

Issue 12

December, 2006

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Introduction to eConnection

▪ eConnection Update

Welcome to Issue 12 of the IRAC eConnection, the final one for 2006. We have been distributing our eConnection newsletter now for over 2 years and are now in the comfortable position of have a wide readership with topical resistance news articles waiting to be published. As outlined in previous issues, eConnection is best read in conjunction with the IRAC website which often has further information on the topics. The website statistics show that readers have been following this advice with hit rates doubling just after distribution of eConnection. [See the site](#)

▪ In this Issue

In this issue we have three articles from different parts of the world. First of all there is a short overview of the far reaching EU funded ENDURE project which includes pesticide resistance management as a key component. This is followed by an article from IRAC Brazil on their proactive approach to tackling the high risk of resistance development in tortricid pests in apples. Finally there is an update on the educational programme being undertaken as a key priority by IRAC India addressing resistance to neonicotinoid insecticides against Brown Plant Hopper in rice. The plans and objectives of this programme in India was first reported in [Issue 8](#) of eConnection last September.

We are always pleased to receive your feedback so keep it coming. As always past issues of eConnection can be located on the website under the heading "About IRAC" or via [this link](#).

▪ Send us your feedback and News

If you have Resistance Management information that you think should appear on the IRAC website or eConnection please contact us with details. For IRAC Country Groups and Teams around the world please send updates on your activities, meeting minutes etc. for inclusion in the relevant areas of the IRAC website. [Email aporter@intraspin.com](mailto:aporter@intraspin.com).

Resistance Management News

▪ ENDURE: a new project to integrate crop protection research in Europe

Under their initiative to generate 'Networks of Excellence' across Europe, the European Union is to fund a large and exciting new project entitled the 'European Network for the Durable Exploitation of Crop Protection Strategies (acronym ENDURE)'. The project's overarching objectives include:

- integration of complementary expertise in scientific disciplines relevant to crop protection
- strengthening the continuum of research from fundamental science to applied work on pest and disease management
- building a more effective infrastructure for the dissemination of information to industry, policy-makers and the general public. ENDURE

currently has 16 partners representing 11 member states and is due to commence in January 2007

Among the many areas of science to be incorporated, pesticide resistance management figures prominently as an ongoing constraint to the sustainability of crop production. The objective of a specific subactivity devoted to resistance (led by Rothamsted Research in the UK) will include:

- reviewing and reporting on the incidence of resistance in arthropods, weeds and plant pathogens in the EU
- a critical appraisal of tools and methods available for diagnosing resistance
- evaluating mathematical and computer simulation models for assessing resistance risks and optimising resistance management tactics
- training of staff in the detection, prediction and management of pesticide resistance problems

As the project progresses, funds will be available to commission new research to fill knowledge gaps or refine experimental techniques. Such research will be facilitated by constructing a 'Virtual Laboratory' for Crop Protection, essentially a web-based platform for the sharing of data, reference strains of organisms, protocols, experimental facilities and field sites. It is recognised that achieving objectives relating to resistance will involve very close engagement with the agrochemical industry, both as individual companies and through the Resistance Action Committees (including IRAC!). Close links will also be made to the European Plant Protection Organisation (EPPO) working in support of statutory risk assessment procedures in the European pesticide approval process.

Contact regarding the resistance component of ENDURE is initially through the subactivity leader, Iain Denholm Email_ian.denholm@bbsrc.ac.uk. Requests for more general information on the project are best channelled, for the time being, through the ENDURE Coordinator Email_ENDURE.coord@sophia.inra.fr. A website is under construction and will be publicised shortly.

▪ **Proactive Insecticide Resistance Management Program in Apple in Brazil**

Concerned with the high risk of resistance development in key pests of pome fruits, IRAC-Brazil started in the 2005/06 season a proactive project to evaluate the susceptibility of two of the major pests in apple, the Apple Leafroller *Bonagota cranaodes* (Meyrick) and Oriental Fruit Moth *Grapholitha molesta* (Busck). These tortricid pests are responsible for severe damage in apple orchards and their control is achieved mainly by spraying chemical insecticides. Organophosphates such as chlorpyrifos and fenitrothion, and the IGR tebufenozide are the main products used. Growers in the major apple areas in Brazil (SC and RS States), have in recent years been reporting control failures with these insecticides. Such failures are usually attributed by the growers and extension agencies to resistance development, but without scientific data to demonstrate the actual occurrence of reduced susceptibility.

To bridge this data gap IRAC-Brazil is supporting studies to obtain baseline bioassay data for these pests to commonly used insecticides across a wide range of mode of action classes. Studies have started with tebufenozide, chlorpyrifos, novaluron, emamectin benzoate, etofenprox and spinosad.

Preliminary data have shown differences in susceptibility for specific insecticides. Further studies will be directed to evaluate the resistance dynamics, stability as well as the geographic range of susceptibility. The objective is to have IRM guidelines available for the start of the 2007/08 apple growing season.

- **Educational Programs on Management of Resistance to Neonicotinoids in Brown Planthopper (BPH) in Rice**

The Brown Planthopper (BPH), *Nilaparvata lugens*, is a key pest in most of the rice growing regions of India. Many different insecticides have been used over the years for its control, with the neonicotinoid insecticides being the latest introductions that have been used as a mainstay for its successful management. However due to continuous and indiscriminate use of neonicotinoids for several years, control failures have become evident over the past 2 years, especially in the South Indian states of Andhra Pradesh and Karnataka. Industry and academics initially suspected that BPH had evolved resistance to neonicotinoid insecticides, because it is a pest that is notorious for resistance development and this was later confirmed.

IRAC India has taken up this issue as a number one priority and is helping to address the situation by educating key growers, pesticide retailers and extension personnel in the proper management of BPH in rice. IRAC India made a proposal to IRAC International and obtained funding from them for a series of initiatives. IRAC India in collaboration with CropLife India organized educational programs in the key rice growing states of Andhra Pradesh and Karnataka. Industry associations in the states including the Karnataka Pesticide Manufacturers Association and the Association of Pesticide Manufacturers of Andhra Pradesh helped IRAC and CropLife India to conduct the programs during September 2006. Academic experts and Government officials were invited to the training programs to share their views. More than 500 stakeholders were trained during this time and each participant received a technical brochure developed by IRAC India on insecticide resistance management procedures for BPH. Due to the high success of the programmes, IRAC and CropLife India plan to conduct similar training in other key rice growing regions of India during 2007. The future impact of these training programmes will be monitored with the expectation that improved BPH control can be achieved through adoption of sound insecticide resistance management practices.

[The full article along with references is available on the IRAC website.](#)

Conferences and Symposia

- **4th International Bemisia Workshop, Florida, 3-6th December 2006**
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- **Intl. Whitefly Genomics Workshop, Florida, 7-8th December 2006**
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- **Entomological Society of America, Annual Meeting, Indianapolis, 10-13th December 2006**
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- **Beltwide Cotton Conferences, January 9-12th, 2007**
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- **Joint Entomological Societies (Germany, Switzerland, Austria) Meeting, Innsbruck, Austria, 26 Feb - 1 March 2007**
- **RESISTANCE 2007, Rothamsted, 16-18 April, 2007**
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- **The XVI International Plant Protection Congress (with IAPPS and BCPC), Glasgow UK, 15-18 October 2007**
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- **3rd European Whitefly Symposium, 6th-10th May 2008**
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