United States Department of Agriculture
Agricultural Marketing Service
Cotton Program

International Cotton Advisory Committee
Lee Gibson, Chief
Quality Assurance Branch

To promote the efficient marketing of U.S. cotton, domestically and internationally, by providing unbiased classification, standardization, market news, and oversight of the cotton research and promotion programs.

U.S. Cotton Marketing System

Cotton Program Offices

Background - Classing

- 294 High Volume Instruments (HVI):
  - Micronaire
  - Strength
  - Length
  - Length Uniformity
  - Trash - % Area
  - Color Rd
  - Color +b

- 330 Manual Classers:
  - Leaf Grade
  - Extraneous Matter
Areas of Discussion
- Standardization
- Classing Office Operation
- Quality Assurance
- Market News
- Research and Promotion

Official Grade Standards
HVI Calibration Materials

- Prepared Annually:
  - 200 Sets of Color Tiles
  - 200 Trash Tiles
  - 100 Color Check Boxes
  - 50 HVI Trash Standards
  - 40,000 Pounds of Cotton for Calibrating HVI Length, Strength, Uniformity, and Micronaire Prepared Annually

Universal Cotton Standards Agreement of 1923

- Universal Standards governed by the Agreement
- Agreement between USDA, U.S. Cotton Industry & 23 Foreign Signatory Associations from 21 countries
- Provides delegates with a voice in governing the Universal Cotton Standards

Bangladesh
- Bangladesh Textile Mills Association
- Bangladesh Spinners & Weavers Association of Korea

Belgium
- Association Contonniere De Belgique
- Malysia Textile Manufacturing Association

Brazil
- Bolsa de Mercadorias e Futuros
- National de la Industria Textil

Britain
- Council of British Cotton Textiles
- Comite Textil de la Sociedad National de Industria

The Liverpool Cotton Association Ltd

Philippines
- Textile Mills Association of the Philippines
- Alexandria Cotton Exporters Association

Egypt
- Textile Mills Association
- Alexandria Cotton Exporters Association

Poland
- Gdynia Cotton Association

France
- Association Francaise Cotonniere

Spain
- Centro Algodonero Nacional

Germany
- Centro Algodonero Nacional
- Bremer Baumwollbörse

Switzerland
- Industrieverband Textile

Indonesia
- Industrieverband Textile

Taiwan
- Taiwan Cotton Spinners Association
- Taiwan Cotton Spinners Association

Italy
- Associazione Cotoniera

Japan
- Japan Cotton Arbitration Institute
- Japan Cotton Trade's Association
- Japan Spinners Association

The Universal Cotton Standards Agreement: Conferences

- 1925: First Universal Cotton Standards Conference
- Held Biennially from 1925 to 1933
- Held Triennially from 1936 to present
- Only 2 Interruptions

Classing Office Operations
The Classification Process

- Bale Sampling:

The Classification Process

Receiving

Traying

Conditioning

Data Dissemination

Classing

Instrument Testing

Fiber Properties Classified

By High Volume Instrument

- Official Color Grade
- Rd
- Degree of Brightness
- +b
- Degree of Color
- Trash
- Percent Area Non-Lint
- Micronaire
- Fineness of Fibers
- Strength
- Grams per Tex

By USDA Certified Classer

- Official Leaf Grade
  Determined in Accordance with
  Universal Grade Standards
- Extraneous Matter
  Determination

HVI – High Volume Instrument

Uster 900U

HVI – High Volume Instrument

Uster 1000U
Cotton Variability

For all fiber properties variability exists:
- Within a boll
- Within a plant
- Within a field
- Within a module
- Within a bale
- Within sample
- Within HVI testing
- HVI to HVI
- Laboratory-to-Laboratory

Quality Assurance Procedures

- Environmental controls and conditioning
- Calibration procedures
- Pre-season precision and accuracy testing
Quality Assurance Procedures

- Pre-season Classer orientations
- In-house checks
- Quality Assurance Checklot Program

Inter-Office Quality Assurance – Environmental Controls

- All classing laboratories and receiving rooms are required to maintain standard atmospheric conditions:
  - 70°F ± 1°F
  - 65% relative humidity ± 2%

Inter-Office Quality Assurance – Conditioning

- All cotton samples must be conditioned to a stable moisture content prior to HVI testing
  - 6.75% to 8.25% moisture

Inter-Office Quality Assurance – Instrument Calibration

- Strict calibration procedures are followed by all Classing Offices and the Quality Assurance Branch

Known-value cottons are used to calibrate length, strength, and length uniformity

Precise mechanical orifices are used to calibrate micronaire
<table>
<thead>
<tr>
<th>Inter-Office Quality Assurance – Instrument Calibration</th>
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<tbody>
<tr>
<td>• Value-established tiles are used to calibrate Color Rd, Color +b, and Trash</td>
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<tr>
<th>Inter-Office Quality Assurance – Universal Cotton Standards</th>
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<td>• Classers utilize the Universal Cotton Standards to assign leaf grade determinations.</td>
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<th>Inter-Office Quality Assurance – Pre-season Precision and Accuracy Tests</th>
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<td>• Pre-season precision and accuracy tests must be completed for all HVI systems before the system is placed in production</td>
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<td>• Each instrument must pass a series of strict performance evaluations using known value cottons</td>
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<td>• Pre-season checklots samples are submitted to Quality Assurance from all HVI’s from each office</td>
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<th>Inter-Office Quality Assurance – Pre-season Classer Orientations</th>
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<td>• Pre-season refresher and supervisory meetings</td>
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<tr>
<td>• Review of example samples that were in question from previous season</td>
</tr>
<tr>
<td>• Meet with management to discuss industry issues and upcoming season</td>
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<td>• Review Official Standards and class practice samples</td>
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<th>Inter-Office Quality Assurance – In-House Verification Checks</th>
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<td>• The testing levels for all instruments are checked every two hours using value established cottons</td>
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<td>• The results of the verification checks are recorded to identify any potential problems</td>
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<td>• Classer Supervisors assigned to each shift at each classing office to ensure leaf grade and extraneous matter determinations are consistent with the Universal Cotton Standards</td>
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Quality Assurance Checklot Program

- Approximately 1% of the entire crop is randomly selected as checklots for retest by the Quality Assurance Branch.

- Checklot samples are selected at the classer station after the classification process is complete.

- The classification data assigned by the HVI or classer cannot be changed after the sample is selected as a checklot.

- Checklot samples are shipped to the Quality Assurance Branch via overnight delivery for next day classification.

- All checklot samples submitted to the Quality Assurance Branch are tested on two QA HVI’s and the individual QA HVI results are averaged.

- Checklot samples are classed for leaf grade and extraneous matter by the Quality Assurance supervisory staff.

- Repeatability (reproducibility) and bias are calculated for all HVI factors, classer leaf grade and extraneous matter.

- Quality Assurance classification results are returned to the respective offices immediately after the QA classification is completed.

- All checklot samples tested at the Quality Assurance Branch are tracked back to the Classing Office, shift of operation, classification date, classification time, classing supervisor, classer, HVI operator and HVI.

- Reports are generated and data are analyzed throughout the day to detect any potential problems or level shifts.

- If the Quality Assurance staff detects any actual or potential problem, immediate interaction occurs with the office to ensure correction.

Market News
Market News

Provide current and timely price and supply information on cotton and aid buyers and sellers in assessing market conditions and in making purchase and sale decisions.

Gathering Market Data

Data from all sources collected and analyzed.

Textile Manufacturers
Other Government Agencies
Cotton Merchants
Cotton Producers
Cotton Market News Reporter
UEDA Classing Laboratories

Turning Data Into Reports

Analyzed data from reporters is reviewed and compiled at branch headquarters.

Daily Spot Cotton Quotations
Weekly Cotton Market Review
Weekly Quality of Cotton Classed
Other Monthly/Annual Specialty Reports
Monthly/Annual Cotton Price Statistics

Getting Reports to Customers

Reports delivered to customers via internet, mail, e-mail, visitors, and other government agencies.

Customers
Textile Manufacturers
Cotton Producers
Cotton Merchants
Other Government Agencies

Market News on the Internet

Cotton Program Market News:
www.ams.usda.gov/cotton/mn
- Weekly Cotton Market Review
- Cotton Quality
- Cotton Prices
- Cotton Linters
- Long Staple Review
- Cotton Varieties

Research and Promotion
A small assessment paid on each U.S. bale and on imported cotton goods funds research and promotion of cotton and cotton products.