PATRICK TRANEL – SOYBEAN RESEARCH PROFILE

Farmer Blog



Patrick Tranel, Tom and Peggy Ainsworth professor, Crop Sciences, University of Illinois

Why did you decide to pursue a career that includes soybean research?
I grew up on a farm, so like most farm kids, I saw weeds everywhere. As I became more educated about them, it amazes me how adaptable weeds are and how they evolve to whatever we try to do to control them. I feel as if I'm studying evolution – I study how weeds evolve in response to our attempt to get rid of them. It's exciting from a scientific perspective. And from a practical standpoint, the better we can understand how weeds adapt, the more we can design sustainable management strategies.

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?
Around 2008, I worked on a project, funded through Illinois Soybean Association, that looked at mechanisms of glyphosate resistance, which was just emerging as an issue. The research led to the development of a molecular resistance test. Through this test, a farmer can send us a leaf sample and we can tell them within days whether they had resistance or not. We transitioned this ability to our plant clinic at the University of Illinois, which serves a lot of growers across the state. We can provide them site-specific information they can use to improve their weed management. Some of our research today continues to be aimed at developing these sort of tests, such as glufosinate resistance, which is valuable for a farmer to know.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?
The Soy Checkoff has enabled me to make quick pivots on new issues as they arise. Glufosinate resistance is a good example. We started getting reports of resistance, and we submitted a research proposal to Illinois Soybean Association in the spring. By fall, we were conducting research. The Soy Checkoff allows researchers a quick turnover in terms of

having an idea and receiving funding that will create information to support farmers. That has been very beneficial to both farmers and researchers like me.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
Regarding weed management, farmers should adopt two perspectives going into every growing season.

- *Manage weeds to prevent yield loss during the crop season.*
- *Also manage weeds to reduce problems in future years, which means managing the soil seed bank.*

These perspectives should be balanced to prevent yield loss during the growing season and not letting weeds go to seed at the end of the season. Farmers should keep both of these in mind as they plan their weed control program.

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?
Waterhemp has evolved to be resistant to every single herbicide, at least in terms of post-emergence use. Increasingly, we are seeing resistance due to non-target site herbicide resistance mechanisms. I think this is the biggest challenge to contemporary weed management, because it is unpredictable. When we have non-target site resistance, we don't know to what other herbicides there might be cross-resistance. We need to understand this better so we can make the unpredictable more predictable. Then we can better advise farmers how to use their herbicides in more sustainable ways.

SRIN articles:

Waterhemp Resistance to Glufosinate Motivates New Research

SOYBEAN RESEARCH & INFORMATION NETWORK

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