



# TEXTILE TOPICS

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**QUALITY OF 1984 TEXAS COTTON CROP** Since 1980, the Textile Research Center has conducted a survey of the quality of the cotton produced in Texas each year. This has not been an extensive evaluation of all the cotton produced in the state, for with the total production often running as much as five million bales, it would be virtually impossible to take even a one percent sampling. Although the few bales we use may seem an extremely small portion of the total crop, we attempt to obtain representative cotton that is available commercially from each area. All the cotton in this year's study is upland (*Gossypium Hirsutum*) and was obtained from the Rio Grande Valley, the Coastal Plains, the Rolling Plains of Central Texas, and the High Plains of West Texas.

Sixteen bales were evaluated in the current program. Fiber from these was tested by three different methods: individual instruments such as the Stelometer and Fibrograph, the Spinlab 800 Series, and the Motion Control HVI system. Three different spinning machines were employed for yarn production and evaluation: a Rieter m1/1 and Platt T.883 rotor machines, and a standard Saco Lowell ring frame. Yarn numbers produced were  $N_e$  6/1, 10/1, 16/1, 22/1 and 30/1 on the Rieter machine; 6/1, 10/1, 16/1 and 22/1 on the Platt T.883; and 16/1, 22/1 and 30/1 only at ring spinning. Processing prior to spinning included a standard opening line with chute feeds to Hollingsworth high-speed cards, two processes of drawing prior to rotor spinning, and a Saco Lowell Rovematic machine to prepare roving for ring spinning.

A full report on the fiber testing and spinning results of the cotton selected from the 1984 crop has been printed by the Textile Research Center and is available at no charge to those who request it. In this issue of *Textile Topics*, we are reporting data from three cottons that we feel are representative of the study and may be of interest to our readers. We realize that for many the report will seem late and of little value other than for an historical record. Plans are to publish this earlier in coming seasons.

As we have mentioned, several yarn numbers were spun in each test, but for the purpose of reporting this in *Textile Topics* we are including one yarn number only (16/1) that is common to all three spinning machines. This has been designated in the tabulated information presented on the following pages. The full report carries complete details on all numbers spun at each machine.

We wish to thank the Natural Fibers & Food Protein Commission of Texas for sponsoring this program. Fiber and yarn testing at TRC was done under the supervision of Mrs. Reva E. Whitt. Ring spinning was directed by Edwin Foster with support by Mack Holcombe, Ramon Ortiz and Felix Torres, while rotor spinning was supervised by John Price with assistance from Bill Cole and Albert Esquibel.

**EDWARDS JOINS TRC STAFF** G. Clinton Edwards, a native of Burlington, North Carolina, has recently joined the staff of the Textile Research Center. After graduating from North Carolina State University in 1972, Edwards was with Burlington Industries Corporate Research & Development office in Jamestown, NC, where he was responsible for research in the areas of yarn and fabric production. Also, he was involved in open-end spinning, yarn and fabric analyses, and machinery evaluation. He later accepted a position with the Barber Colman Company in Gastonia, NC where he worked in sales and technical service involving the open-end spinning machinery produced by Barber Colman.

Just prior to accepting the position with the Textile Research Center, Edwards was technical manager

TABLE I

## FIBER PROPERTIES

Individual Instrument Data		HVI Data: MCI 3000		HVI Data: Spinlab 800	
Stelometer Strength	21.99 g/tex	1/8" Gge Strength	23.00 g/tex	1/8" Gge Strength	24.3 g/te
Elongation	5.42 %	Elongation	5.53 %		
2.5% Span Length	0.990 in	UHM Length	0.973 in	2.5% Span Length	0.98 in
Uniformity Ratio	44.8 %	Uniformity Ratio	79.5 %	Uniformity Ratio	49.0 %
Short Fiber Content	6.93 %				
Micronaire Value	3.80	Micronaire Value	3.70	Micronaire Value	3.8
Pressley Strength	87.5 Mpsi				
Shirley Non-lint Cont.	1.03 %	Color Index	31 - 1	Grade	31 - 1
IIC/Shirley F/MT Ia Data: Percent Mature Fibers: 80.0% / Fineness: 153 mtex					

## YARN PROPERTIES

Type of Spinning	Rotor Spinning		Ring Spinning
	Rieter m1/1	Platt T.883	Saco Lowell
Spinning Machine			
Nominal Yarn Number ( $N_e$ )	16/1	16/1	16/1
Nominal Twist Multiplier ( $\alpha_e$ )	4.85	4.87	4.00
Skein Test:			
Yarn Count ( $N_e$ )	16.45	15.55	15.92
CV% of Count	0.6	1.4	1.2
Skein Strength (lbs)	131.7	127.1	147.2
CV% of Strength	3.2	3.3	3.0
Count-Strength-Product	2175	1968	2341
CV% of CSP	2.6	2.2	2.7
Single-Yarn Strength Test:			
Tenacity (g/tex)	14.20	12.77	15.67
Mean Strength (g)	509	485	582
CV% of Break	7.2	7.7	9.1
Elongation (%)	6.07	6.37	5.82
CV% of Elongation	6.7	7.0	10.1
Specific Work of Rupture (g/tex)	0.467	0.442	0.466
CV% of Work of Rupture	12.6	12.6	15.2
Uster Evenness Test:			
Non-Uniformity (CV%)	15.88	14.71	18.47
Thin Places/1,000 yds	28	5	157
Thick Places/1,000 yds	153	58	426
Neps/1,000 yds	261	108	52
Hair Count/100 yds	227	153	814
ASTM Yarn Grade	B	B+	C+

for the J. H. Mason Company in Graham, NC, where he was responsible for machinery maintenance, new machinery installation, and new product development. At TRC, he will be involved in research programs dealing with yarn and fabric production. Because of his experience in open-end spinning, it is planned for Edwards to become involved in our rotor-spinning studies and in areas concerned with new spinning technologies. We feel he will be of considerable value to our program, and we are pleased to have him on our staff. We look forward to the contributions we feel he will make to our overall program.

TABLE II  
FIBER PROPERTIES

Individual Instrument Data		HVI Data: MCI 3000		HVI Data: Spinlab 800	
Stelometer Strength	23.14 g/tex	1/8" Gge Strength	23.75 g/tex	1/8" Gge Strength	23.4 g/tex
Elongation	5.58 %	Elongation	5.45 %		
2.5% Span Length	1.022 in	UHM Length	1.035 in	2.5% Span Length	1.04 in
Uniformity Ratio	45.5 %	Uniformity Ratio	79.25 %	Uniformity Ratio	47.0 %
Short Fiber Content	4.73 %				
Micronaire Value	4.07	Micronaire Value	4.20	Micronaire Value	4.2
Pressley Strength	86.7 Mpsi				
Shirley Non-lint Cont.	2.60 %	Color Index	31 - 2	Grade	21 - 2

IIC/Shirley F/MT Ia Data: Percent Mature Fibers: 78.5% / Fineness: 177 mtex

YARN PROPERTIES

Type of Spinning	Rotor Spinning		Ring Spinning
	Rieter m1/1	Platt T.883	Saco Lowell
Spinning Machine			
Nominal Yarn Number ( $N_e$ )	16/1	16/1	16/1
Nominal Twist Multiplier ( $\alpha_e$ )	4.85	4.87	4.00
Skein Test:			
Yarn Count ( $N_e$ )	16.12	15.80	16.15
CV% of Count	0.7	1.0	3.4
Skein Strength (lbs)	128.3	119.9	136.9
CV% of Strength	2.7	2.1	8.3
Count-Strength-Product	2070	1891	2214
CV% of CSP	2.7	1.6	5.8
Single-Yarn Strength Test:			
Tenacity (g/tex)	13.41	12.40	14.62
Mean Strength (g)	491	463	535
CV% of Break	7.3	9.1	12.7
Elongation (%)	6.25	6.40	5.41
CV% of Elongation	6.2	7.1	13.7
Specific Work of Rupture (g/tex)	0.453	0.430	0.416
CV% of Work of Rupture	12.2	13.8	21.0
Uster Evenness Test:			
Non-Uniformity (CV%)	15.71	15.07	18.51
Thin Places/1,000 yds	16	10	133
Thick Places/1,000 yds	151	62	467
Neps/1,000 yds	288	107	102
Hair Count/100 yds	189	125	879
ASTM Yarn Grade	C+	B+	C+

**VISITORS** Visitors to the Textile Research Center during February included Thomas Beech, Tandy Foundation, Fort Worth, TX; Otto Beck, American Truetzschler, Inc., Charlotte, NC; Ferdinand Leifeld, Truetzschler GmbH & Co. KG, Monchengladbach, West Germany; Jean Paul Hassig, Zopfi/Filatura Di Ronica, Bergamo, Italy; Isaac Jones, Michael Grunder, Victor Brier, Kirby Lehrmann and Robert D. Heyer, Bren-tex Mills, Brenham, TX; Kenneth Baird, Australian Wool Corporation, Melbourne, Australia, Juan M. Pares, Galicia Textil, S.A., Cabezon de la Sal, Spain; Ignacio Oyanguren, Hilaturas de Vergara, S.A., Vitoria, Spain; J. M. Zaldo, Algodonera de San Antonio, S.A., Vergara, Spain; and Francisco Serra and Manuel Segarra, Serracot, Barcelona, Spain.

TABLE III  
FIBER PROPERTIES

Individual Instrument Data		HVI Data: MCI 3000		HVI Data: Spinlab 800	
Stelometer Strength	24.70 g/tex	1/8" Gge Strength	26.75 g/tex	1/8" Gge Strength	24.7 g/tex
Elongation	6.33 %	Elongation	6.55 %	2.5% Span Length	1.10
2.5% Span Length	1.098 in	UHM Length	1.085 in	Uniformity Ratio	45.0 %
Uniformity Ratio	45.1 %	Uniformity Ratio	80.75 %	Micronaire Value	3.4
Short Fiber Content	3.75 %	Micronaire Value	3.50	Grade	21 - 2
Micronaire Value	3.27	Color Index	31 - 1		
Pressley Strength	86.12 Mpsi				
Shirley Non-lint Cont.	2.42 %				

IIC/Shirley F/MT 1a Data: Percent Mature Fibers: 82% / Fineness: 127 mtex

YARN PROPERTIES

Type of Spinning	Rotor Spinning		Ring Spinning
Spinning Machine	Rieter m1/1	Platt T.883	Saco Lowell
Nominal Yarn Number ( $N_e$ )	16/1	16/1	16/1
Nominal Twist Multiplier ( $\alpha_e$ )	4.85	4.87	4.00
Skein Test:			
Yarn Count ( $N_e$ )	16.08	15.92	16.15
CV% of Count	0.9	1.6	2.2
Skein Strength (lbs)	143.7	135.5	157.1
CV% of Strength	2.3	3.4	2.0
Count-Strength-Product	2311	2156	2540
CV% of CSP	2.1	2.1	1.8
Single-Yarn Strength Test:			
Tenacity (g/tex)	14.49	13.52	16.92
Mean Strength (g)	532	502	619
CV% of Break	8.7	7.3	9.1
Elongation (%)	6.75	6.98	6.28
CV% of Elongation	7.2	6.8	11.8
Specific Work of Rupture (g/tex)	0.540	0.520	0.563
CV% of Work of Rupture	14.7	12.1	16.3
Uster Evenness Test:			
Non-Uniformity (CV%)	16.02	14.95	18.44
Thin Places/1,000 yds	22	16	124
Thick Places/1,000 yds	156	41	432
Neps/1,000 yds	302	83	130
Hair Count/100 yds	226	187	917
ASTM Yarn Grade	B+	B+	B