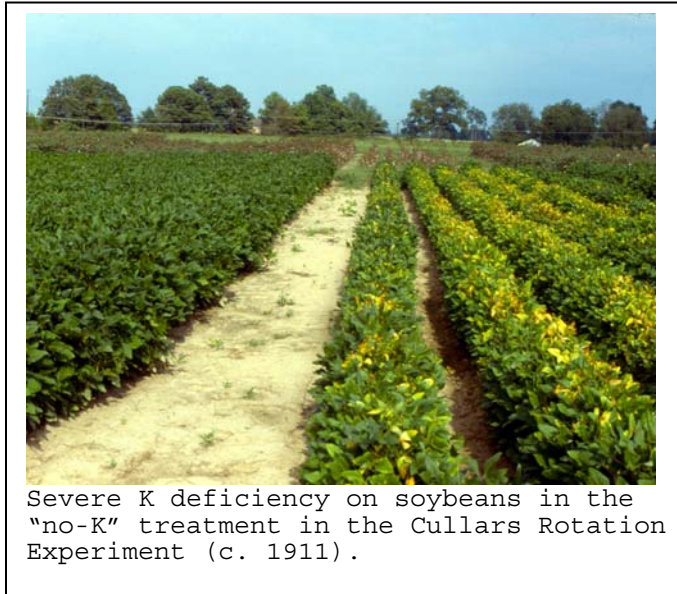


PROJECT PROPOSAL

Alabama Soybean Committee
2007

TITLE: Support of Long-term Field Research with Soybean



PRINCIPAL INVESTIGATORS:

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OBJECTIVES:

1) Help to maintain Alabama's long-term cropping systems and soil fertility experiments and periodically summarize soil and soybean yield information to update nutrient recommendations; (2) Compare conventional versus high-residue,

conservation tillage on yield on yield and soil quality parameters.

JUSTIFICATION:

The Alabama Agricultural Experiment Station and the Department of Agronomy and Soils at Auburn University maintain 13 long-term field experiments across Alabama. Most of these experiments include soil fertility variables that are essential to keeping fertilizer and lime recommendations up-to-date. They also provide unique sites for monitoring changes in soil quality under continuous cropping with various levels of fertilizer and lime input. Because of the unique nitrogen, phosphorus, potassium, sulfur, magnesium, lime and/or cropping system variables, these experiments can and are used to gain new information on a timely basis. For example, the potassium variable plots have been essential to studying the effects of foliar-applied K on cotton yields under various levels of K deficiency on different soils. Nitrogen variables have been used to study N movement in the soil. Students frequently use soil material from these plots for greenhouse studies because the soil properties and/or nutrient content are well documented. No other state has such resources available. The experiments include:

The Old Rotation (c. 1896) at Auburn

A cropping system experiment with 13 plots on 1 acre which is the oldest experiment in the world which includes cotton and soybean. Irrigation was installed on half of each plot in 2003.

The Cullars Rotation (c. 1911) at Auburn

A 3-year rotation of cotton (legumes)-corn (wheat)-soybean with soil fertility variables on approximately 3 acres of land. This is the oldest soil fertility experiment in the South and has 14 soil fertility treatments replicated 3 times. This experiment was placed on the National Register of Historical Places in April, 2003. It joins the nearby Old Rotation as two of only 4 on-going experiments in the U.S. to receive this honor. This experiment receives a lot of public recognition because of its location adjacent to

the Jules Collins Smith Museum of Art in Auburn.

The Two-Year Rotation (c. 1929) at 6 locations (Brewton, Headland, Prattville, Crossville, and Belle Mina)

This experiment is similar to the Cullars Rotation but involves a 2-yr cropping system, 17 soil fertility variables, and 4 replications. Since 1992, the rotation has been cotton-soybean at the Tennessee Valley location.

The NPK Fertility Test (c. 1954) at 6 locations (same as above plus Winfield)

This experiment is an annual cropping experiment which contains 16 soil fertility variables of N, P, K, and lime which are replicated 4 times. It was established to develop soil test calibration and fertilizer recommendations. Crops can be changed as the need for new information develops. Prior to 1992, it was in soybean. These data have not been summarized.

With decreased public support, the continuation of these experiments may depend upon increased commodity support.

PROCEDURES:

Funds will allow data to be periodically summarized and published on an annual basis. Funds will support part-time help to compile data, present data at meetings, publish data, and pay for added costs such as soil testing, plant analysis, lime, fertilizer, seed, etc. which must be included in the costs of managing some research plots by individual project leaders. Plots at Prattville have been split into (1) conventional tillage and (2) conservation tillage. Other sites are planted in conservation tillage since 2004. Yields and soil quality changes will be documented. Short-term projects usually involve only part of each experiment or an aspect of some experiments. Currently, the only extramural support for these projects has come from short-term, specialized studies such as those received from the Wheat and Feed Grains Committee and the Cotton Commission. This proposal will allow the **Alabama Soybean Committee** to continue sharing ownership in these long-term experiments.

AMOUNT RECEIVED IN 2004:	\$5,000
AMOUNT RECEIVED IN 2005:	none
AMOUNT RECEIVED IN 2006:	none
AMOUNT REQUESTED IN 2007:	\$3,000

DURATION: indefinite