

ISPP Newsletter 48 (5) May 2018

News and announcements on any aspect of Plant Pathology are invited for the Newsletter. Contributions from the ISPP Executive, Council and Subject Matter Committees, Associated Societies and Supporting Organisations are requested.

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In this issue:

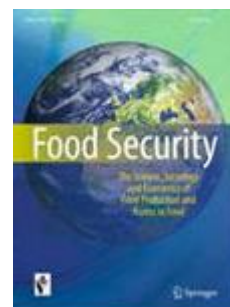
- [New Editor in Chief of Food Security](#)
- [ICPP Closing Event moved to Thursday](#)
- [ICPP will be family friendly](#)
- [Call for nominations for ISPP Fellows: Closes on 31 May](#)
- [Alerts for policy makers extracted from papers published during 2017 in volume 9 of Food Security](#)
- [Seeking Plant Disease Clinic Directors for a survey](#)
- [ICPP2018 Agricultural Microbiomes Workshop, 28 July 2018, Boston, USA](#)
- [Australasian Soilborne Disease Symposium 2018 – Extension for abstract submission](#)
- [Peter Gadgil \(1936- 2018\)](#)
- [Global body adopts new measures against spread of plant pests](#)
- [Hybrid swarm: A threat to food security in South America](#)
- [New York teenager wins \\$250K for disease model on potato late blight](#)
- [New apple disease spoils even pasteurised foods](#)
- [Phytoplasma associated with banana elephantiasis disease in Colombia](#)
- [In-field molecular diagnosis of plant pathogens: recent trends and future perspectives](#)
- [How to feed 10 billion mouths: preparing for 2050](#)
- [Plant-disease app recognised by Google](#)
- [Acknowledgements](#)

New Editor in Chief of Food Security

The ISPP Executive has unanimously agreed that Serge Savary be offered the position of Editor in Chief of Food Security for a three to five year term to take over following the retirement of Richard Strange. Richard will continue as Editor in Chief until the end of 2018.

Congratulations Serge.

Greg Johnson, President ISPP



ICPP Closing Event moved to Thursday

If you haven't purchased your ticket to the ICPP2018 Congress Closing Event, there's still time!

To make sure all attendees can attend this once-in-a-lifetime event at the iconic House of Blues, the Closing EVENT has been moved to Thursday night.

Steps away from Fenway Park, the House of Blues will give you a taste of true Americana and the best that Boston has to offer, including music stylings from the World Premier Band, whose repertoire spans decades and genres.

Don't miss out on a rockin' celebration that you'll remember for years to come. Visit [conference website](#).

ICPP will be family friendly

The Family Friendly Team will be at ICPP2018 with resources and activities to improve the meeting experience for anyone attending with family members. More details on activities and child care and available on the [Family Friendly](#) webpage.

Call for nominations for ISPP Fellows: Closes on 31 May

At the 2018 International Congress of Plant Pathology (ICPP) in Boston, USA, the International Society for Plant Pathology (ISPP) intends to recognise the outstanding contributions of individuals to plant pathology, the aims of the ISPP, or both, as Fellows of the ISPP.

A call for nominations is now open. Nominations will close on 31st May 2018.

Nominations should be sent with name and contact details of the nominee and the nominator. The nominator should state the rationale for the nomination by outlining in 500-700 words (Helvetica 9 point single-spaced text) how the individual nominated has made an outstanding contribution to plant pathology, the aims of ISPP, or both. A more detailed CV may also be sent with the nomination. Individuals cannot nominate themselves.

Nominations (and enquiries) should be sent to the ISPP President, Dr Greg Johnson, gregh4d@gmail.com with the subject heading "ISPP Fellow Nomination". Nominations and deliberations of the Fellow's Selection panel will remain confidential.

ISPP Fellows:

- Elected by Council on 20 August 1988 in Kyoto:- Arthur Kelman dec.; RKS Wood dec.
- Elected by Council on 14 August 1998 in Edinburgh:- Johannes Dekker dec.; Chiu Wei Fan dec.
- Elected by Council on 26 August 2008 in Torino:- Chuji Hiruki; Wenhua Tang; Peter Scott; Brian Deverall dec.; James Cook; Charles Delp.
- Elected by Council on 27 August 2013 in Beijing:- Richard Falloon; Richard Strange; Yaacov Katan.

(Greg Johnson, ISPP President)

Alerts for policy makers extracted from papers published during 2017 in volume 9 of Food Security

This item summarises very briefly some of the papers published in volume 9 of Food Security for the year 2017, drawing attention to current and future critical issues in food and nutrition insecurity and measures that could be adopted to ameliorate them. Papers are arranged under six headings: General; the Physical Environment; the Biological Environment (Food Production and Constraints); the Nutrition and Sociological Environment; the Economic and Political Environment; and Projects Encompassing Multiple Environments. It is hoped that Policy Makers concerned with food and nutrition security will note the papers relevant to their particular spheres of influence and that they will be inspired to take early action. Numbers after each entry refer to the pages on which the papers may be found in Volume 9 of the journal. [Read more](#).

(Richard Strange, Editor-in-Chief of Food Security)

Seeking Plant Disease Clinic Directors for a survey

Dear Colleagues, My co-authors and I are soliciting the names and contact information for the directors of disease clinics around the world. As part of the ICPP 2018 talk titled "Taxing Times" and the subsequent paper, we are interested in soliciting information about what techniques clinics from around the world use for the identification of bacterial plant pathogens. Please help us to understand what your standard techniques are and the types of help that could be provided to help you with your important missions. Please provide your contact information on this google form if you would like to participate.

<https://goo.gl/forms/fpqgWegYfOA9DR252>

Carolee Bull,
Professor and Department Head, Department of Plant Pathology and Environmental Microbiology,
Pennsylvania State University

ICPP2018 Agricultural Microbiomes Workshop, 28 July 2018, Boston, USA

Join us for the launch of the Agricultural Microbiomes Research Coordination Network to be held on 28 July 2018, in conjunction with the International Congress of Plant Pathology (ICPP2018) in Boston. This NSF-funded workshop will engage scientists from academia, government, and industry who are interested in agricultural microbiomes research. Workshop participants will have the opportunity to engage actively with other microbiome scientists to discuss the current “state of the science” in agricultural microbiomes research, identify research priorities and critical gaps, and explore opportunities for collaborative microbiome research and synthetic analyses of diverse existing datasets. The workshop will highlight existing large-scale microbiome research platforms and resources and identify community priorities for analytical and skills development and training.

For questions about the workshop or the RCN visit our website: www.agmicrobiomercn.umn.edu, or contact Linda Kinkel (kinkel@umn.edu) or JP Dundore-Arias (jdundore@umn.edu). Check out the Early-Career Travel Award opportunities on our website, and sign up to our mailing list to receive updates.

(Linda Kinkel and JP Dundore-Arias)

Australasian Soilborne Disease Symposium 2018 – Extension for abstract submission

Abstract submission deadline for the 10th Australasian Soilborne Disease Symposium (ASDS2018) held in Adelaide, South Australia, has been extended by 3 weeks to May 21st, 2018. Details on submission can be found on the [conference website](#).

(Gupta Vadakattu, ASDS2018 Co-Convenor)

Peter Gadgil (1936- 2018)

Peter Gadgil passed away in April 2018. Until very recently Peter was working at Scion, New Zealand, in a mentoring role as well as fulfilling his lifetime passion of describing new fungi. He expressed a desire to return to work as soon as his mobility improved. Sadly that did not happen, but his legacy will continue.

Peter started here in 1964, when he was recruited to work on dothistroma needle blight, a new disease of *Pinus radiata* in New Zealand. His fundamental work in the 1960s on the infection process of the pathogen and its epidemiology was critical to the development of a successful control programme that is still in use today. Recent research using advanced molecular techniques that were not available in the 1960s have demonstrated Peter's findings in his 1967 publication "[Infection of *Pinus radiata* needles by *Dothistroma pini*](#)" were correct. In the 1970s Peter and his wife Ruth published two papers on the interaction of mycorrhiza and other soil organisms that is still described today as the "Gadgil effect". In 2005, Peter published a book describing over 700 fungi associated with woody plants in New Zealand. This book was hailed as the first comprehensive reference book ever produced on fungi that live in New Zealand's forests.

Peter, as Research Leader of the Forest Health Group, was a pioneer of the transition from a purely Government funded research programme to one funded by industry and Government. Peter was the main driver behind the development of the New Zealand forest grower funded surveillance and diagnostic services, and the Forest Health Research Collaborative which was a precursor to the Biosecurity Technical Steering Team we have now.

Peter was never afraid to voice his opinion, often in a forthright manner, but those who worked closely with him understood that and developed strategies to work around this. We were also never left in any doubt about what his view on a specific matter was! For all that, Peter helped me and many others develop in their careers through his helpful advice and mentorship and he will always be regarded as one of New Zealand's eminent forest pathologists.

(Lindsay Bulman, Science Leader Forest Protection, Scion, New Zealand)

Global body adopts new measures against spread of plant pests

The International Plant Protection Convention (IPPC) is a 1951 multilateral treaty deposited with the Food and Agriculture Organization of the United Nations (FAO) that aims to secure coordinated, effective action to prevent and to control the introduction and spread of pests. This body, charged with keeping global trade in plants and plant products safe, has now adopted several new phytosanitary standards aimed at preventing destructive agricultural and environmental pests from jumping borders and spreading internationally.

The standardised norms developed by the International Plant Protection Convention (IPPC) cover a range of strategies and techniques used to prevent the introduction and spread of plant diseases and pests to new environments, thereby avoiding their often-devastating impacts on biodiversity, food security and trade.

"This is challenging work with high stakes: each year an estimated 10-16 percent of our global harvest is lost to plant pests. A loss estimated at \$220 billion", said FAO Deputy Director-General Maria Helena Semedo at the opening of this year's IPPC annual meeting in Rome.



Reliefweb.int reports on FAO data claiming that some \$1.1 trillion worth of agricultural products are traded internationally each year, with food accounting for over 80 percent of that total.

New measures adopted this week by the IPPC's governing body, the Commission on Phytosanitary Measures (CPM), include:

- Standard on the use of various temperature treatments against agricultural pests. The standard aims at ensuring that such treatments are consistently and effectively used in different operational contexts.
- Revised standard for sanitation of wood packing materials. An existing standard, known as ISPM-15, was updated to include the use of sulphuryl fluoride — a gas insecticide — and new-generation heating technologies that employ microwave and radio frequency waves to generate pest-killing temperatures deep inside wood products.
- An expanded standard on the use of heat vapour to kill Oriental Fruit Flies. The highly destructive, fruit-attacking *Bactrocera dorsalis* originated in Asia but has now spread to at least 65 countries. Its presence in Africa, where it first appeared in 2003, costs the continent an estimated \$2 billion in annual losses due to fruit export bans. The control technique outlined under the new measure kills 99.98 percent of the bug's eggs and larvae when used correctly.

The IPPC Commission also approved revisions that streamline existing standards targeting fruit flies to make it easier for countries to comply with them and improve their effectiveness, as well as revisions to a standard that establishes best-practice benchmarks for the operation of national pest surveillance programs.

A new diagnostic protocols were endorsed for sudden oak death, a fungi-like organism of unknown origin that attacks a wide range of trees and shrubs in nurseries, introduced into western North America and western Europe through the ornamental plants trade. And it approved new diagnostic protocol for tospoviruses, which affect 1,000 plant species and are causing devastating losses, especially to tomato, potato and squash and cucumber yields.

([Food and Agriculture Organization News](#), 18 April 2018)

Hybrid swarm: A threat to food security in South America

Australian scientists have [published findings](#) in the Proceedings of the National Academy of Sciences of the United States of America confirming the hybridisation of two of the world's most invasive agro-pests into a more advanced 'mega-pest'.

The cotton bollworm (*Helicoverpa armigera*) and the corn earworm (*Helicoverpa zea*) have been a major pest species, *H. armigera* widespread across Africa, Asia and Europe and *H. zea* having a more restricted range of the Americas. Together they cause damage to over 100 crop species including corn, cotton, soybean and tomato, with management and control practices costing billions of dollars annually.

Researchers at the Commonwealth Scientific Industrial Research Organisation (CSIRO) have identified larval hybrids of the two-pest species in Brazil under the Biosecurity Risk Evaluation and Preparedness Programme run by Dr Paul De Barro. Initial hybrid population estimates are low, however, the combination of the two species into a novel hybrid with unlimited geographical boundaries is a major threat.

"A hybrid such as this could go completely undetected should it invade another country", said Dr De Barro.

The surprise from the findings, and what is of particular concern, is that out of the studied specimens, every individual was a form of hybrid and none were the same. An example of this is one individual was found to be 51% earworm but contained pesticide resistant genes commonly found in the bollworm. This 'hybrid swarm' contains multiple versions of different hybrids within a single population, which poses a great risk to any form of prevention methods such as the use of pesticides as there was found to be varied levels of resistance within the population.

The implications of the potential spread of these hybrid moths is severe, as the agriculture industry in South America is already under pressure from invasive pests. Estimates suggest that over 65% of the USA's agricultural output is also at risk from bollworm destruction, leading to fears that this estimate will be much greater following the potential introduction of these hybrids.

(Will Holland, [The Invasives Blog](#), 17 April 2018)

New York teenager wins \$250K for disease model on potato late blight

Benjy Firester, a student from New York, won a \$250,000 science prize in March for his mathematical model on the spread of potato late blight; the plant pathogen that sparked the Irish potato famine of the 1840s and 1850s. His model could be used to prevent crop damage in the future.

Using disease data and weather patterns gathered from farmers in Israel, Firester was able to predict where the spores from the late blight genome would spread. Farmers can use his program to input their own data and track spores in the wind, apply fungicides at the proper time and "once it tells them they're at risk, they should be spraying ideally in the night or sometime before the morning, because the morning is when the spores are in the air," he said.

Beating 1,800 seniors from 555 high schools, the 18-year-old Hunter College High School student's project, "Modeling the spatio-temporal dynamics of *Phytophthora infestans* at a regional scale," took home the top prize at the prestigious Regeneron Science Talent Search, founded and produced by Society for Science & the Public since 1942. His paper is published in [Plant Pathology](#).

Firester will join his sister Kalia, who was runner-up at the talent search three years ago, at Harvard University in autumn.

([Jerusalem Post](#), 11 April 2018)

New apple disease spoils even pasteurised foods

There has been a recent report from food scientists of a fungus, *Paecilomyces niveus*, that spoils apple products even after heat pasteurisation. The fungus also produces an FDA-regulated toxin called patulin that is found in these spoiled processed foods. The study, published online in March in the journal [Plant Disease](#), describes for the first time a new apple disease, Paecilomyces rot, caused by *P. niveus*.

The disease may be overlooked because the brown rings of rot that develop closely resemble other apple diseases. The most effective way we can prevent apple spoilage from this mold is to cull apples with wounds and bruises that makes them likely to get this, and to never use dropped apples, the ones that people pick up off the ground," said doctoral student Megan Biango-Daniels.

(Krishna Ramanujan, [Cornell Chronicle](#), 29 March 2018)

Phytoplasma associated with banana elephantiasis disease in Colombia

In Colombia, banana is severely affected by elephantiasis disease (BED), first reported in 1911 in Suriname. BED has significantly lowered both yield and commercial value of the cultivars 'Gros Michel' (AAA) and 'Dominico Harton' (AAB). Yield reductions of 9 to 71.6 per cent have been reported in the Department of Valle del Cauca during 2016 and 2017.

BED causes an overgrowth of the pseudostem-rhizome junction generating longitudinal and transverse ruptures that lead to the collapse of the whole plant. The banana suckers exhibit necrotic tips which limit the plant's development, the petioles remain rigid with a bunched appearance, fruit size is reduced and finally, the rhizome develops conically.

'*Candidatus P. asteris*' has been found to be associated with BED. This is one of the most diverse phytoplasma

groups known. Members cause or are involved in a large number of serious crop diseases and can infect over 300 host species. Their host range includes a wide variety of dicot crops such as cassava (witches broom), oilseed rape, potato (purple top), grapevine, lucerne and some vegetables, as well as a number of monocot crops, such as maize (bushy stunt); 16SrI coinfections with other phytoplasmas have been reported as causes of both AI-Wijam disease of date palm (ProMED-mail posts <http://promedmail.org/post/20070514.1536>, <http://promedmail.org/post/20110519.1512>) and yellowing diseases of coconut and other palms in Malaysia.

Read more in [New Disease Reports](#) and [ProMED-mail](#).

(ProMED-mail, 145 March 2018, <http://www.promedmail.org/post/5687320>)

In-field molecular diagnosis of plant pathogens: recent trends and future perspectives

A paper by Andrea Donoso and Sofía Valenzuela titled "In-field molecular diagnosis of plant pathogens: recent trends and future perspectives" was published online on 17 April 2018 by Plant Pathology. The abstract is as follows:-

Accurate management practices in crop health and food safety are critical, especially regarding the detection of plant pathogens in the early stages of a disease. To date, specific, fast and sensitive technologies for point-of-care diagnosis and simple or grower-friendly devices are very valuable, as no specialized staff are required for diagnosing a disease in the field. This is especially the case today, when factors such as climate change may cause the appearance of pathogens in areas where years ago they were unexpected. The aim of this research is to review some of the promising techniques that can be applied to in-field molecular detection of plant pathogens and how these techniques can change the way farmers and pathologists are diagnosing plant diseases. Some of them, like loop-mediated isothermal amplification and recombinase polymerase amplification, are already being successfully used for routine diagnosis. However, most technologies still need validation in the plant pathology field, where they have a promising future for in-field diagnosis when combined with simple DNA extraction methods, reagent stabilization techniques and their integration into portable devices.

[Read paper.](#)

How to feed 10 billion mouths: preparing for 2050

In about 30 years, the world's population will have increased by nearly half. Expected to reach 10 billion by 2050, the rising number will continue to put pressure on the demand for food. At the same time, there has been an increasing loss of crops and livestock, due to genetic concerns and climatic factors.

These were only a few of the wide-ranging issues raised by University College London (UCL) Professor Richard Strange, who joined Professor Geoff Simm at the University of Edinburgh in March 2018. The discussion primarily revolved around current challenges, solutions and research projects surrounding the topic of food security.

"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life," Professor Strange defined on the basis of the 1996 FAO Food Summit.

Dr Strange then delved into the challenge of "hidden hunger", which occurs when the quality of food people eat does not meet their nutrient requirements.

[Read more.](#)

(Sara Konradi, [The Student Newspaper](#), 29 March 2018)

Plant-disease app recognised by Google

A mobile app designed by Penn State researchers to help farmers and others diagnose crop diseases has

earned recognition from one of the world's tech giants, Google.

PlantVillage, developed by a team led by David Hughes, associate professor of entomology and biology, was the subject of a keynote video presented at Google's TensorFlow Developer Summit 2018, held March 30 in Mountain View, California, USA. The event brought together a diverse mix of machine learning users from around the world for a full day of technical talks, demonstrations and conversation with the TensorFlow team and community.

PlantVillage and its mobile app — called "Nuru," which is Swahili for "light" — uses artificial intelligence and machine learning to train computers to recognise disease symptoms. When deployed on a smartphone, the app couples with the device's camera to capture images of diseased plants and provides the user with a preliminary diagnosis with a high degree of accuracy. The user also can get disease-management information and advice.

<https://www.youtube.com/watch?v=NlpS-DhayQA>

[Read more.](#)

(Chuck Gill, Penn State News, 2 April 2018)

Acknowledgements

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