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IMPROVING PRODUCTIVITY AND PROFITABILITY OF SOUTHERN COTTON

The recent Beltwide Cotton Conference was host to several presentations from the Southeast and South Central Great Plains regions. A variety of topics were covered, but the underlying theme was that cotton remains a viable crop in the South and with good management can be profitable for growers. The opening presentation in the soil management and plant nutrition technical conference focused on fertilizer BMPs and how growers can apply 4R nutrient stewardship (applying the “right” fertilizer source at the “right rate”, “right time”, and “right place”) to cotton production for more efficient and effective fertilizer use. The presentation and an accompanying publication titled *Apply the Four Rights for Cotton Production in the Midsouth and Southeast* are available at [>www.ipni.net<](http://www.ipni.net).

Several presentations discussed the potential for using optical sensors to improve N management in cotton. Researchers from Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, and Texas reported on useful relationships among sensor measurements, leaf N content, crop yield potential, and plant height that could be used to more accurately identify optimum N rates. The studies from Missouri and Texas, in particular, showed significant increases in profitability using sensor-based N fertilization strategies compared with standard practices.

Researchers at Texas A&M took a unique look at site-specific nutrient management (SSNM) in terms of energy returns. Using cottonseed feed value as the output in a center pivot irrigation system, SSNM and blanket N fertilization resulted in negative energy returns to N fertilizer application. However, in a second case study, a subsurface drip irrigation system was tested and positive energy returns to N fertilizer were observed, with optical sensor-based SSNM yielding more energy than soil test-based N management.

Potassium fertilization of cotton has received much attention at the conference through the years and continued to be a topic of interest in 2010. Research conducted at Mississippi State University (MSU) showed that soil K depletion directly influenced yield, regardless of cultivar maturity. Thus, producers who choose to mine K run the risk of a dramatic decline in yield. The results from MSU also suggested that K uptake dynamics may differ for late maturing varieties versus early maturing varieties. However, more research is needed regarding variety cotton response to soil test K levels throughout the growing season.

The 2010 Beltwide Cotton Conference also included the inaugural graduate student poster contest for soil management and plant nutrition. The first, second, and third place winners were: Tyson Raper, Mississippi State University; Josh Lofton, Louisiana State University; and Andrea Jones, University of Missouri, respectively.

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Abbreviations: N = nitrogen; K = potassium.