



# INTERNATIONAL NEWSLETTER ON PLANT PATHOLOGY

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## Nominations for the ISPP Executive 2018-2023

The call for nominations of candidates for election to the 2018-2023 ISPP Executive Committee has been posted to all constituent societies of the ISPP. This election occurs once every 5 years, in accordance with the ISPP Rules of Procedure. Nominations are being sought for the positions of ISPP President, Vice-President, Secretary-General and Treasurer.

A Nomination Committee has been formed, consisting of highly respected plant pathologists representing different regions of the world, and chaired by Prof M Lodovica Gullino (ISPP Immediate Past President). The Committee will select two candidates for each position from the nominations received. The selected candidates will go forward to the full election, which will be a ballot of all ISPP Councilors.

Potential nominees must firstly agree to be nominated, and be aware of the time commitments and responsibilities involved with the respective positions. Short-listed nominees will be asked to provide a short written summary of their background and how they might serve in the position for which they have been nominated. Nominees should also be willing and aware of their responsibilities to ISPP and Associated Societies in fulfilling the duties of the positions. These will include participation at the International Congresses of Plant Pathology, in 2018 (Boston, USA) and 2023 (Lyon, France), and being able to commit 70 to 150 h per year for ISPP Executive service. Nominators and potential nominees should view information on the ISPP ([http://www.isppweb.org/about\\_objectives.asp](http://www.isppweb.org/about_objectives.asp)), and consider the duties and responsibilities of the Executive as outlined in the ISPP statutes and rules of procedure: [http://www.isppweb.org/about\\_objectives\\_statutes.asp](http://www.isppweb.org/about_objectives_statutes.asp).

Nominations should be sent directly to Prof M Lodovica Gullino ([marialodovica.gullino@unito.it](mailto:marialodovica.gullino@unito.it)), or through a representative of an Associated Society (see [http://www.isppweb.org/about\\_associated\\_eng.asp](http://www.isppweb.org/about_associated_eng.asp)). Names and full contact details (including e-mail addresses), along with evidence of each nominee's willingness to serve if elected, should be provided. **Nominations should be received by 31 March 2017.**

## Alerts for policy makers extracted from papers published during 2016 in Food Security

This [article](#) summarises very briefly some of the papers published in volume 8 of [Food Security](#) for the year 2016, drawing attention to current and future critical issues in food and nutrition insecurity and measures that could be adopted to ameliorate them. It is perhaps worth mentioning that many are context specific, requiring detailed information. This implies far more work on the ground - in two words, extension officers. These should be well trained in the recognition of those factors that are preventing the attainment of reasonable yields of crop plants and proper development of humans: for the former, professionals should include agronomists and plant pathologists and for the latter nutritionists. It is hoped that Policy Makers concerned with food and nutrition security will note the papers relevant to their particular sphere 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 8 of the journal. [Read more.](#)

(Richard Strange, Food Security, 2017)

## Ancient Chinese riddle of travertine dam creation solved

Scientists have long wondered how the 3300 crescent-shaped travertine dams at the Huanglong National Scenic Area in

Sichuan, China had formed. While visiting the park as a tourist, Gary Strobel, a well-known Montana State University professor noticed fungal hyphae attached to a rhododendron leaf he picked up from the pool. He immediately knew they had a role in the creation of the travertine dams.

His theory was proven by other researchers in the lab including Jie Xie and her colleagues from Southwest University in Chongqing, China, and Brad Geary at Brigham Young University in Provo, Utah, USA. When the fungi samples were examined under an electron microscope each filament had a crystal growing on it. When the fungi died, the crystals were left behind with a distinct hole in each one where the filament had been attached. Eventually the crystals fuse and build the travertine dams where the leaves pile up in the pools, a process that may date back about 126,000 years.

"The leaves hit the dam surface and the crystals begin to grow," Strobel said. "Because the crystals grow on the hyphae, it has to be the fungi that starts the crystallisation." Strobel co-authored a paper with Jie Xie and others on the topic was recently published in the January edition of [Microbial Ecology](#).

(Brett French, [Billings Gazette](#), 28 December 2016)

### Top-cited and downloaded articles in Annals of Applied Biology from 2016

Annals of Applied Biology is giving complimentary access to all their top-cited and downloaded articles from 2016 listed below.

Most cited:

- [Preconditioning treatment induces chilling tolerance in zucchini fruit improving different physiological mechanisms against cold injury](#). F. Carvajal, F. Palma, M. Jamilena *et al.*
- [Detection, identification and differentiation of Pectobacterium and Dickeya species causing potato blackleg and tuber soft rot: a review](#). R. Czajkowski, M. C.M. Perombelon, S. Jafra *et al.*
- [Investigation on 'bois noir' epidemiology in north-eastern Italian vineyards through a multidisciplinary approach](#). N. Mori, F. Quaglino, F. Tessari *et al.*
- [Hexaploid wheat \(Triticum aestivum\) root miRNome analysis in response to salt stress](#). H. Eren, M.Y. Pekmezci, S. Okay *et al.*
- [Rhizobacteria that produce auxins and contain 1-amino-cyclopropane-1-carboxylic acid deaminase decrease amino acid concentrations in the rhizosphere and improve growth and yield of well-watered and water-limited potato \(Solanum tuberosum\)](#). A.A. Belimov, I.C. Dodd, V.I. Safronova *et al.*

Most accessed:

- [Nitrogen losses from the soil/plant system: a review](#). K.C. Cameron, H.J. Di, J.L. Moir
- [Role of microRNAs in rice plant under salt stress](#). D. Mittal, N. Sharma, V. Sharma *et al.*
- [Innovations in air sampling to detect plant pathogens](#). J.S. West, R.B.E. Kimber
- [Epidemiological study of Cucumber green mottle mosaic virus in greenhouses enables reduction of disease damage in cucurbit production](#). V. Reingold, O. Lachman, E. Belausov *et al.*
- [Shoot tip culture and cryopreservation for eradication of Apple stem pitting virus \(ASPV\) and Apple stem grooving virus \(ASGV\) from apple rootstocks 'M9' and 'M26'](#). B.Q. Li, C.H. Feng, L.Y. Hu *et al.*
- [Food security: the challenge of increasing wheat yield and the importance of not compromising food safety](#). T. Curtis, N. G. Halford

### GM bananas to be trialled for Fusarium TR4 resistance in Australia

Australia's Office of the Gene Technology Regulator (OGTR) has issued a license to Queensland University of Technology, allowing the field trials of banana genetically modified (GM) for resistance to Fusarium wilt disease. The field trials (License Application DIR146) are allowed to take place at one site of up to 6 hectares in Litchfield Municipality, Northern Territory, for a period of 5 years. The purpose of the field trial is to evaluate the level of disease resistance and agronomic performance of the GM banana plants under Australian field conditions.

The final Risk Assessment and Risk Management Plan (RARMP) concludes that this limited and controlled release poses negligible risks to people and the environment and does not require specific risk treatment measures.

(Grahame Jackson, [Pestnet](#), 24 December 2016)

### Scientists identify the real monarch of the forest: fungus

"To a casual hiker, one bit of North American forest may seem like any other. But look more closely and a mysterious patchwork of diversity emerges. Some stands of forest are clearly dominated by a single kind of tree. Others are a diverse mix of species." [Read more](#).

(Ivan Semeniuk, The Global and Mail, 12 January 2017)

### How viruses hijack cell's machinery in bacteria

In a paper published in the [13 January 2017 issue of Science](#), researchers from the University of California, San Diego, USA conducted a series of experiments that allowed them to view in detail what happens inside bacterial cells as the invading

bacteriophages replicate.

Joe Pogliano and his colleagues found that shortly after bacteriophages infect bacteria, they destroy much of the existing architecture of the bacterial cells, including bacterial DNA, and then hijack the remaining cellular machinery. The viruses then reorganise the entire cell into an efficient, centralised factory to produce the next generation of viruses. "This factory and the surrounding arrangement of the infected cell are remarkably similar to the organisation seen in plant and animal cells," said Pogliano.

The pictures showed viral offspring being assembled around the nucleus-like compartment in the bacterium. Eventually, these new viruses burst the cell open and spread out to infect neighbouring cells.

Could this be how multicellular organisms evolved? One existing theory, called "viral eukaryogenesis," suggests that the first eukaryotic cell was created when a large virus took over a bacterium. Eventually, the bacterium and virus formed a compound cell, in which the virus evolved into the nucleus.

[Read more.](#)

(University of California - San Diego, ScienceDaily, 12 January 2017)

#### **Off-switch for CRISPR-Cas9 gene editing system discovered**

Researchers from the University of California, San Francisco, USA have discovered a way to switch off the widely used CRISPR-Cas9 gene-editing system using newly identified anti-CRISPR proteins that are produced by bacterial viruses. The technique has the potential to improve the safety and accuracy of CRISPR applications both in the clinic and for basic research.

The new study, published in [Cell](#) on 29 December 2016, was led by Benjamin Rauch, a post-doctoral researcher in the laboratory of Joseph Bondy-Denomy.

[Read more.](#)

(Nicholas Weiler, University of California San Francisco New Center, 29 December 2016)

#### **Frontiers for research on the ecology of plant-pathogenic bacteria**

A paper by Cindy E. Morris et al. titled "Frontiers for research on the ecology of plant-pathogenic bacteria: fundamentals for sustainability" was published in January 2017 by *Molecular Plant Pathology*. The abstract is as follows:-

Methods to ensure the health of crops owe their efficacy to the extent to which we understand the ecology and biology of environmental microorganisms and the conditions under which their interactions with plants lead to losses in crop quality or yield. However, in the pursuit of this knowledge, notions of the ecology of plant-pathogenic microorganisms have been reduced to a plant-centric and agro-centric focus. With increasing global change, i.e. changes that encompass not only climate, but also biodiversity, the geographical distribution of biomes, human demographic and socio-economic adaptations and land use, new plant health problems will emerge via a range of processes influenced by these changes. Hence, knowledge of the ecology of plant pathogens will play an increasingly important role in the anticipation and response to disease emergence. Here, we present our opinion on the major challenges facing the study of the ecology of plant-pathogenic bacteria. We argue that the discovery of markedly novel insights into the ecology of plant-pathogenic bacteria is most likely to happen within a framework of more extensive scales of space, time and biotic interactions than those that currently guide much of the research on these bacteria. This will set a context that is more propitious for the discovery of unsuspected drivers of the survival and diversification of plant-pathogenic bacteria and of the factors most critical for disease emergence, and will set the foundation for new approaches to the sustainable management of plant health. We describe the contextual background of, justification for and specific research questions with regard to the following challenges:

- Development of terminology to describe plant-bacterial relationships in terms of bacterial fitness.
- Definition of the full scope of the environments in which plant-pathogenic bacteria reside or survive.
- Delineation of pertinent phylogenetic contours of plant-pathogenic bacteria and naming of strains independent of their presumed life style.
- Assessment of how traits of plant-pathogenic bacteria evolve within the overall framework of their life history.
- Exploration of possible beneficial ecosystem services contributed to by plant-pathogenic bacteria.

[Read paper.](#)

#### **Molecular Plant Pathology - Editor in Chief Sought**

[Molecular Plant Pathology](#), the internationally esteemed scientific journal co-owned by the [British Society for Plant Pathology](#) and Wiley publishers, is seeking an Editor in Chief. The current Editor in Chief, Marty Dickman, is standing down at the end of his 5-year term in December 2017. Therefore applications are invited for the post of Editor in Chief of *Molecular Plant Pathology*, to commence on 1 January 2018. With a 2015 Impact Factor of 4.335, the journal publishes research and reviews on diseases caused by fungi, oomycetes, viruses, nematodes, bacteria, insects, parasitic plants and other organisms. The journal is dedicated to minimizing the time between submission, review and publication and to providing a high-quality forum for original research in molecular plant pathology.

Applications are due by 31st January 2017.

For more information [see here](#).

### **Second Edition of Compendium of Blueberry, Cranberry, and Lingonberry Diseases and Pests - new book**

Compendium of Blueberry, Cranberry, and Lingonberry Diseases and Pests, Second Edition. 2017. James J. Polashock, Frank L. Caruso, Anne L. Averill, and Annemiek C. Schilder (Eds). APS Press, 231 p.

The second edition of the Compendium of Blueberry, Cranberry, and Lingonberry Diseases and Pests is now available for commercial growing operations, nurseries, advisors, university staff, and diagnosticians. This new title helps users confidently scout, identify, and manage problems in the field before they become economically devastating, offering more than 400 images and the latest diagnostic and management information for nearly 150 diseases, pests, and disorders of blueberry, cranberry, and lingonberry plants.

The Compendium is organised into four major sections on:

- Infectious diseases, such as anthracnose fruit rot, bacterial canker, fairy ring, and leaf mottle virus
- Non-infectious disorders like cold injury, nutritional disorders, and oxygen deficiency
- Insect pests, such as aphids, blueberry blossom weevils, cranberry fruitworms, and leaf rollers
- Blueberry certification to facilitate complicity with blueberry plant certification standards and practices

This new edition also offers a useful glossary, plus an index of key terms and an appendix to help readers identify common names of diseases and the pathogens that cause them. A detailed description of this book can be found on [APS Press website](#).

### **Tarped citrus trucks will fight Asian Citrus Psyllids**

In the ongoing battle against Asian Citrus Psyllids (ACP), an insect that is known to vector the fatal Huanglongbing disease in citrus, the California Department of Food and Agriculture has issued a new regulation to require trucks to be tarped when moving citrus.

Fruit is not considered to be a vector of Huanglongbing since ACP can only vector the disease through leaves and twigs. However, these pests are catching rides on trucks all over the state on the fruit that was considered to be relatively safe. Fruit that is being transported from Bakersfield to Fresno could be taking these hitchhiking pests anywhere along Highway 99.

[Read more](#).

(Melissa Moe, California Agriculture Today, 9 January 2017)

### **Acknowledgements**

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