INTERNATIONAL NEWSLETTER ON PLANT PATHOLOGY

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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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Introducing the ISPP Executive 2018-2023

The ISPP is pleased to announce the appointment of the incoming ISPP Executive for 2018-2023.

The ISPP Executive 2018-2023 will consist of Prof. Jan E Leach (President), Dr. Khalid Makkouk (Vice President, responsible for ISPP Subject Matter Committees), Nathalie Poussereau (Vice President, representing the organising committee of ICPP2023), Prof. Brenda Wingfield (Secretary General), Zamir K. Punja (Treasurer), and Dr. Greg Johnson (Immediate Past President).

The handover to the incoming Executive's will occur on August 3 2018 during the closing ceremony of ICPP2018 in Boston USA.

ICPP 2018 workshop and field trip ideas deadline

Interested in planning a scientific workshop and/or a field trip in the historic Boston, Massachusetts area during the 11th International Congress of Plant Pathology (ICPP2018)? Workshops and field trips provide a great scientific value to those attending the Congress!

Workshops are usually half to full day in-depth sessions on a specific scientific topic with lots of interaction between the audience and presenter(s). Scientific field trips are half to full day excursions to area locations of scientific interest to plant pathologists allowing participants to experience first-hand the work/research that is occurring in that area.

Before a workshop or field trip can be approved for ICPP2018, please review the guidelines to insure success for the attendees, organisers, and ICPP. Proposals need to be submitted before 15 August 2017.

(ICPP 2018 committee)

Happy Birthday to Joseph P. Fulton - 100 years!

Joseph P. Fulton, retired professor and former head of the department of plant pathology for the University of Arkansas System Division of Agriculture, Fayetteville, and Fellow of the American Phytocpathological Society (APS), celebrated his 100th birthday on 14 July with family, colleagues and friends. We wish him a belated Happy Birthday and many more joyful years!

A short summary of Dr. Fulton's research career is available on the University of Arkansas page.

(University of Arkansas News, 17 July 2017)

10th International Workshop on Grapevine Trunk Diseases, 4-7 July 2017, Reims, France

The 10th International Workshop on Grapevine Trunk Diseases (10th IWGTD) was held at the Centre des Congrès, Reims, France during 4 to 7 July 2017. It was hosted by the University of Reims Champagne-Ardenne (URCA) and co-organised by the COST Action FA 1303 on behalf of the International Council on Grapevine Trunk Diseases (ICGTD). The workshop attracted 220 delegates from 29 countries. One hundred and fifty abstracts were delivered in oral presentations and posters.

Highlighted at the 10th IWGTD were the advances in grapevine trunk disease research since the last workshop in Adelaide, Australia in 2014, particularly in epidemiology of spore dispersal and host infection, potential disease resistance, practical disease management and economic justification for early adoption of preventative strategies. The workshop also emphasised the need for more research to address nursery propagation standards and to localise research in order to provide appropriate recommendations for our diverse industries. The fifth session focusing on disease management in nurseries and vineyards was the biggest session with a spotlight on the use of biocontrol agents. It also recognised the great benefit of international collaboration through the ICGTD in addressing the wide range of trunk pathogens and their associated diseases.

Attendees at the 10th International Workshop on Grapevine Trunk Diseases held at the Centre des Congrès, Reims, France during 4 to 7 July 2017.

A field tour was co-organised by the Interprofessional Committee on Champagne (Comité interprofessionnel du vin de Champagne; CIVC) to a champagne vineyard for the international audience. Four items were highlighted on the tour to the delegates; the first one presented the champagne area region, the second one focused on the "terroir", the third on the varietal creation and the last, on grapevine diseases especially on GTDs. After that there was a visit of the Mercier cellar with a champagne tasting.

Field tour to a champagne vineyard during the 10th International Workshop on Grapevine Trunk Diseases.

Abstracts from the 10th IWGTD proceedings will be published in Phytopathologia Meditteranea and will be made available at www.icgtd.org at the end of this year.

The 11th IWGTD will be held in Kelowna, British Colombia Canada in 2019.

(Prof. Florence Fontaine, Chair COST Action FA1303 Sustainable control of GTD)

International Year of Plant Health 2020

The 40th Session of the FAO Conference, the governing body of the Food and Agriculture Organization of the

United Nations, has approved on 5 July 2017 a resolution with the aim to declare the year 2020 as the International Year of Plant Health (IYPH 2020). The proposal for the IYPH 2020, which was initiated by Finland in 2015, received considerable support by numerous delegations.

The main objective of the IYPH will be to raise awareness of the importance and impacts of plant health in addressing issues of global importance, including hunger, poverty, food security, and threats to the environment and economic development. It aims at addressing new and emerging plant health challenges, including the impact of climate change, the significant increase in international trade, the rapid loss of biodiversity, and the new pest pathways such as e-commerce by developing more efficient national, regional and global policies, structures and mechanisms.

Several delegations stated that the IYPH 2020 is an indispensable tool to reach several of the UN Sustainable Development Goals. Especially the global objective to reach zero hunger was identified as being correlated to good plant health situations. But also the global economic development and poverty alleviation were thought to be positively influenced by plant health and its effects on safe international trade.

The approval by the FAO Conference does not present the final decision on the proclamation of IYPH 2020. The final decision on the proclamation will be undertaken by the United Nations General Assembly at its next meeting.

https://www.youtube.com/embed/_v0UXcmxYXI

(International Plant Protection Convention News, 11 July 2017)

American Phytopathological Society Annual Meeting, 5-9 August 2017

The American Phytopathological Society (APS) Annual Meeting is being held in San Antonio, Texas, US, early this month. The theme for the meeting is "changing landscapes of plant pathology." A number of influencers will highlight timely examples of those factors having a profound impact on the science and practice of plant pathology in their keynote presentations. The presentations include:

- Opening Session Keynote Speaker - Can Agriculture Save the Planet Before It Destroys It? Jack A. Bobo, Senior Vice President, Chief Communications Officer, Intrexo

- Monday Plenary Session - Changing Landscapes of Plant Pathology:
  - RNA-based Applications for Agricultural Productivity. Greg Heck, Science Strategy Operations Manager, Monsanto.
  - Global Movement, Local Consequences: Using Population Genomics to Understand the Changing Landscape of Plant Pathogens. Erica Goss, Assistant Professor, Plant Pathology and Emerging Pathogens Institute, University of Florida.
  - State-of-the-Art on Sensing Technologies for Plant Disease Detection. Lav Khot, Assistant Professor, Department of Biological Systems Engineering, IAREC, Washington State University.

- Wednesday General Session Speaker - Making the Science of Plant Pathology Work for You: What Now? What's Next? Jeff Hurt, Executive Vice President, Education & Engagement, Velvet Chainsaw Consulting.

More details on the plenary sessions and the program.

How soil dwelling bacteria adapt to richer or poorer conditions

Scientists have identified a unique mechanism that the soil dwelling bacterium *Pseudomonas fluorescens* uses to effectively exploit nutrients in the root environment. The breakthrough offers multiple new applications, according to the team of John Innes Centre scientists behind the discovery: for the study of human pathogens, for synthetic biology, and for the productions of biosensors which help detect biological changes in plants and their environment.

The team at the John Innes Centre, Norwich, showed how the "twin" transcriptional factors HexR and RccR can remodel central carbon metabolism in *P. fluorescens*, enabling the bacterium to adapt to its surroundings. The paper, titled "One ligand, two regulators and three binding sites: how KDPG controls primary carbon metabolism in *Pseudomonas*" is published in the Journal PLOS Genetics. The study provides a fundamental new insight into how bacteria tune their metabolic responses to available nutrients.

In particular, the RccR protein employs a unique and sophisticated two-way switch that enables it to simultaneously suppress and activate the expression of different genes. The study not only explains how *P. fluorescens* adapts its metabolism to exploit nutrients secreted by plant roots, but it also suggests medical applications.

Read more.

(Phys.org, 29 June 2017)

Biological control of plant diseases

A review paper by Philip O'Brien titled "Biological control of plant diseases" was published in July 2017 by Australasian Plant Pathology (vol. 46 pp. 293-304). The abstract is as follows:-

Biological control is the control of disease by the application of biological agents to a host animal or plant that prevents the development of disease by a pathogen. With regard to plant diseases the biocontrol agents are usually bacterial or fungal strains isolated from the endosphere or rhizosphere. Viruses can also be used as biocontrol agents and there is a resurgent interest in the use of bacterial viruses for control of plant diseases. The degree of disease suppression achieved with biological agents can be comparable to that achieved with chemicals. Our understanding of the ways in which biocontrol agents protect plants from disease has developed considerably in recent years with the application of genomics and genetic modification techniques. We have uncovered mechanisms by which biocontrol agents interact with the host plant and other members of the microbial community associated with the plant. Understanding these mechanisms is crucial to the isolation of effective biocontrol agents and the development of biocontrol strategies for plant diseases. This review looks at recent developments in our understanding of biocontrol agents for plant diseases and how they work.

Read paper.

Chatham House research on agriculture and food security

Chatham House, the Royal Institute of International Affairs, is an independent policy institute based in London, UK. Their mission is to help build a sustainably secure, prosperous and just world.

Their work on agriculture and food security includes research on the changing nature of farming and food production, and analysing risks in the supply chain. Current reports and papers can be downloaded from Chatham House website.

How Hawaii's $11m papaya industry was saved through genetic engineering

After growers in Hawaii were affected by the incurable virus called Papaya Ring Spot Virus (PRSV) the industry took a massive $11-million dollar hit. In 1992, Dennis Gonsalves, a plant pathologist at Cornell University who grew up in the region most acutely affected by the virus, came up with a wild idea to stop it. He wanted to vaccinate the papaya crop from the virus using genetic engineering. To do it, Gonsalves and two other scientists, including his wife Carol Gonsalves and David R. Lee, opened up the papaya genome and carefully inserted a gene from the ring spot virus into its genetic code.

After nearly a decade of work, Gonsalves and his team created a papaya plant that was genetically resistant to ring spot. The Gonsalves' crops blossomed across farms that had been decimated by the virus. Today, their fruit, which they named the Rainbow papaya, dominates Hawaii's papaya exports.

This wasn't the first time scientists tried to improve a fruit by tweaking its DNA - in 1994, the FDA approved the Flavr Savr brand of tomato, which scientists had genetically engineered to last longer by using a backwards copy of a ripening gene. But the Rainbow papaya represented the first time the technique was widely successful.

Yet instead of ending a storm, as the crop's name might suggest, the Rainbow papaya unleashed its own tempest.

Read more.

(Erin Brodwin, Business Insider Australia, 23 June 2017)

International advice on containing Panama disease in Australia

One of the world's leading tropical plant experts has stressed the importance of ongoing research into Panama disease, at the biennial Australian Banana Industry Congress in Sydney.

Professor Randy Ploetz initially worked on race 1 involving Gros Michel bananas, and first discovered the tropical race 4 (TR4) in the Cavendish variety in 1989 in South-East Asia. He noticed it quickly spread to other parts of the world and says it is one of the most serious diseases he has worked on.

"It's clear that TR4 has already killed more bananas, and had a larger economic than race 1 did on Gros Michel and that is saying a lot," Professor Ploetz said. "The Gros Michel outbreak was devastating for many economies in Central America, but through China and the Philippines now, this problem is really serious. More recently and scary to me is the popping up of TR4 around the world. Within the last five years TR4 has been found in several other locations at a great distance from South East Asia."

TR4 was discovered on a property in Tully, in North Queensland in early 2015. Professor Ploetz has praised the way the industry as a whole in Australia responded in isolating it and containing the potential spreading, but admits there are still a number of issues to be answered.

Read more.

(Matthew Russell, Fresh Plaza, 26 June 2017)

Raymond G. Grogan (1920 - 2016)

Raymond G. Grogan, retired professor of plant pathology at the University of California (UC), Davis, died on 30 July 2016 at his home in Santa Cruz, California, at the age of 96. Professor Grogan spent his entire career from 1948 to 1985 at UC Davis, where he served as the chair of his department from 1969 to 1974. He specialised in diseases of vegetable crops, such as beans, tomatoes, celery, and especially lettuce, working out in the fields of Salinas and Imperial Valleys and doing research in the lab to understand the causes of the problems seen (virus, bacteria, fungi, or non-biological factors) and to find methods to control their transmission. He found research "challenging and fun" like "solving a crossword puzzle in which the problem is not solved until all of the squares are filled."

He also taught advanced plant pathology courses and supervised 23 Ph.D. degree students. Two of his former students, now in their 70s, often visited him over the years. Clearly he made a lasting impact on those he mentored.

In 1987, the American Phytopathological Society (APS) presented Dr. Grogan with the Award of Distinction, which "formally recognises exceptional productivity in research, inspiring leadership, and effective application of plant pathology for the benefit of humanity." More recently, his colleagues and friends in the APS established the Raymond G. Grogan Student Travel Fund to further honour his contributions to research, teaching and service.

Dr. Grogan was born in Emma, Georgia, on July 22, 1920. He enjoyed reading throughout his life, focusing on topics related to his profession until he retired in 1985, but then expanding into history, biographies, politics, best-selling fiction, and even romance novels and mysteries for a while until a stroke seven years ago took away his ability to read. As for writing, he published extensively on his plant pathology research and served on the editorial boards of four professional journals, taking pride in his knowledge of grammar and sentence diagramming to edit unclear writing.

He was educated at the North Georgia College of Dahlonega and then at the University of Georgia at Athens, earning B.S. and M.Sc. degrees. Following three years in the Navy during WWII, he obtained a Ph.D. degree at the University of Wisconsin in 1948.

His family and friends found him to be honest, direct and supportive. He valued education but was no pedant, was moral but never prudish or sanctimonious. He stayed true to his beliefs even when it was uncomfortable, had solid common sense, and a wry sense of humour.

(The Davis Enterprise, 26 August 2016)

Michael G. Boosalis (1917 - 2017)

Michael G. Boosalis passed away on 4 July 2017 in Lincoln, Nebraska, US, aged 99 Of. Mike received his undergraduate degree and his PhD from the University of Minnesota.

In 1951, he moved to Lincoln where he taught and did research on plant diseases as a professor of plant pathology at the University of Nebraska and was the chairman of the Plant Pathology Department from 1964 to 1984. He retired in 1988, but continued to do research until the age of 97, as he truly loved his work.

(Omaha World-Herald, 6 July 2017)

How wheat lost the evolutionary battle against its deadly fungal nemesis

An international team of researchers have uncovered an important link to wheat blast which left unchecked could prove devastating to wheat. The paper is published in Science.

Historically, wheat across North America has not been susceptible to a recently emerged wheat blast. However, in 2011, a single diseased wheat head in a research plot at the University of Kentucky (UK) Research and Education Center in Princeton was discovered. Then, in 2016, a wheat blast epidemic swept through Bangladesh. This year, the disease has again hit Bangladesh and is also present in India, raising the concern that wheat blast may soon become pandemic. The sudden spread of the fungus has prompted intensive global efforts to understand the disease and to breed blast-resistant wheat.

Research in Farman's lab in the UK Department of Plant Pathology revealed that the Kentucky pathogen collected in 2011 is genetically distinct from South American wheat blast and instead is very closely related to strains found on annual ryegrass and tall fescue in the U.S. This suggested that the Princeton incident was not due to introduction of an exotic pathogen but had probably arisen via a 'host jump' from forage grasses to wheat. In contrast, his group found that the 2016 Bangladeshi epidemic very likely arose through the introduction of a South American strain of the fungus.

"Blast was first identified in Brazil in the 1980's and quickly spread to surrounding countries, including Argentina, Paraguay and Bolivia," said Farman. "Until recently, the disease remained restricted to South America."

Read more.

(Phys.org, 6 July 2017)

Ancestor wheat findings may benefit modern wheat

Understanding such traits in modern wheat as drought tolerance, heat tolerance, and resistance to various diseases and pests could result from research on a wild ancestor of wheat. An international team of researchers deciphered all 10 billion letters in the genetic code of wild emmer, an ancestor to wheat. Thanks to the discovery, scientists may compare the DNA of the ancestor wheat to modern wheat varieties. The results were published in the July 7 issue of Science magazine.

Allan K. Fritz research team has done a preliminary screening of wild emmer and found resistance to Wheat Streak Mosaic Virus (WSMV). Reports indicate the wild emmer also contains genes for resistance to fusarium head blight and strip rust.

Read more.

(Jeff Gelski, World Grain News, 11 July 2017)

Acknowledgements

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