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RESEARCH ON TANDEM CARDING: Part III

The serialization of our report on tandem carding continues below. If for any reason someone has not received the previous sections of this report and would like to have them, please write us.

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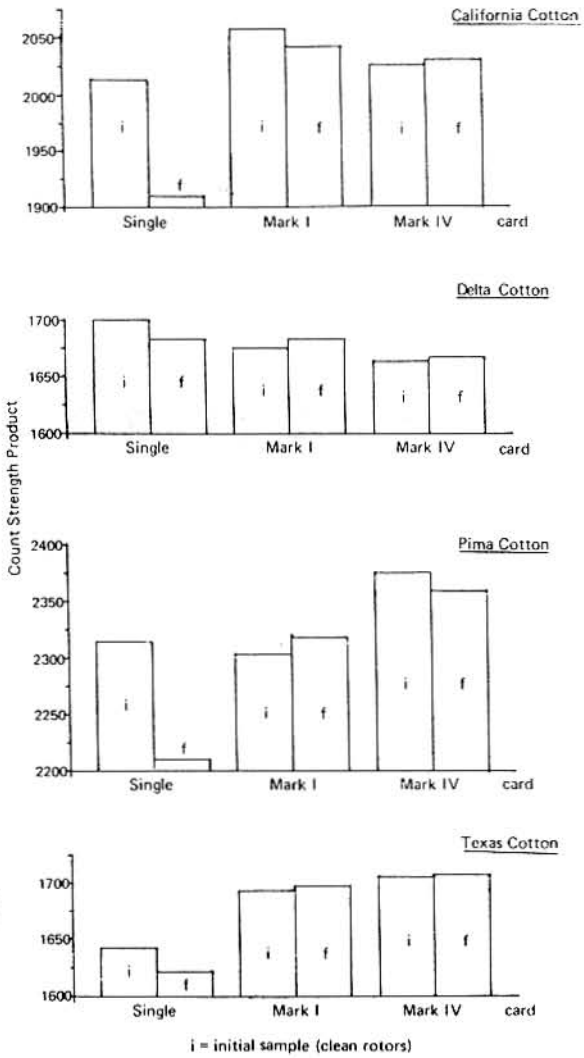
5. Results and Analysis

5.2 Yarn Quality

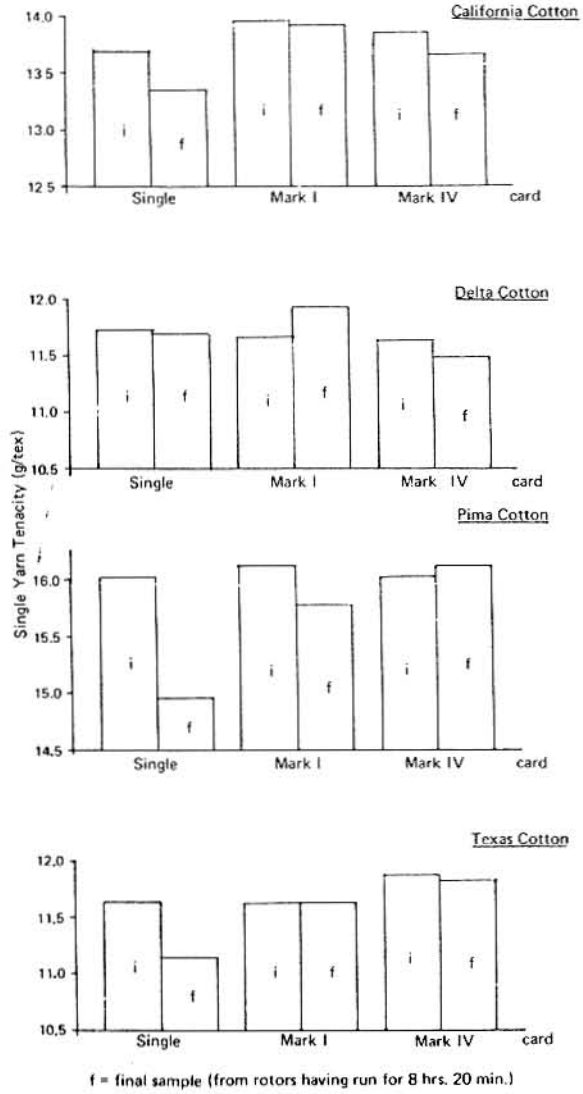
Each yarn sample produced in the study was thoroughly tested for strength, single-yarn tensile properties, evenness and imperfections, and yarn hairiness. The trends in the more important properties are shown in Figures VIII to XIII [below and on the following pages], which show the initial and final properties of yarn spun from each cotton in terms of the average of the three coarsest

FIGURE VIII: BAR CHARTS OF AVERAGE YARN STRENGTH FOR DIFFERENT COTTONS AND CARDING TREATMENTS



i = initial sample (clean rotors)

FIGURE IX: BAR CHARTS OF AVERAGE YARN TENACITY FOR DIFFERENT COTTONS AND CARDING TREATMENTS



f = final sample (from rotors having run for 8 hrs. 20 min.)

FIGURE X: BAR CHARTS OF AVERAGE YARN ELONGATION FOR DIFFERENT COTTONS AND CARDING TREATMENTS

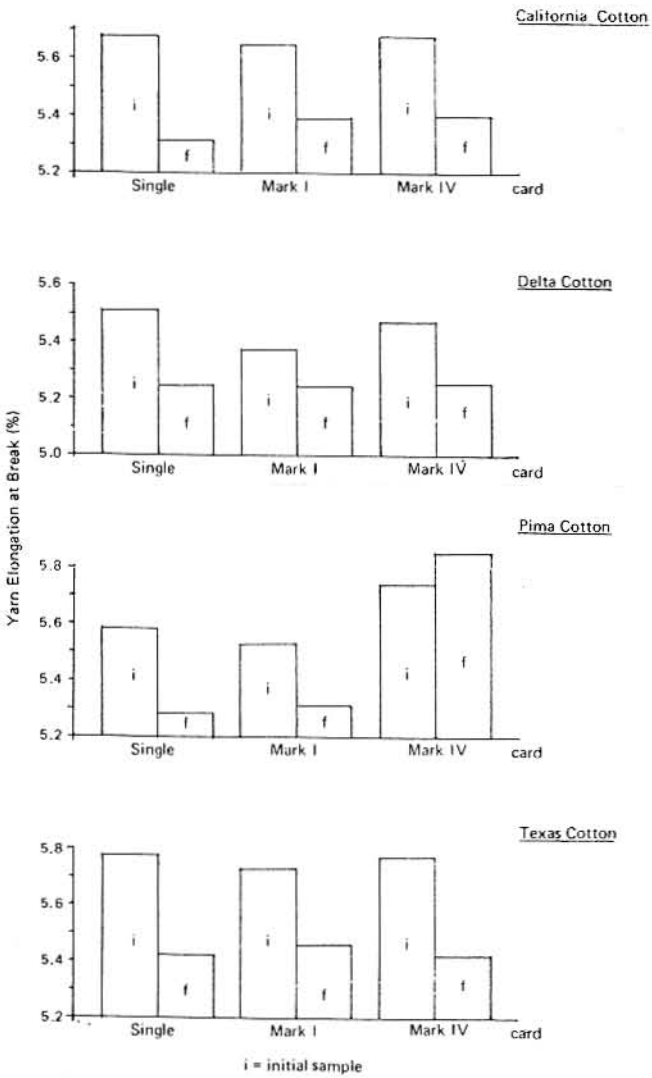
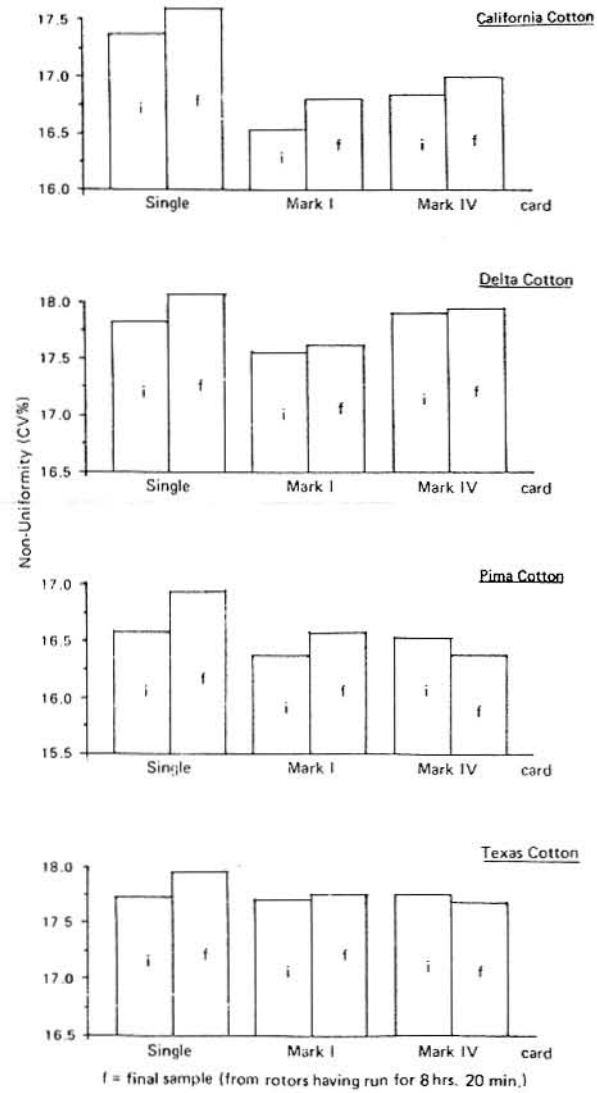


FIGURE XI: BAR CHARTS OF AVERAGE YARN NON-UNIFORMITY FOR DIFFERENT COTTONS AND CARDING TREATMENTS



yarns spun (i.e N_e 30, 35 and 40). The final properties were those measured on yarn packages from rotors which had run for 8 hours 20 minutes. The rotors may or may not have been cleaned as a result of piecing in that time.

Both skein strengths (Figure VIII) and single-yarn tenacities (Figure IX) deteriorated with time when spinning from single-carded stock. From Tandem-carded sliver, yarn strengths showed no consistent deterioration with the duration of spinning. The greatest losses in strength were apparent for California and Pima cottons.

Figure X suggests that neither the level of yarn elongation at break or the reduction in elongation with prolonged spinning was influenced by carding treatment.

The data for yarn Non-uniformity (CV%) (Figure XI) suggests that yarns tended to become more irregular with time when spinning from single-carded stock. The total number of imperfections tended to be fewer in yarns spun from Tandem-carded stock (Figure XII). Imperfections always decreased in number as spinning time increased when using Tandem-carded stock.

There was little influence of carding treatment on yarn hairiness as shown by the bar-charts in Figure XIII. Hairiness always increased from initial to final sample.

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The last portion of this report will be given in the next issue of *Textile Topics.*

FIGURE XII: BAR CHARTS OF AVERAGE TOTAL YARN IMPERFECTIONS FOR DIFFERENT COTTONS AND CARDING TREATMENTS

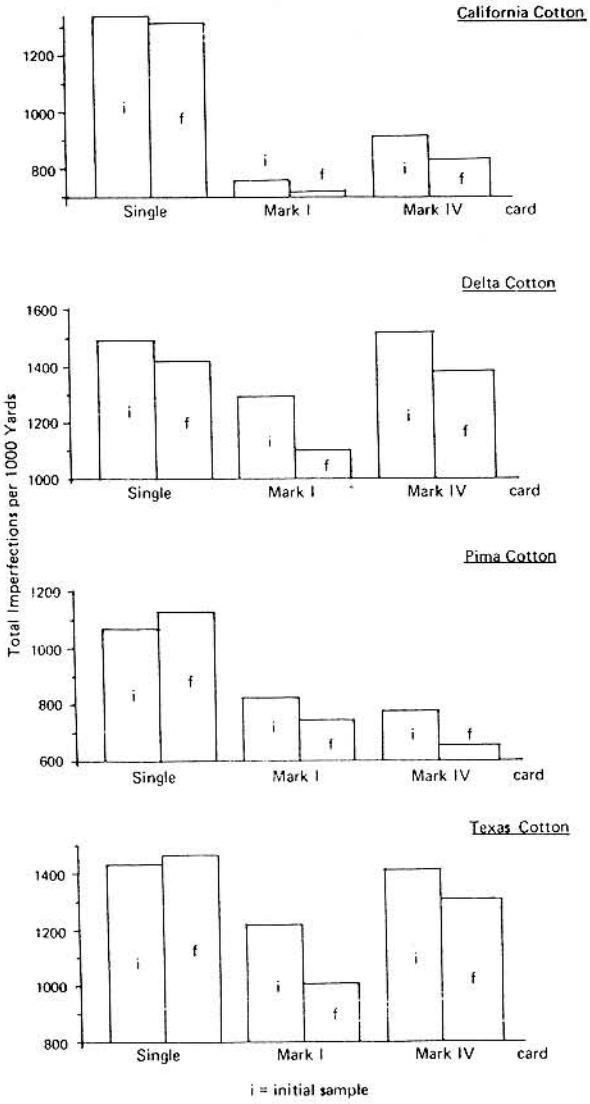
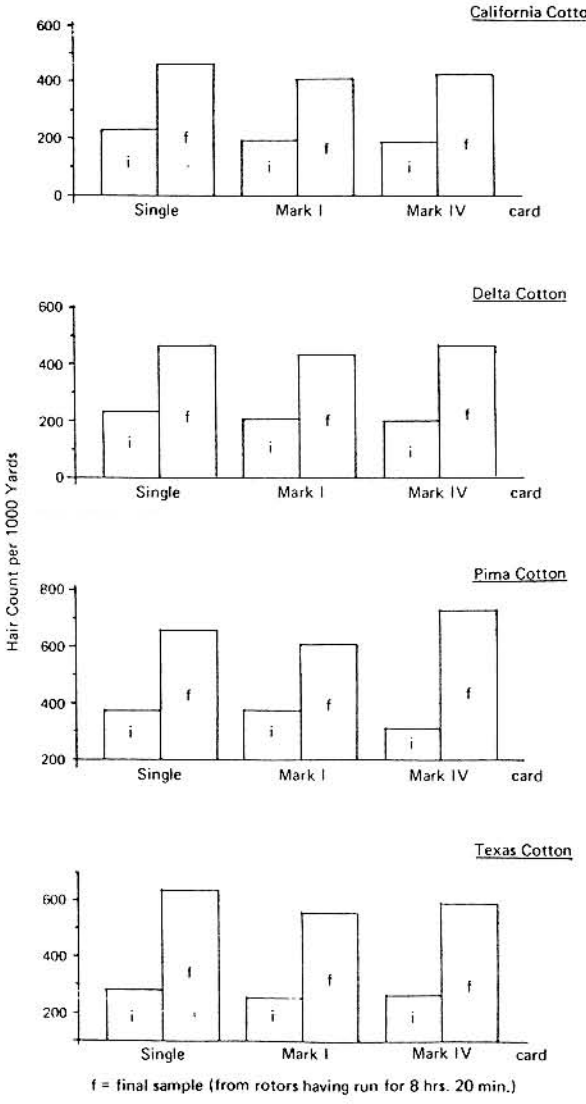


FIGURE XIII: BAR CHARTS OF AVERAGE YARN HAIRINESS FOR DIFFERENT COTTONS AND CARDING TREATMENTS



SPECIAL TRAINING COURSES

The International Center is receiving an increasing number of requests for special training courses. We have conducted these for various companies and private groups during past years with requests almost equally divided between domestic and foreign interests.

The most recent program was offered in May 1989 when the Center staff taught a one-week course on "The Cotton Fiber and Its Uses" for a group from Algeria. This was sponsored by the Foreign Agricultural Service of the United States Department of Agriculture. Participants were production managers from Algerian spinning and weaving plants, quality control supervisors, and one fiber procurement director. The group included H. A. Ikhlef, Cotitex Sebdou, Sebdou; Benayad Mohamed and Mezouagh Fatiha, Complexe Textile de Draa-Ben Khedda, Tizi-Ouzou; Rahal Kamel, Inditex M'Sila, M'Sila; Charabi Cherif, Cotitex de Laghouat, Laghouat, and Bouaroudj Djenat, Cotitex, Barika (W) de Batna.

The course content included studies on the cotton fiber, fiber testing with emphasis on HVI systems, new developments in carding and spinning, rotor versus ring spinning, woven and knitted fabric construction, and dyeing and finishing cotton yarns and fabrics.

In addition to the classroom periods, field trips were made to the USDA Cotton Classing Office in Lubbock, cotton production at the Texas A&M University Agricultural Research Station near Lubbock, and the ACG Textile Division in Littlefield to study denim production.

We should mention that these special training

programs are held at the Center *only* when requested. We do not plan a series of seminars and advertise for participants. We are far too busy with our research to hold these on a regular basis, but we are pleased to cooperate with private companies and government agencies to offer courses when these can be arranged at a convenient time. Other programs scheduled during 1989 are a one-week course in July and a three-week course in October.

FLAMMABILITY TESTING

The International Center recently received certification from the Federal Aviation Administration, United States Department of Transportation, for conducting flammability tests on textile materials designed for use in aircraft. Previously the Center was approved by the California State Fire Marshall for conducting flammability tests and recognized as a registered flame-retardant application laboratory.

Dr. R D. Mehta, manager of our finishes research, worked closely with the California Fire Marshall and FAA officials to gain recognition from both agencies. Dr. Mehta is responsible for all flammability testing and flame-retardant applications at the Center. He is assisted in his work by P. Ali Salame.

VISITORS

May visitors at the International Center included James W. Sherman and Dale Matthews, Manville Corporation, Toledo, OH; Roger Bolick, Allied Fibers, Hopewell, VA; Seburn Crocker and John Childers, Henkel Chemical Co., Charlotte, NC; Floyd Horn, USDA-ARS, College Station, TX; Jaime A. Espinal, EsTex Import/Export Co., Dallas, TX; Maggie Compton, Bobby Culpepper and Mike Gaze, Colorado City, TX; H. Cecil Howell, Howell Associates, Greenville, SC; Gaylen Marth, Roscoe, TX; Norris Willis, Hugh Farmer, Bill Averitt and Ray Ramirez, U.S. Dept. of Commerce, Austin, TX; Peter Thomann, Rieter Corporation, Spartanburg, SC; Urs Meyer, Machinenfabrik Rieter AG, Winterthur, Switzerland; Jennifer Wurzel and Frank Smith, Phytogen Inc., Corcoran, CA; Rob Christensen, J. G. Boswell Co., Corcoran, CA; Jim Sandberg, USDA-ARS, Southern Regional Research Center, New Orleans, LA; and Mike Ellison and Bob Stanley, Lummus Industries, Columbus, GA.

Several textile executives from Portugal visited on May 1. The group included Antonio S. Alves, Industrias Texteis Somelos, SA, Guimaraes; Alvaro Bezerra, Sociedades Texteis Luis Correia-TECIDOS, SA, Felgueiras; Francisco Jose Coelho Lima, Lameirinho Industria Textil SA, Guimaraes; Antonio G. Martins, Associacao Nacional das Industrias Texteis Algodoeiras e Fibras, Porto; Adao C. Oliviera, Sociedade Textil a Flor do Campo, SA, Santo Tirso; and Jose Flores Morim, Texteis ATMA, SA, Santo Tirso. They were accompanied by Geoffrey Audas and Will Bettendorf, Cotton Council International, Reading, England; Dee Dee Tate, CCI, Memphis, TN; and Maria Christina Ferreira da Silva, Transemantics, Inc., Washington, DC.

Other groups included 37 Extension Club members from Roosevelt County, NM; 7 members of the Hale County, TX, chapter of Women Involved In Farm Economics (WIFE); and 100 students from various area schools.