

# Management for new and existing soybean pests

**Funding:** \$553,517

## Principal Investigator

Kelley Tilmon, The Ohio State University

## Co-Principal Investigators

Punya Nachappa, Indiana University

Erin Hodgson, Iowa State University

Matthew O'Neal, Iowa State University

Brian McCornack, Kansas State University

Janet Knodel, North Dakota State University

Deirdre Prischmann-Voldseth, North Dakota State University

Robert Koch, Northwest Research and Outreach Center, University of Minnesota

Christian Krupke, Purdue University

Adam Varenhorst, South Dakota State University

Andy Michel, The Ohio State University

Brian Diers, University of Illinois at Urbana-Champaign

George Heimpel, University of Minnesota

Bruce Potter, University of Minnesota

Deborah Finke, University of Missouri

Thomas E. Hunt, University of Nebraska

Robert Wright, University of Nebraska

Glen Hartman, USDA/ARS-University of Illinois

## Overview of project objectives

There are several emerging pests of soybean in the North Central region which deserve attention. For example, economically damaging populations of native stink bugs are becoming more common in several states. Another insect, thrips, which have always been present in soybean at low levels, have new damage potential as vectors of soybean vein necrosis virus. Background work needs to be completed to diagnose the extent of current problems and prepare a response to the increasing problems.

There is increasing evidence that soybean yield increases between 6-18 percent when pollinators visit these plants, despite being bred for self-fertilization. This research addresses the yield increase potential from these beneficial insects.

Other project goals relate to aphid-resistant soybean varieties, how to make this resistance durable and sustainable, and how they may fit economically into soybean production systems.

## Key results

The field guide Stink Bugs of the North Central Region was completed and distributed to 12 states in the region, including extension offices and state checkoff boards. Several other publications were completed and distributed to farmers, extension offices and crop professionals including: The Effectiveness of Neonicotinoid Seed Treatments in Soybean, Management of Insecticide-Resistant Soybean Aphids, and Aphid Field Guide.

Bee species were identified, and researchers were pleased with the overall bee and syrphid fly species abundance. These can be relatively abundant and diverse in the monoculture soybean field environment. Their results provide baseline data associated with

flowering soybeans in the Midwest and a publication is in development that will include best management practices for conserving pollinators that use soybeans.

### **Benefit to farmers**

Farmers will benefit from Extension outreach publications distributed throughout the North Central region. Farmers being able to identify invasive pests and beneficial insects will allow for better decisions for pesticide management.

### **Links**

[Soybean entomology in the North Central region: Management and outreach for new and existing pests](#) *USB National Soybean Checkoff Research Database*

[Soybean Aphid Field Guide](#) *2nd edition - North Central Soybean Research Program, Minnesota Soybean Promotion Board, and Iowa State University Extension*

[Management of Insecticide-resistant Soybean Aphids](#)

[New Field Guide on Stinkbugs in the North Central Region](#)

[Biology and Economics of Recommendations for Insecticide-Based Management of Soybean Aphid](#)

[Update on Breeding for Soybean Aphid Resistance](#)