THE STANDARD SPINNING TESTS CURRENTLY USED IN CRI FOR EVALUATING EGYPTIAN COTTON PROGRAM

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- This study was described in details the spinning test techniques in Cotton Research Institute since the Experimental Spinning mill was established in 1934 to Test spinning value of cotton planting seed propagation lots varieties to be used in conjunction with the results of seed tests for the selection of promising seeds acceptable for growing the next crop. It gradually developed with time, and its scope of work was greatly widened.

- The spinning test technique goes through three phases regarding to the sample size as follow:

- The first phase: basic 1000 grams technique.
- Second phase: the normal 60 grams micro spinning technique.
- Third phase: The new system for evaluation 5 kilo-grams ring and compact spinning technique.

The first phase: basic 1000 grams technique

- The 1000 grams technique was developed by Dr. W. L. Balls and Mr. H. A. Hancock. The technique was intended to be used on conventional machinery and its development is an illustration of the close relationship which exists, and has existed for many years, between Egypt, where cotton growing is the main activity of the country, and Lancashire, whose main activity has been the spinning of cotton. This technique was used to test the commercial cotton varieties up to 2004/2005 season.

Fiber length and length distribution testing

- The Egyptian cotton technologist bay more attention to fiber length and fiber length distribution and yarn testing.
- Fiber test in that era were fiber length, fiber length distribution and short fiber content carried out by **Balls Sledge Sorter**, shirley sorter and The most accurate fiber length distribution **"Suter-Web Sorter** "1934-1992"
- HVI 900 "1992-2007
- HVI specturm 2002- tell now

Fiber strength and elongation

- Pressley flat bundle tester " 1934--
- Stelometer flat bundle tester " 1934--

For single plants

- HVI 900 "1992-2007 and Micronaire
- HVI specturm 2002- tell now

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Fiber fineness and Maturity

- Gravimetric fineness“ 1934- 1985”
- Micronaire “ 1934—
- IIC –Shirley Fineness Maturity Tester “1979-1996
- Arealometer
- Micromat “1996- tell now
- HVI specturm 2002- tell now

Spinning machines outline and yarn testing

- Platt Brothers “ Carding, drawing, Combing, slubber, Intermediate, Roving, Spinning” “1934-2005”
- GoodBrand Lea Count Sterngth Product “LCSP” “1934-
- Statimat II for single yarn strength“1967- 1999.
- Uster dynamometer for single yarn strength “ 1965- 1999”
- Uster Tester I for yarn evenness“ 1965-1992”

Second phase: the normal 60 grams micro spinning technique

- The 60 grams technique was also developed by Dr. W. L. Balls and Mr. H. A. Hancock. The 1000 grams technique operated successfully over a period of years and, as the staff became more dexterous and the supervision more expert was able to process more and more samples each year.

But the demand from breeders was insatiable; not only did they require more and more samples tested, but they wished to have results from smaller and smaller quantities of cotton, so that selection could be made as early as possible in the development from hybridized strains to pure lines by continued setting.

- From time to time, attempts were made to reduce sample size without reduction in the accuracy of the results. One of the first steps was to fit counting devices to the deliveries of all machines, and to work out counter numbers such that a sample would produce the absolute minimum of waste at each stage.

When the technique was finally established on a basis of 60 grams per sample, steps were taken to mechanize the procedure. This technique still running up-to-date to test the spinning efficiency and yarn quality of the Breeder strains and hybrids, Variety maintenance and cotton Regional evaluation programs.

Third phase: The new system for evaluation 5 kilo-grams ring and compact and O.E. spinning techniques.

This system has been developed more recently by the authors to evaluate:

- The promising varieties grown in isolate field,
- The new varieties which are launched in the market,
- The potential spinning performance and quality control during processing of the commercial varieties and,
- The spinning value of the new Egyptian cottons strains to help the breeders in introducing new varieties.

Spinning outline

- The machines used in the pilot spinning mill procedure are: Compact Bale Opener "BO-C"; compact Opener "TO-C" with needle beater and contifeed; Chute feed and "DK-780" carding machine working with short and long term Auto leveler; HSR 1000 draw-frame machine, working with short and long term Auto leveler. All spinning preparation made by Trützschler, Germany. High-speed frame “PCX 16-A 36 spindles; RST 1 ring and compact spinning” Olfil System” on one frame consists of 96 spindles, the high-speed frame and ring spinning machine are by Marzoli, Italy. Schlafhorst Autocoro 338 winding machine and Schlafhorst Autocoro 24/288 Open-End spinning machine.

Fiber and yarn testing

- nowadays, Staple length and short fiber content were measured by HVI system and Micromat, which is found to be quicker to get a full fiber data along with the Lea count strength product.
- Statimat ME for single yarn strength
- Uster Tester III for yarn eveness

Thank you