



**EFFECT OF HARVEST DATE ON COTTON FIBER QUALITY** Because cotton is a vegetable fiber, its physical development depends on a number of natural conditions. The influence of nature will have different effects from one location to another, but there are certain factors that are important at any one location. Planting date, harvesting date, the amount of moisture, moisture at the right or wrong time, and the variety of the cotton will all have definite effects on the ultimate quality of the fiber.

The Textile Research Center is located on the High Plains of West Texas, and we frequently notice the difference in cottons produced here and in other locations such as the Rio Grande Valley of Texas and the Mississippi Delta area. Whereas the High Plains receives comparatively little rain, some other areas receive an abundance and sometimes too much. The problem that often occurs here in West Texas is that the rain comes at the wrong time. In recent years we have had a considerable amount of precipitation in October, which interrupts the harvest and generally reduces the quality of the cotton that is still in the field.

The twenty-five High Plains counties surrounding Lubbock produce approximately one-half of the cotton harvested in Texas each year. Since 45% of the total United States crop comes from Texas, the amount grown in the High Plains constitutes a significant portion of the U. S. total. Consequently, when we have adverse weather here and the quality of the cotton is affected, it is of concern to a great number of textile manufacturers in the United States and in other countries. (Traditionally, some 60% of the High Plains cotton is exported each year.)

The Textile Research Center attempts to conduct research that will benefit both cotton producers in this area and the textile companies that use High Plains cotton. In 1982 a study was begun to determine the influence on quality of various commercial varieties produced in this area when the cotton was harvested at progressively later dates. Although this study is still underway, we have some information that may be of interest to our readers, and we are offering a partial report in this issue of *Textile Topics*. The program involved sixteen varieties and evaluated the influence of harvesting date on fiber length, micronaire and strength. Table I gives the results from various harvesting dates for five varieties which were selected as being representative of the sixteen included in this study. (We are giving results of only five varieties because it is not practical to carry the full report in the limited space of *Topics*.) All are commercial varieties and were grown at one location near Lubbock.

The harvesting dates are also given in Table I, and the cotton collected on each date was that which had opened and was ready for removal. Sufficient amounts of each variety were brought to the Center for testing on the Motion Control HVI system. Other tests besides those given in Table I were conducted but we are including the length, micronaire and strength values only, as these have received more interest when related to time of harvest.

Graph 1 shows the trends in strength and micronaire for the various harvesting dates. It can be seen from both the table and the graph that there was a distinct decrease in micronaire as the harvesting date moved from September 21 to the end of November, although there were obvious variations in this measurement. Contrary to this, there seems to be an increase in fiber strength with the later harvesting date. This has provoked considerable discussion by a number of researchers involved in this work. It may very well be that the apparent increase in strength is the result of the method of testing and the inclusion of more fibers in the test bundle as the micronaire value decreases. We want to emphasize that we are not presenting this as a conclusion, but several persons involved in the study have pointed out that the sample tested for strength would contain more fibers as the micronaire declines. Whatever the case may be, we have found these trends sufficiently impressive to merit more study in the future.

There was considerable variation in fiber length at the various harvesting dates. It can be seen that while some of the cottons seemed to be getting shorter with time, others showed an apparent increase in

TABLE I

Date:	9/21	9/28	10/5	10/12	10/19	10/26	11/9	11/16	11/23	11/30
<u>Lot A</u>										
Length (in)	1.03	1.04	1.04	1.01	1.00	1.01	1.05	1.02	0.94	1.00
Micronaire	4.2	4.8	4.5	4.7	4.8	4.6	4.2	3.9	3.8	3.5
Grams/tex	25	23	19	24	23	24	25	25	26	26
<u>Lot B</u>										
Length (in)	1.05	1.15	1.12	1.07	1.05	1.10	1.12	1.12	1.01	1.00
Micronaire	4.8	5.3	5.1	5.1	5.2	4.6	4.2	3.7	3.4	3.5
Grams/tex	24	26	26	26	24	26	26	29	24	24
<u>Lot C</u>										
Length (in)	1.02	1.04	1.01	0.98	0.98	0.97	0.98	1.09	1.08	1.08
Micronaire	5.5	5.1	5.2	5.0	4.8	5.1	4.6	3.8	3.6	3.9
Grams/tex	29	32	29	29	27	26	30	32	30	31
<u>Lot D</u>										
Length (in)	1.08	1.08	1.04	1.06	1.00	1.03	1.05	1.02	0.98	1.00
Micronaire	4.2	4.4	4.4	4.2	4.3	3.9	3.6	3.6	2.9	3.6
Grams/tex	23	23	23	23	22	22	23	24	25	26
<u>Lot E</u>										
Length (in)	0.92	1.04	0.96	0.99	0.95	0.99	1.03	0.97	1.04	1.05
Micronaire	5.0	5.2	5.2	4.8	5.2	4.6	4.3	4.0	4.2	3.5
Grams/tex	21	27	23	25	24	25	29	26	28	28

length. The variations shown in Table I may be the result of factors other than the time of harvest, such as ginning conditions.

This study has been sponsored by the Natural Fibers & Food Protein Commission of Texas. We wish to thank that agency for its cooperation and for permission to publicize the results obtained thus far. We trust this information will be of interest, and we will appreciate hearing from any of our readers who desire more details of this program.

**REVA WHITT RETIRES** After twenty-six years of continuous service at the Textile Research Center, Mrs. Reva Whitt retired at the end of March, 1985. She came to Texas Tech in 1959 to direct a small group of fiber technicians in the evaluation of cotton produced in this area. At that time the facilities at Texas Tech University consisted of only a fiber testing laboratory and were later expanded to include carding and spinning. In 1969, the Textile Research Center was officially created, and Mrs. Whitt became head of all fiber testing and quality control. Her responsibilities included the testing of yarns and fabrics in addition to all types of textile fibers.

TRC's Materials Evaluation Laboratory developed rapidly under Mrs. Whitt's direction. Whereas in the beginning the fiber testing was done on a few individual instruments, the program was expanded to include additional equipment, a number of instruments for measuring yarn evenness and strength, and an early high volume system for cotton fiber evaluation. The first HVI line used by the Center was installed in 1969 and operated for a number of years before being replaced by a more advanced system. The culmination of this type of testing at TRC came in 1982 when a new system produced by Motion Control of Dallas, Texas, and another one manufactured by Spinlab in Knoxville, Tennessee, were dedicated at the same time. At that time, Mrs. Whitt's laboratory was the only location where both systems were in use side by side. With the availability of these new cotton fiber testing instruments and the expansion of Mrs. Whitt's department within the Center, her efforts attracted the submission of samples for testing by producers and textile companies throughout the United States and other parts of the world.

For twenty-six years Mrs. Whitt demonstrated total dedication to the Textile Research Center and a continuous desire to do the best possible job. Texas Tech University recognized this dedication and her

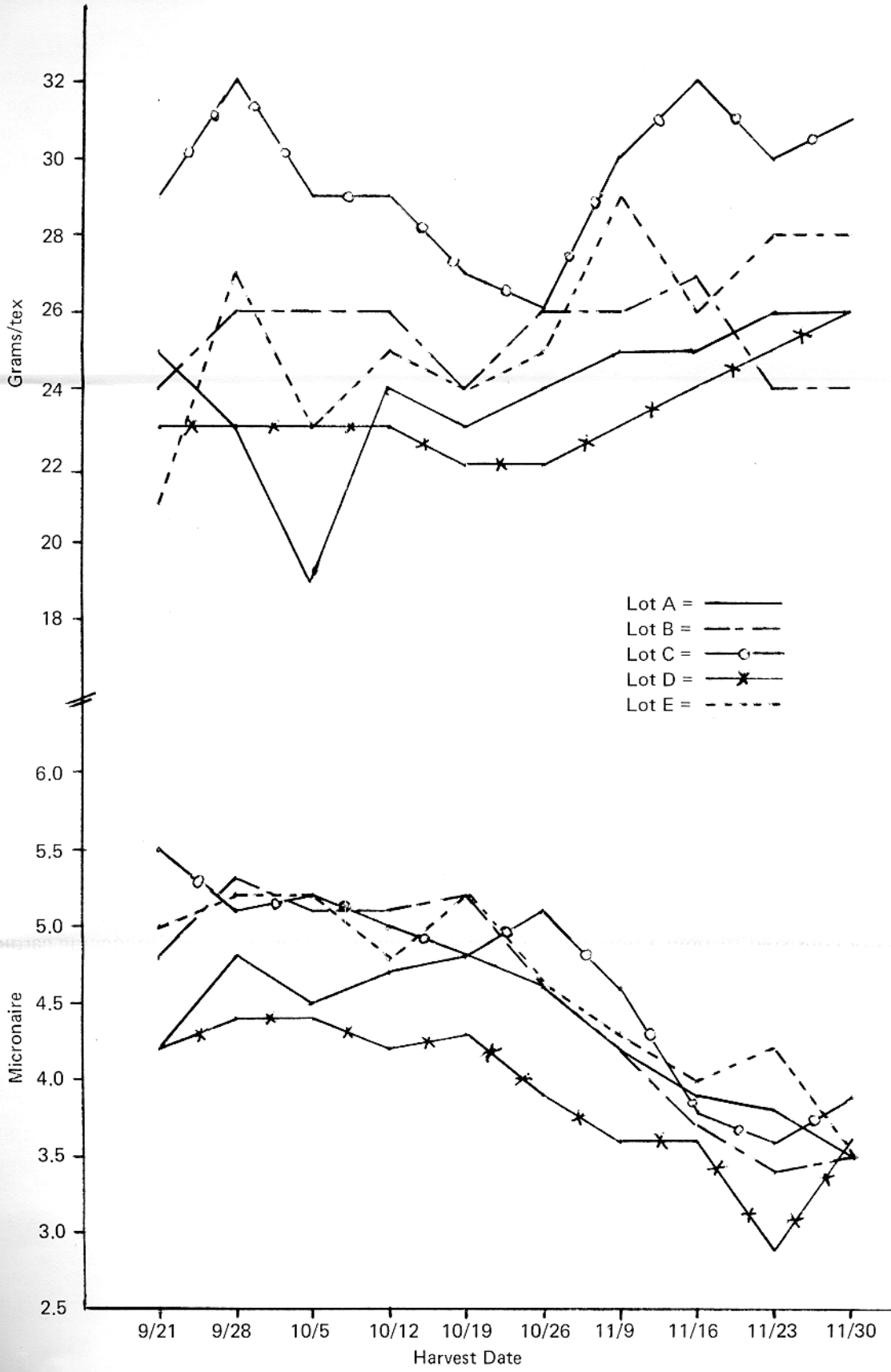
role in establishing the international reputation of the Textile Research Center by honoring Mrs. Whitt as a "Top Techsan" in 1983. We greatly appreciate the outstanding work she did for us and wish her well in her retirement.

**DEPARTMENT OF TEXTILE ENGINEERING: STUDENT AWARDS** Just before graduation each spring, the Department of Textile Engineering of Texas Tech University, in cooperation with the Textile Research and Scholarship Foundation, makes several awards to outstanding seniors. This year, three outstanding student awards were given, and the L. E. Parsons Award was presented to the student with the highest grade point average.

Outstanding student awards were presented to Cecilia Martinez, El Paso, Texas; Chetankumar N. Patel, Ndola, Zambia; and Sohail S. Barlas, Sialkot, Pakistan. The L. E. Parsons Award was presented to Joe Don Long of Lubbock, Texas. We are always pleased to have a number of seniors to be considered for these awards, and it is very gratifying to see the efforts of four years culminate in this sort of recognition.

**VISITORS** Visitors to the Textile Research Center during April included Charles L. Harris, WestPoint Pepperell, Opelika, AL and Mrs. Harris; Harold Lummus, Jim Harrison, Bruce Bacon and Carolyn Marlow-Nelson, Lummus Industries, Inc., Columbus, GA; Helmut Deussen, American Schlafhorst Company, Charlotte, NC; Frank X. Werber, USDA - ARS, Beltsville, MD; Leona A. Cocher, Northern Illinois University, DeKalb, IL; Carl Cox and Jean Vandelune, Natural Fibers & Food Protein Commission of Texas, Dallas, TX; Mr. & Mrs. John Apple, Keysville, VA; and G. Ramos Uruarte, Mexico City, Mexico.

**NOTICE TO EDITORS** We recently received a request for permission to use information carried in *Textile Topics* for inclusion in another publication. We would like to restate that we are pleased with this interest in our work here at the Textile Research Center, and that permission is given for reports and newsworthy data to be reproduced, provided credit is given to *Textile Topics*, the Textile Research Center and Texas Tech University. We will appreciate your cooperation in this.



GRAPH 1