

**Evaluation of Raw Cotton
for
Micronaire Calibration**

Don G. West

Chief, Standardization & Quality Assurance Branch
Cotton Division, AMS U. S. Department of Agriculture

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**Micronaire Calibration Study
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Chief, Standardization and Quality Assurance Branch
USDA, AMS, Cotton Division

When the micronaire calibration cottons were established in 1957, an elaborate blending and carding program was developed in order to reduce variability in bales. The card web is collected from the process and used as the micronaire calibration cotton. Because this is a time consuming and expensive process, the USDA has begun to investigate whether feasible calibration alternatives to card web cotton exist. The focus of our work in this area has been on raw cotton as a suitable alternative.

In the spring of 1996, our ESA staff conducted a study to evaluate the standard deviations on raw and card web micronaire calibration cottons. Five calibration cottons, ranging in standard values from 3.16 to 5.20 were tested multiple times on four HVI's to determine the standard deviations. The study showed the card web cottons averaged a standard deviation of 0.0650 compared to an average standard deviation of 0.0722 for raw cotton. The study showed no significant difference in standard deviations between

raw and card web mike calibration cottons.

The study that I want to focus on today was conducted in 1995 and 1996. Its primary objective was to compare the reproducibility of instruments calibrated to card web to the reproducibility of instruments calibrated to raw cotton. A favorable comparison would indicate that raw cotton could be utilized for calibrating micronaire instruments without a sacrifice in quality of classification.

This study was conducted in two classing offices in 1995 and 1996. The selected offices were Memphis and Macon in the 1995 season and Memphis and Lubbock in the 1996 season. Zellweger - Uster models 5500 and 900-U instruments were used in this study. One - half of the HVI's in the classing offices were calibrated with raw cotton and the remaining HVI's with card web. Halfway during each season, the calibration of the instruments was switched so that the HVI's originally calibrated with card web then calibrated to raw cotton and vice-versa.

Reproducibility was determined from randomly selected samples from the classing offices that were retest on HVI's in Quality Assurance. In 1995, the Quality Assurance instruments were calibrated with card web and in 1996 they were calibrated with raw cotton for this study. The combined reproducibility for 1995 and 1996 was 75 percent for HVI's calibrated with web compared to 74 percent for the HVI's calibrated with raw cotton.

Another study conducted this spring utilized instruments requiring smaller specimens of cotton to calibrate the micronaire instruments. Results of this study yielded a reproducibility of 74 percent between the classing office and Quality Assurance when utilizing raw cotton for micronaire calibration.

All the bales selected for the raw calibration cottons are from modules and based on the amount of blending that takes place of gins, these raw bales are more uniform than they were in years past. That could very well be another reason why the reproducibility numbers utilizing the card web and raw cottons are very close to each other.

In conclusion, results from this study indicate that raw cotton may be used instead of carded cotton to calibrate micronaire instruments without sacrificing accuracy of the micronaire testing program. Using raw cotton instead of card web would dramatically reduce the costs for preparing the micronaire calibration cottons. We plan to expand this study during the 1997 classing season, and if results are similar, we will propose a

change in the mike calibration standards to use raw cotton instead of card web.