GUILLAUME PILOT – SOYBEAN RESEARCH PROFILE

Farmer Blog



Guillaume Pilot, Associate Professor, Virginia Tech

Why did you decide to pursue a career that includes soybean research?
I have wanted to do basic molecular research in plants since I was about 12 years old. As a kid, I understood how the human body worked with different organs and systems, but I didn't understand how plants worked. I wanted to understand them. My current study of plant molecular physiology allows me to do that, and I work primarily with the model plant Arabidopsis, studying plant use of amino acids. However, the genomics professor next door to my lab has dragged me into work on soybeans, which is a great plant to study in terms of nitrogen use, which aligns with my basic research. Soybeans are more challenging, but also bridge from my basic research to applied row-crop research.

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?
My study of the genes involved in the translocation or movement of amino acids in plants is increasing understanding of the process that controls the amount of protein in soybeans seeds. Work to identify genes involved in filling grain could help improve yield and protein content of soybeans.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?
The soy checkoff provides funds for field trials, sampling, analytics and more. My research would not have been able to continue for multiple years without this support.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
I think that farmers would benefit from building their understanding of the basic principles of how crops grow. Knowledge of what's involved in plant processes for germination,

emergence, growth, etc., would combine with their experience to help them understand what is likely happening in their fields under different conditions. With a deeper understanding of basic plant processes, they can make better decisions for managing crops, rather than just relying on what companies say.

Within your area of expertise, what do you consider to be critical soybean research needs that can impact the profitability of famers in the future?
One big challenge is over-application of nitrogen and the resulting eutrophication in water. I think we need research to make crops more efficient at nitrogen uptake and use to address this issue. We also need research to better understand nitrogen in the soil and its interaction with different soil qualities. The future of agriculture is challenging with issues like this and changing conditions. Research isn't moving fast enough or receiving enough funding to adequately address these challenges.

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This website is funded by the soybean checkoff

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