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: #750: Enhancing soybean germplasm through biotechnology

Principal Investigator: Tom Elmo Clemente

Year of Multi Year: 3 ***of*** 4 ***(For example: Year 1 of 3, Year 2 of 2)***

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

   This project is a research centric in its activities. However, we use the outcomes of this program in multiple outreach activities to promote the tools of biotechnology in agriculture for sustainable production systems, for genetics is the foundation of sustainability.

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

   This program has generated and is evaluating novel genetic variation introduced into soybean that has lead to the production of a soybean suitable for end use applications in aquaculture feeds, improvement in functionality of seed protein reserves, means to impacts harvest index of the crop, along with genetic strategies for boost in water use efficiency.

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 long term applications that this program will have on the soybean industry is the development of a soybean-based feedstock for the aquaculture industry. The design of genetic methods to improve protein quality, without compromising oil, aspects to protect against aphid predation, along with novel approaches to improve yield and protection of yield under stress environments (biotic and abiotic stresses).

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 research outcomes from this project are communicated to the Nebraska Soybean Board and in peer reviewed publications and patents (when applicable). In regards to the latter intellectual property has been gathered on genetic method to create a soybean oil suitable for baking applications, and more recently a patent application has been submitted on a new herbicide tolerance trait. Lastly, a manuscript was recently submitted that describes findings that identified potential metabolic bottlenecks limiting the accumulation of oil in soybean seed.

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

   The NE soybean checkoff support of this project has lead to additional resources form the United Soybean Board, and recent results generated will be the basis of a planned National Science Foundation grant to be submitted this Spring (2022).

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.