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BIOLOGICAL CONTROL AND PEST MANAGEMENT IN THE PACIFIC

Issues of biological control and pest management in the Pacific were addressed at the XVII International Plant Protection Congress (IPPC) held in Hawaii (August 2011). The meeting had been organized by the Land Resources Division of the Secretariat of the Pacific Community (SPC), based in Fiji, and AgResearch, New Zealand to provide a focus on Pacific experiences and concerns in achieving plant protection without damaging the environment. The small island states in the Pacific have particular problems. They are widely separated, usually have a poorly developed local infrastructure and are very susceptible to invasive pests with relatively low natural diversity and a lack of generalist natural enemies on the islands. The Land Resources Division of SPC plays an important role in strengthening border controls (biosecurity), providing pest management information and coordinating responses to control pest outbreaks. Invasive weedy plants can spread rapidly on the islands where use of chemical herbicides is often not practical. Information on weed biocontrol was compiled by Warea Orea while at SPC. Weed eating insects and weed specific pathogens have been introduced to some of the worst affected areas. The invasive vine *Mikania micrantha* is a serious weed in many islands and has been targeted by SPC who have introduced and successfully established a rust fungus *Puccinia spegazzini* against the vine in Papua New Guinea (PNG) and Fiji. In other actions, a psyllid, *Heteropsylla spinulosa*, has been introduced and established in Tonga to attack the invasive *Mimosa diplotricha*.

Some spectacular successes with biocontrol have been shown to need re-evaluation. The coconut rhinoceros beetle (*Oryctes rhinoceros*) spread into the Western Pacific in the last century and



Rhinoceros beetle adult damage to coconut palms in Guam



Rhinoceros beetle larvae collected from decaying coconut trunks in Samoa

caused extensive damage whenever it arrived in a new habitat. The problem was dramatically reduced with introduction of a natural virus from Asia which rapidly spread through the pest populations and caused a large reduction in pest numbers and damage. However, Aubrey Moore (University of Guam) has reported that beetles from a new outbreak on Guam do not seem to be susceptible to the virus and, if resistance is confirmed, will pose a new threat to the Pacific. Another group of beetles, the taro beetles (*Papuana* spp., see picture on the right) are native to the Western Pacific and pose a threat both to small farmer producers and those farmers producing taro as an export crop. Roy Masamdu (SPC) explained progress being made towards IPM of taro beetles. Small farmers traditionally use shifting cultivation to avoid taro beetles as they rapidly build up in established crops. Unlike rhinoceros beetle, the taro beetles do not seem to be hosts to rapidly spreading pathogens which can be used in pest management. Farmers are able to use the fungus *Metarhizium anisopliae* to gain some control where it can be obtained. Commercial growers are recommended to use drenches of relatively safe chemical pesticides to reduce damage.



Insect pests are also an emerging problem in the oil palm plantations of West New Britain, PNG. Charles Dewhurst of the PNG Oil Palm Research Station at Kimbe reported on pest problems affecting the emerging oil palm industry in PNG. These include attacks by long horned grasshoppers, stick insects, lepidoptera and pest beetles as well as the disease causing fungus *Ganoderma*. The challenge is to develop IPM systems that conform to the guidelines of the Roundtable for Sustainable Palm Oil for production without environmental damage.



IPM training at SPC, Fiji

Problems were reviewed and future directions discussed with general agreement that economic opportunities in Pacific agriculture depend on preservation of, and respect for, the natural environment. Making full use of biological control within IPM is the most appropriate form of pest management to provide safe, environmentally acceptable approaches for pest control in the sensitive island environments. Given the diversity of problems among different environments, biocontrol and pest management will continue to need technical support from outside the region and coordinated delivery.



- IN MEMORIAM -

Roy Masamdu, one of the authors of this report passed away in Feb 2012. Roy was one of the most experienced entomologists from the Pacific who was a great source of knowledge and an inspiration to his colleagues. He worked on a variety of entomological projects in PNG with a special knowledge of the pest beetles. He rose to become Chief Plant Protection Officer with the National Agriculture Quarantine Inspection Authority (NAQIA), PNG, before his posting to Suva, Fiji as Biosecurity Officer with SPC. He will be sadly missed. On behalf of the IAPPS Governing Board, we are expressing out profound sympathy to his family, colleagues and friends.

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RESEARCH AND MANAGEMENT OF INSECT-TRANSMITTED VIRUS DISEASES IN VEGETABLES IN THE TROPICS AND SUBTROPICS

The Integrated Pest Management Collaborative Research Support Program (IPM CRSP), funded by USAID, and the Association of Public and Land-grant Universities (APLU) through its U.S.-India Agricultural Knowledge Initiative (AKI) are sponsoring a plant virology symposium in July 2012. The symposium, Management of Insect-transmitted Virus Diseases in Vegetables in the Tropics and Subtropics, will be held at the Tamil Nadu Agricultural University, Coimbatore, India, July 10-13, 2012. The main purpose of this symposium is to review the current status of insect-transmitted virus disease management in the tropics and subtropics. We will also develop a plan for future collaborative research under an IPM CRSP global theme project, the International Plant Virus Disease Network.

Plant virologists and entomologists from the U.S. and India will lead discussions on the current status of research, education, and extension relevant to the management of virus diseases. Collaborators and scientists from developing countries partnering with the IPM CRSP will be participating in the symposium. Their participation will build multidisciplinary global expertise to address insect-transmitted virus diseases impacting agricultural sustainability and food security in developing countries. Participants and invited speakers will cover fundamental and applied aspects related to virus diseases. Discussions will focus on emerging and re-emerging virus diseases, especially those of vegetable crops in IPM CRSP host countries, and establishing a coordinated program on identification and management of virus diseases affecting cucurbits, eggplant, okra, pepper, and tomato.

Fees and Registration: (this includes registration, field trips, and local transportation):

U.S and International participants: US \$500 per participant
Indian participants: INR 15,000 per participant

More information about the symposium program and registration:

<http://www.oired.vt.edu/ipmcrsp/Publications/Meetings&Workshops/IPM-Virology-Workshop.html>

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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:

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