

Nebraska Soybean Board



11/12/2018

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 Title: #750: Enhancing soybean germplasm through biotechnology

Principal Investigator: Tom Clemente

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

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

The introduction of novel genetic variation into soybean using the tools of biotechnology, with emphasis on both input and output traits

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

repeated observation, that under field conditions, genetic approaches targeting enhanced photosynthesis in the crop, leads to biomass increases, but minimal impact on components of yield.

Demonstrated a novel genetic design can translate to the synthesis of a high solids, elevated oleic acid oil with applications in the baking industry

Have shown that synthesis of interfering RNAs directed towards critical genes of aphids can reduce replication of the pest on soybean

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 outcomes of this research has potential impact on improving productivity of soybean through the identification of genetic strategies for enhancing yield, protection of yield and quality of the soybean harvest

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.

A manuscript is currently in review at the Plant Biotechnology Journal describing the genetic design that leads to the production of a soybean oil with high solids and elevated oleic acid. A patent has been issued protecting the intellectual property of this genetic design: US Patent No. 10,100,325 Issue Date 10/16/2018

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

The funds provided by the Nebraska Soybean Board to support this program have led to additional leveraging funding from the United Soybean Board, North Central Soybean Research Program, and the National Science Foundation's Plant Genome Research Program

Please e-mail this report to the Agriculture Research Division (jmonagham2@unl.edu).