



INTERNATIONAL COTTON ADVISORY COMMITTEE

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Report of the Third Meeting of the Expert Panel on Commercial Standardization of Instrument Testing of Cotton (CSITC) June 6, 2005 Memphis, TN, USA

The 3rd meeting of the Expert Panel on Commercial Standardization of Instrument Testing of Cotton (CSITC) was held in Memphis, TN, USA on June 6, 2005. Andrew Macdonald, former President of the Liverpool Cotton Association serves as Chair, and Zbigniew Rostwitalski, Vice President and Director of the Gdynia Cotton Association serves as Rapporteur. Ralph Schulz , former executive director of the Australian Cotton Research & Development Corporation, Joao Luiz Pessa, farm director of Fazenda Nova in Brazil, Robert Weil, Past President of the American Cotton Shippers Association, Lau Cheuk-wai, Quality Control Department of Central Textiles in Hong Kong, Axel Drieling, Production Engineer, Fiber Institute, Bremen (representing Axel Herrmann), Graham Fogg, Agricultural Services, SGS North America, Greg Wakefield, Director, Wakefield Inspection Services, James Knowlton, Chief Standardization and Engineering Branch, Cotton Program, USDA/AMS (replacing Norma McDill), Jean-Paul Gourlot, CIRAD, and Thomas Schneider, Bremen Fiber Institute, were present. Terry Townsend, executive director of the ICAC served as Secretariat. John Mitchell, current president of the American Cotton Shippers Association, and Darryl Earnest, Deputy Administrator, USDA/AMS Cotton Program, attended as official observers.

Ibrahim Malloum, President of the African Cotton Association, P.D. Patodia, Vice Chairman & Managing Director of Prime Textiles in India, and Romano Bonadei, Chairman of Filati Filartex in Italy, were not able to attend.

Observers included: Kenneth Hood, Hood Farms & Gin Co., Neal Gillen, ACSA, Preston Sasser, retired from Cotton Incorporated, Steve Grantham, USDA Cotton Program, Gretchen Deatherage, USDA Cotton Program, Nikki Fowler, USDA Cotton Program, Mathew Shilling, USDA/AMS, Andrew Jordan, National Cotton Council, Bill Norman, National Cotton Council, Devron Thibodeaux, USDA/ARS, Michael Watson, Cotton Incorporated, Charles Chewing, Cotton Incorporated, Jan Wellmann, Bremer Baumwollborse, Andy Weil, ACSA, Andrej Drozd, GCA, Dean Ethridge, International Textile Center, and Hossein Ghorashi, Uster Technologies.

The Fourth Meeting of CSITC will be September 25, 2005 in Liverpool.

The Expert Panel on CSITC was formed in December 2003 on the instruction of the 62nd ICAC Plenary Meeting. There is a consensus that instrument testing of cotton is superior to traditional hand classing. Instrument test results provide information to spinners that allow more efficient use of cotton, thereby enhancing demand. Instrument test results provide information to seed breeders, cotton producers and ginners, enabling the production of cotton with characteristics desired by the spinning industry. Instrument testing can also render the trading of cotton more efficient.

The objective of the Expert Panel is to facilitate widespread use of instrument testing systems at the producer level while upholding the standards and tolerances that maintain the integrity of high-quality testing. The Expert Panel is trying to facilitate the adoption of instrument testing standards and procedures utilized by the United States Department of Agriculture (USDA) by all testing centers around the world, and to introduce the use of instrument testing language in the trading of cotton so that traditional descriptions of grade or type are replaced with instrument test values.

There are 17 members of the panel representing both exporters and importers and all segments of the world cotton industry.

The CSITC met in Bremen in March 2004 and in Mumbai in November 2004; a small-group meeting was held in Bremen in April 2005. A fourth meeting is scheduled for September 25, 2005 in Liverpool.

The Expert Panel issued two interim reports in 2004, including a report to the 63rd Plenary Meeting in India in November that identified seven actions to encourage worldwide testing of cotton with standardized instrument testing methods and procedures. The actions include 1) definition of specifications for cotton trading, 2) definition of international test rules, 3) implementation of test rules, 4) certification of testing test centers, 5) definition and provision of calibration standards, 6) specification of commercial control limits for trading and 7) the establishment of arbitration procedures. The report from the Expert Panel includes specific actions and identifies responsible parties for the achievement of each recommendation.

During the small-group meeting in Bremen in April 2005 and during the third meeting in Memphis in June 2005, the seven recommendations and status of implementation were reviewed.

CSITC Recommendations and Decisions

Change of Name

The work of the Expert Panel is expanding beyond the preparation of a report for consideration by the member governments of the ICAC and also includes implementation of recommendations. Accordingly, the Expert Panel agreed to recommend to the Standing Committee that its name be changed to Task Force on CSITC to better capture the nature of its work.

1. Definition of Specifications for cotton trading

The Expert Panel confirmed that the characteristics recommended for inclusion in an instrument testing system at this time, and their definitions, are:

- Strength (grams/tex)
- Length (Upper Half Mean Length - expressed in inches and decimals, or in mms)
- Length uniformity (Index)
- Micronaire
- Color (Rd and +b)

There was a consensus to recommend that 100% of bales should be sampled in a standardized testing system, with the understanding that commercial agreements between buyer and seller may stipulate different sampling percentages. It was noted that module averaging and in-line gin sampling techniques are being evaluated. It was also noted that in many countries fewer than 100% of bales are sampled. The expert panel agreed that alternative sampling systems may prove to be effective, but there was agreement that 100% sampling is ideal and should be recommended.

The issue of trash measurement was discussed. There was a consensus that current technology for measuring trash is not fast enough or repeatable enough to include in an international system at this time. It was recognized that a trash measurement should be added to the international instrument testing system as soon as an acceptable, reliable measurement system can be authenticated. USDA is currently addressing this issue. It was noted that trash measurements are very much a part of commercial operations and it is regrettable that an instrument-derived trash measurement is not available at this time. The expert panel does not wish to imply that trash is not a commercial consideration, only that a practical instrument measurement is not available at this time.

Other specific instrument measurements, including those for neps, short fiber, fineness/maturity, and stickiness, are currently under research development for SITC instrumentation. The inclusion of any of these, following approval, will be considered only after the standardized system has been adopted and the necessary confidence developed.

The CSITC noted that different methods of drawing samples will result in different instrument test results, and therefore a standard procedure for drawing samples for the standard operation of instrument tests should be agreed. The CSITC accepted the guidelines for sampling at origin prepared by Wakefield and SGS. Wakefield and SGS were asked to also provide guidelines for drawing samples at destination.

2. Definition of international test rules

The CSITC recommends that the criteria for certification of acceptable testing instruments be compliance with the Universal Calibration Standards (e.g. HVI-CCS and USDA Color Calibration Tiles) and appropriate parameters (e.g. UHML and UI).

For the certification of the CSITC test centers based on the accuracy and precision of their results the following steps should be followed:

- (1) Define rules for an adequate Round Trial system
- (2) Define test center limits of acceptance for the assessment of the round test center individual results
- (3) Define rules and procedures for the certification of the test centers based on the total performance of the test centers during the certification period.

One question is whether samples should be submitted by testing centers with test results, or whether a round trial should be conducted using samples of known values and variability provided to each test center. (see – Certification of Test Centers). It was determined that the best initial approach is to conduct a round trial with samples provided to test centers to provide a constant level of testing.

Round Trial

Therefore USDA and Bremen have developed a procedure for an adequate International Round Trial. The procedure comprises:

- *Round trials to be conducted 4 times a year*
- *4 cotton samples per round, including two U.S. upland-type cottons, plus up to one non-U.S. cotton and up to one sample of processed cotton. All samples will come from bales run through the USDA value-setting procedure to ensure uniform samples with established values.*
 - *Day 1: 12 test on all the four cottons (24 combs) for the determination of the level / accuracy*
 - *Days 2 to 5: 6 tests on two cottons (12 combs) for the determination of precision*
 - *Total of 96 tests*
 - *1 test consists of 2 combs for length and strength measurement, 2 for color measurement, and 1 for micronaire*
- *All individual results have to be submitted for evaluation, so that precision can be calculated*
- *Round cotton samples will have restricted variability*
- *Origin of cottons: at least two representative cottons plus other possibilities including processed cotton (blended or carded) and other growths.*
- *Retest possibility*

The CSITC discussed the possibility of sending different samples to each testing facilities in order to reduce opportunities for collusion among test centers. This proposal will be considered at a future meeting after results have been obtained from enough test centers to provide baseline data.

Pilot Round Trial

For fixing the test center limits of acceptance and the rules for the certification of the test centers the accuracy of data given by the USDA HVI Checktest or the Bremen Round Trial are not comprehensive enough. In response to this, USDA and Bremen agreed to jointly design and conduct a special Round Test among 30 participating test centers, and from this information to develop recommendations for certification rules and tolerances. The expert panel agreed that test centers that follow standard conditioning and calibrate with Universal Standards should be selected for the Pilot Round Trial, rather than relying on a random selection of among all test centers. Therefore the results will reflect the performance of test centers that follow recommended procedures. Bremen and USDA will analyze data jointly. The goal is to conduct a scientific study of the variability among test centers in different countries in order to establish proper testing tolerances among well-run test centers. The Pilot Round Trial results will be aggregated for publication in order to emphasize the performance of the test centers as a group, rather than the results of individual test centers. The ultimate purposes of gathering the Pilot Round Trial results are to establish standards for test center certification. It is hoped that the results will be available to the Expert Panel for discussion during the 4th meeting in Liverpool in September.

Certification of Test Centers

Based on the testing tolerances determined through the Pilot Round Trial, quarterly round trials as described above will be conducted among participating test centers that wish international certification. Bremen and USDA will evaluate round Trial results, but there will not be an international testing center. The expert panel recognized that some test centers might attempt to bias results through submission of inaccurate test results. It was noted that it would be difficult for test centers to guess the values of known samples sent to them. However, it will be possible for test centers to exaggerate the precision of tests. It was suggested that a future test center certification procedure might include reversing the direction of travel of some samples, with test centers sending samples to USDA and Bremen for comparison.

It was emphasized that a test center certification system would certify the capability of test centers to meet recommended standards, but certification could not guarantee the accuracy of individual tests.

The CSITC endorsed the proposal by USDA and Bremen to conduct a Pilot Round Trial among 30 selected test centers. It was agreed that a future system of test center certification would be discussed pending evaluation of the Pilot Round Trial results.

3. Implementation of the test rules

4. Rules for certification of the testing test centers

It was agreed that, at least initially, ICAC with its CSITC Task Force would serve an oversight role to establish certification standards and compliance requirements for test centers, and that the functions of coordination among test centers would be delegated to existing institutions.

The structure of similar activities in the international wool industry was discussed during the small-group meeting in Bremen, and it was noted that to adapt this model, would necessitate the creation of new international bodies. However the consensus view was that this was not desirable, and that the international cotton industry should use existing structures to oversee, coordinate and implement internationally standardized instrument testing.

The CSITC is investigating a proposal to establish a committee directly accountable to the ICAC. The oversight committee would consist of several core members representing ITMF, ICA, USDA and the Bremen Fiber Institute, and other members would be chosen by the ICAC to ensure geographic and sectoral representation. USDA and Bremen would work collaboratively to coordinate relevant instrument testing on behalf of the CSITC.

There was a consensus of the CSITC that the Secretariat should work with USDA, Bremen and Ralph Schulzé to continue investigating the establishment of such an oversight committee under the auspices of the ICAC.

The CSITC considered a proposed grading system for testing centers. Grades might be based on the percent difference between test results and the known values of the cotton sample provided in the Round Test. A test center that provided measurements within the acceptable tolerance (developed through the Pilot Round Trial) would receive a score of 100%. Measurements outside the acceptable tolerances would receive lesser scores. All scores over six parameters would be averaged and reported by parameter. Results could be published for assessment by the cotton trade, or results could be reported anonymously and each test center could choose to publicize their own results if they were flattering. Such a grading system would take the place of a system of certification of test centers based on pass/fail criteria. Uster Standards for yarn quality were cited as an example of a ranking system that might potentially be developed. The objective is to provide incentives for test centers to improve in response to market incentives. It was acknowledged that test centers could provide distorted test results that would exaggerate the precision of tests but not the accuracy of tests. However, statistical analysis of test results reported by testing centers can indicate if there have been efforts at distortion.

The CSITC agreed that test center grades or rankings will not dependent on the instruments being used in testing; rankings will be determined by testing results. Provided that a test center is capable of testing on a correct level, test results will be accepted.

It was agreed that discussion of giving additional support to test centers to enhance the quality of their performances and the practicality of integrating ISO, or ISO-like principles, and the auditing of operational procedures into an overall certification system would be deferred pending the completion of the Pilot Round Trial. The CSITC encourages regional efforts to enhance the quality of test center performances.

5. Development of calibration cottons

The CSITC noted that USDA recently expanded warehouse capacity and has the ability to provide calibration cottons to the world industry for at least the next several years. The CSITC agrees that the Universal HVI Calibration Standards for all six measurement parameters (length, length uniformity, strength, micronaire, Rd, +b) are the official standard of the CSITC.

It was reported that Chinese authorities have indicated that they will eventually develop their own domestic calibration cottons, but they agree in principle to the importance of maintaining a single world reference standard for calibration cottons based on the Universal Standards prepared by USDA. USDA plans to establish a standard for value setting of calibration materials under the American Society for Testing Materials International (ASTM) to cover the procedures used by USDA in creating calibration standards. The CSITC agreed that calibration standards must be referenced to the USDA reference material.

The CSITC agreed that calibration cottons should have an expiration date (e.g. 2 years), and in the longer term should comply with ISO Standard 17025 requirements, (e.g. statement of measurement uncertainty).

6. Specifying commercial tolerances for trading

The CSITC recognized that commercial tolerances for trading are a different concept to the test center limits of acceptance mentioned in action item 3. In general, commercial tolerances for trading cotton will be broader and less rigorous than the tolerances agreed for certification of test centers. Variations in test results occur because of natural variations within cotton samples as well as variations in test center methods and procedures, and the CSITC recognizes that tolerances in test results exist, even between results provided by well-run test centers. CSITC members also recognize that a proliferation of test centers providing results of diminished accuracy could undermine the value of instrument testing.

However, it was also recognized that trading tolerances are highly situational specific depending on end use, type of spinning equipment and the origin of cotton, and no recommendations for trading tolerances could be provided by the CSITC. Trade tolerances are to be negotiated between buyers and sellers on a trade-by-trade basis. Accordingly, in lieu of recommendations, the CSITC asked the Secretariat to work with USDA and Bremen to publicize the results of the Pilot Round Trial so that the variances in tests among well-run test centers can be widely understood within the cotton trade. The knowledge of such variances, combined with information about the variability of test results themselves, could then serve as the basis for negotiation of contracts for trade in cotton.

The issue of commercial tolerances for trading may be considered in the future based on results from the Pilot Round Trial, input from arbitral bodies, and other information.

7. Arbitration procedures

The CSITC received a proposal on Instrument Testing Arbitration Procedures that had been prepared by the Gdynia Cotton Association and the Bremen Baumwollborse. The CSITC agreed to give tentative approval to the proposal, with certain modifications, and the corrected/amended proposal will be circulated by the Secretariat to the CSITC and to the member associations of CICC for their consideration.

Attachments:

Sampling Guidelines prepared by Peter Wakefield and Bruno Widmer
Instrument Testing Arbitration Procedures proposed by GCA and BBB

June 6, 2005
Memphis

Sampling Guidelines
Task Force on CSITC
Submitted by Peter Wakefield and Bruno Widmer, Approved by the CSITC

Sampling of bales at source for classification is mostly carried out either at or by the gins or the owners of the cotton. Nevertheless, we have reviewed sampling procedures on different Continents, finding that aside from the US, which is efficient and highly regulated, and China, where there is a valid standard - procedures in most other countries appear to have simply evolved over time, mostly without regulation. In our opinion, it will be impossible to propose a unified system of sampling and we consider that in the first instance it may be better to look at guidelines for each step of the procedures.

ACTUAL SAMPLING

Recommendations

- Encourage mechanical sampling at gin/press. Discourage sampling at lint slides.
- Samples should be drawn from pressed bales either at or immediately after ginning.
- Remove surface cotton and draw samples from within both sides of each bale.
- The combined weight of each sample should not be less than 200 grams.

Problems

There are two countries where bales are bound with spiral bands – only a small percentage of bales are sampled due to the difficulties in removing/repairing bands from bales for sampling.

Bale identification marks/numbers are stenciled on one side of each bale. Owners of bales therefore only permit samples to be drawn from the unmarked side of bales.

Tradition. Traditionally, some countries only sample 2 %, 5% or 10 % of the bales from each lot.

PACKING OF SAMPLES

- Samples should be packed immediately after sampling without any other kind of handling.
- Packages and samples should be clearly identified by gin, lot and bale numbers.

Problems

Packing materials vary from country to country or producing area to producing area, eg Central Asia packing materials vary from paper, cotton bags/cloth to plastic.

Number of samples per package varies, from 20 to 75 samples being the average.

DESPATCH OF SAMPLES

In general, samples appear to be forwarded to the classing/testing facilities shortly after they are packed, probably for sound economic reasons.

- We recommend that samples should be forwarded within specified time frames.

GENERAL

In our opinion the Expert Panel on CSITC may wish to recommend a Sampling Protocol of guidelines for each producing country based on the following:

1. Aim to achieve 100% sampling of all bales by either mechanical or physical (hand cut) within specified dates.
2. Aim to achieve 100% mechanical sampling within specified dates.
3. Mark bales in such a way that both sides of each bale may be physically sampled without losing the bales identity. (Encourage the use of bale tags, with removable sections - bale tags should be bar coded.)
4. All sampling to be completed within 3 days of ginning and a bar coded tag placed within the sample.
5. Samples to be wrapped in packages of no more than 100 samples per package. Where smaller individual packages are used, they may be combined into bundles consisting of no more than 10 packages. Each bundle to be wrapped with approved covers.
6. Samples only to be packed in approved paper or cotton covers.
7. Each package and each bundle to be clearly marked with gin I/D, lot number and bale numbers.
8. Samples to be forwarded to the classing/testing facility within 5 days of completion of sampling.

June 6, 2005
Memphis

Instrument Testing Arbitration Procedures
Task Force on CSITC
Proposed by GCA and BBB, Approved by the CSITC

1. **HVI arbitration cotton testing will be done by the staff of the certified laboratory being recognised as the arbitration laboratory when agreed by the parties, with no participation of any third persons.**

It means that in case of quality arbitration effected on the HVI, the interested parties will not appoint arbitrators, as it has been the case at traditional arbitration, so far. hence, the role of and arbitrator will be played by the laboratory.

2. **The number of cotton samples undergoing the HVI arbitration should follow from the kind of sampling defined in the buying/selling contract.**

If the contract provides for 100% sampling, the 100% of samples should undergo the testing; in case of 10% sampling the test should be done on 10% etc..- as it is in case of traditional arbitration.

The weight of the arbitration sample should be not less than 150 grammes; 200 grams are recommended.

3. **The number of measurements for particular parameters of cotton, tested on the HVI for arbitration purposes, should be:**

Parameter	Applied number of measurements for test	Applied number of measurements for arbitration
Micronaire	1 measurement	2 measurements
Length and Length Uniformity	2 specimens	4 specimens
Strength	2 specimens	4 specimens
Colour (Rd and +b)	2 measurements	4 measurements

If other numbers of measurements are specified in the contracts, the number of measurements for arbitration should be twice the number of the agreed measurements.