



62nd Plenary Meeting of the INTERNATIONAL COTTON ADVISORY COMMITTEE

FOURTH OPEN SESSION/TECHNICAL SEMINAR AND MEETING OF THE COMMITTEE ON COTTON PRODUCTION RESEARCH

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REPORT

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Mr. Chairman, ladies and gentlemen, it was an honor for me to chair the Fourth Open Session/Technical Seminar and Meeting of the Committee on Cotton Production Research of the ICAC. We had nine papers and a report from Breakout Session # 5 New technologies used in cotton spinning, presented during the Fourth Open Session.

Brazil has experienced a number of dramatic changes in cotton production in the last 10 years. This includes a significant reduction in the area planted to cotton, major shifts in production areas from the north to the central regions of the country, a doubling in average yields, improved fiber length and strength and adoption of instrument based quality evaluation. Cerrado has emerged as the main cotton producing region in Brazil. According to Dr. Robson Vieira of the Ministry of Agriculture, the success of the Brazilian production system lies in development of better varieties and growers' adoption of recommended production technology for managing water, fertilizer, insects and diseases.

The advances in processing techniques have changed breeders' priorities with respect to fiber quality. This was the conclusion of the paper presented by Dr. Lloyd May of the University of Georgia, USA. Breeders are limited by the negative association of many fiber quality characters with yield, and higher yields are the concern of farmers. Breeders are also limited by their inability to properly assess spinning qualities of breeding material. Genetic engineering techniques could enhance cotton quality by inserting non-existing properties into fiber but such an approach do not seem to assure a sufficient return to biotechnology providers. Dr. May observed that breeders must tailor their breeding material selection goals to meet needs of the open-end spinning industry.

Following the presentation, the issue of interspecific hybridization came under discussion and it was observed that interspecific hybridization between *hirsutum* and *barbadense* is not successful as the segregating population ultimately produces pure plants which are similar to one of the parents. It is just not possible to retain the yield potential of *hirsutum* and obtain the fiber quality of *barbadense* in one genotype.

Dr. Ibad Badar Siddiqui of the Pakistan Central Cotton Committee gave a presentation on efforts in Pakistan to produce quality cotton and tackle contamination. The Government of Pakistan promulgated the 'Cotton Standardization Ordinance' in 2002 to promote quality control of cotton in the country. The Government is taking steps to implement the grading of cotton, produce contamination-free cotton and devise quality control measures for export and domestic use of cotton. Most contamination of cotton takes place during travel from field to factory. For the last three years, the federal government, in collaboration with the provincial governments and the private sector, has launched a campaign to encourage cotton growers and ginneries to produce contamination-free cotton. Dr. Siddiqui mentioned a

project wherein contamination was significantly reduced after a vigorous campaign to reduce contamination. The provincial governments have made amendments in the Cotton Control Act to eliminate the use of jute, polypropylene and other fibers in picking and handling seedcotton.

Classification of cotton provides the most optimal use of fiber properties. According to Mr. Hein Schroder of Cotton South Africa, the instrument based testing of cotton has improved the value of cotton produced in South Africa. He compared the percentage production of various grades before the adoption of HVI testing from 1981/82 to 1987/88 with the percentage of the same grades produced after the adoption of HVI grading from 1988/89 to 2001/02. He showed that the share of better quality grades increased while some low strength grades disappeared from production. He emphasized that spinners must make use of instrument based classing techniques, without which they may be adversely affecting their competitive position in the market.

According to the Dr. Elfadel Babiker of Sudan, stickiness becomes more complex during spinning due to three reasons, which are hygroscopic nature, low melting point and uneven distribution of honeydew particles. The ICAC/CFC project, executed in France and Sudan, concluded that low-level sticky cotton can be mixed with non-sticky cotton and spun without any problems. According to Dr. Babiker, relative humidity plays a critical role in the spinning of sticky cotton, and the best solution is to control whitefly in the field so that the stickiness problem does not originate.

Responding to a question raised by the delegate of Egypt, Dr. Babiker said that varietal differences do exist with respect to stickiness. Varieties having an open canopy are less affected by stickiness due to lower insect pressure.

Cotton is blended with other natural fibers and synthetic fibers to enhance yarn properties. Mixtures must be homogenous, other than for some special uses, which determines the physical and mechanical properties of yarn. Mr. Vladimir Bajzik of the Technical University of Liberec, Czech Republic said that the arrangements of fibers in the yarn cross section, axial homogeneity and the variation in the number of fibers in a yarn cross section are the primary indicators of uniformity of a mixture. Mr. Bajzik observed that there is a high possibility of estimating local mixing uniformity with the help of mathematical equations, but it is not possible to develop universal equations.

The delegate of Greece commented on the issue of spinning cotton of different micronaire values and observed that low and high micronaire value cottons can be mixed and probably spun without much problems, but the problem lies in dyeing because low and high micronaire cotton color differently.

Contamination in cotton is a serious problem, and according to the ITMF, almost one fourth of world production is moderately or seriously contaminated. Mr. B. K. Patodia of GTN Textiles Ltd., India shared his personal experiences and emphasized the need to classify and quantify contamination in cotton. The GTN Group has analyzed bales of Indian and foreign cotton for the last three years and developed an indexing system whereby cotton can be graded based on its level of contamination. GTN educates its dealers in supplying least-contaminated cotton and rewards them with premiums for supplying minimum-contaminated cotton. Mr. Patodia said that the same varieties grown in various regions may be contaminated differently. He also mentioned the efforts made by the Government of India to deal with contamination through the Technology Missions.

The delegate of Pakistan commented that cotton producers must be rewarded for producing contamination-free, or least-contaminated cotton, without which the contamination problem cannot be resolved.

Dr. Malgorzata Matusiak of the Institute of Textile Architecture, Poland talked about the two fundamental factors that determine neppiness in cotton yarn. The status of raw material and processing conditions primarily determine the origination of neps though fiber fineness, maturity, length and slenderness and can also affect the ability of fibers to entangle and form neps. However, the size and distribution of neps and trash particles in intermediate products determines whether the defects will be visible on the yarn surface or not. She concluded that the process can be managed to lower the creation of neps and

defects.

Dr. Tadeusz Jackowski from the Technical University of Lodz, Poland described the Compact Spinning process and compared compact drafted ring spun yarn with rotor spun yarn. Narrowing the sliver leaving the drafting apparatus, before it is converted into yarn, has many advantages. The Compact Spinning system produces a smaller number of breaks during spinning, yarn is spun at lower twists that help better dye absorption, yarn strength is higher and dust emission is lower. Dr. Jackowski observed that Compact Spun yarn has lower hairiness, less breakage during weaving, greater smoothness and better shine and abrasion.

Mr. Heiner Eberli of the Rieter Machine Works Ltd., Switzerland presented a report from the breakout session on New Technologies used in Cotton Spinning and said that Elite[□] Compact spinning has the advantages of lower hairiness, higher strength and elongation, lesser fiber fly, no singeing and reduced sizing. However, the Chair remarked that Compact Spinning equipment is expensive and if the cost of Compact Spinning is brought down it could become popular.

The issue of stickiness was discussed in connection with the development of a spinning system that is less sensitive to stickiness. It was again observed that stickiness is a producer-related problem and efforts should be made in the field not to let stickiness become a problem.

The Committee on Cotton Production Research of the ICAC received a video report on the World Cotton Research Conference-3, held in Cape Town, South Africa in March 2003. 350 researchers from 38 countries attended the Conference. Over four days, 164 papers were presented orally and 83 papers were presented as posters, in addition to nine plenary papers. Proceedings of the WCRC-3 will be available by the end of this year. The World Cotton Research Conference-4 will be held in the USA in 2007.

The Committee on Cotton Production Research of the ICAC had a good discussion on the proposals made by the ICAC Secretariat regarding the topic for the 2004 Technical Seminar. Many countries contributed to the discussion, and it was decided that the 2004 technical seminar will be held on the topic 'How to Increase Yields and Reduce Pesticide Use?' The Committee decided that only 5-6 papers will be invited for presentation, and more time will be devoted to discussions covering all aspects of production research.