

1803 Preliminary Evaluations of the Capabilities of Portable NIR Analyzers for Laboratory and Field Measurements

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A key cotton fiber quality need is the development of new breeder quality tools for field and at-line measurements. A program was implemented to determine the ability of portable NIR instrumentation to monitor critical cotton fiber properties of breeder samples in the laboratory, at-line, and in the field. A comparative evaluation yielded good NIR spectral and results agreement between both portable and bench-top units for most cotton properties evaluated—especially cotton micronaire and maturity. The portable NIR unit was very fast and easy to use, with minimal maintenance concerns. Initial field trials for micronaire were performed. A field sampling system was developed, and the NIR measurements for micronaire were performed in the field directly on the cotton boll. A macro and preliminary micronaire calibration were developed and installed which permitted remote operation of the unit in the field. Distinct micronaire differences were observed between different cotton varieties. Preliminary NIR results indicate that more advanced statistical modeling calibrations may be required to achieve the full potential and capabilities of a portable NIR field measurement of micronaire.