



# INTERNATIONAL COTTON ADVISORY COMMITTEE

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## 17<sup>th</sup> CSITC Meeting March 21, 2012 Bremen, Germany

### Report

The 17<sup>th</sup> meeting of the Task Force on Commercial Standardization of Instrument Testing of Cotton (CSITC) was held on March 21, 2012 in the Bremen Cotton Exchange at the start of the International Cotton Conference Bremen.

#### Members present:

Andrew Macdonald, AMCON Consulting, Sao Paulo, Chair  
Zbigniew Roskwitalski, Vice President and Director of the Gdynia Cotton Association, Rapporteur  
Axel Drieling, Faserinstitut Bremen e.V.  
Darryl Earnest, Deputy Administrator, Cotton Program, USDA/AMS  
Jean-Paul Gourlot, Director, CIRAD PERSYST LTC  
James Knowlton, Chief Standardization & Engineering Branch, USDA AMS  
João Luiz Ribas Pessa, farm director of Fazenda Nova in Brazil  
Manfred Schiefer, President, M. Schiefer Trading Company, USA  
Peter Wakefield, President, WIS

#### Members Absent or Sending Regrets:

Romano Bonadei, Fondazione Industrie Cotone e Lino  
B.K. Mishra, Chairman cum Managing Director, Cotton Corporation of India  
Jolly Sabune, Managing Director, Cotton Development Organization, Uganda  
Ralph Schulzé, cotton industry consultant, Australia  
Hakim H. Umarkhojayev, General Director, SIFAT  
M.N. Vijayshankar, Chairman, ITMF International Committee on Cotton Testing Methods  
Bruno Widmer, Global Business Manager, Fibres, Agricultural, SGS

#### Observers:

Arthur Aldcroft, UK  
Werner Bieri, Buhler Quality Yarns, USA  
Loukas Despotis, Violar S.A., Greece  
Mohamed El-Sayed, Cotton Research Institute, Egypt  
Antonio Esteve, Ecom, Brasil  
Dean Ethridge, Texas Tech University, USA  
Helvio Fiedler, Union of Cooperative Cotton Producers, Brazil  
Hossein Ghorashi, Uster, USA  
Kai Hughes, International Cotton Association  
Suzan Sanad, Cotton Research Institute, Egypt  
Robert Jiang, International Cotton Association  
Eric Hequet, Texas Tech University, USA  
Gervas Kaisi, Tanzania Bureau of Standards  
Suresh Kotak, Kotak Ginning and Pressing Industries, India  
Guntram Kugler, Textechno Herbert Stein, Germany  
Dominic Mwakangale, Tanzania Bureau of Standards  
Vikki Martin, Cotton Incorporated, USA  
Geoff Naylor, CSIRO, Australia  
Bill Norman, National Cotton Council of America  
Mona Qaud, Rieter, Switzerland  
Anja Schleth, Uster, USA  
James Rodgers, USDA/ARS, USA  
Christian Schindler, ITMF  
V. Srinivasan, Premier, India  
Vasileios Markou, Violar S.A., Greece

René van der Sluijs, CSIRO, Australia  
Sietse van der Werff, Common Fund for Commodities  
Greg Wakefield, WIS, USA  
Michael Watson, Cotton Incorporated, USA  
David Wheeler, Faserinstitute, Germany

Rafiq Chaudhry and Terry Townsend served as Secretariat

**Next Meeting:** Wednesday, October 10, 2012, Interlaken, Switzerland

### Report of the 17<sup>th</sup> Meeting

#### 1) Round Trial results, Report on Round Trials (2011-3, 4)

Axel Drieling reported that RT participation is trending higher, although participation in 2012-1 declined from 80 labs / 138 instruments to 66 / 105. He suggested that the reasons for the decline included difficulties in registration due to the change in fees and inclusion of the Cotton Calibration Standards (CCS), and in addition there were at least ten labs that did not operate during that period. He said joint efforts are needed by ICAC/FIBRE/USDA to increase participation again.

Axel reported that the combined properties evaluation was nearly constant at about 0.5. He noted that labs with a history of RT participation tended to improve their performance, while the overall evaluation score remained largely unchanged because new labs were participating.

He noted that the 2011 RT results were all in the typical range, and that the bimodal distribution of color that had been observed in RT 2010-3 and 2010-4 was solved, so that the color results were suitable again.

However, a problem in RT 2011-4 was that there had been a bimodal distribution of results for one of the five cotton samples, probably due to non-homogeneity in the bale. The problem was solved by using cotton sample number 5 for the calculation of RT results, instead of sample number 3.

At previous CSITC meetings, Axel was asked to determine the number of participating labs in each RT that were achieving results within the CSITC limits. Based on results from RT 2011-3 and 2011-4, Axel reported that between 96% of laboratories participating in 2011-3 and 93% of the laboratories participating in 2011-4 achieved results for micronaire that were completely within the limits based on 30 tests per sample. Results for within-limit evaluations based on single tests were different.) Percentages of laboratories testing within limits in each RT 2011-3 and 2011-4 were:

Mic 96% / 93%  
Str 83% / 84%  
Len 91% / 90%  
UI 99% / 93%  
Rd 77% / 76%  
+b 89% / 93%

The tests that were the most difficult to maintain based on USDA reproducibility criteria from 2001 and CSITC RT scale values were Micronaire, Rd and +b.

However, if CSITC commercial Limits were used, the tests that were the most difficult to maintain were Strength, Rd and length.

Axel noted that it would be possible to determine if there are patterns among the labs that test outside the limits for single properties, but it would be difficult to do the same for the Combined Properties Measurement because that would result in identifying labs as being "good" or "bad."

Jimmy Knowlton reported on CSITC Round Trial (RT) color measurement performance and gave recommendations for improvement. Of the CSITC reported measurements, Jimmy showed that the color measurement in the RT has the worst performance relative to classification measurement performance at USDA. For USDA's inter-lab variation, standard deviations on average for the 2011/12 classing season were 0.47 for Rd and 0.17 for +b. This compares to an inter-lab variation of 1.01 for Rd and 0.35 for +b in the combined CSITC 2011 RTs. Jimmy also showed CSITC RT color results by instrument type that indicated

that there were only small performance differences between instruments. He observed that overall, no particular instrument model is performing well.

Jimmy cited several reasons for the poor color measurement performance, including use of dirty calibration tiles, infrequent calibration and/or calibration checking and color heads in need of servicing. Jimmy showed that USDA re-establishes tile sets two times per year on average, and USDA colorimeter heads have been returned to the manufacturer on an average of once every four years because of performance related issues. Jimmy then gave some recommendations for improving color measurement performance:

1. Calibrate at least once per day (more often for non-Xenon)
2. Verify cotton testing level after calibration and throughout the testing day (w/ tile or cotton)
3. Wash color tiles regularly (frequency depends on use)
  - a. Use only water with a mild liquid detergent added
  - b. Use a soft cloth
  - c. Allow complete drying
  - d. Do not allow water to contact back of tile
4. Color tiles: Re-establish at least once per year
5. Perform a thorough color measurement verification at least once per year or following major repairs
  - a. Use USDA 6 or 12 cotton biscuit sets with established Rd/+b values.

Jimmy proposed to give CSITC RT participants the option of purchasing a color tile set that would be shipped with the RT samples. The proposal was accepted. The following specifics for the tile offer were given:

1. Initially, not to be offered on a routine basis; one RT offer for now
2. Cannot be combined with RT shipment containing calibration cottons
3. Unlike the special calibration cotton set that can be ordered and paid for as part of the RT, this offer will be arranged through USDA only.
  - a. Notification of offer will be sent to RT participants (include written notice in RT 2012-2 samples)
  - b. Ordered tile sets will be shipped with RT 2012-3 samples
  - c. Cost: \$125 for color tile set; \$155 for color tile set plus storage box
  - d. Incentives: Free shipping & improved results

Additionally, Jimmy said he would include recommendations in RT 2012-2 aimed at improving color measurement performance.

Jimmy reported that 34 sets of the special calibration cottons were shipped with CSITC RT 2012-1 and 12 sets were currently ordered for CSITC RT 2012-2. Jimmy also reported that the older established cottons used in the CSITC Round Trials tended to be yellow (spotted grades) in color. Jimmy reported that more emphasis was now being placed on incorporating newer established cottons into the RTs that were whiter in color. This should help broaden the sample color range.

## 2) Update on the "Guideline for Commercial Standardized Instrument Testing of Cotton."

Axel reported that the Guideline is being developed cooperatively by FIBRE, CIRAD and USDA-AMS, with six other organizations contributing. The Guideline will replace the USDA and ITMF Guidelines and will add significant information developed from CSITC project activities. He said that drafts of the Guideline had been discussed at ICAC plenary meetings and CSITC meetings. The full text was presented for final approval, and there was a consensus among Task Force members to approve the Guideline.

ITMF and ICAC will publish the finished Guideline.

Andrew Macdonald, Task Force Chair, thanked Axel, Jimmy and Jean-Paul Gourlot for their excellent service and hard work in shepherding the Guideline through the editing and approval process. Andrew noted that nine additional authors had contributed to the Guideline, and that the Common Fund for Commodities (CFC) and the European Commission (EC) had provided funding for preparation of the Guideline as part of project CFC/ICAC/33.

Andrew recalled that Dr. Lawrence Hunter had proposed to create a unified guideline for HVI testing to replace the existing USDA and ITMF guidelines at a Task Force meeting in South Africa during the 2009 ICAC Plenary Meeting. Andrew observed that publication of the Guideline represented a significant step toward the goal of universal use of standardized instrument testing to determine cotton quality.

## 3) Report from Dr. Moumine Traore, Director General, Cerfitex, Mali, on the activities of the RTC-West, including its future organization, services provided and actual performance.

Jean-Paul reported on behalf of Dr. Trarore that an agreement between the RTC-West and the African Cotton Association (A.C.A.) had been prepared, and that separate agreements with each of the major cotton companies in the region were being developed. He said that all principals had agreed to support the agreements.

This information was welcomed by the Task Force. It was noted that a strong and effective regional testing center conducting regional round trials and providing technical support to laboratories is a prerequisite to instrument testing with precision and accuracy on all six CSITC parameters.

4) Report from Rene van der Sluijs, impacts of fumigation and radiation on cotton quality

Rene reported that it was common practice in Australia for customs authorities to irradiate imported cotton samples, including cottons used in round trials and for calibration, in order to ensure that no disease or insects were being introduced. However, Rene provided alarming data showing that irradiation substantially changes the quality characteristics of each sample. He said that Cotton Australia is working with customs authorities to change the practice of irradiation of cotton samples.

5) A comparison of test results for one bale used in the USDA Check Tests, Bremen Round Tests and the CSITC Round Trials

Axel noted that laboratories compare their performances in the USDA Check Tests, the Bremen Round Trials and the CSITC Round Trials and often observe that they seem to be testing on different levels in the different tests. However, Axel noted that it is statistically extremely difficult to compare laboratory performance across different tests and round trials because comparisons are being made on samples from different bales. He said that a valid comparison of test results can only be made using same bales, and that currently it was possible to do this for one bale only.

Axel reported that, for the one bale used in the three tests, there were no critical differences in average test results between the CSITC Round Trials, the Bremen Round Tests and the USDA Established Results. And, he said that a comparison to the USDA Check Test will be done as soon as the data are available.

Axel proposed that Fibre and USDA-AMS should make additional comparisons between the tests and trials using additional bales.

6) Report on Universal Cotton Standards Activities

Jimmy Knowlton announced that the Universal Cotton Standards Conference is tentatively scheduled for the week of June 17, 2013. The location is still undecided but will be in either Raleigh, North Carolina or Memphis, Tennessee. The conference will be held in conjunction with a Cotton Incorporated (CI) sponsored conference event. A potential conference proposal will be for a Universal Trash Measurement Standard. The current USDA cotton images mounted under glass with established values for percent area and particle count will likely be proposed.

7) Next Meeting of the CSITC: Wednesday, October 10, 2012, Interlaken, Switzerland

8) Other business

João Luiz Ribas Pessa reported that the Brazilian Cotton Growers Association (ABRAPA) is planning to create an independent laboratory as a Regional Technical Center to provide support to South American HVI testing. The RTC-South America would be modeled after the regional technical centers in West Africa and East and Southern Africa that had been developed under CFC/ICAC/33. Axel and Jean-Paul offered to provide support to the effort by ABRAPA based on findings from the project.

## **Background of CSITC and Summaries of Reports from the 1<sup>st</sup> through the 16<sup>th</sup> Meetings**

**Background:** An Expert Panel on CSITC was formed in December 2003 on the instruction of the 62<sup>nd</sup> 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 could be made by a vote of members present.

The Expert Panel issued **two interim reports in 2004**, including a report to the 63<sup>rd</sup> 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 4<sup>th</sup> 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 4<sup>th</sup> 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 5<sup>th</sup> 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 6<sup>th</sup> 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 7<sup>th</sup> 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 2<sup>nd</sup> 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 8<sup>th</sup> 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 7<sup>th</sup> 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 9<sup>th</sup> 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 Roskwitalski reported that Gdynia is adapting its rules to accommodate arbitration procedures for instrument testing parameters.

**During the 10<sup>th</sup> Meeting** on November 16, 2008 in Ouagadougou, 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, and to evaluate and rate the performance of test centers based on their accuracy.

A report was given about 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).

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.

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. 95% of the results between a random laboratory and the reference, or true, result of the tested cotton would be within the following limits:

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

The numbers are 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. It was noted that roller ginned and hand-harvested cotton would require separate sets of control limits, and concerns were voiced about variances in test results linked to ranges of moisture levels. **The Task Force agreed 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.**

The Task Force on CSITC welcomed a letter from Mr. Ustyugin of SIFAT in Uzbekistan. 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). **CSITC was very pleased that SIFAT would 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. However the Task Force emphasized that the Regional Technical Centers will not certify or grade laboratories in place of the CSITC Round Trials.** The Task Force also agreed that similar regional supporting activities are welcome in other regions.

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. It was 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.

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. **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 specimens tested from each sample for a sufficiently low variability.

**During the 11<sup>th</sup> Meeting**, May 26, 2009 in Washington, DC, Andrew Macdonald noted that a letter had been received from Mr. V.E. Ustyugin of the Uzbek Center for Certification of Cotton Fiber (SIFAT) requesting that SIFAT be identified as a Regional Testing Center (RTC) for Central Asia. (See the Report of the Tenth Meeting.) **With minor modifications, the proposed set of criteria was approved by CSITC.**

A suggestion had been received from Cotton South Africa to grade laboratories based on their performance in the Round Trials. However, members of CSITC were concerned that thresholds chosen for grades would be arbitrary. It was also noted that CSITC evaluates the performance of instruments, not laboratories. It was decided that **CSITC should continue to provide results on an instrument-by-instrument basis.**

Jimmy Knowlton reported that there is still no consensus on the reference method for measuring Short Fiber Index, AFIS 12.7 mm or Roller Analyzer 16.5 mm or 12.7 mm. He said that USDA and the China Fiber Inspection Bureau (CFIB) were conducting a study in 2009 to assign reference values to calibration cottons. CSITC thanked Jimmy for his work and endorsed additional SFI sub-round trials in 2009. Jimmy was urged to work with Uster Technologies to collect SFI and maturity data provided on HVI 1000s during the 2009 Round Trials.

It was noted that the Central Institute for Research on Cotton Technology (CIRCOT) has reported that it is producing calibration cotton for use with HVI systems. Members of CSITC recalled the minutes of the Third Meeting of CSITC in June 2005 in Memphis:

“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.”

**Darryl Earnest reported that the ASTM standard would be developed by the end of 2009.**

Axel Drieling reported on a new database for CSITC Round Trial results being developed with support from the Common Fund for Commodities. The new database will be tested from RT 2009-3 on, and Axel plans to implement the new database beginning with RT 2010-1.

CSITC agreed that laboratories registering for participation in Round Trials would be considered registered for each Round Trial until they withdraw.

**During the 12<sup>th</sup> Meeting**, September 8, 2009, Cape Town, South Africa, the Chair noted that SIFAT had been acknowledged as a Regional Technical Center. A proposal for the CSITC Structure and Duties drawn up by Jean-Paul and Axel Drieling was accepted. It was confirmed that neither ICAC nor CSITC would, or could, approve or not approve, any labs for cotton testing. It was agreed again that it is up to the individual organizations responsible in each country to set their own standards, and stand by it against any claim or legal action that might occur from such a decision.

Jimmy Knowlton and Axel Drieling made a presentation of the results of SFI and Maturity tests that had been voluntarily included in the results submitted by labs in recent Round Trials. The variation that exists between labs indicates that SFI measurements are insufficiently reliable to be included as an official part of the round tests. As regards maturity, although the results were highly consistent between the participating labs, the scale of measurement was such that overall accuracy created a serious obstacle to utilizing the information on a commercial basis. However as with SFI, the round trials would continue with the option of including the maturity readings so as to permit further analysis during future round trials.

Jimmy Knowlton described the procedures for the production of calibration cottons, and the fact that some countries were in the process of producing their own calibration cottons, but, that to achieve standards compatible with the current Universal Standards (the accepted world standard) adherence to the correct procedures would be required. USDA is documenting its complete calibration cotton production procedures for publication as an ASTM (American Society for Testing and Materials) standard. The document is currently in draft stage within the ASTM process but should become finalized as an ASTM standard sometime in 2010. Jimmy Knowlton said the current draft is now available for review by CSITC Task Force members.

Axel Drieling reported on the progress in developing a web based database system for the CSITC Round Trials.

The Chair noted that the costs of operating the round trials was increasing and at present the contributions of each lab only covered the cost of preparation and shipment of the samples for the round tests, and that these cost had increased. The current charge was US\$400 per annum and it was proposed to increase this from 2010 to US\$600. This was approved. Axel Drieling explained that he estimated the costs for the fiber institute at US\$500 per year per participating instrument so that further increases must be expected in the future unless the Task Force can convince other labs to participate.

**During the 13<sup>th</sup> Meeting**, March 24, 2010, Bremen, Germany, the results of the four Round Trials conducted during 2009 were summarized. Standard deviations among the measurements and variations between inter-laboratory results were stable. Standard deviations among instruments in single tests were: mic, 0.09; strength, 1.33; UHML, 0.017; UI, 0.82; Rd, 1.11 and +b, 0.41. The results from an independent part of the regular CSITC-RTs, including all kinds of instruments, conducted during 2009 showed that inter-laboratory standard deviations and coefficients of variation were too high for use in cotton classification for SFI and Maturity. It was reported that unofficial and developmental calibration cottons for SFI will be available from USDA beginning in April of 2010. There was agreement that without consistent and reliable procedures and standards in place to ensure accurate testing, SFI measurement reliability would always be in question.

It was agreed that Axel will be asked to provide more information on inter-laboratory results in future meetings, while taking care to maintain the confidentiality of individual laboratory results. An earlier decision by the Task Force to not establish commercial tolerances among laboratories was reinforced. It was also agreed that the Task Force would not issue lists of "acceptable" laboratories; market forces will determine which labs are performing to an acceptable commercial standard.

It was reported that ABRAPA is requiring all labs in Brazil to participate in CSITC Round Trials and provide their results to ABRAPA for evaluation.

It was reported that USDA has developed an ASTM standard for production of calibration cotton. It is expected that the standard will be officially adopted later in 2010. The proposed standard was available for review and comment until June 2010. Members of CSITC recalled the minutes of the Third Meeting of CSITC in June 2005 in Memphis:

"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. The CSITC agreed that calibration standards must be referenced to the USDA reference material."

It was recalled that CSITC had decided earlier that each sample set could be used on a maximum of two instruments for participation in CSITC Round Trials. The logic behind this rule was that each sample is tested 30 times per instrument and that the samples become ragged and unusable after a certain amount of handling.

However, Jimmy and Axel reported that in tests completed in Memphis and Bremen, CSITC samples had been used for more than 4 instruments per RT, and there had been no observable deterioration in mean values or standard deviations when samples were used on 4 instruments = 120 tests. **CSITC agreed, that while using samples on more than two instruments is not advisable, there was reluctant agreement that the limit for use in Round Trials would be expanded from 2 instruments per sample set to 4 instruments per sample set.**

A proposal had been received to provide a quantity discount to Regional Testing Centers for participation in Round Trials. This proposal was rejected.

Axel reported that CSITC RT 2010-2 will be done with the new database system and web site developed with the support of the CFC. The new system will provide extensive diagnostic information for individual

laboratories through secure on-line registration. The web site contains an imbedded training video to enable users to take advantage of the enhanced features.

Jean-Paul summarized progress under the CFC/ICAC/33 project, funded by the CFC and the EU, (see [www.csitc.org](http://www.csitc.org) or [www.icac.org](http://www.icac.org)).

The Chair reported that there was a consensus that there should be one instrument-testing manual based on a harmonization of the existing ITMF and USDA guidelines. **It was agreed that the task of harmonization will be done in cooperation between the CFC/ICAC project partners, the ITMF ICCTM, the USDA-AMS and with the input of the instrument manufacturers. The new ASTM Standard Test Method for HVI testing will serve as a basis for harmonization of guidelines.**

**During the 14<sup>th</sup> Meeting**, held in Lubbock, USA in September 2010, the Task Force authorized Axel Drieling and Jean-Paul Gourlot to continue efforts to edit a single instrument-testing manual based on a harmonization of the existing ITMF and USDA guidelines.

Noting systematic differences in Round Trial results for micronaire between instruments calibrated with the older International Cotton Calibration Standards and the newer Universal Micronaire Calibration Standards, the Task Force reaffirmed that **laboratories should be using only Universal Micronaire Calibration Standards**. USDA will begin providing Micronaire Calibration Cotton reference materials free of charge together with the round-test samples.

The Task Force reaffirmed that **calibration cottons and test cottons should be conditioned in the same manner** so as to ensure that both reach the same moisture equilibrium.

Axel Drieling presented a new method of Round Trial evaluation that shows where a lab stands in comparison to acceptable tolerances. **It was agreed that the evaluation will be calculated in 2010-4, and may be included from 2011 on.**

A proposal to use only Reflectance (Rd) and Yellowness (+b) in cotton classing was discussed, and it was agreed to investigate the color topic more deeply during the next session.

Andrew Macdonald described progress in Brazil under the leadership of ABRAPA to use CSITC Round Trial results to motivate laboratories to maintain and improve their testing practices. He encouraged other countries to follow the Brazilian example.

Jimmy Knowlton proposed to include trash count and trash area as optional parameters in the CSITC Round Trials, in order to get more information on these parameters. **The Task Force agreed to include trash parameters in the Round Trials without evaluating laboratories based on the results.** Participation with trash results will begin with the 2010-4 CSITC Round Trial, and participation will be voluntary as is the case with the other optional CSITC measurements (SFI and maturity).

The Task Force voted unanimously for Andrew Macdonald to continue to serve as Chair of the Task Force for a two-year period starting at the next meeting.

**During the 15<sup>th</sup> Meeting**, held in Washington, USA in May 2011, Axel Drieling reported that participation in the Round Trials is trending upward, and the median Combined Properties Measurement had remained between 0.45 and 0.60 from the first round trials in 2007. Axel reported that systematic deviations in micronaire results seem to be related to the use of outdated calibration material.

Axel demonstrated a new evaluation method that allows laboratory operators to easily see if their results fall within measurement limits for each parameter. **The Task Force agreed that the new evaluation method will be included in RT evaluations and will be used to inform each participating laboratory confidentially how many results for each parameter fall outside measurement limits.** The agreed limits for the time being are:

Micronaire	0.2 units
Strength	2 g/tex
UHML	0.03 inches
Uniformity	2 units
Rd	1.5 units
+b	1 unit

Jimmy Knowlton reported that trash count and percent area had high coefficients of variation, and that there

were significant differences in area and count measurements by instrument. **It was agreed that trash measurements are not ready for approval as CSITC parameters.** Nevertheless, it was agreed that comparisons to the interlaboratory averages for trash, SFI, and maturity could be provided to laboratories that are voluntarily participating in such measurements.

Axel Drieling demonstrated that the Round Trial results for Rd are distributed bi-modally. **The Task Force approved a request from Axel to exclude the color results from identifiable groups of instruments/laboratories whose results are outside the range of** expected results for Rd when calculating the Reference Values for each Round Trial evaluation. The Task Force agreed that other methods for determining the Rd/+b reference points (now determined by inter-laboratory average) should be studied, given the recent bimodal distribution problem.

Mr. Charles Ekelege, Director General, Tanzanian Bureau of Standards and Mr. Dominic Mwakangale, Director, Tanzanian Bureau of Standards reported that the RTC East has improved its performance in Round Trials and **now scores better than the median of all instruments** on the Combined Properties Measurement.

As determined at the CSITC meeting in Cape Town in 2009, the annual **cost of round trial participation will rise to \$1,000, or \$250 per trial**, in 2012 when support from the Common Fund for Commodities expires.

**During the 16<sup>th</sup> Meeting**, held in Buenos Aires, Argentina in September 2011, Axel Drieling demonstrated the new evaluation system that shows the number of evaluations falling within measurement limits for each parameter. [The evaluation was done for the averages of 30 test results as well as for each single test result.](#) There was agreement that **the new evaluation format and the new format of Round Trial reports should be continued.**

Jimmy Knowlton reported that Rd remains a challenge because of systematic level differences between Uster 1000s and 900s and between Uster and Premier instruments. He noted that there is not a similar problem with +b. Jimmy suspected that the problem lies with the use of outdated color tiles by 900 users. Given that the master colorimeter sets the values on all Universal Cotton Standards for Rd/+b, the **Task Force agreed that it should be recognized as a primary point of reference.** Hossein Ghorashi suggested that **Uster could provide a software update to 900 users** to correct for the systematic difference in levels for Rd. The Task Force accepted this suggestion. It was agreed that Axel Drieling will confer with Uster on the offset to be provided in the software update. CSITC agreed to send a letter to Uster formally requesting Uster to provide the upgrade so as to standardize results between all instruments. Hossein Ghorashi said that Uster would implement the proposal promptly after receiving the request from CSITC and conferring with Axel.

Bruno Widmer suggested that CSITC should recommend to laboratories and governments that testing laboratories should become ISO/IEC 17025:2005 certified to ensure the implementation of appropriate management systems for quality, administrative and technical operations. Bruno provided a memo on the subject that had been circulated.

Members of the Task Force agreed that ISO 17025 certification is useful, but expensive. The estimated cost of compliance was \$60,000 per year. It was noted that CSITC is focused on results, not process. Ultimately, the Task Force agreed that ISO 17025 certification is optional for laboratories and is neither recommended nor rejected by CSITC.

Jimmy reported that a special set of USDA calibration cotton standards could be purchased and delivered with CSITC Round Trial samples. The Task Force discussed this proposal and agreed that **the special set of calibration cotton standards should be made available** to laboratories participating in Round Trials.

It was noted that the Guideline is being developed cooperatively by FIBRE, CIRAD and USDA-AMS, with six other organizations contributing.

End.