Fifth Biennial Plant Breeding Symposium

NC State University, Talley Student Union
Thursday, February 6, 2020
A lunch will be served. The symposium is followed by a reception.

Speakers

Interrogating and manipulating the potato genome

Robin Buell, Ph.D., MSU Foundation Professor, Michigan State University

VIEW PRESENTATION

Dr. C. Robin Buell received her Ph.D. from Utah State University in 1992 and was a postdoctoral fellow in the DOE Plant Research Laboratory at Michigan State University, followed by a USDA and then a NIH postdoctoral fellowship at the Carnegie Institution of Washington, Department of Plant Biology in Stanford, CA. In 1997, she accepted a position as an Assistant Professor in the Department of Biological Sciences at Louisiana State University. In 1999, she joined the faculty at The Institute for Genomic Research (TIGR) in Rockville, MD where she remained until 2007 when she joined the Department of Plant Biology at MSU. Her research is focused on the genome biology of plants and plant pathogens, including comparative genomics, bioinformatics, and computational biology. Her research involves crop plants (corn, rice, potato, sweetpotato), biofuels (switchgrass), and medicinal/herbal plants (periwinkle, mints, nightshade, ginseng, Camptotheca) while her work with plant pathogens has focused primarily on bacteria and oomycetes. She was a central member of the consortium that generated the rice genome sequence, a crop that feeds 50% of the world's population every day, and developed a public database for rice researchers that receives over two million visits each year from scientists across the world. From her work on medicinal plants, she developed and maintains the Medicinal Plant Genomics Resource that has enabled discoveries in natural product biosynthesis. Currently, she maintains Spud DB, a database focused on potato genomic datasets, and the Maize Genome Resource for gene expression mining in maize. She has received funding from NSF, USDA, DOE, NIH, and the Bill & Melinda Gates Foundation and published over 200 papers. Dr. Buell has an active research group composed of postdoctoral research fellows, research assistants, graduate students, undergraduate students and high school interns and collaborates with scientists across the United States and throughout the world. She has served as an editor at Plant Physiology, the Plant Genome, Crop Science, Frontiers in Plant Genetics and Genomics, and Plant Cell. She has served as an advisor to several large plant genome research consortia and the National Academy of Sciences Committee on Genetically Engineered Crops. She is a fellow of the American Association for the Advancement for Science and the American Society of Plant Biologists.

Design of breeding programs using genomics
Jack Dekkers, Ph.D., Professor, Iowa State University

Jack grew up in the Netherlands and received B.Sc. and M.Sc. degrees in animal science from the Wageningen Agricultural University and a Ph.D. in dairy science with a focus on animal breeding and genetics from the University of Wisconsin. From 1989 to 1997 he was on faculty at the University of Guelph, working closely with the Canadian industry on genetic improvement of dairy cattle. He moved to Iowa State University in 1997, where he currently is a C.F. Curtiss Distinguished Professor and Leader of the Animal Breeding and Genetics group. Current research focuses on the genetic basis and improvement of feed efficiency and health in pigs and poultry and on the integration of quantitative and molecular genetics and genomics in animal breeding programs. Jack was the recipient of the J.L. Lush and Rockefeller Prentice Awards in Animal Breeding from the American Dairy Science Association and the American Society of Animal Science in 2004 and 2007.

Creating a cover crop breeding network
Chris Reburg-Horton, Ph.D., Professor, NC State University

VIEW PRESENTATION

Chris is a Professor at North Carolina State University Department of Crop and Soil Sciences. He was raised in Fairview, a small mountain community in western North Carolina. He obtained his B.S. from the University of North Carolina, his M.S. from the University of California at Davis in Agronomy and his PhD from North Carolina State University. As an agronomist with both research and extension responsibilities, he develops recommendations for organic production of corn, soybeans and wheat. His past works include the development of reduced tillage methods for organic crops, breeding cover crops for the southern region, and greenhouse gas emissions from organic and conventional farming systems. He is past-Chair of the Organic Community with the American Society of Agronomy, state coordinator for the SARE professional development program, Past-Chair of the Southern Cover Crop Council, and serves as the Assistant Director of Research at the Center for Environmental Farming Systems in Goldsboro, N.C. His most recent work seeks to put better cover crop tools in the hand of farmers. Working with USDA breeders in hairy vetch, crimson clover, and winter peas, Chris is developing regionally adapted cover crop varieties better suited to farmer needs. His work also includes breeding allopathic cereal rye as a cover crop. As new breeding lines are developed, they will be tested on farms so that farmers can advise the researchers on which lines they prefer. In other current cover crop research, Chris works on over 40 private farms in the Eastern United States, using newly engineered soil moisture sensors to model the effects of cover crops on the surface and deep soil water availability. With his extensive research in cover crops, he is collaborating on the development of a web-based decision support tool that will provide specific information to farmers like cover crop seeding rate, economics, and nutrient and water management.

Short Cover Crop Research
Chris is a Professor at North Carolina State University. His current research seeks to put better cover crop tools in the hand of farmers. Working with USDA breeders in hairy vetch, crimson clover, and winter peas, Chris is developing regionally adapted cover crop varieties better suited to farmer needs. His work also includes breeding allopathic cereal rye as a cover crop. In other cover crop research, Chris works on over 40 private farms in the Eastern United States, using newly engineered soil moisture sensors to model the effects of cover crops on the surface and deep soil water availability. With his extensive research in cover crops, he is collaborating on the development of a web-based decision support tool that will provide specific information to farmers like cover crop seeding rate, economics, and nutrient and water management. On a tour of Chris's cover crop research, you can see breeding work currently being done on NC State research stations in cereal rye for allopathic properties against weeds, and legume cover crop species- hairy vetch, crimson clover, and winter peas, as well as soil moisture sensors under cover crops grown prior to corn on private farms.

Closing the Gap Between Genes and Gender in Plant Breeding

Hale Ann Tufan, Ph.D., International Programs, Cornell University

VIEW PRESENTATION

Hale completed her Ph.D. at the John Innes Centre and worked for CIMMYT, University of East Anglia School of International Development. Her current work focuses on building gender-responsive agricultural research systems, as principle investigator of the Gender Responsive Researchers Equipped for Agricultural Transformation project, as well as leading participatory breeding and gender research work with the NextGen Cassava project.

Please direct symposium questions or concerns to Sydney Graham: segraha3@ncsu.edu or Dr Carlos Iglesias.

Hosted by the North Carolina State University Plant Breeding Club,
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