

IS ISO ACCREDITATION HELPING IN IMPROVING PERFORMANCE IN CSITC ROUND-TESTS?

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Abstract

International Standardization Organization (ISO) at least issues standards for total quality management, from which ISO 17025 describes the requirements for the competence of testing and calibration laboratories. Its chapter 5 in particular describes all the technical activities that are required for getting reliable measurement results; among these activities, the participation to inter-laboratories round-tests is required to check reading levels, precision and accuracy of the results.

Under the CFC/ICAC/33 Project, the ICAC-CSITC international Round-Test (CSITC-RT) has been rendered accessible to all cotton testing laboratories for checking their performance in terms of precision and accuracy with an increasing participation over the years (up to 180 instruments per round-test). For each round-test (each quarter of a year), each participating laboratory analyses four cottons during five days, six times each day according to the normal ASTM D-5867 procedure. In return, each laboratory receive an evaluation report of its results by comparing them to the median of all participating laboratories; individual characteristics (Micronaire, fiber length UHML, Uniformity Index, Strength, Reflectance (%) and yellowness) are the individual parameters that are evaluated alone and in combination into evaluation results, the lower results the better.

This study aims at checking if ISO and CSITC-RT are adding up their respective benefits for getting improving evaluation records over time in comparison to laboratories without accreditation. Encoded data from round-test 2011-1 to 2013-3 was used to check the null hypothesis, which is that laboratories with accreditation have the same evaluation records than non-accredited laboratories.

Results show a positive impact of ISO 17025 accreditation and/or any sort of Quality Assurance practices on the global combined evaluation results of the CSITC round-tests for instrument. This is explained by the ongoing activities to continuously improve the performance of the laboratories to the satisfaction of their customers. This could also be achieved by mainly fulfilling the technical part of the ISO 17025 only, or by fulfilling requirements described in the Guideline for Standardized Instrument Testing of Cotton from the ICAC Task Force on Commercial Standardization of Instrument Testing of Cotton (CSITC) and the ITMF International Committee on Cotton Testing Methods (ICCTM).