

World Cotton Research Conference – 4 Post-Conference Report

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The Fourth World Cotton Research Conference (WCRC-4) was held in the heart of the Texas Plains, at Lubbock, Texas, USA, during the week of September 10-14, 2007. The previous three WCRCs were held at Brisbane, Australia (1994); Athens, Greece (1998); and Cape Town, South Africa (2003). I congratulate India on being selected by the International Organizing Committee to host the WCRC-5 in 2011 at New Delhi.

Official attendance at the WCRC-4 was 590 people. They came from 37 countries and from every continent around the world. It is estimated that at least 100 additional people tried to arrange to come, but were prevented by either financial or travel visa problems. There were 64 additional people who came as invited guests and from media sources covering the Conference.

The WCRC-4 was officially inaugurated with comments by Terry Townsend, Executive Director of the ICAC and Dean Ethridge, Chairman of the U.S. Organizing Committee. The official welcome was provided by The Honorable Robert Duncan, Texas Senator, and by The Honorable Todd Staples, Texas Commissioner of Agriculture.

Conference Program

Over a four-day period, four outstanding plenary sessions were presented on: (1) Cotton Genomics and Biotechnology, (2) Strategic Challenges and Opportunities, (3) Keeping Cotton Competitive with Alternative Fibers, and (4) Strategic Management Issues. In addition, thirty-nine outstanding breakout sessions were conducted in the following research disciplines:

- Abiotic Stress Management
- Agronomy and Cotton Farming Systems
- Arthropod Management
- Economics of Production and Marketing
- Extension and Technology Transfer
- Fiber Quality Evaluation and Preservation
- Genomics and Biotechnology
- Harvesting and Ginning
- Plant Breeding and Genetics
- Plant Pathology and Disease Management
- Physiology
- Value-added Issues for Fiber and Seed
- Weed Management

Four of these disciplines were offered separately for the first time at the WCRC-4; i.e., the ones dealing with economics, extension and technology transfer, harvesting and ginning, and value-

added issues. These are significant areas of interest in the U.S. and it was gratifying to see that they were also of significant interest to international attendees at the WCRC-4.

There were 21 plenary speakers and 201 breakout session speakers during the 4-day period of September 10-13. There were 118 posters displayed throughout these 4 days, with a specially hosted interaction session for the posters during the afternoon of September 11. Good attendance was reported uniformly for all sessions and attendees were very complimentary of the quality and the relevance of all the presentations. This was one of the most gratifying results from the WCRC-4.

Implications for the Future

The topic for this Technical Session of these ICAC meetings is “The Vision for Technology in 2025,” which is approximately 18 years into the future. Certainly the information provided at the WCRC-4 has implications for changes that are coming during the next 18 years. Two descriptors come to mind regarding the information coming from the WCRC-4; these are “convergence” and “collaboration.”

Convergence – the general adoption of the most efficient methods of production – is a long-observed result of globalization. Nevertheless, the current era of globalization that is being fueled by the information revolution appears to be rapidly accelerating the pace of convergence. The suppliers of the major new technologies are clearly multinational corporations with global business models. Their aim is to market their products and services in any country where they can capture an acceptable share of the value added by these technologies. Furthermore, the technologies emerging today are much more neutral to the scale of operations; therefore, much more amenable to global convergence.

Consider biotechnology and the potential for genetic modification of the cotton plant, which was much in evidence at the WCRC-4. Whereas the various forms of mechanization that came out of the industrial revolution created substantial economies of scale, biotech traits such as insect and disease resistance, herbicide tolerance, and other desirable agronomic traits are often equally beneficial to the small-scale production systems. This fact offers the smaller, less mechanized cotton producers a reprieve from the widening productivity gap between them and the larger, more mechanized producers. For example, biotechnology is the single most dominant cause for India’s remarkable jump in cotton yields, resulting in India’s cotton production surpassing the U.S. this year and making it the second largest cotton producing country in the world.

It is equally clear, however, that the ability of the world’s cotton producers to benefit from these new technologies does not change the necessity for shrinkage of the populations involved in cotton production. A universal manifestation of economic development is dramatic and persistent reductions in the proportion of the population involved in production agriculture. It must be realized, moreover, that the escalating productivity in cotton farming will at least continue, and probably accelerate, the long-term downtrend in global cotton prices. This, in turn, will continue the pressure for larger scales of operation. Furthermore, this downtrend in price must continue, unless cotton is to join all the other natural fibers as “niche fibers.” The world needs large and growing amounts of fibers, but most of these do not have to be cotton fibers.

Information at the WCRC-4, given by the global textile manufacturing sector, made it clear that continued price competitiveness is a necessary condition for cotton to continue as a mass market fiber and a major player in the global market.

When I use the word “collaboration” to describe a major thrust of the WCRC-4, I am referring to the increasing “interconnectedness” of the scientific disciplines that are focused on cotton. This phenomenon is reflected in increasingly multidisciplinary approaches to solving the problems and discovering the new opportunities that will determine cotton’s future.

The information revolution takes many forms. For example, by combining computer power with diverse sensor technologies, we may achieve breakthroughs in gene mapping, identification of genetic markers, understanding the cotton fiber’s molecular structure and the implications for plant breeding and genetic modification, measuring the efficacy of chemical modifications to cotton fabrics and using these to control manufacturing processes, etc.

For many of the problems and opportunities pertinent to cotton, continued progress will require the collaboration of teams of scientists from the different disciplines represented at the WCRC-4. There is another kind of “convergence” occurring among scientific disciplines, which requires that the expertise from diverse disciplines must join together in order to find the solutions needed. Among the scientists who are striving to benefit cotton, the most successful ones will not be content with just mastering the minutiae of a narrow field of study. The increasingly rapid pace and multidisciplinary nature of technological change puts a premium on teamwork. Thus, management and interpersonal skills are becoming more important factors in successful research and development.

Adherence to the requirement for multidisciplinary research is apparent in some of the most successful technology companies around the world. It is not yet apparent in most of the universities, public research centers, and other public entities around the world. Therefore, it is imperative that public institutional structures be altered and incentives be changed to encourage more multidisciplinary collaboration. I submit that this should be included in the vision for technology in 2025.

Other Activities and Acknowledgements

Lubbock, Texas is in the center of the most concentrated cotton production area in the U.S. and provides the best developed commercial infrastructure for cotton in the country. Furthermore, the Lubbock area contains the most concentrated cotton research infrastructure in the U.S., anchored by Texas Tech University, the Texas A&M University Research and Extension Center, and the Agricultural Research Service Cropping Systems Research Laboratory. In order to take advantage of the rich infrastructure, two tours were provided. The first was on Wednesday afternoon, September 12, with attendees visiting the Texas Tech Research Farm, the Cropping Systems Research Laboratory, and the Lubbock Cotton Classing Office. The second tour was an all-day activity on Friday, September 14. During the morning, attendees visited and toured the International Textile Center of Texas Tech University and the Texas A&M University Research and Extension Center. Then everyone was given box lunches to eat while traveling to see a commercial cotton farm, a modern cotton gin, a major research station displaying all available

irrigation technologies, and a state-of-the-art commercial dairy operation. Feedback from attendees regarding the tours has been uniformly good, with appreciation expressed for the stimulating sights and the information provided, as well as for the cordial hosting that was provided. Execution of these tours required a large number of volunteers from both the research and commercial sectors of the cotton community on the Texas Plains. I express sincere thanks to all those who gave their time to make success possible.

I also express my sincere thanks and hearty congratulations to the U.S. Organizing Committee. The high level of quality in the presentations is due to their conscientious and time-consuming management of the paper submission and review process. Those Committee members are the following:

- Stanley Culpepper, Extension Cotton Weed Scientist, University of Georgia
- Eric Hequet, Research Associate Professor and Associate Director, International Textile Center, Texas Tech University
- Ed Hughs, Supervisory Agricultural Engineer, USDA-ARS Ginning Lab
- Robert Hutmacher, Cooperative Extension Specialist – Cotton, University of California, Davis
- Don Jones, Associate Director of Agricultural Research, Cotton Incorporated
- Bobbie McMichael, Plant Physiologist, USDA-ARS Cropping Systems Research Laboratory
- Derrick Oosterhuis, Professor, Cotton Physiology, University of Arkansas
- Mechel Paggi, Director, Center for Agribusiness, California State University, Fresno
- Megha Parajulee, Assistant Professor of Cotton Entomology, Texas Agricultural Experiment Station
- Sukumar Saha, Research Geneticist, USDA-ARS, Mississippi State
- Wayne Smith, Professor and Associate Head, Soil & Crop Sciences, Texas A&M University
- Robert Stipanovic, Research Chemist & Research Leader, USDA-ARS
- James Supak, Professor Emeritus, Soil & Crop Sciences, Texas A&M University

Finally, I express my gratitude to the staff of the ICAC, which made it possible for us to communicate with a global network of cotton scientists and directly handled many aspects of preparing for the WCRC-4 that involved international communications and arrangements. One person at the ICAC has done much more, of course, and that person is Rafiq Chaudhry, Head of the Technical Information Section. He has had oversight responsibilities for all of the World Cotton Research Conferences held to date. His advice, guidance and assistance with diverse problems were indispensable to the achievement of a successful WCRC-4.