

U.S. Department of Agriculture <b>Work Unit Description AD-416</b> U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions				Date (Month/Day/Year)
1. Accession No.	Agency Identifiers		5. Work Unit/Project No.	6. Status
	2. NIFA	3. LA.B	LAB94119	A = New Project
7. Title <b>Advancing Cotton and Soybean Agronomy and Improving Soil and Water Quality in Northeast Louisiana</b>				
8. Performing Organization 1941 - 2010 Northeast Research Station Agricultural Experiment Sta, Louisiana State Univ			9. Cooperating Departments within State Performing Institution	
10. Multistate Project No.			11. Cooperating States	
12. Investigator Name(s) Last Name and Initials)				
1. Udeigwe, T.K. 2. Board, J. 3. Miller, D. 4. Hendrix, J. 5. Boquet, D. 6. Tubana, B. 7. Blanche, S. 8. Dickson, I. 9. Harrell, D. 10. Viator, S.				
13. Project Contact Last Name and Initials: Udeigwe, T. K.			Phone: 318-766-4607 Fax: 318-766-4278	
E-Mail: tudeigwe@lsu.edu URL:				
14. Project Type Hatch	15. Contract/Grant/Agreement No.		16. Amount	17. FY
18. Award Date (Month/Day/Year)	19. Start Date (Month/Day/Year)		20. Termination Date (Month/Day/Year)	
	10/01/2011		09/30/2013	
Goals/Objectives/Expected Outputs				
1. Conduct agronomic research on cotton and soybean to improve their productivity in Louisiana. 2. Conduct studies to monitor and improve the water quality of impaired waterbodies (Lake St. Joseph and Tensas River) in Northeast Louisiana. 3. Conduct official cotton and soybean variety trials to evaluate their performance in Louisiana				
Methods				
Field studies (for objectives 1 and 3) will be conducted on experimental plots located on Sharkey clay and/or Commerce silt loam soils at the Northeast Research Station, St. Joseph, Louisiana. All equipment for pesticide and fertilizer applications will be calibrated yearly at the beginning of the planting season. Lysimeters (for cotton crop water use project) will be calibrated annually. Sensors on the weather station will be inspected and calibrated as recommended. Treatments or effects to be tested will be replicated 4-6 times in a randomized complete block or split plot experimental designs (where applicable). Sample collection, handling, and analysis will be conducted following applicable standard operating procedures and quality assurance project plan (for water quality projects). General management practices, such as fertilization, pest control, and irrigation, where applicable, will closely follow LSU AgCenter recommendations. Water quality projects (objective 2) will be conducted at the designated waterbodies and/or watersheds (Lake St. Joseph and Tensas River). Sampling locations for Lake St. Joseph water quality monitoring will be identified and the GPS coordinates recorded. Automatic water samplers and other portable meters used for field measurement of selected parameters will be calibrated. For the Tensas River BMP implementation, a site of interest will be located within the watershed. Designs of the filter strip, retention pond and inlet/outlet devices will follow the guidelines stated in the USEPA Stormwater Best Management Practice Design Guide. All applicable quality control/quality assurance analyses will be applied. All statistical analyses will be conducted using statistical analysis software (SAS). Results would be presented in tabular and/or graphic format using MS Excel and/or Sigma Plot. Findings will be communicated to target groups through scientific publications, presentations at local and professional meetings, research station field days, commodity board meetings, LSU AgCenter publications, popular press, and personal communications.				
23. Non-Technical Summary				

Sent via INTERNET  
electronic mail systems

Date: 10/11/11


POSTED

Cotton (*Gossypium hirsutum* L.) and soybean (*Glycine max* L.) are of great economic importance in Louisiana, so cultural/management practices and production inputs need to be constantly evaluated for continuous maximization of output. Likewise, the selection of the right variety to plant in a given environment is important and has a direct impact on profitability, so there is the need for unbiased comparison of the varieties available to producers in any locality since cotton and soybean varieties have been found to significantly differ in their adaptation to the environment. Environmental quality is also an issue of concern in agricultural areas. Intensive agricultural activities are often associated with soil and water contaminants, such as phosphorus, nitrogen, organic carbon, fecal coliform, and heavy metals, as documented by the U.S. Environmental Protection Agency and the U.S. Department of Agriculture. Unfortunately, the majority of the water bodies in Louisiana are designated as impaired with sources of impairment chiefly documented as runoff from agricultural fields (LDEQ, 2006). Hence, this project is formulated to address the issues stated above. All applicable experimental designs, approved analytical techniques, and statistical analyses will be applied. Expected outcomes: Provide answers to important questions on cotton (soil fertility, water use) and soybean (plant density, rotation, soil fertility, seed treatment, row spacing, etc) agronomy in Northeast Louisiana. Provide current information on cotton and soybean variety performance in Northeast Louisiana. Provide an updated baseline water quality data for impaired waterbodies in Northeast Louisiana

24. Keywords

Cotton; Soybean; Agronomy; Lake St. Joseph; Tensas River; Irrigation; Crop coefficients; Water quality; Northeast Louisiana; Lysimeter; Evapotranspiration; Phosphorus;

\*\*\*\* The Original signed document is on file at this institution. \*\*\*\*

Signature	Title	Date
Dept:  Admin:	Associate Director	10/11/11