

# Boots on the Ground: Using Data-Driven Knowledge for Profitable Soybean Management Systems

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## Overview of project objectives

Over the past decade, the ag sector has amassed large amounts of crop production data thanks to the continued development and utilization of precision agriculture technologies and tools. More recently, computational capabilities have improved for the timely and meaningful interpretation of precision ag data for the generation of useful management information and tools. When analyzed, precision ag data combined with environmental information has been successfully generalized broadly but remains limiting at the field level. This project will address return on investment of management issues at the field level, including pre-plant pest management, seeding rates and costs, and other input factors. The goal is to develop a database tool with three years of farmer management information from the North Central region, as well as yield data, soil properties, weather and remote sensing information. The data will be collected, analyzed and communicated to farmers in two stages. The first stage will be a profit optimization evaluation to identify optimum management practices for increased profitability. The second stage will include a subset of selected farms that will demonstrate the developed tool.

## Key results

Project leaders and collaborators met and established cooperators and fields in which to scout. For crop year 2022, approximately 80 fields were tested in Iowa, Michigan, Minnesota, Nebraska, North Dakota, Ohio Wisconsin and Pennsylvania. At the end of the project, the team will have validated a novel tool that combines models and algorithms with self-reported on-farm practices and costs to identify management practices that result in increased profits.

## Benefit to farmers

The development of this tool should prove to have significant value to farmers so they can understand better the impact their decisions will have throughout the production cycle and end-of-year investment returns.

## Links

[Using Data-Driven Knowledge for Profitable Soybean Management Systems](#) *USB National Soybean Checkoff Research Database*