Nebraska Soybean Board
Year-End Research Findings Report

DS VB 11/2/2017

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 impact soybean production.

Project Title: Winter Nursery Support for Soybean Breeding and Genetics Research

Contractor & Principal Investigator: George Graef

Please check/fill in appropriate box: ■ ***Continuation research project***
☐ ***Year __ of __ research project (for example: Year 1 of 2)***

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

The winter nurseries in Puerto Rico and Chile allow us to grow multiple generations per year and increase our effectiveness and rate of genetic gain.

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

At the Puerto Rico nursery during the 2016-17 season, the lighted F1 plant nursery was planted the first week of October and we grew more than 1,500 F1 plants from our Lincoln 2016 crossing block to obtain F2 seeds for generation advance. We also grew and harvested 1,054 population rows for the first season of generation advance (Nov-Feb), and ~1,400 rows for the second generation advance (Feb-May). For the crossing block area from January to May, we obtained more than 2,000 F1 seeds from over 150 new cross combinations for yield, SCN, protein, and other research objectives.

At the Chile nurseries, we grew more than 10,000 progeny rows for yield, diversity, SCN, and genomic selection objectives, as well as bout 2,500 rows for new Liberty Link crosses. In addition, more than 6,000 plants were harvested from F4 populations for return to Nebraska for 2017 progeny row evaluations.

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.

We continue to make steady and significant progress in yield and compositional quality in our breeding program. The winter nurseries are integral to that success. With the Puerto Rico and Chile nurseries, in one year we obtain an additional crossing season, two additional generation advance seasons, and another yield test and progeny row evaluation season for all of our objectives. The impact is shown in our continued outputs of high-yielding soybean cultivars well adapted to Nebraska production 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.

Please refer to the outputs listed for the "Soybean Breeding and Genetics Research for Nebraska" project.

5. Did the NE soybean checkoff funding support for your project leverage any additional state or Federal funding support? (Please list sources and dollars approved.)

*****This form must be completed and submitted with the fourth quarter report.***