# Statement of Requirements

**Title:** Microscopy System

## GENERATION INFORMATION

**1. Scope:**

The Cotton Quality and Innovation (CQI) Research Unit in New Orleans has a requirement for a new microscopy system to update microscopy-based cotton fiber maturity reference measurement protocols and to expand the method for meeting industry needs for cotton fiber, hemp fiber and textile blend analysis in the Unit.

**2. Background:**

The Cotton Quality and Innovation (CQI) Research Unit in New Orleans conducts integrated research aimed at strengthening U.S. cotton market competitiveness, quality, and commercial value. One of the Unit's active projects addresses improvement of cotton processing efficiency and product quality. Increasing the economic value and market competitiveness of U.S. cotton through advanced fiber science, processing innovation, and new product development align with current USDA research and development priorities including Increasing Profitability of Farmers and Ranchers, Expanding Markets and Creating New Uses of U.S. Agricultural Products, and the Great American Cotton Plan. Methods conducted using our outdated microscopy and related image analysis are incomparable to research and methods conducted with current technology. We cannot compare results with current fiber research, regulations, and marketing organizations in the cotton industry.

## CONTRACT REQUIREMENTS

**3. Technical Requirements:**

**Minimum Requirements:**

- A motorized focusable digital microscope with three-axis motorized stage that enables the software to automatically move the sample slide for image acquisition at multiple positions.
- A color and wide view microscope camera equipped with a 5.9 megapixel CMOS image sensor.
- Eclipse LED stand with built in transmitted light LED.
- Epi rotatable polarizer.
- Trinocular body with high resolution objective lenses.
- Microscope system compatibility with the aligned cotton fiber image analysis system (AFIS) software developed by Dr. Xu at the University of North Texas.

**4. Delivery**

Delivery shall be made within 120 days of award to:
USDA-ARS, Southern Regional Research Center
1100 Allen Toussaint Blvd
New Orleans, LA 70124