**1. MSMC project number and title:** #409-18 “Developing value-added specialty soybeans

for the soyfood market”

**2.       Time period covered:**  April 1, 2017 – March 31, 2018 (Final Report)

**3.       Activities conducted/Progress to date:**

**Chen:**

Our food-grade soybean breeding started in late 2016 and is still in its infant stage. We are still collecting germplasm for testing and crossing. We introduced a Japanese natto variety and grew it on two local farms in the Bootheel during 2017 crop season. This variety has the best natto quality and but poor agronomics with lodging, shattering and disease issues. Our goal is to incorporate its natto quality attributes into our elite convention lines with high yield potential, strong disease package, and local adaptation. Several crosses were made and breeding populations are being advanced in Costa Rica. Since this project has been terminated by MSMC, these materials will be incorporated into our conventional breeding program with a new funding support from USDA-SCRI program.

We grew and evaluated 7 MG-4 and 14 MG-5 tofu lines in a 3 rep test for A3 subunit and its impact on tofu quality. We collected agronomic data, yield, seed size and quality data during the 2017 crop season. Seed samples have been sent to Mississippi State University for tofu making and quality/sensory evaluations. We have selected a few lines with good agronomic traits and local adaptation for advanced trial in 2018 and as parents for crossing. These materials will be incorporated into an USDA-funded project in collaboration with Mississippi State and Virginia Tech.

We have increased seed of a small-seeded line, S99-3181, as a potential line for natto production. This line will be evaluated for yield and natto quality in 2018. Several crosses were made using this line with small seed size and good yield potential. These materials will also be incorporated into the USDA-SCRI project in collaboration with Arkansas and Virginia.

We grew 12 small-seeded and 18 large-seeded lines in Costa Rica and at Delta Center. Several crosses have been made in different combinations in Costa Rica and the plant populations are being advanced in Costa Rica for breeding purposes. We also made 14 large-seeded and 11 small-seeded crosses last summer at the Delta Center to incorporate proper seed size and quality traits into our high-yielding lines. Plant populations from these crosses are being grown in Costa Rica winter nursery for generation advancement.

Funding for this project has been removed by MSMC. We are in process of finding private partnership to continue the research effort.

**Scaboo:**

We were in the early stages of population and germplasm development during 2017 for developing food-grade type soybean germplasm and varieties. Our most advanced material consists of approximately 40 2017 progeny row selections for MG III lines with large seed and clear hilum. These lines are going to be grown at four locations in Missouri in preliminary yield trials during 2018 to evaluate yield potential. We also continue to develop and test lines with higher than average protein content in collaboration with both MSMC and USB.

**4. Is your project on schedule? If not, how much are you behind?**

Project has been terminated.

**5**. **Is your project on budget? If not, how much over OR under budget?**

All funds have been spent as of April 1, 2018.

**6.       Names and positions/titles of those whose time is being charged to this research**

**Project:**

Michael Clubb (Research Specialist)

Erica Martin (Field Research Assistant)

Kevin McGovney (Field Research Assistant)

Claire Bilyeu (Lab Research Assistant)