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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: Winter Nursery Support for Soybean Breeding & Genetics

Principal Investigator: George Graef

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

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

1) Conduct generation advance for soybean breeding and genetics studies to obtain 2 additional generations per year
(2) Crossing for development of new populations for breeding and genetics objectives
(3) Evaluate progeny rows for selection and advancement to multi-location yield tests
(4) Conduct small-scale seed increases for research studies and for specific lines to hasten development and commercial production when appropriate,
(5) Yield test advanced high-yield lines from the Nebraska program for response to limited irrigation using precise water treatments and specific developmental stages to identify lines, plant traits, and genes related to yield under drought stress and response to water.

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

At the Puerto Rico nursery during the 2019-20 season, the lighted F1 plant nursery was planted the first week of October and we grew more than 1,600 F1 plants from our Lincoln 2020 crossing block to obtain F2 seeds for generation advance. The crosses involved yield, SCN, high protein, and unique plant growth and development traits. We also grew and harvested over 1,500 population rows for the 2-season generation advance populations from November to May. For the crossing block area from January to May, we obtained more than 1,200 seeds from over 120 cross combinations for yield, SCN, protein and seed compositional quality, IDC, and other research objectives.
At the Chile nurseries, we grew more than 10,000 progeny rows for yield objectives. In addition, more than 10,000 plants were harvested from F4 populations for both conventional yield and Liberty Link traits for return to Nebraska for progeny row evaluations during the 2020 season.

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.***

The winter nursery program supports the breeding and genetics project. Information on publications and other communication and dissemination of results is available in that project summary.

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

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.