NCSRP – report due by October 31, 2022

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Progress

Project goals:

1. Develop a multistate database to allow upscaling of soybean quality predictions to regional levels and benchmark agronomic practices, soybean genetics, management, and environmental conditions that can lead to large-scale improvements in soybean quality.
2. Communicate the economic value of soybean quality mapping to farmers and agronomists through an online interactive simulation tool, technical publications and social media.

Accomplishments during the year 1, progress report

The team has accomplished the collection of soybean fields from multiple states (Ohio, Indiana, South Dakota, Missouri, Iowa, Michigan, Illinois, North Dakota, Nebraska, and Kansas), including the main collaborators such as John Fulton, Shaun Casteel, Peter Kovacs, Greg Luce and John Lory, Scott Nelson, Mark Seamon and Mani Sing, Randy Pearson, David Kramar and Michael Ostlie, and Laila Puntel and Laura Thompson.

From all states, close to 100 fields were collected from the implementation of this project. The final numbers of fields per state are from high to low: Michigan (14), Ohio (13), Indiana (12), Iowa (12), Kansas (11), Nebraska (10), South Dakota (8), Illinois (7), North Dakota (7), and Missouri (4). From all these farmer fields, more than 1,000 seed samples were collected and then further processing for quality (protein and oil), and more than 250 soil samples to characterize the field zones linked to changes in quality. In addition, all the teams from each state are finishing the collection of the main management connected to the fields.

Here is the link to the field survey data collection: https://forms.gle/5wBfdj9ZhsoJYsbNA

We have also presented information about soybean quality in two meetings during April-May, receiving great feedback on the need of this project and the lack of information about soybean quality. In addition, we did have four summer field days with presentation of this soybean quality project, reaching out close to 150 farmers across our states. Dissemination of soybean quality information obtained from previous survey tools.

Final Project Results

This project completed the first year of a large coordination with 10 states participating and working together to develop the largest farmer database of soybean seed quality around the globe. With close to 100 fields collected in year 1 (and ~1000 seed samples, 250 soil samples), this is an example of the coordination with our teams from K-State and Iowa Soybeans and the other 8 soybean specialists. A sampling protocol was developed (see attached document) in order to provide a large standardization of all the data collected from this project.

All data, seed and soil samples and management information for farmers, will be analyzed and prepared to provide new insights on the relationships and the main drivers of soybean quality across the North Central US region. This project will provide a foundational database to develop predictive models and assist on the possibility for segregating quality at the farmer field level.