

Nebraska Soybean Board

Year-End Summary Research Report Form For Multi-Year Projects

Please use this form to summarize the practical benefits of your research project and what has been accomplished.

Your answers need to convey why the project is important and how the results will impact soybean production.

Note that this form must be submitted with the 4th Quarter Report in all multi-year projects.

Project # and Title: Increasing yield and seed composition stability through diverse germplasm and genomic selection

Principal Investigator: Dr. David Hyten

Year of Multi Year: 2 of 3 (For example: Year 1 of 3, Year 2 of 2)

1. What was the focus of the research project or educational activity?

This project builds upon the previous yield stability project to discover new yield stability genes in diverse germplasm and to develop genomic selection to select for increased yield and seed composition stability in early generation breeding material. Early selection with a large number of experimental lines will help maximize the potential to enhance yield and seed composition stability for cultivars being developed for Nebraska soybean production areas.

2. What are the major findings of the research or impacts of the educational activity?

Since this is year two of the project the major findings are limited. Yield stability is something that has to be measured over many locations and years before we can perform valid analysis. We do know that yield stability is a complex trait and that breeder's selection for this trait is complex and that breeder's perform what is known as balancing selection on the different alleles for this trait. By creating a mixture of alleles breeders are creating elite lines that essentially create a genetic buffer against the different environments it may encounter. Creating genomic selection models that select for a right balance of alleles will help them select yield stable lines.

3. Briefly summarize, in lay terms, the impact your findings have had, or will have, on improving the productivity of soybeans in Nebraska and the U.S.

The major findings will allow breeders to select for yield stability at a point in the breeding process where they were not able to select for it previously. This will allow them to select more soybean lines that have stable yield across diverse Nebraska environments.

4. Describe how your findings have been (or soon will be) distributed to (a) farmers and (b) public researchers. List specific publications, websites, press releases, etc.

Once we have multiple years data we plan to distribute our findings in public talks, scientific seminars, scientific posters and scientific publications.

5. Did the NE soybean checkoff funding of your project, leverage additional State or Federal funding support? Please list sources and dollars approved.

Not at this time.

Please email this completed form to the Agriculture Research Division (jmcmahon10@unl.edu) based on the reporting schedule given to you. If you have any questions, please call Jen McMahon at the ARD 2-7082.