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About This Issue

In this issue we report on the latest companies joining the IRAC Executive as well as feedback on the 44th IRAC International meeting in Barcelona. We have an overview and update from the IRAC Pollen Beetle WG on results of monitoring during 2008 with a copy of the latest poster developed by the group. IRAC SE Asia was represented at the recent meeting by the Chairman, Samsudin Amit and we include an overview on the activities of this regional group. As always we include IRAC news snippets and details of upcoming conferences and meetings. Remember if you have any news or resistance topics of interest please let us know so that we inform others in the IRAC network. We hope you enjoy the issue.

IRAC Membership News

Belchim Crop Protection is the latest company to join the IRAC Executive which means that we now have a total of 15 member companies supporting the activities of IRAC International. Belchim was founded in 1987 and operates in Europe including the Nordic and Baltic states. The company is partnered with ISK and FMC both of which hold shares in Belchim. We welcome Belchim to the IRAC Network and look forward to their contributions to global IRM. Nufarm, an existing member of the IRAC Executive, has also now joined IRAC España.



IRAC International 44th Meeting, Barcelona, Spain

The 44th meeting of IRAC International was held at the end of March/beginning of April and consisted of a mixture of concurrent IRAC working group meetings and reviews, a meeting of the Executive Committee, IRAC España and an international session which included presentations from local Spanish experts. The meeting also was an opportunity to celebrate the 25th anniversary of the formation of IRAC and was arguably the most successful ever with an attendance of 45 international delegates. There was an excellent exchange of information with around 40 presentations made during the course of the 4 days with 2009/2010 goals and objectives set for the different working groups and teams.




Participants at the 44th IRAC International Meeting, Barcelona, Spain, 2009

Update from the IRAC Pollen Beetle WG

Oilseed Rape is an economically and politically high valuable crop in Europe. However its production has been under threat by its major pest; the pollen beetle (*Meligethes aeneus*). Heavy attacks from the beetles can cause a significant loss in yield, with some growers in Northern Germany experiencing a 100% loss of the crop in 2007. Pollen beetles have traditionally been controlled with broad spectrum insecticides, but the removal of organophosphates as a control option has left pyrethroids as the only class of insecticides registered in many countries. Due to this lack of alternative insecticides, pyrethroids have been the exclusive choice for controlling the beetles and other oilseed rape pests. The repeated exposure of pollen beetles to pyrethroids has led to the selection of beetles which are resistant to this chemical class. Since their first detection in 1999 in North Eastern France, the beetles have spread to many of the oilseed rape growing parts of Europe, causing increased levels of damage to oilseed rape crops.

In response to this growing threat to oilseed rape production, the IRAC Pollen Beetle Working Group was formed. This brought together representatives from agrochemical companies, government regulators and advisors, academics and research institutes to work together to provide fundamental information and advice that would allow for effective resistance and pest management. A European resistance monitoring program, which utilises a simple method based on a Syngenta designed bioassay was organised to provide information on the current distribution and intensity of pyrethroid resistant populations of the beetles.

In 2007, 35 different companies and institutes utilised this method across 10 European countries, with more than 600 populations of pollen beetles evaluated for their susceptibility status and having their locations mapped. In 2008 the monitoring continued with beetles collected in 17 countries (577 populations). Group members also helped to organise an EPPO hosted conference on pollen beetles in Berlin designed to share information on beetle resistance, biology, crop agronomy and non-chemical control methods. All the information gathered from this and other events were utilised by the working group to produce guidelines on oilseed rape pest management. The guidelines are adaptable to different local conditions, taking into account factors such as the presence or absence of resistant beetles, local registrations, crop stage and the presence or absence of other pests and non-target insects. These guidelines have been used to inform growers and promote good practice in avoiding further resistance development not only in pollen beetle but other insect pests. The promotion of good oilseed rape management has also been promoted through local press-releases and to scientific audiences through poster and oral presentations at major conferences, with the aim of bringing home the message that resistance management is not only for today but also for tomorrow.



IRAC
Insecticide Resistance Action Committee

IRAC Pollen Beetle Working Group

Pollen Beetle Resistance Monitoring 2008

www.irac-online.org

Introduction and Background

Pyrethroid resistance has been recorded in European populations of the pollen beetle (*Meligethes aeneus*) since 1999, when it was first reported in Eastern France. Pyrethroid insecticides have long been favoured as the method of control for insect pests of oilseed rape and a lack of alternative insecticides with different modes of action, has ensured a continued high selection pressure for pyrethroid resistance. This has led to the spread of resistant pollen beetle across much of the oilseed rape growing regions of Europe.

In 2007 an IRAC Pollen Beetle Working Group was established to bring together expertise from agrochemical companies and independent researchers in order to monitor the development of insecticide resistance in oilseed rape pests and to provide guidance and advice on the best practices to prevent further insecticide resistance development.

Pollen Beetle Resistance Monitoring Methodology



A simple methodology was developed by members of the working group to determine the pyrethroid susceptibility of pollen beetle populations in Europe. Technical grade pyrethroid insecticide is coated on the inside of glass vials at two different concentrations which represent 100% and 20% of the recommended label rate of the chosen pyrethroid. A minimum of 10 adult beetles are placed inside each vial, with beetle mortality assessed five and twenty four hours after initial exposure. Mortality observations can then be converted to one of five susceptibility classifications: Highly susceptible, susceptible, moderately resistant, resistant and highly resistant. Further details of this method and the classifications can be found on the IRAC web-site.

Summary & Recommendations

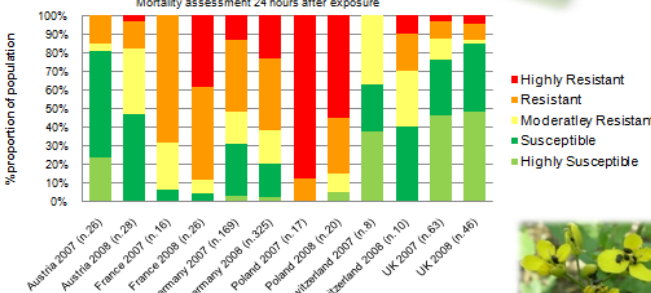
- Pyrethroid resistant populations of pollen beetle remain dominant in France, Germany and Poland.
- A reduction in pyrethroid susceptible populations can be observed in Switzerland and Austria, with greater proportions of resistant populations detected.
- UK populations remain largely susceptible, with resistant populations centered in the South East of England.
- Pyrethroid resistant populations also identified in Belgium, Czech Republic, Denmark, Estonia, Netherlands, Sweden, Latvia, Lithuania and Luxembourg.
- Pyrethroid resistant populations of pollen beetle remain dominant in Europe and in order to prevent further insecticide resistance development, it is recommended that insecticides with different modes of action are utilised in an effective resistance management program, dependent on local insecticide availability and national use guidelines.
- A new version of the IRAC methodology for measuring pollen beetle sensitivity to pyrethroids has been published for 2009 which utilises only a 24 hour assay endpoint.

Pollen Beetle Pyrethroid Susceptibility Monitoring 2008

Map of Europe coloured to indicate pyrethroid susceptibility status of dominant pollen beetle populations in 2008.





Susceptibility status of pollen beetle populations collected from Europe during 2007 & 2008. Mortality assessment 24 hours after exposure.



Country/Year	Highly Resistant (%)	Resistant (%)	Moderately Resistant (%)	Susceptible (%)	Highly Susceptible (%)
Austria 2007 (n=28)	0	0	0	100	0
Austria 2008 (n=28)	0	0	0	100	0
France 2007 (n=16)	0	0	0	100	0
France 2008 (n=26)	0	0	0	100	0
Germany 2007 (n=189)	0	0	0	100	0
Germany 2008 (n=225)	0	0	0	100	0
Poland 2007 (n=17)	0	0	0	100	0
Poland 2008 (n=26)	0	0	0	100	0
Switzerland 2007 (n=8)	0	0	0	100	0
Switzerland 2008 (n=10)	0	0	0	100	0
UK 2007 (n=63)	0	0	0	100	0
UK 2008 (n=46)	0	0	0	100	0


Samples of pollen beetles were collected from both insecticide treated and untreated fields between March and August 2008



This poster is for educational purposes only. Details are accurate to the best of our knowledge but IRAC and its member companies cannot accept responsibility for how the information is used or interpreted. Advice should always be sought from local experts or advisors and health and safety recommendations followed.

Version 1.0. Designed and produced by IRAC Pollen Beetle Working Group, January 2009. Photographs courtesy of Syngenta Crop Protection

Visit to IRAC web-site for further details at www.irac-online.org



IRAC SE Asia Overview

We were very pleased to have Samsudin Amit, the Chairman of the IRAC S.E. Asia group participating in the International meeting in Barcelona. He presented an overview of the aims and activities of the group since forming in 2007. IRAC S.E. Asia currently has 6 member companies, (Dow AgroSciences, Bayer CropScience, BASF, Dupont and Sumitomo) with representatives based in 4 countries (Malaysia, India, Philippines and Singapore) and as such are trying to cover a wide range of crops, pests and conditions. The group are keen to expand the membership to include Japan, Korea, Vietnam and Thailand which would help them to tackle some of the larger resistance problems in the region.

The group's charter includes:

- Communication and education on insecticide resistance management to external and internal stakeholders through the use of posters, presentations, workshops and seminars.
- Training of members to upgrade their technical expertise and the training of trainers within industry and government extension workers.
- Establishing and sharing of baseline data to allow effective resistance monitoring.
- Issuing of resistance management recommendations and guidelines for existing and new active ingredients.
- Interaction with regulatory bodies and research organizations to reflect the industry perspective on key resistance related issues.
- Identification of new technologies in conventional agriculture and biotechnology and their implication to IRM.



The initial aim has been to officially launch the group which was carried out at the Crop Protection in the Tropics conference in Kuala Lumpur last year and to identify key areas needing the group's attention. Projects investigated so far include establishing susceptibility baseline data in critical pests of rice such as brown plant hoppers and Spodoptera in vegetables. A project to meet these goals has been established with the Malaysian Putra University and work on brown plant hoppers in rice is due to be completed in mid 2009.

IRAC News Snippets

- The IRAC MOA posters are in the process of being updated to reflect the latest information. This include the poster showing the structures which will be reprinted in the next couple of months.
- Strong interest has been shown in forming new IRAC Country Groups in France and Argentina. Discussions are under way and potential members have been contacted to determine interest.
- The Diamide WG has produced MOA Group 28 Global IRM Guidelines and have identified 24 high risk crop/pest markets as a first step to developing local label IRM guidelines at a country level.
- The Neonicotinoid and Sucking Pest WGs are looking at combining forces into one team. They plan to hold a combined conference call in the coming weeks and work out the best strategy for moving forward.
- At the recent Spring Meeting interest was expressed in forming a Lepidoptera WG. Their was also interest in tackling the issue of *Tuta absoluta* which may be investigated as part of the new WG or separately. More on this will be reported in the next eConnection.
- The Biotech Team has just completed a White Paper on Resistance Management in Bt Crops. The paper was prepared by Sue MacIntosh on behalf of IRAC with funding from CropLife. It is planned to publish this paper and it is part of a wider effort to promote IRM in this sector.
- A new online tool called eMethods is now available on the IRAC website. This makes it easier to select the appropriate susceptibility test method taking account of pest, life stage and MOA. The plan is to extend this to include other non-IRAC methods for reference where IRAC methods are not yet available.

Conferences & Symposia

- 8th International Symposium on Aphids, Catania, Italy, June 8-12, 2009
- South African Pest Control Association (SAPCA), Pestbiz 2009, Cape Town, August 13-14, 2009
- North American Plant Protection Organization (NAPPO) Annual Meeting, Chicago, October 19-23, 2009
- NPMA, PestWorld, Las Vegas, USA, October 26-29th, 2009
- BCPC Congress and Exhibition, Glasgow, Scotland, November 9-11, 2009
- 5th International Bemisia Workshop, Guangzhou, China, November 9-12, 2009
- Entomological Society of America, Indianapolis, USA, December 13-17, 2009

Links to the conference websites can be found on the Events Page of the IRAC website www.irc-online.org/Events.asp

The eConnection is prepared by the IRAC Communication & Education WG and supported by the 15 member companies of the IRAC Executive

**Disclaimer:**

The Insecticide Resistance Action Committee (IRAC) is a specialist technical group of CropLife. Information presented in this newsletter is accurate to the best of our knowledge but IRAC and its member companies cannot accept responsibility for how this information is used or interpreted. Advice should always be sought from local experts or advisors and health and safety recommendations followed.