



# **2022 UIUC PLANT SCIENCE SYMPOSIUM**

University of Illinois  
Urbana-Champaign

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## **Innovations Connecting Complex Biosystems**

From Cells to Ecosystems

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**September 16<sup>th</sup>, 2022**

**8:30AM - 4:45PM CST**

**Venue: Funk Agricultural, Consumer, and Environmental Sciences Library**

**Speaker Presentation Room: Monsanto Multimedia Studio**

**Student Poster Session Room: Heritage Room**



# OPENING ADDRESS

## ABOUT THE 2022 UIUC PLANT SCIENCE SYMPOSIUM

We warmly welcome you to the 2022 UIUC Plant Science Symposium, which is a part of the Corteva Agriscience Plant Sciences Symposium Series. This year's symposium theme is Innovations Connecting Complex Biosystems: From Cells to Ecosystems. This symposium intends to explore the deep connections in biosystems and bring scientists to discuss it from top to bottom. Today's symposium includes several speakers with backgrounds in academia, government, and private sectors. These speakers will provide insight into how connecting different types of biological and ecological data can be utilized in pest management, plant breeding and genetics, and even outer space! We hope to stimulate a discussion on how integrating different types of biological and ecological data can address the most pressing issues in agriculture and plant biology.

We thank our presenters for accepting the invitations to present their research, our donors for their donations, and Corteva Agriscience for sponsoring this symposium with the University of Illinois Urbana-Champaign.

## ABOUT THE CORTEVA AGRISCIENCE PLANT SCIENCES SYMPOSIA SERIES

Originally the DuPont Pioneer Plant Science Symposia series, the Corteva Agriscience Plant Science Symposia series is a global network of student-organized and student-driven scientific symposia hosted by leading academic and research institutions around the world. The series began as a single event in 2008 at the University of Minnesota, supported by Pioneer Hi-Bred, and later DuPont Pioneer. Corteva Agriscience currently supports more than 40 events each year around the world. These symposia provide opportunities for the next generation of scientists to explore their interests in the plant sciences. Since 2008, more than 120 events have been hosted by over 50 institutions, representing 14 countries and six continents.



# SCHEDULE

|                                      |                   |
|--------------------------------------|-------------------|
| Opening remarks                      | 8:30AM - 8:50AM   |
| Dr. Catherine Fueillet               | 8:50AM - 9:40AM   |
| Dr. Bob Schmitz                      | 9:40AM - 10:30AM  |
| Break                                | 10:30AM - 10:50AM |
| Dr. Anna-Lisa Paul                   | 10:50AM - 11:40AM |
| Dr. Edward Buckler (Keynote Speaker) | 11:40AM - 12:30PM |
| Lunch Break / Poster Session         | 12:30PM - 1:40PM  |
| Graduate Student Talks               | 1:40PM - 2:30PM   |
| Break                                | 2:30PM - 2:50PM   |
| Dr. Glen Raines                      | 2:50PM - 3:40PM   |
| Dr. Alencar Xavier (Corteva Speaker) | 3:40PM - 4:30PM   |
| Closing Remarks                      | 4:30PM - 4:45PM   |
| After Symposium Social               | Starts at 6:30PM  |

# SPEAKERS

## Dr. Catherine Feuillet

Enhancing the sustainability of the food system through SEEDDesign™



Catherine Feuillet is the Chief Scientific Officer at Inari, leading projects to unlock the full potential of seeds and help build a more sustainable food system. Combining A.I.-powered predictive design and multiplex gene editing into its SEEDdesign™ technology platform, Inari is engineering plants complex systems to dramatically increase yield and reduce water and fertilizer needs.

Prior to Inari, Catherine led Trait Research at Bayer for 5 years, after 20 years of research on wheat genetics and genomics in academic institutes in France and Switzerland. She has coordinated large national and international projects and cochaired the International Wheat Genome Sequencing Consortium. For her achievement in wheat research, Catherine received the “Prix Foulon” from the French Academy of Sciences in 2009, the Legion of Honour in 2010, was elected a Fellow of the AAAS in 2011, and received the “Prix J. Dufrenoy” from the French Academy of Agriculture in 2012. Catherine published more than 120 scientific papers.



## Dr. Bob Schmitz

### Deciphering the cis-regulatory logic of plant genomes at single cell resolution

Bob Schmitz earned his B.Sc. in Molecular & Cellular Biology from the University of Arizona and his Ph.D. in Genetics from the University of Wisconsin-Madison. Postdoctoral training was performed at the Salk Institute in plant epigenomics. In 2013, Bob joined the Genetics Department at the University of Georgia where his lab is studying plant genome biology including the role of epialleles and cis-regulatory DNA elements in producing natural phenotypic variation. Longstanding interests include understanding the molecular basis for epiallele formation and defining and using epigenetic clocks. Additionally, his lab is innovating methods to identify and characterize the location and function of cis-regulatory DNA elements in crop genomes. Most recently, his laboratory is using single cell biology to define cell-type-specific transcript and cis-regulatory DNA elements and to develop cell-based assays to screen for trans-factors important to cell-type specification and responses to the environment.

## Dr. Anna-Lisa Paul

### The role of plants in exploration habitats and the impact of novel environments

Dr. Anna-Lisa Paul is a Professor at the University of Florida and the Director of UF's Interdisciplinary Center for Biotechnology Research. Paul's research is focused on plant gene expression in *Arabidopsis thaliana* in novel environments, with emphasis on spaceflight, extraterrestrial materials, and planetary analogs.



She has been active in the spaceflight research community for over 25 years. In that time she has launched 11 orbital experiments, taken her science to extreme terrestrial environments as planetary analogs, and used suborbital vehicles to explore the effect of the transition to space on the molecular processes of plants. Paul has served as the President of the American Society for Gravitational and Space Research, and is a Fellow of ASGSR. In 2019 she received the NASA Medal of Honor for Exceptional Scientific Achievement. Paul's fundamental belief is that humans are explorers, and when we leave Earth's orbit, plants will help us make the journey.



## Dr. Edward S. Buckler

### Tackling agriculture's contribution to climate change by learning from genomic diversity

Edward S. Buckler is a USDA-ARS Research Geneticist and adjunct professor in Plant Breeding and Genetics at Cornell University with an educational background in molecular evolution and archaeology. His group's research uses genomic, computational, and field approaches to dissect complex traits and accelerate breeding in maize, sorghum, cassava, and a wide range of other crops. With these technologies applied to over 2000 species, now the Buckler group focuses on exploring ways to re-engineer global agricultural production systems to ensure food security, improve nutrition, and respond to climate change. With the USDA-ARS, he leads an informatics and genomics platform to help accelerate breeding for specialty crops and animals. His contributions to quantitative genetics and genomics were recognized with election to the US National Academy of Sciences and as recipient of the inaugural NAS Food and Agriculture Award.

## Dr. Glen Rains

### Directing Technology to Sustainable Precision Management

Glen received a Bachelor of Science in Agricultural Engineering from the University of Georgia in 1987 and a MS and PhD in Agricultural Engineering from Virginia Tech in 1989 and 1992. Upon graduation, Dr. Rains worked on automobile safety focusing on driver and passenger airbag testing and evaluation for 6 years in Washington, DC and Marysville, OH. Dr. Rains then became a faculty member with the University of Georgia Tifton Campus working in precision agriculture and farm safety in 1998. He currently has programs in chemical ecology, agricultural and forestry sensors, and intelligent and configurable robotic ground vehicles. Dr. Rains focuses on management and technological solutions for small to mid-sized farmers. He is a Professor, Professional Engineer and Certified Aerial Analyst with the National Aerial Applicators Association (NAAA). He is also the co-director of the Agrability in Georgia project which provides assistance to farmers with disabilities.





## Dr. Alencar Xavier

### Leveraging correlated information under multivariate settings

Alencar got his PhD at Purdue University in Soybean Breeding and Statistical Genetics. Alencar works at Corteva Agrisciences since 2016 as a quantitative geneticist and breeding analyst; and since 2017 he is an adjunct professor at Purdue University. His research focus on computational quantitative genetics (mixed models, Bayesian methods and machine learning) and on integrating GxE, genomics, environmental information in plant breeding.

# SPONSORS



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# THE 2022 UIUC PLANT SCIENCES SYMPOSIUM PLANNING COMMITTEE



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# ACKNOWLEDGEMENTS

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The background of the image is a wide, green agricultural field with rows of crops stretching into the distance under a clear, pale blue sky.

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