



INTERNATIONAL COTTON ADVISORY COMMITTEE

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Report of the Tenth Meeting of the Task Force on Commercial Standardization of Instrument Testing of Cotton (CSITC) November 16, 2008, Ouagadougou, Burkina Faso

The 10th meeting of the Task Force on Commercial Standardization of Instrument Testing of Cotton (CSITC) was held in Ouagadougou, Burkina Faso at the International Conference Center prior to the start of the 67th Plenary Meeting of the ICAC.

Members present:

Andrew Macdonald, former President of the Liverpool Cotton Association, Chair
Romano Bonadei, Chairman of Filati Filartex in Italy
Axel Drieling, Testing Methods Department, Bremen Fibre Institute
Jean-Paul Gourlot, CIRAD
Subhash Grover, Chairman and Managing Director, Cotton Corporation of India
Urania Kechagia, Director, cotton and Industrial Plants Institute, Greece
João Luiz Ribas Pessa, farm director of Fazenda Nova in Brazil
Manfred Schiefer, President, M. Schiefer Trading Company, USA
Peter Wakefield, Director, Wakefield Inspection Services

Members Absent:

Zbigniew Roskwitalski, Vice President and Director of the Gdynia Cotton Association, Poland, Rapporteur
Darryl Earnest, Deputy Administrator, Cotton Program, USDA/AMS
Graham Fogg, SGS North America
James Knowlton, Chief Standardization & Engineering Branch, USDA AMS
Lau Cheuk-Wai, Quality Control Department of Central Textiles in Hong Kong
Ibrahim Malloum, Cotton Commercial Manager, Somdiaa
Jolly Sabune, Managing Director, Cotton Development Organization, Uganda
Ralph Schulzé, cotton industry consultant, Australia
M.N. Vijayshankar, Chairman, ITMF International Committee on Cotton Testing Methods

Observers: O.P. Agarwal (Cotton Association of India), A.B. Joshi, (Textile Commissioner of India) Neal Gillen (American Cotton Shippers Association), Sieste Van der Werff (Common Fund for Commodities), Jan Wellman (Bremen Cotton Exchange), Pierre Berthelot (All ACP Agricultural Commodities Programme) Matthias Knappe (International Trade Centre), Teruyuki Hayashi (Japan Cotton Traders Association) and Yoshito Kawazu (Japan Spinners Association).

Terry Townsend and Rafiq Chaudhry served as Secretariat.

Background: An Expert Panel on CSITC was formed in December 2003 on the instruction of the 62nd Plenary Meeting in Poland. CSITC is facilitating the adoption of universal instrument testing standards and procedures by all testing centers around the world. CSITC is also working 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.

The members of the panel represent both exporters and importers and all segments of the world cotton industry. Observers are welcome at all meetings. By tradition, decisions at all ICAC meetings are determined by consensus with full participation by observers. If it is not possible to reach consensus, decisions would be made by a vote of members present.

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 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 included specific actions and identified responsible parties for the achievement of each recommendation.

During a small-group meeting in Bremen in April 2005 and during the 3rd Meeting in Memphis in June 2005, the seven recommendations and status of implementation were reviewed. During the 3rd Meeting, the CSITC determined that the original tasks associated with diagnosis of problems and the development of recommendations had been achieved and that a new phase of work had begun with the implementing of proposals. Therefore, the name of the panel was changed to "Task Force" on CSITC to better describe the new role in facilitating the implementation of proposals.

During the 4th Meeting in Liverpool in September 2005, the CSITC discussed the results of a pilot round trial and considered how best to rate test centers. It was agreed at the 4th Meeting that the world cotton industry **will not seek to establish an international testing center**, and it was agreed that **testing centers should be rated according to their performance** relative to other participating testing centers in a series of CSITC Round Trials.

During the 5th Meeting in Bremen in March 2006, the CSITC considered the results of a Second Pilot Round Trial and agreed to a system of evaluating test centers based on parameters for individual measurements and an overall score.

During the 6th Meeting in Goiania, Brazil in September 2006, the CSITC adopted a formula and set of scale factors to calculate a "**Combined Properties Measurement**" to enable testing centers to gauge their current performance and to track progress over successive Round Trials. It was decided that quarterly Round Trials should begin in 2007, with a nominal cost of US\$75 per Round Trial charged to participating test centers to cover the costs of sample shipment. The CSITC decided to include non-U.S. cotton in the Round Trials as a "fifth sample," with the understanding that the fifth sample will not be used in the calculation of the Combined Properties Measurement. Results from tests on the "fifth samples" will be used to show the in-laboratory and inter-laboratory variability on cottons from different origins. The Task Force decided that **a summary of results of all participating test centers in each Round Trial would be published** on the ICAC web site. However, the names of participating test centers, the results for each center, and the disaggregated results for each test parameter will be given only to each test center in order to encourage participation. Test centers will also receive detailed reports indicating their performance relative to all other test centers and recommendations for improvement. The Task Force agreed that its current structure should continue through 2007. The CSITC agreed to meet with the leadership of the ITMF International Committee on Cotton Testing Methods (ICCTM) during 2007. Progress on technical matters referred to ICCTM by CSITC (e.g., effect of trash on color readings), will be reviewed, and possible additional tests, e.g., fineness/maturity, will be considered.

During the 7th Meeting in Winterthur, Switzerland in March 2007, the results of the first official Round Trial conducted in December 2006 and January 2007 were reviewed. The Task Force approved the format of a certificate of participation and accompanying tables and charts with detailed examination of results to be provided to each participating testing center. The Task Force confirmed that evaluations of laboratory performance would be **calculated from the mean values** of participating labs rather than using the standard values determined in advance by USDA. The mean values will be presented in comparison to the values established by the USDA. The Task Force decided to **exclude obvious typographical errors** from the calculation of results from each lab, as such errors would skew results to absurd ranges, but it was decided that the reports from the Bremen Fibre Institute would inform labs of such errors so that data-handling procedures can be improved. **Acceptance ranges for each of the 6 parameters were approved.** If results reported by testing centers fall within each range, the results will be used in the evaluation of laboratory performance; results falling outside each range will be excluded. The CSITC agreed that the Bremen Round Trial and USDA check tests are more appropriate vehicles for investigation of methods to develop tests for Short Fiber Index, stickiness and neps. The CSITC asked the ITMF International Committee on Cotton Testing Methods (ICCTM) to study how to improve these tests. It was noted in the 2nd Pilot Round Trial (2006) that there were persistently lower Rd measurements using HVI 900 or HVI Spectrum versus the newer HVI 1000 instruments (all instruments are manufactured by Uster Technologies). The Task Force decided that participating laboratories should receive a document with recommendations for good incandescent colorimeter performance. The CSITC decided to ask the ICCTM to investigate how best to compensate for trash in color measurements. Regarding the use of instrument values in arbitration of contracts, the CSITC decided to continue to conduct round trials and provide results to participating labs. Those **labs that wish to be certified for arbitration purposes should apply to an arbitral authority for certification.** The CSITC decided that it **will not establish certification procedures**, but each arbitral body will decide their own certification standards, and labs will apply to the arbitral body, not the CSITC, for certification. The Task Force agreed that the results of the CSITC Round Trials, especially the inter-laboratory variations, would be

published and given to the cotton associations. The results will help the associations to fix commercial tolerances.

During the 8th Meeting in Izmir, Turkey October 21, 2007, the Task Force reviewed the results of Round Trials 1 through 3, noting that the **overall data and single-lab data for each parameter were consistent** from one round trial to the next, strengthening confidence in the CSITC process. No differences occurred between the inter-laboratory averages reported by participating test centers during the first three CSITC round trials and the USDA Established Results for strength, length uniformity index, Rd and +b. It was reported that work done earlier based on the Bremen Round Trials indicates that instruments from different manufacturers will give results on one common level if operated properly.

The inclusion of a 'fifth' cotton in the CSITC Round Tests was discussed, and the principle endorsed. The Task Force agreed that the fifth sample could be of any origin, but would need to be properly prepared by USDA to minimize variation between samples. To further reduce the risk of distortion of results, it would be assessed separately from the 4 test samples. There was considerable discussion on the need for interactive feedback, especially with participating test centers with results outside the statistically normal range. The ICAC Secretariat presented a 2-page Invitation/Participation form, and this was well received. All agreed that the stage has been reached where greater participation is essential. A concerted promotional effort, led by Andrew Macdonald and Terry Townsend, and covering ICAC, ITMF, all Cotton Associations, instrument manufacturers and all sectors of the trade, should be launched. The Task Force set the participation fee at US\$300 for four tests. The publication of the list of CSITC Round Trial participants was seen as a positive mechanism to encourage uptake. The CSITC effort is seen as 'good for the international industry' and as such, a good thing with which to be associated. The Task Force supported a proposal to publish the list of participating testing centers, with the proviso that those not wishing their names to be included could choose not to be listed. A 'tick box' on the forms presented by the Secretariat would facilitate this. It was emphasized that only the names of participating testing centers, and not confidential information about performance, would be made public. **A proposal to publish a list of testing centers with passing or failing performances in round trials was not supported.**

Romano Bonadei presented 'a spinners view' on neps and stickiness. There was general agreement that **CSITC should expand its focus to these and other relevant fiber quality measurements, once the current system is adopted universally, and once rapid/repeatable measuring equipment becomes available.** The Task Force on CSITC had decided during the 7th Meeting in Winterthur that the International Cotton Association (ICA), as a signatory to the Universal Cotton Standards Agreement, would petition USDA to develop calibration standards for Short Fiber Index at the next Universal Cotton Standards Conference in June 2008 in Memphis. However, Jimmy Knowlton of USDA suggested that a more constructive first step in making progress on the subject of SFI would be to organize a small group of about ten labs with HVI 1000's to evaluate the new SFI cotton calibration. Jimmy suggested that USDA could provide "research" SFI values on special calibration cottons to these labs. The group of labs would be a subset of CSITC labs. The subset of labs would enable the SFI cotton calibration option on their instruments when they test their CSITC round test samples. The SFI data would be collected on the CSITC samples and sent to USDA with the regular CSITC test data. A separate analysis would be performed on the SFI data independent of the normal CSITC round test analysis. It was noted that China is considering the development of their own SFI standards using a different definition (16.5 mm and less) than the definition of SFI in common use elsewhere (12.7 mm or shorter). Neal Gillen observed that USDA should be encouraged to develop a SFI standard for inclusion in the Universal Cotton Standards. The Task Force **agreed that an SFI standard is needed, and there was a consensus to support the proposal by Jimmy Knowlton to use a subset of CSITC participants to evaluate the new SFI cotton calibration standard.** It was decided that the ICA should not petition the Universal Standards Conference in June 2008 to have USDA develop SFI calibration standards at this time, pending additional research.

During the 9th Meeting on April 2, 2008 in Bremen, Germany, the Task Force discussed best practices in encouraging universal participation in CSITC Round Trials. It was agreed that the list of participants should be published on the ICAC website (and possibly more widely) so that non-participants can be identified and encouraged to join the international effort.

James Knowlton reported that Short Fiber Index (SFI) reliability is being studied as an adjunct to CSITC Round Trials. He reported that under the test conditions, acceptably tight distribution curves for SFI could be achieved (as was the case for Length and Uniformity). The meeting supported further work in this area and encouraged USDA to prepare and provide the necessary calibration cottons. It also suggested to Uster that its newer machines should be enabled to be calibrated for SFI. However, Hossein Ghorashi stated that considerable work needs to be done studying the relevance of Short Fibre data derived by different

techniques – HVI, AFIS, Roller Analyzer, Sutter Web Array etc. It was agreed that this should be a prerequisite before progressing too far with adding ‘SFI’ to CSITC measurements. USDA and Uster (and others) were encouraged to collaborate closely in the effort to develop and determine a single worldwide acceptable basis for reliable SFI testing/calibrating/benchmarking. The meeting also discussed the fact that, while most countries and the international trade define ‘short fiber’ as fiber under 12.5mm length, some are now advocating 16mm length as the ceiling. As the correlation between both measurements is high, the meeting saw no difficulty with the use of either, providing that the ceiling was clearly communicated. It was agreed that the world industry should work toward the adoption of one standard rather than have different parameters in parallel use.

Geoff Naylor of CSIRO, Australia, presented an update on the development of ‘Cottonscan’ to measure fiber fineness. He stated that Cottonscan had achieved speeds of 60 seconds per sample. The meeting supported further development of Cottonscan.

Menahem Yogev described Israeli equipment used for rapid testing of cotton for ‘stickiness’ and neps. He demonstrated that it is possible to test high volumes of cotton for stickiness and neps with acceptable levels of accuracy and precision. However, it was noted that the instrument used in Israel is no longer being manufactured, suggesting that the technology may not be economically practical. Menahem encouraged plant breeders to select strains that are low in seed coat fragments, which can contribute to both ‘stickiness’ and ‘neppiness’.

After considerable discussion, CSITC decided that Brazil should be asked to supply a bale to serve as the fifth cotton for the next Round Trial. The importance of Brazil in international cotton trade, the structure of the cotton industry in Brazil with large mechanized operations producing most cotton and the improvement in quality of Brazilian cotton since the start of the decade were factors considered by CSITC in making this decision. On behalf of the Brazilian Cotton Growers, Mr. João Luiz Pessa offered to supply the next fifth international cotton bale. The Task Force gratefully accepted this generous offer. Mr. Greg Parle, chair of the Australian Cotton Classers Association, volunteered to supply the following international fifth cotton for the next season.

Terry Townsend presented results of a survey on the cost of instrument testing. Indicative costs, in US\$, based on 2006-7 data were:

	Developed Countries	Developing Countries
Personnel	49,000	33,000
Repair & Maintenance	12,000	18,000
Other Annual	47,000	14,000
Instrument Depreciation	51,000	36,000
Other Depreciation	6,000	12,000
Total Annual Costs	165,000	113,000

Testing fees ranged from \$1 to \$4 per sample- and the average charge was \$2.25 per sample. Assuming every bale is tested once, this equates to 0.50 cents per pound for a 500-pound bale. Participants from India commented that, as only 2% to 4% of their bales were tested, their costs per pound were correspondingly very low.

Andrew Hursthouse, President of the ICA, submitted a letter to the Task Force. He noted that the Rules Committee is working on comprehensive rules that will protect both buyers and sellers in the case of a dispute over the results of two instruments located in different places over a broad range of mechanical parameters. Zbigniew Rostwitalski reported that Gdynia is adapting its rules to accommodate arbitration procedures for instrument testing parameters.

Report of the Tenth Meeting

1. Review of Round Trials

Axel Drieling reported that the 2008 results were stable across Round Trials, and that the Round Trials are serving as a very good tool

- to provide statistically reliable variability information between test results and between laboratories
- to evaluate and rate the testing performance of test centers based on their accuracy.

2. Fifth Cottons

Axel reported the results from the “Fifth Cottons” used for research purposes in each Round Trial. In summary, the Indian roller ginned samples yielded higher variations in micronaire and length than the 24 saw ginned samples from U.S. cotton used in the Round Trials 2007-1 to 2008-2. The U.S. Pima saw ginned samples resulted in higher variations in strength and length. Accordingly, Axel suggested that roller ginned cotton and extra-fine cotton samples should not be used when evaluating the performance of testing laboratories (as is done with cottons 1 to 4).

3. Update on SFI Measurement

Jimmy Knowlton provided a presentation on the CSITC SFI study. He reported that 10 testing centers with HVI 1000's (5 operated by USDA and 5 operated by non-USDA centers) participated in the SFI study. USDA distributed the SFI calibration cottons with Roller-Analyzer reference values. The results indicated that:

- Between-instrument HVI 1000 SFI levels are relatively close together;
- SFI calibration levels vary more on cottons with higher short fiber content;
- SFI measurement variation increases dramatically as short fiber content increases;
- It is uncertain why some HVI 1000's perform better than others when setups and calibrations were performed similarly.

Jimmy singled out HVI #9 for its low variability but said that it is not clear why this HVI is so much more repeatable than the others. Jimmy and Hossein Ghorashi have discussed this issue of varying performance across HVI 1000's, and Uster engineers agree that there are still refinements needed with the SFI hardware setups and software cotton calibration.

The Task Force thanked Jimmy for the presentation and urged additional work. The Task Force thanked Uster Technologies for its cooperation and contributions to CSITC on the SFI study.

4. “Commercial Tolerances” in Instrument Test Results

Axel noted that one of the purposes of CSITC is to provide statistically reliable empirical information on variability of results from instrument testing of cotton that can be used in setting commercial tolerances for trade. In a typical commercial situation, it is not possible to know the mean (average) value of the test results across 50 or 60 laboratories for a given cotton sample. Instead, it is relevant, especially for arbitrations, to know the expected, or normal, difference between two labs chosen by contracting parties for evaluation of cotton parameters.

Axel estimated such difference based on single tests per sample, with different samples provided to each lab, based on the six CSITC Round Trials conducted through mid-2008. (Note that if samples are tested more than once, or if both labs test the same samples rather than different samples from the same bale, the expected differences in test results will be lower.) 24 cottons were included (6 round trials times 4 cottons); results from the fifth cotton samples in each round trial were not used for calculating inter-lab variances.

Axel presented three tables with four columns in each table. The first table was based on results from all testing centers that participated in the six round trials. The second table was based on results from only the subset of testing centers with Combined Properties Scores of 0.5 or better – representing results from the better half of the laboratories. The third table was based on results from those labs with CSITC Combined Properties Scores of 0.9 or better, so that only the worst labs were excluded.

Axel noted that in each table the second column indicates that 95% of the results between a random laboratory and the reference or true result of the tested cotton are within these limits. The fourth column in each table indicates that 95% of the differences between two random test centers are within these limits. These limits are statistically 41% higher than those in column 2. He suggested that the second column from the first table (results from all labs) might be the basis for commercial trade limits.

- Mic: 0.18
- Strength: 2.8
- Length: 0.034
- Length Uniformity: 1.6
- Rd: 2.1
- +b: 0.8

The fourth column is principally more suitable for a direct arbitration purpose, where the results between two laboratories are compared. But as in an arbitration process only better performing laboratories are chosen, the fourth column of the second table (results from the better half of the laboratories) will be suitable. By choosing only the better laboratories, these limits are only slightly higher than the limits mentioned above:

- Mic: 0.21
- Strength: 3.2
- Length: 0.039
- Length Uniformity: 1.9
- Rd: 2.3
- +b: 0.8

Axel said that the numbers are quite stable and statistically sure for US Upland machine-picked cottons. For other origins there might be other values based on variables such as field size and methods of picking and ginning. With a higher number of observations, the necessary limit widths can be reduced.

Jean-Paul and Subhash noted that roller ginned and hand-harvested cotton would require separate sets of control limits. Romano and Andrew said that in practical terms a variance of 3 to 4 grams per tex in strength can be used in laydowns. Andrew and Jean-Paul voiced concern about variances in test results linked to ranges of moisture levels.

Peter Wakefield said it is important to avoid the adoption of multiple sets of control limits.

Neal Gillen suggested that CSITC should summarize the results of Axel's analysis of CSITC results, but that the tables should not be published and a recommendation should not be developed. **Andrew observed that the Task Force agreed with Neal's recommendation that the results should be summarized but not recommended for adoption at this time. It was agreed that Axel's work may be sent to arbitral bodies upon request.**

5. Regional Testing Centers

Andrew noted the letter received from Mr. V.E. Ustyugin of the Uzbek Center for Certification of Cotton Fiber (SIFAT). The Task Force on CSITC welcomed the letter from Mr. Ustyugin. As noted in the letter, SIFAT supports the aims of CSITC. SIFAT operates a modern system of instrument testing of cotton involving 14 testing centers operating according to the Universal Cotton Standards providing evaluation of all cotton produced in Uzbekistan. SIFAT operates a center to train operators in the use of instruments for testing cotton, and SIFAT plays an important role in regional standardization of cotton testing. Over the last twelve years, SIFAT has trained 711 instrument operators, including 338 SIFAT employees and 81 persons from outside Uzbekistan. Mr. Ustyugin pledged that SIFAT is prepared to assume the responsibilities as the regional technical center for Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan).

The Task Force noted that CSITC is working with two prospective Regional Testing Centers in Africa as part of the project funded by the CFC and the EU, and the work done for these Regional Testing Centers can be transferred to other regions, including Central Asia. However this work is not complete, and CSITC has not yet developed a set of criteria for identifying regional testing centers outside the African context and for defining their necessary tasks. Therefore, clearly **CSITC was very pleased that SIFAT will continue to coordinate with the laboratories in the region. SIFAT may be designated as the Regional Testing Center for Central Asia in the future, when such criteria are approved for use in all regions.** In the meantime, CSITC looks forward to continuing close cooperation with SIFAT, and the executive director was urged to ensure that a representative of SIFAT is approved as a member of CSITC.

However the Task Force emphasized that the Regional Technical Centers will not certify or grade laboratories in place of the CSITC Round Trials. Any activity from the Regional Technical Centers is meant to add to and assist the international activities of CSITC, but cannot replace them for any laboratory. It will be a major responsibility of each Regional Technical Center to encourage all laboratories to participate in the international CSITC Round Trials, and it was emphasized that EACH lab individually should participate in the Round Trials.

The Task Force also agreed that similar regional supporting activities are welcome in other regions.

6. Arbitration Developments

It was noted that the GCA General Assembly endorsed changes to its By-Laws and Rules for arbitration procedures for disputes involving instrument test results at its June 2008 meeting. Andrew Macdonald reported that the ICA had also approved a relatively simple procedure for arbitration of instrument values that allow any laboratory agreed by the contracting parties to do the testing. In the ICA procedures, no control limits are specified but may be agreed by the contracting parties. Members of CSITC expressed the hope that

arbitral bodies would work toward harmonization of the rules for trade in cotton and arbitration of instrument values.

7. Stand-Alone Instruments

It was noted that some laboratories have requested to participate in CSITC Round Trials with stand-alone instruments to measure individual parameters. The Task Force was asked if this is to be allowed.

Neal Gillen noted that the purpose of CSITC is to encourage adoption of rapid instrument testing equipment. However, Andrew noted that many stand-alone instruments can be up-to-date and provide valid results. Jean-Paul observed that many African testing centers still use stand-alone instruments and that time needs to be allowed for full integration.

It was agreed that testing centers are evaluated based on testing results, not methods, and therefore the use of stand-alone instruments in CSITC Round Trials is acceptable, but not encouraged. An indispensable prerequisite is that all participating instruments provide results on the fixed CSITC criteria, mainly the calibration based on Universal Calibration Standards provided by the USDA and a sufficient number of specimen tested from each sample for a sufficiently low variability.

Seeing no other business, Andrew adjourned the Tenth Meeting of CSITC at 4:30 PM.