SOYBEAN RESEARCH PRINCIPAL INVESTIGATOR PROFILE – YUAN ZENG

Farmer Blog

Yuan Zeng, Assistant Professor, Virginia Tech

Why did you decide to pursue a career that includes soybean research?
My mom grew up on a very small-scale farm in China, and I grew up hearing lots of stories about her experiences. My college training focused on entomology and microbiology, primarily in the lab. I also developed a background in statistics, which supports predictive modeling. During my post-doctoral training, my mentor shaped my view of how plant pathology research can help farmers in choosing integrated pest management practices. Because of my mom's stories, I was already interested in agriculture, and I learned to love the industry and plants. I found that I enjoy doing field research to learn what is happening in the real world that directly impacts our growers. When I started at Virginia Tech, I focused on helping farmers with the goal of reducing crop losses caused by plant pathogens and minimizing chemical inputs while maximizing yield, and soybeans are one of their primary crops.

What research topic have you completed in the past or are working on now that could have or has had the most significant impact on soybean production?
In addition to spore trapping research, I think my soil microbiome work focused on Sudden Death Syndrome, or SDS, of soybeans has the most potential to impact soybean production. The goal is to analyze soil microbiota to identify SDS-suppressive soil and beneficial soil microbes that can reduce the impact of SDS. Then, farmers could use natural soil microbes to control this disease. The research aims to correlate those microbes with soil chemistry to find a way to boost the population of beneficial microbes that inhibit SDS.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?
Without soy checkoff funding, I wouldn't be able to apply the airborne spore trapping concept to soybeans. This funding also allows me to hire wonderful undergraduate students to support the practical research, give them experience, and develop my program.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?

- *Select soybean varieties that are tolerant to diseases and specific races of those pathogens known to be present in fields. Avoid planting susceptible soybeans in high-*

risk fields with a history of disease pressure.

- *Apply crop rotation. Don't plant continuous soybeans in areas with a history of frogeye leaf spot.*
- *Look for other tools besides chemicals to manage diseases.*

Within your area of expertise, what do you consider to be critical soybean research needs that can impact the profitability of farmers in the future?
To further improve the efficiency of soybean production, I would like to see more investment in multi-disciplinary research teams, combining expertise in areas like plant pathology, genetics, engineering, computer science and others, to help farmers address real-world questions.

SRIN articles:

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