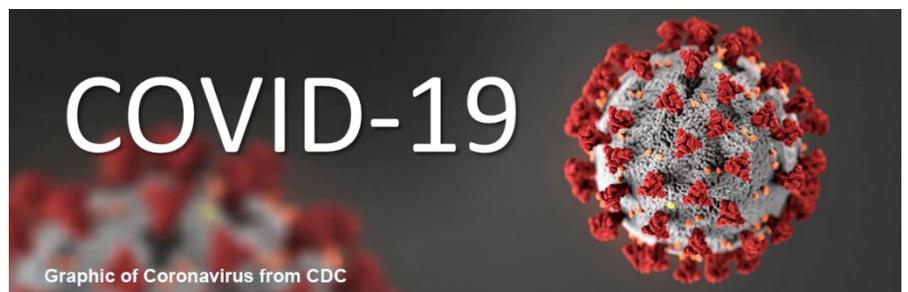


Visit our website at www.iowasoybeancenter.org

COVID-19 Pandemic Impacts ISU Research

The COVID-19 outbreak has certainly impacted all of us in one way or another. Following guidance from the federal and state government in early March, universities across the nation made the decision to close their physical locations and took quick action to move courses online, so students could continue their coursework following spring break.



As social distancing became key, most Iowa State University employees moved to working online from home, including the ISRC staff. And laboratory research was greatly scaled back. For some working in the College of Agriculture and Life Sciences, caring for animals has had to continue, not to mention gearing up for the 2020 crop season. Planning for field experiments with soybeans is proceeding, with social distancing measures of course.

We are in uncharted territory working during a global pandemic, but as they say, "the show must go on." So, Iowa State faculty, students and staff are getting ready to start field research projects and are working on grant proposals for new projects. ISRC staff will continue posting soybean-relevant information to our [website](#) and you can continue to reach us by email and phone. And, as always, you can expect our quarterly newsletter. The next one will be sent in July.

ISA & NCSRP Requests for Proposals Due May 22

The Iowa Soybean Association and the North Central Soybean Research Program (NCSRP) both recently released their requests for proposals. Following are links to each call for proposals and their required application forms. Please note, the due date for both is 5 p.m. CST, Friday, May 22.

ISA: <https://iastate.box.com/s/498q0ksjdu7a5s6k7w6hscb03z7iexpf>

NCSRP: <https://iastate.box.com/s/qckwcvp64jp9skqfldktx0vw35fvc71>

Industry Partners See New Opportunities for Soybean Research at Iowa State

By Steve May, ISRC Industry Partner Recruiter



Advancing and showcasing the best soybean research that Iowa State University has to offer are some of the lofty goals of the Iowa Soybean Research Center (ISRC). In 2019, the center doubled the number of industry partners to further world class research. The increase in the number of partnerships has helped broaden the financial position of the center while promoting more substantive discussion during the annual industry advisory council meeting. The center is continually working to figure out how to better serve their stakeholders: Iowa soybean farmers, industry, the Iowa Soybean Association (ISA) and Iowa State.

The ISRC was started by the ISA and Iowa State as a way to align the needs of growers, industry and researchers. From the beginning, the central mission of the center has been to fund innovative research that will lead to advances in soybean production. Since 2015, nine research projects have been funded by the ISRC. In 2019, the center's stature took a big step forward when two projects previously funded by the center were awarded competitive federal grants to further the work.

The benefits of being part of the center for industry partners are many. All industry partners participate in the annual industry advisory council meeting where research opportunities are evaluated. This group learns about the best ideas from university researchers. Many of the proposed research topics come from scientists who are collaborating with colleagues from different disciplines to look at problems from a unique perspective. Sometimes this work confirms what companies are doing privately and other times it is a novel approach to the topic. Either way, the companies win through their participation.

Additional benefits to industry partners include meeting and learning about Iowa State's world-class soybean researchers. Sometimes the center introduces faculty to industry partners who fund a project directly with the Iowa State scientist, not through the center. Some members of industry are interested in recruiting graduates of Iowa State soybean research programs for positions in their company. Access to the university from a different perspective helps their efforts.

The unique partnership between industry and growers through the ISRC and Iowa State is helping all parties elevate their game through collaboration. By combining resources, this unique partnership has produced results in funding projects with the highest return on investment. As the center gains more industry support, we will be able to sharpen our funding criteria and deliver more substantial results for all stakeholders.

Steve May works for both the ISRC and the ISA to expand and build relationships between agriculture industry and the two organizations, creating another dimension of financial support and an avenue to generate new research topics. Steve has an Agriculture Business degree from ISU and grew up in Muscatine, IA. If your organization would like to learn more about becoming an industry partner, please contact Steve at maysteve@comcast.net or 612-850-5027.

ISA Research Forums Provide Insights

The Iowa Soybean Association took to the road in February holding four Research and Results Forums across Iowa in an effort to make it more convenient for farmers and others to attend. ISRC staff attended the forum held on February 25, 2020, at the FFA Enrichment Center in Ankeny. Experts from ISA's Research Center for Farming Innovation presented on a number of topics, including:

Finding Profitability and Value Opportunities in Conservation Systems.

ISA conservationists spoke about the Soil and Water Outcomes Fund, a pilot program administered by ISA and Quantified Ventures that provides financial incentives to farmers to implement agricultural best management practices. The fund puts decision making into the hands of the farmer and rewards environmental benefit outcomes as a new revenue stream. For example, farmers can receive payments for keeping more carbon in soil, improving water quality by reducing the amount of phosphorus and nitrogen in the water, using no-till, growing cover crops, switching land from row crops to pasture, etc. Visit <https://www.theoutcomesfund.com> to learn more. The video on the homepage gives a very good overview of the program.

Advances in Crop Management

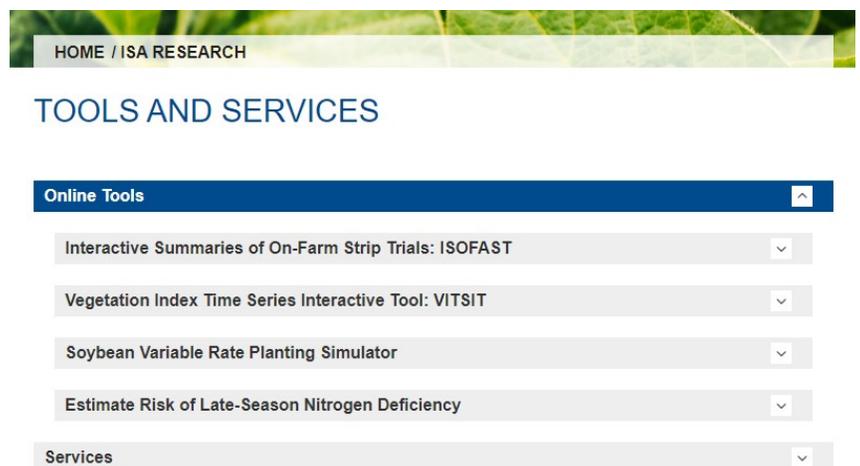
ISA agronomists presented findings from a number of on-farm research trials, including those studying multi-rate nitrogen, seeding rates, soybean maturity date by planting date, crop rotation, and no-till. Farmers gave good feedback about additional data they would like to see from some of these studies. For more information, visit www.iasoybeans.com/programs/isa-research/results.

Results at Your Fingertips – ISA Web-based Tools for Profitable Decision Making

ISA's analytics team gave an overview of the ISOFAST Tool (Interactive on-line summaries of On-Farm replicated strip trials). A "How To" video has been added to the ISOFAST homepage and a new tab is being developed for a "Practices and Technology Economic Comparison Viewer."

The ISA analytics team also introduced a couple of new tools: 1) VITSIT (Vegetation Index Time Series Interactive Tool) and the 2) Soybean Variable Rate Planting Simulator. These can all be found on ISA's website. Go to <https://www.iasoybeans.com/programs/isa-research/tools-services>, then click on Online Tools for the drop down menu. (See graphic at right.)

The forum ended with a "Growing Together" session in which the 70-75 attendees were split into smaller groups to provide feedback on how future sessions might be improved and what types of information and tools would be helpful in the future.



ISRC Funding Highlight

Each year, the ISRC funds soybean-related projects after receiving feedback on research priorities from the ISRC industry advisory council. The council is made up of representatives from the ISA, Iowa soybean farmers, and the center's industry partners. Following is a summary of a project that received funding and support from the center during fiscal years 2016-2019.

Root and Microbiome Traits to Tailor the Next-Gen Soybean Cultivars



Iowa State researchers Danny Singh, professor of agronomy (left) and Gwyn Beattie, professor of plant pathology and microbiology.

Iowa State University researchers Gwyn Beattie and Danny Singh recently published a final report on their project titled, "[Root and Microbiome Traits to Tailor the Next-Gen Soybean Cultivars](#)." The report identified several findings of interest.

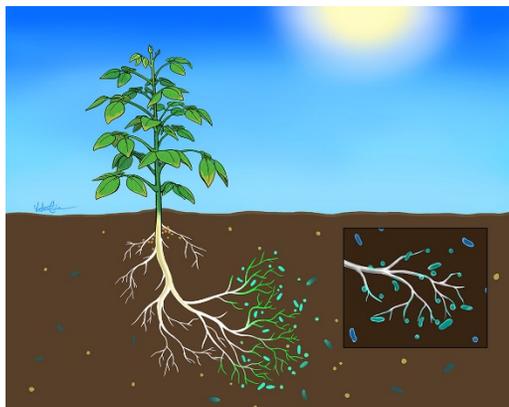
The researchers noted that while plant breeders are interested in root system architecture (RSA) traits, measuring these highly variable traits was difficult and resource intensive. To help with this, the researchers developed a mobile, low-cost, high-resolution root phenotyping system. In using this system to examine RSA traits in more detail, they found most U.S. soybean genotypes lacked genetic diversity. However, useful genetic variation for these traits could be infused, meaning the new tools could enable breeders in building the next generation of soybean varieties based on above- and below-ground traits. In addition, the researchers created software that used phenotyping and machine learning-based algorithm development to more accurately identify, count and study root nodules.

Plant health is intrinsically tied to root-associated microbes, and understanding of the composition, dynamics and functions of these microbes is still at an early stage. To help fill this knowledge gap, the researchers generated high-resolution spatial and temporal maps of the microbiomes on soybean roots. These maps are the most comprehensive and highest resolution maps of root microbes generated for any plant species to date and will help future investigations into the functionality of root microbiomes during soybean growth. Researchers also discovered an unexpectedly high presence of novel microorganisms, which merits further investigation into their roles in plant fitness.

More than 450 bacterial isolates from soybean roots grown in field soil were collected for microbiome mapping purposes. These samples will likely be used in future tests, which will study bacterial impacts on soybean growth and health.

ISRC funding of this project helped lead to additional funding, including a USDA NIFA grant to Beattie and a Plant Science Initiative Fellowship Award to Singh.

Beattie's Research Featured by CALS



Iowa State University's College of Agriculture and Life Sciences recently featured Dr. Gwyn Beattie's research involving soybean root microbes: [Iowa State Researchers Explore Plant-Microbe Relationships for Drought Resiliency](#). Beattie's research was also highlighted in the [January issue](#) of the ISRC's newsletter.

The illustration at left is of the interaction between soybean roots and soil microbiome and is by Iowa State Biological/Pre-Medical Illustration student Victoria Cicha.

SoyFest Planned for August - Donors Needed

Plan to attend the ISRC's campus celebration of all things soy - SoyFest from 10 a.m. to 2 p.m. on August 26, 2020, on ISU's central campus near Parks Library.

We could also use your help! If your organization would like to support SoyFest with a monetary donation or by providing giveaway items, please

contact us at 515-294-7318 or at ISRC@iastate.edu. Supporting organizations will be featured in signage at the event. More information can be found on the ISRC's [SoyFest website](#).



Thank you and we hope to see you there! Look for more updates on this event via the [ISRC's website](#) and in the July newsletter.

USB Research Database Training Held

In February, the ISRC hosted a training workshop for Iowa State University researchers currently receiving soybean checkoff funding from the United Soybean Board (USB), the Iowa Soybean Association, the North Central Soybean Research Program (NCSRP) and the Iowa Soybean Research Center. Cate Newberg, USB/NCSRP program manager, led discussion on what and how information should be added to the [National Soybean Checkoff Research Database](#) for semi-annual and final reporting from principle investigators. She explained that the database is user-friendly for researchers.



The USB-funded database was established to allow stakeholders to easily find information about national soybean research projects that are funded by the soybean checkoff. The database reflects projects nationwide from 2008 to present. The database is connected with the [Soybean Research & Information Network website](#), which presents a broad range of research-based soybean topics for farmers in a user-friendly way.

Roles Changing in Iowa State's Plant Pathology and Microbiology Department

ISRC research affiliate and Iowa State University Professor Thomas Baum recently stepped down as chair of the university's plant pathology and microbiology department after nearly 15 years.

During his time as chair, he was instrumental in overseeing construction of the Advanced Teaching and Research Building (ATRB). Thomas is looking forward to returning full-time to his research in the area of soybean cyst nematode.

Fellow ISRC research affiliate, Gwyn Beattie, is serving as interim department chair and ISRC Director Greg Tylka is interim associate department chair while the search for a new chair is underway. The new chair will lead the merger of a newly formed plant pathology, microbiology and entomology department.



From left: Gwyn Beattie, Thomas Baum, and Greg Tylka celebrate Baum's 14 years of leadership during a reception. Baum's cake was decorated with a rendering of the ATRB.

Syngenta Spring Training Held at ISU



In February, Syngenta hosted a two-day spring training workshop for their staff at Iowa State University's Seed Science Center. Iowa State researchers led training sessions on a variety of topics. Daren Mueller (pictured at left) discussed strobilurin-resistant frogeye leaf spot, tar spot and white mold control with fungicides; Aaron Gassmann presented on corn rootworms; and Bob Hartzler facilitated a session on weed identification. ISRC staff were happy to help organize the event.

Congratulations Jill & Greg!



Two big employment milestones were recently celebrated at the ISRC. On December 19, 2019, Program Coordinator Jill Cornelis celebrated 25 years of employment at Iowa State University, while Director Greg Tylka celebrated 30 years on February 12, 2020.

Pictured from left are Iowa State President Wendy Wintersteen, Greg Tylka, Jill Cornelis, Senior Associate Dean Joe Colletti, and Senior Vice President and Provost Jonathan Wickert at the university's 25-Year Club Induction Reception on March 2, 2020.

Upcoming Events

Note: Due to the COVID-19 Pandemic, many events have been cancelled, postponed, or are being converted to webinars. Please be sure to check with specific event websites for more information. The following list includes events scheduled for later this year.

- Wednesdays at noon - [Iowa Learning Farms Hosts Webinars During Pandemic](#)
- August 26, 2020, Ames, IA - [SoyFest](#)
- September 1-3, 2020, Boone, IA - [Farm Progress Show](#)

Special thanks to Dr. Keith and Virginia Smith
for providing funding to make this newsletter possible.



Have a newsletter idea or wish to subscribe? Email us at ISRC@iastate.edu

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