**SCSB Final Report**

**General Information**

**Principal Investigator(s) Name(s):** Ben Fallen
**Organization:** Clemson University

**Date:** 01/02/20

**Quarter:** Final

**Proposal Information**

**Title:** Evaluation of SC Soybean Breeding Lines in 2019

**Amount Expended to Date:** 97%

**Project Summary**

The primary goal of the soybean breeding program at Clemson University is to develop varieties for release. One of the last stages of development is to enter elite breeding lines into regional variety trials. This allows the lines to be tested against leading commercial varieties across multiple locations, incorporating different growing environments and across years. This includes the South Carolina Official Variety Test (SC OVT). The SC OVT is very representative of the growing conditions that soybean growers in SC experience. For testing purposes, varieties entered into the SC OVT are divided into maturity groups and can be further divided into early and late tests within a maturity group, if enough varieties are entered into a maturity group. In 2019, varieties were tested under irrigation at two locations, without irrigation at three locations and under drought stress conditions at one location, for a total of six testing environments across the state. The testing information described below is data that was averaged across locations in 2019. Three Clemson soybean breeding lines, SC17-6513RR1 (43.7 Bu/A), SC17-5537RR1 (43.2 Bu/A) and SC17-5517RR1 (43.1 Bu/A) all yielded ~43 Bu/A and were ranked fifth, sixth and seventh, respectively in the early Maturity Group (MG) VI test. The yield of the top yielding lines was as follows: 1. 48.4 Bu/A, 2. 48.0 Bu/A, 3. 45.6 Bu/A and 4. 44.2 Bu/A. A total of 24 varieties were entered into the early MG VI test and the lowest yielding line was 35 Bu/A. Clemson breeding line SC17-6518RR1 yielded 48 Bu/A and was ranked the third highest yielding line in the MG VII&VIII test. The yield of SC17-6518RR1 was only 1 Bu/A less than the top yielding line and it out yielded the test average by 5 Bu/A. A total of 28 varieties were tested in the MG VII&VIII test and the lowest yielding variety was 29.7 Bu/A.

**Key Performance Indicators**

Over the last couple of years there has been a growing interest among SC farmers for a MG VI RR1 soybean variety. This year we tested multiple MG VI breeding lines and three lines really stood out, as described above. We hope to move forward with release of at least one of these varieties.

**Additional Information**

Please visit the SC Official Variety Test website at <https://www.clemson.edu/cafls/research/vt/soybeans.html> for more information.