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COMMERCIAL STANDARDIZATION OF INSTRUMENT TESTING OF COTTON: HOW SOON A REALITY?

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Abstract

An Expert Panel on Commercial Standardization of Instrument Testing of Cotton (CSITC) was formed under the auspices of the ICAC in December 2003. The Expert Panel issued two interim reports in 2004, including a Proposal for Future Actions delivered in November at an ICAC meeting in Mumbai, India. This paper will explore the reasons for increased use of instrument testing systems, the costs and benefits associated with establishment and use of such systems, the difficulties of establishing such systems and the role of the ICAC Expert Panel in encouraging adoption of instrument classing systems.

Reasons for Increased Use of Instrument Testing Systems

While the reasons for adoption of instrument testing systems may seem obvious to many in the U.S. where almost all bales have been tested on HVI since the early 1990s, it is important to note that the logic of instrument testing is not recognized universally. There are some in the world economy who see instrument testing as a strategy by the U.S. cotton industry to expand market share at the expense of competitors. There are also suspicions that efforts to encourage increased use of instrument testing are motivated primarily by instrument manufactures who wish to increase sales. Some cotton traders and producers in Europe, Africa and South America view instrument-testing systems as being inherently biased in favor of U.S. cotton, particularly with regard to color measurements, and they feel that instrument measurements do not accurately reflect the character of a sample. Some persons feel that instrument testing is only appropriate in developed countries with high labor costs.

Within the ICAC, the Government of Argentina first voiced interest in instrument testing in the middle 1990s. Further support was provided in technical seminars organized by the ICAC in which papers detailing the benefits of instrument testing were provided by several non-U.S. researchers. Interest in instrument testing in developing countries reached a critical threshold during the 61st ICAC Plenary Meeting in Cairo in October 2002 when a technical panel concluded that instrument testing of fiber quality is superior to manual classing of cotton, and this conclusion was endorsed by member governments of the ICAC in the Statement of the 61st Plenary Meeting. One of the purposes of the ICAC is to raise awareness of critical issues, and the ICAC Secretariat has been instrumental in encouraging an increased awareness of the benefits of instrument testing.

The underlying force pushing the world cotton industry toward instrument testing systems is competition with polyester. The world textile economy is consumer-driven, and competitive pressures force spinners to meet consumer preferences for reductions in real prices and improvements in product quality. Success for the cotton industry in competition with chemical fibers depends on meeting consumer demands. Instrument testing systems facilitate improved competitiveness with polyester in two ways. First, spinners can optimize the use of cotton only through the use of instrument testing systems. Equally important, instrument testing systems implemented at the producer level, if combined with an economically rational system of pricing cotton, can provide incentives to breeders, producers and ginners for improvements in cotton quality as defined by the intrinsic characteristics of cotton valued by the spinning industry. The implementation of spinning-oriented fiber evaluation systems can enable market forces to provided rational incentives to the entire cotton production, ginning and sales pipeline, to produce cotton with the characteristics that better enable cotton spinners to meet the demands of quality and price-conscious consumers.

Costs and Benefits of Instrument Testing Systems

The cost of operating an instrument testing system varies with the number of samples tested and the local cost structure. The purchase and installation of an individual HVI machine from Uster Technologies, Inc. is about $215,000, depending on model, location and required support. Initial costs must also include the construction and installation of a fully air-conditioned laboratory, which can double the cost of instrument setup.

However, an instrument testing system involves more than the purchase and operation of a machine in an air-conditioned laboratory. A system also includes the costs associated with calibration, implementation of standardized procedures for cutting and handling samples, conditioning samples and operating testing instruments, participation in a checklot system, maintenance of instruments and dissemination of data.

The lowest average costs are achieved in the U.S. where the cost per bale, paid entirely by producers, is about $1.50. Costs in other countries are generally higher because of smaller efficiencies of scale. The per-bale cost in Tanzania of instrument testing operated by the Tanzanian Cotton Lint and Seed Board is $2. Testing fees run up to $3 per bale in West Africa with instruments operated by controllers such as SGS and Wakefield. Fees in Brazil are between $2 and $3 per bale, with the Sao Paulo Bourse being the largest testing center in South America.

However, no country other than the U.S. truly has an instrument testing system at the producer level in which instruments are routinely calibrated, with standardized sample conditioning systems and with internal quality controls through the exchange of checklots conducted daily. About 150 individual laboratories around the world participate in the Bremen Round Trials (an international checklot system), but the Bremen trials are conducted only once a quarter. Further, many instruments are calibrated infrequently and only when an operator notices that results are beginning to vary, and in many laboratories temperature and humidity controls are variable. Therefore, in all cases outside the U.S., the fees per bale for testing do not reflect the total costs of participation in a standardized instrument testing system, and these costs would be relatively high. By one estimate developed by a consultant in 2002 for the cotton industry of Argentina, implementation of a true instrument testing system would cost about $6 per sample. It is hoped that with expanded implementation of instrument testing systems outside the U.S., the cost per bale can be reduced to an economically viable level. There is also encouraging news from instrument manufacturers that software is being developed to adjust instrument results for sample humidity, without requiring that the samples themselves be conditioned to temperature and humidity norms. Such software will also greatly reduce the costs associated with participation in an instrument testing system.

The benefits of instrument testing are substantial and tangible, but they are hard to document because most benefits are realized internally in marketing systems. Benefits to producers include higher prices per bale through more sophisticated marketing of cotton based on measured characteristics. Benefits to spinners include lower costs of cotton procurement through the use of instrument data to optimize the use of cotton in laydowns. A segment of the marketing system that does not benefit directly from the use of instrument testing is merchants because individual bales of cotton are more easily compared in price to individual bales with similar characteristics, thus reducing the scope for price enhancement through subjective quality determination.

Difficulties in Establishing Instrument Testing Systems

The ICAC established an Expert Panel on Commercial Standardization of Instrument Testing of Cotton (CSITC) following the 62nd Plenary Meeting in 2003 in Gdansk Poland. An estimated 40% of world cotton production is being instrument tested at the producer level in 2004/05, but outside the U.S. most testing at the producer level involves individual machines that are not operated as part of a broader testing system. The objective of the Expert Panel is to encourage widespread use of instrument testing systems at the producer level. There are 17 members of the panel representing both exporters and importers and all segments of the world cotton industry. James Knowlton from USDA and Bobby Weil of Weil Brothers-Cotton are members of the Expert Panel.

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

The report from the Expert Panel includes specific actions and identifies responsible parties for the achievement of each recommendation.

The Expert Panel agreed that at this initial stage, testing should concentrate on the established characteristics of micronaire, strength, length (UHML), length uniformity (UI), and color (Rd and +b). The Expert Panel will work to develop an international sampling protocol this year.

The Expert Panel recommended that the Fiber Institute in Bremen, working with USDA, should develop basic rules for international cooperation in testing of cotton to achieve international certification of laboratories. The basic rules developed by the Fiber Institute and USDA will be submitted to the Expert Panel for approval and to establish international cotton institutions, such as the International Textile Manufacturers Federation (ITMF) Committee on Cotton Testing Methods and Centre de cooperation international en recherche agronomique pour le developpement (CIRAD) in Montpellier.

The Expert Panel expects that member organizations of the Committee for International Co-operation between Cotton Associations (CICCA) will be responsible for acceptance of the agreed testing rules and inclusion in international trade rules.

The Expert Panel envisions the formation of regional or national certified testing centers that will conduct checklot tests within their service areas and participate in an international checklot system with Bremen and USDA. It is proposed that the ICAC Secretariat, based on information provided by the Fiber Institute in Bremen and USDA, will certify laboratories.

The Expert Panel recommends that USDA will be responsible for definition and manufacture of international calibration standards.

The Expert Panel was informed that instrument manufacturers are developing software that can correct test results for variations in sample humidity and temperature, and this work is strongly encouraged. The Expert Panel suggests that the results from the Bremen Round Trials and the USDA checklots be used to develop commercial control limits for trading.

Finally, the Expert Panel recommends that in cases of disputes between parties in international trade, that variations between instruments outside of agreed tolerances be handled through arbitration just as is the case currently with manual classing. Established arbitral bodies, such as the International Cotton Association in Liverpool, the Bremer Baumwollborse in Bremen and the Gdynia Cotton Association, among others, would conduct arbitral procedures according to the rules of each Association.

Role of ICAC

The role of the ICAC in the world cotton industry is to raise awareness of critical issues, provide information necessary to decision-making and facilitate cooperation on matters of shared concern. In the context of Commercial Standardization of Instrument Testing of Cotton, discussions in the ICAC have helped to raise awareness among governments and the private sector of the benefits of instrument testing and have provided information about the elements needed to put in place an instrument testing system. The ICAC will continue to serve this role as a forum for information exchange.

The Secretariat is facilitating the work of the Expert Panel on CSITC, including organizing meetings and helping to circulate information. And, the Secretariat will work with other international organizations, including the Common Fund for Commodities (CFC), the United Nations Committee on Trade and Development (UNCTAD) and the European Commission (EC) to secure funding for the development of regional instrument testing centers in developing countries and to expand the capacity of Bremen to serve as a reference center for international round tests. Depending on the final recommendations from the Expert Panel on instrument testing procedures, the ICAC Secretariat may have a role as a certification agency for laboratories.

It is also important to note what the ICAC will not do. The ICAC is not an enforcement body and has no enforcement mechanisms, other than persuasion and recognition of shared self-interest in industry growth among cotton organizations. Therefore, there should be no concern among countries about being “forced” to join an international cotton testing system and to adhere to rules recommended by the Expert Panel. The ICAC always

operates through consensus, with the implementation of recommendations up to the discretion of countries and industries.

How Soon a Reality?

The Expert Panel on CSITC will be meeting in June in Memphis adjacent to the Universal Standards Conference. Working with the Fiber Institute in Bremen and USDA, the Expert Panel hopes to achieve the first two of the seven steps indicated above [1) definition of specifications for cotton trading, 2) definition of international test rules] by that meeting. Step 5) USDA can complete definition and provision of calibration standards on an as-needed basis. The Expert Panel will make another report to the 64th ICAC Plenary Meeting in Liverpool in September 2005, and there may be progress on steps 6) specification of commercial control limits for trading and 7) the establishment of arbitration procedures, by that time. Therefore, the world cotton industry might realistically hope that the procedures for an international instrument testing system can be developed within a year.

However, steps three and four, [3) implementation of test rules, 4) certification of testing laboratories] will likely take between one and two years to allow time for discussion and consultation among the association members. International acceptance and implementation will likely require many more years as countries and regions come into agreement with the certification system according to their own schedules. One might realistically expect that more than half of world cotton production will be instrument tested at the producer level as part of an international testing system within five years, and 100% participation in an international testing system might be achieved within 15 years.