



# connections SPRING 2023

PENNSYLVANIA SOYBEAN BOARD

## On-Farm Network Provides Real-World Research



Since 2009, the Pennsylvania Soybean On-Farm Network has supported the Commonwealth's soybean growers through on-farm research. The On-Farm Network is sponsored by the Pennsylvania Soybean Board checkoff and administered by researchers at Penn State to obtain production-scale data on soybean research projects.

The Network works by conducting research in real-world conditions on test plots planted by farmer/cooperators throughout Pennsylvania on their own farms with their own equipment to see which management practices have an appreciable impact on production. This real-life, on-farm

production scale data aids farmers in their ongoing crop management decision-making. Farms throughout Pennsylvania with varying field, equipment and crop conditions contribute to the research data.

Pennsylvania soybean production has increased approximately 30% since the Pennsylvania Soybean On-Farm Network launched its first set of on-farm trials 14 years ago. Today, field trials conducted at Penn State's Research Farms are compared with results from farms throughout Pennsylvania using grower production practices. This two-tiered approach seeks to validate the results obtained on the small plot trials with those on-farm using long strips.

## WANTED! FARMER/COOPERATORS FOR 2023 ON-FARM NETWORK

Numerous opportunities exist for farmers to participate in the On-Farm Network program in 2023. Soybean growers throughout Pennsylvania are urged to take advantage of the opportunity to work with Penn State's Extension team to conduct research directly applicable to their farm and production system.

The 2023 projects range from agronomic production to concepts in integrated pest management. In addition, several monitoring programs provide access to crop scouting and sampling for slugs and nematodes.

If interested, contact Paul Esker at [pde6@psu.edu](mailto:pde6@psu.edu) or your local Penn State Extension Educator.

### 2023 On-Farm Network Research Projects:

#### 1 Ilevo seed treatments and microbiome and soilborne research

Sudden death syndrome (SDS) is one of the significant yield-limiting soil-borne diseases of soybean in North America. It has been discovered in a number of counties in Pennsylvania.

Ilevo seed treatment has emerged in parts of the U.S. as a promising control for SDS. However, before recommendations can be made for Pennsylvania, it is essential to conduct multi-year, multi-location trials to quantify the efficacy of Ilevo in SDS and other soilborne pathogens.

For more information, contact Paul Esker, [pde6@psu.edu](mailto:pde6@psu.edu); Dilooshi Weerasooriya, [wkwl18@psu.edu](mailto:wkwl18@psu.edu); Tyler McFeaters, [tsm31@psu.edu](mailto:tsm31@psu.edu)



SDS found in field in Lebanon County, Pa. Photo: Penn State Extension

#### 2 Broadcasting cover crops into standing soybean

This project is designed to compare how several different cover crop species perform when broadcast seeded into soybeans just before soybean leaf drop.

This research is important to farmers because many struggle to get cover crops planted after soybean harvest. Broadcasting cover crops can open the planting window to species other than winter cereals or allow a farmer who usually doesn't have enough time to plant cover crops in the fall to grow a winter cereal. The results from this study will help growers decide whether broadcasting into standing soybeans might be a worthwhile practice on their farms.

For more information, contact Heidi Reed, [hxm5183@psu.edu](mailto:hxm5183@psu.edu).



Drone seeding black oats and hairy vetch into standing soybeans at a Lancaster County cooperator site. Photo: Penn State Extension



#### 3 Refining 2-pass herbicide programs for horseweed management

Glyphosate-resistant horseweed populations are becoming more widespread in the Commonwealth and are now a significant management issue in western Pennsylvania and the Northern Tier. In addition to varying levels of resistance throughout the state, including glyphosate or glyphosate and ALS resistant biotypes, horseweed is challenging to control because of variable emergence patterns. Understanding regional (i.e., environmental) or management-driven trends in emergence patterns is the first step at designing more effective herbicide programs for horseweed control.

For more information, contact John Wallace, [jmw309@psu.edu](mailto:jmw309@psu.edu)

Glyphosate-resistant horseweed is becoming a significant management issue. Photo: Pa. Soybean Board

#### 4 Updating Pennsylvania soybean maturity zones

The purpose of this project is to provide farmers with an updated map of soybean maturity zones in Pennsylvania. As the climate changes over time, maturity groups that used to be adequate for a region may not perform as well anymore. Also, as cropping systems have become more complex and diverse (e.g., cover crops, double cropping, no-till), a wider range of planting dates have been practiced, and producers want to know the best combination of planting date and maturity group for their region.

To answer this question, replicated, randomized trials will be set up at on-farm locations throughout Pennsylvania.

For more information, contact Daniela Carrijo, [daniela.carrijo@psu.edu](mailto:daniela.carrijo@psu.edu)

## 2023 On-Farm Network research projects:

### 5 Return on investment for saved seed in a full season and double crop environment

Seeds saved from an original lot were cleaned, bagged, then used for planting. In addition, the saved seed will be entered into the Pennsylvania Soybean Variety Trials to determine performance compared to current releases. Farms will be provided with cleaned, saved seed and asked to compare to their commercial offering to see if any yield differential exists between the saved seed and their selections.

For more information, contact Delbert Voight, [dgv1@psu.edu](mailto:dgv1@psu.edu)

### 7 Sentinel plot program for detection of insect pests and diseases

This project involves establishing sentinel soybean plots in multiple Pennsylvania counties that are scouted weekly for insects, slugs, and diseases by Penn State Extension Educators. The project is run collaboratively between Penn State's Department of Entomology and Penn State Extension to provide soybean growers with regional assessments of insects and diseases active in soybean fields.

For more information, contact John Tooker, [jft11@psu.edu](mailto:jft11@psu.edu)

### 6 Pennsylvania slug monitoring project

Slugs can be a problematic pest when they occur in large numbers during spring and fall planting seasons. Replanting fields due to slug damage is often unsuccessful and results in multiple re-plantings. Managing slugs with molluscicides can be challenging because slug damage typically occurs during cool, wet weather, and finding a dry gap in the weather for application can be difficult.

Since 2018, Extension Educators across Pennsylvania have assessed slug populations and crop damage each week at 20 to 30 sites. Each site is a problem slug field identified by the farmer cooperator. Educators scout for slug eggs in each field



Slug monitoring shingle trap. Photo: Penn State Extension

at the beginning of the season. Ten shingle traps are installed randomly over the field. The traps are installed prior to planting, removed during planting, and replaced after planting. Each week, or more frequently after crop emergence, the traps are checked for slugs. Crop damage is measured for 21 days after emergence.

For more information, contact Anna Hodgson, [akb226@psu.edu](mailto:akb226@psu.edu); John Tooker, [jft11@psu.edu](mailto:jft11@psu.edu).

### 8 Proactive monitoring and management of soybean cyst nematode

Soybean cyst nematode (SCN) is a microscopic roundworm that feeds on roots. It is North America's most damaging soybean pathogen. Yield losses associated with SCN damage can be greater than 50%.

SCN is known to reduce yields without causing any symptoms in the above-ground part of the plant. In the meantime, SCN populations continue to grow below ground until they reach levels that cause stunting or yellowing and, finally, plant death. By the time symptoms are noticeable, SCN populations can far exceed the damage threshold for yield, and management becomes more challenging. Those who detect SCN in their fields early have the greatest chance of deploying the most effective strategies to protect their yield (including crop rotation and genetic resistance) at the lowest cost to the grower.

Thanks to the support from the Pennsylvania Soybean Board, free soybean cyst nematode testing is being offered to all soybean growers in Pennsylvania. Soil samples for SCN can be taken anytime during the growing season if there is suspicion of nematodes affecting your crop.

If you have any questions about the free SCN testing program or would like to participate in the research project, contact Paul Esker, [pde6@psu.edu](mailto:pde6@psu.edu); Alyssa Collins, [acc18@psu.edu](mailto:acc18@psu.edu); or Adriana Murillo-Williams, [axm1119@psu.edu](mailto:axm1119@psu.edu).



A number of winners of the 2022 Pa. Yield Contest joined PSB board members for a photo at the United Soybean Board booth at this year's Commodity Classic. (Left to right) PSB board member Rick Telesz; Southeast regional winner Brad Kiefer; Ed Smith; Western regional winner Randy Smith; PSB board member Justin Jones.

### Pa. Soybean Yield Contest Winners at Commodity Classic

Winners of the Pennsylvania Soybean Yield Contest joined Pennsylvania Soybean Board members at the 2023 Commodity Classic in Orlando, Florida, to learn about the latest advances in crop production.

The Commodity Classic, America's largest farmer-led, farmer-focused agricultural and education experience, draws more than 9,000 attendees from throughout the U.S.

According to registration information gathered by the Commodity Classic, 72% of farmer attendees say it's the most valuable event they attend all year.

The Pennsylvania Soybean Yield Contest awards a trip to the Commodity Classic to growers with the top yields in five regions of Pennsylvania. Information and registration for the 2023 contest is available online at [pasoybean.org](http://pasoybean.org) or from your local Penn State Extension Educator.



#### JOIN US FOR THESE EVENTS:

##### March 17, 2023

When Early Planting Doesn't Work Out - Do I Replant, Repair-Plant Or Leave This Pitiful Stand? (Webinar recorded.)

##### March 24, 2023

What's New In Planter Technologies? Register: <https://Go.ncsu.edu/Plantingregister>

##### March 31, 2023

N-Fixation And Sulfur Fertility In Soybeans Register: <https://Go.ncsu.edu/Nitrogenregister>

All events will be held at 1 PM Eastern Time.

Each webinar is also being recorded and will be posted on [soybeanresearchinfo.com](http://soybeanresearchinfo.com) under the "Science for Success" tab.

#### Who are we?

Science for Success is a national team of soybean Extension Specialists from land-grant universities across the country. They collaborate to provide sound research information on soybean Best Management Practices (BMPs). Science for Success is funded by the United Soybean Board through the checkoff program.

The Soybean Research & Information Network is designed for farmers to read about all the benefits of checkoff-funded research projects.

- Read summaries and highlights of the latest research
- Discover resources and publications
- Explore topics including agronomics, diseases, and pests

Find out at [www.soybeanresearchinfo.com](http://www.soybeanresearchinfo.com)



The Pennsylvania Soybean Board is a farmer-controlled Board responsible for managing Pennsylvania's share of funds received from the nationwide Soybean Checkoff program. The funding is available under an assessment program, approved by Congress in 1990, under which soybean farmers contribute 50 cents of every \$100 they receive for their beans at the first point of sale. Funds are used to develop markets, educate consumers, and research new ways to utilize and produce soybeans more efficiently.

Learn more at [pasoybean.org](http://pasoybean.org)



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