

## Upcoming Events

The annual **Agronomy Fall Awards and Recognition Picnic** will take place on Thursday, September 21, 2017, from 3—6(ish) pm. Join us at Hoyt Park, 3902 Regent Street in Madison for a meal, fellowship, and the awards program.



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### WELCOME RAMAMURTHY “MALI” MAHALINGAM



Mali earned his PhD in genetics at Clemson University with a minor in statistics. His research is focused on abiotic stress signaling in plants. Abiotic stresses such as heat and drought cause significant crop yield losses. His research team is engaged in identifying novel germplasm sources with resistance to high temperature and water stress in barley. This research encompasses high throughput phenotyping, stress physiology, SNP genotyping, genome wide association analysis, transcriptomics, proteomics and metabolomics. Integrating data from these various platforms will provide a cogent understanding of the molecular mechanisms of resistance or tolerance to these abiotic stresses. The novel germplasm resources identified and genes characterized in this research will be useful for developing improved varieties of barley that can thrive well under sub-optimal conditions and produce high quality seeds for the malting and brewing industry. Another aspect of Mali's research program is investigating the biochemical role of reactive oxygen species during barley seed germination and its impact on malting quality.

For more on Dr. Mahalingam, visit <https://ecals.cals.wisc.edu/2017/03/29/new-faculty-profile-ramamurthy-mali-mahalingam/>

### WELCOME RODRIGO WERLE



Rodrigo was born in a small farming community of Dutch immigrants in the state of São Paulo, in southeastern Brazil. His early passion for agriculture led him to earn a Bachelor's Degree in Agronomy from São Paulo State University, Brazil. He earned his MS and PhD in Agronomy from University of Nebraska-Lincoln. As a PhD student, he evaluated the distribution and mechanism of acetolactate synthase (ALS) herbicide resistance in grasses, and developed a simulation model to assess management options to mitigate the risk of ALS resistance evolution in shattercane in potential ALS-tolerant sorghum (Inzen technology, DuPont) production areas of the Great Plains. The results of his PhD work assisted DuPont with the development of the Best Management Practices for the Inzen technology, which is expected to become commercially available in 2018. He received Outstanding Graduate Student Awards in 2013 and 2016. In April, 2016, Rodrigo joined UNL as an Assistant Professor and Cropping Systems Specialist. The objective of his program is to conduct research and extension programming to increase profitability, productivity and sustainability of irrigated and dryland cropping systems with limited water in Nebraska and beyond.

Rodrigo is excited to join the Agronomy team to establish a research program that will focus on agroecologically-based approaches to address sustainable weed management in corn, soybeans and small grains. His research program will also focus on weed management strategies that can help protect water quality, enhance agroecosystems services and increase food security. Training growers, crop scouts and agronomists on proper weed identification, herbicide selection and application in collaboration with the UW-Extension Pesticide Applicator Training Program will be one of his efforts. The development of multimedia tools (e.g., YouTube videos and Mobile Apps) that can make information readily accessible to growers and agronomists will also be part of his outreach program.

Rodrigo, his wife Lia—who will also join the Department of Agronomy as a post-doc under Dr. Shawn Conley, Leila (3 years old) and their expected baby girl are anxious to move to Wisconsin in December of 2017 to start the next chapter of their lives.

## WELCOME NEW GRADUATE STUDENTS

**Lindsay Champerlain**, MS Agronomy, **Shawn Conley**: Lindsay is new to Wisconsin! She grew up on a dairy farm in New York State, and graduated from Cornell University with a degree in Plant Sciences this past May. The UW Bean Team drew her to the Midwest because of their fantastic dedication to extension. She is excited to be in Madison and a part of the team.

**Derek Potratz**, MS Agronomy, **Shawn Conley**: I grew up in Omro, Wisconsin, where I worked on my grandpa's 2500 acre cash cropping farm beside my dad. After being active in 4-H and FFA, I decided to pursue schooling to work in agriculture and attended the University of Wisconsin - Stevens Point where I received my B.S. in Soil and Land Management and a GIS Certificate. There, I conducted multiple research studies focusing on chemical, physical, and biological properties of soil on rotational grazing operations. Outside of school, I worked as a crop scout for Tilth Agronomy Group for three years, which is where I picked up my passion for agronomy. I am excited for the opportunity to continue improving agronomic practices across the state and nation with the Cool Bean team.

**Alden Dirks**, MS Agroecology, **Randy Jackson** and **Jean Michele Ané**: will work on a collaboration between both labs on the role of mycorrhizal fungi in grasslands.

**Bridget McFarland**, PhD Plant Breeding Plant Genetics, **Natalia de Leon**.

**Tomas Rush**, PhD Plant Pathology, **Jean-Michel Ané**

**Brittany Isidore**, MS Agroecology, **Randy Jackson**

**Laura Judge**, MS Agroecology, **Mark Renz**

**Marisa Lanker**, MS Agroecology, **Valentín Picasso**

**Cat McCluskey**, MS Agroecology, **Bill Tracy**

**Lily Hislop**, PhD Plant Breeding Plant Genetics, **Bill Tracy**

**Baudy Ruiz**, PhD Plant Breeding Plant Genetics, **Bill Tracy**

The Department also welcomes

**Aleksandra Kotwika**, Visiting Scholar, **Ken Albrecht**

**Francisco Contreras-Govea**, Academic Staff, **Ken Albrecht**

**Ittai Herrmann** and **Lia Marchi Werle**, Post-docs, **Shawn Conley**

**Evandrei Rossi**, Visiting Scholar, **Natalia de Leon**

**Andy Stuebs**, **Ben Fischer**, and **Renata Barcelos**, Academic Staff, **Natalia de Leon**

**Mark Walsh**, Academic Staff, **Randy Jackson**

**Eduardo Llanos**, Visiting Scholar, **Valentin Picasso**

# More Cong

## MALLIKA NOCCO AWARDED SMITH CONSERVATION POSTDOCTORAL FELLOWSHIP



Photo from <https://grad.wisc.edu/uniqueapproach/nocco/>

**Mallika Nocco**, an Environment and Resources Ph.D. student in **Chris Kucharik's** lab, was recently awarded a prestigious 2-year 2017 David H. Smith Conservation Postdoctoral Research Fellowship, which carries \$150,000 funding. Mallika will defend her research this summer and start on her postdoc in September. More details about the fellowship can be found at <http://www.smithfellows.org>.

If you are not familiar with the selection process for this award, it is grueling, including flying in for about 3 hours worth of in-person questioning from 2 separate panels. There were only 5 fellowships given out this year.

Her project title is "Water scarcity amidst abundance: A call for adaptive strategies to manage freshwaters, forests, and irrigated agroecosystems throughout sandy aquifers in the Northern Great Lake States."

She will be mentored by Dr. Tracy Twine (U of M), Dr. Mike Fienen (USGS), Dr. Christel Kern (USDA Forest Service), and Dr. Chris Kucharik.

## FROM ASSOCIATE TO FULL PROFESSOR

**Natalia de Leon** has been promoted to Full Professor! Congratulations, Natalia!, and thank you for your dedicated service to our department.

## FROM POSTDOC TO ASSISTANT PROFESSOR

**Dr. Matthew Crook**, a postdoc in Jean-Michel Ané's lab, has accepted a position at Weber State University in Ogden, Utah. He will be an assistant professor there beginning in August 2017.

# Congratulations!

## 2017-18 IPSA SCHOLAR

### BALDWIN ENDOWMENT MINI-GRANT RECIPIENT

Ten mini-grants encouraging innovation and experimentation in small-scale projects were given by the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment.

The competitive grant program is open to UW–Madison faculty, staff and students.

Ira Baldwin, a longtime UW teacher, researcher and administrator, served as dean of the Graduate School and the College of Agriculture and as vice president for academic affairs. Ineva Reilly Baldwin taught and served in the university administration as assistant dean of women and associate dean of the College of Letters & Science. Their endowment is one of the largest gifts ever received by UW–Madison.

One of these mini-grants was awarded to **Tobias Lunt**, Department of Agronomy for his project entitled **Sustainable groundwater sensor network: Zambia and beyond**.

Good data are a prerequisite for sustainable water management. Monitoring groundwater has historically been prohibitively expensive, requiring a dedicated borehole and sensors costing thousands of dollars. Now, open-hardware is revolutionizing data collection worldwide, as low-cost microprocessors, cheap sensor components, information and communication technology (ICT), and the “Internet of Things” (IoT) make distributed data networks feasible at remarkably low cost. The proposed project will prove the concept of such a network for groundwater – building prototype sensors to measure depth using pressure, combined with an Arduino-based datalogger sending data once a day via text message to an open access database. After the concept is proven, the sensor will ultimately be trialed in community boreholes in rural Zambia, with eventual scale out to facilitate a new open data harvesting network.

For the complete story: <http://news.wisc.edu/ten-mini-grants-awarded-from-the-baldwin-endowment/>

### KUCHARIK ELECTED TO URC

**Dr. Chris Kucharik** was recently elected to the University Research Council (URC). The URC provides advice and consultation to the leadership team of the Office of the Vice Chancellor of Research and Graduate Education (VCRGE) regarding the research enterprise on campus. The University Committee (UC) and Senate will incorporate URC functions into Faculty Policy & Procedures (FP&P), constituting it as the governance body for the VCRGE. The members of the URC include representation from the four divisions (VCRGE, UC, Senate, and FP&P), as well as faculty, academic staff, and classified staff. URC members are expected to represent the interests of the university community at large. Chris will serve for 4 years. Congratulations, and thank you, Chris!



Photo from <http://agronomy.wisc.edu/2017/07/03/clare-gietzel-20172018-ipsa-scholar/>

**Clare Gietzel** was awarded a \$2000 scholarship from the Independent Professional Seed Association (IPSA). She was one of 5 chosen for a scholarship, among 180 applicants. New this year, candidates participated in a video interview as part of the application process. These awards are presented to students in agriculture and the scholarship program was created to benefit the future of agriculture by supporting and encouraging the education of future ag professionals.

Clare is a student at the University of Wisconsin- Madison where she is earning a Bachelor of Science degree in Agronomy. Paired with her Global Health and Environmental Studies minors, she hopes to use her degree to kickstart a career in plant breeding after graduating in May of 2018. In her time on campus, Clare has been heavily involved in several organizations including the Badger Crops Club, where she currently serves as the organization's president. It was her involvement in the Crops Club that continued to fuel her passion for the industry and helped her make connections to companies like Dow Agrosiences and Mycogen Seeds, where she got to explore a sales role in the industry as a Commercial Sales Intern. Clare is looking forward to learning more about the IPSA's role in the industry and networking with successful industry members.

### Agronomy Undergrad Receives DOE Internship



Photo from <http://www.kucharik-lab.com/people/cadan-cummings/>

Agronomy undergraduate student **Cadan Cummings** was accepted to participate for 2017 Summer Term in The Science Undergraduate Laboratory Internship (SULI) program at Oak Ridge National Laboratory in Oak Ridge, Tennessee. Cadan is a senior in agronomy and an undergraduate researcher in Chris Kucharik's Lab. The U.S. Department of Energy's SULI program offers undergraduate students studying disciplines of science, technology, engineering, and mathematics the opportunity to perform research under the guidance of laboratory staff at one of the 17 participating DOE facilities. Cadan will be among 100 undergraduate students this summer to gain research internships with the Oak Ridge Institute for Science and Education (ORISE). During his 10-week internship, Cadan will be mentored by ORNL researcher Jeffrey Warren and post-doctoral researcher Anirban Guha in the Environmental Sciences Division. Cadan will specifically be assisting in research pertaining to how woody species respond physiologically to extreme heat and drought conditions.

Submitted by Chris Kucharik



The Campus Food shed is a new project aimed toward collecting fresh produce from research projects that is not needed and allowing students and the general public to use it.

Four large refrigerators have been placed around campus. One is in Moore Hall, near the loading dock on the second floor.

Follow them on Facebook at <https://www.facebook.com/campusfoodshed/>

And click here for more information: [https://ecals.cals.wisc.edu/2017/04/03/donate-extra-produce-to-the-campus-food-shed/?utm\\_source=ecals\\_email\\_newsletter&utm\\_medium=email&utm\\_campaign=ecals\\_email\\_newsletter](https://ecals.cals.wisc.edu/2017/04/03/donate-extra-produce-to-the-campus-food-shed/?utm_source=ecals_email_newsletter&utm_medium=email&utm_campaign=ecals_email_newsletter)



Both images were taken from the UW Food Shed's Facebook page.



the campus plant science

According to Kaepler, of types of research projects assistance, and improving

“There is a recognized research technology director. “The

For researchers like bac devote more time to experimental fixation.

“We can focus on really constructs. The limiting technology to plants.”

In July of 2016, Monsanto facility would continue University Research Park

Not surprisingly, given the

Sources and for full story

<http://grow.cals.wisc.edu>

Photo: Greenhouse lights

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## BIG DATA AND ECOINFORMATICS SYMPOSIUM

Thursday, April 27, 2017, the college of Agricultural and Life Sciences hosted a symposium titled, "Big Data and Ecoinformatics in Agricultural Research". The symposium highlighted the use of big data within the agricultural sector and provided a broader outlook on the topic. "Big data" has long been part of other fields, like physics, astronomy, and finance, but what does it look like in agriculture? The symposium seeks to answer that question as well as others like, "What role does academia have in affecting this field? How do we integrate big data approaches in our traditional research agenda and how do we train the next generation of innovators, entrepreneurs and scientists to take advantage of the opportunities afforded by big data? What are the limitations and pitfalls associated with big data approaches?"

Speakers from campus and around the world were invited to participate. Chris Kucharik and Natalia de Leon were speakers from the Agronomy Department.

Speaker videos can be found at <https://cals.wisc.edu/ecoinformatics/>. Picture taken from the same site.



## MONSANTO DONATES MIDDLETON PLANT RESEARCH FACILITY TO UW-MADISON



A \$10 million commercial biotech plant laboratory in Middleton, Wisconsin, first opened in 1982 with the help of University of Wisconsin–Madison scientists, will soon become part of UW–Madison following a donation from Monsanto Company.

The facility, a labyrinth of greenhouses and laboratories where some of plant biotechnology's first critical steps were taken, was officially donated to UW–Madison's University Research Park by Monsanto December 2016 to become the hub of the new Wisconsin Crop Innovation Center (WCIC).

"This gift will enable us to create a plant biotechnology facility unparalleled in the public sector," says UW–Madison College of Agricultural and Life Sciences Dean **Kate VandenBosch**. "We can now leverage the diverse strengths of UW–Madison's plant science community, allowing us to more deeply explore plant gene function and to collaborate with partners around the world to improve crop traits."

"This is an unprecedented opportunity to add capabilities and capacity we couldn't otherwise afford," says **Shawn Kaepler**, BS'87, a UW–Madison professor of agronomy and the director of the new WCIC. "This will energize

the research community."

Crop species likely to be under the microscope at WCIC include corn, sorghum, soybean, and small grains such as oats, barley and wheat. "The goals include: improving crop nutrient efficiency, evaluating strategies to produce crops better suited for use as biofuels, enhancing crop disease resistance, and the yield and composition of crops grown in sustainable production systems," Kaepler says.

"There is a need nationally," explains agronomy professor **Heidi Kaepler** BS'87, an expert in plant transformation who is serving as WCIC's transformation director. "There are just a few public facilities around the U.S. and demand is outpacing the abilities of those facilities. It is a bottleneck."

Microbiology and agronomy professor **Jean-Michel Ané**, a member of the WCIC scientific advisory board, the new center means he will be able to explore such things as the genetic interplay that occurs when plants and bacteria collude to draw nutrients from the air through the act of nitrogen

fixation. "We are doing science instead of growing plants," Ané says. "We can now make genetic constructs very quickly. Within a month we can make hundreds of constructs. The aspect is plant transformation. However, the scale of transformation we can do at WCIC allows us to think seriously about applying synthetic biology

to Monsanto. Monsanto relocated a number of remote functions back to its St. Louis headquarters in the interest of business consolidation. In the hope that the Middle- ton facility would continue to work toward the betterment of agriculture, Monsanto donated it to longtime collaborator the University of Wisconsin– Madison, along with the

entire facility. In the long history of CALS involvement, agronomy professor Shawn Kaepler BS'87 was chosen to serve as facility director.

For more information, visit: <http://news.wisc.edu/monsanto-donates-middleton-plant-research-facility-to-uw-madison/>

or visit <http://cals.wisc.edu/agriculture/shaping-the-future-of-farming>

Photo: Jeff Miller/UW-Madison