

**Nebraska Soybean Board  
Year-End Research Findings Report**



12/7/2017

*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: *Using Pseudomonas syringae effectors as tools to identify and/or enhance components of soybean immunity***

**Contractor & Principal Investigator: *James R Alfano***

**Please check/fill in appropriate box:**  **Continuation research project**  
 **Year 2 of 3 research project (for example: Year 1 of 2)**

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

*To identify components of the soybean immune system and then use this information to try make soybean plants with increased resistance to plant pathogens*

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

*We are continuing to identify soybean proteins that are targeted by other P. syringae type III effectors.*

*We have performed a field experiments with transgenic soybean plants that over-express a type III effector target protein. This protein is a plant RNA-binding protein. We have found in lab experiments that if it is over-expressed it protects the plant from pathogens. We wanted to see how it performed in the field. We could see no difference in yield compared to wild type 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.**

*We believe we have a soybean transgenic that may be more tolerant of several microbial pathogens.*

**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 university let our provisional patent expire without submitting a patent application. Therefore, our technology is not protected. We will publish a paper on this in the coming year.*

**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.)**

*No. But I will continue to try to use the data generated from this project to get federal funding most like the USDA or the NSF. The soybean funding has helped my research program immensely and I greatly appreciate the Nebraska Soybean Board's support.*

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