# INTERNATIONAL NEWSLETTER ON PLANT PATHOLOGY

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News and announcements on any aspect of Plant Pathology are invited for the Newsletter.

**Editor: Daniel Hüberli** (email)

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In this issue:



**Editor in Chief *Food Security: The Science, Sociology and Economics of Food Production and Access to Food***

At the end of 2018, Richard Strange, the foundation Editor in Chief of Food Security The Science, Sociology and Economics of Food Production and Access to Food, published jointly by Springer and the ISPP, will step down after ten years of service. The ISPP seeks expressions of interest from scientists interested in this honorary position. The appointee is expected to commence later in 2018 as Editor in Chief of Food Security commencing with Volume 11 Issue 1 which will be published early in 2019. The editor in Chief will be initially appointed for a three year term and provided with an honorarium, and modest travel and office support. Expressions of interest will close on 31 March 2018. For further information please contact the ISPP President, Greg Johnson (Email gregh4d@gmail.com).

(Greg Johnson, ISPP President)

**Registration for ICPP2018 Boston is now open**

Registration rates are now available for the International Congress of Plant Pathology (ICPP) 2018 in Boston. Registration is now open.

**Global Crop Loss Conference, Paris, 16-18 October 2018: Synthesis and Summary**

A conference on crop losses caused globally by diseases, pests, and weeds in agriculture was organised by INRA at its headquarters in Paris from 16 to 18 October 2017, under the collective aegis of INRA, CIRAD,

AgMiP, MacSur, and the International Society for Plant Pathology (ISPP). The conference directly involved 59 experts from 14 countries, and over 80 colleagues who contributed ideas in the conference preparation. The conference addressed the following list of questions:

- What are the effects of pests, diseases, and weeds on crop performances?
- How can we understand, quantify, assess, and model these effects?
- How and what can modelling contribute in the assessment of the impacts of pests and diseases, especially on food security?
- What could be the effects of climate and global changes on crop losses caused by plant diseases and pests?
- With the practical implication:
- Can we establish a global, open-source, data base on crop losses, which will enable answering these questions?

These questions were addressed through a series of keynote presentations and workgroup sessions. The slides of these keynotes along with the conclusions of workgroups are accessible at the INRA website: http://www.smach.inra.fr/en/All-the-news/crop-losses-conference-en, and an Executive Summary of conclusions is provided below.

***Executive Summary***

*Crop loss assessment and modelling addresses legitimate and important issues*

- Plant diseases and pests affect global crop production in many different ways, including a reduction of crop yield, but also a reduction in the shelf-life, organoleptic, or appearance of products, as well as impacts on the nutritional value of food as a result of toxin accumulation.
- The importance of crop losses needs to be related to the variable contexts (economic, social, environmental) of agriculture, where the private and the public sectors have different goals.
- There are several facets to crop losses caused by crop diseases, pests, and weeds
- Aside from the quantitative, direct, and primary losses – i.e., yield losses, it is necessary to consider the massive losses which are: (1) qualitative, direct, and primary, such as mycotoxins accumulation, and (2) quantitative, direct, and secondary, such as the weakening of perennial crops exposed to plant disease epidemics.
- Different types of crop losses must therefore be distinguished. The FAO has proposed a double classification: first, direct and indirect, and second, primary and secondary. Losses may be a direct result of the activity of pests and diseases, or be indirect via multiple impacts on the economic make-up of agriculture, or on the production system. Losses may be primary – occurring in a given growing season, or secondary – occurring over several successive seasons.
- Further, several attributes of global crop losses to diseases, pests, and weeds need consideration: (1) their spatial and temporal variation (i.e., chronic vs. acute crop losses); (2) the level of potential losses in absence of control; and (3) the availability and efficiency of management tools.
- There is overall consensus to consider that the increasing emergence of plant diseases is not associated with the appearance of "new" pathogens, but to the recently amplified pathogen dissemination resulting mainly from trade and human transport. Accelerated evolution of plant pathogens is also associated with selection pressures generated by specific resistance genes. Experimental work enables understanding some of the processes involved in the evolution of plant health under climate change.

*There are methods to quantify crop losses, especially yield losses*

- Quantitative estimates of crop yield loss from pests and diseases are commonly considered to be highly uncertain or imprecise, as a result of strong reliance to expert assessments or of observations which do not make use of standardised and uniform protocols.
- Yet, International standards and procedures exist to: (1) conduct field experiments that are specifically designed to quantify crop losses; (2) quantify disease and pest injuries; and (3) measure crop losses.
- In practice, the quantification of yield losses involves four necessary elements: (1) a quantification of injury(ies) caused by diseases, pests, and/or weeds; (2) a quantification of the attainable yield (i.e., the yield level achieved in absence of injuries); (3) a damage function translating injury into yield loss; (4) the quantification of actual (harvested) yields.

- Yield loss data standards – “gold” and “silver” standards – may therefore be defined. The gold and silver standards would include: (1) the levels of disease or pest injuries; (2) measurements of crop growth; (3) successive development stages (phenology) of the crop; (4) crop yield. The gold standard would additionally include: (5) information on crop history; (6) details of crop management; (7) geographical location; (8) weather variables.

*Process-based modelling is a valid and valuable approach to yield loss analysis*

- A major advantage of (process-based) modelling over empirical methods lies in the ability of such models to simulate yield losses under new, different, and therefore future conditions. Yield loss modelling may thus become a key instrument for policy-development and strategic research.
- A number of mechanistic simulation models have been developed for several of the most important world crops. These models can successfully be linked with disease or pest models to simulate yield variation and yield losses. Implementation of these models for large-scale assessment of yield losses require (1) the development of (generic) models accounting for the most frequent diseases and pests, and (2) baseline global data on crop health.
- Main challenges in modelling yield losses through the dynamic interaction between crop growth and development, on the one hand, and pest and disease dynamics, on the other hand, include: (1) the number of (pest- or pathogen-) specific processes considered, possibly with time-steps smaller than 1 day; (2) the need to consider elements of the microclimate; (3) the inclusion of several diseases and/or pests on the same crop; (4) the lack of standardised data for disease and pest injuries; and (5) the lack of quantitative and qualitative information on production situations, including crop management and cropping system.

*Crop loss information as part of the global data revolution*

- The data revolution heralded by the United Nation has led to rapid improvements in the availability and quality of data related to agriculture and in turn crop health, but gaps still remain.
- Technological advances mean that we can collect, process and distribute more data on the state of the biosphere and of societies than ever before.
- Growth in available data related to agriculture is related to the increasing number of international collaboration networks, such as GODAN (Global Open Data for Agriculture & Nutrition), the CGIAR Platform for Big Data in Agriculture, the Global Yield Gap and Water Productivity Atlas (GYGA), the Agricultural Model Intercomparison and Improvement Project (AgMIP), and many others, some which make use of Creative Commons licences to make many of their results globally accessible.
- Some journals and data repositories have started to publish and recognise datasets in a similar way to peer reviewed articles. This echoes new policies among the donor community.

*Looking forward: mapping global pest and disease yield losses and crop loss data ontologies*

- Global food production will have to increase substantially to meet increased demands due to population growth and changing diets. Knowing where and how much crop yields can still increase on existing land through a process of so-called sustainable intensification is therefore a relevant question.
- The Global Yield Gap Atlas initiated in 2012 aims to map yield gaps of key food crops in all food producing countries of the world. Addition of quantitative information on yield reduction due to weeds, pests and diseases would largely complete the list of biophysical factors that explain yield gaps.
- Based on their importance towards global food security, targets for crop loss assessment can be identified and proposed for wheat, rice, maize, potato, and soybean.
- Generic approaches are for instance available to model yield losses in wheat and rice. These models are congruent and compatible with the on-going (crop) modelling efforts engaged in the international networks AgMiP and MacSur, as well as with the Global Yield Gap Atlas initiative.
- A necessary step towards advancing the analysis, understanding, prediction and management of disease and pest losses is the development of a data ontology and of generic data structures where diseases and pests are properly addressed.

Serge Savary, INRA - AGIR, Université de Toulouse, Castanet-Tolosan, France

**6th International Oomycetes Workshop: Phytophthora, Pythium, Downy Mildews and related genera, 28 July 2018, Boston USA**

The Subject Matter Committee (SMC) of the Oomycetes of the International Society of Plant Pathology (ISPP) is very pleased to announce the "Satelite Meeting" 6th International Oomycetes Workshop: Phytophthora, Pythium, Downy Mildews and related genera (Oomycetes in the era of Plant Health in A Global Economy) that will be held on 28 July 2018 at the Hynes Convention Center, 900 Boylston St, Boston in Massachusetts, USA. This important event will be offered in association with the International Congress of Plant Pathology (ICPP) 2018: Plant Health in A Global Economy (Boston, 29 July - 3 August).

The SMC of the Oomycetes of the ISPP was established on December 2016 and has 34 members from 15 countries including: Argentina, Australia, Canada, Czech Republic, Germany, India, Italy, Japan, Mexico, Philippines, South Africa, Spain, Taiwan, United Kingdom and United States. Gloria Abad (USA) is the Chair and the co-Chairs are Marco Thines (Germany), Andre Levesque (Canada), and David Cooke (UK). One of the missions of the SMCs of the ISPP is to organise International Workshops.

This "6th International Oomycetes Workshop" will be presented to salute and celebrate our science of Plant Pathology in the 50th anniversary of the International Society of Plant Pathology (ISPP) and is supported by the Italian Phytopathological Society, Latin American Association of Phytopathology and the American Phytopathological Society-Caribbean Division (APS-CD) and by the American Phytopathological Society (APS) Committees of Diagnostics; Mycology; Plant Pathogen and Disease Detection; Regulatory Plant Pathology Committee and by the Office of International Programs. The "6th International Oomycetes Workshop" is organised by Gloria Abad (USA), and co-organised by Marco Thines (Germany), Andre Levesque (Canada), David Cooke (UK), Guillaume Bilodeau (Canada), Palem Chowdappa (India), Santina Caciola (Italy), Hemilse Palmucci and Pablo Grijalba (Argentina), Chis Spies (South Africa), Frank Martin, Lina Quesada, JoAnne Crouch, Carla Garzon, Ronald French, John Bienapfl, and Yazmin Rivera (USA).

Topics of the workshop will be Taxonomy and nomenclature: Past, present, and future; Identification and diagnostics: From the traditional tools to the innovative genomic sequencing technologies (IGST) including NGS and TGS; Diversity in cultivated and natural environments: The global spread of pathogens; Management and control: Advanced IPM-tools, improved biocontrol, enhancing resistance, sustainable production, agricultural systems for the future; Plant pathogenic Oomycetes of concern: Trade regulations, advanced monitoring and certification; Plant pathogenic Oomycetes: The era of genomics and microbiomics; and New technologies for Oomycete research: Looking to the future. The "IDphy: Molecular and Morphological Identification of Phytophthora Based on the Types" an online resource with Lucid Key, and Tabular Key that was developed by G. Abad and collaborators T. Burgess (Australia), J. Bienapfl, M. Coffey and A. Redford (USA) to facilitate accurate and robust identification of species using type specimens will be demonstrated to close the event.

This workshop will provide capacity building on identification and diagnostics, ecology, etiology, population genetics, advanced technologies; helping to build collaborative international and national scientific relations; serving as a catalyst for many to accurately describe new species in the Oomycetes; learning about the emerging Oomycetes of concern around the world; increasing the knowledge to develop molecular diagnostics tools; and obtaining information on the current status of identification of plant pathogenic Oomycetes. Many Oomycetes are recognised to be high risk plant pathogens causing high economic and environmental impact in different areas of the world. Authorities will be keynote speakers and contributions from oral and poster presentations are encouraged to participants. For registrations visit ICPP Program or contact Gloria Abad gloria.abad@aphis.usda.gov.

**Symposium 'One Health - Microbial Cycling in Food Webs'**

A one-day symposium 'One Health – Microbial Cycling in Food Webs' was held at the University of Florida (UF) in Gainesville, Florida, US, on 16 January 2018, on the occasion of the retirement of Prof. Ariena van Bruggen. The symposium theme reflected the hypothesis posed by van Bruggen that microbial communities are transferred from niche to niche and from plants to animals (and humans) to soil and water through the food web. Health of plants and animals is affected by the microbiome that is characteristic for a particular approach to the management of (agro) ecosystems. The symposium was opened by Prof. Glenn Morris, director of the

Emerging Pathogens Institute (EPI), UF. Presentations were given by Prof. Ilaria Capua, director of the One Health program, UF, on her broad, interdisciplinary view of 'One Health', by Prof. Ariena van Bruggen, Plant Pathology and EPI, UF, on 'Microbial cycling as a connecting force for soil, plant, animal, human and ecosystem health'. Dr. Eelco Franz, RIVM (Inst. of Public and Environmental Health), the Netherlands, addressed 'Ecological cycling of enteric infections'. Prof. Arie Havelaar, EPI, UF, gave a presentation on 'Contamination cycles of zoonotic and foodborne pathogens', Associate Prof. K.C. Jeong on 'Cycling of antimicrobial resistance from farms to hospitals', and Associate Prof. Volker Mai, EPI, UF, on 'Microbial communities in the GI tract in relation to human diseases'. All speakers addressed the relationship between various microbiomes and health. In the afternoon, Prof. Nik Grunwald, Oregon State University, gave a brief introduction on 'Molecular epidemiology of *Phytophthora* pathogens in the genome era'. Prof. Jushua Weitz of Georgia Tech University gave an overview of his work on 'Synergistic elimination of bacterial pathogens by viruses and the innate immune response', describing his mathe matical models in a clear way to the general audience. Dr. Anne van Diepeningen, Plant Research International, Wageningen, the Netherlands, and Asst. Prof. Erica Goss, Plant Pathology and EPI, UF, described the transition of fungal and oomycete species from plants to animals with presentations titled 'Challenges in *Fusarium*, a transkingdom fungal pathogen' and 'Interface of soil and oomycete diseases of animals and plants'. Finally, Prof. Linda Kinkel, University of Minnesota, gave an overview of her work o n 'Network analysis of the transfer of microbial communities from soil to rhizosphere', focusing on *Streptomyces* species. The symposium was closed with laudatory remarks by Prof. Rosemary Loria, Head of the Department of Plant Pathology, UF. Excellent moderators of the sessions were Prof. Glenn Morris, Prof. Deborah Neher (University of Vermont), Prof. Nik Grunwald, and Prof. Eric Triplett (Microbiology and Cell Science, UF), who also gave an overview of van Bruggen's career at UC Davis, Wageningen Universi ty and the University of Florida. Participants at the symposium came from: the Netherlands, Italy, Vermont, Oregon, California, Georgia and Florida. The symposium was followed by a reception at the Harn Museum of Art, UF, under the excellent guidance of the Master of Ceremonies Prof. Jim Marois.


Prof. Ariena van Bruggen in Parma, Italy (image A. van Bruggen).

(Ariena van Bruggen, University of Florida, 22 January 2018)

**World-first wheat stem rust breakthrough**

In a world-first a team of researchers are gaining ground in the race against wheat stem rust, a pathogen that

threatens global food security. The team from the University of Sydney, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Rothamsted Research, the University of Minnesota and the USA Department of Agriculture (USDA) have discovered the first rust virulence molecule that wheat plants detect and use to 'switch on' in-built resistance.

The breakthrough in research targeting the stem rust, historically the most dangerous pathogen of wheat, will mean suspect samples could be analysed within hours in an emergency rather than weeks, potentially saving crops from being destroyed. "For the first time it will be possible to do DNA test ing to identify whether a rust in a wheat crop anywhere in the world can overcome a rust-resistance gene, called Sr50, which is being introduced in high-yielding wheat varieties," said Professor Robert Park, corresponding author from the University of Sydn ey. "This will indicate whether or not a given wheat crop needs to be sprayed with expensive fungicide quickly to protect against rust – which would otherwise devastate the crop in a matter of weeks."

The new findings are being published in a paper "Loss of AvrSr50 by somatic exchange in stem rust leads to virulence for Sr50 resistance in wheat" in Science. Co-corresponding author, Dr Peter Dodds from the Commonweatlh Scientific Industrial Research Organisation, said demand for wheat in the developing world was expected to jump 60 percent by 2050 and in economic terms alone the ramifications were huge.

"Now that we've identified how stem rust strains are able to overcome Sr50 resistance – by mutation of a gene we've identified called AvrSr50 – this information can be used to help prioritise resistance genes for deployment.

Professor Park, from the Plant Breeding Institute, part of the University's Sydney Institute of Agriculture and School of Life and Environmental Sciences, said the results should also lead to a better understanding of how rust pathogens infect wheat, evading detection by the wheat plant, and causing yield losses.

Professor Robert Park inspecting wheat (image: The University of Sydney).

Listen to ABC radio interview with Professor Robert Park.

(The University of Sydney News, 22 December 2017)

**Summary on 15th Congress of the Mediterranean Phytopathological Union, Córdoba, Spain**

The 15th Congress of the Mediterranean Phytopathological Union entitled "Plant health sustaining

Mediterranean Ecosystems," was held in Córdoba, Spain on 20 -23 June 2017. The mission of the meeting was to promote dissemination of the latest scientific advances and encourage dialogue, interaction and collaboration between researchers from different disciplines interested in all aspects of phytopathology. More than 200 participants from 26 countries attended the congress, making this an outstanding scientific event. The presentations covered a broad range of aspects related to plant diseases including genome analysis, invasive emerging pathogens, integrated disease management, food safety, new tools in diagnostics and management, molecular pathogen-host interactions, biocontrol, epidemiology and modelling, and microbiomes and their role in plant health.

The abstracts of the papers presented at the congress were published in the August 2017 Issue of Phytopathologia Mediterranea. A Special Issue containing selected reviews and research papers presented at the congress will be published in the journal on April 2018.

**Plant pathology making a dream become a reality**

When plant pathology graduate student Zennah Kosgey dreams about the future of her home country Kenya, she sees a country free of poverty. And she won't stop pushing herself until that dream becomes a reality.

Kosgey grew up in Turbo, Kenya. Her family grew maize and was also involved with poultry and dairy farming. Along with that close tie to and love of agriculture came another realisation for Kosgey—that farming is an economic backbone of Kenya. "As I began to better understand the food insecurity issues in my country, and keeping in mind the love I feel for agriculture, it became clear to me I wanted to be among the people who contribute to improving food security."

Kosgey saw another opportunity to inspire change: increase her knowledge about plant pathology through higher education. She became a Ph.D. student in plant pathology at the University of Minnesota, researching disease resistance and pathogen diversity to stem rust and Fusarium head blight —two of the most destructive diseases threatening wheat, and areas where the U of M is a leader.

She hopes to become eith er a research scientist or a professor. "I have a bright future ahead, and giving up will never be an option for me. I just have to keep going. My future plans and the dreams I have for my country are what motivate me to do what I do every day."

https://www.youtube.com/watch?time_continue=1&v=auJoPoAqsJk

(University of Minnesota, Driven to Discover, 12 January 2018)

**Sustaining global agriculture through rapid detection and deployment of genetic resistance to deadly crop diseases**

A paper by Sambasivam Periyannan titled "Sustaining global agriculture through rapid detection and deployment of genetic resistance to deadly crop diseases" was published in December 2017 by New Phytologist (early view). The abstract is as follows:-

Genetically encoded resistance is a major component of crop disease management. Historically, gene loci conferring resistance to pathogens have been identified through classical genetic methods. In recent years, accelerated gene cloning strategies have become available through advances in sequencing, gene capture and strategies for reducing genome complexity. Here, I describe these approaches with key emphasis on the isolation of resistance genes to the cereal crop diseases that are an ongoing threat to global food security. Rapid gene isolation enables their efficient deployment through marker-assisted selection and transgenic technology. Together with innovations in genome editing and progress in pathogen virulence studies, this creates further opportunities to engineer long-lasting resistance. These approaches will speed progress towards a future of farming using fewer pesticides.

Read paper.

**HRH The Prince of Wales: Why we must save our trees**

In his recent birthday message to the UK countryside, His Royal Highness The Prince of Wales urged everyone to work together to safeguard the emblematic British tree species from pests and lethal diseases.

"Another distant memory, from a time before the 1970s, is of hedgerows punctuated by billowing English elms, providing height in the landscape, shade for livestock and a haven for wildlife. More than 25 million are estimated to have been lost to Dutch Elm Disease, spread by the elm beetle that carries a deadly fungus. A few areas have escaped the worst of the destruction, but today the elm survives mainly as a suckering hedgerow plant, cut down by the disease as soon as it gets above head height.

I have always been mortified by the loss of mature elm trees from almost every part of the countryside I knew and loved as a child, so I had high hopes for an American variety that appeared to be resistant to the disease. I planted an avenue of them at Highgrove and then watched, miserably, as many of them succumbed just like the native variety.

My personal experience extends beyond the Highgrove elms. A fungal disease known as *Phytophthora ramorum* has affected mature larch trees in the Duchy of Cornwall woodlands. Ash Dieback has affected trees at Highgrove and at a Welsh property owned by the Duchy. The term 'dieback' is something of an understatement as there are no remedies and each is effectively fatal, not least because infected trees must be felled promptly to slow the spread of the disease. I am far from being the only one who has watched trees they have planted and nurtured succumbing in this way. Trees that were carefully chosen for a particular site, or that have grown there naturally for thousands of years, have to be felled and burnt, and cannot be replaced with the same species. Already, some of this country's most historic parkland settings with ancient oak trees that have stood for 800 years, are threatened with devastation. It is a horrible experience for anyone who loves trees, or depends on them for their livelihood, and one that is becoming more common by the day.

This is a topic in which I have been taking a wider interest over the past few years, including convening meetings of scientists, foresters, amenity groups and regulators, all of whom are as alarmed as I am by what is going on and the implications for the landscape, environment and a wide range of economically important activities."

Read more.

(Country Life, 9 November 2017)

**Hunting plant pathogens with youths in South Africa**

More than 200 youth participated as "pathogen hunters" in various educational activities organised through Cape Citizen Science. Cape Citizen Science is a project to engage nonscientists in research about the diversity and distribution of *Phytophthora* species in the Cape Floral Kingdom of South Africa. The project has been active since 2016, but the Mathre Education Endowment Award provided support to specifically engage youth

in 2017.

The project leader and recipient of the award, Joey Hulbert, is a PhD student at the University of Pretoria in the Forestry and Agricultural Biotechnology Institute (FABI). During 2017, Hulbert partnered with multiple environmental education nonprofits to engage youth from impoverished communities. The support provided by the award gave many learners their first opportunity to visit a national park or nature reserve.

The YouTube video showcases some of the youth engagement activities organised during 2017.

https://www.youtube.com/watch?v=PKSI1sxHiEc

(American Phytopathological Society, Phytopathology News, January 2018)

**Myrtle rust threatens Australian forests**

Myrtle rust has shown what it can do in South America, its native home. Brazil has the world's largest plantations of Australian eucalypts and problems struck in the 1970s when seedlings began dying en masse. Losses of up to 40 per cent in wood production were reported. The industry survived the crisis by investing heavily in breeding eucalypt varieties that resist the disease. Some of these varieties are now at risk from a newly discovered strain of myrtle rust.

The rust spread dramatically inside Australia after it was found in a large nursery near Gosford in 2010. How it reached Australia is not known, though the nursery trade helped it spread rapidly along the eastern seaboard, reaching Tasmania and the northern tip of Queensland by 2015. Its spores also blow on the wind and travel on honeybees.

Australia is highly vulnerable to foreign tree diseases because its eucalypts and wattles are grown so widely. Eucalypts were once viewed abroad as pest-free trees, but many diseases have emerged in recent years in plantations in Asia, Africa and South America. Lush groves of saplings suit pathogens spreading from nearby forests. In a 2011 survey of eucalypts planted in China, eight of the 30 fungal pathogens detected were new to science. Some of the surprises include a rust targeting eucalypts in Africa, and diseases killing wattles in Africa and Asia. Many insects have turned to eucalypts as well, including Argentinian moths, intercepted by Australian quarantine officials at Port Kembla in 2011.

The disease problems point to global forestry operating on questionable assumptions. When trees are grown somewhere new they thrive at first, then accumulate pests that hinder their performance, and end up posing risks to the countries that furnished the trees. A recent article in Science warned that unless management improves, pests "thre aten the long-term sustainability of forests and forestry worldwide". All over the world, yields are dropping and costs rising as trees of many kinds succumb and sometimes die.

Angus Carnegie, a New South Wales plant pathologist involved in the initial response to myrtle rust, nominates Ceratocystis wilt as one to fear. Known since 1890, it was not found infecting eucalypts until 1997. It has now surpassed myrtle rust as the worst eucalypt disease in Brazil. In Hawaii it has killed hundreds of thousands of native trees since it appeared there in 2010.

Of the other pathogens appearing around the world, many are doing little harm, but they shouldn't be ignored. "Something that is trivial on eucalypts in Brazil or South Africa may be a massive issue here," Carnegie warned.

The eucalyptus strain of myrtle rust remains a serious concern for Australia. Another possibility is that the strain already in Australia could widen its pool of victims. "There could be mutations to make it more virulent," Carnegie said. "The jury is still out on whether that could happen."

Read more.

(Tim Low, The Saturday Paper, 25 November 2017)

**"Wild and Tamed Phytobiomes" Symposium, Penn State US, 19-22 June 2018**


We are pleased to announce and invite your participation to the 21st Penn State Symposium in Plant Biology, entitled "Wild and Tamed Phytobiomes." The symposium will be held from 19-22 June 2018 on the Penn State University Park campus. The symposium will serve as a platform to review the current knowledge, and catalyse new interactions in the areas of basic and applied phytobiome research. The program will include lectures from renowned experts, will provide opportunities for presentations by young talented scientists, and will include poster presentations by the attendees. The symposium will begin with a workshop on "Manipulating phytobiomes: challenges and opportunities", which will focus on the critical next steps towards effectively managing phytobiomes. The program will include a special informal reception that will feature our corporate sponsors and their products and services, and will provide the participants the opportunity to interact with industry representatives.

Travel awards of up to $US500 will be available to selected postdoctoral researchers, graduate students and undergraduate students who present posters. Speakers for the short-talk sessions will be selected from those poster presenters who wish to be considered for oral presentations. Junior faculty members, postdoctoral researchers, graduate students and undergraduate students are particularly encouraged to apply for oral presentations.

The deadline for abstract submissions, consideration for travel awards and short talks is May 4. Please note, all registration fees must be paid to be considered.

Register before May 13 to receive the early registration rates. For more information and to register click here for the event summary.

A flyer with more detail on the symposium and invited speakers can be found here Plant Biology Phytobiome Symposium Flyer 2018.

Sincerely,

Terrence Bell and Kevin Hockett, Penn State University, co-chairs

**Open Plant Pathology – A community to promote open science**

We feel that it is more important than ever that scientists acting in the field of plant pathology stay connected and propose that web-based networking tools should be used for effective networking and continued collaboration to promote the field. In light of these issues, we propose to develop a community that values the sharing of knowledge, ideas and data; building capacity; and promotes open and reproducible research to benefit plant epidemiologists. To foster this community, we propose to develop:

- A community-maintained website to promote this workgroup: people, projects and blog posts (new articles, tutorials, view-points, etc.).
- An open chatting workspace using Slack to enable effective, year-round communication and collaborative work via specific channels, i.e., a Slack workspace open to any interested party (https://openplantpathology.slack.com).
- More broadly, a community that stimulates and supports efforts from individuals or groups to develop and deliver next-generation databases and reproducible research tools for plant pathology-related subjects and applications (teaching or research) using open source software (e.g., R, Python), open data (e.g., Dryad, Figshare, OSF, Genbank, etc.), and open software repositories (e.g., GitHub).

We welcome your participation in this community and hope that you will join us! To join the Slack workgroup, please send a request to openplantpathology@gmail.com.

Our repositories are available at https://www.github.com/openplantpathology, to request to join them please send a message to Adam Sparks (adam.sparks@usq.edu.au) or Emerson Del Ponte (delponte@ufv.br) after you have joined the Slack workgroup.

Community Founders
Emerson M. Del Ponte, Universidade Federal de Viçosa, Brazil
Adam H. Sparks, University of Southern Queensland, Australia

**Estimate app - A tool to assist the disease severity assessments**

The Estimate app is a tool to assist the assessment of disease severity in plant pathology and other agricultural sciences. Research scientists, crop consultants, and other professionals would use the application. The framework provided by Estimate serves as a repository for standard area diagrams to enable users to accurately and precisely estimate plant disease severity. The application allows users to select a specific disease from a pre-populated list, specify either a logarithmic or linear categorical scale for estimating disease severity, and touch photographic images corresponding to the various percent categories for quantifying disease intensity within a pre-specified plot layout or experimental design. Several options for data entry are included within the framework of the application, ranging from specification of plots and sub-plots to assessment of multiple, single sampling units with an undefined experimental design. The data are automatically saved as a spreadsheet within the application that can be emailed to a recipient at the end of the session as a csv file.

Further information on the Estimate app can be found in the Plant Disease Special Report publication.

Estimate is available for free download from the iTunes store to use on an iPad Air 2 and above.

Estimate was developed by Sarah Pethybridge (Cornell University, US) and colleague, Scot Nelson (University of Hawaii at Manoa).

(Epidemiology of Vegetable Diseases (EVADE) Laboratory, 23 January 2018)

**Acknowledgements**

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