

EVALUATION OF FERTILITY TIMING FOR DOUBLE CROP SOYBEANS

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ABSTRACT

Double crop soybeans (*Glycine max*), or soybeans following a winter wheat (*Triticum aestivum*) crop are a popular choice for producers who are looking for a way to maintain field coverage through the summer and an opportunity to capture additional profit from their field. In Oklahoma, double crop soybeans have a lower success rate in a rain fed system due to the unpredictability of rainfall and the later planting date of the double crop soybeans. Because of this, producers traditionally treat the double crop as a low input system to minimize cost risk and minimal fertilizer is applied. In some cases, fertilizer for the double crop will be applied prior to the planting of the winter wheat.

The motivation for this trial was the observation of double crop soybean yields comparable to full season soybean yields when sufficient moisture and nutrients were available. The purpose of this study was to test the impact of Phosphorous (P) and Potassium (K) fertilizer timing on double crop soybean yield. To test timing there are three different application times for the double crop fertility: pre-plant wheat, top-dress wheat, and pre-double crop soybean. These timings were chosen to complement when a producer would already be making a pass over the field and the double crop fertility could be included. Winter wheat P and K fertility is considered as well and is applied to all double crop fertility treatments at pre-plant wheat. Nitrogen (N) fertilizer is applied to the wheat in a split application evenly across all treatments.

The resulting treatment structure consist of thirteen treatments, replicated four times across multiple locations throughout Oklahoma, including Ottawa County and Grant County. The amount of P and K fertility applied was based upon site specific soil test values. Winter wheat and double crop fertility were applied to meet the required sufficiency level set by Oklahoma State University's Soil, Water, and Forage Analytical Laboratory (SWAFL), 33 ppm P 100% sufficiency for P for wheat and soybeans, 125 ppm K 100% sufficiency for winter wheat and 138 ppm K 100% sufficiency for soybeans. The first year of double crop beans were just harvested and data will be presented at the conference.