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ANNUAL TEXAS COTTON QUALITY REPORT In January 1980, we published our first report on Texas Cotton Quality, presenting information for the crop of 1979. Since that time, we have issued a similar report on an annual basis. In this issue of *Textile Topics* we are giving the results of processing and testing two of the eighteen cottons included in the report for the 1987 crop. We have selected these particular ones to represent production in South Texas and the Western High Plains. The cottons described on the following pages make up a substantial percentage of the production in these areas. All are available commercially. The ones presented here are Paymaster 145 from Cotton Center, a community approximately thirty miles north of Lubbock, and CAB-CS from Corpus Christi. The others included in the full report are from Harlingen, Agua, El Paso, Herne, Snyder, Sparenburg, Lamesa, Lubbock, Acuff, Big Spring, Wall and Stamford. Two additional lots, varieties commonly produced in Texas, were classed at Altus, Oklahoma. The Altus office classes cotton grown in southwestern Oklahoma and the area of Texas around Memphis, Childress and Vernon

Properties of each cotton are given on the following pages in the tables preceding spinning performance and yarn quality. Fiber testing was done on individual instruments such as the Stelometer, Fibrograph, Fibronaire, and Pressley, and on a Motion Control 3000 HVI system. Additionally, we processed samples of each through the IIC/Shirley F/MT instrument to obtain micronaire, fineness in millitex, and percent mature fibers. That was followed by testing on the Peyer Texlab AL-101. From this we obtained the upper quartile length, the mean length, the coefficient of variation of the mean length, and short fiber content.

No more than a cursory study of the fiber testing results will reveal differences in measurements resulting from testing with individual instruments and the HVI system. Without exception, the HVI instruments measured fiber strength greater than the Stelometer. This is a phenomenon we have been observing for several years. In some cases the strength values were fairly close, while in others the HVI value was as much as 4 grams per tex higher than the Stelometer determination. Other notable differences are in the 2.5% span length determined by the Fibrograph and the length measured by HVI. Some of these are quite close, while others vary considerably. It is interesting to compare these two measurements with the upper quartile length obtained by the Peyer Texlab AL-101. Still another interesting comparison is the short fiber content measured by the Fibrograph and the Peyer AL-101.

We need to emphasize that when studying differences in fiber measurements, there is considerable variation of properties within a single bale of cotton, regardless of how they are measured. We have published information on this twice in recent years, pointing out that the exact same sample is not being measured by the different instruments. (See the September 1987 issue of *Topics*.) The fact that different samples of the bale are being measured by different instruments in itself would lead to some variation of results, but, of course, the various instruments make their measurements in different ways, which leads to additional variation. In spite of all this, we have found that fiber properties measured by any of the instruments have a fairly good correlation with spinning performance and yarn quality. We feel that while it would be good to eliminate the variations found in different measuring techniques, the cotton producing, marketing, and manufacturing industries are in a much better position with the instruments we have today than they were some years ago when fiber quality was a subjective opinion of an individual. We fully expect that our ability to measure the true quality of a cotton fiber by instruments will improve as time goes by.

Turning to other aspects of this program, tables on the back page of this issue give the mechanical details of each of the three spinning machines used. Rotor type and speed, along with opening roller type and speed, are given for the Rieter m1/1 and Schlafhorst Autocoro. For the ring frame, we are giving the

TABLE _____ LOT NUMBER 1973 VARIETY CAB-CS PRODUCTION AREA Corpus Christi

FIBER PROPERTIES

Individual Instrument Data			HVI Data: MCI 3000		
Stelometer Strength	22.75	g/tex	1/8" Gge Strength	24	g/tex
Elongation	6.50	%	Elongation	7.0	%
2.5% Span Length: Fibrograph	1.047	in.	Length	1.10	in.
Uniformity Ratio	42.8	%	Uniformity Ratio	80	%
Short Fiber Content	10.02	%	Micronaire Value	4.1	
Micronaire Value	4.10		Reflectance	77	
Pressley Strength	84.88	Mpsi	Yellowness	7.8	
Shirley Non-lint Cont.	1.34	%	Index of-Color 31 -	4 -Leaf	

IIC/Shirley F/MT	Micronaire: 4.3	Fineness: 194 mtex		Percent Mature Fibers: 73.3
Peyer Texlab AL-101	Upper Quartile Len.: 1.08 in.	Mean Len.: .88 in.	CV% of Mean: 35.1	% Short Fibers: 12.0

YARN PROPERTIES

Spinning Machine	Rieter m1/1			Schlafhorst Autocoro			Saco-Lowell SF-3H Ring		
Nominal Yarn Number (N_e)	10/1	22/1	30/1	10/1	22/1	30/1	16/1	22/1	30/1
Nominal Twist Multiplier (α_e)	4.85	4.81	4.78	4.78	4.79	4.79	4.0	4.0	4.0
Skein Test:									
Yarn Number (N_e)	10.07	22.23	30.29	10.21	22.12	30.59	15.85	21.95	30.47
CV% of Yarn Number	.87	1.09	1.10	.50	2.42	1.06	1.62	1.53	2.09
Count-Strength-Product	2157	1858	1669	2199	1867	1695	2265	2083	2024
CV% of CSP	2.21	2.18	1.62	1.75	1.05	2.79	2.07	2.87	1.87
Single-Yarn Strength Test:									
Tenacity (g/tex)	13.00	11.57	11.22	13.48	11.97	11.32	14.89	13.28	13.40
Mean Strength (g)	762	307	219	780	320	218	554	357	260
CV% of Break	6.75	9.08	10.19	7.21	7.93	9.61	10.46	11.27	12.63
Elongation (%)	6.90	5.97	5.52	7.35	6.23	5.87	6.97	6.16	6.08
CV% of Elongation	6.50	9.06	8.92	5.86	8.43	9.78	9.75	10.01	9.08
Spec. Work of Rupture (g/tex)	0.525	0.395	0.353	0.563	0.419	0.367	0.536	0.431	0.426
CV% of Work of Rupture	12.2	16.6	17.1	11.9	13.8	16.5	16.8	18.4	19.3
Initial Modulus (g/tex)	306	274	282	263	243	263	209	211	260
Uster Evenness Test:									
Non-Uniformity (CV%)	13.16	14.96	17.03	11.98	14.06	16.29	16.95	19.10	22.24
Thin Places/1,000 yds	0	21	103	0	11	82	40	144	465
Thick Places/1,000 yds	36	69	201	7	40	149	264	652	1402
Neps/1,000 yds	24	72	498	5	50	438	56	124	408
ASTM Yarn Grade	B	B+	C+	C	B+	C	B+	B+	C

TABLE_____ LOT NUMBER 1975 VARIETY Paymaster 145 PRODUCTION AREA Cotton Center

FIBER PROPERTIES

Individual Instrument Data			HVI Data: MCI 3000		
Stelometer Strength	24.21	g/tex	1/8" Gge Strength	26	g/tex
Elongation	7.17	%	Elongation	7.4	%
2.5% Span Length: Fibrograph	1.013	in.	Length	1.05	in.
Uniformity Ratio	44.6	%	Uniformity Ratio	80	%
Short Fiber Content	7.08	%	Micronaire Value	3.7	
Micronaire Value	3.83		Reflectance	78	
Pressley Strength	86.42	Mpsi	Yellowness	7.2	
Shirley Non-lint Cont.	2.68	%	Index of-Color 31 -	4 -Leaf	

IIC/Shirley F/MT	Micronaire: 3.9	Fineness: 194 mtex	Percent Mature Fibers: 63.9
Peyer Texlab AL-101	Upper Quartile Len.: 1.03 in.	Mean Len.: .86 in.	CV% of Mean: 48.7 % Short Fibers: 13.3

YARN PROPERTIES

Spinning Machine	Rieter m1/1			Schlafhorst Autocoro			Saco-Lowell SF-3H Ring		
Nominal Yarn Number (N_e)	10/1	22/1	30/1	10/1	22/1	30/1	16/1	22/1	30/1
Nominal Twist Multiplier (α_e)	4.85	4.81	4.78	4.78	4.79	4.79	4.0	4.0	4.0
Skein Test:									
Yarn Number (N_e)	10.06	21.73	30.26	10.07	22.11	29.86	16.38	22.38	30.68
CV% of Yarn Number	.57	1.25	1.33	.46	.97	.85	1.44	1.54	2.71
Count-Strength-Product	2207	1849	1685	2292	1901	1708	2221	1994	1970
CV% of CSP	2.26	1.88	2.33	1.60	2.37	2.44	2.62	2.55	2.52
Single-Yarn Strength Test:									
Tenacity (g/tex)	13.16	12.02	11.61	13.61	12.40	10.96	14.42	13.31	12.86
Mean Strength (g)	773	326	227	798	331	217	520	351	248
CV% of Break	8.00	9.06	9.40	7.07	7.96	11.82	11.13	11.83	15.08
Elongation (%)	7.19	6.35	5.89	7.63	6.36	5.82	6.73	6.14	5.96
CV% of Elongation	5.78	7.82	8.13	7.08	7.42	10.14	9.33	10.90	10.69
Spec. Work of Rupture (g/tex)	0.542	0.431	0.380	0.584	0.442	0.353	0.508	0.433	0.400
CV% of Work of Rupture	11.7	15.2	16.1	12.9	13.3	19.1	17.4	20.2	23.1
Initial Modulus (g/tex)	290	254	300	256	248	271	211	204	276
Uster Evenness Test:									
Non-Uniformity (CV%)	13.60	15.29	17.54	12.59	14.52	16.65	18.79	20.75	24.00
Thin Places/1,000 yds	3	25	138	0	13	99	164	315	821
Thick Places/1,000 yds	41	70	229	9	51	164	522	913	1737
Neps/1,000 yds	31	90	702	8	55	556	77	145	508
ASTM Yarn Grade	B	B	C	C	B	C	B+	B+	D

ROTOR SPINNING

Sliver	55 gr/yd Finisher Drawframe					
Machine	Rieter m1/1			Schlafhorst Autocoro		
Nominal Yarn Number (N_e)	10	22	30	10	22	30
Rotor Type	45 N St			T33		
Rotor Speed (rpm)	55,000			90,000		
Opening Roller Type	T.52			OB20		
Opening Roller Speed (rpm)	6700			7500		
Draft (approximate)	66	145	198	66	145	198
Twist Multiplier	4.85	4.80	4.78	4.78	4.79	4.79
Yarn Speed (yd/min)	99.5	67.7	58.3	165.4	111.3	95.3
Navel	Smooth Steel			4-grooved Ceramic		

RING SPINNING

Roving Frame:	Saco Lowell
Flyer Speed (rpm)	1425
Roving	1.0 hank
Ring Spinning Frame:	Saco Lowell SF-3H
Spindle Speed (rpm)	10,000
Ring Diameter (in)	2
Twist Multiplier	4.00

roving size, spindle speed, ring diameter, and twist multiplier.

The tables on the preceding pages show that we have spun three yarn numbers on each of the two rotor machines, while ring spinning produced two of the same numbers that can be used for comparison.

We believe the details of our testing are self-explanatory, so we will not elaborate further. However, if our readers should have questions about this information, we will be pleased to hear from you. Copies of the full report, which includes eighteen cottons from Texas, are available upon request. This study was sponsored by the Natural Fibers & Food Protein Commission of Texas (NFFPC) and was conducted under the supervision of John B. Price assistant director of the International Center.

VISITORS Visitors to the International Center during April included L. Herman Moeller, Hanes Knit Products, Winston-Salem, NC; Jim Steiert, HBJ Publications, Hereford, TX; Jim Reynolds, Coralville, IA; Hugh A. Bello and Jim Mackey, J. G. Boswell Co., Corcoran, CA; Terry Harmon, College Station, TX; Mr. and Mrs. Earl Gresham, Blackland Prairie Gin, Depart, TX; Dario Guerra, Edinburg, TX; Roger and Arlene Gilmore, Vallejo, CA; Janet Casey, Bryan, TX; Dale V. Hunt, Garwood, TX; George Eller, Panhandle, TX; Mike McGuire, Haskell, TX; and Peter Dove, Zimbabwe Cotton Marketing Board, Harare, Zimbabwe.

In addition to these, a group of textile executives from Greece came to the Center on April 18. The group included John Akkas, Hellenic Fabrics S.A., Thessaloniki; George Ath. Athanassiades, Hellenic Pella Spinning Mills S.A., Thessaloniki; Anastasia Varvaressos, G. Varvaressos & Co., S.A., Naoussa; Alexis Mentzelopoulos, Volos Cotton Manufacturing Co., S.A., N. Ionia Magnissias; Christos Doudos, Kostas Doudos A.G., Saloniki; and John Coutsocostas, Piraiki-Patraiki Cotton Manufacturing Co., Inc., Athens. They were accompanied by Rick King, area representative for the National Cotton Council of America; Vaughn Jordan, National Cotton Council, Washington, DC; and David Caywood, Cotton Council International, London, England.