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ISRC Industry Advisory Council Makes Research Funding Recommendations



Iowa State College of Agriculture and Life Sciences Dean Dan Robison (left) speaks with members of the ISRC's Industry Advisory Council. Sitting next to Robison from left are Will Cornelius, Cornelius Seeds; Todd DeGooyer, Bayer; Stott Howard, Syngenta; Chuck White, ISA Director and farmer; and Thomas Baum, Iowa State Professor and Chair of the Department of Plant Pathology and Microbiology.

Members of the Iowa Soybean Research Center's industry advisory council (IAC) met in September for its annual meeting. Iowa soybean farmers, industry partners, the Iowa Soybean Association and Iowa State University's College of Agriculture and Life Sciences have representation on the council, which serves to identify research needs in the areas of soybean production and protection for the center. Current industry partners include BASF, Bayer, Cornelius Seed, Corteva Agriscience, FMC, GDM and Syngenta.

Dan Robison, Dean of Iowa State's College of Agriculture and Life Sciences, welcomed the group by commenting on the good things happening in the college with public/private partnerships. He said the college is excited about its strong relationship with the Iowa Soybean Association and is committed to moving it forward.

The group had a full agenda for the meeting, including a review of the ISRC's Stakeholder Report, an update on the [ISO-FAST tool](#) that was funded last year by the center and presentations by ISU faculty about several research proposals, followed by the council's discussion and recommendations on what research they wanted to see funded.

"We considered many good projects, but it became clear during the industry advisory council's discussions that there was great interest centered around one particular project," said ISRC director, Greg Tylka.

In late September, the center's management team met to make final funding decisions and recently announced that Dr. Prashant Jha will receive \$120,000 in funding from the center over the next two years in support of his project, "*Hyperspectral Imaging for Early Detection of Herbicide-Resistant Weeds in Soybean*." Jha, an associate professor in agronomy and an extension weed specialist at Iowa State, will focus on capturing images via ground-based and drone-based platforms and then using the information to develop maps of the weeds to improve weed management.

"We would like to thank all of the Iowa State researchers who submitted ideas, and we greatly appreciate the support and input of our industry advisory council," said Tylka.

"It is so important, especially in times like these, that we continue to fund research, which ultimately helps Iowa's farmers and Iowa's economy," said Ed Anderson, senior director of research for the Iowa Soybean Association and chair of the advisory council. "The project that was selected for funding drew considerable interest specifically from the farmers and industry members who attended the center's industry advisory council meeting."

For more about ISRC funded research, see www.iowasoybeancenter.org/research.html.



At left, ISRC Director Greg Tylka gives an update on the center's activities.

Below, from left, Iowa State Professor and Chair of the Department of Agronomy Kendall Lamkey, ISA Senior Director of Research and ISRC Industry Advisory Council Chair Ed Anderson, and southwest Iowa farmer Steve McGrew participate in discussions during the IAC meeting.



Dr. Arti Singh Receives USDA NIFA Grant



Arti Singh, an adjunct assistant professor of agronomy at Iowa State, recently received a three-year, \$499,845 grant from the U.S Department of Agriculture's National Institute of Food and Agriculture to develop machine learning technology that could automate the ability of farmers to diagnose a range of major stresses in soybeans.

The technology under development would make use of cameras attached to unmanned aerial vehicles, or UAVs, to gather "birds-eye" images of soybean fields. A computer application would automatically analyze the images and alert the farmer of trouble spots.

This grant from the USDA will allow Singh to expand on research that the ISRC and ISA have previously supported. For more on Singh's research and recent award, see www.news.iastate.edu/news/2019/09/12/machinelearningsoybeans.

ISRC Funding Highlight

Each year, the ISRC funds soybean-related projects following input on research priorities from the ISRC industry advisory council. The council is made up of representatives from the ISA and industry partners. Following is a summary of a project that received funding and support from the center during fiscal year 2016.

RNA-based Approaches for Resistance to Nematode Pathogens of Soybean

Thomas Baum, Iowa State University Professor and Chair of the Department of Plant Pathology and Microbiology, conducted research identifying plant targets that could be manipulated to provide resistance to the soybean cyst nematode (SCN). RNA-based approaches involve engineering the plant to produce small RNA molecules that specifically inactivate plant or pathogen genes. This action, if designed correctly, can make plants more resistant to or directly kill or inactivate the pathogen.

Baum worked to translate the identification of targets to manipulate plant responses or directly target essential pathogen genes with small RNAs, or microRNAs, to engineer new, durable resistance traits in soybean. His goals were to fully characterize and exploit soybean microRNAs that control plant responses to SCN that reduce or eliminate infection when silenced.

To address this objective, Baum focused on manipulating different microRNAs in soybean that play a role in the formation of a functioning feeding site for the nematode. Interfering with the production or function of these microRNAs prevents the SCN from feeding and thus reduces its ability to reproduce and cause disease.

While previous experiments had shown promise that overexpression of a chosen functional soybean microRNA sequence in transgenic soybean roots significantly reduced susceptibility to the SCN, Baum did not see those same reductions in whole transgenic plants that had been produced prior to this ISRC-funded activity. Future work will have to refine the transgenes and their levels, location and timing of expression in soybean plants. Continuation of this work currently awaits further funding from other research agencies.



Parasitic cyst nematodes

FMC, GDM Are Center's Newest Partners



FMC and GDM have joined the ISRC as industry partners. In this role, both companies will have representation on the ISRC's industry advisory council, which provides guidance on research priorities for the center.

"We are delighted to have FMC's and GDM's support of the center and our research activities, which focus on increasing and protecting soybean yields in Iowa. They will be great additions to the group of industry partners that the center is engaged with, and we are excited to work with them," said Greg Tylka, director of the Iowa Soybean Research Center.

"FMC is focused on solving customer challenges and providing solutions to protect crops and improve yields and FMC has its most robust innovation pipeline in a generation. It is with this shared mission that FMC is excited to join the Iowa Soybean Research Center and its mission to enhance soybean production and profitability," said Brent Neuberger, senior technical sales manager for FMC.

"Joining a renowned institution such as the ISRC provides us with the unique opportunity to exchange insights and acquire knowledge to develop solutions that better suit the American farmer's needs," said Ignacio Bartolomé, Business Director for GDM in North America. According to Martin Sarinelli, GDM Research Manager for North America, "We are excited about this opportunity that will allow GDM to participate in the decision-making process related to research projects that will boost the delivery of solutions for farmers by using best-in-class technologies."

"FMC and GDM will make great additions to the collaborative efforts that the center is engaged in to support the needs of Iowa soybean farmers through innovative agronomic and discovery research," said Ed Anderson, senior director of research for the Iowa Soybean Association and chair of the Iowa Soybean Research Center's industry advisory council.

The center is a formal collaboration of industry partners, the Iowa Soybean Association (ISA) and Iowa State's College of Agriculture and Life Sciences. Together, representatives from ISA and the industry partners make up the ISRC's industry advisory council. Current industry partners include BASF, Bayer, Cornelius Seed, Corteva Agriscience, FMC, GDM and Syngenta. To find out more about the industry advisory council, visit www.iowasoybeancenter.org/about.html.

Iowa Soybean Association Highlights ISRC



The ISA recently published an article about the ISRC titled "[Iowa Soybean Research Center: Strengthening Iowa Connections](#)" by ISA Communications Specialist Carol Brown. The article gives an overview of the center's accomplishments and activities as well as elaborates on ISA's connection to the organization. Give it a read!

Above, Iowa State University researchers visit Robb Ewoldt's farm near Davenport during a tour hosted by the ISRC in July 2019. The tours are just one way the center connects Iowa State researchers with farmers and businesses that support farming.

Hungarian Delegation and ISA Experience Visit ISU

Over the summer, the ISRC hosted two groups of farmers on the Iowa State campus. In June, the Iowa Soybean Association hosted a delegation of Hungarian farmers interested in learning about ways to improve soybean production in their country. The ISRC sponsored the group for an afternoon touring the Iowa State Seed Science Center and the Advanced Teaching and Research Building (ATRB) followed by a short presentation about the ISRC. The delegation was also very interested in learning about the new feed mill project at ISU, so Jay Harmon, interim Associate Dean for Extension and Outreach at Iowa State, provided a presentation and answered questions about the project.

In July, the center hosted ISA Experience, a leadership group of Iowa farmers interested in exploring future opportunities with ISA or other ag-leadership roles in Iowa. The group toured the Seed Science Center and the ATRB, which included the research labs for Plant Pathology and Microbiology and Entomology. Several ISU researchers set up specimens for display in the teaching lab and were on hand to answer questions.



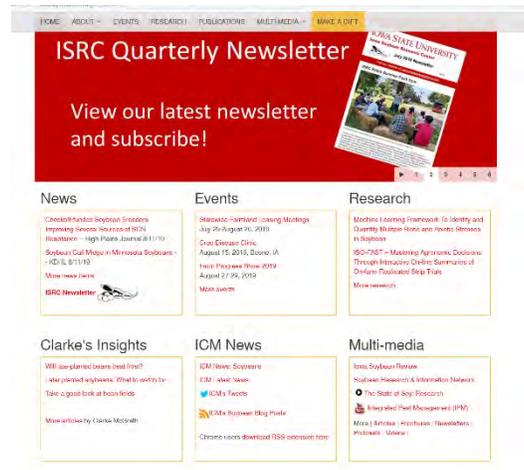
Mike Stahr of the Iowa State Seed Science Center speaks with members of the Hungarian delegation during their visit to Iowa State.



At right, graduate student Mitchell Helton shows the ISA Experience group soybean gall midge samples.

ISRC Website Gets Update

The Iowa Soybean Research Center at Iowa State University recently updated its website at www.iowasoybeancenter.org. The design highlights new images at the top of the homepage, as well as its "In the News" box, which is updated daily featuring soybean-related news articles. A newly added "Center News" box on the homepage features articles highlighting the ISRC, media releases, Clarke's Insights, and newsletters. [Clarke's Insights](#) are articles written by the center's Extension and On-Farm Research Coordinator Clarke McGrath, who writes for several farming publications including Wallaces Farmer. Also, back issues of the [ISRC Newsletter](#) can be found via the Newsletter link.



In addition, the site features upcoming events such as field days, farm tours, clinics and conferences; information about past and present ISRC-funded research projects; academic publications; and a host of useful links to Iowa Soybean Association, Iowa State Integrated Crop Management and Integrated Pest Management publications and videos.

In the near future, the ISRC plans to add a page highlighting its industry advisory council members and its management team.

Upcoming Events

- November 4-8, 2019, Ames, IA - [ISU Seed Science & Technology Short Courses](#)
- November 5-6, 2019, Des Moines, IA - [49th North Central Extension – Industry Soil Fertility Conference](#)
- December 4-5, 2019, Ames, IA – [ISU Integrated Crop Management Conference](#)
- January 22-24, 2020, Iowa City, IA - [Farm Futures Boot Camp & Summit](#)
- January 28-30, 2020, Des Moines, IA - [Iowa Power Farming Show](#)

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



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