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University of Wisconsin-Madison

Department of Agronomy

Agronomy News

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Ag questions? There's an app
for that.

To Spray, To Seed, To Start Again

By Jim Massey

One major decision many soybean farmers face each year is whether to replant if their initial crop stand appears to be coming in thin or sparse. It's a complicated choice, and a big chunk of profit can sometimes be on the line.

The modern context in which farmers operate confounds the issue further, says [Shawn Conley](#) BS'96, MS'99, PhD'01, a professor in the [Department of Agronomy](#) and soybean and wheat specialist with the Division of Extension. Many producers today are running larger operations and have less time on a per-acre basis to manage their crops, he says. Recognizing this, CALS delivers apps that offer farmers instantaneous data for making rapid yet informed decisions. Conley's Soybean Replant app is a prime example.

The replant app calculates plant populations by averaging five plant-count samples taken randomly within a soybean field during various growth stages. The app then provides expected yield percentage at harvest, with or without replanting. It performs these tasks by consolidating and drawing on years of data collection and multiple research papers. To apply this knowledge to the field, all you need is a smartphone with a camera.

"You simply snap five photos, and the app does the rest," Conley says. "It's as easy as it sounds."

The recommendation will rarely be to rip up a field and start over because, even if a stand comes in poorly, the crops in the field typically have a better yield potential than a totally replanted crop, he says. But sometimes it makes sense to add more seeds on top of what is growing.

Cerny, who plants about 2,000 acres between the villages of Walworth and Sharon, says a friend asked him for a recommendation on replanting his soybean field based on what he perceived as a poor stand. After analyzing the field using Conley's replant app, Cerny advised against it.

“An agronomist was there with me, and he recommended replanting,” Cerny recalls. “I said I wasn’t so sure that was great advice. I suggested that if he was going to replant, he should leave five acres of the stand so he could compare.”

The yield turned out about the same where he replanted and where he didn’t. But the replanting added extra seed and fuel costs, so the app’s advice was sound.

As weather patterns have migrated to less frequent, more intense rainfall events, pounding rains sometimes seal the soil and hinder soybean emergence, Conley says. This intensifies the need to make quick decisions in the field, and for this purpose, apps backed by CALS research can deliver.

“I’ve been giving farmers these replant recommendations for years, and they didn’t believe me. But now that I put it into a phone it’s got to be right,” he jokes.

Conley, who grew up on a dairy farm near Browntown in Green County, had several sales internships in college but felt odd making recommendations when he knew the product he was selling wasn’t necessarily the best option. That led him into the research arena and, eventually, into academia.

“This is where academic freedom is so important,” he says. “If I have a strong data set, I can make recommendations that, ‘Yes, this product or practice works,’ or, just as importantly, ‘No, this product or practice does not work or doesn’t have a positive return on investment for Wisconsin farmers.’ That ability to deliver unbiased recommendations to

Wisconsin farmers is vital and at the core of the Wisconsin Idea.”

Other ag apps include Sporecaster, Sporebuster, Corn N Rate Calculator, N Price Calculator, NPK Credits, and SilageSnap.

Source and entire

article: <https://grow.cals.wisc.edu/departments/features/app-riculture>

Kernza for Cattle

The UW Agronomy Department hosted the 4th International Kernza Conference July 1-2, in Madison. Topics included breeding and genetics, ecosystem services, agronomic management, research, as well as tours and treats made with Kernza.

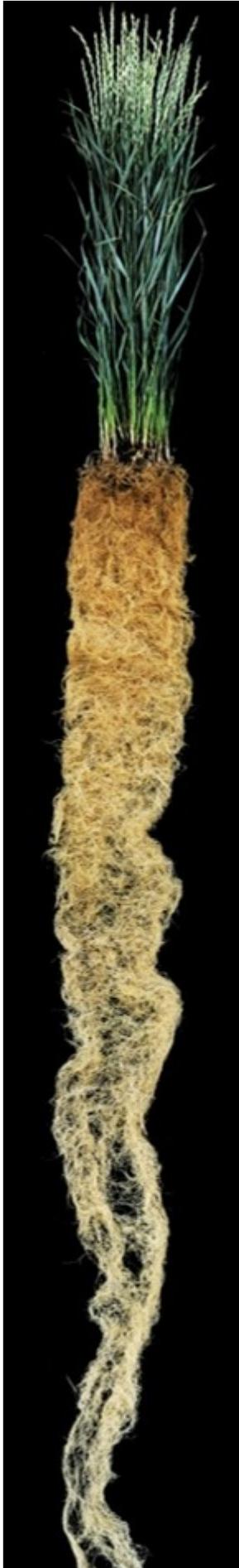
"Kernza is the trademarked name of an intermediate perennial wheatgrass developed by The Land Institute of Salina, Kansas. Plant breeders there and at the University of Minnesota have been breeding the perennial-grass species to be used as grain. Through years of selection for grain size, shatter resistance, yield and other traits, Kernza has reached the point where farmers are now experimenting with the crop. The conference addressed Kernza-breeding priorities as well as the perennial crop's ecosystem-service attributes and agronomic practices."

The entire article by Lynn Grooms and source of the paragraph above can be found at https://www.agupdate.com/agriview/news/crop/kernza-perennial-grain-being-tested-for-cattle/article_5d3beb37-9276-5ee0-a940-24c53f8e5a7f.html

Please also

visit kernza.com and <https://foragesandperennialgrains.agronomy.wisc.edu/> for more information.

Submitted by **Valentin Picasso**.



Jackson Lab Updates

Jacob Henden, MS, has joined the Jackson lab to help with the sustainable intensification work at Wisconsin Integrated Cropping Systems Trial (WICST). This work is funded by AFRI and the principal investigator is Gregg Sanford. It is a 30-year long-term study of various cropping systems that was started by Josh Posner and is now run by Gregg Sanford. More information on WICST can be found here: <https://wicst.wisc.edu/>

This summer, two high school students, **Ada** and **Becca**, are working with us. Ada is looking at species changes in the WICST prairies and Becca is looking at some of the economics associated with the cropping systems at WICST.

Ashley Becker has joined our lab. She is pursuing a Master's degree in Environment and Resources and is advised by Randy.

Randy Jackson was named to the Campbell-Bascom Professorship! The professorship was established by the Campbell Soup Company and recognizes faculty in the College of Agricultural and Life Sciences for outstanding contributions in the field of agriculture. This appointment is for 5 years.

Submitted by **Maggie Phillips**.

News from the Kucharik Lab



Dr. Mallika Nocco is moving to UC-Davis, where she will become an Assistant Cooperative Extension Specialist in Plant-Soil-Water Relations and Deficit Irrigation in the Dept. of Land, Air, and Water Resources. Her new role is effective September 1.

Tracy Campbell, PhD candidate in Agronomy, was just selected to receive a NCR SARE grant. Our project was selected from a pool of graduate student grants by the north central region of SARE, all of which strive to address sustainable agricultural issues in the region. The funding provided by the SARE grant will help to continue our research focused on improving irrigation and fertilizer management across the Wisconsin Central Sands. We hope that through this research, we can continue addressing both water quality and water quantity challenges in the area.

We were recently selected to receive a new NSF INFEWS (Innovations at the Nexus of Food-Energy-Water Systems) Track 1 modeling grant (5-years, \$2.5M, officially started 7/15/2019). **Chris Kucharik** is lead PI and **Eric Booth** is co-PI of a research team that is entirely based at UW-Madison. The title of the proposal is "Sustaining Food, Energy, and Water Security in Agricultural Landscapes of the Upper Mississippi River Basin".

Kucharik is also co-PI on a new NSF INFEWS Track 2 solutions grant (lead institution is Purdue U., with collaborators at U. of New Hampshire). The title is "Identifying Sustainability Solutions through Global-Local-Global Analysis of a Coupled Water-Agriculture-Bioenergy System". We have a subward of \$250,000 coming to UW-Madison over the next 3 years.

Please visit the Kucharik lab website at <http://www.kucharik-lab.com/>. This page is also the source of the photo above.

Submitted by Chris Kucharik and Tracy Campbell.

WELCOME!

Kolby Grint and **Haleigh Ortmeier-Clarke**, MS Agronomy students, advised by Rodrigo Werle.

Ashley Becker, MS Environment and Resources student, advised by Randy Jackson.

Korede Olugbenle, MS Agroecology student, advised by Valentin Picasso.

Anna Parkinson, MS Plant Breeding Plant Genetics student, advised by Bill Tracy.

Carl Branch, PhD candidate in Plant Breeding Plant Genetics, advised by Bill Tracy.

Habteab Ghebrehiwot is a research technician in Valentin Picasso's lab.

Julia Butler is a research gardener in Natalia de Leon's lab.

Nick Arneson is an outreach specialist in Rodrigo Werle's lab.

Congratulations!



Pablo Gonzalez Barrios, PhD candidate in Lucia Gutierrez's lab, received the Jack & Marion Goetz Graduate Fellowship. These generous donors "support graduate research in CALS with emphasis on genetics and general environmental research at the agricultural experiment stations. Full story and source: https://ecals.cals.wisc.edu/2019/04/08/recipientsof-2019-20-cals-graduate-fellowship-awards-announced/?utm_source=ecals_email_newsletter&utm_medium=email&utm_campaign=ecals_email_newsletter
Photo source: <https://agronomy.wisc.edu/people/gradstudents/>



Joe Zimbric successfully defended his M.S. thesis in July. His thesis title is "Weed Community Dynamics and Suppression in Dual-Use Intermediate Wheatgrass Cropping Systems. Joe is co advised by Valentin Picasso and Dave Stoltenberg. Photo courtesy of Google search.



Elizabeth McNamee, PhD candidate with Chris Kucharik, received the Wisconsin Potato Industry-Wisconsin Distinguished Graduate Fellowship. Recipients of this award demonstrate excellent academic performance and research productivity in studying potato. This award is offered by the College of Agricultural and Life Sciences and was established by the Wisconsin Potato Industry Board.





Valentin Picasso was selected as a Toepfer Faculty Fellow. This award recognizes promising assistant professors in the early stages of their careers. The award is open to assistant professors in the College of Agricultural and Life Sciences who are in their second through fifth year of their pre-tenure appointment. Their research should benefit agricultural activities with interests in the scientific fields of crop research, improvements in crop yield and quality, or animal sciences.

Neal Tilhou, PhD candidate in Plant Breeding Plant Genetics, won first place in the graduate student poster contest at the 5th International Conference for Switchgrass Research at the University of Illinois on July 25th. His poster was titled, "Genomic Prediction of Anthesis Date in Switchgrass". He received a cash prize donated by Ernst Conservation Seeds. Neal is co-advised by **Mike Casler** and **Shawn Kaepler**.



Mark Renz, Extension Weed Specialist, earned the 2019 J.S. Donald Short Course Teaching Award. This award was established in 1976 by Delma Woodburn, daughter of John Donald, a Short Course instructor, political figure, and farmer, for deserving faculty or staff who teaches in the Farm and Industry Short Course.



Lucia Gutierrez, Assistant Professor of Agronomy, is new new Chair of the C01 Crop Breeding and Genetics Section of the Crop Science Society of America. She will begin her term in 2020.

Photo

source: <https://agronomy.wisc.edu/lucia-gutierrez/>

Lauren Jorgensen, BS, May 2019, won a CALS Senior Award for academic excellence, leadership, and service. She also received the Mid America CropLife Association Young Leader Scholarship. Lauren was an Agronomy major advised, in part, by Bill Tracy.



Shawn Conley received the Annual Wisconsin Association of County Agricultural Agents (WACAA) Second Mile Award. This award is given to individuals who exhibit exceptional support for Wisconsin County Ag Agents in carrying out their educational programs. Full story and source

here: <https://fyi.extension.wisc.edu/news/2019/05/16/wisconsin-county-agent-association-award-recipients-named/>

Photo

source: <https://coolbean.info/about-us/>





Ken Albrecht, Professor of Agronomy, retired August 1. Enjoy! We wish you well and thank you for your dedication to the Agronomy Department, Ken!

Apologies! The link in the last newsletter was incorrect. Please visit the new link to read about **Shawn Kaepler** and his NABP Lifetime Achievement Award.

<https://ecals.cals.wisc.edu/2018/09/09/national-association-of-plant-breeders-honors-shawn-kaepler-with-lifetime-achievement-award/>

Photo

source: <https://energy.wisc.edu/about/energy-experts/shawn-kaepler>

Upcoming Events

Agronomy/Soils Field Day is Wednesday, August 28 at the Arlington Agricultural Research Station. UW research on industrial hemp will be highlighted. The day starts at 8:00 am and ends at 2:45 pm. Sigma Alpha Agricultural Sorority is providing lunch, and a \$5 donation is suggested. You can RSVP here: <https://go.wisc.edu/n4yr15> and find more information here: <https://ipcm.wisc.edu/blog/2019/06/uw-research-on-industrial-hemp-to-be-highlighted-at-agronomy-soils-field-day-on-august-28th/>

The **Annual Agronomy Awards and Recognition Banquet** is at Hoyt Park, 3902 Regent Street, in Madison. The banquet is on Thursday, September 12, from 4-7pm. A light taco bar will be catered by Cranberry Creek, and attendees are asked to bring an appetizer, side dish, or dessert. To assure accurate food counts, **RSVP by Sept 4** to Jillene Fisch at jrfisch@wisc.edu or 608-262-1390. New this year will be a live band, Tumbledown Shack, featuring members from the Agronomy Department!



Q & A with the Department Staff

This edition interviews **Dr. Ken Albrecht**,
Professor of Agronomy.

What is your favorite film? Recent: Inglorious Bastards, Classic: Casablanca, Foreign: Aguirre, the Wrath of God

What is your favorite hobby? Fishing, woodworking, splitting firewood

What drew you to agronomy? Long-time interest in plants, soils, environment

What do you feel is your biggest accomplishment? Providing opportunity for graduate students, international interns, and undergraduate students to develop professionally

What is your latest research project? Evaluating performance of reduced lignin alfalfa over diverse environments

Who was/is your biggest mentor? John Kulas, foreman at Cieslewicz Potato Farms in Galloway, taught me agriculture and mechanics over five summers

What research has you most excited right now? Search for walleyes in Lake Mendota in retirement

Questions, in part, came from a past issue of SeedWorld.

