ISPP INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

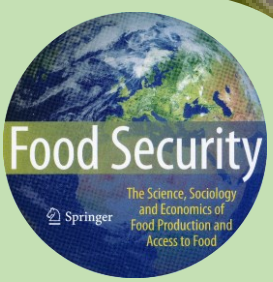
ISPP NEWSLETTER

ISSUE 52 (7) JULY 2022

Editor: Daniel Hüberli (**email**)

Join the ISPP **mail list**

IN THIS ISSUE:

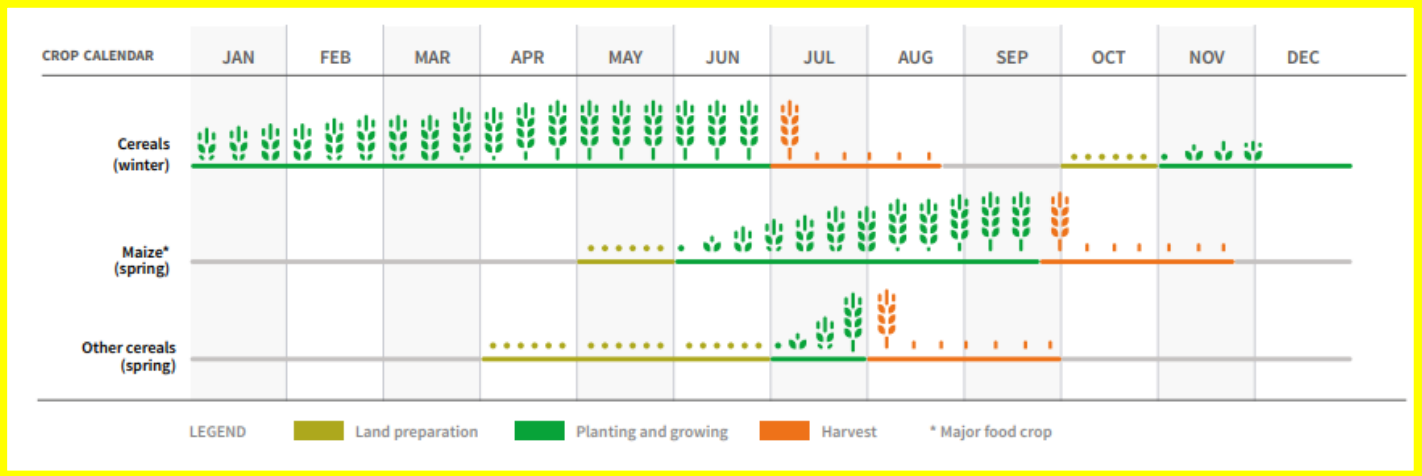


UKRAINE: IMPACT OF THE WAR ON AGRICULTURE AND FOOD

Food and Agriculture Organization of the United Nations

24 June marks four months–more than 120 days–of Russia's war on Ukraine. Millions of people across the country have been affected. Scroll down to the "bullet points" about the impact of the war on farming and food in Ukraine. We are all concerned about the appalling things that are happening there, so you may be interested in this aspect of ordinary life for people in Ukraine.

This Newsletter item collates information from the Food and Agriculture Organisation (FAO) of the United Nations organization. The FAO is headquartered in Rome.



Cropping cycles in Ukraine (from https://doi.org/10.4060/cc0289en)

KEY POINTS:

- FAO is deeply concerned about the food security situation in Ukraine.
- The war that began on 24 February 2022 is causing extensive damage and loss of life in key population centres, spreading across rural areas, and sparking massive displacement of people from their homes.
- As of 21 June, more than 5.2 million people had been forced to abandon their homes and flee across borders to safety. Millions more are internally displaced. The violence has escalated rapidly, and the conflict has killed thousands and dramatically affected, property, livelihoods, food security and nutrition.
- The war has resulted in a massive challenge to food security. It has significantly disrupted livelihoods during the agricultural growing and harvest seasons, by limiting access to farms and markets, and destroying homes, agricultural land, roads and other infrastructure.

- The immediate food security challenge is food access, not food availability. Ukraine had a very good harvest in 2021, so there are good stocks of the major crops. However, if the conflict spreads and continues, there will be increased stress on food security until food from the next harvest that has not been damaged or spoiled by the war becomes available in the summer. Harvest, storage and marketing are all being disrupted, grain quality affected and food supplies to the developing world will be severely curtailed.
- Grains: Ukraine's farmers planted 7 million hectares of wheat in September–October 2021, due to be harvested in July–August 2022. Winter crops (wheat and rye) for bread and bakery products are important for food security in Ukraine and elsewhere. It is estimated that 49 percent of wheat and 38 percent of rye to be harvested in July–August 2022 are in occupied or war-affected areas. In addition, large volumes of wheat and maize from the previous season stored in occupied territories were seized and transported away by the occupying forces (at least ~400k tonnes in addition to grain that has been burnt or destroyed).
- Sunflowers are predominantly grown in the southern and eastern oblasts – those hardest hit by the war. The conflict means that the normal scale of spring planting of sunflowers was not possible in at least nine oblasts. The area sown with sunflowers in 2022 may be 35 percent lower compared with 2021. This will affect global supplies of cooking oil and stock feed.
- Fruit and vegetables: The conflict severely disrupted fruit and vegetable production for tens of thousands of smallholder farmers due to lack of inputs, limited access to land and concerns over safety. Land preparation for vegetables – including potato, tomato, cucumber, carrot and onion which normally commences in late February through March was disrupted. Plus many small and large scale farmers were forbidden to transport market-ready products (fruits, berries, vegetables) to unoccupied regions and couldn't sell the products forcing them to be left to rot at the roadside.
- Key bottlenecks to the spring planting season, where it was possible, were military activity, fuel price and availability, inputs supply, transport and labour. Access to finance, availability of cash and loan repayments were also concerns.
- There were security risks associated with land preparation for spring planting. Sporadic fighting and indiscriminate attacks on roads and infrastructure hampered agricultural operations. Farmers risked being targeted (or were targeted) when operating large-scale agricultural machinery. There are numerous reports of unexploded shells and mines.
- A shortage of plant protection products has affected cereal yields.
- Action, availability of equipment, materials, technical and financial support and progress in relation to agricultural research including plant pathology are also seriously affected
- The Geneva Conventions are meant to regulate how wars are fought. They say that farms, markets, mills, water supplies and other things needed for food and water to be available for people must not be attacked. These "rules" have been respected in the Ukraine war.
- Action is needed to ensure support to the tens of thousands of smallholders who stayed to run their farms or were displaced.

Update by Greg Johnson using notes prepared by Dr Peter Scott, ISPP Past President and inaugural Chair of the ISPP Taskforce on Global Food Security, and information from the FAO 2022. Ukraine: DIEM – Data in Emergencies. Commercial farmer monitoring, 23 March 2014 - April 2022. Rome. https://doi.org/10.4060/cc0289en and https://reliefweb.int/sites/reliefweb.int/files/resources/cb9171en.pdf

For information on the ISPP Resilience Bursaries which are supporting displaced Ukrainian plant pathologists, see the April, May and June issues of the ISPP Newsletters or go to https://www.isppweb.org/PP_Resilience_Bursary.pdf.

INTRODUCING THE ISPP EXECUTIVE 2023-2028

Following nomination and election processes in January to June 2022, the ISPP is pleased to announce the appointment of the incoming ISPP Executive for 2023-2028.

The ISPP Executive 2023-2028 will consist of Prof. Yong-Hwan Lee from the Republic of Korea (President), Prof. Laura Mugnai from Italy (Vice President, responsible for ISPP Subject Matter Committees), Associate Prof. Andrew Geering from Australia (Vice President, representing the organising committee of ICPP2028), Prof. Teresa Coutinho from South Africa (Secretary General), Associate Prof. Mathews Paret from USA (Treasurer), and Prof. Jan E. Leach from USA (Immediate Past President).

The handover to the incoming Executive's will occur on 25 August 2023 during the closing ceremony of ICPP2023 in Lyon, France.


Yong-Hwan Lee


Laura Mugnai


Andrew Geering


Teresa Coutinho


Mathews Paret


Jan E Leach

FOLLOWING A FUNGUS FROM GENES TO TREE DISEASE: A JOURNEY IN SCIENCE

On a recent article in The Conversation, Brenda Wingfield, ISPP Secretary General, explains the value of sequencing the genome of plant pathogens. Brenda explains her scienfic journey in working with *Fusarium circinatum*. You can read the full article here.

YONG-HWAN LEE, ISPP PRESIDENT 2023-2028

The world population is projected to reach over 9 billion by 2050. Efforts to meet the anticipated global need for affordable, nutritious, and safe food face complex challenges, one of which is how to protect crop health without continuously incurring high economic, ecological, and environmental costs. FAO estimates that up to 40 percent of food crops are lost every year due to plant diseases and pests. New diseases, re-emerging diseases, and increasingly extreme weather events driven by climate changes pose more threats to stable food production. It is imperative that we continuously thrive to offer effective and sustainable strategies for protecting plant health by advancing our understanding of how diverse forms of plant-microbe and microbe-microbe interactions affect plant growth and health and translating this understanding to field deployable solutions. However, science is not sufficient for ensuring global food/nutrition security. The ongoing COVID-19 pandemic and worldwide conflicts exposed the fragility of globally-networked food production and distribution systems. Because sustainable crop production is a global challenge, we must engage, educate, and empower diverse global stakeholders, not just scientists, to meet the challenge.

The International Society for Plant Pathology (ISPP) has served as the global forum to address such needs by fostering knowledge sharing and collaboration among the member societies and scientists. I am very honored to be considered as a candidate for the ISPP President and welcome the opportunity to help strengthen and diversify the ISPP's role in global food security. As the ISPP President, I want to focus on the following in collaboration with membership societies: a) help strengthen/expand various international alliances formed via ISPP, b) raise the public's awareness of the importance of healthy plants in ensuring the global equality and sustainability, and c) empower and connect next generations of plant health professionals around the world so that they can effectively work together to protect food security and ecosystem sustainability.

LAURA MUGNAI, ISPP VICE PRESIDENT REPRESENTING SUBJECT MATTER COMMITTEES 2023-2028

I graduated in Forestry Sciences at the Faculty of Agricultural Sciences of the University of Florence and since 1983 have undertaken research in plant pathology in collaboration with researchers in the School of Agriculture, University of Florence as well as with other scientific Institutions, both from Italy and abroad. I have received CNR (National Research Council) study grants, including one for the Commonwealth Mycological Institute at Kew (UK). Since 1992, I have worked, first as a researcher, then as Associate Professor, and since 2019, as Full Professor in plant pathology at the School of Agriculture in Florence, running the courses of grapevine plant pathology but also other courses on diseases caused by fungal agents in fruit crops, in post-harvest plant pathology, and in tropical plant pathology.

I've conducted or collaborated in research on various aspects of plant pathology, first in forestry, where I focused on different aspects of taxonomy, as in the description of a new intersterility group of *Heterobasidion annnosum*, and later also in agricultural crops, characterising new pathogenic fungi and bacteria.

In the last twenty years I've given special attention to research related to sustainable control of diseases, in particular in the vineyard participating as Expert to the Network of Excellence "Endure" (European Network for the durable exploitation of crop protection strategies, 2007-2011, Grapevine Case Study), to the European Project PURE (IPM Solutions To Reduce Pesticides Reliance In Grapevine) and other EU projects more recently.

My research focuses on grapevine trunk diseases, and especially to esca complex disease of grapevine. On this subject, I've been an invited speaker presenting seminars and lectures in Italy and many other countries in all grape growing areas in the world, and I have the scientific and collaboration responsibilities in several national and international projects, including EU funded projects. I also coordinate the annual survey on wheat diseases in Tuscany and cooperate with OIV, EPPO and other international organisations.

I have been involved in running the activities of the Mediterranean Phytopathological Union (MPU) since 1994, and was the editor of the MPU Newsletter up to 1999. In 1999 I started to work in the editorial board of the international MPU journal Phytopathologia Mediterranea, first as Editorial Assistant and, after 2008, as Co-Editor in Chief, bringing it to the online edition and then to the open access format. In this period I have actively collaborated in the organisation of several MPU Congresses from 1997-2022. I was a cofounder and chairperson for 12 years of the International Council on Grapevine Trunk Diseases, and organised two workshops and co-organised several other workshops and meetings. For this same activity, I'm Chair of the ISPP Subject Matter Committee on "Grapevine trunk diseases".

As ISPP Vice President responsible for Subject Matter Committees, I will continue the priorities shared by my predecessors in this position, to both maintain and expand the activities of ISPP Subject Matter Committees and their involvement in planning specialist sessions and associated activities at the International Congress of Plant Pathology. I would like to try and reinforce the collaboration among the different SMCs so that they feel more strongly the link to the ISPP and they have a fruitful exchange of positive experiences also in between congresses. I will also contribute my experience and linkages with the MPU and scientific journal publishing to the ISPP Executive team.

AFRICAN SCIENTISTS LEAD THE CONTINENT'S GENE EDITING RESEARCH

MODESTA ABUGU AND DORIS WANGARI, ALLIANCE FOR SCIENCE, 23 JUNE 2022

Research using gene editing technology is being undertaken on the continent largely by African scientists to provide solutions for Africa, according to a panel of scientists and regulatory experts. Their work is drawing upon the efficiency and precision of gene editing to restore staples that African farmers prefer, like banana and sorghum, they said. The goal is to support food security and better incomes for farmers, especially in the face of climate change challenges.

The panel of scientists included Dr. Leena Tripathi, director of Eastern Africa for the International Institute for Tropical Agriculture; Prof. Steven Runo, associate professor at Kenyatta University in Nairobi, and Josphat Muchiri, deputy director technical services at Kenya National Biosafety Authority (NBA). They made their observations in a recent Alliance For Science Live webinar, in which they noted that gene editing can improve Kenya's food security.

"Gene editing is valuable in addressing problems associated with plant diseases and climate resiliency in Africa," Tripathi said. "We are using this tool to develop disease-resistant banana varieties, focusing on banana bacterial wilt, fusarium wilt and banana streak virus. Banana is an a very important staple food crop in East Africa, and in many countries like Uganda banana consumption is much more than any cereal crop. However, the crop faces numerous production constraints particularly many pathogens and pests, which often co-exist, worsening the problem of crop loss.'

Unfortunately, traditional plant breeding technologies have not been effective in solving these challenges because the process takes a long time. But with gene editing, scientists can make small, targeted changes in the banana genome to make it resistant to diseases — without altering the appearance or taste.

Growing disease-resistant banana varieties would mitigate the negative impacts of plant diseases and pests on banana production, improving farmers' income and enhancing food security, she noted.

Runo, a botanist fascinated with plants, initially had no idea he would be conducting gene editing research or working on sorghum. However, his passion for solving Kenya's agricultural problems led him to obtain his PhD in plant genetics and molecular biology. He eventually moved into applying gene editing to combat the striga weed in sorghum. Striga, also known as witchweed, is a notorious weed that threatens several cereal crops including maize, sorghum and rice. Runo's collaborative research focuses on conferring resistance to this parasitic weed by editing the low germination stimulant 1 (LGS1) gene in sorghum. This will potentially increase yield and nutrition for millions of people in Africa, he said.

Muchiri, speaking on the regulatory status of gene-edited products, assured participants that these products are safe for human and the environment. "As the National Biosafety Authority, we have set up a regulatory framework to monitor this technology as it advances," he explained. "The Kenyan regulatory framework is transparent and offers the researchers an opportunity to engage with NBA, the early consultation process, where we determine whether the technology will be regulated or not based on presence of foreign DNA."

This webinar was moderated by Doris Wangari, a biotechnology regulatory expert in Kenya.

View recording of webinar.

BANGLADESHI-INDONESIAN PARTNERSHIP SHOULD PROVIDE DISEASE-RESISTANT GMO POTATOES

JOHN AGABA, ALLIANCE FOR SCIENCE, 21 JUNE 2022

Researchers will be testing genetically modified potatoes in Bangladesh and Indonesia this year in hopes of providing farmers with an alternative to spraying fungicides. Multiple confined field trials of GM late blight-resistant (LBR) potatoes will be conducted in both countries under a Feed the Future Global Biotech Potato Partnership.

A close-up of a potato ruined by late blight disease (Photo credit: Alliance for Science).

Potatoes are some of the most important crops grown in Indonesia and Bangladesh. Indonesia produces about 1.3 million metric tones of potatoes annually, while the tubers are the third most important food crop after rice and wheat in Bangladesh. But late blight disease is a serious problem in both countries, destroying 25 to 57 percent of the crop.

Unlike other diseases, late blight caused by *Phytophthora infestans* can be complicated to control once it has appeared and farmers can actually see it, said Janet Fierro, communication and advocacy global resource lead at the Feed the Future Global Biotech Potato Partnership. So, farmers begin to spray fungicides very early in the cropping cycle to stop the pathogen from appearing. In some cases, farmers in Indonesia spray between 20 and 30 times during the growing season, which can last 75 to 160 days.

But this can be expensive for smallholder farmers, Fierro said. The synthetic chemicals applied also can adversely affect human and environmental health if not used properly. However, the GM potato promises to change all that. It is expected to reduce fungicide applications by 90 percent.

PARTNERSHIP PROGRESS

Under a partnership funded by the United States Agency for International Development, Michigan State University (MSU), the Bangladesh Agricultural Research Institute (BARI) and the Indonesian Center for Agricultural Biotechnology Genetic Resources Research and Development, among others, are working to develop and commercialise an LBR potato in farmer-preferred varieties in Indonesia and Bangladesh.

Researchers in the partnership isolated late blight-resistant genes from wild potato species in South America and transferred them into farmer-preferred Asian varieties, using genetic modification. Then researchers at Simplot Plant Sciences screened more than 30,000 potato varieties until they zeroed in on the 10 best performing lines. Simplot sent the 10 selected lines to MSU for further greenhouse and field trials, which identified lines that were then imported into Indonesia and Bangladesh.

Indonesia has already conducted several field trials with the lines and Bangladesh recently completed a greenhouse trial. Results have shown the lines provide complete resistance to late blight disease.

Scientists in Bangladesh and Indonesia will now test LBR potato in multiple confined field trials to collect the necessary data to submit a regulatory dossier for general release. Researchers have already applied for permits in Bangladesh to start the multiple confined field trials and hope to plant the varieties during the next planting season in November. "It's a lengthy process," Fierro said. "So, we will probably go through at least two or three cycles of multi-location field trials before we test the varieties in farmer fields."

FARMERS EAGER

Farmers should begin to access the varieties in the next three to four years, pending regulatory approval, she said. The researchers do not expect delays related to biosafety regulations once the varieties have gone through all the required processes.

"Both Indonesia and Bangladesh have functioning regulatory systems," Koch said. "And Indonesia has already approved growing GM cotton and GM sugar cane while Bangladesh has approved planting of insect resistant eggplant [Bt brinjal]. So, there is precedent that things are working."

"Farmers are familiar with the idea of improved seeds because they have seen the successes of Bt eggplant," Koch said. "The performance of Bt eggplant has showed them that they can actually spend less on inputs and harvest more when they plant these improved seeds."

"We have also had studies that show how Bt eggplant has improved farmers' lives in Bangladesh and how it is safe," Koch added. "All of this has driven the demand for adoption of these technologies."

Fierro said farmers she visited in Indonesia and Bangladesh are "very excited about this potato. They have seen what the potato looks like and can do. They are excited about the opportunity and potential this potato can give them."

It appears the potential is huge. Apart from stabilising crop yields, the late blight-resistant potato will significantly cut reliance on fungicides. "Farmers will not have to spend money on fungicides that could be harmful to their health and environment," said Fierro. "We expect that these improved late blight resistant varieties will reduce reliance on fungicide sprays by up to 90 percent."

MAJORITY OF FARMERS WILLING TO PAY FOR PLANT HEALTH ADVICE, NEW RESEARCH SHOWS

CABI NEWS, 20 JUNE 2022

The majority of farmers surveyed in Bangladesh, Rwanda and Zambia are willing to pay for visits to CABI-led Plantwise plant clinics which help diagnose potentially devastating crop pests and diseases as well as ways to mitigate impacts on yields. An international team of experts led by Adewale Ogunmodede, Junior Agricultural Economist based at CABI's centre in Egham, UK, found that 64% of farmers surveyed are willing to pay for advice to help increase their yields and livelihoods.

Women attend a plant clinic in Bangladesh to receive advice on how to tackle crop pests and diseases (Photo credit: CABI).

The researchers, which also include those from CABI's centre in Switzerland, Cranfield University, UK, the University of Ibadan and Olabisi Onabanjo University, both in Nigeria, learnt that farmers are willing to pay 0.27USD, 0.85USD and 2.225USD per visit respectively. Data was obtained from 602, 637 and 837 households between 2018 and 2019 in Bangladesh, Rwanda and Zambia. Farmers who had previously visited a plant clinic were surveyed and focal pests were fruit fly on pumpkin in Bangladesh and fall armyworm (Spodoptera frugiperda) on maize in Rwanda and Zambia.

The researchers, whose research is published in the International Journal of Agricultural Sustainability, also learnt that only a few farmers – ranging from around 1% in Rwanda to 16% in Zambia – were not willing to contribute financially towards the sustainability of the plant clinics.

The plant clinic extension approach is part of the global Plantwise programme managed by CABI and supports smallholder farmers by providing face-to-face crop pest diagnosis and management advice to farmers. The first plant clinic was opened in Bolivia in 2003 before spreading to 35 developing countries where around 5,000 plant clinics have been established to provide free pest diagnostic and advisory services. There are currently 30 plant clinics and over 200 plant doctors in Bangladesh, 66 plant clinics in Rwanda staffed by 350 plant doctors and 121 plant clinics and 350 plant doctors in Zambia.

"These findings imply that farmers value the services provided by plant clinics and are inclined to contribute financially towards their sustainability. It would be helpful to pilot fee-paying plant clinic services to gauge farmers' actual willingness to pay. "Our findings also suggest that, in some contexts, more educated and wealthier farmers, as well as members of farmer associations, could be targeted to pay the actual per-user cost of maintaining plant clinic services."

The scientists also suggest that poor and older households could be permitted to pay subsidised fees in order not to be excluded from fee-based plant clinic services.

Dr Justice Tambo, co-author and Socio-Economist at CABI's centre in Switzerland, said, "Future research would be worthwhile to explore the farmers' most preferred payment methods, thereby encouraging more farmers to participate in the payment system. "For example, Cartmell has reported that in Latin America, the sustainability of plant clinics is achievable through payment of levies to farmer associations that offer plant clinic services."

The researchers conclude that their willingness to pay estimates only cover the costs of running plant clinics already established. They suggest that funding commitments from national or local implementing organizations would be needed to cover the expenses associated with establishing the plant clinics.

This includes plant clinic staff training, data management, and the purchasing of clinic equipment, such as portable microscopes or hand lens tablets, and tents.

One approach, the scientists say, to cover the initial set-up costs and contribute towards the sustainability of plant clinics, would be to integrate this extension model into national or local government agricultural policies or extension strategies.

HOW INVADING PATHOGENS SWITCH OFF PLANT CELLS' DEFENSES

UNIVERSITÄT TÜBINGEN PRESS RELEASE, 31 MAY 2022

Many disease-causing bacteria are able to inhibit the defense mechanisms in plants and thus escape dissolution by the plant cell, a process known as xenophagy. Animal and human cells have a similar mechanism whereby the cell's defenses 'eat' invading bacteria – yet some bacteria can inhibit the process. An international research team has now described the inhibition of xenophagy in plants for the first time. The team is headed by Professor Suayb Üstün from the Center for Plant Molecular Biology at the University of Tübingen and the Ruhr-Universität Bochum. The study has been published in *The EMBO Journal*.

Cells must constantly adapt the proteins inside them to changing functions and to influences from their surroundings. "Constant protein degradation is unavoidable, otherwise the cell becomes cramped and runs out of material," explains Suayb Üstün, whose working group studies these strictly regulated degradation processes. When the cell has to degrade large protein complexes, insoluble aggregates or entire organelles, it usually uses a process known as autophagy, literally 'eating itself.' "Animal and human cells also sometimes use this method of degradation when they want to eliminate invaders such as pathogenic bacteria. In this case, the process is also called xenophagy – eating the stranger," says the scientist.

But the arms race between host and pathogen does not end there. Some bacteria have developed proteins that block the autophagy machinery directed at them. This gives them an advantage and they can spread further. "This state of research has been known for several years in human cells. With plants, we haven't got that far yet. There is an important difference between autophagy in plant and animal cells – in plants, pathogenic bacteria do not penetrate the cells. They stay in the extracellular space," says Üstün. This is the case, for example, with the bacterium Xanthomonas, which causes wilting and rotting of leaves, stems and fruits in a whole range of plants and also affects tobacco, the model plant studied by the research team.

"Xanthomonas bacteria introduce an effector into the plant cells. We found that this suppresses an important component of the autophagy machinery. This allows Xanthomonas to spread further," Üstün explains. "However, the plant in turn produces a protein that degrades the effector by autophagy." This is the first evidence of antimicrobial xenophagy in plant-bacteria interactions," he says. Üstün adds that "an interesting aspect of this is that the proteins involved, such as the Xanthomonas effector and the components of the autophagy machinery, are very similar in humans and plants, although they are attacked by different bacterial pathogens." Biologists observe that some proteins have been strongly conserved in very different organisms over the course of evolution.

The new study provides important pointers for further basic research on autophagy and xenophagy in plants. In the long term, these processes could help prevent crop diseases.

SUCCESS AND FAILURE OF INVASIVE RACES OF PLANT PATHOGENS

A paper by Tiphaine Vidal *et al.* titled "Success and failure of invasive races of plant pathogens: The case of *Puccinia striiformis* f. sp. *tritici* in France" was published on 3 May 2022 by *Plant Pathology* (early view). The abstract is as follows:-

Invasions of new races can have contrasting consequences on populations of *Puccinia striiformis* f. sp. *tritici*, causing yellow rust of wheat. For example, the emergence of PstS7 (Warrior race) had major impacts in Europe and in France. By contrast, PstS2 had no impact in France, while it significantly affected other parts of the world. The objective of this study was to better understand factors that govern the success of an invasive race, taking the contrasting history of PstS7 and PstS2 in France as a case study. We compared these two races for three key factors driving invasive potential: (a) virulence against local cultivars, (b) aggressiveness in local environmental conditions, and (c) competitiveness against local races. During the period when PstS2 was detected, 70% of the grown wheat area was protected against this race by at least one known Yr resistance gene. By contrast, we found that only 15% of the wheat area had a low risk of infection by PstS7. In planta competition experiments suggested a higher competitiveness of PstS7 against local isolates compared to PstS2 in optimal thermal conditions. In silico experiments, based on thermal performance curves, suggested a high competitiveness of PstS7 considering infection efficiency. PstS2 was extremely competitive against local races in all considered environments (20 French sites × 15 years) due to its short latency period. Our findings highlight the importance of considering adaptation to environmental conditions, particularly temperature, in addition to virulence spectrum, in order to understand the evolutionary trajectories of emerging strains in pathogen populations.

Read paper.

CBSD-RESISTANT CASSAVA VARIETIES RELEASED BY CENTRAL AFRICA BREEDING PROGRAM

MICHÈLE KIMPWENE, INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE NEWS, 1 JULY 2022

The USAID-funded Action to Control Cassava Brown Streak Disease (CBSD) in the Democratic Republic of Congo (DRC) hosted the ceremony to nominate newly released cassava varieties. They were selected using end users' preferences, particularly resistance to CBSD, in a participatory variety selection (PVS) approach, completed by a sensory test. The naming ceremony took place in the Ruzizi Plain, South Kivu Province, DRC.

Participants holding up some of the selected cassava varieties (Photo credit: IITA).

The PVS comprised a collection of some of the best-improved varieties released earlier in DRC, and promising clones in advanced breeding trials were screened over three years in a CBSD's hotspot site of the Ruzizi Plain. From a total of 30 genotypes in the first year, eight clones were subjected to a final evaluation along with check varieties comprising two improved (a resistant variety 'NAROCASS 1' and a susceptible variety 'OBAMA') and a popular local variety (Dorotea). Unfortunately, all the improved varieties succumbed to CBSD for leaf and root necrosis. From the field evaluation, five clones, free from CBSD roots symptoms at harvesting, were selected by farmers. The data confirmed that the five clones outperformed the checks with the agronomic data collected. Among these five clones, two were chosen for leaf quality as vegetables because of their light red petiole, indicating that they would require less oil to cook.

In addition, the roots of each evaluated variety were processed either as chikwangue or flour to prepare fufu—the main market product of cassava in DRC. Consumers assessed prepared foods during the sensory test, from where four clones were rated as the best among the five previously selected in the fields. These four clones showed good quality of paste and chikwangue and were proposed for release.

IITA Cassava Breeder Sikirou Mouritala said, "The serial MVZ of these released varieties are triple resistant to major diseases like CMD, cassava root necrosis disease (CRND), and CBSD in DRC. It is the beginning of a new era in the DRC breeding program. The next step is to have our varieties in large farmer fields all over DRC to establish a good seed system sector and show more of IITA's impact on food security in DRC." He continued, "Work is in progress with the Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures with the NextGen project to develop immune varieties for CBSD disease and resistant cultivars suitable for cultivation in DRC. While intensive efforts are focused on preventing the westward migration of CBSD with the IITA Tanzania team."

CURRENT VACANCIES

Cooperative Extension Advisor for vegetable crops at the University of California, Agriculture and Natural Resources

The University of California, Agriculture and Natural Resources (UC ANR), a statewide program with local development and delivery, is seeking a UC Cooperative Extension (UCCE) Advisor for vegetable crops. The Vegetable Crops Advisor will implement an innovative and effective extension education and applied research program to address issues related to sustainability, resiliency, innovation, and profitability of vegetable production in the target counties. This position will be headquartered in the CE Yolo County Office, and the geographic area includes Yolo, Solano and Sacramento counties (known as the Capital Corridor Multi-County Partnership).

A minimum of a Master's degree in horticulture, plant physiology, crop science, agronomy or related field is required at the time of appointment. Vegetable crop experience and a demonstrated understanding of soil science, nutrient and pest management, and irrigation are desirable. More info in the PDF.

If interested in this position, please visit: https://recruit.ucanr.edu/ and choose "applicants" (refer to position #22-41). To assure full consideration, application packets must be received by 25 July 2022. Contact Tatiana Avoce tavoce@ucanr.edu with questions.

ASST. PROFESSOR OF C.E. IN Nursery, Greenhouse & native crop PATHOLOGY in the Dept of Plant Pathology, UC Davis

The Dept. of Plant Pathology is seeking applications for an Asst Professor of Cooperative Extension. Full time, career-track faculty position. The successful candidate will conduct original applied research resulting in information that can be used towards managing diseases of nursery & greenhouse plants including native plants for ecological restoration, ornamentals, vegetable transplants, & hemp/cannabis. As a member of the UCANR, the candidate will be expected to develop an extension and outreach program that extends information to stakeholders. Mentoring of grad students & performance of depart & university service is expected.

Ph.D. degree in Plant Pathology required. Successful candidate must have a record that documents research as evidenced by pubs in peer-reviewed journals. Postdoctoral experience desirable but not required. More info in the PDF.

Submit at https://apptrkr.com/3134238 by 31 August 2022. Inquiries directed to Dr. Eskalen, Search Committee Chair, aeskalen@ucdavis.edu; 530-752-0304.

ACKNOWLEDGEMENTS

Thanks to Grahame Jackson, Greg Johnson, Jan Leach, Yong-Hwan Lee, Laura Mugnai, Peter Scott, and Alex Shevchenko for contributions.

COMING EVENTS

12th International Workshop on Grapevine Trunk Diseases (ICGTD12)
11 July - 15 July, 2022
Mikulov, Czech Republic
Website: ucanr.edu/sites/ICGTD/Workshops_559/

11th Australasian Soilborne Diseases Symposium
1 August - 5 August, 2022
Cairns, Queensland, Australia
Website: asds2022.w.yrd.currinda.com

APS Plant Health 2022
6 August - 10 August, 2022
Pittsburgh, Pennsylvania, USA
Website: www.apsnet.org/meetings/annual/PH2022

Annual Oomycete Molecular Genetics Meeting
22 August - 25 August, 2022
Mendel University, Brno, Czech Republic
Website: omgn.org/

16th International Cereal Rusts and Powdery Mildews Conference
31 August - 2 September, 2022
University of Cambridge, UK
Website: www.niab.com/international-cereal-rusts-and-powdery-mildews-conference-2022

BSPP2022 – Microbial lifestyles: from symbionts to pathogens
5 September - 7 September, 2022
Newcastle University, UK
Website: www.bspp.org.uk/conferences/bspp2022/

International Phytobiomes Conference 2022
13 September - 15 September, 2022
Denver, Colorado, USA
Website: phytobiomesconference.org

1st International Plant Health Conference
21 September - 23 September, 2022
London, UK
Website: www.ippc.int/en/news/press-release-the-first-international-plant-health-conference/

8th International Cereal Nematodes Symposium
26 September - 29 September, 2022
Abant, Turkey
Website: www.cimmyt.org/events/8th-international-cereal-nematodes-symposium-icns/

13th Arab Congress of Plant Protection
16 October - 21 October, 2022
Le Royal Hotel, Hammamat, Tunisia
Contact: Dr. Asma Jajar, Chairperson of Organising Committee info@acpp-aspp.com
Website: acpp-aspp.com

13th International Congress on Plant Biotechnology and Agriculture
12 June - 16 June, 2023
Cayo Guillermo, Cuba
Website: bioveg.bioplantas.cu

12th International Congress of Plant Pathology (ICPP2023)
20 August - 25 August, 2023
Lyon, France
Website: www.icpp2023.org

XX International Plant Protection Congress
1 July - 5 July, 2024
Athens, Greece
Website: www.ippcathens2024.gr

9th ISHS International Postharvest Symposium
11 November – 15 November, 2024
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2024

12th INTERNATIONAL CONGRESS ON PLANT PATHOLOGY

ICPP 2023

ONE HEALTH
for all plants, crops and trees

LYON

20-25 August, France

ISPP INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

www.icpp2023.org

SFP Société Française de Phytopathologie

The International Society for Plant Pathology & the French Phytopathological Society

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

WWW.ISPPWEB.ORG

The ISPP List is an e-mail list server which broadcasts messages and announcements to its subscribers. Its goal is to facilitate communication among members of the International Society for Plant Pathology and its Associated Societies. Advertised vacancies in plant pathology and ISPP Newsletter alerts are also sent to members of the ISPP List.

In accordance with the guidelines and recommendations established by the new EU General Data Protection Regulation 679/2016 (GDPR), the International Society for Plant Pathology has created a Privacy Information Notice containing all the information you need to know about how we collect, use and protect your personal data.

This policy explains when and why we collect personal information about our users, how we use it, the conditions under which we may disclose it to third parties, how we keep it safe and secure and your rights and choices in relation to your personal information.

Should you need further information please contact business.manager@isppweb.org

SUBSCRIBE OUR NEWSLETTER