# SOYBEAN RESEARCH PRINCIPAL INVESTIGATOR PROFILE – ROBERT KOCH

Farmer Blog

Robert Koch, associate professor and extension entomologist, University of Minnesota

**Why did you decide to pursue a career that includes soybean research?**
*I grew up in rural Minnesota just down the road from my grandparents' dairy farm, so I always had a connection and appreciation for agriculture. Coupled with that, I have always had an interest in biology. I got interested in insects while in college and realized their importance to agriculture, especially crop production.*

**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 team and I were the first research group to document several years ago the soybean aphid's resistance to pyrethroid insecticides. We've done a lot of work to evaluate alternative insecticides that farmers can use. We're now working on understanding better how insecticide resistance is happening at the molecular level within the insects, and then how to manage their resistance.*

**How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?**
*The soybean checkoff is critically important. It enables me to respond more quickly to new challenges, whether it's resistance developing in an insect or an emerging pest like the soybean gall midge. The annual funding cycle provides an opportunity for a more rapid response for research and extension. These grants also enable me to gather preliminary data and leverage for larger, federal funding sources.*

**Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?**
*Scouting, scouting and scouting. Farmers know there are insects that can threaten their soybean yields, but that doesn't mean that every field is going to need insecticides every*

*year. We need to be scouting and using threshold measurements to decide when to intervene with insecticides and there are several reasons:*

- *Economics – we don't need to make the investment in insecticides if it isn't necessary.*
- *Human health — some insecticides have consequences for our health.*
- *Insecticide resistance*
- *Environmental — there is concern from regulators about pesticides being detected in our ground and surface waters. Regulators could potentially remove access to some of the insecticide chemicals if the concern becomes too great.*

*To maintain a good toolbox for management of these pests, we need to be cautious and careful with how we're using them and making sure they are used only when needed.*

**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?**
*Emerging pests and their challenges. There are pests that are evolving to overcome the insecticides. We've been dealing with the soybean aphid for more than two decades now. We've got new pests showing up like the soybean gall midge. We discovered a new leaf mining insect two years ago in Minnesota — a tiny caterpillar that lives inside the leaves. It's never been documented as a soybean pest before, so we're trying to figure out how big of a threat it poses.*

**SRIN articles:**

Searching for Soybean Tentiform Leafminer Control Methods

Finding Answers to Strengthen the Fight Against Soybean Pests

A North American Moth is Expanding its Turf to Soybeans

Studying the Cold-Hardiness of the Soybean Gall Midge

SOYBEAN RESEARCH
& INFORMATION NETWORK

**This website is funded by the soybean checkoff**