

Contemporary challenges and future perspectives on the management of red palm weevil

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Abstract: After gaining foot hold on date palm in the Middle East during the mid-1980s, the Red Palm Weevil (RPW) *Rhynchophorus ferrugineus* Olivier has spread rapidly in several countries emerging as key pest of palms in diverse agro-ecosystems worldwide. The cryptic nature of the pest makes detection of infested palms difficult. However, palms detected in the early stage of attack respond to curative chemical treatment. RPW is currently managed through a pheromone trap based Integrated Pest Management (IPM) strategy comprising of several components, with varying degrees of success and failure. Each component of the current IPM strategy is besieged with drawbacks and challenges, from lack of quarantine protocols coupled with weak enforcement to check the movement of infested planting material, the non-availability of an efficient, easy to use and cost effective infestation detection device, over dependence on chemical treatments, difficulties in the maintenance and servicing of food baited pheromone traps, labour intensive protocol for the removal and disposal of severely infested palms, lack of effective biological control program, poor farmer participation in the control programs, besides inefficient data collection and reporting for proper monitoring and validation of area-wide RPW-IPM programs resulting in the waste of scarce and precious resources. This paper gives an overview of the status and prospects of managing RPW.

South Asia is the home of the Red Palm Weevil (RPW) *Rhynchophorus ferrugineus* Olivier (Coleoptera: Curculionidae) where it is a key pest of coconut, but has significantly expanded its geographical footprint since the mid-1980s and emerged as the most destructive pest of palms worldwide (Faleiro, 2006; Giblin-Davis et al., 2013; El-Shafie and Faleiro, 2020). During 2019, RPW was detected in Bosnia - Herzegovina in Southeastern Europe and in Bulgaria in the

Black Sea Basin. Recent reports of RPW invasion suggest that the pest is establishing in the Caucasian region where it is detected in Abkhazia on the canary island palm in the Republic of Georgia and from East Africa in Djibouti on date palm. Ecological niche modelling predicts that this pest can expand its range further (Fiaboe et al., 2012). Flight mill studies have demonstrated that RPW has the capacity to fly up to 50 km in a day with flight activity being predominantly diurnal.

resistance, attract & kill, pheromone technology, etc. Several of these findings are widely used to manage RPW in date palm and other palm based agro-ecosystems. Dr. Faleiro has also widely published his research on diverse aspects of RPW in internationally renowned peer reviewed Journals besides writing book chapters and presenting invited talks on RPW in several countries. His publications are widely cited. Since 2008, he has completed numerous consultancy assignments for FAO and other international organizations on RPW in different date producing countries including Egypt, Iraq, Libya, Mauritania, Morocco, Republic of Georgia, Saudi Arabia, Sudan, Tunisia, UAE, and Yemen. Dr. Faleiro delivered a lead talk on the management of RPW during the “Scientific Consultation and High-Level Meetings on Red Palm Weevil Management”, organized by FAO and CIHEAM, Italy, 29-31 March, 2017. He has been a resource person on IPM for FAO, ICARDA and Michigan State University, USA. In recognition for his work on RPW in the date palm sector, Dr. Faleiro received the prestigious “Khalifa International Date Palm Award” during 2015 in the “Distinguished Figure” category from the Government of the United Arab Emirates as a lifetime achievement award.

Dr. Mustapha El Bouhssini: Dr. El Bouhssini earned his PhD in entomology from Kansas State University (KSU) in 1992. He started his research career as entomologist at the Dryland Research Center (INRA-Morocco) before joining the International Center for Agricultural Research in the Dry Areas (ICARDA) in 1996. Dr. El Bouhssini has been an Adjunct Faculty at KSU, Entomology Department since 2005. He joined



Mohamed VI Polytechnic University on in 2021 as Professor of Entomology and Program Lead, Biodiversity and Plant Sciences. His major research focus has been on Integrated Pest Management (IPM) of key pests of cereals, food legumes, date palm and cactus. Dr. El Bouhssini has made exceptional contributions to the development of IPM options that are increasingly used and scaled out particularly in the West Asia, Central Asia, and North Africa regions. Dr. El Bouhssini has been the recipient of several awards that have recognized his achievements in the scientific field of entomology. Major awards include the 2021 Grand Prix Hasan II for Invention & Agronomic Research, category of Advanced Sciences and Technologies, the 2018 Lifetime Achievement Award in plant resistance to insects from the International Association of Plant Resistance to Insects, the 2014 Distinguished Scientist Award from the International Branch of the Entomological Society of America, the 2014 Distinguished Alumnus Award from the Kansas State University Department of Entomology and the 2007 International Plant Protection Award of Distinction from the International Association for the Plant Protection Sciences.