MARSHALL MCDANIEL – SOYBEAN RESEARCH PROFILE

Farmer Blog



Marshall McDaniel, Associate Professor, Department of Agronomy, Iowa State University

Why did you decide to pursue a career that includes soybean research?
I really like solving the puzzle of maximizing productivity AND sustainability. I enjoy figuring out how to do that through practical research. Soybeans cover half our landscape, so maximizing soybean productivity and environmental sustainability benefits everyone. I often take ideas I hear from soybean farmers and test them out, so we all learn more. Plus, soybeans are easier to work in than corn!

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?
Past research started looking at the circular economy of using coproducts and byproducts from biodiesel production as fertility inputs for soybean production. Though that should be developed further to be practical, the concept has potential for farmers and processors. Current work on water resilience of soybeans, managing longer crop rotations and incorporating manure has potential to impact soybean production as climate patterns shift.

How has the Soy Checkoff enhanced your ability to find answers to production problems for farmers?
The Soy Checkoff provides great online resources, as well as financial support through the Iowa Soybean Association and the Iowa Soybean Research Center. That support has been very helpful for our research.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
Follow soil health principles and incorporate them where possible. Beneficial practices include applying manure as fertilizer, reducing tillage, adopting longer crop rotations or using cover crops. Growing roots in shoulder seasons is good for soils.

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?
We need more research on novel soil and water conservation practices that can improve the environment and the bottom line. A bit selfishly, since I work with a larger team on this, I think more practices like our research into perennial ground cover in soybeans, also known as "living mulch," would help address these goals. A particularly novel innovation is using a grass like bulbous bluegrass, native to the Mediterranean that goes dormant in mid-June. It could improve soil health with less management. I would also like to see research on enhanced, slow-release fertility products in soybeans, too.

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Linking Soil Practices to Soybean Resilience

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