



CORRECTION In the September issue of *Textile Topics* (Vol. XI, No. 1), graphs were presented in which specific centrifugal force formed the X-axes. Due to an error in computation, the values given for specific centrifugal force were twice their true value. We apologize for this mistake and hope that it has not caused any confusion.

The values of force are quoted in millinewtons per tex (mN/tex). These are S.I. (Système Internationale) units, which can be converted to the more familiar units of grams/tex by the acceleration due to gravity, commonly 9.8 m/s^2 .

INSTRUMENT EVALUATION OF COTTON The May 1982 issue of *Textile Topics* (Vol. X, No. 9) carried a report on the use of our new Motion Control HVI 3000 Fiber Information System in a study of measurement variations. It mentioned that we had been comparing the new system with an older one (a 1968 model) using USDA calibration standards to determine the repeatability of the instruments. The report told that we used two High Volume Instrument calibration standards prepared and distributed by the Cotton Division, AMS, USDA for this study. Although the average values obtained were close to the USDA designation, there was more variation than anticipated. Because of this, it was decided to evaluate samples taken from other levels of processing that might be more suitable for calibration standards.

Aware that the USDA standards are prepared from card web, our new study began with bale samples and continued to measure card web, breaker drawing web, second and third drawing web, and then web from our Model JB-7 Whiting comber. We anticipated that the further the processing went, the more uniform the cotton would be. We realized, of course, that using samples from card web would entail less effort and expense than carrying the material to some advanced stage, but we were conducting this program primarily to determine whether some other level would better serve as calibration standards.

While samples were being prepared, a new Spinlab HVT Series 800 fiber testing unit was installed at the Textile Research Center, and we were able to use both the Motion Control and Spinlab instruments in this program. This is indicated in Table I. Because the two systems report different length and length uniformity measurements, care should be taken in comparing the values obtained from one system with those from the other. Of more importance is a comparison of the results of testing samples taken from various levels of processing.

There are several interesting observations that can be made from the data in Table I. First, it can be seen that the measurements of raw stock and those of the card web are very nearly the same. The differences shown could come from normal variation within a sample as well as from one processing level to the next. Further studies of the data will show that the measurements most affected by processing were length uniformity and strength. The uniformity improved as processing went from raw stock to comber web, and there was a dramatic increase in the strength measurement (g/tex) as the fiber progressed from bale to comber web. It is interesting to note that the micronaire values obtained at different levels had virtually no variation whatsoever.

Some of our readers may be interested in knowing the number of tests that were performed to develop these data. One hundred individual tests were made on each sample for length, length uniformity and strength. Fifty tests were made on each sample for micronaire. We felt this was sufficient to establish averages for comparison.

It should be remembered that the primary interest in conducting this study was to determine whether

TABLE I
HVI Testing Results of Cotton Taken from Different Levels of Processing

| | Length (inches) | | Uniformity Ratio (%) | | Strength (g/tex) | | Micronaire | |
|--------------------------------|-------------------|----------------------------|----------------------|-------------|------------------|-------------|------------|-------------|
| | MCI 3000 (UHM) | Spinlab 800 (2.5% Span) | MCI 3000 | Spinlab 800 | MCI 3000 | Spinlab 800 | MCI 3000 | Spinlab 800 |
| <u>Raw Stock - Bale Sample</u> | | | | | | | | |
| Average | 1.11 | 1.14 | 81.75 | 44.41 | 24.6 | 23.7 | 4.7 | 4.7 |
| Standard Deviation | 0.021 | 0.013 | 1.029 | 1.060 | 1.257 | 1.215 | 0.064 | 0.113 |
| Percent CV | 1.88 | 1.12 | 1.30 | 2.39 | 5.12 | 5.13 | 1.35 | 2.40 |
| High | 1.19 | 1.16 | 84 | 47 | 28 | 26 | 4.8 | 4.9 |
| Low | 1.06 | 1.11 | 79 | 42 | 22 | 21 | 4.6 | 4.4 |
| Range | 0.13 | 0.05 | 5 | 5 | 6 | 5 | 0.2 | 0.5 |
| <u>Card Web</u> | | | | | | | | |
| Average | 1.11 | 1.12 | 80.91 | 44.09 | 25.5 | 23.5 | 4.7 | 4.7 |
| Standard Deviation | 0.016 | 0.014 | 0.986 | 1.154 | 1.159 | 1.018 | 0.070 | 0.102 |
| Percent CV | 1.46 | 1.24 | 1.22 | 2.62 | 4.54 | 4.33 | 1.49 | 2.17 |
| High | 1.15 | 1.15 | 84 | 47 | 29 | 26 | 4.9 | 5.1 |
| Low | 1.08 | 1.09 | 79 | 42 | 22 | 20 | 4.6 | 4.5 |
| Range | 0.07 | 0.06 | 5 | 5 | 7 | 6 | 0.3 | 0.6 |
| <u>1st Drawing Web</u> | | | | | | | | |
| Average | 1.14 | 1.12 | 82.21 | 44.28 | 28.6 | 25.6 | 4.7 | 4.7 |
| Standard Deviation | 0.016 | 0.013 | 1.104 | 1.271 | 1.119 | 0.996 | 0.070 | 0.097 |
| Percent CV | 1.43 | 1.16 | 1.34 | 2.87 | 3.91 | 3.90 | 1.50 | 2.08 |
| High | 1.17 | 1.15 | 86 | 47 | 32 | 28 | 4.9 | 4.8 |
| Low | 1.09 | 1.09 | 80 | 41 | 26 | 23 | 4.5 | 4.4 |
| Range | 0.08 | 0.06 | 6 | 6 | 6 | 5 | 0.4 | 0.4 |
| <u>2nd Drawing Web</u> | | | | | | | | |
| Average | 1.17 | 1.14 | 83.62 | 45.69 | 33.5 | 27.2 | 4.6 | 4.7 |
| Standard Deviation | 0.019 | 0.016 | 1.324 | 1.475 | 1.251 | 1.376 | 0.085 | 0.090 |
| Percent CV | 1.60 | 1.36 | 1.58 | 3.23 | 3.73 | 5.05 | 1.83 | 1.90 |
| High | 1.20 | 1.18 | 87 | 50 | 37 | 30 | 4.8 | 5.0 |
| Low | 1.13 | 1.11 | 81 | 43 | 29 | 24 | 4.5 | 4.6 |
| Range | 0.07 | 0.07 | 6 | 7 | 8 | 6 | 0.3 | 0.4 |
| <u>3rd Drawing Web</u> | | | | | | | | |
| Average | 1.16 | 1.11 | 84.06 | 47.20 | 39.2 | 31.9 | 4.7 | 4.7 |
| Standard Deviation | 0.021 | 0.013 | 1.549 | 1.417 | 1.364 | 1.062 | 0.085 | 0.133 |
| Percent CV | 1.80 | 1.14 | 1.84 | 3.00 | 3.48 | 3.32 | 1.81 | 2.82 |
| High | 1.21 | 1.15 | 88 | 51 | 44 | 34 | 4.9 | 5.0 |
| Low | 1.12 | 1.08 | 79 | 45 | 36 | 30 | 4.5 | 4.5 |
| Range | 0.09 | 0.07 | 9 | 6 | 8 | 4 | 0.4 | 0.5 |
| <u>Comber Web</u> | | | | | | | | |
| Average | 1.16 | 1.13 | 84.31 | 49.20 | 45.7 | 34.3 | 4.8 | 4.8 |
| Standard Deviation | 0.016 | 0.015 | 1.509 | 1.343 | 1.658 | 1.327 | 0.090 | 0.146 |
| Percent CV | 1.38 | 1.29 | 1.79 | 2.73 | 3.63 | 3.86 | 1.87 | 3.04 |
| High | 1.20 | 1.18 | 88 | 52 | 51 | 37 | 5.0 | 5.1 |
| Low | 1.13 | 1.09 | 80 | 46 | 41 | 31 | 4.5 | 4.5 |
| Range | 0.07 | 0.09 | 8 | 6 | 10 | 6 | 0.5 | 0.6 |

some level of processing beyond card web would be more suitable for establishing calibration standards. While it is obvious that some changes in measured values did occur as processing was carried out, it is difficult at this point to conclude that some advanced level would be better for calibration standards than card web. (This seems to be particularly true when considering that a good bit of extra work and expense would be required to carry the cotton to an advanced stage.) To the contrary, there are indications suggesting that card web is the most suitable material for calibration standards.

This study has been sponsored by the Natural Fibers & Food Protein Commission of Texas. It was supervised by Mrs. Reva Whitt, head of TRC's material evaluations laboratory, and by our staff of fiber technicians.

VISITORS More than 130 visitors toured the facilities of the Textile Research Center during October. Some of these were students in Texas Tech University's Colleges of Home Economics and Agricultural Sciences, while others were from the College of Engineering staff. Additionally, a group sponsored by Cotton Incorporated and a number of persons from the manufacturing industry were with us.

While it is not practical to list all visitors, we would like to mention some. Included among our visitors the past month were Dan E. Stokes, Rieter Corporation, Spartanburg, SC; John T. Moss, Ring Around Products, Inc., Dallas, TX; H. D. Mahaffey, Caracot Enterprise Corporation, Spartanburg, SC; George Lenox, George Lenox Textiles, Dallas, TX; Richard T. Sprague, Post, Buckley, Schuh and Jerrigan, Inc., Boulder, CO; C. J. Copple, Platt Saco Lowell Corporation, Easley, SC; James Bassett, Texas A&M University, College Station, TX; Paul Goodwin, Lawson-Hemphill, Spartanburg, SC; Helio Padula, IPT CETEX, Sao Paulo, Brazil; Mr. & Mrs. Harry H. Braun, Texmaco, Cape Town, Republic of South Africa; Norberto Cesar Pepe, Fibramalva, S.A.I.C., Chaco, Argentina; Juan Platero and Enrique Goyret, Alpargatas S.A.I.C., Buenos Aires, Argentina; Derek Turpie, South African Wool and Textile Research Institute, Port Elizabeth, Republic of South Africa; and Victorio Filellini, Santista Textiles, Sao Paulo, Brazil.

HOLIDAY CLOSING The Textile Research Center will be closed from December 24, 1982 until January 3, 1983 so that our employees may enjoy the Christmas and New Year holidays with their families. We extend to our many friends best wishes for the holiday season.