Plant Breeding & Plant Genetics
UNIVERSITY OF WISCONSIN-MADISON

May 2022 Newsletter

Letter from the Chair

Another academic year has come to an end, and it is always bittersweet. As we bid farewell to the class of 2022 and some of the languor of the reduced student population on our campus becomes more obvious, we also see with renewed hope how this new crop of Badgers finds their place in the world and stand committed to leave their mark wherever they go. There is no better feeling than that. And this spirit of constant change and evolution is the theme of the semester that is coming to an end for the Plant Breeding and Plant Genetics (PBPG) program, our college and campus as well. We had a full semester of in-person teaching and, after a one-year hiatus, our program went back to an in-person graduate student recruitment event, which happened at the end of January. The event was a great success, and we are excited to welcome the next group of nine graduate students that will join our program this summer and fall. On March 1, Dane county lifted its mask requirement and the change in people's working habits has continue to evolve ever since as we re-adjust to life in this new-and-forever-changing normal. We were also very fortunate to have two PBPG special seminars this semester, Dr. Madzima presented and interacted with our group virtually and Dr. Albertsen was our first fully in person visitor since the pandemic. Seminar attendance was great and looking forward to more of these!

Since our last update last Fall, eight PBPG graduate students (6 Ph.D. and 2 M.S.) have completed their graduate degrees and have moved on to relevant positions in industry, academia and governmental positions nationally and internationally. At the same time, PBPG students, staff and faculty trainers continue to be recognized with significant awards and recognitions and we couldn't be any prouder of all their accomplishments. And in the spirit of cycles and changes, one that is about to happen in our own building. We want to congratulate Sandy Bennett who will be retiring in June of this year after more than 30 years of service to UW. I know I will miss her dearly!

Meaningful changes have also occurred in our college and campus. In January of this year, the College of Agricultural and Life Sciences (CALS) welcome its inaugural Chief Diversity Officer, Dr. Louis Macias. Dr. Macias reports directly to the dean and is charged with leading the college's new Office of Diversity, Equity and Inclusion and related strategic initiatives. We are excited to have him in our campus and looking forward to the contributions that his office will facilitate for PBPG and our college. Two other important changes also happened in our administration. After 10 years of service to our college, Dean Vanden-Bosch announced her retirement to take place this year. Just this week, Provost Scholz announced that Dr. Glenda Gillapsy will be the new CALS dean. Also, after serving our campus since 2013, Chancellor Blank announced that she has accepted a position as president of Northwestern University starting at the end of this academic year. Earlier this month, our campus was excited to share the news that Dr. Jennifer L. Mnookin has been named the new University of Wisconsin-Madison Chancellor.

As I started the letter saying, this has been a semester of significant evolution and growth. And throughout all of it, the PBPG program continues its path of influence, relevance, and impact. Many of the student training and professional development activities couldn't be possible without the support of our alumni, emeritus faculty, staff, and other friends of the program. We are enormously grateful to each and every one of you for your continued support and your many contributions.

Wishing you a productive and joyful summer season and On, Wisconsin!

With appreciation,

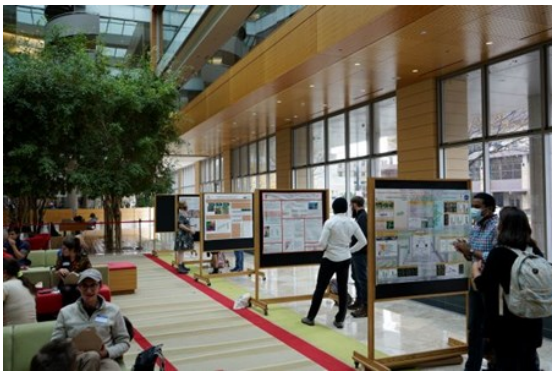
Natalia de Leon

Guest Speakers – Dr. Thelma Madzima and Dr. Marc Albertson

In 2021 the PBPG program welcomed Thelma Madzima, Assistant Professor at the University of Washington—Bothell, as its Guest Speaker. Dr. Madzima's research program aims to understand how epigenetic mechanisms enable abiotic stress responses in plants, primarily using maize as a model. She has received numerous awards recognizing her research and teaching accomplishment, but also her significant efforts in the areas of diversity and inclusion. Dr. Madzima gave a seminar on RNA-directed DNA methylation & abiotic stress mediated transcriptional regulation in maize. In 2022 we welcomed Dr. Albertsen, who is a Distinguished Laureate at Corteva Agriscience. During his 40-year career in Corteva he has led research teams that have address important challenges of crop production by expanding the environmental adaptation of maize and increasing the reproductive productivity of crops in general. He has also lead led two philanthropic, multi-partner collaborations focused on improving the lives of subsistence farmers in Africa. Dr. Albertsen presented a seminar entitled: "From the start: a geneticist's journey thru advances in science and technology

PSGSC Plant Symposium

The 11th Annual Plant Sciences Symposium was held on November 12th, 2021, by the Plant Sciences Graduate Student Council (PSGSC). A hybrid format was adopted with respect to the global pandemic. Plant Science professionals from across the country presented in sessions via Zoom throughout the day. Speakers represented a diversity of backgrounds and fields, including horticulture, mycology, plant breeding and biotechnology, and sustainable agriculture with respect to Indigenous North/South American cultures. The poster session was held during lunch and conducted in-person. This year we introduced "Lightning Talks", where eight UW Graduate Students presented their research in 3 minutes each. Overall, the symposium was successful, and the elements were well-received. PSGSC is grateful for our generous sponsors, including Corteva and the Wisconsin Agricultural and Life Sciences Alumni Association. Mark your calendars for the 12th Annual Symposium – November 11th, 2022!



Staff Spotlight: Calli Anibas — Extra Mile Award

Calli Anibas was awarded the College of Ag and Life Sciences Arthur J. and Ellen A. Maurer Extra Mile Award. This prestigious award is given to a faculty or academic staff member who has an outstanding track record of impact on students' education, career plans, leadership, or other aspects of students' lives. Calli's nomination was put together by a group of undergraduate students and that makes this award that much more meaningful and a true testament to her meaningful contributions.

Student Profile: Lin Song

Lin Song is a PhD student working with Dr. Jeffrey Endelman. Being brought up on a potato farm in China, she was inspired to study Plant sciences. After attending UC Davis as an undergraduate, she chose to pursue further study at UW-Madison in the potato breeding program. Both her master and PhD projects are focused on diploid potato breeding. Her main effort is to create the germplasm, and provide data and knowledge for breeders to accelerate the process of diploid potato breeding. After four years' experience in a real breeding program, she is determined to be a breeder after graduation.

Recent Awards

- **Shawn Kaeppler**–AAAS fellow
- **Ambar Carvallo**-Growing Stronger Organic and Sustainable Farming Conference graduate student research poster competition in Feb 2021 -joint virtual conference which merged five organic and sustainable agriculture conferences
- **Martin Costa** and **Chandler Meyer**–Launching Tomorrow's Leaders Partnership with Bayer
- **Caitlin Collies** was awarded the 2022 Graduate Program Coordinator Award for Excellence in Graduate Student Support

Alumni Update:

The University of California, Davis (UCD) Department of Viticulture & Enology has named **Dr. Luis Diaz-Garcia** (PBPG PhD 2018) as an assistant professor of viticulture. He will lead the department's grape breeding program. Full announcement here.

New Plant Germplasm Research Facility

Listen to Irwin Goldman talk to WPR about the program and the new facility being built at UW.

Recent Graduates

Katharina Wigg—(Fall 2021) **Raegan Hoefler— (Spring 2022)**

Emilee Gaulke—(Fall 2021) **Peyton Sorensen—(Spring 2022)**

Kathryn Michel—(Spring 2022) Dr. Michel has joined Benson Hill as a field pea breeder in St Louis, where she'll be working on developing high protein yellow pea varieties.

Jonas Rodriguez—(Spring 2022) Dr. Rodriguez is joining the INRAE, Montpellier, France, Laboratory of Plant Ecophysiological responses to Environmental Stresses (LEPSE) as a Post-Agreenskills fellow

Jenyne Loarca—(Fall 2021) Dr. Jenyne Loarca (they/she) is now a Postdoctoral Researcher at Cornell University with the Cover Crop Breeding Network (CCBN).

Lily Hislop—(Fall 2021) Dr. Lily Hislop will be starting a postdoc in Corvallis, Oregon with the USDA working on genomic prediction in blueberries in April.

Chandler Meyer and the Plant Pen Pals Program

In the Fall of 2021, an outreach program called 'Plant Pen Pals' was created to engage high school students with plant breeding and other fields of plant sciences. Students were invited to write a letter introducing a little about themselves, their relationship with plants, and any questions about plants they have. Graduate students from various plant science departments, the majority being from PBPG, then volunteered to read letters and write responses to the students.

In the first year we received over 48 letters, with 25 graduate student volunteering to respond. Ow-ing the the success of the program in the first year, a teacher requested that we do the program again in 2022, and in the second year, we received over 72 letters, with 28 graduate students offer-ing to volunteer. The letters we received from students were very thoughtful and showed how much curiosity young students have with plant sciences. Hopefully, this program will continue and grow, inspiring the next generation of plant breeders.

Here is a testimony from a teacher about their experience with the program:

"After reading through them all myself for my own interest, I was truly enthralled with your own individual stories as grad students and the path that led you to where you are now. You are all treasure troves of plant knowledge. As a new botany teacher still learning about how to run a greenhouse, this information is invaluable to me in my path to botanical enlightenment. I can't wait to speak with you further next week Wednesday and can't thank you enough for offering this amazing opportunity to the students of Sheboygan North. Given our virtual learning status, engagement has been low and I imagine student morale has been as well. But I feel that this will serve as a light amidst the difficult times, motivating the students to want to keep on learning and pursuing their personal aspirations. Many of the students have career aspirations in the sciences and I love the way your colleagues tailored the responses to their questions, encouraging them to meet their goals. Thank you in advance for the gift of knowledge you've bestowed upon my students and myself. I'd also like to thank all those graduate students who took the time out of their busy coursework to do this. You folks inspire me to do what I do."

Make Sure to Get Your Hands Dirty! Q&A with Irwin Goldman

Irwin Goldman, professor at the University of Wisconsin, says it's imperative to get in the field and get down and dirty when learning about crop breeding. Q&A from January 2022 SeedWorld

Seed World (SW): Do you have a favorite podcast to listen to?
Irwin Goldman (IG): My favorite podcast is *Shakespeare Unlimited*, from the Folger Shakespeare Library in Washington D.C. Over the last two years, I've come to appreciate the power of his artistry and the way he can pierce the deepest corners of the human condition through language. The podcast is one of my best companions on long car trips and during extended sessions threshing and packeting seed.

SW: No. 1 favorite vegetable to work with?
IG: The table beet. I wasn't a huge fan as a kid, but back then I thought of beets as a huddled-masses throwback from another era. My own relationship with this vegetable traces the arc of the modern beet renaissance, which has been on an upward trajectory for the past 30 years.

SW: Got a lab motto to keep yourself and your research students going?
IG: Chance favors the prepared mind. We try to plan well ahead of time and stay organized so that we're poised to take advantage of opportunities as they arise. So much of plant breeding depends on organization and yet so many of its best moments depend on chance occurrences.

SW: Why did you choose to special your lab in onion, carrot and table beet research?
IG: My predecessor, Warren "Buck" Gabelman, selected these three crops to breed when he came to Wisconsin in 1949. By the time I started in 1992, he had very successful breeding programs developed, and it seemed reasonable to continue this work. All three crops are important to Wisconsin's agriculture, and as biennial root and bulb crops, they share certain biological commonalities.

SW: Do you have any specific breeding goals in mind while working?
IG: Yes. In certain parts of our breeding program, we are focusing on a particular disease resistance or a specific horticultural attribute like shape or flavor. In others, we are advancing populations through a certain number of generations or backcrosses in order to achieve a desired objective. We do, however, reserve a small portion of the program for evaluation of progeny from crosses where no one particular objective was in mind when the cross was made.

SW: What's the No. 1 thing you hope to learn from your research?
IG: We'd like to understand how some of the key horticultural traits that farmers, seed growers, chefs, and consumers want are controlled and influenced by genes and the environment.

SW: What would be your advice for students interested in vegetable breeding?
IG: Get your hands dirty! There is no substitute for in-the-field learning, where you are working with the crop in its growing environment. This requires a commitment to being outside in all conditions and to understanding how the crop is grown, how it looks and tastes, and how it is influenced by different practices.

Retirement Announcement

After over 30 years with the department, **Sandy Bennett** will be retiring this summer. Thanks to Sandy for all her hard work and years of dedication to PBPG and the Department of Agronomy!

PBPG Recruitment Event 2022

After not being able to hold our annual recruitment event in 2021 due to COVID 19, we were able to welcome a group of eight prospective students to campus in January of 2022. Prospective students were able to participate in activities with members of PSGSC (Plant Science Graduate Student Council), interview with faculty, and take tours of campus, West Madison Agricultural Research Station and Wisconsin Crop Improvement Center. The recruitment event concluded with a seminar from Irwin Goldman on Evolution of Beta vulgaris: A brief history of beets and Western Civilization.

PBPG Alumni Tailgate

In October of 2021 we welcomed a group of PBPG alumni to campus to help cheer on the Badger football team. It was a beautiful day in Madison for students, faculty, staff and alumni to reconnect. Stay tuned for information on a 2022 alumni reunion.

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

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