TRC

TEXTILE TOPICS

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WE'RE LATE, WE'RE LATE!!! No, the United States Postal Service has not collapsed completely. In fact, it is probably in good health. What is *not* in good health, however, is our schedule for publishing *Textile Topics*. This issue is now only three months late, but it will be even later if we do not get it out before Christmas.

We have simply been inundated with activities, and while we will not list our excuses, we will say these have been considerable. Now that many time-consuming events are behind us, we hope to catch up on our mailings of *Topics*.

In the meantime, in this *September* issue we would like to wish everyone a Merry Christmas and a Happy New Year. We remind our readers that the Textile Research Center will be closed from December 24, 1987 through January 1, 1988 so our staff can enjoy the holidays with their families.

EVALUATION OF COTTON BY HIGH VOLUME INSTRUMENTS We believe most of our readers are already aware that a good portion of the United States cotton crop each year is classed by high volume instruments. The USDA uses these instruments to measure various properties of the fiber and report the results on key-punch cards. Certain testing laboratories, including the Textile Research Center, do the same type of evaluation, but we normally report our results on a computer print-out sheet. Whatever the case may be, we get certain comments and questions that seem to be the same each year during the harvesting and classing season.

There are times when a cotton producer questions the grade he gets from the USDA office, and he will take samples of the same cotton to one of the testing laboratories across the United States. We frequently have farmers bring samples to us for re-evaluation of any number of bales of their cotton. These producers always seem to be surprised when the results are not the same as they got from the classing office, whether they are better or worse. This should not be surprising, however, because the exact same sample of cotton is not tested at the two locations. There are no two bales of cotton exactly alike, and there is a considerable variation of any of the measured properties within a single bale.

We included a report on this in the July 1982 *Textile Topics* (Vol. X, No. 11). As we have had a number of recent inquiries about the variation in the results coming from different HVI testing units -- whether from the USDA classing office or a laboratory like TRC -- we thought it might be good to reprint the report we gave five years ago. We do this to point out that the variation is not necessarily between HVI installations, but most likely is simply the natural variation that will be found in any single bale of cotton.

Therefore, the following is reproduced from the previously mentioned issue of *Topics*. We hope this will be of interest and possibly of value to our readers.

> " In recent issues of *Textile Topics*, we have carried several articles dealing with the testing of cotton fiber by electronic high-volume instruments. In particular, we have attempted to point out that the instruments themselves have a high degree of accuracy and repeatability; at the same time, we have mentioned the amount of variation found in cotton samples and even in whole bales.
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> "The Textile Research Center has just concluded a test in which two complete bales of cotton were divided into one-quarter pound samples for testing on our Motion Control HVI 3000 System. One of the two bales was a short-to-medium length cotton, and the other was medium-to-long staple. Because of the difference in weights of these bales, one yielded more samples than the other. On the shorter cotton, 1,780 samples

were obtained for testing on our double-line procedure (4 tests per sample), giving 7,120 individual determinations for length, length uniformity, strength and elongation. Measurements for micronaire and leaf were obtained by a single-line procedure (2 tests per sample), giving a total of 3,560 individual values. These findings are given in Table I. It is interesting to note that this particular bale was purchased on green card class as 31/32", Strict Low Middling Light Spotted (42), and 4.3 micronaire. We mention this to give a comparison between subjective classing and instrument evaluation.

"The bale of longer cotton was divided into 2,179 samples. Here again, this was tested on the MCI HVI 3000 System, giving a total of 8,716 individual determinations for length, uniformity, strength and elongation and 4,358 measurements for micronaire and leaf. The results of this testing are given in Table II.

"Perhaps we should mention that this bale was not purchased on green card classification, but on the basis of testing one sample from each side of the bale. The initial testing of the two samples gave a length of 1.08", 4.8 micronaire and a grade of 51, which would be a classification of Low Middling White. As it turned out, the average of the 2,179 samples from the bale was quite close to the initial evaluation. This is encouraging, for at times only a few tests on samples from each side of a bale give the sole evaluation prior to processing.

"We are grateful to the Natural Fibers & Food Protein Commission of Texas for sponsoring this study and making the results available to the cotton and textile industries. The testing at TRC was conducted by technicians in the materials evaluation laboratories and supervised by Reva E. Whitt, head of that department."

Mrs. Whitt has retired since the study was performed, and the current head of the materials evaluation department at TRC is Harvin R. Smith.

TABLE I
Bale Number 540742 – Short-to-Medium Staple
(1,780 Samples)

	Micronaire	Length (in)	Length Uniformity (%)	Strength (g/tex)	Elongation (%)	Leaf
Average	4.065	.9983	77.893	24.067	4.94	40
Standard Deviation	.066	.016	.790	1.061	.112	2.4
Percent CV	1.62	1.62	1.01	4.41	2.26	6.15
High	4.4	1.13	83	32	6.2	50
Low	3.8	0.88	72	17	4.3	20
Range	0.6	0.25	11	15	1.9	30

TABLE II
Bale Number 1703582 – Medium-to-Long Staple
(2,179 Samples)

	Micronaire	Length (in)	Length Uniformity (%)	Strength (g/tex)	Elongation (%)	Leaf
Average	4.8546	1.1076	72.26	25.76	5.13	50
Standard Deviation	.086	.014	.677	.926	.116	0.5
Percent CV	1.77	1.22	0.85	3.60	2.26	1.09
High	5.2	1.20	86	33	6.0	80
Low	4.5	1.02	72	20	4.4	50
Range	0.7	0.18	14	13	1.6	30

TEXCELLANA: A BLEND OF TEXAS COTTON AND WOOL We have carried several articles in past issues of *Textile Topics* telling of our research on blends of cotton and wool. We have mentioned that we have used wool from combed top that was either cut or broken to 1½ inches, and we have also utilized Texas wool that has been shorn from the sheep when the length was about 1½ inches. Actually, we have placed more emphasis on the short Texas wool, for it has definite economic advantages and is produced in America. Besides that, it has been found to blend very nicely with cotton and other fibers for processing on the cotton system.

There recently has been increased interest in blending wool with cotton and other short fibers, and we have concentrated our efforts on a special blend called TEXCELLANA. This is a blend of six-month Texas wool and Texas cotton. The name TEXCELLANA was selected to identify the two Texas fibers. For those who do not know, lana is the Spanish word for wool.

The TEXCELLANA blend has been used for producing several weights of denim, primarily nine and six ounces per square yard. The heavier weight has been used for men's sport jackets, and the lighter weight is for ladies' apparel. Also, several knitting companies have expressed interest in evaluating the six-month Texas wool in sweaters and our research has included use of the blend in knitting yarns. At this point, we have found TEXCELLANA to perform very satisfactorily. We feel it will be attractive to certain spinners, both because of its quality and because the short-shorn wool is less expensive than cut or broken combed top.

We might explain that our interest in using the short Texas wool on the cotton system comes from the fact that some ranchers in Texas shear their sheep twice a year. (Normal once-a-year shearing will give a fiber three to four inches long.) In some cases, the twice-a-year shearing is on an eight-month/four-month basis, but other ranchers are shearing more closely to a six-month cycle. We are encouraging this latter procedure. It gives a supply of wool twice a year that has a fairly even fiber length, while the eight-month wool is quite often too long for the cotton system. The length uniformity of the six-month wool can be improved by skirting the fleeces when they are shorn. This process removes the shorter fiber coming from the legs and belly area of the fleece. By doing this, the resulting wool fiber has a fairly good length uniformity and is completely satisfactory for processing on the cotton system. Naturally, we prefer that the short Texas wool is blended with Texas cotton to give the TEXCELLANA blend.

We would like for interested persons to have a sample of the TEXCELLANA denim, but it is not practical to send even a small piece of the fabric with *Textile Topics*. However, we will be pleased to supply a sample to anyone who requests it.

Our research on cotton/wool blends is sponsored by the Natural Fibers & Food Protein Commission of Texas.

VISITORS An unusually large number of visitors came to the Textile Research Center during September due in part to the Open House held on September 12. The visitor register for that day contains more than 170 names, and we will not attempt to list them. We hope all who attended enjoyed the day and found something of interest.

Other visitors included Laurance G. Coffin, U.S. Army Natick Research & Development Command, Natick, MA; F. A. Zanny Hitt, G&H Sales Associates, Corpus Christi, TX; M. L. Jenkins, Bowman Distribution, Albuquerque, NM; Bruce R. Thomas, Calgene Inc., Davis, CA; Edward E. Koplan and David Hardin, Bluebonnet Industries, Inc., Brownwood, TX; and Kamal El-Zik and Peggy Thanda, Texas A&M University, College Station, TX.

Also, Chuteemun Pamchsukpatana, Department of Agriculture, Bangkok, Thailand; Shigui Zhang and Wang Liuming, China Shandong Cotton Research Centre, Shandong, People's Republic of China; Ronald Roux, Tongaat Cotton, Louis Trichardt, South Africa; Mel Ueckermann, Tongaat Cotton, Kempton Park, South Africa; and D. Bruce Stewart, Wm. Stewart & Sons Ltd., Dundee, Scotland.

Other visitors were Mario Castillo, House Committee on Agriculture, Washington, DC; and Dan Waggoner, House Sub-Committee on Livestock, Dairy and Poultry, Washington, DC. They came to TRC with Dr. Lauro Cavazos, President of Texas Tech University; Dr. Sam Curl, Dean of Agriculture Sciences; and Dr. David Koeppe, Department of Plant & Soil Science, TTU.

Visiting groups included 40 members of the Lubbock Leadership Class of 1987 and 40 students from the Department of Agricultural Economics at Texas Tech University.

NOTICE TO EDITORS Each year we receive requests for permission to use information presented in *Textile Topics* for inclusion in other publications. Therefore, we would like to state again that we are pleased to give permission for reports and newsworthy data to be reproduced, provided credit is given to *Textile Topics*, the Textile Research Center and Texas Tech University. We also would appreciate a copy of any article reproduced for our files. We thank you for your cooperation in this and for your interest in *Textile Topics*.