



# TEXTILE TOPICS

INTERNATIONAL CENTER FOR TEXTILE RESEARCH AND DEVELOPMENT

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## TEXAS INTERNATIONAL COTTON SCHOOL

The fourth class of the Texas International Cotton School was held at the International Center for Textile Research and Development April 1-19, 1991. Fourteen students from seven countries were enrolled.

This school is sponsored by the Lubbock Cotton Exchange and two classes are held each year, one in the fall and the other during the spring. The next class is scheduled for October 7 - 25, 1991.

Students attending Class IV were:

**from Australia:** John Forrest, Dunavant Enterprises, Moree, New South Wales;

**from Austria:** Thomas Griessmayer, Linz Textil GMBH, St. Florian;

**from Peru:** Jesus F. Echeopar Garcia, Asinteco S.R.L., Lima;

**from Mexico:** Carlos Cue, La Reforma S.A. de C.V., Puebla, Puebla; and Jose A. Perez H., Algodonera Zapata S.A. de C.V., Torreon, Coahuila;

**from The Phillipines:** Jonathan Dy Chua, Robitex, Calamba, Laguna; and Johnson Robert Go, Jr., Litton Mills, Inc., Manila;

**from Sweden:** Annika Drews Valentin, Paul Drews Co. AB, Goteborg;

**from the United States:** Stephen Becker, Becker Farms, Floydada, TX; Miller Brice, Leigh Fibers, Inc., Spartanburg, SC; Marla Murff, North Plains Textiles, Inc., Tulia, TX; Brian Owens, Hohenberg Bros., Memphis, TN; Park Owings, E & O Cotton Co., Greenville, SC; and Patricia Sheikh, USDA/FAS, Washington, DC.

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As mentioned, Class V of the Texas International Cotton School is scheduled for October 7-25, 1991. Information on admission to these classes may be obtained by contacting:

**Texas International Cotton School  
c/o Lubbock Cotton Exchange  
1517 Texas Avenue  
Lubbock, Texas 79401**

The telephone number is (806) 763-4646, and the Fax number is 806-763-8647.

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TICS IV participants are pictured with Russell Ellison (left front) and Mandy Howell (right front), of Lubbock Cotton Exchange.

TABLE IV  
ROTOR SPINNING TRIAL RESULTS (Single-Carded Sliver)

Lot Number	A		B		C	
<b>FIBER DATA</b> (Individual Instr.)						
Tensile: Strength (g/tex)	32.3		34.0		33.1	
Elongation (%)	5.17		5.17		5.67	
Length: 2.5% Span Length (in)	1.238		1.242		1.267	
Uniformity Ratio (%)	48.2		46.8		47.4	
Short Fiber Content (%)	0.4		1.5		1.0	
Micronaire	3.67		3.60		3.60	
Pressley Strength (Mpsi)	107.2		108.1		105.1	
Non-Lint Content (%)	8.37		3.26		2.00	
<b>SLIVER</b> (Rieter C4 single card)						
45 gr/yard Finisher Drawframe						
Machine Schlafhorst Autocoro (SE8)						
Nominal Yarn No. (N <sub>g</sub> ) 36						
Rotor Type T33						
Rotor Speed (rpm) 90000						
Opening Roller Type OB20						
Opening Roller Speed (rpm) 7000						
Draft		199.3	196.7	196.7		
Twist Multiplier (α <sub>e</sub> ) 4.84						
Yarn Speed (yd/min) 86.1						
Navel KN4 + 1.5/TT						
Ambient Conditions 72°F/56% RH						
Test Duration (rotor hours)		Initial	200	Initial	200	Initial
					200	
<b>YARN PROPERTIES</b>						
Skein Test:						
Yarn Number (N <sub>g</sub> )	36.45	36.33	35.95	35.70	36.21	35.73
CV% of Count	1.7	1.1	1.4	1.9	1.6	1.7
Count-Strength-Product	2428.	2407	2465	2361	2430	2379
CV% of CSP	3.6	3.1	2.3	1.5	2.3	4.0
Single Yarn Tensile Test:						
Tenacity (g/tex)	15.85	14.83	15.45	15.24	15.50	15.39
Mean Strength (g)	257	241	254	252	253	254
CV% of Strength	8.4	10.7	9.5	8.8	8.9	9.9
Elongation (%)	6.30	5.86	6.11	5.96	6.09	6.14
CV% of Elongation	7.3	7.2	7.5	7.2	7.7	6.9
Spec. Work Rupture (g/tex)	0.478	0.434	0.455	0.446	0.461	0.462
CV% of Work of Rupture	14.1	16.4	15.1	13.8	14.5	15.4
Initial Modulus (g/tex)	274	276	283	288	282	287
Uster Evenness Test:						
Non-Uniformity (CV%)	15.41	15.60	15.46	15.52	15.47	15.48
Thin Places/1,000 yds	59	80	62	51	71	62
Thick Places/1,000 yds	112	131	105	121	110	119
Neps/1000 yds	380	414	381	373	403	376
Hairs/100 yds	197	393	210	420	212	377
ASTM Yarn Grade	C	D+	C	C	C	C
<b>PERFORMANCE</b>						
Number of Breaks	---	44	---	40	---	34
Break Rate/1,000 rotor hrs	---	220	---	200	---	170

of opening, cleaning and carding were also presented last month, giving production rates and sliver sizes.

We mentioned that part of the sliver was assigned to rotor spinning, while the remainder was used for ring spinning. A portion of the sliver allocated to ring spinning was combed prior to two processes of drawing and roving. Although we reported the disposition of the three lots, we did not have enough space to give details of spinning. We are giving those results in this issue.

Table IV presents the information collected from rotor spinning the three lots that had been carded on the Rieter C4 machine. Table V gives the results of rotor spinning from the Crosrol Mk-4 Tandem-carded sliver. Over all, the yarns spun from the sliver processed on the Crosrol card were slightly stronger and more regular than those from the single card. The improvement in regularity may have been associated with a reduction in neps of more than 50 percent. As spinning progressed, there was a tendency

for yarn strength to deteriorate when spinning from the single-carded sliver. From the tandem-carded stock, yarn strength tended to remain constant with the only exception being the yarn spun from the cotton which had received zero lint cleaning.

Another aspect worth noting is the lower number of broken ends during spinning of the three lots that had passed through the Tandem card. This likely was associated with the improved uniformity apparent in the measurement of thin places, thick places, and nep count.

There did not seem to be any great differences between the yarns spun from the cottons with different cleaning levels at the gin. This was a little sur-

## EFFECTS OF NON-LINT REMOVAL ON SPINNING PERFORMANCE AND THE QUALITY OF COTTON YARNS: Part 2

In last month's issue of *Textile Topics* we gave Part 1 of this report. Since space permitted only the beginning portion, which included a description of the program, fiber testing results of the cottons used and some details of gin-level cleaning and carding, we are giving part of the remaining results this month.

The emphasis of the research was to compare cottons that had been ginned with zero, one and two lint cleaners (Lots A, B and C, respectively). Additionally, each of the three lots coming from the different ginning arrangements was carded on a Rieter C4 card and a Crosrol Mark-4 Tandem card. Details

prising, for many have claimed that the extra cleaning damages the fibers, gives a higher short fiber percentage and ultimately results in lower yarn quality. This study did not support that theory.

Perhaps we should mention that Tables IV and V as carried in the full report included a review of the fiber testing results of the cottons receiving different cleaning treatments at the gin. Because of limited space we have repeated that information in Table IV only.

Next month we will present data on ring spinning these same cottons. We regret it is necessary to make this report in installments, but *Textile Topics* is intended to be a bulletin that can be read quickly and is not a medium for disseminating large amounts of technical information.

TABLE V  
ROTOR SPINNING TRIAL RESULTS (Tandem-Carded Sliver)

Lot Number	A		B		C	
SLIVER (Crosrol Mk4 Tandem card)	45 gr/yd Finisher Drawframe					
Machine	Schlafhorst Autocoro (SE8)					
Nominal Yarn No. (N <sub>e</sub> )	36					
Rotor Type	T33					
Rotor Speed (rpm)	90000					
Opening Roller Type	OB20					
Opening Roller Speed (rpm)	7000					
Draft	202.0		196.7		199.3	
Twist Multiplier (α <sub>e</sub> )	4.84					
Yarn Speed (yd/min)	86.1					
Navel	KN4 + 1.5/TT					
Ambient Conditions	72°F/56% RH					
Test Duration (rotor hours)	Initial	200	Initial	200	Initial	200
<b>YARN PROPERTIES</b>						
Skein Test:						
Yarn Number (N <sub>e</sub> )	36.81	36.69	35.97	35.88	36.41	35.9
CV% of Count	1.4	1.8	1.4	1.2	1.9	1.3
Count-Strength-Product	2477	2430	2431	2463	2462	2503
CV% of CSP	2.9	5.5	2.9	2.1	2.5	2.8
Single Yarn Tensile Test:						
Tenacity (g/tex)	15.78	15.19	15.57	15.62	16.05	15.7
Mean Strength (g)	253	245	256	257	260	259
CV% of Strength	7.0	9.2	8.4	8.6	8.8	9.8
Elongation (%)	6.19	5.88	6.24*	6.12	6.22	6.0
CV% of Elongation	6.9	6.7	7.1	6.2	7.2	7.4
Spec. Work Rupture (g/tex)	0.470	0.445	0.466	0.471	0.479	0.4
CV% of Work of Rupture	12.2	15.0	12.6	12.9	14.0	15.4
Initial Modulus (g/tex)	282	305	281	280	292	307
Uster Evenness Test:						
Non-Uniformity (CV%)	15.20	15.33	14.93	15.04	15.25	15.1
Thin Places/1,000 yds	58	51	46	42	40	59
Thick Places/1,000 yds	63	74	62	66	64	72
Neps/1000 yds	200	176	156	168	181	167
Hairs/100 yds	192	393	192	390	206	380
ASTM Yarn Grade	C+	C+	B	B	C	C+
<b>PERFORMANCE</b>						
Number of Breaks	---	18	---	24	---	15
Break Rate/1,000 rotor hrs	---	90	---	120	---	75

### SCHLAFHORST DONATES MACHINE PARTS

We would like to recognize a donation that Schlafhorst, Inc. of Charlotte, North Carolina, recently made to the International Center. We have two Schlafhorst state-of-the-art rotor-spinning machines, and the company donated and installed parts that reflect the latest developments in electronic and mechanical operations. These parts are in the areas of piecing, monitoring and yarn takeup for the production of fine yarn numbers. Our research on cotton and other fibers has shown that the Schlafhorst spinning machine is capable of spinning finer yarns than was previously realized, and the up-grading has been done to assist with this.

We greatly appreciate the contribution of the parts and installation labor. Donations of this type are very beneficial as our research into the greater use of cotton continues.

### VISITORS

Visiting lecturers for the Texas International Cotton School were Joseph J. O'Neill, New York Cotton Exchange, New York, NY; Tom Bell and Fred E. M. Gillham, ContiCotton, Washington, DC; and Keith Henley, Cotton Outlook, Memphis, TN.

Additionally, on April 25 a delegation of nine textile mill executives from Romania visited ICTRD. The group included Victor Ghinea and Traian Mihail Deleanu, Romanoexport S.A., Bucharest; Virgiliu-Adrian Savin, Bumbacaria Romaneasca S.A., Bucharest; Veronica Neacsu, Filatura de Bumbac S.A., Slobozia; Otilia Vasilache, Filrom S.A., Bucharest; Ioan Antohi, Moldofil S.A., Transilvaniei; Mircea Dumitrescu, Novatex S.A., Pitesti; Ionel-Relu Savu, Olfil S.A., Oltenita; and Eugen Tordai, Textila Oltul S.A., Sf. Gheorghe. They were accompanied by Dorim Motz and Doina Blendea, Diplomatic Language Services, Inc., Arlington, VA; Marsha Powell, Cotton Council International, London, England; and Vaughn Jordan, Cotton Council International, Washington, DC.

## **MORE VISITORS**

Visitors in addition to those mentioned on the preceding page included Brent W. Wiseman, Texas Dept. of Agriculture, Austin, TX; James & Linda Jamison, Brush Creek Farm, Sand Springs, OK; Jerry Hinnenkamp, Industrial Development Corp., Brownfield, TX; Carla West, National Cotton Council, San Angelo, TX; Charles Chewning, Cotton Incorporated, Raleigh, NC; Everett Backe, Institute of Textile Technology, Charlottesville, VA; Gary Wells, John D. Hollingsworth, Greenville, SC; and Jim Brown, Brown Software, Van Alstyne, TX.

Also visiting were R. M. (Max) Hams, Koralta Station, Broken Hill, NSW, Australia; Raymond Wall and Andrew O'Brien, Kondinin Group, Gurley, NSW, Australia; Eddie-Sula Kizito, Lint Marketing Board, Kampala, Uganda; and J. Louwagie, Gent State University, Gent, Belgium.

Fifty-nine cotton ginner and spouses who were attending the Texas Cotton Ginners Association meeting in Lubbock; 50 participants from the Texas Junior College Agriculture Association, meeting at Texas Tech University; 51 students from Littlefield High School, Littlefield, TX; 7 students from Garden City High School, Garden City, TX; and 12 students from the Chemical Engineering Department of Texas Tech University also visited at various times during the month.