



# Plant Breeding & Plant Genetics

UNIVERSITY OF WISCONSIN-MADISON

December 2020 Newsletter

As we approach the end of this extraordinary year, it just seemed like the perfect time to reflect with appreciation on the many accomplishments and acknowledge the efforts of the Plant Breeding and Plant Genetics (PBPG) program community and its members in 2020. The challenges faced this year are indisputable, including a global pandemic, numerous demonstrations of systemic racism towards people of color and a contentious presidential election in the US. At the same time, 2020 has also brought the first all-female team of Nobel Peace Prize recipients in Chemistry for work near and dear to breeders' and geneticists' hearts (<https://www.nobelprize.org/prizes/chemistry/2020/summary/>), and as I write this letter, the first truck carrying a COVID-19 vaccine left the manufacturer's facility in Michigan on its way to be used on healthcare workers around the US, only eleven months after vaccine development was started. Such an impressive demonstration of the impact of science for the good of humanity. Amidst all of these events, on a personal note, 2020 has been a year for evaluation, reprioritization, acquired resiliency, but most of all, gratitude. I feel very fortunate to be part of the University of Wisconsin and in particular, the PBPG program. There is a lot to be thankful for and proud of, so let me share with you a tidbit of that.

The PBPG program continues to be among the most relevant graduate training programs in the US in terms of number of graduate students, diversity of training and impact. Our program currently has 47 graduate students and 34 faculty across nine departments. Six graduate students completed their graduate degree in 2020 (page 5). At the same time, the program has welcomed six new graduate students this Fall (page 6). Our graduates continue to occupy relevant positions in industry, academia and governmental positions impacting agricultural research and development in North America and around the world.

In 2020, the PBPG program welcomed two outstanding new faculty to our program. Dr. Shelby Ellison is a faculty trainer in the department of Horticulture and her research program focuses on the preservation, exploitation and utilization of genetic diversity in alternative crops, such as hemp. Dr. Jake Brunkard is a faculty trainer in the department of Genetics, and his group studies the regulation of plant metabolism using functional genomic, genetic and molecular biology techniques in diverse plant species, including maize, the Solanaceae family (especially tomato, potato, and Nicotiana), and Arabidopsis. Three of our bright faculty members, Dr. Lucia Gutierrez from the department of Agronomy and Dr. Julie Dawson and Dr. Jeff Endelman from the department of Horticulture, were promoted to associate professor with tenure this year (page 3). Page 4 of this newsletter also highlights numerous outstanding recognitions received by faculty, and graduate students from our program.



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This year has also been one of deep evaluation and consideration for members of our program. The tragic deaths of Ahmaud Arbery, Breonna Taylor and George Floyd, among others, have prompted the PBPG community to come together in solidarity and to look for ways to bring awareness and disseminate behaviors that eliminate racism and promote social justice. The program, in connection with our main training departments, has supported activities to discuss and address these long-term issues. Faculty and students from our program are active members on campus and on college-level committees and other groups working on addressing these issues and supporting relevant members of our campus community. We are also supporting professional training opportunities for our graduate students that include racial and cultural awareness as a required component of the training of well-rounded future professionals. There is a long road ahead, but we are working hard at it and will continue these discussions and activities in the months and years to come.

COVID or not, most Fridays at 3:30PM during the Fall and Spring semesters is the time when the program comes together (virtually since March) for our traditional PBPG Friday student seminar to hear from our own graduate students about their planned projects, current research advancements and other general topics of interest. Thanks to the support of alumni and industry partners, in 2020 our program welcomed several outside speakers. If you are interested in being included on our seminar list, please connect with Caitlin Collies, our amazing PBPG graduate student coordinator, at [caitlin.collies@wisc.edu](mailto:caitlin.collies@wisc.edu).

We hope you stay engaged with the advanced research, innovative teaching and graduate training, and novel community building we are doing in PBPG, as well as catch up on what our outstanding alumni are doing. We plan to continue to regularly reach out to all of you through this newsletter. In addition, you are welcome to follow us @UW\_PBPG on Twitter and @uwmadisonagro on Instagram.

In closing, I would like to emphasize that many of the activities and aspects of the student training that we do within PBPG could not be done without the continued support of our alumni, emeritus faculty, staff and other friends. We are extremely grateful to each and every one of you for your many contributions.

May you and yours have a peaceful and happy new year!

Stay safe,

Natalia de Leon  
Plant Breeding and Plant Genetics Program Chair





## Congrats To Our Faculty That Earned Tenure This Year!

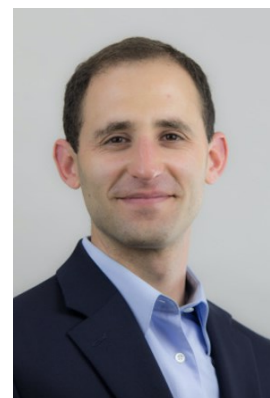
Julie Dawson



Lucia Gutierrez



Jeff Endelman



## Plant and Animal Genome Conference 2020

Over 3,000 genetic scientists and researchers engaged in 200+ workshops at the Plant and Animal Genome (PAG) XXVIII Conference in San Diego, CA January 11-15, 2020. Plant Breeding and Plant Genetics graduate students (L to R) **Raegan Hoefler, Lily Hislop, Bridget McFarland, Madeline Olberg, Kevin Coe, and Zachary Keyser** presented posters of their research at PAG.

**Bridget McFarland** also gave a presentation during the Big Data workshop about “Data Resources and Implementation for the Genomes to Fields (G2F) Initiative.” The G2F initiative is a multi-institutional, public collaborative to develop information and tools that support the translation of maize genomic information into relevant phenotypes for the benefit of growers, consumers and society. Bridget talked about the processes of standardizing data collection, quality control, and distribution that takes place between the 40 PIs involved with G2F.



## Student Profile: Lily Hislop

**Lily Hislop** is a current graduate student studying sweet corn under Professor Bill Tracy. Lily’s research objectives focus on furthering the scientific knowledge about sweet corn, its history and genetics, and creating genetic material for future breeders. To date Lily has identified 46 genetically resistant lines to Sugar Cane Mosaic Virus and distributed that information to breeders. Additionally, Lily is developing a perennial sweet corn. Preliminary crosses have been made and Lily will be selecting from the second round of crosses in March 2020 with the help of collaborators at the University of Hawai’i.



## Recent Awards

In 2019, three PBPG faculty; **Jeffrey Endelman**, **Shelley Jansky**, and **Paul Bethke** were awarded \$3.0 million through the USDA-NIFA Specialty Crop Research Initiative for the project “A New Paradigm for Potato Breeding Based on True Seed.” An additional \$3.0 million will be contributed to the project by seven public institutions (UW-Madison, UMN, MSU, USDA-ARS, Cornell, OSU, UMaine), PepsiCo, and Potatoes USA. At present, potato cultivars are autotetraploid clones, which are difficult to distribute and genetically improve. The ultimate goal of the project is to develop diploid, inbred lines that will enable the creation of F1 hybrid varieties as botanical (“true”) seed.

In early 2020, **Paul Bethke** was awarded Researcher of the Year by the Wisconsin Potato & Vegetable Growers Association (WPVGA) .

Emeritus faculty **Jerry Kermicle** was named the 2020 recipient of the R. Emerson Lifetime Maize Genetics Award for his more than 50 years of contributions to the field of Maize Genetics.

**Natalia de Leon** and **Molly Jahn** were named Crop Science Society Fellows by the CSSA.

**Kathryn Michel**, research assistant with Shawn Kaeppler and Natalia de Leon, has received the 2020-21 D.C. Smith Wisconsin Distinguished Graduate Fellowship, the 2020 UW Outstanding Agronomy Graduate Student Award, and was named a Borlaug Graduate Scholar. Kathryn deploys cutting-edge analytical tools to characterize the genetic architecture of maize yield components in multiparent and diverse populations across environments.

**Lily Hislop**, research assistant with Bill Tracy, was awarded the O.N. Allen Agronomy Graduate Scholarship.

**Raegan Hoefler**, research assistant with Lucia Gutierrez, received the Elwood & Lydia Brickbauer Research Scholarship.

**Jean-Michel Ané** was recognized with a 2020 Postdoc Mentoring Award for outstanding mentorship of postdoctoral trainees on campus.

**Bill Tracy** was selected as a 2020 American Association for the Advancement of Science (AAAS) Fellow

<https://news.wisc.edu/2020-aaas-fellows-at-uw-madison-apply-scholarship-to-science-policy/>



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## Recent Graduates

**Olivia Steinmetz (MS '19)**

**Mike White (PhD '19)**

**Lorraine Rodriguez Bonilla (PhD '19)**

**Adam Bolton (PhD '19)**

**Marian Bolton (PhD '19)**

**Megan McCaghey (PhD '19)**

**Hari Poudel (PhD '19)**

**Wesley Gartner (MS '19)**

**Jared Zystro (PhD '19)**

**Calli Anibas (MS '20)**

**Pablo Gonzalez Barrios (PhD '20)**

**Maria Caraza-Harter (PhD '20)**

**Derek Hunsaker (MS '20)**

**Gunay Yildiz (MS '20)**

**Kevin Coe (PhD '20)**

## Summer Field Season

The summer field season looked a little different in 2020 due to the global pandemic. Our vital research was able to continue with some updated safety protocols. All students and faculty were required to wear masks while indoors and practice social distancing while in the field or labs.



Field Corn Crew during pollination break July 2020



Group meeting during COVID, outdoors and 6 feet apart

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## PBPG Recruitment Event

Every year the program brings prospective students to campus for faculty interviews, seminars, and tours of campus and our research facilities. This year we hosted 11 students from the U.S. and abroad. Prospective students were able to interact with faculty and current graduate students from several departments over the two day event.



## Plant Sciences Graduate Student Council

The Plant Sciences Graduate Student Council (PSGSC) was founded in 2000 to foster enhanced communication and promote more social interaction among the graduate students of PBPG, Horticulture, Agronomy, Plant Pathology, Botany, and Agroecology.



<b>President</b> Lily Hislop	<b>Agronomy Rep</b> Lexie Baker	<b>Congratulations to your 2020 PSGSC Officer Team!</b>
<b>Vice President</b> Kevser Ozel	<b>Botany Rep</b> Steven Augustine	
<b>Treasurer</b> Carl Branch	<b>Horticulture Rep</b> Erin Lalor	
<b>Journal Club Chair</b> Jenyne Loarca	<b>PBPG Rep</b> Chandler Meyer	
<b>Agroecology Rep</b> Korede Olugbenle	<b>Plant Pathology Rep</b> Austin Hall	

## Thank You To Our Supporters!

Your support provides funding for research and student development within the program.

If you would like to give back to the Plant Breeding & Plant Genetics program, please go to <https://www.supportuw.org/giveto/pbpg> or contact the UW Foundation at <https://www.supportuw.org/contact-us/>

## Alumni

We want to hear from our alumni! Send any alumni updates including current positions, awards, research, publications, etc. to [caitlin.collies@wisc.edu](mailto:caitlin.collies@wisc.edu)

## Follow Along On Social Media



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