*International Committee on Cotton Testing Methods (ICCTM)*

# Progress Report 2016

Proceedings of the ICCTM Meeting in Bremen, March 15th, 2016

Bremen Cotton Exchange

Wachtstrasse 17-24, 28195 Bremen, Germany

Chair: Mr Axel Drieling, Faserinstitut Bremen e.V., Germany
Vice Chair: Ms Mona Qaud, Uster Technologies AG, Uster, Switzerland

## Preface

The International Textile Manufacturers Federation (ITMF) is an international association for the world's textile industries, dedicated to keeping its world-wide membership constantly informed through surveys, studies and publications and through the organisation of annual conferences, participating in the evolution of the industries basic raw materials and their application, through specialised committees, with the overall objective of creating growth and prosperity in all aspects of industry.

The International Committee on Cotton Testing Methods (ICCTM) is a non-profit technical subcommittee of ITMF. The main function of the Committee is to encourage research and development for enhanced testing methods, to recognize suitable test methods, to identify reference test methods, to harmonize cotton testing results and to discuss testing related problems.

The mandates of the Committee are:

1. Encourage research into the basic science needed to develop commercially useful tests.
2. Encourage the development of enhanced testing methods.
3. Recognition of instruments and testing methods that are able to perform within allowable tolerances, and that achieve a result that correlates with a reference method.
4. Identification of reference methods.
5. Harmonize cotton testing results by means of
    a. proposition and support for the international standardization of test methods
    b. development of guidelines for testing
    c. technical evaluations using world-wide round tests.
6. Discussion of problems related to testing of cotton fibre properties and their relations to cotton processing.

## Introduction

Dr Christian Schindler, Director General of the ITMF, welcomed the members and observers of the ITMF International Committee on Cotton Testing Methods in Bremen. About 40 people

attended this year's meeting. He expressed his sincere thanks to the Fibre Institute Bremen (FIBRE) as well as the Bremen Cotton Exchange, that this meeting could take place again in Bremen, after starting in the 1980s. He welcomed also members of the ITMF Spinners Committee as well as observers from the ICAC Task Forces.

Dr Schindler presented the agenda of the meeting with a total of 24 presentations. Due to this, the presenting time was limited to 5-10 minutes.

Interested parties are welcome to ask for membership at the ITMF by sending an email to secretariat@itmf.org. Additionally, Dr Schindler reminded the members of the ICCTM-Website (http://www.itmf.org/login), which allows to send emails to all Committee members and to download all current documents as well as previous documents/reports.

The word was handed over to the Chairman of the Committee, Mr Axel Drieling, who also welcomed the participants and introduced the Executive Committee. Since 2012, there are no specific task forces anymore, but a joint Executive Committee. Besides the Chairman, the ICCTM Executive Committee consists of:

- Mr Axel Drieling — Faserinstitut Bremen (FIBRE), Germany, contact: drieling@faserinstitut.de
- Dr Stuart Gordon — CSIRO, Belmont, Australia, contact: stuart.gordon@csiro.au
- Dr Jean-Paul Gourlot — CIRAD, Montpellier, France, contact: jean-paul.gourlot@cirad.fr
- Mr Jimmy Knowlton — USDA AMS, Memphis, USA contact: james.knowlton@ams.usda.gov
- Dr Malgorzata Matusiak — Institute of Textile Architecture, Lodz, Poland, contact: malgorzata.matusiak@p.lodz.pl
- Ms Mona Qaud — Uster Technologies, Uster, Switzerland, contact: mona.qaud@uster.com
- Mr René van der Sluijs — CSIRO, Australia, contact: Rene.Vandersluijs@csiro.au

The Steering Committee comprises the following cotton / textile experts:

- Dr Terry Townsend — ICAC, Washington, USA
- Mr Andrew Macdonald — Spinners Committee, Brazil
- Mr Darryl Earnest — USDA-AMS, Memphis, USA
- Mr Christoph Färber — Trützschler, Germany
- Mr Karsten Fröse — Bremer Baumwollbörse, Germany

## High Volume Testing (coordinated by Axel Drieling)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Darryl Earnest, USDA-AMS | Innovations in USDA Cotton Classification (1) |
| Gretchen Deathereage, USDA-AMS | USDA Cotton Classification and Standards Update (2) |
| Daniela Messa, Mesdan, Italy; Sandra Meier, Loepfe, Switzerland | Introduction of Mesdan Contest and Loepfe Labmaster Fibermap (3) |
| D. Chidambaram, MAG Solvics, India | Introduction of MAG Solvics and Trash Measurement (4) |
| Suzan Sanad, CRI, Egypt | A comparison of HVI, AFIS and CCS cotton testing methods (5) |

Axel Drieling explained that he had asked the Committee members by e-mail on proposals for changes in the "Guideline for Standardized Instrument Testing of Cotton". Proposals were sent

i.e. by Rene van der Sluijs and Lawrence Hunter. He explained the proposed changes and got the approval of the Committee to enter these changes in the next version (Version 3).
Dr Jean-Paul Gourlot is planning to write a new guideline for the use of High Volume Testing results (SITC Utilization Guideline). For this, he is seeking contributors. The content of the SITC Utilization Guideline should include the testing method, describing each single parameter, the relationship between the parameters, the result ranges, and the utilization for the different spinning types.

As a follow-up of the last meeting, Mr Drieling mentioned that it was decided that the chosen calibration of High Volume Instruments should be mentioned on the generated test reports. Uster and Textechno confirmed that in their reports this is included. Mesdan and MAG Solvics mentioned that this is pending from their side, and an answer from Premier wasn't available during the meeting. As an outcome of the discussion, the Committee recommended that Pima Calibration (Upland Short/Weak plus Pima Long/Strong) should be used as a default for all Barbadense varieties plus F1 hybrids. If the testing is done with a differing calibration, then this has to be mentioned.
In addition, it was discussed that the instrument manufacturers should widen their High Volume Testing software in a way that allows easy changing between Upland and Pima calibrations by using stored calibration constants for both calibrations.

In the first presentation of the ICCTM meeting, Mr Darryl Earnest showed the latest innovations introduced at USDA-AMS cotton classification. For the instruments and sample movement, he showed the automated micronaire measurement, de-coupled instrument components and an automated sample movement process, leading to an increased throughput of 10,000 samples a day. In addition, USDA is, jointly with three companies, looking at new ways for colour, trash and extraneous matter measurement based on image analysis. With business intelligence analytics, Mr Earnest showed a very powerful tool to analyse large amount of data in short time, giving immediate feedback for quick decisions.

Ms Gretchen Deatherage introduced the new steps in the USDA-AMS Quality Management Program, which now uses in-house cottons (IHC) with established values for immediate response every two hours plus reference level check cottons (RLC) for weekly checks. Both measures will in sum replace the given check lot system, where samples, which were tested in the classing stations, are sent to Memphis for a re-test. Ms Deatherage mentioned that USDA-AMS is, due to a lack of suitable Pima saw ginned cottons, planning to change the preparation of Pima L/S calibration cottons towards roller-ginned, starting in 2017. For overcoming the higher variability, the number of repetitions during calibration will have to be increased.

Ms Daniela Messa introduced the joint activities of Mesdan and Loepfe, both belonging to the Savio Group, on fibre testing technology. The companies developed two instruments that are able to measure all typical High Volume Testing properties as well as contaminations. The instruments are based on the technology of Lintronics, with intense additional developments. Mesdan Contest measures the contamination of cotton such as neps, seed coats, trash, stickiness and fineness/maturity. Loepfe Fibermap uses the same basis and additionally measures length, strength, colour and trash. The instruments use 3.5g samples, transform it into a 10m web, and classify different impurities with image analysis. After image analysis, the web is pressed between two heated rollers, where sticky components will remain on the roller surface and are counted and graded by size. Micronaire and maturity are subsequently measured with a double compression method. Mesdan/Loepfe will be participating in the international Round Trials and are aiming for an ITMF Recognition in 2017/2018.

Mr Dhandayuthapani Chidambaram introduced the MAG Solvics company to the Committee and explained that MAG is involved in textile testing since 1991, including yarn testing and fibre testing. Besides the optical surface measurement of trash in High Volume Testing, MAG offers an additional method for the gravimetric testing of the trash content, AccuTrash, which is comparable to e.g. Shirley or Premier Trash testing. This instrument can be combined with

MAG's High Volume Testing instruments. Approx. 70% of the High Volume Instruments ordered by the customers have this combination. It is distinguishing between lint, trash, dust and micro-dust.

Dr Suzan Sanad compared results of 8 cotton samples on Uster HVI, Uster AFIS and Textechno CCS instruments. For length, strength and color +b, R-values of higher than 0.94 were found. Interestingly, for elongation a negative correlation was found between CCS and HVI.

## Length and Strength Topics (coordinated by Mona Qaud)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| David McAlister, Uster Technologies Inc., USA | HVI Elongation (6) |
| Stuart Gordon, CSIRO, Australia | 'Calibration' of HVI elongation (7) |
| Shouren Yang, CSIRO, Australia | Specific cotton fiber elongation (8) |

Dr David McAlister showed the latest developments in HVI elongation measurement, aiming to reduce the result variation between instruments with a new algorithm. Based on 3 instruments and 10 samples he showed that the new algorithm results in a better reproducibility and repeatability, reducing the standard deviations by 50%. Currently the new elongation is not introduced in the HVI 1000 software, but will be introduced with the addition "Elg 2".

Dr Stuart Gordon presented his results of a study on HVI elongation reproducibility based on two trials, two HVIs and each 20 samples. He found that HVI elongation can be calibrated based on USDA elongation results, and with this the inter-instrument variation can be reduced. He hence suggested that elongation measurement should be included in CSITC Round Trials. He noted in addition, that elongation is specific to material, especially to fibre fineness and maturity. Dr Kugler from Textechno mentioned that a calibration towards desired results cannot be suitable. Dr Hequet added that the main aim of elongation testing is to get a good predictor for the behavior of the cotton in spinning / in the yarn.

Shouren Yang from CSIRO, Australia presented new results to confirm findings from his previous study, where he showed a method for measuring the elongation of cotton, the Tensor Bundle Elongation measurement. It showed reasonably good correlation with singe fiber elongation (on Favimat). This correlation can be improved significantly when looking at specific single fiber elongation (elongation per fiber fineness) and at specific tensor bundle elongation (tensor bundle elongation per bundle fineness).

In the Committee, it was agreed that elongation is an important parameter, which should be considered for the Committee's future work.

After the presentations, Ms Mona Qaud asked for the status of the work on Lower Half Mean Length – a topic which was intensely discussed during the last Committee meetings. Chris Delhom explained that Leon Cui, who was formerly working on this, retired, but SRRC is continuing its work on that topic, and Mr Delhom will report on this topic in 2018. SRRC will for this purpose cooperate with Textechno for implementing it in the Fibrotest. Generally, it will stay important to look at correlation of the results to the spinnability.

## Stickiness Topics (coordinated by Jean-Paul Gourlot)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Daniela Messa, Mesdan, Italy;<br>Sandra Meier, Loepfe, Switzerland | Stickiness measurement by Loepfe Fibermap and of Mesdan Contest (9) |
| Jean-Paul Gourlot, CIRAD, France | International Round test on stickiness measurement methods (10) |

Stickiness originates from various sources: vegetal parts, oil traces, waxes, plant sugars and insect sugars. The most important and problematic cause of stickiness is due to the entomological sugars from insect secretions. Stickiness induces productivity and quality losses as sticky points remain in the material from fibers in the field to the textile processes. The behavior of contaminated fibers during processing is highly dependent upon the quantity and the type of the main sugars present in fibers in relation to the transformation machine types and settings as well as on the ambient conditions of transformation.

Various techniques have been used to estimate a possible contamination of fibers by honeydew. The main goal of these measuring techniques should be to 'predict' processing and quality problems that could occur in the industry. In the first presentation, Ms Daniela Messa and Ms Sandra Meier showed the Contest / Fibermap instruments from Mesdan and Loepfe. This instrument works with the same principle as FCT and FQT from Lintronics some years ago. Innovative technologies are used for improving the control of key elements of the system like the temperature. An interesting aspect is that the sticky points are not solely counted, but classified by amount and size. The instruments will be on the market soon in 2016.

The presentation by Dr Jean-Paul Gourlot related results of an International Round-Test (RT) on Stickiness, conducted using various testers and a range of cottons to check, if all used measuring techniques are able to measure stickiness, and to check, if their results are comparable to each other. Preliminary RT results showed the necessity of harmonization steps to be conducted on the measurement. This is even more highlighted by results from the second phase of the RT. This one consisted in an intensive test in a micro-spinning mill in two laboratory ambient conditions (45% relative humidity assuming no or almost no expression of stickiness, and 58% relative humidity assuming its full potential expression, according to previous experiments). All together 36 criterions, relative to productivity in spinning and to yarn quality, were recorded/measured and correlated to all available fiber and stickiness determinations (139 criterions). In summary, some stickiness measuring techniques may predict more than others potential spinning problems at 58% RH and potential losses in quality (in decreasing ranking order of prediction ability of the 36 yarn criterions: mini-card: 29/36 criterion or 81% explained criterion, SCT: 78%, H2SD: 78%, caramelization: 67%, ChemCare: 61%). Strong attention is to be given to erroneous predictions from some stickiness measuring techniques (Chemcare), as they may correlate more to other characteristics than to stickiness expression during spinning in 45% RH conditions.

This reinforces the 2014 conclusion toward needed harmonization steps. A project proposal was presented to the Committee, listing all the required steps to produce sound reference materials. The idea is that these materials will be used to set/adjust/calibrate/check the stickiness measuring techniques, at their release from manufacturers as well as in the operating laboratories in their daily operations, so as to get agreed/sound levels and scales that help the industry to predict stickiness expression in their process, and this with a strong scientific basis.

The future expected actions by Committee Members would be to:

- Publish gained results, to finalize the RT study and to submit reports to the Committee.
- Defend the proposed harmonization project, acquire funding, and start its activities with willing scientific and industry partners, including stickiness techniques' manufacturers.

- Include a case-study phase on the actual ongoing ICA-Bremen stickiness tests, for deducing a potential first operational step for the industry into this project.

## Fineness/Maturiy Topics (coordinated by Stuart Gordon)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Hy Hwang, Cottonscope, Australia | A brief update on Cottonscope (11) |
| Chris Delhom, USDA-ARS | Verification of ARS maturity reference standards |
| Anja Schleth, Uster Technologies Inc., USA | AFIS/HVI Maturity Measurement, revised algorithm (13) |
| Eriq Hequet, TTU, USA | Creation of a set of reference cotton for fiber maturity measurements (14) |
| Stuart Gordon, CSIRO, Australia | Cottonscope specimen preparation (15) |

Mr Hy Hwang presented a brief update on the Cottonscope instrument, which is capable of measuring fiber maturity distributions and ribbon width distributions directly of the fibers, and average fineness and micronaire from the complete samples. The instrument is measuring 20,000 fibers in 30 seconds. A calibration has to be performed every 6 months based on ARS calibration samples. Based on its results and the simple measurement procedure, it is suitable for researchers, farmers and mills.

Dr Chris Delhom introduced a study that Dr James Rodgers conducted jointly with Dr Eric Hequet for verification of ARS maturity reference standards. For this, they were looking at a very wide range of maturity (0.6 to 0.96), fineness (137 to 164) and micronaire (1.97 to 5.63).

Dr Eric Hequet explained in his additional presentation the old and the new Fiber Image Analysis System on cotton cross-sections (FIAS). He analyzed 4 different main types of errors in the analyzed images: (a) broken cross-sections or trash detected as cross-section, (b) misestimated fiber perimeters, (c) failed identification of the true lumen and (d) failed detection of the fiber cross-section. With the new FIAS, a noticeable improvement was observed for error c and a slight improvement for error b. In sum, there is an excellent agreement between the two versions of FIAS for the average maturity, but a significant difference between the maturity distributions. Unfortunately, it is only possible to calibrate averages, but not distributions. In a second step, Dr Hequet compared the AFIS maturity results to the FIAS maturity results, and showed that the slope of AFIS maturity is currently much lower (36%) than that of FIAS. Explaining that with 3 levels of fiber diameter and 4 levels of maturity for each diameter, 12 calibration samples are needed, he raised the question, if calibrated AFIS (or other methods) can be used for creating sufficient reference material, or FIAS cross-section analysis, which would be extremely time consuming and cost prohibitive.

Ms Anja Schleth showed the activities of Uster based on the findings that Dr Hequet had presented. Uster developed new algorithms for AFIS Pro 2 and for HVI 1000. With these, the correlation to FIAS maturity ratio is slightly improved, but mainly the range improved to nearly show the same slope as FIAS. Based on Mr Drieling's recommendation from 2014, Ms Schleth proposed that both instruments will with the new software include the choice for either Maturity Ratio based on the previous algorithm (<2016) → "MR1" / "MAT1" or the revised algorithm (>2016) → "MR2" / "MAT2". This will allow the user to choose the parameter that is important for him and to distinguish easily between them. Ms Schleth mentioned that the implementation will be given with the next regularly scheduled software releases in 2016.

Dr Stuart Gordon prepared a presentation for developments in the specimen preparation for Cottonscope. Due to time restrictions, he unfortunately cancelled this presentation.

## Recognition Topics (coordinated by Jean-Paul Gourlot)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Stuart Gordon, CSIRO, Australia | CottonScope Recognition Application (16) |

The aim of the ICCTM Executive Committee is to shorten the time for recognitions between 2 years periods and to have the chance to an in-between voting. For this, a document with the criteria and the procedure for the recognition of instruments was presented to the ICCTM (Recognition of Instruments V4-1). In addition to a recognition at a full Committee meeting, a procedure for a recognition after a full Committee meeting is included in this document. It was mentioned that at least 50% of the members must vote, and at least 50% of the voters must be in favor of the recognition. All Committee members voted in favor of the new amendment.

With this session chaired by Dr Gourlot, Dr Gordon presented the application for the recognition of the Cottonscope as an instrument for testing cotton fiber maturity, fineness, ribbon width and maturity. In the discussion that followed on the presentation, several small topics were raised to improve the application text. It was agreed that Dr Gourlot would send his notices on the comments to Dr Gordon. With this, the application was acknowledged with the status as of the meeting day. After adding the text based on the collection of comments and checking it by the Executive Committee, the updated version will be sent to the full Committee for a final recognition after the full Committee meeting.

## Neps/Trash Topics (coordinated by James Knowlton)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Guntram Kugler, Textechno, Germany | Cotton Fibres Inspection Devide MDTA-4 (17) |
| James Knowlton, USDA-AMS | USDA Imaging Development (18) |

Dr Guntram Kugler from TEXTECHNO presented information about the new Advanced Laboratory for Fiber Inspection ALFI MDTA4. The instrument has been developed by the testing instruments manufacture TEXTECHNO GmbH & CO KG, Mönchengladbach, together with the Textile Research Center ITV Denkendorf. The ALFI MDTA4 is suitable for testing the Non-lint -, fiber fragments – and dust content on cotton samples of about 5 up to10 grams, like MDTA3 before. In addition – by using the optional ALFI_NTDA Module – Neps-Count, SCN-Count and Trash Count per 1 gr cotton sample are tested and the size of the impurities is classified in 3 size classes. The optional ALFI_LEN Module allows measuring the fiber length distribution of fiber samples up to 70 mm in length according to the number of fibers as well as the weight of the fibers within the length classes. The length modules allow to show the length distributions by number and by weight. A comparison of three samples against Almeter, AFIS and Fibrotest showed similar levels for the length parameters.

Mr James Knowlton from USDA, AMS, Cotton Program presented information about USDA's developments in the area of cotton sample imaging for classification. USDA created specifications for an imaging system and hired three contractors to develop three different prototype instruments. The three instruments were constructed and delivered to Memphis in 2015. Each instrument uses LED lighting, high-resolution digital cameras, large area measurements and special algorithms to measure cotton sample color, trash content and extraneous matter. All three instruments are measuring Rd/+b color and percent area/count trash within required cotton classification specifications. Algorithm work is underway for identifying and measuring extraneous matter (EM) particles such as bark, grass, seed coat fragments and prep. Three more instruments (same as the instruments delivered to Memphis) have recently been delivered to the USDA's Visalia, CA, cotton classing office for additional

evaluations. EM standards are now being developed in Memphis to serve as reference material for the developing instruments.

In the discussion, it was mentioned that it is especially difficult to distinguish seed coat fragments.

## Color Topics (coordinated by Malgorzata Matusiak)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Malgorzata Matusiak, Poland | Color update (19) |

Dr Malgorzata Matusiak gave an update and summary on color measurement. She stated that color is strongly connected with fiber quality and cotton cultivation. Either the physical sample comparison by the classer is given – or instrumental classification via HVI, where the colorimeter is classing cotton into Rd and +b. In other objects (except cotton) color is classified by L*a*b*.
HVI color measurement is affected by contamination inside the material, and intermediate products cannot be assessed. Round trials showed differences in results of different HVI systems.
Beside the use of the spectrophotometers, objectives of the investigations of several research institutions are to improve measurement of trashy cottons and look into the intra-sample variation. Also, the CIELAB system is being investigated further.

Dr Kugler from Textechno mentioned in the discussion that especially for Egyptian cottons the classification into Rd and +b is not sufficient, also +a (red-green) needs to be taken into account.

## Spinnability Topics (coordinated by René van der Sluijs)

| **Presentations** | |
|---|---|
| **Author** | **Theme/Topic** |
| Mohammed A. Negm, CRI, Egypt | HVI and CCS compared to tensile yarn strength (20) |
| Chris Delhom, USDA-ARS | Moisture |
| Chris Delhom, USDA-ARS | Miniature and small-scale spinning (22) |
| Chris Delhom, USDA-ARS | Measurement and control of drafting forces (23) |

Dr Mohammed Negm spoke about the CSS system that can also classify the cotton quality on a speed of 20 samples/h. 8 cotton qualities were spun into carded and combed ring yarns, and different yarn counts were spun. A good prediction of yarn strength from fiber data was seen from Mic, Tenacity and UHML. Also, elongation was seen as being a factor in impacting the yarn tensile strength.

Chris Delhom mentioned that a study with Aqualab was performed to check cotton fiber moisture. He mentioned that first results look promising.

A discussion on the moisture and temperature levels in standards was raised. ASTM-D1776 up to now solely allowed a level of 21°C. A recent version of the ASTM-D1776 is being released, giving different ranges for cotton, for textiles and for several other fibers. In addition, the Standard Test Method explains the uncertainties of the conditioning units as well as of the sensors.

In the discussion, it got clear that different cottons may behave differently with temperature changes, so an effect on the test result reproducibility is given. The most important argument against a change is that controlling the humidity is much more expensive that controlling the temperature, so that a different temperature range will cause only minimal savings. Summarizing it was agreed to keep 21°C / 65% rh for the time being.

A second paper by Chris Delhom looked into the small-scale spinning. For breeders and researchers, a method to spin yarns out of limited fiber material is needed, in miniature spinning a typical size is 60 grams. In small-scale spinning, the amount of cotton required is up to 720g, while in full pilot scale spinning up to two bales of material are necessary.

- Miniature: 60g
- Small-scale 360-720g
- Full pilot scale: ¼ - 2 bales

He presented the different systems from the past from Platt Brothers, USDA, CSIRO, USDA-ARS Miniature spinning and USDA ARS small-scale spinning. Yarn counts from Ne 30 – Ne 50 are typically spun.

A third paper by Chris Delhom presented the topic of measurement and control of drafting forces in ring spinning. The break draft should ideally be set 10% less than the critical draft. Factors impacting critical draft are roving size, roving twist, tension, fiber quality incl. convolution and crimp. A spinning trial was done to optimize the roving twist applied, and check the ends down levels in spinning. However, more work is needed to assess the recommendation of having 10% less twist.

## Summary of the conclusions

- The Committee agreed on a modified recognition procedure, allowing to proceed with recognition between full committee meetings.
- The Committee agreed on modifications in Guideline on Instrument Testing.
- The Committee agreed on rules for choosing the suitable combination of calibration cottons for High Volume Instrument testing.
- New instruments were introduced, i.e. Loepfe Fibermap, Mesdan Contest, Cottonscope, Textechno MDTA4.
- The instrument manufacturer MAG Solvics was introduced.
- Requests for new recognitions were mentioned from/for
    - Loepfe Fibermap / Mesdan Contest
    - Textechno MDTA4
    - MAG Accutrash
- Elongation is seen as a property, which is important for spinning, giving better yarn quality / better spinnability. ICCTM will continue looking at this characteristic.
- A relative measure for short fiber content will be included in first instruments.
- The Committee agreed that the harmonization of stickiness testing is an important topic, so that follow-up activities will be necessary: A proposal for an intense program on harmonizing stickiness was presented and additional Round Trials proposed.
- Uster proposed to create modified maturity parameters for AFIS and HVI, referenced to image analysis calibration cottons.
- CottonScope: The Committee agreed on the necessary steps for a short-term recognition based on the presented application text.
- The Committee did not agree on any recommendations for modifications in temperature and humidity settings.

## Closing Plenary Meeting and Final Remarks

The next full Committee meeting is planned to take place again two to one days prior to the Bremen Conference in March 2018 (March 19 and 20, 2018). The Executive Committee and its Chairmen will be happy to welcome all interested people in 2018 in Bremen.

With a closing remark, relating to the CSITC Task Force meeting on the following morning, Wednesday 16th, the meeting concluded. Dr Schindler thanked everyone for the fruitful discussions, the participants for their valid inputs, and the presenters for their contributions.

Dr Schindler thanked the Chairpersons for their preparation work for organizing the meeting and the Task Force Coordinators for their efforts.

The Steering Committee of the ICCTM acknowledged Mr Hossein Ghorashi's presence over the past decades, with this meeting being the first without him, as he is now retired.

ITMF thanks the sponsors of the ICCTM-website from the cotton and instrument machinery industry.

Mr. Axel Drieling (Chair) and Ms Mona Qaud (Vice Chair)

PS: The individual presentations of the meeting that are mentioned and referred to in this report can be downloaded in the members section of ITMF (http://www.itmf.org/login).

December 2017