TRC

TEXTILE TOPICS

TEXTILE RESEARCH CENTER • TEXAS TECH UNIVERSITY • LUBBOCK, TEXAS • USA

Volume XIV, No. 3
November 1985

COTTON FIBER STRENGTH — ONE MORE TIME We did not intend to carry any further information about measuring cotton fiber strength, but we continue to receive comments about our previous articles in *Textile Topics*. Recently we received a letter from H. H. Ramey, Jr., Chief, Standards and Testing Branch, Cotton Division of the United States Department of Agriculture. Mr. Ramey has had considerable experience in cotton fiber testing, and he pointed out certain details we feel our readers will find interesting. With Mr. Ramey's permission we are reproducing a portion of his letter.

"In the recent issues of Textile Topics, I have noted the discussion on comparison of flat-bundle cotton fiber strength tests at zero and one-eighth-inch gage length. As the distance between the jaws of the clamps for breaking flat-bundle (gage) increases, the test result levels for cotton fibers decrease. If the ratio of the results of flat-bundle tests at 1/8-inch gage to the results at zero gage were a constant, it would be easy to convert results at one gage length to results at the other gage length. Unfortunately, with cotton the ratio is not a constant.

"The ratio will vary by variety, year, and growth conditions within a year. Data from the Regional Cotton Variety Testing Program illustrate the variability of the ratio. The following table (see page 2) with zero and 1/8-inch gage fiber strength reported in gf/tex is taken from cotton test results for the years indicated. The ratios vary from .428 to .550 at Chillicothe and from .474 to .560 at Lubbock for these varieties, years and cultural practices. The reports of the regional cotton variety tests contain data where the ratios vary from about .400 to more than .650. It is not surprising that John Price found such poor correlation of the results from zero and 1/8-inch gage testing in the small sample.

"The data given here from published literature demonstrate why it is impossible to convert results from 1/8-inch gage tests to results from zero gage tests. (It has been shown that) the correlation of the longer gage-length strength tests with yarn strength is higher than the correlation of zero gage strength tests with yarn strength. (It has been suggested) that, when yarns are broken, the fibers within yarns behave as if they were clamped at about 1/8-inch gage. The use of 1/8-inch gage strength tests should improve the predictability of yarn strength from fiber properties. The development of high volume instrument systems has made it possible to obtain 1/8-inch gage fiber strength on each bale of cotton. Rather than try to convert from 1/8-inch gage strength data to zero gage strength data the efforts should be on making use of the 1/8-inch gage strength data directly."

We always appreciate hearing from the recipients of *Textile Topics* concerning the reports we present. This gives us an opportunity to learn more about your interests, which in turn helps with decisions on the content of this publication. In this case, we wish to thank Mr. Ramey for his interest and his contribution to the dissemination of useful information to the textile industry.

Year and variety	Irrigated			Dryland		
	Zero Gage	1/8" Gage	Ratio	Zero Gage	1/8" Gage	Ratio
CHILLICOTHE, TEXAS						
1966						
Lankart 57	27.2	14.9	.542	30.5	16.0	.525
Lockett 4789	33.1	18.2	.550	35.7	17.6	.493
Western Stormproof	33.6	17.6	.534	35.1	17.0	.484
1967						
Lankart 57	31.3	16.5	.527	34.9	15.9	.456
Lockett 4789	34.2	18.2	.532	38.7	16.8	.434
Western Stormproof	34.4	17.5	.509	37.9	16.5	.435
1968						
Lankart 57	31.3	16.7	.534	35.5	17.1	.482
Lockett 4789	36.9	18.9	.512	39.4	17.6	.447
Western Stormproof	36.4	17.8	.489	40.6	17.4	.428
1969						
Lankart 57	33.6	17.3	.515	35.8	17.9	.500
Lockett 4789	36.4	18.0	.494	37.8	17.3	.457
1970						
Lankart 57	36.0	18.6	.517	36.6	18.7	.511
Lockett 4789	40.6	19.7	.485	40.3	19.0	.471
1971						
Lankart 57	30.8	15.9	.516	33.6	16.9	.503
Lockett 4789	34.3	16.8	.490	38.1	19.8	.520
LUBBOCK, TEXAS						
1970						
Lankart 57	33.3	17.1	.514	35.2	16.8	.477
Lockett 4789	36.7	18.1	.493	39.0	18.5	.474
1971						
Lankart 57	29.8	16.7	.560	31.4	16.1	.513
Lockett 4789	33.4	17.9	.536	35.6	19.2	.539

Information above taken from USDA Regional Cotton Variety Testing Program reports.

ANNUAL COTTON FIBER EVALUATION Our testing of the 1985 Texas cotton crop began when we received samples from the Rio Grande Valley in August of this year. With the High Plains crop now in full harvest, this program is increasing daily. Based on our experience in past years, we anticipate receiving approximately 140,000 cotton samples from all over Texas and from several other states.

We utilize the Spinlab 800 Series and the Motion Control HVI 3000 systems for this evaluation, as well as individual instruments such as the Fibrograph, Stelometer and Fibronaire. This testing is partially sponsored by the Natural Fibers and Food Protein Commission of Texas, but it is also supported by individual cotton producers, seed breeders, and marketing firms. It is supervised at the Textile Research Center by Harvin Smith. We are pleased that our facilities can be used to assist the cotton producing industry.

NEW FACILITIES ASSIGNED TO TRC In 1984 Texas Tech University acquired approximately 100 acres of land and a modern industrial building some six miles east of the main campus, and the decision has been made to move the Textile Research Center to that location. The building contains 110,000 square feet of floor space. As our present facility has only about 67,000 square feet, this will provide a much needed expansion. However, the new building will have to be renovated in order to be suitable for our research. It is expected that this work will begin shortly after the first of the year and will require about one year for completion. With this schedule, we anticipate the moving of our machinery and instruments will take place during the early part of 1987.

While we realize the transitional period for relocation will bring many problems and will interrupt some of our research, we are excited about the prospect of having bigger and better laboratories when the move is completed. We can then become involved in several new areas of research that we cannot undertake in our present location. We greatly appreciate the consideration Texas Tech University officials have given to TRC in making this decision. Not only will this change give us better operating facilties, but it will result in the utilization of our present building by other departments within the College of Engineering.

VISITORS Visitors to the Textile Research Center during November included Jack Ormond, Emory Shaw, Tim Harris, Bud Griffin and Larry Mize, Thomaston Mills, Thomaston, GA; Mike Hoffman, Manville Industries, Waterville, OH; Preston Smith, Successful Farming, Des Moines, IA; Mark Bishopric, Spray Cotton Mills, Eden, NC; Carolyn Snyder, Technicon, Spring, TX; John Floyd, Omega Western Fibers, Anton, TX; David Crane, Crane Papers, Dalton, MA; and Stuart Dyer and George Smith, John D. Hollingsworth on Wheels, Inc., Greenville, SC.

Also visiting were H. H. Rosenbrach, University of Manchester, Manchester, England; B. Bandopadhya, Bombay Textile Research Association, Bombay, India; Geoffrey Wilde, Ralli Brothers & Coney, Ltd., Liverpool, England; Rosalind Martel, Australian Wool Corporation, Victoria, Australia; and Honore Georges Mdiaye, Ministry of Research, Dakar, Senegal.