YIELD ROBBERS

Farmer Blog

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Weed, insect, and disease pressure all rob soybeans of yield and quality. To mitigate these stresses, farmers are required to balance the risk of using the technology they have now to manage issues, with the risk of herbicide, pesticide, and soybean varietal resistance in the future. The Illinois Soybean Association (ISA) funds research that will enable soybean growers to be as resilient as possible to the ever-evolving biotic stressors in the agricultural environment. ISA is currently funding research to monitor pesticide resistance, to identify and diagnose newly introduced soybean diseases, and to utilize the latest technology for disease diagnosis in the field.

Photo provided by Crop Protection Network

Novel technologies for monitoring pests and pathogens
Soybean cyst nematode (SCN) is a hugely devastating pathogen of soybean, with yield losses projected at 3 billion dollars annually. SCN populations are often adapting to and overcoming current control measures. The ability to monitor varietal resistance breakdowns is key to properly managing SCN. ISA is excited to fund a project led by Drs. Jason Bond, Ruopu Li, Ahmad Fakhoury, and Ph.D candidate Lindsey McKinzie at Southern Illinois University utilizing multi-spectral imaging technology to assess the SCN load in Illinois Soybean Fields. This research will allow soybean producers to reliably determine the amount of SCN in their fields and determine whether those populations are increasing or decreasing in response to different management practices.

Resistance Monitoring and Insecticide Application Timing
Soybean growers typically apply broad-spectrum contact insecticides around the beginning of pod formation or R3. However, damaging populations of insect pests may occur at different times throughout the soybean production season and target different growth stages. ISA is currently funding Dr. Nick Seiter to study the residual activity of common insecticides to control stink bugs, bean leaf beetles, Japanese beetles and green cloverworm larvae, with the goal of providing growers data to optimize their insecticide application timings depending on the prevalence of these different pests in their field. Learn more on the National Soybean Checkoff Research Database.


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Images provided by Crop Protection Network

One of the most prevalent soybean diseases in Illinois is Frog Eye Leaf Spot (FLS), caused by the pathogen *Cercospora sojina*. Producers have the option of utilizing either SDHI or QOI fungicides to manage this disease. Ensuring that these tools remain viable management

options for FLS is a top priority for ISA and Dr. Nathan Kleczewski at UIUC. Starting in Spring 2021, he will collect samples from around the state to begin monitoring resistance to either QOI or SDHI fungicides. He will also conduct on-farm research with soybean producers to look at integrated pest management strategies designed to mitigate the development of fungicide resistance.

New Disease Detection and Management

Red Crown Rot (RCR), caused by the soilborne fungal pathogen *Calonectria illicola*, was first identified in western Illinois in 2018. This disease has historically been an issue in peanut/cotton/soybean rotations in the southern part of the United States. In soybeans, RCR displays similar symptoms to Sudden Death Syndrome, so correctly identifying which pathogen is in the field will become critical for proper management of both of these pathogens in Illinois. Dr. Nathan Kleczewski and his lab are currently surveying the state of Illinois to monitor the spread of Red Crown Rot, testing multiple seed treatments to combat the disease, and assessing any levels of resistance in commonly grown soybean varieties to provide growers with the proper management strategies. Stay up to date with the results from this project on the National Soybean Checkoff Research Database.

Collaborative solutions to multi-state problems

ISA knows that weeds, insects, and pests do not recognize state lines. To leverage checkoff funding and increase access to university researchers outside of the state, ISA proudly funds the North Central Soybean Research Program (NCSRP). This farmer-driven soybean research group is made up of 13 states which work together to fund research and outreach programs for projects that have a regional impact. Current NCSRP projects are researching white mold, soybean cyst nematode, soilborne and seedling diseases, agronomics & production, yield & composition, and biotechnology projects.

In-Season Agronomy Advice

In addition to the research updates on the Soybean Research Information Network, ISA provides the latest in-season agronomy advice on ILSoyAdvisor.com. Be sure to check out the blogs, webinars, and podcasts from our team of agronomists, the CCA Soy Envoys.

SOYBEAN RESEARCH & INFORMATION NETWORK

This website is funded by the soybean checkoff