SOYBEAN RESEARCH PRINCIPAL INVESTIGATOR PROFILE — BRYAN YOUNG

Farmer Blog

Bryan Young, weed science professor, Purdue University

Why did you decide to pursue a career that includes soybean research?
My career path has been driven mostly by the inner farmer in me and my passion for field crop production. During a company internship while working toward my undergraduate degree in crop and soil science, I realized that field research was similar to farming, just measured by the number of 10' by 30' plots instead of acres. I also can't claim I was motivated for a career in weed management. The majority of that credit belongs with my mentor, Don Penner, who hired me as a freshman to work in his Michigan State University weed science research program. I worked with him throughout my undergrad education and gained experience in how herbicides work in plants and how that activity may be optimized; key areas in my research still today.

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?
I'm not sure if there is any specific project or research outcome that would be considered a landmark achievement that impacted soybean production. Rather, I would suggest that my research on herbicide application technology (e.g. spray adjuvants, spray tip designs, herbicide interactions) and providing a greater understanding of herbicide resistance mechanisms and management of waterhemp would be the overall footprint of my effort on soybean production.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?
No herbicide company wants to find, confirm and map presence of weed populations that have evolved resistance to their herbicides, at least not in the public forum that could negatively influence product marketing.

Conversely in my opinion, there are times where little value is placed on applied research to improve weed management in major agronomic crops, and there may be the opinion that any significant weed management challenges will be addressed by basic herbicide manufacturers. Research funding by the soybean checkoff program has allowed for major advancements in our knowledge of herbicide-resistant weeds, weed biology and spread of critical weed species, and provided a platform to evaluate weed management strategies that span across herbicide company platforms and evaluate the effectiveness of non-chemical management practices. Herbicide-resistant weeds have made it all too clear over-reliance on herbicides for weed management is not sustainable. Checkoff funding has provided the means for research to sort out other viable options that can be integrated with herbicides for more robust strategies.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
Diversify the cropping system and weed management tactics as much as possible to increase the opportunity for cultural and other non-chemical methods to supplement herbicide use.

Apply herbicides (preemergence or postemergence) using methods that will optimize activity every time the sprayer moves through the field. Reduced herbicide rates, tall weeds and poor spray applications have all contributed to our herbicide resistance problem. The most expensive herbicide application is the rescue treatment for a previously failed application, even if paid for by a company in a guaranteed program. Failed herbicide applications can result in weed seed production and crop competition, both of which I have found farmers dislike.

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?
Herbicides have represented a low labor, relatively easy and economical method to effectively manage weeds in agronomic crops for the last 70 years. Herbicides have allowed farmers to improve soil conservation by not requiring as many tillage operations to control weeds. With herbicides faltering and soil carbon sequestration gaining attention, what technology or practices can supplement herbicides and not realize a major spike in cost or labor while continuing soil conservation practices? Advancements in precision weed management, automated equipment, cultural practices and herbicide stewardship will all play a role.

SRIN articles:

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