

*Raw Cotton Requirements
of Textile Mills*

Implications for Southwestern Cotton

Summary

During the summer of 1965, 98 representative textile firms were surveyed to determine major factors affecting domestic textile demands for raw cotton. Current fiber utilization, opinions as to desirable fiber qualities and characteristics of the cotton marketing system were analyzed. Quality and marketing problems relating to cotton produced in various regions of the Cotton Belt and the competitive position of southwestern cotton relative to other cotton-producing areas received special attention in this survey.

For the purposes of this report, the states of Texas and Oklahoma are considered to be the southwestern area. Cotton produced in this area has been predominantly of short staple length. These two states have produced more than 95 percent of all U. S. cotton under 1 inch in staple length since 1960. Carryover stocks of short staple cotton have continued to increase since 1961, and by 1966 reached a level of almost 6 million bales. From 1961 to 1966, annual production of cotton under 1 inch averaged 3.8 million bales. During this same period, annual domestic mill consumption of cotton under 1 inch ranged from 1.2 to 1.6 million bales.

Exports of this cotton have remained at approximately the same level as domestic mill consumption during the past 6 years. Cotton under 1 inch in staple length comprised over 37 percent of the total stocks in CCC inventory on August 1, 1966. By June 29, 1967, total stocks of cotton under 1 inch in staple length made up 66 percent of CCC inventory. In order to reduce this inventory, consumption must be expanded either by domestic mill use or by export, or production must be drastically reduced. The opportunities for expanding consumption of short staple cotton in domestic mills are examined in this publication.

The 98 mills surveyed consumed nearly 6 million bales (or bale-equivalents) of cotton and synthetics in 1964. Over $5\frac{1}{4}$ million bales of cotton alone, about 58 percent of the total U. S. cotton consumption in 1964, were used in the 98 mills. It was estimated that total domestic mill consumption of cotton in 1964 was slightly over 9 million bales. Although total mill consumption of cotton has had an upward trend in recent years, it has not increased as rapidly as mill consumption of other fibers. Cotton's share of the fiber market has declined greatly in the past 20 years.

An estimated total of almost 600,000 bales of cotton from the Southwest was consumed by the 98 mills surveyed

in 1964. Only 16 of the 98 mills used cotton shorter than 1 inch in staple length. There was a direct correlation between the finest yarns produced and the staple length of the raw cotton used. As end products required finer and finer yarns, it was necessary for mills to use longer staple cottons or blend short staple cottons with the longer fibers. The majority of the 40 different end products utilizing southwestern cotton were made from relatively coarse yarns.

The most important reason mill personnel gave for using southwestern cotton was the relatively low price of this cotton. Prices paid for southwestern cotton ranged from 27 to 33 cents per pound, while longer staple cottons from other areas brought prices up to 40 or 50 cents per pound. In a few cases, convenience and availability were given as reasons for using southwestern cotton. South Texas cotton was mentioned as being of better character than other cotton for broadcloth, print cloth and sheeting produced in one mill. Good dyeing properties, short staple lengths, particular micronaire numbers and uniformity were given as the main reasons for using southwestern cotton for certain special end products.

Some of the marketing problems involved in obtaining cotton from the Southwest were common to all areas, such as removing cotton from warehouses or retiring it from the loan. Additional problems specifically related to the quality of southwestern cotton included variability in quality, poor character, poor running and presence of fluorescent spots. In spite of these difficulties, the relatively low price paid for southwestern cotton made it profitable for mills to obtain cotton from this area.

The results of this study indicate that southwestern cotton could compete with cotton from other areas if it were priced sufficiently low, or if the quality factors presently limiting mill uses were improved. In the immediate future, the main use of this cotton will be for products requiring a coarse yarn or for blends with other longer staple raw materials. An increase in staple length would expand opportunities for outlets considerably. For the extremely short staple cottons, prices must remain considerably below longer staples to compete effectively with longer staple varieties. Fiber characteristics other than staple length play only a small role at this time in determining the attractiveness of southwestern cotton. The staple length remains the major problem which this area must consider in finding uses for its cotton.

COTTON FUNDAMENTALLY IS USED as a raw material by the textile industry. As such, it must compete in price and quality with other raw materials such as wool, flax and manmade fibers. Textile manufacturers select those raw materials that will provide them with the desired quality of finished product at the lowest cost. The basic factors affecting textile mill decisions on raw material procurement and the competitive nature of southwestern cotton are analyzed in this publication.

Southwestern cotton, as defined in this publication, is cotton produced in Texas and Oklahoma. It is generally known in the trade as being of relatively short staple length. In recent years, this cotton apparently has been priced too high under the Commodity Credit Corporation loan program to compete effectively in the market with cotton of longer staple lengths. Shorter staple cotton cannot be processed as rapidly or as efficiently as longer staples by the textile industry. Increasing wage rates and other manufacturing costs have forced mills to operate at faster speeds to maintain profits. As a result, short staple cottons from the southwestern area have been accumulating in CCC stocks.

Raw Cotton

Requirements of Textile Mills— Implications for Southwestern Cotton

JAMES W. GRAVES, Assistant Professor
Department of Agricultural Economics and Sociology

SOUTHWESTERN COTTON

The location of the production of southwestern cotton in 1964 is shown in Figure 1. More than 75 percent of this cotton had a staple length of less than 1 inch. The carryover of cotton less than 1 inch in staple length totaled almost 600,000 bales on August 1, 1961. This total increased rapidly to almost 6 million bales by 1966. Only 8.4 percent of the 1961 carryover was of cotton less than 1 inch in staple length. On August 1, 1966, almost 36 percent of the cotton carryover was under 1 inch in staple length. Of the 16.5 million bales in carryover on August 1, 1966, 14.5 million were held in CCC stocks. Figure 2 shows the distribution of CCC stocks by staple length on August 1, 1966 and on July 28, 1967. Comparison is made between CCC stocks and 1966 production by staple lengths. Figure 2 also shows the relative importance of Texas and Oklahoma in the production of cotton less than 1 inch in staple length.

The staple lengths of cotton produced in Texas and Oklahoma in 1966 were typical of lengths in earlier years. Figures 3 and 4 indicate the importance of short staple cotton in Texas and Oklahoma relative to the rest of the United States from 1952 to 1966. Texas has produced more than 70 percent of all cotton under 1 inch in staple length produced in the United States since 1948. In 1952 and 1954, Texas produced 71 percent of all U. S. cotton under 1 inch, but, since 1960, this proportion has remained above 87 percent. More than half of the remaining cotton under 1 inch produced during the past 9 years came from Oklahoma. Since 1952, from 60 to 80 percent of all cotton produced in Texas has been under 1 inch in length.

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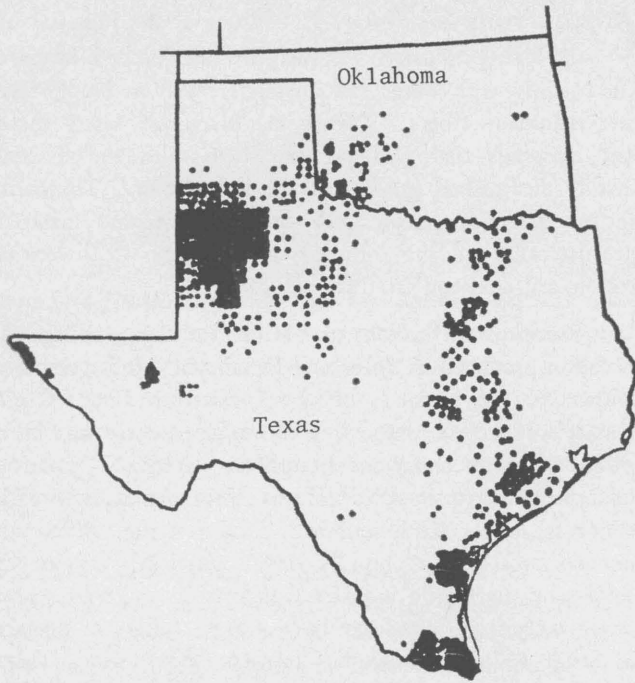


Figure 1. Distribution of cotton production, Oklahoma and Texas. Ginnings from 1964 crop. Each dot represents 5,000 bales. (Source: *Cotton Quality Crop of 1964*, p. 3. Consumer and Marketing Service, Cotton Division, USDA, Washington, D. C.)

Over the same period, a larger portion of the Oklahoma crop has been under 1 inch in length, ranging up to 94 percent in 1952 and 1954. The broken line in Figure 4 indicates the percentage of U. S. cotton under 1 inch which has been produced in both Texas and Oklahoma.

Because such a large portion of the short staple cotton is produced in the Southwest and such a large portion of southwestern cotton is under 1 inch in staple length, this study will stress uses of short staple cotton. The market for such cotton is of vital concern to the southwestern area.

Stake in the Cotton Industry

Between 1960 and 1964, Texas and Oklahoma harvested 45 percent of the total U. S. cotton acreage. The acreage harvested dropped from 6.8 million acres to 4.4 million acres in 1966, but remained at about the same percent of the total. More than 90 percent of the harvested acreage in the southwestern area was located in Texas.¹

The Southwest has historically produced about one-third of U. S. cotton. Cotton production during 1960-64 in the Southwest averaged 4.8 million bales. In general,

¹Nearly one-third was in the High Plains area of Texas.

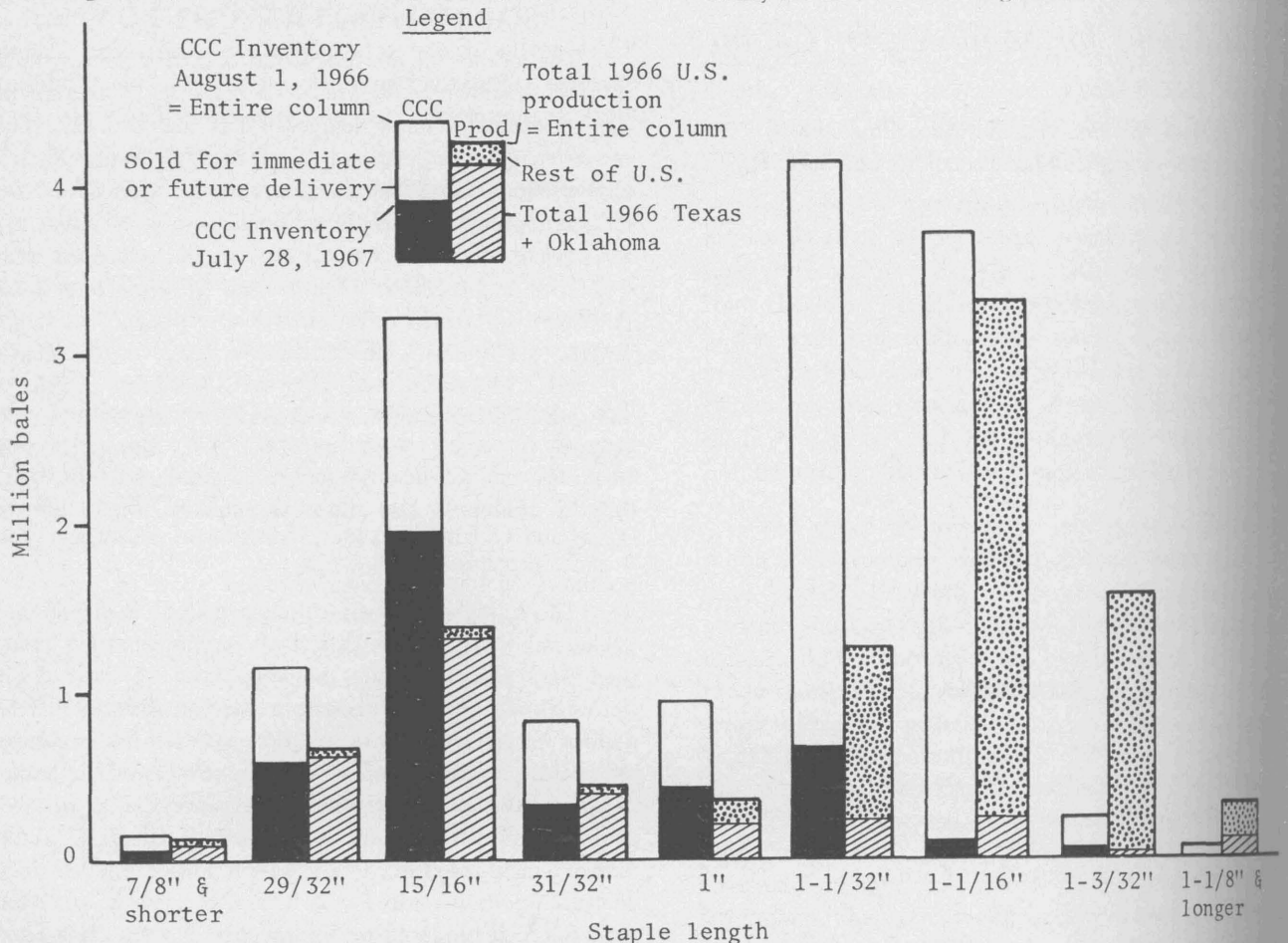


Figure 2. CCC cotton stocks in inventory, August 1, 1966 and July 28, 1967 and production in 1966 in United States and Texas plus Oklahoma by staple length. Source: Compiled from data obtained from USDA, Economic Research Service. *Cotton Situation*, May 1967, p. 30, and ASCS notice of July 28, 1967.)

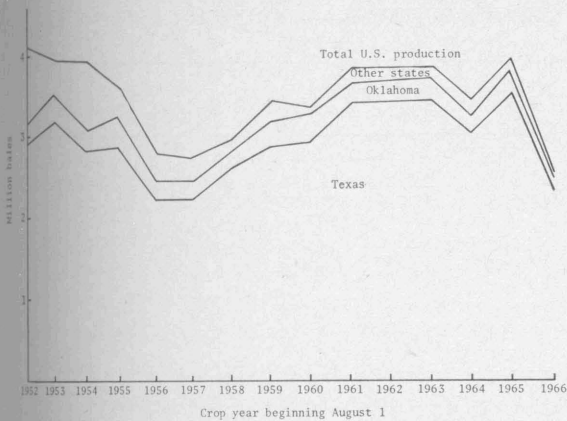


Figure 3. Production of cotton under 1 inch in staple length, Texas, Oklahoma and United States, 1952-1966. (Source: *Cotton Quality Crop of 1952-1966.*)

yields per harvested acre in the Southwest have averaged below those in other states. Between 1960 and 1964, the average yield in the southwestern area was 342 pounds per acre while the U. S. average was 475 pounds per acre. Low yields combined with low quality have brought about major problems of producing and marketing southwestern cotton.

Textile Mill Survey

In 1965, a study was conducted by the Southern Regional Cotton Marketing Research Committee to determine the qualities of cotton that mills were using, and why particular cotton was being used.² The specific objectives of the study were (1) to determine current and expected consumption patterns for cotton and competing fibers and (2) to determine reasons for mill selection of

The survey was conducted with the cooperation of Experiment Stations from Alabama, Arkansas, Georgia, Louisiana, Mississippi, Missouri, New Mexico, South Carolina, Tennessee, Texas and the Economic Research Service of the U. S. Department of Agriculture under Southern Regional Project SM-31. In addition to the regional report, subregional reports have been prepared for each major cotton producing area. The first report, *Factors Affecting Use of Southeastern Cotton and Competing Fibers*, was published in February 1967 by E. W. S. Calkins and H. C. Spurlock, South Carolina Agricultural Experiment Station.

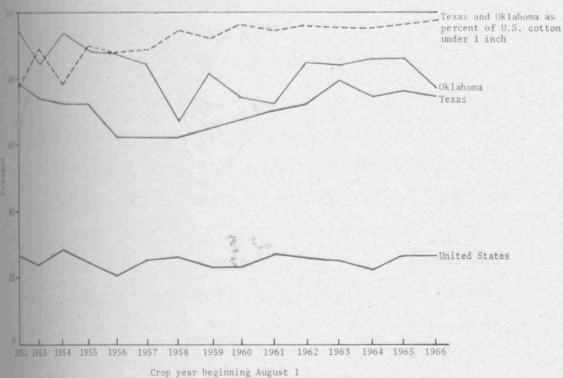


Figure 4. Percent production of cotton under 1 inch in staple length, United States, 1952-1966. (Source: *Cotton Quality Crop of 1952-1966.*)

specific qualities of cotton. Information was obtained from 98 mills relating to the degree of competition of cotton and synthetics and competition between cotton from various producing regions in the United States.

Additional data were obtained relating to textile products manufactured, qualities and type of cotton used, other fibers used in blends with cotton and reasons for selecting certain types of cotton. The 98 mills consumed over 51¼ million bales or 58 percent of the total domestic cotton consumption in the United States in 1964. The sample was selected upon the basis of location and types of products produced. Various-sized firms producing all types of products were included in the sample in approximate proportion to their representation in the industry. In order to obtain accurate information from the larger consumers of raw cotton, nearly all of the largest firms using cotton were studied. This survey provided information relative to uses of southwestern cotton. Additional information relating to uses of cotton from other areas has been analyzed and is being published by representatives from those areas.

MILL CONSUMPTION OF SOUTHWESTERN COTTON

Mill uses of short staple cottons were first examined and the origin (if known) of the cotton used was analyzed. The supply and disappearance of all cotton and cotton under 1 inch in length since 1957 is presented in Table 1. Figure 5 shows the supply and disappearance of cotton under 1 inch for these same 10 years. Mill consumption of this cotton has fluctuated between 1.2 and 1.6 million bales except in 1959 and 1960. Favorable economic conditions and lower cotton prices in 1959 caused mill consumption to increase. Exports of short staple cotton also increased in 1959 and 1960 with less foreign production and lower export prices. As a result, the carryover level of cotton under 1 inch declined to a low of 598,000 bales on August 1, 1961. Exports and mill consumption both dropped in 1961 and carryover levels of under 1 inch cotton doubled by August 1, 1962. Carryover levels have continued to climb and approached 6 million bales by 1966. Mill consumption of short staple cotton was estimated at about 1.5 million bales in 1963 and 1964.

During both 1963 and 1964, Texas and Oklahoma produced 95.8 percent of all cotton under 1 inch in length produced in the United States. In other words, 24 out of every 25 bales of short staple cotton were produced in Texas or Oklahoma in those 2 years. (An even larger percent of the short staple cotton came from Texas or Oklahoma in 1965 and 1966.) If cotton from the Southwest was consumed in the same proportion as its production, then an estimated average of 1,465,000 of the 3,500,000 bales produced in the Southwest were used by domestic mills in 1963 and 1964.

TABLE 1.—COTTON: SUPPLY AND DISAPPEARANCE, ALL COTTON AND COTTON UNDER 1 INCH IN STAPLE LENGTH UNITED STATES AND SOUTHWEST CROP YEARS 1957 TO 1966

Item	Crop year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Beginning carryover August 1	— 1,000 Bales —									
Total	11,323	8,737	8,885	7,559	7,228	7,831	11,216	12,378	14,291	16,862
Under 1 inch	3,773	3,712	3,722	1,430	598	1,278	2,855	3,686	4,339	5,932
Production plus imports ¹										
Total	11,061	11,561	14,685	15,270	14,800	15,027	15,434	15,364	14,970	9,753
Under 1 inch ²	2,759	2,984	3,447	3,373	3,854	3,842	3,872	3,439	3,996	2,567
Supply ³										
Total	22,384	20,298	23,570	22,829	21,828	22,858	26,650	27,742	29,261	26,616
Under 1 inch	6,532	6,696	7,169	4,803	4,453	5,219	6,729	7,126	8,336	8,499
Total disappearance ⁴										
Total	13,716	11,492	16,199	14,911	13,867	11,770	14,271	13,230	12,439	14,546
Under 1 inch	2,820	2,974	5,739	4,205	3,075	2,364	3,043	2,787	2,404
Exports										
Total	5,717	2,789	7,182	6,632	4,913	3,351	5,662	4,060	2,942	5,007
Under 1 inch	1,587	1,314	2,393	1,966	1,543	1,155	1,524	1,243	1,146	1,423 ⁵
Mill consumption ⁶										
Total	7,999	8,703	9,017	8,279	8,954	8,419	8,609	9,171	9,497	9,540
Under 1 inch	1,233	1,660	3,346	2,239	1,532	1,209	1,519	1,544	1,258
Production—Texas										
Total	3,573	4,210	4,373	4,318	4,774	4,694	4,350	4,033	4,599	3,124
Under 1 inch	2,231	2,630	2,875	2,937	3,402	3,442	3,435	3,055	3,542	2,340
Production—Oklahoma										
Total	259	308	379	454	366	305	325	278	358	211
Under 1 inch	220	208	311	339	266	261	273	240	308	165
Production—Southwest										
Total	3,832	4,518	4,752	4,772	5,140	4,999	4,675	4,311	4,957	3,355
Under 1 inch	2,452	2,838	3,186	3,276	3,668	3,703	3,708	3,294	3,849	2,505

¹Production plus imports equals ginnings of current crop plus city crop plus net imports: Upland and American-Egyptian cotton.

²Imports not included with production of under 1 inch cotton.

³Supply equals carryover at beginning of crop year plus production plus imports.

⁴Disappearance equals supply minus carryover at the end of the season.

⁵Mill consumption equals total disappearance minus exports.

⁶Total disappearance of cotton under 1 inch and mill consumption for 1966 are not yet available.

⁷Estimated for 1966-67.

⁸Exports to June 1, 1967.

Source: (1) Carryover, production, supply and disappearance from *Statistics on Cotton and Related Data, 1925-1962 and Supplement to 1966*, Statistical Bulletin 329, Economic Research Service, U. S. Department of Agriculture.

(2) Production for 1966 from *United States Cotton Quality Report for Ginnings, 1966 Crop*, Consumer and Marketing Service, U. S. Department of Agriculture.

(3) Exports from Annual Outlook Issues and July, 1967 issue of *Cotton Situation*, Economic Research Service, U. S. Department of Agriculture.

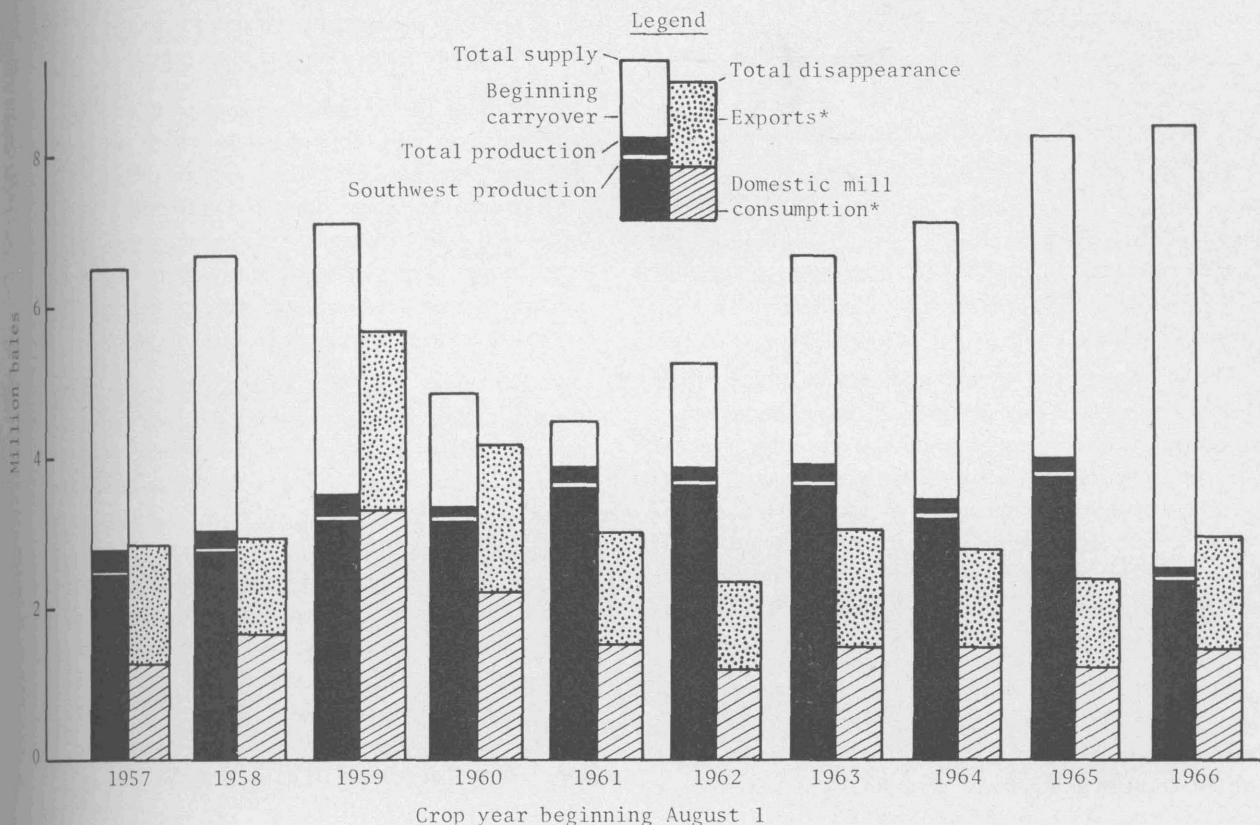
Even though the same bales produced in the Southwest may not go to the indicated final destination, southwestern cotton enters the channels of trade or carryover stocks and replaces other cotton being consumed or exported. It is reasonable to assume that southwestern cotton contributes to the disappearance of short staple cotton in the same proportion as production in this area contributes to total U. S. short staple cotton production. Based on this assumption, an average of 1,325,000 bales were exported; 1,465,000 bales consumed by domestic mills and 710,000 bales entered carryover stocks from Texas and Oklahoma in 1963 and 1964.

Consumption by Mills Surveyed

In 1964, approximately 300,000 bales of cotton under 1 inch in length from the Southwest were consumed by mills in the sample. In addition, 65,000 bales of short staple cotton from other areas were also used in 1964

by those mills studied. Another 60,000 bales came from unknown territories. Assuming 350,000 of the 425,000 bales of cotton under 1 inch in length consumed by the mills surveyed in 1964 came from the Southwest, this would have been 82 percent of those mills' consumption of short staple cottons. Since the proportionate share of the Southwest's production of short staple cottons was 96 percent, consumption in the sample mills was 14 percent less than expected. This would indicate that a slightly larger quantity of the short staple cotton consumed by mills in the sample came from other areas than would have been expected. A high proportion of the 60,000 bales coming from unknown territories may have been produced in the Southwest. Possibly the sample of industrial uses of cotton was not representative of total consumption of short staple cotton, or short staple cotton was not consumed by domestic mills in proportion to its production.

It was estimated that an additional 300,000 bales of cotton averaging 1 inch and over in length used by the



*Preliminary and estimated, 1966.

Figure 5. Supply and disappearance of cotton under 1 inch in staple length, United States, 1957-1966. (Source: Data compiled from Table 1.)

sample mills was produced in the southwestern area. The southwestern states of Texas and Oklahoma produced approximately 1 million bales of cotton 1 inch and longer in 1964. Most of this longer cotton was used for products requiring the finer yarn numbers. A total of almost 600,000 bales of cotton from the Southwest was consumed in 1964 by the mills surveyed.

Consumption of Cotton Under One Inch in Length

Of the 98 mills surveyed, only 16 used cotton shorter than 1 inch in staple length. Of these 16 mills, only one obtained all of its short staple cotton from sources other than West Texas or Oklahoma. These 16 mills consumed slightly over 425,000 bales of cotton less than 1 inch in staple length in 1964. This cotton was blended with about 40,000 bales of rayon and polyester fiber. An additional 100,000 bales of card strips and comber noils were also used in combination with the cotton under 1 inch in staple length. Appendix Table 1 shows the end products produced from all cotton under 1 inch consumed in 1964 by the mills surveyed.

Of the 300,000 bales of short staple cotton indicated as being obtained from the southwestern area, about 185,000

bales came from West Texas. An additional 40,000 bales came from West Texas and Oklahoma territory; 5,000 bales came from West Texas or South Texas; 67,000 bales came from the East Texas-Oklahoma territory; and 5,000 bales came from North Texas. An additional 27,000 bales of short staple cotton were obtained from the Central Belt. Mills surveyed also consumed about 28,000 bales from the Southeast and East and 8,500 bales from California and Arizona.

Little of the short staple cotton consumed by mills surveyed was used in blends with manmade fibers. Only three different classes of end products combined cotton with manmade fibers. Gray cloth produced by one mill was made from 50 percent short staple cotton and 50 percent rayon. Another mill making knitting yarns blended cotton with 50 percent polyester.

The yarn numbers in most cases were relatively coarse.³ Yarn numbers ranged from less than 12s to 25s. However, for most end products produced by mills surveyed yarn numbers ranged from 6s to 20s. Sixteen of

³Yarn numbers are given in the customary "cotton count" system, in which the number represents the number of "hanks" of 840 yards required to make 1 pound of yarn. For example, 840 yards of 1s yarn (about the coarsest that is spun) weighs 1 pound. In 50s yarn, the same pound of cotton is stretched out into 42,000 yards (almost 24 miles) of much finer yarn.

the 22 different end products made by mills using short staple cotton had highest yarn numbers under 20s.

Qualities of Cotton Used

The average grade of short staple cottons used by mills surveyed was middling or strict low middling, spotted and light-spotted. Staple lengths average 15/16-inch with some at 31/32 and 29/32. Only two of the mills surveyed indicated they consumed 7/8-inch cotton for their end products.

The micronaire and strengths of cottons used by mills were studied also. Only a few of the mills surveyed used cotton with a micronaire of 3.0 or less, and the average micronaire of the short staple cottons used was 4.0. The strength requirements for short staple cottons were not high. The average strength of the short staple cottons used by mills surveyed was 82,000 pounds per square inch. The lowest strength indicated by mills surveyed was 75,000 pounds for use as carpet weaving yarn.

For 16 of the 22 end products using short staple cottons, price was indicated as the major reason why this type cotton was consumed. In addition, micronaire, staple length and convenience were also given as reasons for selecting cotton from the Southwest. In 1964, prices paid by the mills interviewed ranged from 27 to 33 cents per pound. The average price was 29.50 cents.

Final Southwestern Cotton Products

Southwestern cotton was used chiefly in end products requiring fairly coarse yarn numbers. Products requiring yarn numbers of 14s or less included duck and osnaburg, industrial fabrics, tufting and weaving yarns and twine and cordage. Appendix Tables 2 through 5 present the characteristics of cotton used in the Southwest by end products. About two-thirds of the cotton used in products requiring coarser yarns came from the Southwest. Nearly 200,000 bales of cotton were used in products with highest yarn numbers between 8s and 14s. Of the 93,000 bales of cotton used for products requiring highest yarn numbers of 15s to 21s, 52,000 bales were 1 inch or longer in staple length. Nearly 178,000 bales of cotton from the Southwest were used in products requiring highest yarn numbers between 22s and 28s. The average staple length of 94,000 of these bales was 15/16 inch while the other 84,000 bales had an average staple length of 1 inch or longer. Only 120,000 bales from the Southwest were consumed in end products requiring yarn numbers higher than 28s. The highest yarn numbers for which southwestern cotton was used were 42s and 52s. These yarns were used in manufacture of broadcloth, print cloth, sheeting and miscellaneous fabrics. In each instance, the staple length of cotton used for these products was 1 inch or longer.

REASONS FOR USE OF SOUTHWESTERN COTTON

Most of the southwestern cotton utilized in the mills surveyed was used for relatively coarse cotton products or coarse yarn numbers. Southwestern cotton was blended with manmade fibers for five different end products. In several other instances, Southwest cotton was blended with longer staple cottons from other areas. For most of the coarser fabrics, Southwest cotton was the main source of raw material used.

The most important reason given for using southwestern cotton was its low price. Price was given as the primary reason in 21 out of the 37 end product mixes. Convenience and availability were the primary reasons for using southwestern cotton in five different mixes. In three mixes, better running or character of the fiber was given as the main reason for selecting southwestern cotton. Two mills indicated they used southwestern cotton because of its good dyeing properties. Other reasons given by different mills included staple strength, micronaire and uniformity. The importance of price in the selection of southwestern cottons indicates that short staple cotton can be used efficiently if it is priced significantly below longer staple cotton to cover the additional costs of processing.

Some mills indicated that problems of obtaining cotton from warehouses or withdrawing cotton from the loan were greater in the Southwest than in any other areas, perhaps because more of this cotton was in CCC stocks. Additional problems mentioned by the mills surveyed included variability of quality in Southwestern cotton, poor character, poor running, presence of fluorescent spots and variation in dyeing factors. These last reasons were indicated by only one mill in each case and apply to particular end product uses.

IMPLICATIONS FOR DOMESTIC USE

From this analysis of qualities of cotton produced in the southwestern area and the survey of textile mills, the following conclusions appear evident: (1) Cotton from the Southwest probably will continue to be of shorter staple length than other U. S. cotton. (2) Cottons of short staple length compete with longer fibers mainly on the basis of price and must be priced sufficiently below higher quality cottons to compete effectively. (3) Southwestern cottons probably will continue to be used mainly in the production of coarser yarns and less expensive end product materials in the future. (4) The future consumption of cotton by U. S. mills is expected to continue to grow, but the market share maintained by the Southwest will depend largely on quality and price factors.

The domestic mill consumption of U. S. cotton has trended upward steadily since 1947. The major increase

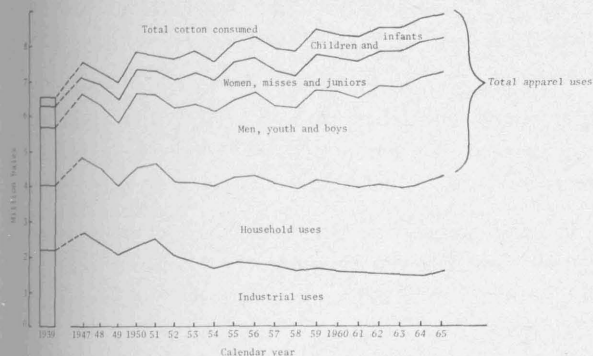


Figure 6. Domestic mill consumption of cotton, by end uses, 1939 and 1947-1965. (Source: *Cotton Counts Its Customers*, Special Editions, 1958, 1966 and October 1966.)

has been in men's, youth's and boy's apparel, with some increase in other apparels and household uses. Cotton used in industrial uses has declined since 1947. Figure 6 shows the U. S. domestic mill consumption of cotton by end uses from 1947 to 1965 compared with 1939 uses.

If past trends continue, and there seems to be little reason to assume they will not, it is evident that the major increases in domestic mill consumption of cotton will come from clothing and apparel. Southwestern short staple cotton is facing increasing competition from longer staples and synthetics in these major end uses. The slight increase in cotton consumption in household goods offers some hope for short staple cottons. However, the decline in industrial uses may result in smaller markets for short staple cotton from Texas and Oklahoma. The overall outlook for domestic mill consumption of short staple cotton is not promising unless major price or cost adjustments occur.

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GLOSSARY⁴

Broadcloth. Fine fabric, usually combed; used principally for shirts and dresses.

Cable cord. A thread or cord made by twisting together several strands of plied yarn. Each successive twist is in opposite direction to the one before.

Carding. Process of opening and cleaning textile fibers which separates fibers from each other; lays them parallel, makes them into a thin web and condenses them into a continuous untwisted strand of fibers called a "sliver."

Card strips. Usuable waste from the carding process.

Carded yarn. Yarn made from cotton that has not been combed.

CCC stock. Cotton that has been pledged as collateral for the government loan and not redeemed. At the expiration of the loan, it is catalogued by the Commodity Credit Corporation and sold to the highest bidder, subject to certain minimum price restrictions.

Cheesecloth. See gauze.

Combed yarn. Yarn made from cotton that, after carding, has been combed to remove short fiber and make the yarn smoother and stronger.

Comber noils. Short, knotted fibers which are rejected in the combing process in preparing yarns.

Commission buyer. One who buys cotton (usually in his local market, although some travel to other areas) for a mill or shipper, without taking title to the cotton in his own name.

Compressed or standard density bale. A bale of cotton compressed to a density of 23 pounds per cubic foot, which makes it possible to load 100 or more bales in a box car. Standard density bales are usually made by repressing flat bales, but some gins are equipped with standard density presses.

Consumer. One who buys goods for his own use or for use by his dependents, and not for resale.

Converter. One who buys gray cloth, has it bleached, dyed, printed and so forth to his specifications; he then sells the finished fabric to cutters, wholesalers and others.

Cordage. Twine, rope, clothesline, sash cord and others produced by twisting or braiding.

Cutter. One who buys finished fabric and cuts and sews it to form manufactured articles, such as clothing, sheets and other products.

Covering yarn. Fine combed yarn that is wrapped around strands of rubber to form elastic thread.

⁴From *Factors Affecting Use of Southwestern Cotton and Competing Fibers*, by E. W. S. Calkins and H. C. Spurlock, South Carolina Experiment Station Bulletin 532, p. 75 and *Fiber Facts*, by the American Viscose Corporation.

Denim. A tightly woven fabric made of coarse yarns, usually with undyed warp and colored filling. Used for work clothing and sportswear.

Drills and twills. Strong, heavy fabrics in which either the warp or the filling passes alternately over two or more threads and under one, the "floats" forming a diagonally ribbed pattern.

Duck. Strong, heavy, square-woven fabric used for many industrial purposes.

Filling. The yarn that runs crosswise of a fabric, being laid between the warp yarns by the shuttle. Filling yarn usually has lower twist than warp yarn.

Fine goods. Fabrics woven from combed yarns, usually 60s or finer, including lawns, batistes, tracing cloth and typewriter ribbon.

Flannel. A fabric woven of relatively fine warp yarns and coarse, soft filling, then "napped" by plucking up fiber ends from the filling yarns to form a soft, fuzzy surface.

Flat bale. The cotton bale produced by most gins, containing approximately 500 pounds of cotton in a package about 56 x 28 x 45 inches at a density of about 12 pounds per cubic foot.

Gray cloth. Cloth as it comes from the loom; completely manufactured, but not bleached, dyed or finished.

Industrial fabrics. Heavy fabrics such as duck and chafer used as raw materials for manufactured articles, usually in combination with nontextile raw materials (rubber, plastic, metal and others). The mechanical properties of the fabric are more important than its appearance.

Industrial thread. A coarse, strong cable cord construction used for sewing shoes, tents, tarpaulins and other products.

Industrial user. One who buys textile products for use as raw material in the production of nontextile manufactured articles such as automobile interiors, belting, hose and other products.

Integrated mill. A mill that both spins and weaves. In addition to weaving its own yarn, an integrated mill may sell excess yarn to other users or buy additional yarn from other spinners. Some large integrated firms also own finishing plants and sell finished fabrics or manufacture sheets, pillowcases and other products. *Note:* Most manufacturers of drapery and upholstery fabrics, because of the many types of yarn required, and most manufacturers of laces, tapes, webbing, braids and cordage, because of the small volume, do not attempt to spin the yarn they use. Only a few of the largest knitters manufacture their own yarn.

Jobber. One who buys in large quantities from manufacturers and sells to wholesalers or directly to retailers.

Knitter. A person or firm that manufactures hosiery, underwear, tubular or flat fabrics from yarn by knitting.

Knitting yarn. Yarn used for knitting hosiery, underwear, gloves and other products. High strength is usually not required, but the yarn must be smooth and even and have low twist.

Local merchant. One who buys cotton in the local market, usually from producers in his home county, and resells to mills, to other merchants or to shippers located at a distance.

Mill buyer. One who buys cotton for the account of one or more mills; he may be a salaried employee or a commission buyer who, by special arrangement, buys exclusively for one or a few textile firms.

Mix. (1) A blend consisting of one or more types of cotton in specified proportions, with or without any other fibers. (2) A number of bales (usually 20 to 40) opened at one time and blended in processing to average out any quality variations between individual bales.

Osnaburg. A coarse, rough fabric usually made of low-grade cotton or a blend of raw cotton and cotton waste. Originally made for use as a cheap bagging, it has become popular for decorative household uses because of its interesting texture.

Plied yarn. Yarn produced by twisting together two or more strands of single yarn.

Poplin. A square-woven fabric similar to sheeting but finer and more firmly woven but not as fine as broadcloth. Used mainly for shirts and dresses.

Print cloth. Cloth usually woven of 30s to 32s warp and 38s to 43s filling, with 64 to 80 threads per inch in each direction. After weaving, it may be bleached or dyed, but is usually printed with a pattern in one or more colors.

Raw cotton. Ginned cotton in bales, used as a raw material for textile manufacture.

Retailer. One who buys from wholesalers or others and sells directly to the consumer.

Rug yarn. Yarn used for the pile of rugs. It may be stitched or woven into the backing fabric, and the loops on the face of the rug may be cut or uncut. The most important quality requirements are uniform color and even dyeing.

Sateen. A cotton fabric having a smooth, lustrous face and a dull back; similar to satin but heavier and not so "silky" looking.

Sewing thread. A fine, strong cable cord construction, usually combed and made of the longest and strongest cotton obtainable.

Shade cloth. Fine, closely woven fabric. The most important quality requirement is smooth, even yarn that will not give a streaky appearance when viewed by transmitted light.

Sheeting. Fabric for bed sheets and pillow cases; also has many other uses, usually woven of 20s to 30s yarns with 42 to 64 threads per inch in each direction.

Shipper. One who buys cotton in local markets, usually in "round" or mixed lots, concentrates the cotton at a central location and classes it out into even-running lots for sale to mills.

Single yarn. Yarn as produced by spinning; not consisting of two or more strands twisted together.

Spinning mill. A mill that manufactures yarn from cotton or other staple fibers.

Spun yarn. Yarn manufactured from staple fibers by drafting and twisting.

Staple fibers. Fibers of any length from less than an inch up to several inches. So called to distinguish them from continuous filaments.

Tobacco cloth. Fabric similar to gauze, used to shade tobacco beds.

Tufting yarn. Yarn used for the "pile" of chenille bedspreads, bathrobes and other products. It is stitched

into a backing fabric similar to sheeting and the protruding loops are cut to form a fluffy surface.

Twine. Either a heavy plied yarn or a cable cord, suitable for tying up packages and various other uses.

Twisting. The process of forming plied yarn by twisting together two or more strands of single yarn; or forming cord by twisting together two or more plied yarns.

Velveteen. A cotton pile fabric similar to velvet.

Warp. Yarn that runs lengthwise of a woven fabric. It usually has higher twist than filling yarn to give it sufficient strength and elasticity to withstand the stresses of weaving.

Waste. Materials removed from cotton at any step in manufacturing and consisting of either undesirable fibers or of a mixture of fibers and foreign matter such as leaf particles, trash, burs, motes and others.

Waste dealer. One who buys all types of waste from textile mills and resells the spinnable waste (card strips and comber noils) to other spinning mills and other types of waste to industrial users.

Weaving yarn. Yarn intended to be woven into fabric. This name is usually applied to yarn produced by a spinning mill and sold to weaving mills.

Wholesaler. One who buys from jobbers and manufacturers and sells to retailers.

Appendix Tables

APPENDIX TABLE 1.—COTTON UNDER 1 INCH CONSUMED IN 1964 BY MILLS SURVEYED, SOURCES AND QUALITY CHARACTERISTICS, BY END PRODUCTS

Mill	End product	Range of yarn numbers produced	Bales of cotton used	Territory from which cotton obtained ¹	Other raw materials in blend ²	Average grade ³	Average staple length ⁴	Indicated mill price
A	Hank roving and mop yarn	1-7	300	Any		SLM-s	30	20.50
B	Industrial yarns	1-12	6,000	SE,Cal,WTO	CS,R,CN	SGO	30-33	28.90
B	Weaving yarns	8-12	6,000	ETO—WTO		LM+	30	28.00
C	Duck and osnaburg	2-13	14,000	C,Ar,NT0,WT,ST		SGO+	30	27.10
D	Knit carded yarn	2-10	8,300	WTO	CN	SLM+	30	29.50
E	Twine and cordage	4-10	5,250	ETO	CN	M-s	30	29.00
F	Canton flannel filling	3-11	8,600	WT	CN	SLM	29	29.80
G	Glove flannels	3-20	5,000	Ar,WT	W&F	M-ls	30-33	31.50
H	Flannels	2-23	10,050	WT,Ga		M-ls	30	29.60
I	Osnaburg	6-17	6,000	Ar,SE	CS	BG	29+	18.00
J	Osnaburg	4-12	4,096	ETO	CS	SLM-ls	30	28.30
J	Gray cloth	13-29	36,850	ETO	CS	M-ls	30	28.90
K	Knitting yarn	5-30	5,500	WT	P	M-ls	28	29.50
L	Tufting yarn	6-8	90,000	WT	CS,CN	M-ls	30	29.50
L	Blankets	18	23,000	WT,E		SLM	28-33	31.50
M	Industrial fabric	6-8	15,000	CB,ETO	CS	SLM-ls	30-33	
M	Sheeting	12-22	30,000	CB,ETO		SLM-ls	30-33	
N	Chenille yarn	6-18	18,000	WT	CS-CN		30	27.74
O	Duck	7-18	60,000	Any		SLM+	31	31.25
O	Carpet weaving yarn	7-18	25,000	WTO		SLM-ls	30	28.50
P	Filling for sheets	8-27	50,000	E,WT		M-ls	30	29.50
	Total bales		426,946					

¹Territory abbreviations: SE=Southeast; Cal=California; WT=West Texas; O=Oklahoma; ET=East Texas; Ar=Arizona; Ga=Georgia; NT=North Texas; E=East; CB=Central Belt; FW=Far West; and Any=from any territory.

²Abbreviations for blends: CS=card strips; R=rayon; CN=comber noils; and W&F=waste and fill.

³Abbreviations for grade: S=strict; L=low; M=middling; G=good; O=ordinary; BG=below grade; s=spotted; ls=light spots; t=tinged; and +=plus grades or bright.

⁴Staple lengths in 32nds of an inch.

Source: 1965 Survey of Cotton Textile Mills.

APPENDIX TABLE 2. SOUTHWESTERN COTTON CONSUMED IN 1964 IN MILLS SURVEYED, PRICE AND REASONS FOR USING, BY TERRITORY AND END PRODUCT

Territory End product use	Bales consumed	Mill price	Reasons for using	
			Primary	Secondary
South Texas	98,033			
Broadcloth	11,000	33.00	Better running	Early harvest
Duck	1,167	27.10	Price	Cleanliness
Denim	36,000		Good dyeing	Convenience
Industrial fabric	5,000	28.50	Price	
Osnaburg	9,166	28.50	Price	
Print cloth	11,000	33.00	Better running	Early harvest
Sheeting	10,000	33.00	Better running	Early harvest
Stretch denim	12,000		Good dyeing	Convenience
Toweling	2,000		Convenience	Better running
Knitting yarn	700	32.00	Convenience	
West Texas, Oklahoma	324,900			
Blankets	13,000	30.00		
Carpet backing	25,000	28.50	Price	
Duck	3,500	27.10	Price	Cleanliness
Canton flannel	8,600	29.80	Price	
Glove flannel	4,000	30.15	Micronaire	Color
Osnaburg	3,500	27.10	Price	Cleanliness
Print cloth	3,000	30.00	Price	Convenience
Sheeting	40,000	29.50		
Carpet yarn	15,300		Price	
Industrial yarn	5,000	28.50	Price	
Knitting yarn	8,300	29.50	Price	
Knitting and weaving yarn	1,500		Convenience	
Tufting yarn	90,000	29.50	Price	
Weaving yarn	3,000	28.00	Price	
Denim and ticking	83,200	30.50		
Chenille yarn	18,000	27.74	Price	
East Texas, Oklahoma	91,221			
Duck	19,000	31.25	Convenience	
Flannel	5,025	29.60	Length	Color
Gray cloth	36,850	28.90	Price	
Industrial fabric	6,000		Price	
Osnaburg	4,096	28.30	Price	
Sheeting	12,000		Price	
Weaving yarn	3,000	28.00	Price	
Rope and cordage	5,250	29.00	Convenience	Price
Central Belt, Southwest and Far West				
Miscellaneous fabric	75,000			
Central Belt, East Texas, Oklahoma and East				
Gray cloth and duck	9,800		Convenience	
Total bales consumed	598,954			

Source: 1965 Survey of Cotton Textile Mills.

APPENDIX TABLE 3.—BALES OF SOUTHWESTERN COTTON CONSUMED IN MILLS SURVEYED, SOURCE OF COTTON AND RANGE OF YARN NUMBERS MANUFACTURED, BY END PRODUCTS

End product	Bales consumed	Territories ¹	Yarn numbers	
			Lowest	Highest
All cotton	460,304			
Broadcloth	11,000	ST	26	42
Blankets	13,000	WTO		
Carpet backing	25,000	WTO	7	12
Duck	23,667	WTO	2	16
Denim	36,000	ST	6	15
Flannel	5,025	ETO	2	23
Canton flannel (N)	8,600	WTO	2	10
Glove flannel	4,000	WTO	3	20
Industrial fabric	11,000	ETO, ST		18
Osnaburg	16,762	ETO, WTO, ST	2	18
Print cloth	14,000	WTO, ST	13	42
Sheeting	62,000	ETO, WTO, ST	8	42
Toweling	2,000	ST	12	20
Carpet yarn	15,300	WTO	2	8
Knitting yarn	9,000	WTO, ST	2	28
Knitting and weaving yarn	1,500	WTO	1	16
Tufting yarn	90,000	WTO	6	8
Weaving yarn	6,000	ETO, WTO	8	12
Rope and cordage	5,250	ETO	4	10
Denim and ticking	83,200	WTO	14	24
Chenille yarns—low grade	18,000	WTO	6	18
Blends	138,650			
Cotton-rayon	41,850			
Gray cloth	36,850	ETO	13	28
Industrial yarn	5,000	WTO	1	12
Cotton-rayon or polyester				
Miscellaneous fabrics	75,000	CB, SW, FW	4	52
Cotton-nylon				
Stretch denim	12,000	ST	8	8
Cotton-polyolefin				
Gray yarn and duck	9,800	CB, ETO, E	6	20

¹See Appendix Table 1 footnotes for abbreviations.

Source: 1965 Survey of Cotton Textile Mills.

APPENDIX TABLE 4.—MICRONAIRE AND STRENGTH OF SOUTHWESTERN COTTON CONSUMED IN MILLS SURVEYED, BY END PRODUCTS

End product	Micronaire ¹				Fiber strength ²			
	Low	High	Average		Low	High	Average	
	No.	No.	No.	Bales	No.	No.	No.	Bales
All cotton								
Broadcloth			4.6	11,000			83	11,000
Blankets	3.5							
Carpet backing			3.4	25,000			75	25,000
Duck	3.0		3.3	23,667				
Denim	3.6	4.3	4.0	36,000	70		73	36,000
Flannel	3.9	4.7	4.4	5,025			79	5,025
Canton flannel (N)	3.5	5.0	4.2	8,600				
Glove flannel	3.6	4.8	4.8	4,000	75		78	4,000
Industrial fabric	2.6	4.8	4.1	11,000	72	75	73	11,000
Osnaburg	2.6	4.7	4.1	16,762	72	92	73	16,762
Print cloth	3.0		4.6	14,000			83	11,000
Sheeting	3.5	4.8	4.1	62,000			78	62,000
Toweling	3.5	5.0	4.2	2,000	78		80	2,000
Carpet yarn								
Knitting yarn	3.5	4.8	4.0	9,000	76			
Knitting and weaving yarn	3.5	5.0	4.2	1,500				
Tufting yarn		3.8	3.4	90,000				
Weaving yarn	3.5						80	6,000
Rope and cordage	2.0		3.0	5,250				
Denim and ticking	3.5	4.7	4.0	83,200				
Chenille yarns—low grade								
Blends								
Cotton-rayon								
Gray cloth	3.5	4.7	4.1	36,850	87	92	89	36,850
Industrial yarn	3.5						80	5,000
Cotton-rayon or polyester								
Miscellaneous fabrics	2.8	4.8		75,000	80			
Cotton-nylon								
Stretch denim	3.6	4.3	4.0	12,000	70		73	12,000
Cotton-polyolefin								
Gray yarn and duck		5.0	3.8	9,800	70	80	75	9,800

¹Micronaire readings.

²Thousand pounds per square inch.

Source: 1965 Survey of Cotton Textile Mills.

APPENDIX TABLE 5.—GRADE AND STAPLE LENGTHS OF SOUTHWESTERN COTTON CONSUMED IN MILLS SURVEYED, BY END PRODUCTS

End product	Grade ¹				Staple length ²			
	Low	High	Average		Low	High	Average	
	Code	Code	Code	Bales	No.	No.	No.	Bales
All cotton								
Broadcloth	SLM	M	SLM+	11,000			34	11,000
Blankets			SLM	13,000	28			
Carpet backing			SLMls	25,000	26		30	25,000
Duck	SGO+	LMW	SLMls	23,667		32	30	23,667
Denim	LM	MW	M	36,000			32	36,000
Flannel			SLM	5,025			30	5,025
Canton flannel (N)	SLM	M	SLM+	8,600	29	30		
Glove flannel			Mls	4,000			30	4,000
Industrial fabric	SGO	LM	SLMls	11,000	30	33	32	11,000
Osnaburg	SGO		LM	16,762	26	33	32	16,762
Print cloth	SLM	M	SLM+	14,000			33	14,000
Sheeting	SLM	M	Mls	62,000			30	62,000
Toweling	LM	SLM	LM+	2,000	33	34	34	2,000
Carpet yarn			SLM	15,300			32	15,300
Knitting yarn			SLM+	9,000			30	9,000
Knitting and weaving yarn	LM	M	SLM	1,500		34	33	1,500
Tufting yarn	SLM	SMls	Mls	90,000	29	30		
Weaving yarn	LM	M	LM+	6,000	29	31	30	6,000
Rope and cordage	M	SMs		5,250			30	5,250
Denim and ticking			LM+	83,200			32	83,200
Chenille yarns				18,000	24		30	18,000
Blends								
Cotton-rayon								
Gray cloth	Mt	Mls	Mls	36,850			30	36,850
Industrial yarn	SGO	LM	LM	5,000	30	33	31	5,000
Cotton-rayon or polyester								
Miscellaneous fabrics	LM	SM		75,000	30	34		
Cotton-nylon								
Stretch denim	LM	M	SLM	12,000			32	12,000
Cotton-polyolefin								
Gray yarn and duck				9,800	32	34		

¹See Appendix Table 1 for abbreviations of code.

²Length in 32nd of an inch.

Source: 1965 Survey of Cotton Textile Mills.