REPORT ON THE Xth INTERNATIONAL PLANT VIRUS EPIDEMIOLOGY SYMPOSIUM – CONTROLLING EPIDEMICS OF EMERGING AND ESTABLISHED PLANT VIRUS DISEASES - THE WAY FORWARD, HYDERABAD, INDIA, 14-18 OCTOBER 2007

This exciting and successful international symposium was held on October 14-18 2007 at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Hyderabad, Andhra Pradesh, India. It was the tenth in the series of international symposia held every 2-3 years under the auspices of the Plant Virus Epidemiology (IPVE) Committee of the International Society for Plant Pathology. It was also only the second symposium in this series to be held in a developing country, and the first to occur in Asia. The principal symposium organiser was Dr Lava Kumar (ICRISAT/ 11TA) with help from Dr Farid Waliyah (ICRISAT).

The symposium was attended by 217 participants from 27 different countries from five continents. There were eight separate technical sessions over four days which focussed on topics related to the main themes of the symposium – (i) the causes of emergence of previously unknown viruses and of recent resurgence of several established viruses; and (ii) recent advances in plant virus epidemiology and control. There were 58 oral and 118 poster presentations.

The programme started on *Sunday 14rd October* with registration and a welcoming reception.

On *Monday 15th October* the opening session started with introductory presentations by the local hosts. Prof. N. Rishi (president of the Indian Virological Society) presided over the session. Dr Kumar (symposium convenor) provided an introductory address, which was followed by a welcoming addresses by Dr Waliyah (chairman of the organising committee) and an inaugural address by Dr Dino Keating (deputy director, ICRISAT). These introductory presentations were followed by an presentation by Roger Jones (Australia), chairman of the IPVE Committee. Dr Jones set the scene for the symposium by discussing the topic of 'plant viruses at the interface between ancient ecosystems and recent agroecosystems'. He emphasised the roll played by international movement of plants around the world in introducing viruses that can damage indigenous plants that have not met them before, and in stimulating the emergence of viruses from the indigenous flora that damage introduced cultivated plants. Evolution of viruses at the interface between the two was stressed as an introduction to a series of papers to be presented subsequently in the symposium on factors driving virus evolution, especially at the molecular level.

During the rest of the day the session themes were 'Epidemiology and Evolution', 'Emerging Viruses' and 'Viruses of Cereal crops and Soil-borne Viruses'. Denis Fargette (France) set the ball rolling with a most stimulating keynote presentation on the micro-evolutionary dynamics of *Rice yellow mottle virus* - studies at the interface of epidemiology and evolution in Africa. Additional keynote presentations during the day discussed the history of research on virus epidemics (Thresh, UK); epidemics of thrips-transmitted *Iris yellow spot virus* (Pappu, USA); novel viruses in *Ambrosia psilostachya* (Melcher, USA); and research on soil-borne virus diseases of cereals in Europe (Kuehne, Germany). There were also several other fascinating offered papers given during the day on diverse epidemiological topics, eg. one on the current

understanding of the epidemiology of soil-borne Pecluviruses in Africa and India (Bragard, Belgium).

On *Tuesday 16th October* the session themes were 'Biosecurity and Modelling' and 'Virus-Vector Evolution and Interactions'. Keynote presentations were on the role of plant biosecurity in preventing epidemics of emerging plant viruses (Rodoni, Australia); use of GPS, GIS and geostatistics to develop plant virus disease prediction models (Nutter, USA); behavioural aspects of virus transmission by hemipteran insects (Fereres, Spain); how mixed viral infections influence aphid vectors and epidemiology of aphid-borne potato viruses (Alvarez, USA); and a most stimulating account of helper-dependency in vector transmission at the molecular level (Blanc, France). Noteworthy offered presentations during the day included one from the host country on the epidemiology of seed-borne viruses in grain legumes (Khetarpal, India), a paper on the spread and vector relations of *Potato yellow vein virus* in the Andes (Barker, CIP- Peru), and one on reducing the global impact of thrips-transmitted tospoviruses in diverse cropping systems (Pappu, USA).

At the end of the day there was a presentation on the new Plant Virus Ecology Network (Melcher, USA) and a discussion over the possibility of holding a future joint symposium with this group in the USA, with Cornell University as the location. Then, discussion focussed on the composition of the future IPVE committee. This resulted in several changes with Alberto Fereres (Spain) becoming the new Chairman, Lava Kumar (IITA-Nigeria) the African representative, Ravi Khetarpal (India) the East Asian representative, Safaa Kumari (ICARDA-Syria) the West Asian representative, and Ian Barker (CIP-Peru) the South American representative.

On *Wednesday 17th October* the session themes were 'Advances in virus disease management' and 'Characterisation and diagnosis of viruses and vectors'. Keynote or invited presentations were on natural resistance mechanisms to viruses in plants (Loebenstein, Israel), epidemiology of aphid-transmitted cereal and legume viruses n West Asia and North Africa (Makkouk, ICARDA-Egypt), epidemiology of leafhopper-borne *Maize yellow stripe virus* (Aboul-Ata, Egypt), leafhopper vectors of the genus *Orosius* (Fletcher, Australia), and management of the island sugar cane planthopper vector of Ramu Stunt disease of sugar cane (Anderson, Australia). One of several noteworthy offered presentations during the day was on multiscale modelling the emergence of virulent virus populations (Fabre, France). The afternoon was taken up by visits to the ICARDA laboratory and field facilities followed by a city tour.

On *Thusday 18th October* the session theme was 'Molecular epidemiology and ecology'. Keynote presentations were on the molecular epidemiology of cucurbit viruses (Lecoq, France), and two from the host country on emergence and re-emergence of plant viruses in India (Varma, India); and the 'war' between plants and pathogens Muralidharan, India). There were several notable offered presentations during the day including ones on the molecular epidemiology of *Watermelon mosaic virus* (Desbiez, France), strains of *Potato virus Y* (van der Vlugt, The Netherlands) and a begomovirus causing a serious disease of jute (Roy, India). .

One of the important features of the symposium not mentioned above was the very large number of interesting posters covering a diverse array of virus epidemiological topics.

At the end of the final oral session, presentations were made to Lava Kumar, Farid Waliyar and ICARDA support staff to thank them for all their hard work in organising such a successful symposium. This tenth in the series of International Symposia on Plant Virus Epidemiology was very stimulating and well organised, successfully maintaining the high standards set by past meetings of the IPVE. The 'coming of age, of molecular epidemiology was perhaps the most noteworthy feature of the symposium since its first introduction to the series of IPVE symposia in Almeria, Spain in 1999. Lava Kumar, Farid Waliyar and ICARDA are to be congratulated warmly over a job well done.

Roger Jones
30/1/08