Publications

Available as open access via the Palm Protect website (www.palmprotect.eu)



Review of control methods against the palm borers *Rhynchophorus ferrugineus* (Olivier) (Coleoptera: Curculionidae) and *Paysandisia archon* (Burmeister) (Lepidoptera: Castniidae).

Journal publications

O. Dembilio et al.

Vacas S, Primo J & Navarro-Llopis V. 2013. Advances in the use of trapping systems for Rhynchophorus ferrugineus: traps and attractants. Horticultural Entomology 106(4): 1739-1746.

Vacas S, Abad-Payá M, Primo J & Navarro-Llopis V. Exploring Phoenix canariensis palm volatiles to identify pheromone synergists for Rhynchophorus ferrugineus (Coleoptera: Curculionidae) trapping systems. Journal of Agricultural and Food Chemistry, submitted.

Guarino S, Lo Bue P, Peri E, Soroker V & Colazza S. individuazione e applicazione di composti volatili repellenti per il controllo delle popolazioni del punteruolo rosso delle palme. Atti Accademia Nazionale Italiana di Entomologia Anno LXI, 2013: 219-223.

Suma P, Longo S, La Pergola A & Soroker V. Metodi di monitoraggio delle infestazioni del punteruolo rosso delle palme. Atti Accademia Nazionale Italiana di Entomologia Anno LXI, 2013: 225-232.

Pontikakos CM, Kontodimas DC & Tsiligiridis T. A location aware system for integrated management of Rhynchophorus ferrugineus in urban landscapes. Journal of Computers, Environment and Urban Systems, submitted.

Future events

The next Palm Protect Meeting and Stakeholder workshop will be held in Palermo and Catania, Sicily, 19th - 22nd May 2014. Please see Palm protect website or e-mail palm.protect@fera.gsi.gov.uk for further details.

A final conference to disseminate project outcomes and results with open access to stakeholders and the public will be in November 2014. Final location and dates to be confirmed (see project website for details).

European Congress of Entomology , York, UK. 3rd – 8th August 2014. Palm Protect will be represented by Fera, UK and the Agriculture Research Organisation, Israel.

Consortium partners





Strategies for the eradication and containment of the invasive pests *Rhynchophorus ferrugineus* and *Paysandisia archon*

Project Number: FP7-KBBE-2011-5289566

Welcome to the second Palm Protect newsletter Issue 2

Palm protect is a 3-year project set to provide solutions for the control of the red palm weevil and the palm borer moth. Led by the UK Food and Environment Research Agency (Fera) it involves thirteen partners from eight countries.

IN THIS ISSUE Tree injection demonstration in Israel

Location aware for management of red palm weevil

Improved traps for red palm weevil Conferences, workshops and

meetings, Publications

Future events

This work has received funding from the European Community's Seventh Framework Programme under grant agreement No. FP7 KBBE 2011-5-289566

2011-5-289566 (PALM PROTECT)



palm trees, mainly Canary palms. Most infestations occur in private and community residential areas and alongside roads and highways. Recently substantial infestation has also occurred in commercial date palm orchards in northern Israel and along the Jordan valley north of the Dead Sea..

Endoterapia Vegetal (EV) from Spain, visited Israel to demonstrate their injection apparatus to the Israeli Palm Protect team and local stakeholders and how it could be used for treatment of Canary palms in urban areas and date palms in plantations.

areas and date palms in plantations. Endoterapia Vegetal have developed an injection apparatus that quickly and efficiently delivers insecticide into the palm's trunk with minimal damage to palm tissues. The injection procedure consists of drilling a small hole into the tree core, injecting chemical under adaptive pressure dependant on uptake of solution by the palm tree, and then sealing the hole. Fungicides are then injected through the seal to prevent secondary contamination.

The Israeli Palm Protect team organised a field day at Kibutz Naan where EV demonstrated their injection methods and crown dissections. This was attended by over one hundred date growers and gardeners, extension officers and representatives of pesticide companies.

A large scale experiment is in progress, at a date palm plantation in Israel, to test insecticides administered by injection as a preventive treatment of palms against this challenging pest.



Joan Manel Barroso Martinez (EV) drilling into the date palm trunk to establish a port for injection, watched by Israeli Palm Protect members and stakeholders.



Paul Benjamin, the horticulturist from Baha'i Gardens in Israel, injecting pesticides directly into the core of a Canary palm using Endoterapia Vegetal's equipment Paul has also purchased one such device and visited Spain to receive training.

Location Aware System

The Benaki Phytopathological Institute, Greece, has been developing a location aware system (CPLAS) for early detection of the red palm weevil.

Optimisation and specialisation of the commercially available CPLAS software (Bytelogic) has been conducted in three urban parks (Pedion Areos and National Garden in Athens, Greece, and Bahai Gardens in Haifa, Israel). The CPLAS supports rapid data entry (symptoms etc) in real time, quickly and accurately classifies the severity of the infestation, and recommends the suitable control measures against the pest. Hence, early detection of the red palm weevil and focused treatments are achieved, securing a reliable and efficient control of the pest, whilst protecting the environment and the public from exposure to pesticides



CPLAS exhibit at the "From Science to Technology", Exhibition at the Democritus Research Centre, Athens, Greece, January 2014

Advances in the Use of Trapping Systems for Rhynchophorus ferrugineus: Traps and Attractants

The Polytechnic University of Valencia has been evaluating the efficacy of traps and attractants under field conditions.

A new black pyramidal trap design (Picusan[®]) captured 45% more weevils than traditional bucket-type traps when baited with palm tissues. The addition of water to traps was found to be essential, with catches increasing more than threefold compared with dry traps. Ethyl acetate, a kairomone, is not attractive to weevils on its own, and does not enhance the effects of the red palm weevil aggregation pheromone, ferrugineol. Efforts are now under way to identify the attractive volatiles from palm tissues so they can be formulated and replace plant material in traps.



A red palm weevil on the side of a picusan trap

Meetings, Conferences and Workshops

July - September 2013

Fera attended public events in York in July and September 2013: the Royal Entomological Society's Insect Festival and the Annual Festival of Food and Drink. Here Fera staff engaged the public in discussions about Palm Protect whilst distributing project leaflets and newsletters.

October 2013:

A Conference on the red palm weevil was held on the Island of Ibiza, 17th – 19th October 2013. Josep A. Jacas (Universidad Jaume I) presented an overview of Palm Protect.

Other papers presented by Palm Protect partners were: Control using fungi (Beauveria bassiana) by Enrique Quesada Moraga, Universidad de Córdoba.

Traps (models, infective traps and experimentation protocols) by Vincente Navarro-Llopis, Universidad Politécnica Valencia. Chemical control by Josep A. Jacas, Universitat Jaume I.



VIII CONGRESO NACIONAL DE ENTOMOLOGÍA APLICADA XIV JORNADAS CIENTIFICAS DE LA SEE/ MAZARÓ, DEL 21 AL 25 DE OCTUBRE DE 2013

A poster on "Improvements in Rhynchophorus ferrugineus trapping systems: traps and attractants" was presented by Sandra Vacas from the Universitat Politècnica de València

Neil Audsley and Claire Charlton (Fera) presented a poster on Palm Protect at the annual Fera science conference, York.

November 2013 Italian Academy of Entomology

A public Meeting of the Academy was held with a panel discussion on: "The red palm weevil: new acquisitions and the possibility of population control". A talk on "methods for monitoring infestations of red palm weevil" was presented by Pompeo

Suma, University of Catania.

Project meeting

A one-day palm protect meeting was held at the UKRO office in Brussels. Work package leaders presented an update on progress of research and deliverables, and discussions were held between partners and the project officer from the commission

January 2014:

An oral presentation was given by Costas Pontikakos (Benaki Phytopathological Institute) entitled "A Locati o nA ware System for the integrated management of Rhynchophorus ferrugineus in urban landscapes". This was at the workshop of FruitflyNet, held at the Agricultural University of Athens.

April 2014

Endoterapia Vegetal attended the 1st Congress of Insects held in Doha, Qatar. Josep M Riba-Flinch presented a talk on "pest control techniques by trunk injection against the red palm weevil: a checkmate to our palms".