

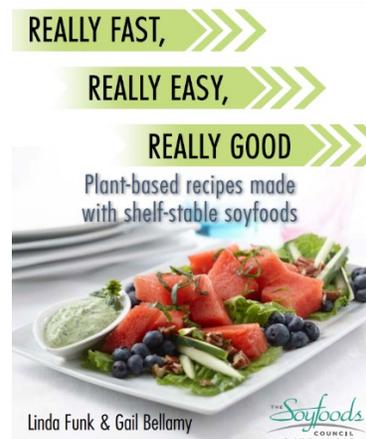
IOWA STATE UNIVERSITY®

Iowa Soybean Research Center

April 2022 Newsletter

Vol. 13

Celebrate - April is National Soyfoods Month!



Excerpts taken from an article by Linda Funk, Executive Director of *The Soyfoods Council*.

April is National Soyfoods Month and The Soyfoods Council would like to offer some ways to celebrate. There are many reasons to celebrate soy, whether it is for health benefits, being a sustainable crop, a preferred plant-protein, its convenience, or the fact that it needs minimal processing.

The Soyfoods Council suggests five ways to give soy a try during National Soyfoods Month:

- 1) Visit a restaurant and order a menu item that lists soy ingredients such as edamame, tofu or tempeh.
- 2) Try soynuts: a convenient, crunchy, filling snack that can be easily purchased online in a variety of flavors. (*Favorites of the ISRC staff are wasabi and ranch or try dry roasted edamame with sea salt.*)
- 3) Start your day with soyfoods by adding a cup of soymilk to your cereal or latte.
- 4) Find ways to introduce girls to soyfoods. Studies suggest that two servings of soyfoods per day may reduce the risk of breast cancer later in life by 50%.
- 5) "Soy-ize" or adapt your favorite recipe by adding canned black soybeans, soy yogurt, soymilk, tofu or TSP (textured soy protein).

For the full article, see [Celebrate April is National Soyfoods Month](#) and visit [The Soyfoods Council](#) website to download free recipes and digital cookbooks.

ISA & NCSRPP Requests Proposals, Due May 23rd



The Iowa Soybean Association and the North Central Soybean Research Program (NCSRPP) both recently released their requests for proposals. Below are links to each call for proposals and their required application forms.

Please note, the due date for submission of proposals to both organizations is 5 p.m. CDT, Monday, May 23rd. The ISA and NCSRPP anticipate available checkoff funds for renewal and new projects.

ISA: <https://iastate.box.com/s/yqvnogacucrjhoys0d8a7kzvm5urmu>

NCSRPP: <https://iastate.box.com/s/4r5ea8koz08cdh15yl1c5m4sq0y30y86>

ISRC Welcomes Beck's and Peterson Genetics as Newest Industry Partners

The ISRC welcomes [Beck's](#) and [Peterson Genetics, Inc.](#) as its newest industry partners. The companies provide financial support to the center and have representatives serving on the ISRC's industry advisory council, which provides guidance on research funding priorities for the center. Beck's and Peterson Genetics join representatives from AGCO, AMVAC, BASF, Bayer, Cornelius Seed, Corteva Agriscience, FMC, GDM, Innvictis/Simplot, Latham Seeds, Merschman Seeds, Syngenta and UPL.



"We are excited to collaborate with the Iowa Soybean Research Center and continue our long-standing dedication to helping Iowa soybean farmers succeed," said Scott Beck, president of Beck's. "We see the benefits of the soybean research that the ISRC is conducting and are thrilled to play a small role in helping improve soybean production and sustainability."

"Peterson Genetics is proud to partner with the Iowa Soybean Research Center, and we're looking forward to contributing to the continued success of the soybean producers in Iowa and beyond. Providing superior soybean varieties to seed companies is what we do, and we are excited to be a part of the research projects and efforts of the ISRC," said Mike Peterson, president and owner of Peterson Genetics.

"Beck's Hybrids, founded and based in Indiana, is the largest family-owned retail seed company in the country, and they have a considerable role in serving Iowa soybean farmers. I am excited to have their company's input and advice to help guide our center in making strategic investments in soybean production research here at Iowa State University," said Greg Tylka, director of the Iowa Soybean Research Center and professor of plant pathology and microbiology at Iowa State.

“I am also delighted to have Peterson Genetics join the Iowa Soybean Research Center as an industry partner. This Iowa-based company has been a leading provider of soybean germplasm for numerous seed companies for many decades. Peterson Genetics will be a valuable addition to the center’s Industry Advisory Council. Their perspectives will help ensure that the center continues to meet the research needs of Iowa soybean farmers,” said Tylka.

“We welcome Beck’s and Peterson Genetics’ support of the center and look forward to collaborating on innovative research to find ways to optimize productivity and sustainability for Iowa’s soybean farmers,” said Ed Anderson, senior director of research for the Iowa Soybean Association and chair of the Iowa Soybean Research Center’s Industry Advisory Council.

Soybean Gall Midge Webinars Offer Research Updates



From left to right, bright orange soybean gall midge (SGM) larvae feast on a soybean stem; injury can result in wilted, stunted or dying plants; and infested stems become brittle from larval feeding. *Photos courtesy of the Soybean Gall Midge Alert Network.*

In February, University of Minnesota Extension hosted a two-part Midwest soybean gall midge webinar series. University experts from Nebraska, Iowa State, Minnesota and South Dakota State were involved in discussing the latest research developments. The recordings can be found via the [University of Minnesota’s website](#). Iowa State entomologist and ISRC affiliate Erin Hodgson and University of Nebraska Crop Protection and Cropping Systems Specialist Justin McMechan helped moderate the series.

Session one covered “Insights on soybean gall midge distribution, scouting, ecology and chemical control.” Highlights included an overview of soybean gall midge, which can now be found in several states along the Missouri River. However, the heaviest infestations are still found in eastern Nebraska with infestations typically occurring around field edges in the V2 soybean growth stage or later and it is common to see different life stages at the same time. Researchers commented that just because a field may have gall midge, it does not necessarily mean the field will incur a lot of damage, so using insecticides may be more harmful than helpful.

Session two covered “What’s in the toolbox? Updates on cultural, biological, and host plant resistance tactics.” Researchers continue to study a variety of management strategies. Interestingly, hilling (bringing soil up around the base of a plant) appeared to reduce the number of larvae. And, while seed treatments didn’t seem to make a difference, time of planting may. Later planted soybeans seemed less infested, but dry weather conditions may have also played a role. Of particular interest was a discussion with George Graef, a professor of plant breeding and genetics at the University of Nebraska, who observed significant resistance to SGM in elite soybean germplasm, which could be good news for soybean farmers and agriculture companies. He believes there is a way to screen elite soybean germplasm to identify the best lines to use in infested areas and in breeding programs, and

management of the pest may be related to variety choice. Another interesting development is that the gall midge appears to have natural enemies. Studies showed that once gall midge larvae fell to the ground in the process of becoming an adult that they were eaten by brown beetles and parasitic wasps.

Stay tuned as researchers continue to observe this relatively new pest. If you think you may have soybean gall midge in your fields or to learn more, visit the [Soybean Gall Midge Alert Network website](#).

SCN-resistant Variety Trial Estimated to Have Provided Over \$200 Million in Value to Farmers

Resistant soybean varieties are extremely important for managing soybean cyst nematode (SCN). Effective resistant varieties produce good yields and suppress nematode reproduction. Each year, hundreds of commercially available resistant varieties are evaluated for yield and SCN control in the ISU SCN-resistant Variety Trial Program led by Greg Tylka, professor of plant pathology and microbiology and ISRC director, and his team. The work is funded by the soybean checkoff through the Iowa Soybean Association and results are published in ISU Extension and Outreach publication [IPM 52](#). Printed copies of the report are sent to 48,000 Iowa households and businesses as an insert in the Iowa Farmer Today newspaper annually in January.



White, adult SCN females on the roots of a soybean plant. *Photo by the Tylka Lab at Iowa State University.*

Former ISU PhD student Seungki Lee and his advisor GianCarlo Moschini, ISU Distinguished Professor of agricultural economics, conducted a study of the value of the information produced in the ISU SCN-resistant Soybean Variety Trial Program. The results of their research were published in a paper titled [“On the value of innovation and extension information: SCN-resistant soybean varieties”](#) in the January 2022 issue of the American Journal of Agricultural Economics. The researchers concluded that the economic welfare of farmers who used the information from the ISU SCN-resistant Variety Trial Program was increased by as much as \$205 million from 2011 to 2016.

Growing effective SCN-resistant soybean varieties allows farmers to produce profitable yields in infested fields while keeping SCN numbers in check. Variety selection is a critical decision because the level of SCN control varies greatly among the hundreds of SCN-resistant varieties. For the full article, visit ISU Extension’s [Integrated Crop Management website](#).

ISA Hosts “Innovation to Profit” Research Conference



At left, ISRC affiliate and ISU associate professor Prashant Jha speaks at ISA’s Innovation to Profit Conference. At right, ISA’s Research Center for Farming Innovation Director Roger Wolf kicks off the conference.

Over 200 farmers, researchers and agronomists attended the Iowa Soybean Association’s “Innovation to Profit” research conference on February 17, 2022. The ISA’s Research Center for Farming Innovation (RCFI) featured on-farm research results geared toward improving production, soil health and water management for a profitable farming operation. Attendees had the opportunity to choose from a variety of breakout sessions.

In one session, “A Systems Approach to Achieving High Yields,” ISU associate professor, extension weed specialist and ISRC affiliate Prashant Jha highlighted trends in weed resistance and best management practices, while ISA field services program manager Scott Nelson provided an update on pest activity that included gall midge, white mold, corn rootworm and fungicide trials.



Ed Anderson, ISA’s senior director of research, left, listens in on a think tank session led by Iowa soybean farmers.

Another interesting session was a “Think Tank” that provided for discussions on how ISA RCFI research can proactively support Iowa’s soybean farmers through current and emerging domestic and global markets. The session was led by ISA-RCFI staff including Senior Director of Research Ed Anderson and RCFI Director Roger Wolf.

“The Think Tank gives insight into where the soybean industry is going,” said Anderson. “What should soybean farmers be thinking about, evaluating and implementing in the next five to 20 years? What is the value chain going to look like?

How can they proactively respond to the future needs of society and positively influence their farming operations and the soybean industry?”

The group discussed what they found most important in soybean research and the importance in identifying needs and gaps for the farming industry. This led to interesting discussions on new uses for soybeans, a look at conservation systems, suggestions for new tools, a need for new varieties for better yields and pest control, bio- and renewable-diesel, soil health, cover crops and improving water quality, partnerships and many other areas.

ISA Offers Monthly Innovation TO GO Webinars

The ISA's Research Center for Farming Innovation will be sharing research updates on a variety of topics throughout the year over the noon hour. To register for and/or to watch previously recorded sessions, visit <https://www.iasoybeans.com/research/innovation-to-go>.

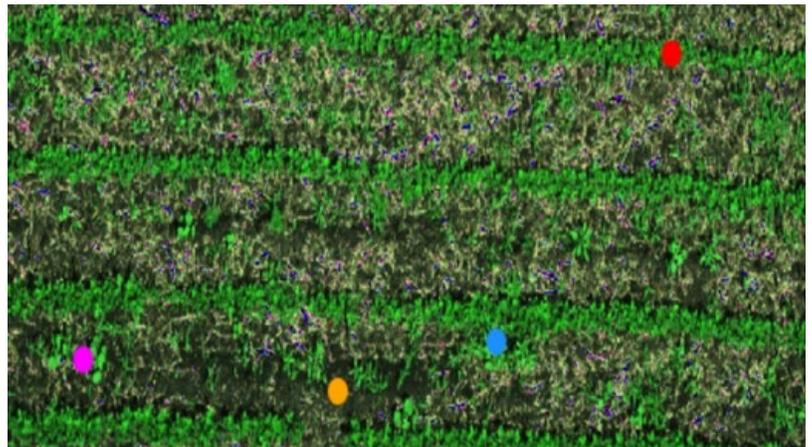


ISRC Funding Highlight

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 and the center's industry partners. Below is information on a project that received funding and support from the center for fiscal years 2020-2021.

Hyperspectral Imaging for Early Detection of Herbicide-Resistant Weeds in Soybean

Prashant Jha, associate professor of agronomy and extension weed specialist for Iowa State University, received funding from the ISRC for his project titled, "Hyperspectral Imaging for Early Detection of Herbicide-Resistant Weeds in Soybean." Jha collaborated with the Optics and Electrical Engineering programs at Montana State University. While all experiments and imaging were conducted at Iowa State, data processing and machine-learning algorithms were developed at MSU.



A hyperspectral image of waterhemp in soybean recorded by Pika L Imager mounted to a drone in a soybean field.

First steps of the project were to conduct greenhouse and laboratory experiments to identify spectral reflectance of different biotypes of waterhemp plants resistant to ALS inhibitors, atrazine, and/or glyphosate herbicides using ground-based hyperspectral imaging. In summer 2021, he used a hyperspectral camera mounted onto a drone to collect hyperspectral data in soybean fields with confirmed herbicide-resistant waterhemp populations. Images were analyzed to differentiate waterhemp from other weed species and to

identify susceptible vs. resistant waterhemp biotypes. A neural network machine-learning algorithm was used to develop classification images for field-scale maps.

Jha concludes that results indicate hyperspectral imaging and neural networks hold promise for early detection of herbicide-resistant weed biotypes in soybean production fields, especially glyphosate-resistant biotypes. This will ultimately lead to development of UAV-based weed maps for timely implementation of integrated weed management (IWM) programs for managing herbicide-resistant weeds in crop production fields.

Last fall, this project received additional funding of \$752,518 through a USDA-NRCS-CIG grant for a multi-state (ISU, Texas A&M and NC State) project on 3-D classification and mapping of weeds in corn and soybean fields to fight herbicide-resistant weeds.

Jha's final report for the ISRC-funded project may be found on the [ISRC's website](#).

Researcher Spotlight: Alison Robertson

ISRC affiliate Alison Robertson is a professor of plant pathology and microbiology at Iowa State University. She is part of the ISU Extension and Outreach Crops Team and provides extension education on the diagnosis and management of corn and soybean diseases, efficacy of seed treatments and foliar fungicides and best management practices for cover crops.

Robertson received her BS in plant pathology from the University of KwaZulu-Natal, Pietermaritzburg, South Africa.

Following graduation, she worked as an extension plant pathologist at Kutsaga Research Station in Zimbabwe, where she developed an interest in working with

farmers and agricultural professionals. Several years later, she came to the U.S. to pursue a PhD in plant pathology at Clemson University in South Carolina. She joined the faculty at Iowa State in 2004.

"The best part of my job is working with farmers and ag professionals," says Robertson. "I love sharing my passion for plant pathology and teaching them how to diagnose and manage various crop diseases. I also love to hear about their experiences and get their thoughts on certain things. Most of my research ideas come from talking with those who are out there on the frontline."

Robertson's research focuses on issues in the disease management of corn and soybean production including oomycete (water mold) pathogens. Currently, she is leading a multistate field trial experiment as part of a large USDA-funded Coordinated Agricultural Project (CAP) grant to include cover crops into crop production systems and to ensure the sustainability of U.S. agriculture. They are evaluating how cover crop termination timing affects seedling disease, insects and weed populations in 16 states. She is also coordinating another multi-state, federally funded project that



Alison Robertson presents on the basics of fungicides during ISU's Integrated Crop Management Conference in December 2021.

monitors pathogen populations and disease development with the goal of creating prediction tools to improve disease management decisions.

In addition to research, Robertson co-teaches a summer class titled, “Experience in Plant Science Extension and Outreach” in alternate years. The goal of the class is to introduce extension programming to graduate students who are interested in pursuing a career that includes extension. In 2018, she received the ISU Award for Outstanding Contribution to Extension or Professional Practice.

Get to Know IAC Farmer Rep: Randy Miller

Randy Miller is one of three Iowa soybean farmer representatives serving on the ISRC’s Industry Advisory Council. The council serves to identify research needs in the areas of soybean production and protection for the center. Farmer representatives serve three-year terms on the council and provide input on what research topics are of importance from the soybean farmer perspective.

Miller currently serves as president-elect of the Iowa Soybean Association Board of Directors and farms with his family near Lacona, Iowa.

A farmer for nearly 30 years, Miller credits his journey into farming to several people. Growing up as a “city kid” in Pleasantville, he remembers his grandfather farming and when he got older, a close friend got him involved in FFA. He said his experience with FFA and having had a great FFA/ag instructor led him to pursue a major in agriculture studies with a minor in extension at Iowa State University. Following graduation, he worked for a farmer near Milo, and then rented a farm near Lacona, which he eventually bought and still farms today.

The Millers grow soybeans, corn, cattle and hogs and are strong proponents of implementing conservation measures such as cover crops, reduced tillage, terraces, waterways and nitrogen modeling. He credits his success in farming and his ability to take on his additional roles with the Iowa Soybean Association and the ISRC to his wife Sheila, son Kaleb and daughter Kaylee. “I couldn’t do this without them,” said Miller.

Of his time on the ISRC’s Industry Advisory Council, Miller said, “It’s great to be part of something the Iowa Soybean Association has funded and to see the amount of funding and collaboration the ISRC has been able to leverage on topics that are important to industry and farmers. It’s exciting to be a part of the process and to see how the number of research proposals are whittled down to those with the most potential to payback from the checkoff dollars invested.”



Randy Miller on his farm near Lacona, IA. *Photo courtesy of the Iowa Soybean Association.*

New Science for Success Videos Available for Viewing

Iowa State Extension Cropping Systems Specialist and ISRC affiliate Mark Licht and soybean extension specialists from around the country have some new soybean videos out through Science for Success, an initiative focused on leveraging local expertise to provide national soybean best management practices.

Videos can be found on the [Soybean Research & Information Network's YouTube channel](#) or the [ISRC's video page](#).



Liqui-Grow Webinar Features ISRC Director



Jake Vossenkemper, agronomy lead scientist for Liqui-Grow, recently interviewed Greg Tylka, director of Iowa Soybean Research Center at Iowa State University and SCN Coalition member about SCN. Tylka offered effective and profitable tips to gain high soybean yields. Their interview can be found on [LiquiGrow's YouTube Channel](#) and the [ISRC's video page](#).

At left, ISRC Director Greg Tylka and Liqui-Grow agronomy lead scientist Jake Vossenkemper discuss the latest on SCN in front of a Grant Wood mural at ISU's Parks Library.

New Soil Health Decision Tool Available

Interested in increasing the soil health of your land? Check out the new, easy-to-use [Soil Health Matrix Decision Tool](#) available to aid farmers in understanding how to take care of their most valuable resource - the soil. The tool was designed by the Soil Health Nexus with assistance from extension colleagues from across the region and with financial support from North Central SARE (Sustainable Agriculture Research and Education). Brian Dougherty, ISU Extension Agricultural Engineer in northeast Iowa, helped create the tool, which allows users to compare current farm practices to future practices, like cover crops and reduced tillage.



like cover crops and reduced tillage,

College of Agriculture and Life Sciences Awards



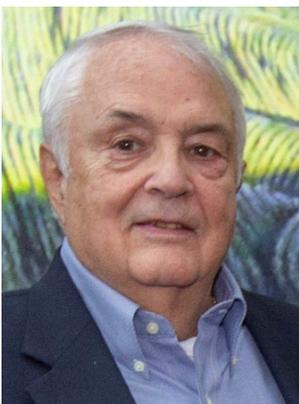
At left, Antonio Mallarino, agronomy. At right, Soynomics Team members from left: Danny Singh, agronomy; Matt O'Neal, entomology; Daren Mueller, plant pathology and microbiology; Arti Singh, agronomy; Greg Tylka, plant pathology and microbiology; Soumik Sarkar and Baskar Ganapathysubramanian, mechanical engineering.

Congratulations to the following ISRC affiliates who received awards from Iowa State's College of Ag and Life Sciences.

[Antonio Mallarino](#) received the Outstanding Achievement in Extension and Outreach Award for his work on soil fertility and nutrient and soil management for efficient crop production and environmental stewardship.

The [Soynomics Team](#) received the Team Award for their work in machine learning applications to agriculture. The team is internationally recognized and has received more than \$30 million of research funding, published more than 50 refereed journal papers and presented more than 50 invited talks in the United States, Australia, Brazil, Canada, India and Japan.

In Fond Memory of Dr. Keith Smith



The ISRC staff would like to express our sincere condolences on the passing of Dr. Keith Smith, a long-time supporter of Iowa State University and the ISRC. He and his wife Virginia provide funding for communications support for the center. It was under his advisement that the ISRC implement a quarterly newsletter. [Additional information](#)

Upcoming Events

- May 3, noon-1pm - [ISA Webinar: Water Monitoring & Water Quality](#)
- May 11 - [Soybean Centers Coordination Group Meeting](#)
- June 7, noon-1pm - [ISA Webinar: Using Farmer Data to Develop More Profitable Crop Management Systems in Soybeans](#)

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