



## WANTED:

### A MANUFACTURER OF TEXCELLANA

Interest in and demand for the TEXCELLANA blend fabric developed here at the International Center has exceeded our expectations. That is the good news. The bad news is that, so far, no one produces the fabric on a commercial basis.

The primary functions of the International Center are to conduct research on textile fibers and develop new uses for them. TEXCELLANA is one of the results of our development efforts. As we have mentioned on several occasions, this fabric is a blend of Texas cotton and Texas wool. The wool is approximately 1-1/2 inches long and is shorn at this length on a twice-a-year basis by some ranchers, rather than the one time that is traditional in most parts of the world.

We have realized recently in talking with several textile company managers that some are unaware of the ease with which TEXCELLANA yarn can be spun. This requires hardly any change in machinery adjustments, as an intimate blend of short wool with cotton processes very nicely through standard machines designed for 100% cotton. We have learned, however, that when ring spinning, double-creeled roving produces a yarn of higher quality than does single roving. Also, the manager of one company that has spun wool on the cotton system for many years informed us that he improves yarn quality by using three processes of drawing.

Other than double roving at ring spinning and perhaps changing a break draft on one machine or another, we do not make any machine changes when processing TEXCELLANA.

Our work here at the International Center normally deals with only a few hundred yards of fabric at any one time, and the production of 200 yards now and 300 yards later is not going to satisfy the demand for this fabric. It appears we have done as much research and development as we can, and now we need a textile company to produce the fabric on a commercial scale.

We had an interesting conversation not long ago when the production manager of a garment company learned about TEXCELLANA. He obtained our telephone number and called to inquire if we could supply fabric for the production of slacks, blazers and skirts. He did not understand that we are a research and development organization, but thought we were a fabric producer. The individual informed us that he had examined a sample of the fabric, liked it very much, and was interested in buying 40,000 yards per month to go into their various garments. When we told him we did not have that much fabric, he asked, "How much do you have?"

"Twelve yards," we answered.

There was a lengthy pause, and then we tried to explain that we developed the fabric here at the Center but could not produce it in large quantities.

Although our facilities are limited and our primary interest is research and development rather than producing great amounts of fabric, we have been able to provide a few yards at a time to some of those wanting TEXCELLANA. We have supplied short yardages to a retail outlet in Lubbock that agreed to assist with our promotion plan. The store is selling lengths of three to six yards at \$16.95 per yard. And even at that price, the retailer calls us almost daily wanting more fabric, much more than we can supply.

In view of all this, we would like very much to work with some textile manufacturer that would be interested in producing TEXCELLANA on a commercial basis.

We will mention again, as we did in last month's *Topics*, that we have now developed a similar fabric called TEXCELLANA II. This contains 30% Texas cotton, 30% Texas wool and 40% polyester. This is still in the developmental stage, but at this point it appears to be a high quality fabric that performs well.

Our research on TEXCELLANA has been spon-

sored by the Natural Fibers Commission of Texas. We are thankful for the support of that organization, for it has led to the development of a fabric that seems to have the potential for consuming a considerable amount of Texas natural fibers.

### EFFECTS OF MOISTURE ON COTTON

We have recently had conversations with several visitors concerning variations in the results obtained when testing samples of cotton fiber. The most frequently asked question seems to be about fiber strength.

After explaining that any single sample of cotton can be tested only one time because the test destroys the sample, and that there is considerable variation within a bale or even a small sample itself, it is then usually pointed out that cotton is a hygroscopic fiber and its physical properties are significantly affected by changes in moisture content. Strength, micronaire and other properties will vary with variations in the amount of water retained in the sample. That is why testing should always be done after permitting a sample to thoroughly condition at standard atmospheric conditions, 65% relative humidity and 70° Fahrenheit.

(As for the variation of properties within a bale, we made a study of this in 1982 and reported the results in the June and July issues of *Textile Topics* that year. Two complete bales were divided

into 1/4-pound samples for testing on an HVI system at standard laboratory conditions. The first bale yielded 1,780 samples and the other, 2,179. In the 1,780 samples, we found the strength varied from a low of 17 grams/tex up to a high of 32. In the other bale, the variation was from 20 up to 33 grams/tex. This shows that even with uniform moisture content in samples taken from one bale of cotton, there is still a wide variation in fiber strength.)

The time necessary to "thoroughly condition" a cotton sample has always seemed to evoke differences of opinion. This subject was brought up at a USDA meeting in 1983, and the ensuing discussion prompted us to conduct a study to determine the length of time a sample should be conditioned prior to testing in order to give the most accurate results. With the recent consideration of this, we believe it worthwhile to review a report given in the July 1983 issue of *Topics*.

To eliminate as much variation as possible and prevent questions about selecting cotton for this study, we felt the best procedure would be to use a USDA calibration standard with fiber properties listed on the package wrapper. The sample was dried as thoroughly as possible and then tested immediately on a Motion Control HVI 3000 system. Then the cotton was retested at selected time intervals as indicated in the table below.

EFFECTS OF MOISTURE ON FIBER PROPERTIES  
(USDA High Volume Standard No. 25034)

Fiber Property	Conditioning Time							USDA Values
	Dry	¼ hr	1 hr	2 hr	3 hr	4 hr	24 hr	
Micronaire	4.1	4.3	4.5	4.4	4.6	4.6	4.6	4.5
Length (in)	1.08	1.11	1.11	1.12	1.14	1.14	1.14	1.15
Length UR	82.5	82.5	81.8	81.8	83.0	82.2	83.2	82.4
Strength (g/tex)	16.8	19.8	23.0	27.5	26.5	26.2	25.0	30.9
Elongation (%)	4.4	4.2	4.7	4.7	4.5	4.6	5.0	—
Moisture Content (%)	4.00	5.00	5.25	5.50	5.80	6.00	6.25	8.50

It is interesting to note that even when the sample was dried until there was no further weight loss, a moisture meter still measured 4% moisture content. It is true that some moisture would be picked up between the drying oven and the HVI system, but the testing was done as quickly as possible and no more than two minutes expired during the process. The increase in moisture as measured by the meter indicates that the regain was about what might be expected. This would

give a typical hysteresis curve which shows that a cotton sample will pick up less moisture in a given atmospheric condition when the conditioning is approached from the dry side. It will be noted that in 24 hours the moisture content did not attain the 8.5% listed by USDA, and chances are it never would at 65% relative humidity.

In any event, it is interesting to see the changes in fiber properties with the increase in moisture pickup. As expected, the micronaire value was re-

duced in the absence of moisture, but this corrected itself by the third hour of conditioning. Fiber length also returned to the USDA value after three hours. Fiber strength increased with moisture pick-up, but even with 24 hours of conditioning it did not return to the value given on the sample wrapper.

This study of the effects of moisture did not really produce any new results. However, we did find it interesting to verify an understanding that has been accepted by the textile industry for many years. This becomes particularly important as cotton evaluation continues to move from a subjective manual procedure to high volume instrument system.

### **TECH PRESIDENT VISITS CENTER**

We were pleased to have Dr. Robert W. Lawless, president of Texas Tech University, visit the International Center on August 25 for a tour of our research laboratories. He was accompanied by Mrs. Lawless. They spent the time with us studying research programs in progress and discussing the Center's operation with administrators and department supervisors.

Dr. Lawless became president of Texas Tech on July 1, 1989. He formerly was a senior vice chancellor of the University of Houston, and for eight years just prior to assuming office here, he was executive vice president/chief operating officer for Southwest Airlines. We are impressed with his interest in research and his awareness of its importance to an academic institution and to industry.

Dr. Lawless accepted the position as president of Texas Tech after the previous president, Dr. Lauro Cavazos, was selected by former President Ronald Reagan to fill the cabinet post of Secretary of Education. Dr. Cavazos continues to serve in this same capacity in the Bush administration.

We were very pleased that Dr. Lawless would take time from his busy schedule to tour the Center. We hope he will have many opportunities in the future to visit with us again.

### **VISITORS**

August visitors at the International Center included Dan E. Shelton, Ciba-Geigy Corp., Greensboro, NC; Paul Sawhney, USDA Southern Regional Research Center, New Orleans, LA; Roberto Ochoa-Bunson, El Paso Industrial Supplies, El Paso, TX; John Farris, Texas Agricultural Extension Service, Lamesa, TX; Kent Nix, Dave Nix and

Bradley Boyd, Lamesa Cotton Growers, Lamesa, TX; Egon Gropp and Claude Acker, Calcot Ltd., Bakersfield, CA; Steven R. Clarke, Fiberite, Greenville, TX; Armando Ruiz, Texas Dept of Commerce, Austin, TX; Ted Colcolough, Paul E. Welder, Dale Boyd, W. R. Brownlee, Neil Steifle and Waymon Gibson, Greenwood Mills, Greenwood, SC; and Claudia R. Broeker, David L. Hand, Hans-Georg Kretschmer, Gil Jones, Roger Pearson and Richard Mattice, Southwestern Irrigated Cotton Growers Assoc., El Paso, TX.

Also visiting were Fred Spitzka, Rieter Corp., Spartanburg, SC; Marcel Bosshard and Ulf Schneider, Maschinenfabrik Rieter AG, Winterthur, Switzerland; Ricardo Duffour, Textiles Nueva Vizcaya, S.A., Durango, Mexico; Jose Angel Perez, Algodonero Zapata, Pueblo, Mexico; Jean-Louis de Botton, Cottip S.A., Geneva, Switzerland; Thian Hor Teh, Prairie View A&M University, Prairie View, TX; Wang Junming, PRC Consulate, Houston, TX; Xi Huida and Zhao Xiaohu, National Center for Rural Technology Development of China, Beijing, PRC; Li Wei, Inner Mongolia Science and Technology Div., Huhehot, PRC; and Chi Fanmin, Shandong Commission of Science and Technology, Jinan, PRC.

Other visitors included 15 4-H Club members from Hereford, TX; 12 members of the Gomez Extension Club, Brownfield, TX; and 104 Texas vocational agriculture teachers & spouses who were attending the Texas State Vocational Teachers Convention, held in Lubbock the first week of August.

### **WE NEED YOUR HELP**

The mailing list for *Textile Topics* contains more than 2,000 names and addresses. As you can imagine, it is virtually impossible to keep this list 100% accurate. Though we occasionally receive notice from readers that someone has retired, or a request that a new name be added, we are aware that some copies of *Topics* are perhaps being sent to wrong addresses or to people who are no longer at the address we have for them.

What we do not want is to send *Topics* to persons who are not interested or who have moved to another organization. Therefore, we are requesting your help in updating our mailing list. If there has been a change in the address of your organization or a change in personnel, please let us know. Naturally, we prefer to add a new name rather than delete one, but we will appreciate hearing from you in either case. Not only will this help us to keep our mailing list more accurate, but

it may also reduce the cost of printing and mailing *Topics*. We publish this newsletter at no charge to recipients, and we would like to keep our expense as low as possible.

Thanks in advance for your assistance.