NOVEMBER 2024

Illinois Field & Bean

A PUBLICATION OF THE ILLINOIS SOYBEAN ASSOCIATION

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Visit us online at www.ilsoy.org/newsroom/illinois-field-bean/.

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COVER: This issue of *Illinois Field & Bean* introduces the new Field Advisor platform as a refreshed and relevant resource that remains a practical, timely agronomic tool for Illinois farmers. Articles in this issue are focused on ISA's new slate of checkoff funded research projects and the collaborating researchers driving these efforts, the Soy Envoys and their recommendations for creating inclusive farm management plans, the importance of conducting on-farm trials, and a behind-the-scenes look at the people who make Field Advisor "go."

STAFF CREDITS
Editor in Chief | Betsy Osman
Assistant Editor | Olivia Key
Staff Contributor | Brynna Sentel

OTHER ISA STAFF
Chief Executive Officer | John Lumpe
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Executive Employee Relations | Nicole Butler
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Director of Marketing Communications | Michael Whitmer

Illinois Soybean Growers (ISG) is owner of Illinois Field & Bean, a publication for Illinois soybean farmers, designed and written to provide timely and useful industry information. Illinois Field & Bean is published by the Illinois Soybean Association, 1108 Trinity Lane, Bloomington, IL, 61704. For address corrections, contact Illinois Field & Bean at 1108 Trinity Lane, Bloomington, IL, 61704. Phone 309-663-7692. Web address: www.ilsoy.org. Email: ilsoy@ilsoy.org.

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FOR ADVERTISING INFORMATION
Betsy Osman
Editor in Chief
Email: betsy.osman@ilsoy.org

BRYAN SEVERS |
SOYBEAN PRODUCTION COMMITTEE CHAIR |
ILLINOIS SOYBEAN ASSOCIATION

Fresh Face; Same Space

Earlier this year, the Illinois Soybean Association (ISA) Agronomy Team announced the rebranding of ILSoyAdvisor to Field Advisor. This transition allows Field Advisor to better align with the ISA parent brand while bringing a fresh face to the same trusted resource for Illinois soybean farmers. Additionally, the rebranding highlights the Agronomy Team's recent growth and expanded focus on corn, wheat and other crops to account for crop rotation, double cropping, cover crop implementation and more.

As Chairman of the Soybean Production Committee, I'm proud of our ability to offer my fellow farmers the research-backed insights they need to run successful and profitable operations. On my own farm in Vermilion County, having access to timely and relevant information is crucial throughout the growing season. Field Advisor ensures that information is always at our fingertips, whether we're at home, in the field or on the go.

Field Advisor continues to provide the same high-quality content you've relied on, including contributions from the Illinois Soy Envoys, University of Illinois Extension, experts from across the state and the ISA Agronomy Team, which is staffed with Certified Crop Advisers (CCAs), Ph.D.s, Illinois farmers and seasoned communicators. On ***FieldAdvisor.org***, farmers can access agronomic information through articles, videos, podcasts, webinars and more. The updated website also features an extensive archive for easy access to the information you need, when you need it.

The Crop Report also remains a go-to source for timely updates on field conditions in eight regions across Illinois. There, experts offer insights on crop progress, disease, alerts, pest sightings and other challenges farmers might face throughout the growing season.

In addition to agronomy advice, ***FieldAdvisor.org*** is home to ISA's Research Hub, which showcases a number of ISA-funded projects on soil health, fertility management, cropping systems and weed management. These activities are key to advancing farming practices and ensuring the sustainability and longevity of Illinois agriculture. Field Advisor also hosts webinar and field days throughout the year. These allow farmers to connect with industry experts, gain insights on ISA-funded research and address both regional and seasonal production issues.

Field Advisor continues to celebrate excellence in agriculture through the Master Adviser Award and the Dave Rahe Excellence in Soils Consulting Award, which recognize outstanding Illinois CCAs who are driving progress in crop production.

FIELDADVISOR
FUNDED BY ILLINOIS SOYBEAN CHECKOFF PROGRAM

Your Voice is Our Mission

JOHN LUMPE | CEO |
ILLINOIS SOYBEAN ASSOCIATION

At the Illinois Soybean Association (ISA), everything we do begins with you—Illinois soybean farmers. Your needs and challenges are what drive our mission. Whether it's offering agronomic strategies, running programs and workshops, or keeping you informed about timely issues through the ***Field & Bean*** magazine, our goal is to provide the tools and support that make a difference for you, your farm and your family.

One of the most important ways we stay connected with you is through our producer sentiment study. This study is a critical resource that guides our program development and provides insight and guidance for the ISA Board of Directors.

This year, you told us that global markets and soybean genetics are the most significant factors shaping the future of farming in Illinois. With rising costs and economic uncertainty, 87 percent of you identified commodity markets and input costs as your top priorities. You also shared that 67 percent of you consider yourselves innovators or early adopters of farming technology, which reinforces the importance of us staying ahead with cutting-edge programs.

These insights directly shape the work we do. Your feedback helps us create relevant and timely programs and initiatives, such as those that address rising input costs and focus on sustainability. Our ongoing investment in agronomic research is driven by your need for practical solutions.

Over the 2024 growing season, our in-house Agronomy Team hosted several field day events across the state in an effort to address regional challenges and opportunities. The team also encouraged growers to implement innovative practices that boost yield. We've also funded on-farm trials to test new production methods, providing real-world data on strategies such as cover crops, nutrient management and pest control. In addition, we're focusing on disease management by partnering with researchers to identify emerging threats and share best practices, ensuring that you have the resources to protect your crops.

I encourage you to visit ***FieldAdvisor.org*** to sign up for the weekly e-newsletter and stay updated on the latest agronomic news and events.

Sustainability is another key area of focus. As part of the Illinois Sustainable Ag Partnership (ISAP), we're helping farmers put research into action. One of the most valuable tools introduced by ISAP is the Financial Incentives Database (FIND) Tool, which connects you with more than 60 programs that offer support for adopting conservation practices. You can filter these programs by location, production type and conservation method, making it easier to implement sustainable practices while keeping your bottom line intact.

Additionally, our focus on cover crops and nutrient loss strategies helps reduce runoff, promote soil health and increase profitability. These programs are designed to bring real benefits to your operation, from the soil to the market.

Growing markets for soy-based materials such as biodiesel, sustainable aviation fuel and bioplastics is crucial for the future of Illinois soybeans. Our programming around trade and infrastructure improvements is also helping to keep our soybeans competitive and open up new trade opportunities, ensuring that Illinois soybeans are in high demand both at home and abroad.

At ISA, we don't just listen to your input—we act on it. Your voice shapes everything we do. We're committed to delivering the research-driven solutions that matter most to your farm today and into the future.

Funded by the Illinois Soybean Checkoff

2025 ILLINOIS SOYBEAN PRODUCTION RESEARCH PREVIEW

FIELD ADVISOR

FUNDED BY ILLINOIS SOYBEAN CHECKOFF PROGRAM

NEW FIELD ADVISOR WEBSITE LETS FARMERS PUT SCIENCE INTO ACTION

By Jennifer Jones, CCA, Research Agronomist, Illinois Soybean Association

Making on-the-fly soybean management decisions has never been more important. That's why Illinois Soybean Association (ISA) is proud to unveil the newly updated online Field Advisor platform. It brings the latest on-farm research together with weekly agronomic insights and news to help your operation improve yield and profitability.

This newly named platform and expanded information offering better aligns with ISA's brand and better reflects our goals. That includes serving as a trusted adviser to you as a farmer throughout the calendar year. It's also the hub where you'll find the latest insights on the fiscal year 2025 crop of farmer-funded research made possible via your investment in ISA.

"It's refreshing to see how ISA is going about its daily business these days," says Dr. Aaron Hager, Professor and Extension Weed Scientist, University of Illinois. "Everyone realizes that the more we collaborate, the more we can accomplish. The funding they're providing is critical because we can't get funding for these types of applied research projects from national competitive sources—it just doesn't exist. We feel this is applied work that yields applicable results for Illinois farmers."

In this article, I'll share an exclusive first look at the Field Advisor platform, which takes everything you've come to value and boosts your access to the best research-based insights around. Then, I'll provide a look at how your farm will benefit from just a few of the 22 funded research projects for 2025. (I'm pleased to report that number is up from 16 projects a year ago in spite of reduced budgets amid the down ag economy.)

Farmer Feedback Informs Research

Funded research projects spanning Sept. 1 through Aug. 31, 2025, will encompass three areas: in-season agronomy, pest management and conservation practices. Those priorities might adjust in the future, as research projects frequently span several Illinois farmer needs.

To identify the right projects to fund, Dr. Stacy Zuber, ISA's Research Data Scientist, and I organized the annual Soybean Production Concerns Survey for farmers around the state to complete.

This year marked the first time we've kept the survey live and available year-round for farmers to take, compared to asking for feedback only during winter events. Also for the first time, we shared preliminary survey insights with scientists, primarily at universities and Extension, to help guide their research activities.

Weed management—especially for herbicide-resistant species—along with conservation practices and pest management rose to the top of farmers' research wish lists.

Field Advisor Platform Accelerates Learning

So how does all of this translate to the new Field Advisor platform? The first thing to know is that the website will continue to carry the information you've come to appreciate as a farmer. This includes:

- Details on in-person farmer learning and networking events (winter and summer)
- Regionally specific crop reports (growing season)
- Information on checkoff-funded research projects
- Blogs, podcasts, webinars and videos

The Agronomy Team at ISA is passionate about the whole system farmers work with here in Illinois, so you'll often read articles or hear experts talking in videos, podcasts and webinars about corn and wheat in addition to soybeans.

2025 Research Snapshots

Although I don't have space to share details of every ISA research project funded for 2025, I've pulled together some examples to illustrate the breadth and depth of insights you can expect. ISA is proud to partner with leading researchers who, with their teams, are expanding the toolbox for Illinois soybean farmers.

Enhancing the Profitability of Wheat-Soybean Double Cropping

Researcher: Dr. Jessica Rutkoski, assistant professor of small grains breeding, University of Illinois

Investigating ways to "better identify new elite early wheat varieties" is at the center of this project, explains Dr. Jessica Rutkoski, assistant professor, University of Illinois. Specifically, her research team is evaluating jointing times of different varieties to identify early varieties that can tolerate late-spring freezes. In addition, her team is evaluating how quickly different wheat varieties dry down after grain filling has ended. "If we detect variation in this trait, we could select for faster dry-down to make wheat harvest a few days earlier without sacrificing yield."

For soybean farmers, this means improved economic outcomes and better agronomic conditions. Too often, early maturing wheat varieties yield less compared to other varieties or suffer from spring freeze damage, Rutkoski says.

Identifying more resilient wheat varieties would enable farmers to capture the full value of the wheat crop and then get double-crop soybeans planted early enough in the summer for strong yields.

"Last year, we found an eight-day range in maturity dates between the earliest wheat variety and the latest variety," Rutkoski says. "This indicates that considering maturity date information could potentially help growers plant their double-crop soybeans up to one week earlier."

Based on what they've already learned, Rutkoski advises farmers who double crop to take several measures. First, select "more than one top wheat variety, including one early wheat variety to get wheat harvest started in a timely manner. We also recommend considering scab resistance to avoid varieties that are susceptible," she says. More data from wheat variety tests are available online from the university at ***varietytesting.web.illinois.edu/wheat/***.

Farmers can leverage this data to remain strong participants in the global ag economy.

"More and more, we compete on a world stage," Rutkoski says. "Illinois is at the forefront of agricultural research and technology, and if we don't put it to good use, other states and countries will beat us at our own game."

Injury Potential to Very Early-Planted Soybean from Various Soil-Residual Herbicides / Active Ingredients

Researcher: Dr. Aaron Hager, professor and Extension weed scientist, University of Illinois

Although baby soybeans often prove to be incredibly resilient, many Illinois farmers have expressed concerns about potential damage from residual herbicides and active ingredients, explains Dr. Aaron Hager, professor and Extension weed scientist, University of Illinois. This study represents Year Two of his current phase of research to address this potential risk.

"Beans may lay there for three weeks before they emerge," Hager points out. "We thought it would be a good idea to try to screen the premix ingredients or active ingredients and see how soybeans responded to them in that environment."

The researchers will study about a dozen unique active ingredients spanning most of the options available to Illinois farmers. Although it's important to study individual ingredients, Hager says, this research takes it a step further by analyzing the unique impact of a three-way mix on plant health "because different actions are at play."

(See 2025 Illinois Soybean Product Research Preview, page 8)

2025 Illinois Soybean Product Research Preview

(continued from page 7)

Hager continues, "If we see specific active ingredients or groups of herbicides more likely to cause injury, that's something soybean growers need to be aware of. The choice is theirs, but we can better inform them that certain herbicides may be more likely to cause injury."

Documenting the Extent of Resistance to Group 15 Herbicides in Illinois Waterhemp Populations

Researcher: Dr. Aaron Hager, professor and Extension weed scientist, University of Illinois

Herbicide resistance in prolific Illinois weeds is a growing concern for farmers. Hager's lab is intimately familiar with this challenge. Years ago, it became the first program in the world to document resistance to Group 15 herbicides in a broadleaf species, specifically waterhemp.

It turns out when a weed is resistant to a Group 15 herbicide, it's resistant to any Group 15 product. Thus, Hager's lab continues to investigate how widespread such resistance is—and to sound the alarm so farmers can creatively and proactively manage this yield threat.

"We actually hope to find more of these resistant populations," Hager says of the 2025 project. "If we confirm more populations resistant to Group 15, we can share them with my colleague, a molecular weed scientist. He can identify which genes are responsible for the resistance. Right now, we have no idea which genes are responsible."

The goal isn't to burden farmers with this harrowing news but rather to see if the same gene emerges as the root cause again and again. "That takes us closer to developing a diagnostic tool," Hager explains.

The need for this type of research is especially acute because farmers are running out of options for effective chemical controls, and no new products are in the pipeline, Hager says.

"Unfortunately, when resistance to Group 15 herbicides occurs, the length of residual control gets shorter and shorter," he says. "This is evolution in action."

Evaluation and Commercialization of SOYLEIC™ Varieties in Illinois

Researcher: Dr. Eliana Monteverde, assistant professor and soybean plant breeder, University of Illinois

Boosting farm profitability through enhanced soybean varieties that meet market demand is the focus of this study, explains Dr. Eliana Monteverde, assistant professor and soybean plant breeder, University of Illinois. It's also a priority amid changing federal regulations on trans fats, which have reduced the value of commodity soybean oil.

"Illinois farmers must reclaim the market share lost to competing oils," Monteverde says. SOYLEIC™ has high potential because it can be used not only in food but also in motor oils, marine oils, hydraulic fluids, asphalt binding agents and jet fuel.

The new Field Advisor platform will enable her and other researchers to surface these kinds of opportunities, translating science into accessible insights for farmers and the public.

"It's exciting to bridge the gap between academic research and field application," she says.

Diversifying the Genetic Resistance to Soybean Cyst Nematode (SCN) in Illinois

Researcher: Dr. Eliana Monteverde, assistant professor and soybean plant breeder, University of Illinois

Pesky soybean cyst nematodes (SCNs) are finding ways to work around the single resistance gene found in soybeans from a variety called PI88788, Monteverde says. "The goal of this research is to create and test new soybean lines that use different sources of resistance to SCN."

New soybean lines will enable farmers to manage this disease through rotation of different resistant varieties, she explains. In turn, nematode populations in the soil would be expected to shrink, preventing SCN from becoming more virulent.

Unfortunately, breeding for disease resistance sometimes has the unintended consequence of sacrificing yield or seed quality. Monteverde wants to explore ways to mitigate that risk.

That will "help ensure that farmers get high-performing varieties that don't sacrifice productivity," she explains.

Benchmarking and Integrating Soil Health, Water Quality and Climate-Smart Footprints of Illinois Soybeans

Researcher: Dr. Andrew Margenot, associate professor of soil science, University of Illinois

Now in Year Three, this project continues to assess Illinois soybean production outcomes for soil health, water quality and climate. Specifically, it's focused on assessing the effects of three management practices—crop rotation, tillage and cover cropping—in the three different regions of southern, central and northwestern Illinois. "This work will deliver practice-based recommendations for soybean producers interested in soil health improvement and seeking potential carbon credits," says Dr. Andrew Margenot, associate professor of soil science, University of Illinois, "and enable marketing of Illinois soybeans with tangible metrics of soil health, water quality and climate footprints to increase competitiveness of this commodity."

Benefits for farmers will include access to customized sustainability benchmarks for specific Illinois cropping regions. This will encompass insights on soil sampling, including timing and details on which tests best capture soil health response to conservation practices. Additionally, it will help farmers navigate carbon credit markets by assessing the cost of implementing conservation practices per ton of carbon sold.

"Increasing scrutiny on water quality goals, specifically nutrient losses, means that considering potential synergies but also trade-offs in conservation practices (e.g. cover crops) for profitability versus water quality versus soil health is needed," Margenot explains.

SOYLEIC™ soybeans are harvested at University of Illinois test plots. Such varieties could boost economic opportunities for Illinois farmers by meeting market demand for high-quality soybean oil while overcoming regulatory hurdles to conventional soy oil. Photo Credit: Dr. Eliana Monteverde

Residue Management and Nutrient Value for Soybean Production

Researcher: Dr. Andrew Margenot, associate professor of soil science, University of Illinois

It's possible that Illinois soybean farmers could unlock valuable nutrients for upcoming soybean crops with deeper understanding of the residue left behind after corn, soybean and wheat harvests, Margenot shares. Using state-of-the-art technology, he and his team will track nitrogen (N), sulfur (S) and potassium (K) from "fertilizers through the soil and into the crop of the same-season and next-season via release from residues under six major soybean management practices." Practices will include different types of tillage, fertilizer application timing, soybean planting date, biologicals for residue breakdown, and cover cropping and double cropping.

This effort will produce several resources for farmers. Among them will be a residue nutrient tool with guidelines on how to estimate residue levels per bushel of grain yield, Margenot says. It will also enable farmers to calculate total and seasonally available pounds of N, K and S per acre that can be credited toward soybean uptake in the next growing season. Similar guidelines will be published for corn and wheat.

Recommendations for both residue management and fertilization will be included. "Our results will provide direct insight to soybean use efficiency of S but also the N from starter fertilization (AMS) and K from potash," Margenot says.

He's grateful for these research opportunities and the Field Advisor platform, both unique to the state of Illinois.

"ISA support is unique in providing the necessary support for fundamental science research that has immediate applications for producers," Margenot says. "Not all states have a soybean board such as Illinois that invests in the fundamentals to make big advances in how soybeans can be better managed in the field."

Put ISA Research To Work

Although you now have a glimpse at the diverse research underway for Illinois soybean farmers in 2025, this is just the beginning.

You can keep tabs on the latest findings from the field by visiting the Field Advisor platform's Research Hub at ***FieldAdvisor.org/Research***. There, researchers will share quarterly updates on their studies. At the end of the fiscal year, you'll get farmer-focused reports with recommended actions you can implement on your farm.

To learn more, visit ***FieldAdvsior.org*** or sign up for the weekly e-newsletter by emailing ***fieldadvisor@ilsoy.org.***

Creating new economic opportunities for Illinois soybean farmers through high oleic acid varieties and reduced risk of soybean cyst nematode (SCN) are at the center of Dr. Eliana Monteverde's two projects funded by farmers through ISA. Monteverde is an assistant professor and soybean plant breeder at the University of Illinois. Photo Credit: ISA

Research assistant Logan Miller (left) and Dr. Aaron Hager of the University of Illinois evaluate early planted soybeans as part of a study exploring whether various soil residual herbicides and active ingredients can damage crops. It's part of a multi-year effort to help farmers hone best management practices for spring field work while maintaining yield potential. Photo Credit: ISA

Dr. Andrew Margenot of the University of Illinois profiles soil to establish a baseline on farm soil types. He leads two ISA-funded research studies for 2025, one on soil health and carbon credits for soybean farmers and a second on residue management and nutrient value. Photo Credit: Devon Barker

The opportunity to identify elite wheat varieties that can be harvested earlier ahead of double-crop soybeans drives Dr. Jessica Rutkoski of the University of Illinois. "To achieve earlier wheat harvest without sacrificing yield, we are determining if we can select for faster dry-down after grain filling has stopped. Previous research in wheat and other crops suggests that there could be a link between faster dry-down and thinner pericarp of kernels, which is related with higher flour yield and lower vomitoxin," Rutkoski says. "Thus, if variation exists, selecting for faster dry down could bring multiple benefits to growers as well as millers." Photo Credit: ISA

Co-Processing Is No Bargain for Farmers

By Rob Shaffer, El Paso Farmer

American corn and soy farmers are preparing for a record harvest this year. With new technologies and practices, our yields for these mainstay crops are climbing even though our planted acreage hasn't changed. It's vital that we build stable, reliable markets for these crops that provide a sustainable return on our investments.

Farmers have made tremendous investments over many years in homegrown markets that can keep pace with our productivity. For example, soy processors have invested more than $6 billion to increase domestic crush capacity and keep more of the crop's value here at home. And the renewable diesel industry – which combined with biodiesel now meets 8 percent of the nation's on-road heavy-duty fuel needs – has invested billions to exponentially expand production capacity.

Sustainable aviation fuel (SAF) could be the next big opportunity. If the U.S. is going to make a serious effort to meet the SAF Grand Challenge and annually produce 3 billion gallons of SAF by 2030, America's soy and corn growers will

have to provide the majority of the raw material. We've got to be smart in how we meet this new opportunity.

Building new, dedicated SAF production capacity is the best way to sustainably grow the market for corn and soy. According to the U.S. Energy Information Administration, the U.S. will have more than 400 million gallons of dedicated SAF capacity by the end of 2024. That's literally orders of magnitude greater than the 14 million gallons of SAF that U.S. companies produced in 2023.

Additional stand-alone projects and technologies are in the works, bringing the nation's goal closer to reality. Airlines and a few traditional oil companies have made their own investments. Some refineries have completely converted to producing only renewable diesel and SAF. New projects such as these bring significant economic benefits. According to calculations from Clean Fuels Alliance America, every 100-million-gallon increase in production adds $1.09 billion in economic opportunity and 3,200 new jobs.

Federal and state policy should maximize the innovation, return on investment and job-creation potential of SAF. And we should be working hard to ensure that U.S.-grown soy and other crops are preferred raw materials based on their quality, sustainable productivity and economic benefits.

Some oil companies are offering a way to cut corners in reaching SAF goals: it's called co-processing. Nearly any U.S. oil refinery can co-process a minimal amount of renewable oil – up to 5 percent – along with petroleum without changing processes or investing in significant new infrastructure. They can assume that the 5 percent renewable content incorporated at the start generates 5 percent renewable diesel or renewable jet. And if every U.S. refinery used 5 percent renewable content, they would use a significant amount of the available supply of fats and oils.

Unlike dedicated biofuel facilities that use 100 percent renewable fats and oils on a 24/7 basis, co-processing refineries switch back and forth from petroleum to renewable inputs depending on the relative economics. Co-processing refineries are not reliable or consistent customers for farmers. And if U.S. oil refiners are incentivized to co-process even minimal amounts of biomass feedstock, they could easily outcompete dedicated facilities for the available supplies.

Stand-alone SAF producers will not invest in plants and infrastructure or create jobs if co-processed SAF qualifies for taxpayer-funded incentives.

Congress determined 15 years ago that co-processing oil refineries do not generate the same economic and environmental benefits as dedicated facilities. Moreover, if refiners co-process soy, canola or even corn oil, it does not meet the federal definition of "sustainable aviation fuel." Since farmers have made substantial investments and taken tangible steps to meet the nation's SAF goals, it is no bargain for us to allow co-processing oil refineries to edge dedicated facilities out of the tax credits.

Rob Shaffer, El Paso Farmer
Photo Credit: American Soybean Association

The People Behind the Platform

By Olivia Key

Abigail Peterson

The Illinois Soybean Association (ISA) Agronomy Team is dedicated to serving the agronomic needs of Illinois soybean farmers through information and research shared through ***FieldAdvisor.org***. Below, you'll meet this team of Certified Crop Advisers, Illinois farmers, industry experts and go-getters, who are all united by a shared passion for supporting the soybean farmers of Illinois.

Abigail Peterson, CCA, Director of Agronomy

As Director of Agronomy, Peterson helps guide ISA's conservation efforts and aids in the development and implementation of conservation agricultural research and outreach programs. She also helps lead the demonstration and adoption of conservation agriculture practices to Illinois soybean farmers.

Why are you passionate about supporting Illinois soybean farmers?

"What drives our passion and work is connecting with farmers. The checkoff is your tool to address soybean production concerns, whether that be chemical usage, soil and water quality, integrated pest management and more."

Jennifer Jones, CCA, Research Agronomist

In her role, Jones works to develop and implement agricultural research and outreach programs. She supports research efforts and helps communicate both in-field and edge-of-field research and validation studies to ISA's farmer audiences, leads demonstration of conservation agriculture practices, and raises awareness of best management and continuous improvement practices for conservation agriculture in Illinois. Jones' contributions to ***FieldAdvisor.org*** include coordinating the external research projects with university and industry partners. She works alongside Stacy Zuber and Kelsey Litchfield to review all Research Hub content to ensure the information is timely and relevant. She also works with Lauran Hill and Litchfield to share progress updates on external research projects through blogs and social media posts.

Why are you passionate about supporting Illinois soybean farmers?

"I am passionate about supporting Illinois soybean farmers because my family is among them. Farm families work really hard, so I am particularly passionate about bringing research findings to farmers that can help lighten their decision-making load when it comes to soybean production issues."

Stacy Zuber, Ph.D., Research Data Scientist

As ISA's Research Data Scientist, Zuber works alongside Jones to develop and implement agricultural research and outreach programs. Her emphasis is on designing and implementing on-farm research trials, analyzing data and preparing and delivering outreach materials to share findings with the agricultural community.

Why are you passionate about supporting Illinois soybean farmers?

"I've always been interested in science and trying to understand how things work and how we can use what we learn to make things better. Growing up on a farm and surrounded by agriculture, those eventually fit together. Now I have the opportunity to work on applied research that helps farmers do their job."

Deanna Burkhart, Producer and Field Services Administrator

In her role as Producer and Field Services Administrator, Burkhart works to develop and implement outreach programs, with an emphasis on farmer participation and partnership coordination. Burkhart is also involved with the coordination of projects on ***FieldAdvisor.org***, such as the On-Farm Trial Network.

Why are you passionate about supporting Illinois soybean farmers?

"Many of my friends and family are Illinois soybean farmers. Illinois farmers are key contributors to the agriculture industry, and it is my privilege to support their success."

Stephanie Porter, CCA, Outreach Agronomist

As Outreach Agronomist, Porter supports all things Field Advisor, which encompasses the outreach efforts that help communicate both in-field and


Jennifer Jones


Stacy Zuber

edge-of-field research and validation studies to Illinois farmers.

Porter works closely with Litchfield to provide agronomic outreach in Field Advisor videos, podcasts, radio, blogs, newsletters, in-field insights and social media. She also utilizes her experience to help farmers across the state solve agronomic problems.

Why are you passionate about supporting Illinois soybean farmers?

"I am passionate about supporting Illinois farmers because I have seen how far they have come when it comes to soybean production but also understand they still have many challenges to overcome. I enjoy connecting farmers with ISA checkoff-funded research, troubleshooting field issues and contributing to our unbiased research hub on ***FieldAdvisor.org.***"

Kelsey Litchfield, Agronomic Outreach Specialist

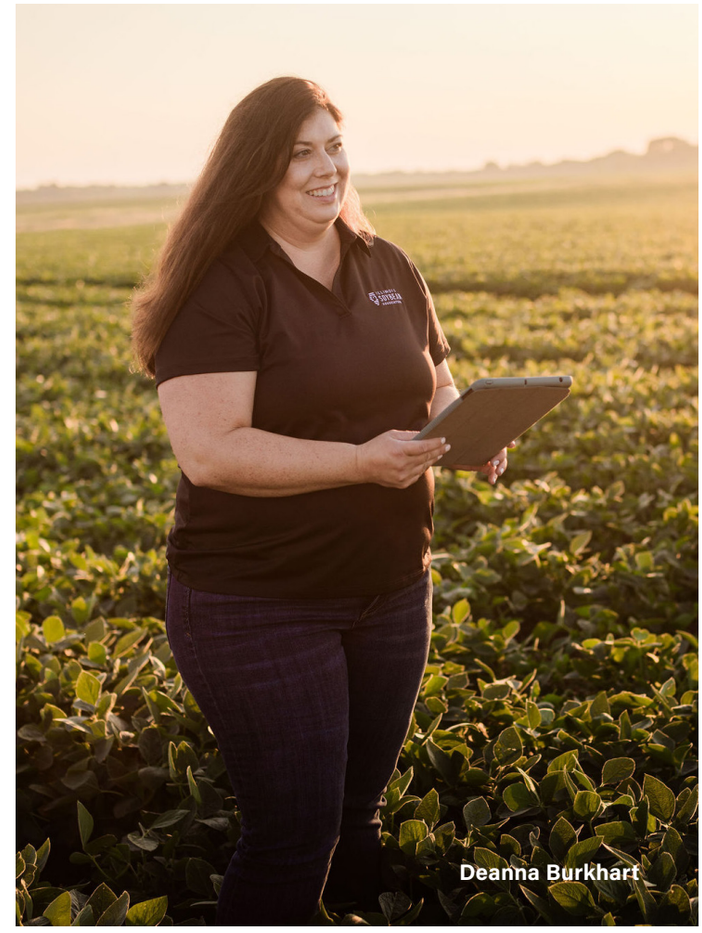
In her role as Agronomic Outreach Specialist, Litchfield assists in the coordination of Field Advisor outreach events and projects. You will often find Litchfield out in the fields assisting the Agronomy Team during field days and other events.

Litchfield also manages Field Advisor's website and social media platforms, ensuring they are up-to-date and effectively communicate key information. She also hosts the Field Advisor podcast, where she engages with farmers, experts and industry leaders to discuss relevant agronomic topics. Her role involves creating content, interacting with farmers and industry partners, and driving engagement across digital channels to support ISA's outreach and educational efforts.

Why are you passionate about supporting Illinois soybean farmers?

"I'm dedicated to supporting Illinois soybean farmers by delivering actionable information on agronomy and production. With an

(See The People Behind the Platform, page 14)


Deanna Burkhart


Stephanie Porter


Kelsey Litchfield

The People Behind the Platform

(continued from page 13)

overwhelming amount of information available online, I strive to offer clear, independent and unbiased information to help farmers make informed decisions. My goal is to empower Illinois soybean growers with the knowledge needed for profitability, effective land stewardship and high yields."

Lauran Hill, Agronomic Outreach Coordinator

As the Agronomic Outreach Coordinator, Hill coordinates events and programs, assists with social media and manages Field Advisor's graphic design and photography needs.

Why are you passionate about supporting Illinois soybean farmers?

"Illinois soybean farmers are committed and dedicated to the hard work that goes into every season, no matter the challenges. Coming from a farm, I see that every single day. They are continuously moving forward, adapting and ensuring a healthy future for generations to come."

Connie Copley, Agronomy Team Coordinator

In her role, Copley manages the Director of Agronomy's schedule, coordinates travel and plans meetings for the Agronomy Team's internal and external contacts. Copley proactively addresses pressing departmental needs and collaborates with her team to organize team activities in and out of the field. She assists with project management, as well as preparation for Field Advisor events and field days.

Why are you passionate about supporting Illinois soybean farmers?

"I am passionate about agriculture, serving others, and helping my team stay organized and on track so they can do what they do best in supporting Illinois soybean farmers. Farming is hard work, and it is not for the faint of heart. You work long hours, are out in the elements and dirty most of the time, you have to love it to do it. I love listening to the stories or life lessons that farmers like to share."

To learn more about the ISA Agronomy Team and their objectives, visit ***https://fieldadvisor.org/isa-agronomy-team.***


Lauran Hill

Connie Copley


WISHH leverages partnerships
for U.S. Soy to help meet the protein needs of 8 billion consumers
ASA
American Soybean Association
WISHH
WORLD INITIATIVE FOR SOY IN HUMAN HEALTH
UNITED SOYBEAN BOARD
FLOWCODE
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wishh.org

Funded by the Illinois Soybean Checkoff

Photo Credit: Eric Beckett, Illini FS

Is it Worth a Rescue Treatment of Liberty Herbicide in Liberty Tolerant Soybeans to Control Waterhemp?

By Eric Beckett, CCA, ISA Soy Envoy

Soybean farmers considering a rescue treatment of Liberty or another glufosinate-based herbicide to control waterhemp should talk to their trusted agronomist about the root of the situation. How and when were initial weed control strategies implemented, and why did they come up short in keeping waterhemp at bay?

Some questions that need to be considered with honest feedback:

1. Did we start clean from either tillage, cover crops or spring burndown herbicide application?

2. Were effective sites of action to control waterhemp with preemergent residual herbicides utilized before soybeans emerged and then incorporated into the post-emergent herbicide pass?

▪ Possible herbicide tank mixes that have proven effective when combined at planting but before soybean emergence include the following herbicide groups: Group 2, 5, 14, 15.

▪ Then, in the post-emergent herbicide pass, were overlapping residuals utilized that might include the following herbicide groups: Group 14 or 15?

3. Were full labeled rates utilized at the time of application with consideration to control waterhemp?

4. Was waterhemp targeted at three to four inches in height at the time of application?

5. What adjuvants were included in the tank mix? One specific adjuvant that Liberty requires is ammonium sulfate or AMS. To overcome possible antagonisms from cations in water sources, the pH of the water must be lowered. Generally, two to three lbs. of AMS per acre will overcome this. However, it is important to have water sources tested.

6. Spray tips: Were the correct spray tips utilized to create the desired spray droplets

and provide good coverage of desired weeds, such as waterhemp?

We as producers, agronomists and applicators have control over all of the above questions. It's about controlling the controllables and managing factors such as environmental conditions at the time of application.

Now, back to the original question: Can Liberty or glufosinate-containing herbicide be considered for a rescue application in soybeans?

1. Is the soybean growth stage at or before R1 growth stage?

2. Will application occur within 70 days of harvest?

3. Have there already been two applications in the crop?

4. Have 87 ounces per acre of Liberty already been used in the crop?

If the answer to any of these questions is "yes," then the answer is no! The label is a legal contract. It explicitly states that if any of these conditions exist, then a Liberty or glufosinate-containing herbicide application cannot occur.

Application of Liberty or glufosinate-containing herbicide after the R1 growth stage in soybeans is not concerned with knocking blooms off the plant or interfering with reproduction growth stages. It's more about whether there is enough time to reduce herbicide residues within the plant before harvest. Although this may not be of great concern to growers directly, growers should still be concerned because of the bigger picture. If the grain is evaluated for herbicide residues and Liberty is detected, it might be subject to government seizure, import block or penalties. Illinois is already the leading state in the U.S. for raising soybeans. Let's not interfere with that reputation by allowing weeds to get out of hand or succumbing to the temptation to spray Liberty off-label and out of compliance.

As always, please read, understand and follow all of the guidelines on the herbicide label!

Originally published on the Field Advisor website on Aug. 5, 2024.

About the Author:

Eric Beckett, CCA, is a 2024 Soy Envoy. Currently serving as a Field Agronomist with Illini FS, Eric brings a wealth of experience from diverse roles in agronomy research. His career has encompassed weed science, corn and soybean plant breeding, and work in high-yield corn and soybean environments across Illinois. Based in east central Illinois, Eric oversees five counties and manages eight full-service agronomy retail locations in his current position. In his role at Illini FS, Eric dedicates much of his time supporting agronomy sales and operations staff, collaborating closely with grower customers. He also takes charge of managing Illini FS's agronomy interns and the On-Farm Discovery program. Originating from Monticello, Eric now calls Philo, home. Apart from his professional pursuits, Eric finds joy in fishing, traveling with his family and engaging in DIY projects around the house. Eric is formally trained as an agronomist, holding degrees from Parkland College and Southern Illinois University in Carbondale. His professional qualifications extend to being an active CCA 4R NMS and a licensed UAV Drone Pilot, highlighting his commitment to staying at the forefront of agronomic practices and technology.

Photo Credit: Abigail Peterson

Funded by the Illinois Soybean Checkoff

The Undeniable Intrigue of Field Trials

The ISA Agronomy Team talks about what field trials can do for your farm — and why you shouldn't wait to get started with the new On-Farm Trial Network

Hopefully by now you've heard about ISA's all-new On-Farm Trial Network, an opportunity for Illinois farmers to discover agronomic solutions on their own operations.

The exciting news is that after much planning, preparation and protocol development, it's go time! That's right, registration is officially open, and you can sign up to make your farm part of the future of agriculture.

We know the idea of participating in field trials raises all kinds of questions, so that's why we decided to devote this article entirely to answering your most pressing questions. Plus, we want to give you an outlet to ask more if yours aren't answered here.

So let's get started!

Why are field trials important for agriculture and my farm?

Field trials are critical for assessing the potential or limitations of new crop varieties, fertilizers and pest control methods. They help us validate the effects and characteristics of new products and technology, and they drive innovation within the agriculture industry. And they help farmers like you make informed decisions to optimize production and increase yields.

— Stacy Zuber, Ph.D., ISA Research Data Scientist

How does the new On-Farm Trial Network differ from previous trial programs?

The On-Farm Trial Network functions as the bridge between Illinois farms and the research generated by universities and industry experts. On-farm trials are an integral step in translating how small-plot or greenhouse research can apply to cropping

(See The Undeniable Intrigue of Field Trials, page 20)

Photo Credit: Abigail Peterson

The Undeniable Intrigue of Field Trials

(continued from page 19)

environments. They allow for testing across a wider range of weather, soils and locations across Illinois. The new On-Farm Trial Network will offer three types of trials for growers to join.

—Deanna Burkhart, ISA Producer & Field Services Administrator

Why are there three types of trials available through the On-Farm Trial Network?

Illinois has an extensive system of agronomic retail trials and strong academic research through its universities. However, retail trials can be biased, and academic research is often conducted on small plots. The different trials available through ISA provide farmers with the opportunity to gain knowledge on implementing these practices at scale, using conventional equipment in different geographies, and working with the ISA Agronomy Team for unbiased information on potentially beneficial production practices. This multi-pronged approach fosters a collaborative network that enables farmers to reap the rewards.

- Jim Isermann, independent agronomist specializing in soil health and conservation practices; provides support for the ISA On-Farm Trial Network

What are the different types of trials available?

The first is an exciting new type called Action Trials. We're starting those for the 2025 growing season, and registration is open now! These are short-term trials, usually one year long, that are designed to provide quick, actionable data that growers can use to make decisions on production strategies more immediately.

The second are our Legacy Trials, which are more long-term, usually five years or more. They address complex issues such as cover crops and tillage that require multiple replications and study.

Third are Demonstration Trials, less intensive trials that provide an opportunity to highlight new products or practices. For the 2025 season, Action Trials and Legacy Trials are available for enrollment right now, with possible Demonstration Trial sites down the road as we schedule Field Days and other events.

—Stacy Zuber

What Action Trials are available for 2025?

The first one is on sulfur fertilization in soybeans. We'll be looking at whether adding sulfur impacts yields. The protocol calls for applying 30 pounds of sulfur per acre in replicated strips, each paired with a no-sulfur control strip, for eight strips total.

Farmers can use any sulfur they like, according to personal preference and regional availability. Once they're registered, we'll have a call to discuss application, planting and harvest equipment, strip width and other factors to develop a custom map for the individual field and operation. Then we'll work together on yield monitor calibration and data collection setup and be ready to roll.

Our goal is 12 to 16 different farm sites across Illinois, including a wide range of soil types, soil conditions and climates.

The second trial will be conducted in collaboration with Dr. Nick Seiter, University of Illinois entomologist. This trial follows up on work he and his graduate students have been doing on soybean insecticide ROI.

We're looking for four sites across the state, and growers can use any insecticide, foliar or seed. We'd ideally like four replicated strips and four control strips, and we'll assess injury, collect insect counts and record yields.

—Stacy Zuber

Why do fields need sulfur when it used to be just N-P-K?

Farmers have known for a long time that we are no longer receiving sulfur from the atmosphere like we used to. As we improve yields, we are finding that secondary nutrients such as sulfur are becoming a limiting factor in many instances. It has become a common practice to add sulfur to corn fertilization programs but adding it ahead of soybeans is just starting to gain traction for many. The implications of sulfur rates, the different forms of sulfur, and application timing on soybeans at the farm level need further study to give farmers the best management practices.

—Jim Isermann

What Legacy Trials are available for 2025?

In 2025, we'll be expanding to our Legacy Trials that integrate cover crops and no-till to study soil health and economic metrics. We'd especially like to add sites in central and southern Illinois but will accept fields in any part of the state. Our intention is to add a few sites every year.

Some of our farmers have previously participated in the Soil Health Partnership Program and have field sites conducting cover crop comparisons since 2017. We are looking forward to seeing the long-term impact of those sites and ISA has added an additional two legacy trials that will start cover crop applications this fall.

—Jim Isermann

How can Legacy Trials keep going for so long and still be valuable?

Photo Credit: Abigail Peterson

The appeal of the Legacy Trials is the advantage of looking at the long-term impacts of soil health practices. These trials are expected to last at least five years with farmers and have a much more intensive soil testing program, including soil health tests, in addition to standard nutrient tests. Legacy Trials are for farmers interested in validating that long term effect and are willing to spend some additional time to seed the cover crops according to a plot design and harvest the fields to collect quality data year after year.

We are getting to the point that most farmers have tried cover crops in some manner over the last ten years. Not all these attempts have been successful. Most of the failures can be avoided by proper management. However, understanding proper management of soil health systems takes time, dedication and a willingness to learn. Adding cover crops is not like adding a new fertilizer or fungicide. If not managed properly, cover crops can provide a down side beyond the cost of the product.

Generally, across Illinois farmers should start with cover crops ahead of soybeans and wait to use them ahead of corn till they have gained some experience and understand the additional nutrient management needs necessary for a corn crop in a soil health system.

—Jim Isermann

What do farmers say they've learned from the Legacy Trials?

Our farm has always been conservation-minded—we were the first in the area to move to chisel; we started no-till in the '80s, and we adopted strip-till in the '90s. I've been working with cover crops for about five years. There's no better way than a long-term trial to show the benefits of cover crops.

I wanted to see what changes I could affect as far as soil health and nutrient management. As the years have passed, even though I wouldn't necessarily see big changes on tests, I could compare cover and no-cover fields and see obvious differences in soil texture and condition.

One consultant showed me the soil cores he took, and fields with cover crops had 17 percent earthworm activity, where fields without cover crops had less than two percent earthworm activity. That is a very good indicator of soil health and microbial activity.

For several years now, we've cut back on applied fertility. In soil testing this spring, we showed that things have improved, even though we have put on less fertilizer.

It's also had an impact on weed control. Where we have cover crops, we aren't spending as much on weed control. We terminate the cover crop with glyphosate, then don't have to put anything else on.

With crop prices down and input prices not coming down to match, if you can find anything that can help the bottom line, you do it. I'm pretty much 100 percent cover crops on my fields now.

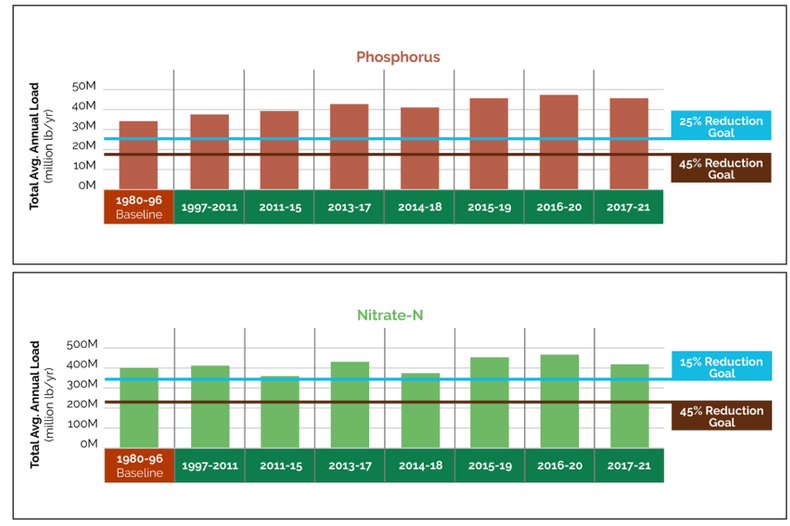
—Brian Corkill, B.A. Farms, Inc., Galva

How do I join a trial or find out more information?

For more information and to participate in the On-Farm Trial Network, visit ***https://fieldadvisor.org/on-farm-trial-network***.

If you have more questions, please contact Deanna Burkhart at ***deanna.burkhart@ilsoy.org*** or Stacy Zuber at ***stacy.zuber@ilsoy.org.***


Photo Credit: ISAP



Graph Credit: ISAP

ISA and the Illinois Sustainable Ag Partnership

Checkoff Funds Tool to Help Farmers Drive Economic and Environmental Sustainability

Sustainability has grown to become a key consideration for a wide range of purchasing behaviors across the consumer marketplace. A recent Ipsos survey found that nearly 40 percent of consumers said they would pay more for environmentally friendly products, including food.

Whether that finding translates to in-store behavior remains to be seen. But as an aspirational consumer preference, it paints a picture of opportunity for Illinois farmers, who could one day be rewarded for farm-level conservation and sustainability practices.

To support Illinois soybean farmers in those efforts, the Illinois Soybean Association (ISA) is an active partner in the Illinois Sustainable Ag Partnership (ISAP). The partnership of 19 diverse organizations, which includes Illinois Farm Bureau and Illinois Corn, recognizes that farm-level profitability is a baseline requirement for farmers adopting new or additional sustainable production practices.

A key resource in this effort is ISAP's Financial Incentives Database (FIND Tool), an online guide located at ***https://ilsustainableag.org/findtool/.*** The tool helps Illinois farmers access financial incentives and support for implementing additional sustainable practices. The tool streamlines the process of finding and comparing over 60 programs designed to encourage conservation practices such as cover-cropping and reduced tillage.

ISA is at the heart of the initiative and is committed to helping Illinois farmers maximize yields and market opportunities while also promoting soil health, water quality and long-term sustainability. In fact, a recommendation from the ISA Soybean Production Committee led to funding from ISA for the FIND Tool's development.

"We're committed to connecting Illinois soybean growers to resources that support profitable grain production while protecting soil and water quality, resource resiliency and land stewardship," said Deanna Burkhart, Producer and Field Administrator for ISA. "Illinois Soy is proud to be a leading member in the ISAP and to support the creation of valuable tools for Illinois farmers."


Deanna Burkhart, Photo Credit: ISA

Helen VanBeck, Photo Credit: ISAP

Supporting Farmers with Tools Such As FIND

Helen VanBeck, who manages ISAP, has played a key role in coordinating ISAP's efforts. VanBeck's agricultural background drives her passion for sustainable agriculture. Over the past three years, she has worked with organizations such as ISA to help Illinois farmers reduce nutrient loss and improve soil health.

"ISA is one of our 19 members," VanBeck explains. "Together, we help farmers reduce nutrient loss and improve soil health while securing financial support to make those changes."

Farmers using the FIND Tool answer three basic questions: farm location, type of operation and practices of interest. From there, FIND narrows down relevant financial incentive programs, allowing farmers to compare programs and select the best options. The feedback on FIND has been overwhelmingly positive, according to VanBeck.

"We've focused on listening to farmers and addressing their concerns," says VanBeck. "Farmers and advisers alike are finding the tool incredibly useful."

Meeting Sustainability Goals

Launched in 2017, ISAP helps Illinois farmers meet targets outlined in the Illinois Nutrient Loss Reduction Strategy (NLRS) published in 2015. The NLRS aims to reduce nitrogen and phosphorus runoff, targeted as a contributor to the Gulf of Mexico's hypoxic zone, where low oxygen levels harm marine life. The goal is to reduce nutrient loss by a set percentage before 2025, with the long-term target of returning to 1986 baseline levels.

"The nutrient loss reduction strategy was passed in response to the Gulf hypoxic zone," VanBeck explains. "ISA and ISAP are crucial to helping farmers meet these goals."

Partnering with ISAP isn't just about meeting state-mandated requirements. ISA's involvement ensures Illinois farmers stay competitive in an increasingly sustainability-conscious market.

"It has been exciting to see it all come together," ISA's Burkhart says. "We are happy to support this tool and glad it is live and available. It's a great guide to get a farmer started, a place to look and see the options open to them."

The FIND Tool simplifies decision-making for farmers by outlining the benefits and technical requirements of conservation programs. This helps them make informed choices that can improve both soil health and long-term profitability.

In addition to the FIND Tool, Jean Brokish, an agricultural sustainability expert who serves as Midwest Region Deputy Director for American Farmland Trust, underscores the importance of ISAP as a source for mentorship as well as financial support.

"Sustainability has gained significant interest from consumers and corporations alike," she says. "Cover crops, reduced tillage and nutrient management are backed by science and economic data, making sustainability more mainstream and beneficial for farmers. Mentorship is key. Fear of failure, particularly economic failure, is real for farmers. It's critical to provide the tools and resources necessary to keep them economically viable while they adopt sustainable practices."

Jean Brokish, Photo Credit: American Farmland Trust

Financial Incentives Provide a Safety Net

Programs offering financial incentives are crucial in supporting farmers through the transition to sustainable practices. Brokish explains that it can take two to three years for new practices to prove economically viable. Financial incentives help bridge this gap, giving farmers the time and resources needed to focus on making the changes work. The end goal is a wide range of improvements, such as improved groundwater recharge and habitat enhancement.

VanBeck adds that the upfront costs of sustainable practices are often a barrier.

"Farmers who have been using these practices for a few years often see economic returns, but it can take three to five years for those benefits to materialize," she says. "Financial incentives help farmers manage the costs of transitioning to these methods."

A Broader Conversation on Sustainability

VanBeck has noticed a broad shift in how sustainability is viewed in agriculture, especially when it comes to improving water quality. She notes that more groups are recognizing the long-term benefits of sustainable farming for both the environment and farmers' bottom lines.

Federal funding is also making a significant impact, according to the ISAP manager. VanBeck points out that federal policies such as the Inflation Reduction Act and federal programs such as Partnerships for Climate-Smart Commodities are bringing historic levels of funding to farmers.

"This kind of money can make a big difference, and there's a lot of interest in ensuring it reaches the right people," she says.

This increased funding is matched by a level of collaboration among farmers, conservation experts and agricultural professionals across Illinois. ISAP's train-the-trainer model equips farm advisers and conservation district staff with the tools and knowledge to help farmers adopt sustainable practices. This grassroots network has been effective in spreading sustainability throughout Illinois agriculture.

A Model for Other States

The success of ISAP and the FIND Tool in Illinois has caught the attention of other states looking to replicate its model. VanBeck notes that she has received inquiries from groups developing similar databases.

"We're proud that the tool we developed in Illinois pulls from multiple funding streams and serves such a wide audience," VanBeck says.

As ISAP and ISA continue their partnership, Illinois farmers benefit from the resources designed to make sustainable farming achievable and profitable. By encouraging collaboration, offering financial incentives and leveraging research, ISAP is building a path toward a more sustainable future for Illinois agriculture. For VanBeck, the reward is in seeing these initiatives come to life.

"It's exciting to work with our partners like ISA and help increase practice adoption and reduce nutrient loss," she says. "Knowing the tools we provide are making a real difference for farmers and the health of Illinois' land and water is incredibly fulfilling."

Additional information is available at ***https://ilsustainableag.org.***

ISAP team members discussing their initiatives with Farm Progress Show attendees. Photo Credit: ISAP

Funded by the Illinois Soybean Checkoff

The Hidden Power of Lime

Why pH Matters to Production

By Kelly Robertson, CCA, ISA Soy Envoy

Lime is not just lime. There are differences.

The No. 1 thing you can do to help boost yields, improve weed control, improve nitrogen use efficiency and improve soil health isn't solved by a biological product, foliar feed, cover crop, planter attachment or new, flashy technology. The answer is so simple that we don't even talk about it anymore. It's two words represented by two letters that few can clearly define: pH. This stands for "potential of hydrogen" or "power of hydrogen" and is a measurement of acidity or alkalinity. The pH scale runs from one to 14 with seven being neutral. Below seven is acid, above seven is basic or alkaline.

Over the past 10 years, we have been graphing our year-end soil test results to see what percentage of our macro soil elements are low or below the optimum range. What we have learned has now become predictable here in southern Illinois. On average, about 40 percent of the soil samples we take every year have a pH(w) (water pH) of less than 6.2. We have seen this number as low as 30 percent and as high as 42 percent. What is even more shocking is that on average, 12 to 15 percent of soil samples are below a pH of 5.8 and six percent to 10 percent are below a pH of 5.4. It is almost as common to see a pH of 4.8, 4.9 or 5.0 as it is to see a pH of 7.5. This might lead us to conclude that pH is the biggest yield-limiting factor on about 40 percent of our farmed acres.

In corn, soybean and wheat production, we desire our soil pH to be between 6 and 7. The ideal range is between 6.2 and 6.8. This is the pH range in which everything is firing on all cylinders in the soil. Our soil microbes and soil-applied herbicides are happy, and roots can be better at taking up nutrients and water. When we are within the ideal pH range, we are also getting the maximum uptake and use of applied fertilizer. At a soil pH of 6.0, 20 percent of the fertilizer that we apply could be tied up in the soil or not taken up by the plant. At a pH of 5.5, that percentage of fertilizer climbs to 33 percent. We also can have potential yield loss because of what was mentioned above. Weed control, nitrogen use efficiency, water uptake, as well as plant and soil health can suffer.

I made a spreadsheet (see image on this page) that can be used to input the cost of production and yield goals for an acre of corn or beans. This allows us to see what the potential dollar-per-acre loss could be if pH is outside of the ideal range. In some instances, it becomes very costly not to correct your pH.

The only way to correct soil pH is with limestone.

A lime product must contain carbonate (CO_3), such as calcium carbonate ($CaCO_3$) or magnesium carbonate ($MgCO_3$). Gypsum is not a lime because it contains no CO_3, only Ca (Gypsum is $CaSO_4$). Using gypsum to try to correct soil pH will lead to other problems. Anyone who has advised you to use gypsum to alter soil pH is misguided and does not understand the neutralizing power of the carbonate component of limestone. ***I will say it again: Gypsum is not a lime and will not change your soil pH.***

Often when you take soil samples from the lab, they will generate a limestone recommendation based on the crops to be grown. Unless you specify what limestone you will use, these recommendations are made based on a pure limestone (100 percent) or what is called a "lime 90," or 90 percent limestone. The problem with these recommendations is that we don't buy 100 percent or 90 percent limestone; therefore, we or your agronomist must correct this number to the limestone being used.

In Illinois, we have a booklet that is published every year called the Illinois Voluntary Limestone Producers Handbook. This book consists of a compiled list of all participating quarries and the samples they submit show correction factors (CF) compared to a reference limestone. In this book, you can see the differences in one limestone versus the other and then compare their correction factors. The correction factor is used to compare the lime in question to the pure lime or 90 percent lime. The higher the number, the more lime you will need to apply.

Let's look at an example.

In ***Figure 1***, (right) the lab recommendation shows we need two tons per acre of lime.

However, looking at Lime 2 in ***Figure 2***, we see that Lime 1 has a correction factor (CF) of 1.29. This means that we need to put on about 29 percent more of this lime to equal pure limestone or

Fertility based on Yield Removal Only. Edit Yellow Boxes

What is My Low pH Costing Me? Should I Lime Rent Ground?

% Fertilizer Utilization and Loss at Various Soil pH Levels

Soil pH	Percent Utilized N	P	K	Wasted Fertilizer	Corn $ Lost/ac	Bean $ Lost/ac
Extremely Acid 4.5	30%	23%	33%	72%	$ 114.97	$ 49.82
Very Strong Acid 5.0	53%	34%	52%	54%	$ 86.22	$ 37.36
Strong Acid 5.5	77%	48%	77%	33%	$ 52.69	$ 22.83
Medium Acid 6.0	89%	52%	100%	20%	$ 31.93	$ 13.84
Neutral 7.0	100%	100%	100%	0%	$ -	$ -

Potential Yield and Income Loss at Various Soil pH Levels

Soil pH	Yield Loss Corn	Beans	$/Ac Corn	$/ac Beans	Potential Total Loss Corn	Beans	Soil pH
Extremely Acid 4.5	132	25	$ 509.52	$ 242.06	$ 624.49	$ 291.88	4.5
Very Strong Acid 5.0	54	15	$ 208.44	$ 145.24	$ 294.66	$ 182.60	5.0
Strong Acid 5.5	44	14	$ 169.84	$ 138.32	$ 222.53	$ 161.15	5.5
Medium Acid 6.0	34	11	$ 131.24	$ 103.74	$ 163.17	$ 117.58	6.0

Corn Cost $ 159.67 Bean Cost $ 69.19 * Chart Adapted from IPNI

Corn $/bu $ 3.86 Bean $/bu $ 9.88 * Local Nov Fall Cash Bids

*Adapted from Methods of Assessing Soil Quality, Page 173 (SSSA, 1996)

Calculations Based on Yield and Price for MAINTAINANCE only Applications of N, P and K.

Edit Yellow to Change	Yield Goal	$/ac	Lbs. N NH3	Lbs. DAP	Lbs. Potash
Corn Yield	200.0	$ 159.67	211	161	90
Beans Yield	70.0	$ 69.19	-	122	163

* N Credit Taken from DAP

Local Avg Price 2/6/20	$/T	$/Lb.	Corn $/ac	Bean $/ac
Anhydrous	$ 700	0.42	$87.93	
DAP	$ 600	0.30	$48.26	$36.52
Potash	$ 400	0.20	$23.48	$32.67
		Total	$159.67	$69.19

* Price for lb N

	Corn	Beans
Potential Avg Total $ Loss pH 6.2-5.5	$ 192.85	$ 139.36

The real question is: Can I afford NOT to lime?

Precision Crop Services
Soil Fertility and Precision Ag Management
Benton, IL 618 435 3133
precisioncropservices.com

Graph Credit: Kelly Robertson, Precision Crop Services LLC

lime 90. Looking at Lime 2, it has a correction factor of .74. This means we need about 25 percent less lime than a pure lime or lime 90.

How is this possible?

Well, it goes back to fineness of the lime grind. The finer the grind, the faster it will break down and correct pH. You can see in the picture on this page the huge difference between these two lime products: Lime 2 is almost like a powder and Lime 1 has chips or almost rocks in it.

We need to compare the cost of the lime, the cost of trucking the tons and the spreading cost of those tons to get a true picture of which lime is the better buy. Just because it might be cheaper doesn't mean it will be the better buy.

In this case, even though Lime 2 costs more per ton, we haul less and spread less. In our example, we save $872 on 40 acres or $22 per acre over Lime 1! A ton of lime is not necessarily a ton of lime. Our experience is that in most cases, when we do not "true" the lime source to the recommendation, we under-apply.

Fixing pH is the simplest, most cost-effective and highest-ROI activity we can do to increase yields, control weeds, increase fertilizer efficiency and increase soil and plant health. It pays to fix pH, and it pays to do it right. Do the homework and do the math.

About the Author:
Kelly Robertson, CCA, is a 2024 Soy Envoy. He has been a soil fertility agronomist and precision agriculture consultant since 1989 and also spends time in farm/agronomy management roles for farms in southern Illinois. In 2012, Kelly and his wife, Lori, started Precision Crop Services in Benton, where they provide agronomic services for their customers including soil testing, crop scouting, data analysis, GPS/GIS services including variable rate seeding and fertility recommendations as well as farm and agronomy management for their customers. He is a Certified Professional Agronomist, Certified Crop Adviser, Certified 4R Nutrient Management Specialist, 2015 Illinois Soybean Association Double-Crop Specialist, 2016 Illinois CCA of the Year and the 2021 Illinois Soybean Association Dave Rahe Excellence in Soils Consulting Award winner.

Originally published on the Field Advisor website on Sept. 10, 2024

PRODUCER COMPANY	IDOT Producer Number	Address Where Stockpile is Located	City of Stockpile	Ledge Footage Location	%Mg	CCE	% Pass #8	% Pass #30	% Pass #60	1 Yr Correction Factor	4 Yr Correction Factor
Lime 1				Multiple Ledges	1.32	94.24	73.20	39.90	20.60	1.29	1.22
Lime 2				multiple ledges	1.13	97.69	94.00	71.80	46.30	0.74	0.84

Using 1 yr Correction Factor for Lime Applications

Lime 1: Soil Test Lime Rec 2 ton X 1 yr Cor 1.29 = 2.6 ton/ac Corrected Application Rate

Lime 2: Soil Test Lime Rec 2 ton X 1 yr Cor 0.74 = 1.5 ton/ac Corrected Application Rate

Figure 1: Provided by Kelly Robertson, Precision Crop Services LLC

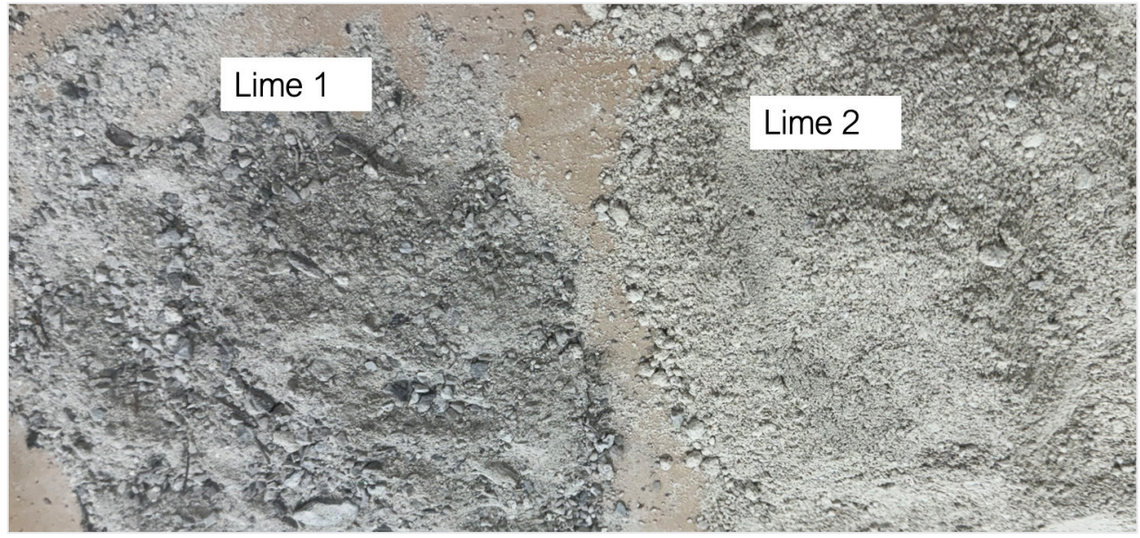


Figure 2: ***Provided by Kelly Robertson, Precision Crop Services LLC***

Remember Math is Your Friend!

On a 2 ton Pure $CaCO_3$ recommendation: 2 ton X 40 AC = 80 tons needed

However,……..

- Lime 1: 2.6 Tons/ac = 104 Ton *(@ 2 ton under apply vs Pure $CaCO_3$)*
- $6/t Lime + $13/t trucking + $ 9/ac spreading = $ 28/ton
- 104 tons X $28/T = $ 2912/40 acres or ~$73/ac

- Lime 2: 1.5 tons/ac = 60 ton *(@ 2 ton over apply vs Pure $CaCO_3$)*
- $10/t Lime + $15/t trucking + $ 9/ac spreading = $ 34/ton
- 60 tons X $34/T = $ 2040/40 acres or ~$51/ac
- *$872 Difference or ~$22/ac*

Figure 3: Provided by Kelly Robertson, Precision Crop Services LLC

Focus on Agronomy in an Economic Downturn

By Stephanie Porter, CCA, ISA Outreach Agronomist

Farmers are asking themselves how they might navigate through some uncertain times of low commodity prices and rising production costs. I have been sorting through many articles offering advice, but they often don't focus on agronomy. Don't get me wrong, many of these articles offer great tips, such as knowing your production costs, developing a marketing plan to seize opportunities, renegotiating land rents, lengthening loan repayment periods, trimming family expenses, watching machinery costs and managing risk with sufficient crop insurance.

Ultimately, farmers will need to invest where they think their returns are highest in the coming years to either reduce problems or improve returns. They also will need to pinpoint where they could be losing money and seek out advice. None of this can be done alone. It will require the involvement of family, employees and effective communication with vendors and lenders about the following:

Soil Testing/pH

Kelly Robertson, CCA, IL Soy Envoy and owner-operator of Precision Crop Services, LLC, in Benton, recently shared on Field Advisor that the No. 1 thing that you can do to boost yields, improve weed control, improve nitrogen use efficiency and improve soil health is to have the correct soil pH. In corn, soybean and wheat production, we recommend a pH between 6 to 7, with the ideal range being 6.2 to 6.8. If your pH is not right, nothing else will matter, and it would be a waste of money to try to correct the low soil test results. The only way to know your soil pH is to soil test and the only way to correct soil pH is with limestone. The tricky part, according to Robertson, is that "lime is not just lime, there are differences." It pays to know what those differences are and to compare the cost of lime, trucking and spreading to know what is best for your pocketbook.

P & K (Fertilizer)

In another Field Advisor blog post, Robertson shared a story about "Bob" who had soil samples pulled every or every other year. He had excellent fertility on thousands of his acres and did not need any additional P or K to reach the yield goals that he had set. Bob's salesperson told him "you have to put back what you take off" or "you have to put on maintenance". Robertson provided Bob with unbiased university data showing that after a given level of fertility, you don't "add yield" and you don't "hurt yield" by not applying fertilizer.

Terry Wyciskalla, CCA, owner-operator of Wyciskalla Consulting, LLC in Nashville, Ill., says if you have soil test values found on the upper side of the desired range, you could trim 25 pounds per acre of DAP/MAP and potash, which could save around $8 to $12 per acre that could be utilized elsewhere on the operation. He would divert these saved dollars to lime. Wyciskalla cautions that you cannot do this every year because the crop will eventually pull additional fertility from soil reserves. Research does show that fertilizer decisions have more of a potential impact on profits when soil test levels of a nutrient are deficient. Robertson adds, "If you don't have a soil test, none of this is relevant."

Another option is to use variable rate technology to put the nutrient just where it is needed. John Pike, independent research agronomist and consultant from Marion, Ill., reminds growers to not underestimate the nutrient-supplying power of our soils and to think about implementing practices such as cover crops to address compaction issues and improve water infiltration.

Weeds

Over the summer, Dr. Connor Sible, research assistant professor at the University of Illinois Urbana-Champaign, shared with the audience at a Field Advisor Tailgate Talk that weed control is crucial. It's not something you can skimp on, and you need a three- to five-year plan. Eric Beckett, CCA, IL Soy Envoy and Illini FS field agronomist, asked farmers in his Field Advisor blog whether they started clean, used residuals with effective sites of action for both their pre- and post-applications, utilized full labeled rates, targeted weeds 3" to 4" tall at time of application, and included adjuvants in the tank mix.

Karen Corrigan, CCA, IL Soy Envoy and co-owner of McGillicuddy Corrigan Agronomics, challenged growers in her Field Advisor blog to dig deeper at harvest if weeds were not controlled and to ensure that environmental conditions do not hinder herbicide effectiveness or indicate signs of herbicide resistance. If so, a switch in herbicide chemistry or implementation of non-chemical weed control measure such as cover crops might be needed.

Also, don't count on over-the-top dicamba being an herbicide control option in soybeans for 2025. Some farmers are buying their own sprayers and using generic chemicals to cut costs. It's critical to make sure you are reading and following label directions to properly manage weeds. Lastly, if you have not heard about the EPA Herbicide Strategy, you need to catch up, as it will be a gamechanger after 2025.

Machinery, Integrated Pest Management, Snake Oil

The on-farm upkeep of machinery and utilization of technology will be more important than ever. In his summer presentation, Dr. Sible also emphasized the importance of planter and combine settings to preserve yield. If possible, early soybean planting and reduced planting populations can give us more bang for our buck. Taking a hard look at your crop rotation and seed selection will be imperative, especially for disease control. Risk can be spread, or marketing opportunities can be obtained, by planting different maturities.

Now that more growers are taking advantage of ISA's checkoff-funded program for free soybean cyst nematode (SCN) testing, they might consider switching to a soybean variety with Peking resistance in fields with high SCN egg counts. There will be immense pressure to prepay for fungicide and insecticides; however, the popularity of scouting has increased, as this can help determine whether these inputs are necessary if diseases or insects are not present or below threshold. Keep reliable records of everything, and if you are trying a new product such as a biological, Dr. Sible says to "check the back of the bottle, and if they don't list an active ingredient, don't use it." Be cautious trying "miracle" products. If you do decide to try a new product, test it on the farm. Always leave a check strip for yield comparison.

Every farming operation is different, but agronomic decisions made within the next several years will be crucial. Remember that the farming business does not define you. The only thing that really matters is your family and mental health. You will be seeking and hearing several different agronomic opinions from those across the industry. It will be imperative in the future to ask yourself if that information is from a trusted, unbiased source that is conservation-minded and has a good knowledge base about pesticide regulation.

Sent to you compliments of:

Illinois Soybean Association
1108 Trinity Lane
Bloomington, IL. 61704

FREE SOYBEAN CYST NEMATODE TESTING

JOIN ISA IN THE BATTLE AGAINST SCN

The Illinois Soybean Association (ISA) is urging farmers statewide to join the fight against Soybean Cyst Nematode (SCN), the leading cause of yield loss in soybeans. In partnership with the University of Illinois, ISA is offering free SCN egg count samples to help track this significant threat and to establish a baseline SCN population across Illinois soybean fields.

Photo: Leo Rocha

Visit FIELDADVISOR.ORG/SCNTESTING to learn more or email FREESCNTESTING@ILLINOIS.EDU to request a free SCN kit, which includes instructions and a prepaid shipping label.

The Illinois Soybean Association (ISA) checkoff and membership programs represent more than 43,000 soybean farmers in Illinois. The checkoff funds market development, soybean production and government relations efforts, while the membership program, Illinois Soybean Growers (ISG) and the Illinois Soybean Growers PAC actively advocates for positive and impactful legislation for farmers at local, state and national levels. ISA upholds the interests of Illinois soybean farmers through promotion, advocacy, research and education with the vision of becoming a trusted partner of Illinois soybean farmers to ensure their profitability now and for future generations.

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