



# CHECKPOINT

*The soy checkoff's mission is to maximize profit opportunities for soybean farmers. That starts with checkoff-funded research.*

## Pa. Soybean Research Projects Address Production Challenges

Research projects designed to increase the profitability and sustainability of Pennsylvania's soybean growers have been awarded checkoff grants totaling more than \$325,000 by the Pennsylvania Soybean Board.

### Pennsylvania On-Farm Network

In a continuing project, the Penn State Research Farms and Pennsylvania growers participating in the On-Farm Network will test a variety of products and management practices to promote sustainable practices that provide return on investment and drive new innovations to increase the value of soy.

This is a large team project that includes growers, Penn State Extension educators, and researchers, postdoctoral scholars and graduate students from Penn State's Departments of Entomology, Plant Science, Plant Pathology and Environmental Microbiology.

Field trials conducted at Penn State Research Farms are validated in real life by growers on their own farms. These results are important because they present an unbiased assessment of best production practices from locally specific results.

**2022 On-Farm projects will focus on:**

- Best management practices for slugs
- Comparing pre-harvest broadcast and post-harvest drilled cover crop
- Ilevo seed treatment for management of soybean sudden death syndrome
- Microbiome/soilborne research
- Refining 2-pass herbicide programs to improve stewardship of soybean seed-trait technologies
- Saved seed trials
- Product testing
- Soybean sentinel program to provide a statewide assessment of insects and diseases active in soybean fields
- Proactive monitoring and management of soybean cyst nematode



Extension Educator Andrew Frankenfield is part of the Penn State team that administers the Pennsylvania On-Farm Network research.

*Photo: Penn State*

### Development of Best Management Guidelines for White Mold

Diseases such as white mold can have a tremendous impact on production of soybean and other legume crops. Growers need to continually consider if, and to what extent, white mold will be a problem in their production fields and navigate to reduce the risk of the diseases causing significant crop loss on an annual basis.

This project aims to conduct in-person surveys to quantify the extent and perceived risk of white mold for soybean production and conduct on-farm assessments of best management practices that incorporates field history, crop rotation, and cost of new equipment if rotation practices are changed.



Post-doctoral and graduate students conduct white mold research in the lab at Penn State.

*Photo: Penn State*

### Studies on Avian Coronavirus Variants in Pennsylvania Poultry

Avian coronavirus, commonly called infectious bronchitis virus (IBV) in poultry, is one of the most highly contagious viral pathogens in chickens. It causes severe respiratory disease, kidney failure, decreased growth and deaths in young birds and economic losses in egg production and quality in egg-laying hens.

This research project will use advanced genome sequencing to conduct genome characterizations for the more than 1,000 IBV variants that have been isolated in poultry from 1990-2020 to reveal new findings on how the mutations of avian coronaviruses that have occurred in chickens to predict and prevent emerging new variants in the future.



The poultry industry is Pennsylvania's largest consumer of soy meal.

*Photo: United Soybean Board*

### Evaluating the Effects of Intense Precipitation on Weed Management

With the increasing number of weed species that are developing resistance to commonly used post-emergent herbicides, soil-applied pre-emergent herbicides are becoming an essential part of an effective integrated weed management plan for soybean growers.

Intense rain events in spring and early summer are becoming more common. Soil-applied pre-emergent herbicides rely on rainfall to become activated in the soil. Too little rain and the herbicide will remain inactive on the soil surface. However, too much rain can result in leeching or run-off.

The research will study the amount of rain that will result in a loss in weed control and whether cover crop surface residue can increase or decrease weed control when intense rains occur.

### Establishing an Herbicide Resistance Monitoring Program

Effective management of herbicide-resistant weeds is one of the greatest challenges in modern agriculture. The goal of this project is to establish an herbicide resistance monitoring program to provide timely detection of resistant weeds for Pennsylvania soybean growers.

Resistant species may include Palmer amaranth, waterhemp, common ragweed, marehail and Italian ryegrass. Reports from neighboring states indicate these species, and others, have evolved resistance to multiple herbicides, although limited data from Pennsylvania is currently available.

The monitoring program will be based at Penn State, and in the long term will provide quick tests for soybean farmers to submit their weed samples for herbicide resistance diagnosis.



**SOYBEAN RESEARCH & INFORMATION NETWORK**

#### Research Results at Your Fingertips

The United Soybean Board's Soybean Research Information Network website is designed for farmers to read about the benefits of research they spend checkoff dollars on in their states.

Read articles and summaries about research projects and see up-close information about soybean diseases and pests.

You'll also find the latest publications and resources and can see what's new in soybean research.

The searchable database can be found at [soybeanresearchinfo.com](http://soybeanresearchinfo.com).

**LEARN MORE AT PASOYBEAN.ORG**