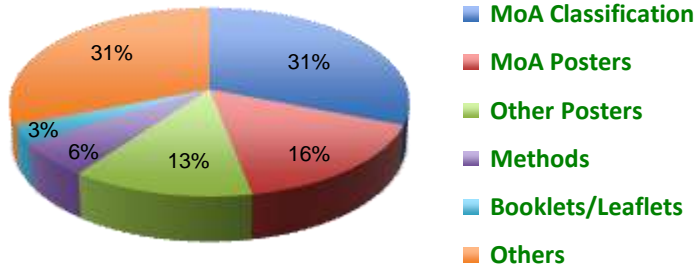
Page Views, 2012 (x1000)



Geographical Spread of Visits, 2012



23K File Downloads During 2012



eConnection Newsletter

eConnection

- Issued 3-4 times per year
 - ✓ Issue 29 March 2012
 - ✓ Issue 30 October 2012
 - ✓ Issue 31 January 2013
- Self-subscribed via website (2,268)
- Email notification of new issue
- Users download from the web







Distributed by
MailChimp

Statistics – Issue 31

- Total recipients = 2,247
- Successful deliveries = 2,190
- Bounced = 57
- Unique email openings = 52%
- Click-through = 21%

Opens by Location

Top Locations	Opens
 USA	622
 Germany	211
 Singapore	118
 United Kingdom	116
 Colombia	80

INSECTICIDE RESISTANCE ACTION COMMITTEE

Forward to a Friend



Alan Porter

Alan is the IRAC Coordinator and the sender of this email. For any IRAC-related enquiries, simply reply to this email.

IRAC eConnection Issue 31

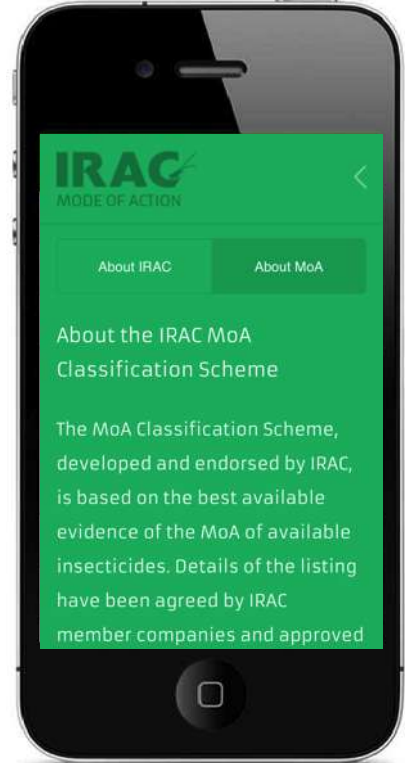
In this Issue

We provide the latest information on the IRAC neonicotinoid resistance monitoring of *Myzus persicae* in peach orchards in Southern Europe along with current guidelines for resistance management. We also report on the IRAC US Symposium at the recent ESA and we have a short article describing MoA subgroups giving details of how and when they should be used in IRM programs. Finally, we have an update on other IRAC activities, including published posters, new pest pages on the IRAC website, a test method video on rice hoppers and news of the recently formed IRAC Philippines group. We hope you enjoy the Issue.

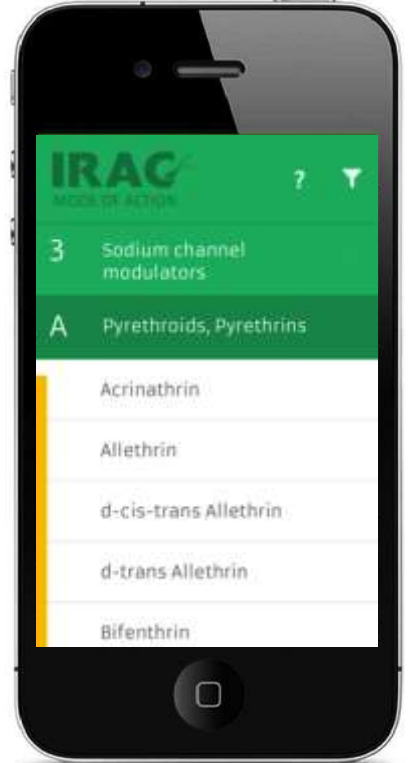
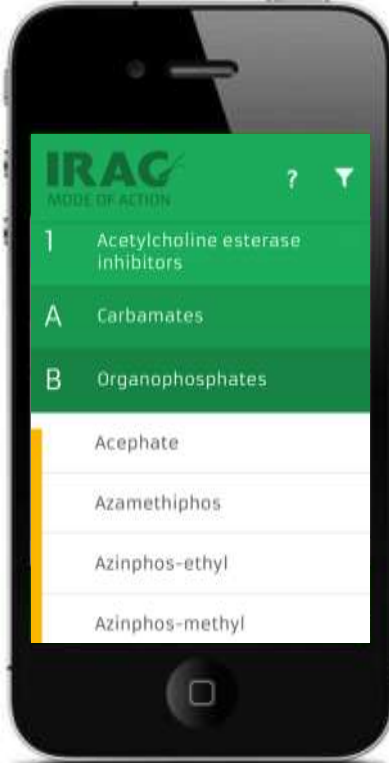
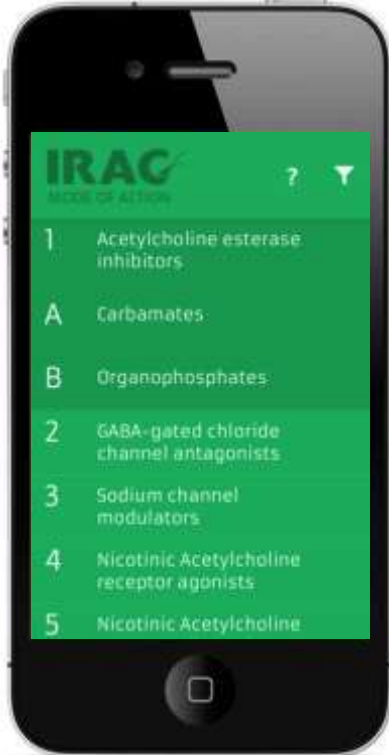
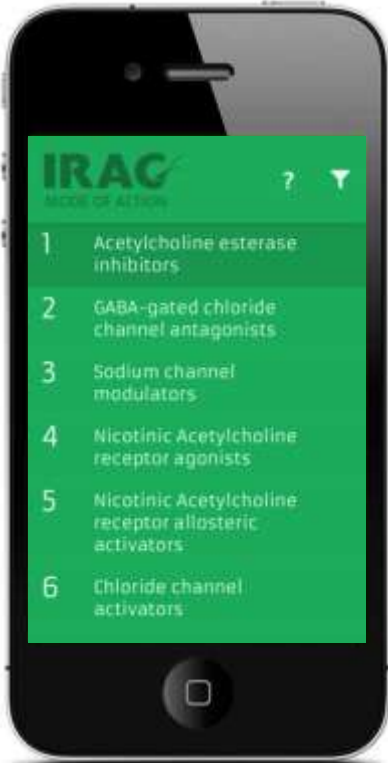
For more information on insecticide resistance management and the activities of IRAC see:
[The IRAC website](#)

[Download a pdf copy of eConnection Issue 31](#)

MoA Phone App



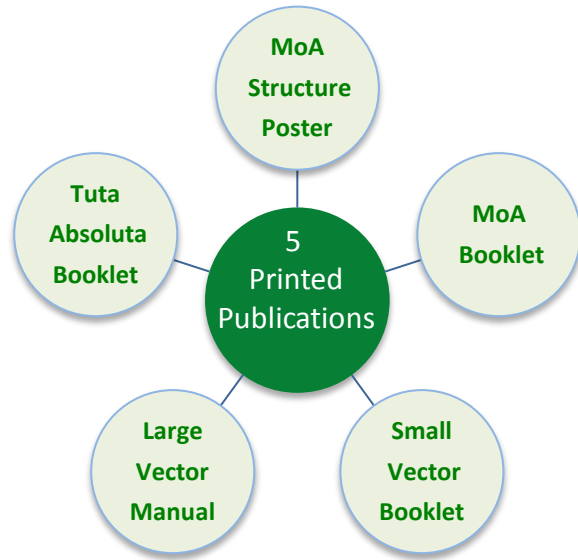
MoA Phone App



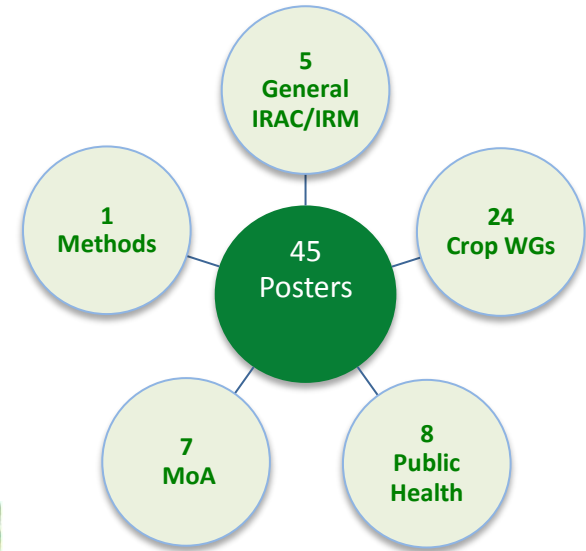
MoA Phone App



Posters & Publications Overview



3 Method Videos
(1,356 views)



No. of copies distributed during 2012 = 6,500



The Future



What else should we be doing?

The C&E would welcome ideas and suggestions

Any questions?

Thank-you