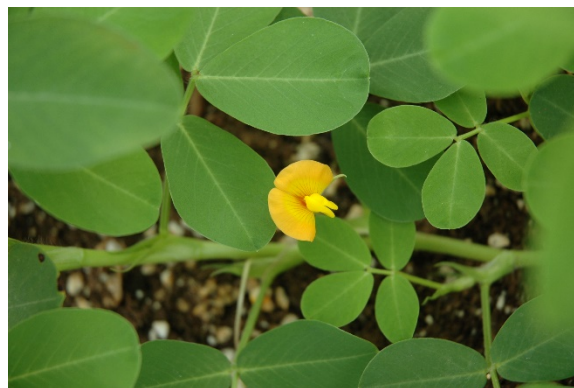


# 2016 IPBGG Highlights



Institute of Plant Breeding,  
Genetics and Genomics  
College of Agricultural & Environmental Sciences  
UNIVERSITY OF GEORGIA

Plant Breeding, Genetics & Genomics maintains its relevance as a key component of UGA's [Signature Research Theme](#) of Safeguarding and Sustaining Our World, wherein we continue to train the next generation of plant breeders and raise our national and international profile through productivity in research and cultivar/germplasm releases. In 2016, these releases have included ornamental grasses, bermudagrass and white clover forages, wheat, pecan, peanut, soybean, and even citrus. To keep track of the licensing of these and earlier approved releases as well as pre-release testing of experimental lines, follow the [Innovation Gateway Highlights](#) published monthly from the UGA Office of Research and the crops listing at the [Georgia Seed Development Commission](#). Some of the more attractive and appetizing are shown below for their visual appeal, recognizing that the agronomic staples are foundational.



The impact of our cultivar releases is nationally recognized. The University of Georgia was "ranked as the most efficient in the nation at capitalizing on faculty research," largely due to peanuts according to [STAT News](#). This success stems from foresight in developing a "[Systems Approach](#)" to facilitate commercialization of plant materials from which a significant portion of returns are invested to support a broad spectrum of breeding programs.

Faculty participation in the Institute continues to grow with the addition of [Dr. Mohamed Mergoum](#), small grains breeder, continuing the program of Jerry Johnson. Mohamed comes to UGA from North Dakota



State University where he led the spring wheat breeding program. At UGA, Mohamed will apply novel genetic and genomic technologies to develop wheat, rye, and other small grain cultivars for the southeastern US with resistance to biotic and abiotic stresses while maintaining essential grain and straw quality traits.

## Student Updates

Six students graduated in 2016:

- ✔ Mary Campbell, MS (Li), *Improvement of southern stem canker inoculation methods and collection and characterization of D. asphalathi isolates*. Mary has accepted a position as assistant breeder of onion and garlic with [Olam SVI](#) in Hanford, CA.
- ✔ Josh Clevenger, PhD (Ozias-Akins), *Development of Genomics Resources for Arachis hypogaea and Profiling the Genetic Regulation of Pre-harvest Aflatoxin Resistance*. Josh was awarded a USDA-NIFA Postdoctoral Fellowship to continue his computational genomics research in peanut and is located in Scott Jackson's group in Athens.
- ✔ Ruyue Ding, MS (Missaoui), *Manipulating Summer Dormancy to Improve Forage Yield and Seasonal Distribution of Tall Fescue*.
- ✔ Doug Eudy, PhD (Devos), *Genetic Control of Salt Tolerance Traits in Seashore Paspalum (Paspalum vaginatum Sw.)*. Doug is working at Monsanto as a Genome Systems Breeder.
- ✔ Zhitong Li, MS (Ruter), *Polyploidy Induction and Tissue Culture Techniques in Hibiscus moscheutos*.
- ✔ Maria Ortega, PhD (Parrott), *Cloning and Using a QTL for Insect Resistance in Soybean*. Maria remains at UGA as a Postdoctoral Associate in CJ Tsai's lab.

Our student numbers increased from 30 in Fall 2015 to 35 in Fall 2016 with 11 new students matriculating during the calendar year. These include:

- ✔ Winnie Gimode, PhD (McGregor)
- ✔ Matt Johnson, PhD (Wallace)
- ✔ Chandler Maddox, MS (Ozias-Akins)
- ✔ Louis Miles, MS (Raymer & Parrott)

- ✔ Lucky Paudel, MS (McGregor)
- ✔ Liz Prenger, MS (Li)
- ✔ Alexis Ramos, MS (van der Knaap)
- ✔ Conner Ryan, MS (Zhang)
- ✔ Suraj Sapkota, PhD (Mergoum)
- ✔ Shreya Shanbhag, MS (Chee)
- ✔ Amanda Webb, MS (Schwartz)

Our students continue to demonstrate excellence through their achievements, awards, and recognitions.

Clint Steketee received the Glenn and Helen Burton Feeding the Hungry Scholarship and the National Council of Commercial Plant Breeders Graduate Student Award for 2016.



Zhitong Li received 3<sup>rd</sup> place in the MS competition at the Annual Research Conference of the Southern Nursery Association.

Josh Clevenger took first place in the Joe Sugg graduate student competition at the Annual American Peanut Research and Education Society Annual Meeting.





Students also received well-deserved recognitions from within UGA. PBGG was well represented in The Plant Center Retreat Poster Awards. Nathan Taitano took first place and Jacob Hoyle co-third place in the Graduate Student category and Josh Clevenger, second place in the Postdoc category. Clint Steketee received a DuPont Pioneer Plant Science Symposium grant which will be used to co-sponsor the [2017 Plant Center Symposium](#). Institute travel awards partially supported 13 graduate students and 6 postdocs to present at a variety of scientific meetings including Plant and Animal Genome, American Peanut Research and Education Society, American Society for Horticultural Science, National Association of Plant Breeders, and the Soybean SOY2016 Conference.



The debut of a new internal grants program supported by the Cultivar Development Research Program resulted in the award of two Graduate Student Innovation in Plant Breeding grants to Ben Stewart-Brown and Clint Steketee. Projects funded were “Utilization of genomic selection to improve the rate of genetic gain of yield in soybean” and “Novel phenotyping to discover germplasm and genes for genetic improvement of drought tolerance in soybean,” respectively. The success rate was very high for this first round of funding, so don’t miss the opportunity to submit should another call be issued.

Students are gaining leadership experience as officers in the PBGG Graduate Student Association. New officers elected in 2016 who will serve until May 2017 are (L to R):



- ✔ Plant Center rep -Timothy Chappell
- ✔ President - Nathan Taitano
- ✔ Vice President - Luellen Swayzer
- ✔ GSA Delegate - Leigh Ann Fall
- ✔ Plant Sale Organizer - Alexis Ramos
- ✔ Journal Club Chair - Silas Childs
- ✔ Secretary/Treasurer - Carolina Chavarro
- ✔ Webmaster – Brian Nadon (not pictured)

Ben Stewart-Brown had served as the Graduate Student Representative to the Plant Center Advisory Group and helped to organize the 2016 Plant Center Symposium. Students, led by Nathan Taitano, also took the lead to organize and invite speakers for Fall seminars. Our guest speakers included:

- ✔ Rex Bernardo, Professor and Endowed Chair in Corn Breeding and Genetics, University of Minnesota, *I Think I Can, I Think I Can: Doubling Genetic Gains for Plant Quantitative Traits with CRISPR and Genome-Wide Markers?* 
- ✔ Anatolii Karelov, a 2016 Norman E. Borlaug International Agricultural Sciences and Technology Fellow from the Institute of Plant Protection, National Academy of Agrarian Sciences of Ukraine, Kyev, and visiting with Mohamed Mergoum, gave a presentation entitled, *Modern Biological Science in Ukraine: Achievements and Challenges*
- ✔ Zhanao Deng, Professor, Environmental Horticulture and Floriculture Breeding, University of Florida, spoke on *Improving Ornamental Plants in the Genomic Era*. 

And to top-off student opportunities, three new courses were designed by Jason Wallace:

- ✔ CRSS (PBGG) 8010 – Research Design, offered fall of even years
- ✔ PBGG (CRSS) (HORT) (P BIO) 8874 – Genomic Selection, offered spring of odd years
- ✔ PBGG (CRSS) (HORT) (P BIO) 8875 – Genome Wide Association in Plants, offered spring of odd years

## Faculty and Staff Kudos

- ✔ Scott Jackson received the Graduate School's Diversity Award
- ✔ Wayne Parrott the DW Brooks Award for Excellence in Global Programs
- ✔ Peter Lafayette received the CAES Technical Staff Award of Excellence

Be sure to keep us informed of any awards, internal or external, so that the excellence of our faculty, staff and students can be recognized among peers and stakeholders.

## Retreat

Our signature event rotated to Athens this year and was held at the State Botanical Garden with over 80 people in attendance.



Light rain did not deter participation in the scavenger hunt team-building activity organized by Susan Hawkins and Ben Stewart-Brown since

potted plants, as prizes for winners, provided some incentive.

Invited speakers included Thomas Lubberstedt (ISU), Eric Stockinger (OSU), and Jeff Bennetzen (UGA) who left us with plenty to ponder on haploid induction in breeding, specialty barley breeding, and genetics of the west-African native crop, fonio millet.



IPBGG Faculty who joined in 2015 also introduced us to their research on tomato (Esther van der Knaap), genomic selection (Jason Wallace), and plant genetic resources (Melanie Harrison).



The Botanical Garden conservatory provided a pleasant venue for our banquet and plenary talk by Ted Crosbie, former Monsanto VP, Global Breeding Lead, and Iowa's Chief Technology Officer. We were fortunate that Ted made time in his busy schedule to share his "Life Lessons in Leadership," but sadly passed soon afterwards.





The retreat provides time for a student professional development session which this year was organized by Clint Steketee and Josh Clevenger. Brittany Williams from the UGA Career Center and Ian Biggs, Commercialization Advisor for UGA, presented on professional opportunities at the interface of research and commercialization, a topic that rarely is addressed in formal graduate training.



Students also presented their research in a poster session which generated lively discussion, well documented by photographers Lauren Lail and Silas Childs!

Organizing the retreat is a group effort, but the success largely is due to the professional planning and logistical support provided by our Admin. Manager, Deborah Franco. Thanks!

Follow the institute at our [website](http://www.plantbreeding.uga.edu), [plantbreeding.uga.edu](http://plantbreeding.uga.edu), and on [facebook](#), [twitter](#), and [YouTube](#).



Cecilia McGregor, coordinator of the poster session, presented the following awards, each with a cash prize in addition to the award certificate:

- 🌱 1<sup>st</sup> Place PhD – Josh Clevenger
- 🌱 2<sup>nd</sup> Place PhD – Carolina Chavarro
- 🌱 1<sup>st</sup> Place MS – Evan McCoy
- 🌱 2<sup>nd</sup> Place MS – Leigh Ann Fall
- 🌱 1<sup>st</sup> Place Postdoc/Staff – Ed McAssey



As we grow in faculty and student numbers along with recognition as a premier program for education in plant breeding, we strive to even better fulfil our mission “to train graduate students, conduct research, and develop improved crop cultivars through the integration of classical and modern genetic technologies.” Communication among ourselves and with stakeholders is vital to inspire new ideas. These highlights are just a few of the ways we encourage communication.

Contact us at [pbgg@uga.edu](mailto:pbgg@uga.edu)  
 Deborah Franco, Administrative Manager  
 Peggy Ozias-Akins, Director  
 Scott Jackson, Graduate Coordinator  
 Steering Committee:  
 Peng Chee, Zenglu Li, Carol Robacker

