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ANNUAL TEXAS COTTON QUALITY REPORT Each year we prepare a report on the quality of Texas cotton from the preceding production season. We begin procuring cotton from the various areas of Texas during October and conduct the processing and testing at the Textile Research Center during November and December. We try to issue a report on this as early as possible so the information can be used by cotton producers and textile manufacturers. We cannot always do this, however, for sometimes we have delays in obtaining the cotton, and other times we must wait on research that is already scheduled at the Center.

For evaluating the 1986 crop, we attempted to get cotton from the Rio Grande Valley, the Coastal Bend area, Central Texas, the Far West region around El Paso, and the Texas High Plains surrounding Lubbock. This year we experienced considerable difficulty in obtaining cotton for this program, and instead of getting the twenty commercial varieties we had planned to evaluate, we were able to obtain only thirteen. It seems a bit ironic that we would have difficulty buying cotton when we are situated in one of the major production areas of the world. However, it is not always easy to get cotton properly identified and shipped at the time we need it. We decided to proceed with the thirteen varieties from the various areas rather than delay processing and testing.

In this issue of *Textile Topics* we are carrying reports on two of the cottons evaluated. It will be noted that the variety of each cotton is shown at the top of the page along with the production area. Fiber testing was conducted on individual instruments including the Stelometer, Fibrograph, Fibronaire, Pressley Tester, and the Shirley Analyzer. Additionally, samples from each lot were evaluated on the Motion Control HVI 3000 System. We used the IIC/Shirley F/MT instrument for measuring micronaire, fineness, and percent mature fibers. Also, the Peyer Tex Lab AL-101 was utilized. We have previously included results from the Spinlab 800 series, but we are omitting data from that equipment this year.

Some differences will be seen in the test results obtained by the different methods. This is not unusual, but rather is to be expected. For that matter, different results will be obtained from measuring different parts of a cotton bale, even with the same instruments, and the variation demonstrated in these fiber properties should not be misunderstood. It is simply a matter of testing different parts of the cotton sample on different instruments.

It will be seen that the examples we are giving are from two different locations in Texas. The first table gives the results of evaluating Stoneville 825 that was produced in the Harlingen (Rio Grande Valley) area. Both the strength and length of this cotton were quite good, and this seems to be a quality that could be used by a great number of spinners. The second table gives data on DPL 383 (Delta & Pine) cotton produced near Slaton (High Plains area). Here again, the strength and length of the fiber appear to be entirely satisfactory for producing quality yarns, particularly on rotor spinning machines. It should be mentioned that the High Plains cotton suffered through some unusual weather during its final growth period and harvesting. It seemed the rains came at exactly the wrong time. As a result, the cotton in this area contained an unusually high percentage of bark, leaf and other particles from the plant. In spite of this the fiber properties were good. If a textile manufacturer can remove the foreign matter with opening and cleaning machines, then the cotton itself should spin well and produce good quality yarns.

As we have done in the past, we produced three yarn numbers on two different rotor spinning machines, these being the Rieter m1/1 and the Schlafhorst Autocoro. Three numbers were also spun on a Saco Lowell ring spinning machine, and two of the numbers were the same as those on the open-end machines. It will be noted that we also produced an N_e 16/1 yarn at ring spinning. With the numbers selected, it should be easy to make a comparison between the rotor spun yarns and those using the same cotton but produced at ring spinning.

Several interesting and generally normal results came from the spinning and yarn testing. The ring spun yarns, N_e 22 and 30, were stronger than the same numbers spun on the two rotor machines. This is to be expected. Uster non-uniformity values (CV%) for the rotor spun yarns were significantly better than those for the ring yarns, which is also to be expected. The primary objective of this is simply to show how these cottons will perform under different conditions at different yarn numbers. We hope these results will demonstrate this and will be of interest and value to our readers.

This program was sponsored by the Natural Fibers & Food Protein Commission of Texas. Anyone desiring a cost-free copy of the complete report can request it by writing to the address given below.

VISITORS Visitors to the Textile Research Center during January included Ernie Houdashell, Amarillo, TX; Doug Fain, Mike Watson, Dean Pelczar and Bonnie Calloway, Cotton Incorporated, Raleigh, NC; Eva Elmore and Judy Cates, California Planting Cotton Seed Distributors, Shafter, CA; Barbara Shaeffer, Motion Control Inc., Dallas, TX; Akiva Pinto and Gary Wells, Hollingsworth Inc., Greenville, SC; Robert I. Joseph, Ocot Marketing, Inc., Odem, TX; and Karl Franz, E. I. Du Pont de Nemours & Co. (Inc.), Wilmington, DE.

Others were Herbert Rotschi, Rieter Machine Works Ltd., Winterthur, Switzerland; S. Allan Heap, International Institute for Cotton, Didsbury, Manchester, England; Fritz Oberlehner, Textilmaschinen-fabrik Dr. Ernst Fehrer AG, Linz, Austria; and Othmar Suppiger, Peyer do Brasil, Sao Paulo, Brazil.

Also, thirty-five students from the Department of Agricultural Economics at Texas Tech University and their instructor toured the Center.

TABLE 8 LOT NUMBER 1886 VARIETY Stoneville 825 PRODUCTION AREA Harlingen

FIBER PROPERTIES

Individual Instrument Data			HVI Data: MCI 3000		
Stelometer Strength	25.10	g/tex	1/8" Gge Strength	27.0	g/tex
Elongation	5.47	%	Elongation	5.6	%
2.5% Span Length	1.11	in.	Length	1.18	in.
Uniformity Ratio	44	%	Uniformity Ratio	82	%
Short Fiber Content	6.3	%	Micronaire Value	3.8	
Micronaire Value	3.33		Reflectance	77	
Pressley Strength	86.2	Mpsi	Yellowness	7.8	
Shirley Non-lint Cont.	2.85	%	Index of-Color	- 31 -Leaf 4	

IIC/Shirley F/MT	Micronaire: 3.6	Fineness: 151 mtex		Percent Mature Fibers: 78.0
Peyer Texlab AL-101	Upper Quartile Len.: 1.03 in.	Mean Len.: 0.80 in.	CV% of Mean: 37.5	% Short Fibers: 20.5

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)	10.18	22.54	29.73	9.97	21.98	30.34	16.09	22.15	29.44
CV% of Yarn Number	0.9	1.0	1.1	0.6	0.9	1.4	1.5	1.7	2.3
Count-Strength-Product	2409	2115	1949	2409	1939	1725	2692	2340	2425
CV% of CSP	2.1	1.8	2.1	2.1	3.3	3.1	3.8	3.0	2.2
Single-Yarn Strength Test:									
Tenacity (g/tex)	14.84	13.79	12.78	14.52	13.21	11.75	16.62	15.87	15.73
Mean Strength (g)	861	362	254	860	355	229	610	423	315
CV% of Break	7.1	7.7	8.6	5.8	7.3	9.3	9.9	11.0	14.6
Elongation (%)	6.72	6.06	5.63	6.62	5.40	5.08	6.13	6.19	6.01
CV% of Elongation	6.6	7.6	7.8	6.7	9.8	9.6	9.5	9.7	12.4
Spec. Work of Rupture (g/tex)	0.577	0.467	0.401	0.553	0.411	0.338	0.535	0.503	0.492
CV% of Work of Rupture	12.9	13.8	14.5	11.3	14.2	16.1	16.8	16.8	21.7
Initial Modulus (g/tex)	353	350	354	303	370	374	310	287	285
Uster Evenness Test:									
Non-Uniformity (CV%)	14.08	15.19	17.37	12.95	15.72	17.71	18.19	20.12	22.05
Thin Places/1,000 yds	2	16	99	0	31	147	67	204	313
Thick Places/1,000 yds	96	127	389	35	148	320	405	754	1338
Neps/1,000 yds	106	244	1071	48	232	926	176	308	766
ASTM Yarn Grade	B	C	D	B	C	C	C	C	C

TABLE 11 LOT NUMBER 1892 VARIETY DPL 383 PRODUCTION AREA Slaton

FIBER PROPERTIES

Individual Instrument Data			HVI Data: MCI 3000		
Stelometer Strength	23.22	g/tex	1/8" Gge Strength	25.0	g/tex
Elongation	6.13	%	Elongation	6.4	%
2.5% Span Length	1.00	in.	Length	1.05	in.
Uniformity Ratio	42	%	Uniformity Ratio	79	%
Short Fiber Content	12.6	%	Micronaire Value	3.6	
Micronaire Value	3.33		Reflectance	72	
Pressley Strength	82.79	Mpsi	Yellowness	9.2	
Shirley Non-lint Cont.	3.04	%	Index of-Color	- 41 -Leaf 3	

IIC/Shirley F/MT	Micronaire: 3.6	Fineness: 155 mtex		Percent Mature Fibers: 75.5
Peyer Texlab AL-101	Upper Quartile Len.: 1.01 in.	Mean Len.: 0.78 in.	CV% of Mean: 36.9	% Short Fibers: 20.3

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)	10.12	21.92	29.67	9.98	22.09	30.17	16.32	21.90	29.76
CV% of Yarn Number	0.8	1.4	1.3	0.8	1.4	1.2	1.1	1.3	1.3
Count-Strength-Product	2120	1811	1682	2101	1711	1484	2006	1939	1834
CV% of CSP	1.4	2.1	2.3	2.2	3.4	3.8	2.3	2.8	3.1
Single-Yarn Strength Test:									
Tenacity (g/tex)	13.03	11.58	11.16	13.16	10.68	10.00	13.51	13.33	12.10
Mean Strength (g)	761	312	221	779	286	196	489	359	240
CV% of Break	7.7	10.4	12.6	7.7	9.7	12.3	12.6	12.6	15.0
Elongation (%)	6.92	6.21	5.73	6.92	4.98	4.97	6.16	6.46	6.06
CV% of Elongation	7.4	10.3	12.1	6.8	12.1	12.4	9.6	9.5	9.9
Spec. Work of Rupture (g/tex)	0.540	0.414	0.368	0.541	0.321	0.296	0.448	0.458	0.389
CV% of Work of Rupture	13.1	18.1	20.8	12.9	19.3	20.9	20.0	18.9	21.9
Initial Modulus (g/tex)	323	316	341	292	353	331	299	250	277
Uster Evenness Test:									
Non-Uniformity (CV%)	15.08	15.69	17.75	13.27	15.75	18.22	22.55	22.97	25.51
Thin Places/1,000 yds	7	18	103	2	32	179	512	539	963
Thick Places/1,000 yds	114	112	365	40	134	345	882	1324	2021
Neps/1,000 yds	129	254	1151	68	254	1128	272	421	948
ASTM Yarn Grade	C	C	D+	C	C	D+	C	D	D