International Association for the
PLANT PROTECTION SCIENCES
IAPPS
NEWSLETTER

Number I January, 2019

FALL ARMYWORM HAS REACHED THE INDIAN SUBCONTINENT !

The Fall Armyworm, (*Spodoptera frugiperda*) (FAW), has been detected for the first time on the Indian subcontinent in mid-May this year in maize fields at the College of Agriculture, University of Agricultural and Horticultural Sciences (UAHS), Shivamogga, Karnataka. Following morphological identification with assistance by the IITA Biodiversity Center in Benin, Drs. Sharanabasappa and Kalleshwara Swamy of UAHS confirmed the pest's identity using molecular techniques. Similar information has also just been released based on independent investigations by the National Bureau of Agriculturally Important Microorganisms (NBAIR) under the Indian Council of Agricultural Research (ICAR).

In early 2016, FAW was first detected by IITA scientists on the African continent following initial caterpillar outbreaks on maize in Central and Western Africa. Shortly thereafter, the pest was also found in Southern Africa and to date FAW has established in 44 countries of tropical Africa, a perimeter of more than 22 million km2. On the African continent, FAW already exacerbates the food insecurity of some 208 million maize consumers and jeopardizes the economies of numerous countries, thereby affecting the livelihoods of millions of maize producers, mostly small-scale farmers. Recent investigations by Centre for Agriculture and Biosciences International (CABI) in 12 African countries have revealed that in the absence of adequate management measures FAW has the potential to inflict yield losses averaging 21-53% or an equivalent of 8.3 to 20.6 million tonnes of maize per year. The monetary value of these losses is estimated to reach between US$2.5 and 6.2 billion, with an additional $13 billion worth of crop at risk. To provide adequate response for FAW containment, IITA has become a leading partner in Africa to develop—together with national and international partners—management solutions focusing on low toxicity biopesticides, biological control involving natural enemies and entomopathogens, varietal tolerance, and low-cost agronomic practices.

Since the introduction of FAW on the African continent its rapid expansion in all geographic horizons has remained unbroken with steady incursions in regions including areas beyond the main continent. Thus, by mid-2017 the voracious pest had established on the Cape Verde islands and later in the year on the Seychelles, some 800 and 1300 km away from the mainland, respectively.

The outbreak in the Indian subcontinent is particularly worrying because with this new foothold, FAW now has an unrestricted access to a whole new region of the globe. Its occurrence with high incidence in the South Indian state of Karnataka is likely to be soon followed by spreads to the Tamil Nadu and Andhra Pradesh states that are major regions for hybrid maize seed production in India. Further expansion of FAW to countries adjacent to India such as Bangladesh, Nepal,

Pakistan, and beyond will put the maize production of the whole Asian continent seriously at risk with dire economic consequences.

Dr. Georg Goergen
Biodiversity Center, IITA, Benin
E-mail: g.goergen@cgiar.org

ACTION AGAINST THE INVASIVE RHINOCEROS BEETLE (CRB-G) GETS UNDERWAY

Over the past decade, a novel haplotype (CRB-G) of the coconut rhinoceros beetle (*Oryctes rhinoceros*) has been invading islands of the Pacific and causing extensive damage to both coconut and oil palm and has prompted the formation of a CRB-G action group. The early warnings of the potential threat of the invasive CRB-G have been shown to be real with heavy damage reported from infested zones of Guam, SI and Papua New Guinea and further spread from the initial sites of invasion. The worst affected sites are now showing more than 50% death of palms and give an indication of just how damaging the outbreak will be if not controlled. The severity of the threat has galvanized action from affected countries and donors. Progress was reviewed in a special meeting of the CRB-G action group at the Annual Meeting of the Society for Invertebrate Pathology held on Australia's Gold Coast (Aug 12-17, 2018).

CRB-G damage on Guam (Photo A. Moore)

Sean Marshall (AgResearch New Zealand) reviewed the current status of CRB-G and presented a distribution map of CRB-G describing the history of beetle invasion and spread in the infested islands. He also presented the results of biocontrol attempts and failure of the classic biocontrol virus to control the new biotype. The CRB-G biotype appears to be resistant to the biocontrol nudivirus which has been used successfully to control previous invasions of the Pacific by the susceptible CRB-S strain. Aubrey Moore (University of Guam) described the situation on Guam where the beetle has escaped control following the damage caused by Typhoon Dolphin (2015) which left large numbers of felled palms creating breeding sites for CRB-G. He concluded that control on Guam will only be possible with introduction of a self-replicating, density dependent biocontrol agent. Madoka Nakai (Tokyo University of Agriculture and Technology) described initial work looking at factors involved in resistance to virus by CRB-G and surprisingly showed that the G haplotype was present in the southern Japanese islands. Madoka Nakai also presented work from colleagues in Palau where both CRB-G haplotypes and the established Pacific haplotype of beetle coexist providing an ideal site for further investigations. Nur Ain Farhah (MPOB, Malaysia) described OrNV isolation and production using an insect cell line. MPOB will collaborate in mapping the biotype and virus distribution in Malaysia and will provide fresh virus isolates for testing in the Pacific. Mark Ero

(PNG-OPRA) showed how CRB-G has spread from the initial focus at Port Moresby and explained surveillance and actions to protect the oil palm estates from invasion. The OP industry has recognised the danger posed by CRB-G and has made a major contribution to the search for new biocontrol agents or strains of virus to overcome the defences of the resistant pest. Currently the outbreak of CRB-G on Solomon Islands is of major concern. Since first recognition in 2014, the beetle has spread around Guadalcanal and to eight other islands. A response team has been established (Bob Macfarlane, Dudley Wate, Biosecurity Solomon Islands) and work is underway to limit population build up and spread on Guadalcanal and eliminate recently discovered small foci of infection on the outer islands. A clean-up campaign to eliminate breeding sites on Gaudalcanal has been supported by MFAT New Zealand. The regional body SPC (Secretariat for the Pacific Community) has declared the problem of CRB-G as a high priority for action and Maclean Vaqalo (SPC LRD) presented the SPC action plan based on surveillance, limitation of spread and the search for long-term controls. Projects for control of the CRB-G invasion have now received funding from MFAT New Zealand, USDA-APHIS, USDOI-OIA, EU-CIDP, JSPS (Japan) and an ACIAR project will start in the coming year.

Special meeting of the CRB-G Action Group at the Annual Meeting of the Society for Invertebrate Pathology and Microbial Control, Gold Coast Australia, 11-15 Aug 2018.

Although the beetle continues to spread it is pleasing that the CRB-Action Group has been able to develop a plan, secure initial funding and start on a program to limit further spread and look for long-term controls. The Group aim to strengthen collaborations and achieve early implementation of successful control measures to limit damage and contain this highly damaging pest.

Dr. Trevor Jackson
IAPPS Coordinator Region XII: Oceania
Email: trevor.jackson@agresearch.co.nz

19TH REINHARDSBRUNN-SYMPOSIUM

The 19th Reinhardsbrunn-Symposium on Modern Fungicides and Antifungal Compounds will take place April 7-11t, 2019 in Friedrichroda, Germany.

For over 50 years the name »Reinhardsbrunn« has become famous in scientific circles for the Symposium series which draws together fungicide scientists from academia, research institutes and industry to present, listen to and discuss the latest research findings in this fast moving field. Presentations will be accepted from areas of fungicide science that fit into the following thematic

areas: New fungicides, targets, and modes of action; New technologies and applications; Digital pathogen sensing; Biorational fungicides / biocontrol; Resistance risk assessment; Resistance modelling; Fungicide resistance: mechanisms and diagnostics; Fungicide resistance monitoring: regional and global aspects; Regulatory aspects; Post harvest fungicide management; Translational aspects: from lab to field

The 2019 Symposium will build upon the Reinhardsbrunn reputation by providing an opportunity for established experts and those just starting on their scientific career to present information to an international audience through oral presentations and posters. In addition, outstanding experts as key note speakers will introduce into the symposium and the single topical sessions. There will be ample time to discuss the findings and their implications both during and after the presentations. The Symposium thus also provides a unique opportunity to establish new contacts and friendships within fungicide science.

The deadline for registration with a contribution (oral presentation or poster) is October 1st, 2018. Further information is available and registration possible at the familiar web-site www.reinhardsbrunn-symposium.de (which is linked to our new web address http://plant-protection.net/de/reinhardsbrunn).

Dr. Falko Feldmann – Managing Director and Dr. Christian Carstensen – Conference Coordinator
Deutsche Phytomedizinische Gesellschaft e.V.
E-mail: Carstensen@phytomedizin.org

The IAPPS Newsletter is published by the International Association for the Plant Protection Sciences and distributed in *Crop Protection* to members and other subscribers. *Crop Protection*, published by Elsevier, is the Official Journal of IAPPS.

IAPPS Mission: to provide a global forum for the purpose of identifying, evaluating, integrating, and promoting plant protection concepts, technologies, and policies that are economically, environmentally, and socially acceptable.

It seeks to provide a global umbrella for the plant protection sciences to facilitate and promote the application of the Integrated Pest Management (IPM) approach to the world's crop and forest ecosystems.

Membership Information: IAPPS has four classes of membership (individual, affiliate, associate, and corporate) which are described in the IAPPS Web Site www.plantprotection.org.

The *IAPPS Newsletter* welcomes news, letters, and other items of interest from individuals and organizations. Address correspondence and information to:

Manuele Tamò
Editor, IAPPS Newsletter
IITA-Benin
08 B.P. 0932 Tri Postal, Cotonou, Republic of Benin
E-mail: m.tamo@cgiar.org