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The Cotton Industry and What it Means to Texas

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COTTON ECONOMIC RESEARCH

The University of Texas • Austin



Research Report No. 80

THE COTTON INDUSTRY AND WHAT IT MEANS TO TEXAS

Cotton Economic Research
The University of Texas
Austin, Texas

A Part of

The Cotton Research Committee of Texas

PREFACE

The cotton industry has been and still is an important basic industry in Texas. While there are many reports that deal with specific segments of the Texas cotton industry, few try to summarize all of the available information about the contributions of the various segments of the cotton industry to the economy of Texas. The data for this report were gathered from the files of Cotton Economic Research including publications of the U.S. Department of Agriculture, the U.S. Department of Commerce, the Texas Employment Commission and from other sources. Finally, extensive use of mail questionnaires was employed to obtain information from the manufacturers listed in the 1965 Texas Directory of Manufacturers published by the Bureau of Business Research of The University of Texas.

This office owes a debt of gratitude to the many people in the Texas cotton industry who took time to answer our inquiries and thus made this publication possible.

COTTON ECONOMIC RESEARCH
Austin, Texas 78712

TABLE OF CONTENTS

	Page
I. Introduction	1
II. Cotton and Cottonseed Production in Texas	2
III. Parties Involved in Processing Texas Cotton	5
A. Primary Parties	
Cottonseed Breeders and Certified Seed Growers	7
Farmers	8
Cotton Gins	9
Cottonseed Oil Mills	12
Compresses and Warehouses	13
Merchants-Shippers	14
Textile Mills	15
B. Associated Parties	
Aerial Applicators	17
Agricultural Chemicals	17
Apparel Industry	18
Banking Industry	20
Farm Machinery and Equipment Manufacturers	21
Gin and Associated Machinery Manufacturers	22
Mattress and Bedspring Manufacturers	23
Transportation	24
Additional Parties	27
IV. Summary	29

LIST OF TABLES

Number		Page
1.	Cotton Production in the United States and Principle Producing States for Crop Years Ending July 31	2
2.	United States and Texas Production, Price, and Value of Cottonseed	4
3.	Value of Texas Cotton and Cottonseed	4
4.	Characteristics of 1964-65 Texas Gins	11
5.	Characteristics of Texas Textile Mills	16
6.	Fabrics Used in the Texas Apparel Industry in Percent	20
7.	Destination and Method of Transportation of 4,478,000 Bales of Oklahoma and Texas Cotton, 1961-62	25
8.	Destinations of Gulf Port Cotton and Linters Exports, Season Ending July 31, 1963	26
9.	Employment and Payrolls Due to the Texas Cotton Industry	30

LIST OF FIGURES

1.	Parties Involved in the Processing of Texas Cotton and Its By-Products from the Farmer to the Consumer	6
2.	United States Cotton Production and the Man-Hours of Labor Required to Produce the United States Cotton Crop	10
3.	Number of United States Man-Hours Required to Produce One 500-Pound Bale of Cotton	10

I. INTRODUCTION

It has been stated in several newspaper and trade publication articles that the value of the cotton crop should be multiplied by seven--the number of times that the cotton dollar turns over in a community--to obtain the actual effect of the cotton industry on the economy of a community. Since the value of the 1964-65 Texas cotton crop was approximately \$667 million, the total value to the Texas economy would be approximately \$4.7 billion. This report attempts to examine each of the various segments of the Texas cotton industry and measure their employment and payroll. Of course, figures are not available for all of the parties, particularly those businesses that are only indirectly or partially related to the Texas cotton industry.

In trying to appraise the value of the cotton industry in Texas, the problem arises of evaluating the portion of business that is due to Texas cotton. For example, consider the farmer who raises cotton, grain sorghum, and livestock for his living. Obviously, all of his income and employment could not be attributed to cotton. The same holds true for the manufacturer whose product line contains only 20 percent of items used by the cotton industry. Therefore, this report attempts to determine the percentage of business of the various parties that is directly associated with Texas cotton. Newspapers constantly print articles pointing out changes in nonfarm employment and income. This report attempts to point out that much of the nonfarm employment comes from agricultural sources.

II. COTTON AND COTTONSEED PRODUCTION IN TEXAS

Texas is the leading cotton producer in the United States and has occupied this position for several decades. Table 1 shows the annual cotton production for the principle cotton-producing states. Notice that Texas has produced over four million bales annually for all of the crop years shown. For the crop years 1959-60 through 1964-65, Texas has produced an average of over 30 percent of the total United States production. Table 1 also illustrates the fact that Texas cotton production in the 1964-65 crop year was 83 percent more than that of the next largest producer, Mississippi.

Table 1. COTTON PRODUCTION IN THE UNITED STATES AND PRINCIPLE
PRODUCING STATES FOR CROP YEARS ENDING JULY 31
(Thousands of Running Bales)

	1959 -1960	1960 -1961	1961 -1962	1962 -1963	1963 -1964	1964 -1965
United States	14,515	14,265	14,325	14,864	15,290	15,148
Alabama	715	756	621	696	874	887
Arizona	720	849	824	936	836	794
Arkansas	1,534	1,346	1,460	1,458	1,501	1,583
California	1,954	1,964	1,709	1,935	1,736	1,788
Georgia	521	508	512	535	604	617
Louisiana	487	496	477	544	679	590
Mississippi	1,552	1,528	1,610	1,684	2,108	2,221
North Carolina	336	245	284	279	355	380
Oklahoma	379	454	366	305	325	278
South Carolina	421	419	414	456	464	565
Tennessee	642	571	550	548	644	666
Texas	4,403	4,345	4,801	4,736	4,413	4,079
All Others	851	784	697	752	751	700

Source: Cotton Production in the United States, USDC.

Cottonseed is also a valuable commodity that is produced with cotton. Since Texas is the largest cotton producer in the United States, it follows that Texas should also be the largest cottonseed producer. Table 2 bears out this fact and shows that Texas has also produced over 30 percent of the nation's cottonseed for the crop years 1959-60 through 1964-65.

Table 3 shows the cash return that the more than 50,000 Texas cotton farms received for their cotton crops. The total value of the 1964-65 Texas cotton crop amounted to \$667,421,000. This total represents over one half of the Texas farm crop marketings for 1964. The value of the cotton production for the United States amounts to only approximately 16 percent of all farm crop marketings. The cash value of the 1964-65 Texas cotton crop can be put in perspective by observing that this amount would pay for over 31 air-conditioned Astrodomes.

Table 2. UNITED STATES AND TEXAS PRODUCTION, PRICE, AND VALUE OF COTTONSEED

Year	Production 1,000 Tons		Average Price Dollars/Ton		Value in 1,000 Dollars	
	U. S.	Texas	U. S.	Texas	U. S.	Texas
1959-60	5,991	1,868	\$38.80	\$38.20	\$232,451	\$71,358
1960-61	5,886	1,830	42.60	41.30	250,744	75,579
1961-62	5,978	2,051	51.10	51.30	305,476	105,216
1962-63	6,096	1,981	47.90	47.70	291,998	94,494
1963-64	6,192	1,811	50.70	52.60	313,934	95,259
1964-65	6,225	1,734P	47.10P	47.10E	293,198P	81,671E

P - Preliminary. E - Estimated.
Source: Fats and Oils Situation, USDA.

Table 3. VALUE OF TEXAS COTTON AND COTTONSEED
(Thousands of Dollars)

Year	Cotton Lint	Cottonseed	Total
1959-60	\$650,918	\$71,358	\$722,276
1960-61	612,351	75,579	687,930
1961-62	729,844	105,216	835,060
1962-63	716,934	94,494	811,428
1963-64	667,188	95,259	762,447
1964-65	585,750	81,671	667,421

Source: Statistics on Cotton, USDA; Texas Cotton Situation, Texas Crop and Livestock Reporting Service; Cotton Production in the United States, USDC.

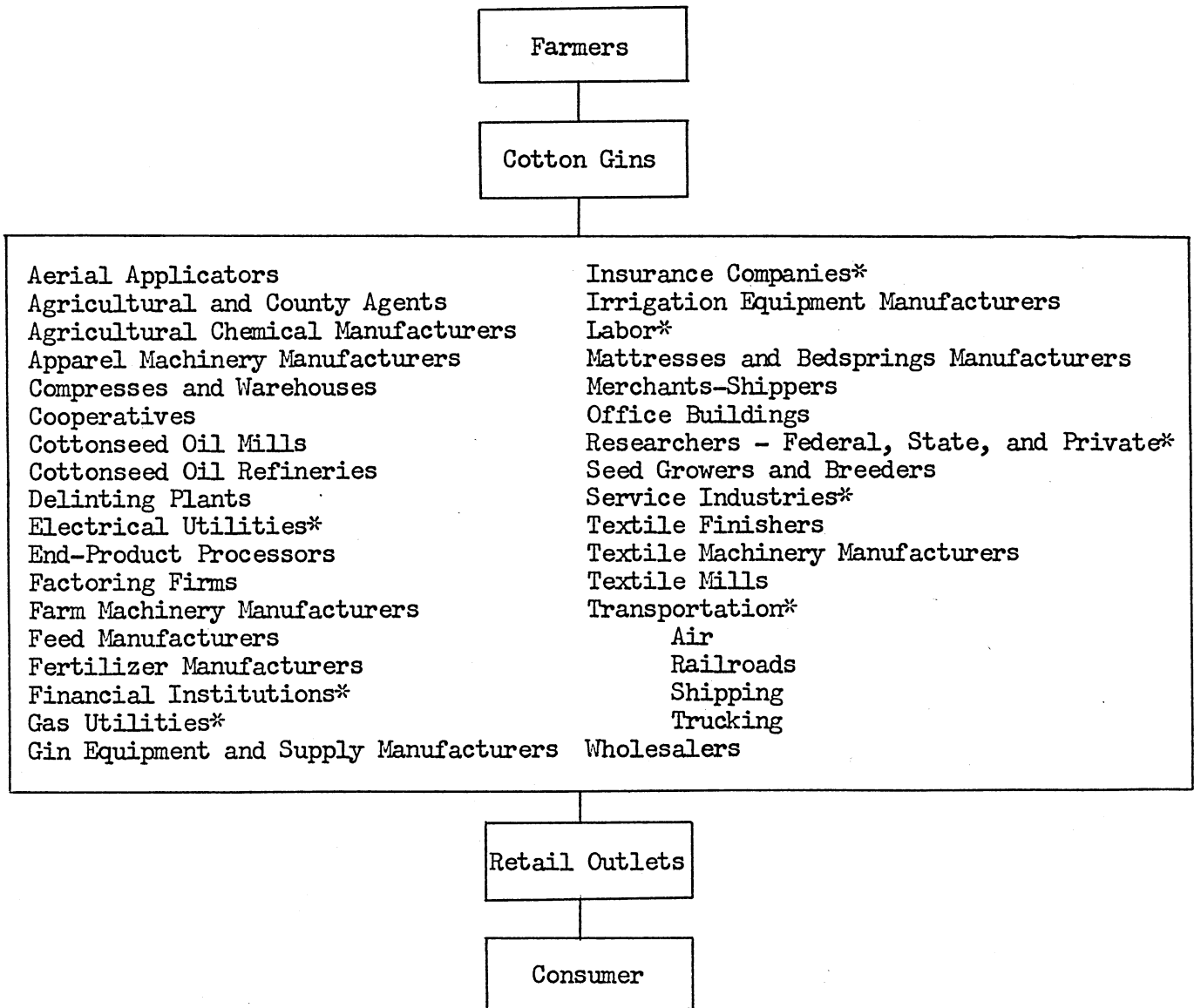
III. PARTIES INVOLVED IN PROCESSING TEXAS COTTON

The cotton industry in Texas is made up of both basic and service industries. The distinguishing characteristic of the two types of industries is the location of the sales area for the goods and services of the particular industry. A basic industry depends on sales outside the local area, while a service industry depends on sales within the local area. The cotton farm is an example of a basic industry, while a cotton gin is an example of a service industry. From the preceding, it can be seen that service industries depend on basic industries and that basic industries are the key to economic growth.

Most of the different Texas parties that are involved in the marketing of cotton and its by-products are shown in Figure 1. Many of the parties perform multiple services; that is, they provide their services at more than one stage of the processing. For example, banks provide financial services for farmers, ginneries, and retailers.

The following pages will describe some of the parties that are directly concerned with the marketing of Texas cotton and its by-products. While this study is primarily concerned with Texas cotton, the same parties are present in other states in one form or another. It can be seen how the various service groups depend entirely, or in part, on the cotton industry. If cotton production is lowered, the effect will be multiplied throughout the economy by forcing many service organizations to seek other sources of income.

Figure 1. PARTIES INVOLVED IN THE PROCESSING OF TEXAS COTTON AND ITS BY-PRODUCTS FROM THE FARMER TO THE CONSUMER



* Provide multiple services.

A. Primary Parties

Cottonseed Breeders and Certified Seed Growers

Breeders and growers are continually improving the quality of cottonseed to produce a good yield of high quality lint and seed. Cottonseed must produce seedlings which are resistant to diseases and insects, and germinate early with a high rate of germination. Not only do the breeders have to consider the quality of cotton lint, but also the quality of the cottonseed that is produced. The cottonseed sent to the oil mills by the gins must be of a suitable grade for the development of good quality by-products.

The quality factors that Texas seed breeders consider most important (listed in descending order) are fineness, staple length, tensile strength, maturity, and uniformity ratio. The seed breeders' problems are never ending ones. The reduction of gossypol in cottonseed rendered it more suitable for human consumption; however, the breeders discovered that plants growing gossypol-free seeds created other problems for growers that have to be overcome. This plant is more attractive to insects, it sometimes matures too early, and the seed cotton needs to be ginned at a gin that handles 100 percent glandless seed.

The 74 Texas cottonseed breeders and certified seed growers have some 129,000 acres devoted to the production of cottonseed. Based on a questionnaire survey, the firms employed 1,924 workers, had a payroll of \$4,660,000 and produced 103,600 tons of cottonseed. Cottonseed production averaged 1,606 pounds of cottonseed to the acre for the Texas breeders while the value of their total facilities amounted to \$20 million. The revenue for all firms amounted to \$14.6 million annually.

Farmers

The cotton farmer is one of the first parties involved in the processing of cotton. In a sense, he is a manufacturer. His raw products are capital, land, seed, water, fertilizers, and pesticides. Using his management abilities to combine these ingredients, he produces his end-product, raw cotton.

The U.S. Census of Agriculture: 1959 showed 51,454 commercial cotton farms for Texas. Together with other Texas farms that grew some cotton, the state produced 4,164,655 bales of cotton on 6,157,184 acres in the 1959-60 crop year. The average size of Texas cotton farms was 381 acres while the average size of all Texas farms was 632 acres. Of the 51,454 cotton farms, 47,029 reported a total of 102,634 tractors, and 2,455 farms had more than five tractors. Texas cotton farms hired 83,893 seasonal workers and 25,037 regular workers. These same cotton farms paid out \$116,129,819 for hired labor. In 1959, Texas farmers used 114,494 tons of dry fertilizers and 46,913 tons of liquid fertilizer on 1,519,499 acres of cotton land. This amounted to 161,407 tons of fertilizer which was 26.7 percent of the 603,618 tons used by the state on all crops for 1959. The figures for 1963, which are the latest USDA figures available at this writing, show that Texas farmers spent \$86,053,000 for fertilizer and lime during the crop year. If the 1959 ratio of cotton fertilizer to total fertilizer used is still the same, then Texas cotton farmers spent approximately \$22,976,000 for fertilizers in 1963.

In order to relieve the profit squeeze, the cotton farmer has been forced to seek lower production costs through mechanization. The Bureau of the Census reports that 15 percent of the 1964-65 Texas cotton crop was

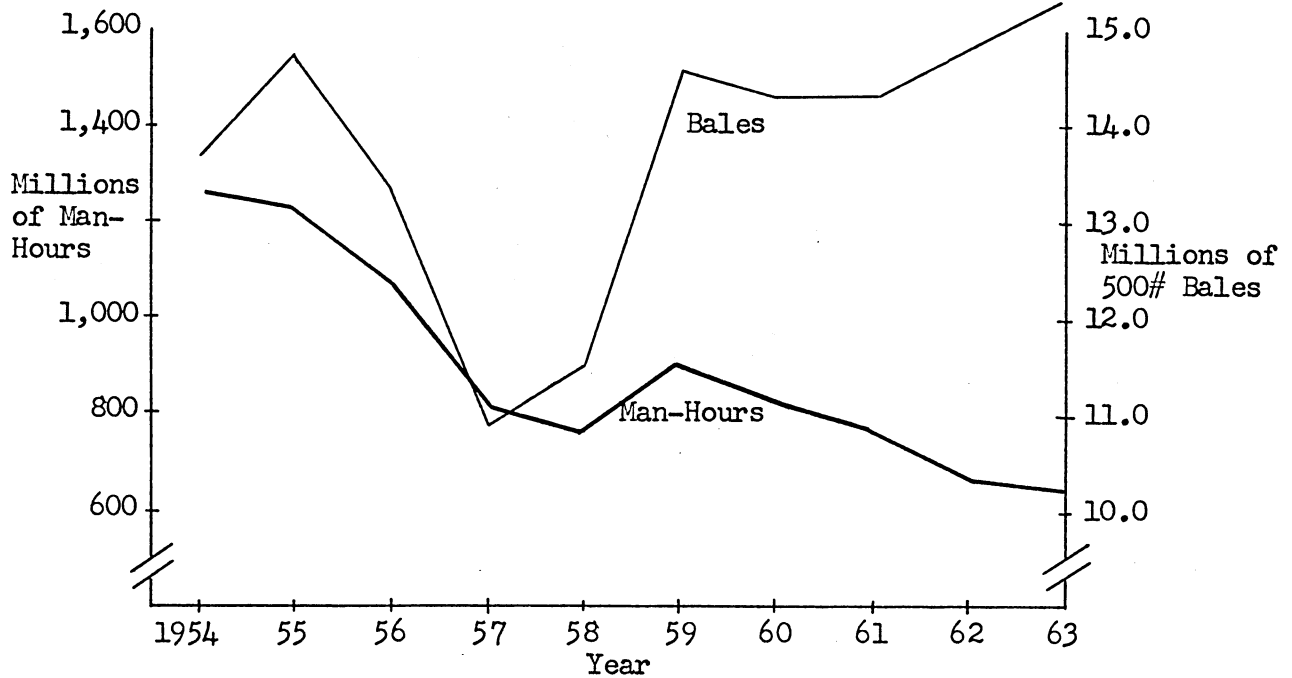
harvested by hand, while the remaining 85 percent was machine harvested. Although the Texas figures are not available, the United States figures for cotton production and the man-hours of labor required to produce the United States cotton crop as shown in Figure 2 are good indicators of the trend for Texas cotton producers. Notice in Figure 3 that the number of man-hours of labor required to produce one 500-pound bale has decreased from 92.6 man-hours in 1954 to 42.1 man-hours in 1963. This represents a reduction of over 54 percent in labor requirements over the 10-year period. The trend line for the 10-year period shows an annual decline of 5.52 man-hours per bale.

Cotton Gins

There are over 1,300 active gins in the State of Texas. This number makes the Texas ginners the second largest phase of the Texas cotton industry. The function of the cotton gin is to separate the cotton lint from the seed and to reduce the lint into a bale of approximately 500-pounds gross weight. The seed that is left after ginning may be returned to the farmer for planting the next crop or it may be sold to oil mills for reduction to its numerous by-products.

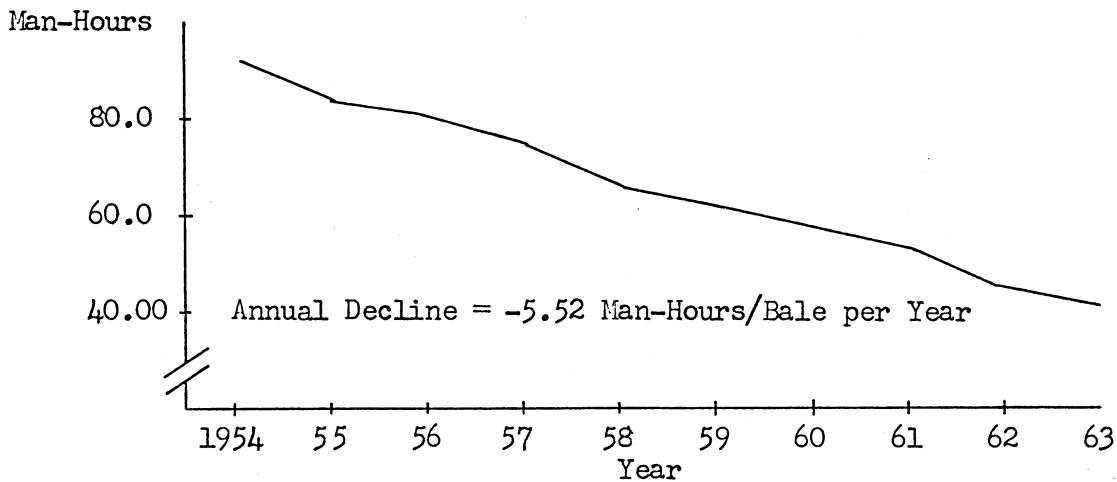
The value of the Texas cotton gin may vary from several thousand dollars for a single-battery old-fashioned gin to over one-half million dollars for a modern multiple-battery gin. Table 4 shows some of the characteristics of Texas gins for the 1964-65 year. Notice that the value of all Texas cotton gins amounts to over \$213 million. The average value for all Texas gins was slightly over \$163,000. Texas gins employed over 19,000 seasonal workers and had a payroll of approximately \$20 million. The average gin in the state had 4.7 stands with 89 saws

Figure 2. UNITED STATES COTTON PRODUCTION AND THE MAN-HOURS OF LABOR REQUIRED TO PRODUCE THE UNITED STATES COTTON CROP



Source: U.S. Department of Agriculture, Agricultural Marketing Service, Agricultural Statistics, 1964.

Figure 3. NUMBER OF UNITED STATES MAN-HOURS REQUIRED TO PRODUCE ONE 500-POUND BALE OF COTTON



Source: U.S. Department of Agriculture, Agricultural Marketing Service, Agricultural Statistics, 1964.

Table 4. CHARACTERISTICS OF 1964-65 TEXAS GINS

District	Number of Gins	Total Value of Gins	Taxes Paid by Ginners	Total Payroll	Total Employment
1-N	109	\$23,468,027	\$380,737	\$3,636,131	2,448
1-S	267	59,163,195	755,343	7,788,390	5,700
2	179	31,335,024	287,116	3,141,450	1,945
3	12	780,000	NA	NA	60
4	275	29,298,500	376,750	3,587,650	3,047
5	64	6,223,360	49,088	569,280	646
6	57	11,449,191	94,221	1,262,208	804
7	18	1,926,000	10,242	144,252	144
8	146	16,811,170	222,942	1,377,802	1,915
9	69	7,334,079	129,996	1,060,944	1,292
10	18	2,340,000	37,639	304,938	165
10-A	95	23,113,880	297,540	2,401,030	1,619
State	1,309	\$213,242,426	\$2,641,614	\$25,274,075	19,785

NA - Not available

Source: Calculated from original data reported by gins at end of 1964-65 season.

to the stand, ginned 3,233 bales for the 1964-65 season, employed 15 people during the ginning season, and had a payroll of over \$19,000. During the off-season, the average Texas gin made capital outlays of over \$18,000 for equipment in order to render better ginning services and to maintain its position in a highly competitive field. Average ginning charges amounted to \$17.93 per bale including the cost of bagging and ties. The average gin

paid over \$2,000 in taxes to local, county, state, and federal governments and had to gin approximately 2,108 bales of cotton in order to break even. This amounted to a revenue of over \$37,000 for the average gin to break even. The payroll on a per-bale basis for the 1964-65 season amounted to approximately \$4.90 per bale, while the cost of power and utilities amounted to \$1.16 per bale.

Cottonseed Oil Mills

After the gins separate the lint from the cottonseed, the seed is transported to oil mills for processing into many useful products. There are 61 cottonseed oil mills located throughout Texas; so the majority of the cottonseed travels a distance of less than 100 miles from the gin to the oil mill. There were only 188 cottonseed oil mills in the United States during 1963; so approximately 32 percent of the total are located in Texas. Notice how this percentage figure correlates closely with Texas cotton production as a percentage of United States cotton production.

One of the major products derived through processing the cottonseed is oil. Cottonseed oil is used in the manufacture of salad oils, cooking oils, and margarine. Cottonseed cake and meal are the next products of major importance and are used as a supplementary livestock feed. Linters, another product, are used in the manufacture of rayon, felting, plastics, adhesives, explosives, and numerous other products. Most of the products, with the exception of oil, are sold within the county or counties adjacent to the oil mills. The last product derived from cottonseed is the hulls. These hulls are used mainly in livestock feeds and in fertilizers.

Texas cottonseed oil mills employed 2,432 workers at a payroll of \$10,362,000 during 1963 according to Bureau of the Census figures. The

average Texas oil mill purchased over 32,700 tons of cottonseed annually at an average price of \$58.34 per ton. The facilities required by all Texas oil mills to convert cottonseed to usable products were valued at \$116.7 million.

Compresses and Warehouses

Texas cotton compresses and warehouses provide three distinct and necessary functions to the cotton industry—storage facilities, weight records, and compression services.

The number of bales of cotton in storage in the State of Texas in December 1964 exceeded 8.5 million bales. The number of bales of cotton in storage at any one time in the different areas of the state varies from 2,000 to 500,000 depending on the crop and the number of compresses and warehouses in the area. Both enclosed and open-yard storage are used; the latter type of storage is limited to the drier areas of Texas.

In addition to storage facilities, the compresses and warehouses maintain official records listing the weight and the tag number of the individual cotton bales. Another service includes sampling the bales and forwarding the samples to the USDA classing offices to determine the official grade and staple used in sales agreements.

Compresses perform the function of compressing cotton to a high density bale that takes up less physical space and can be shipped abroad easier and more economically. All Texas compresses have railroad facilities and ship an average of 68 percent of their outgoing shipments by rail and 32 percent by truck. Inland compresses generally handle 99 percent of their bales as flat density, while port compresses handle 27 percent flat, 56 percent standard, and 17 percent high density. The average

compress in the state receives approximately 122,000 bales annually, while the average warehouse receives 22,000 bales annually.

In 1964, the value of all compresses in the state totaled \$213.4 million while the warehouse facilities were valued at \$84.5 million. The number of year-round employees for all Texas compresses totaled 4,743, while the same employment for warehouses was 1,184. Seasonal workers during the peak season totaled 7,923 for compresses and 2,250 for warehouses. The 1964 payroll for the Texas compresses was approximately \$26,880,000, while the total payroll for the warehouses was approximately \$7,743,000.

Merchants-Shippers

The cotton merchant (sometimes called a cotton shipper) performs the services of a wholesaler since he takes title to the cotton and sells to manufacturers rather than ultimate consumers. Using his cotton marketing skills, he buys odd lots of cotton from farmers, ginners, CCC, and other sources and assembles them into even-running lots with the same general quality factors. After assembling the cotton, the merchant either stores the cotton in a compress or warehouse or transports it to a textile mill. In either case, he purchases the cotton and pays all costs including storage, transportation, and insurance from the point of purchase to the final destination. These services reduce the purchasing problems for the mills; and while a few mills maintain their own buyers, many believe that the most efficient method is to purchase through a merchant.

Texas merchants indicated that 38 percent of the Texas cotton is sold to foreign markets. Japan, which purchases 49 percent of Texas cotton exports, is the largest foreign purchaser of Texas cotton. The next largest

purchaser is the Continent of Europe which purchases 30 percent of the exported Texas cotton.

Cotton has been sold on the basis of grade and staple for many years, but as the mills go to higher spinning speeds, their cotton suppliers have had to meet more rigid specifications. Consequently, merchants frequently classify cotton on the basis of other fiber properties such as Micronaire (fineness) and tensile strength. Texas cotton merchants sell 80 percent of Texas cotton on the basis of grade and staple descriptions, while the remaining 20 percent is sold on the basis of actuals or types.

There are over 100 firms in Texas which merchandize raw cotton. These firms employed approximately 1,400 employees during the 1963-64 season and had a payroll of \$7,114,000.

Textile Mills

Textile mills convert lint cotton into grey goods or finished fabrics for use by the apparel manufacturers. The mills clean and blend the cotton lint, paralyze the fibers by carding, comb the fibers, draw the lint fibers into a thin sliver, and twist them into yarn. The yarn is then woven into fabric which can be sold as grey goods (unfinished) or bleached, sanforized, or chemically treated (finished) fabrics.

The textile mills in Texas employ over 6,400 people and have a payroll in excess of \$22 million. The mills that produce primarily cotton goods employ over 4,500 people with a payroll in excess of \$15 million. These Texas cotton textile mills have a plant value of over \$19 million and produce approximately 177 million yards of textile goods per year. There are presently 19 active cotton textile mills in Texas with two mills scheduled to begin production in late 1965 or early 1966. Table 5 shows

the number of employees, payroll and the value added by manufacture for all Texas textile mills.

The Texas mills use approximately 187,000 bales of cotton annually with 90 percent of this amount supplied from Texas cotton. Texas mills show a preference toward the longer staple cotton; 63 percent, or the majority of cotton bought by Texas mills, was in the 31/32 inch to 1 1/32 inch staple length categories, 30 percent had a longer staple, while the remaining 7 percent used less than 31/32 inch staple. Sixty-six percent of the cotton used by Texas mills was of middling quality or better--11 percent above middling, 55 percent middling, and 34 percent below middling grade.

The major fabrics manufactured by Texas mills are duck, Osnaburg, denim, gingham, drill, twill, and sheeting. Thirty percent of all the products manufactured by Texas cotton textile mills is sold within the state.

Table 5. CHARACTERISTICS OF TEXAS TEXTILE MILLS

Year	Employees		Payroll (\$1,000)		Value Added by Manufacture (\$1,000)	
	Cotton Mills	Others	Cotton Mills	Others	Cotton Mills	Others
1958	5,366	1,909	\$15,583	\$5,880	\$23,869	\$9,718
1959	5,375	1,576	16,227E	5,202E	26,684	9,115
1960	5,206	1,529	16,316E	6,411E	27,549	12,361
1961	4,835	1,489	15,712	4,759	27,597	8,782
1962	4,644	1,518	16,151	5,052	27,258	7,908
1963	4,584	1,877	15,526	6,583	26,156	10,933

E - Estimated from Texas Employment Commission figures.

Source: Bureau of the Census, Annual Survey of Manufacturers, 1958, 1961, 1962, 1963.

B. Associated Parties

Aerial Applicators

The Texas cotton growers have come to depend upon the aerial application operators to a large extent for the application of insecticides, pesticides, defoliant, and desiccants to their cotton fields. The main advantage that "crop dusters" offer is speedy service. A modern plane can complete the desired application quickly and economically regardless of the acreage involved.

The modern aerial operator is an FAA licensed pilot and owns from one to several planes. The planes are equipped for the aerial application of either liquids or dusts. The aerial operator necessarily does the majority of his business during the growing season through the harvesting season. This generally amounts to about a six-month period in Texas.

The Federal Aviation Agency's report, FAA Survey of Aerial Application Activities in 1962, showed that nation-wide aerial operators spent over 92 percent of their flight hours in agricultural activities such as insect control, fertilization, seeding, and weed control.

In 1964, the Texas aerial operators reported that 68 percent of their business came from the cotton crop as compared with 73 percent in 1963. There were over 100 aerial applicators in Texas in 1964. These operators employed approximately 450 workers with a payroll of \$1,550,500.

Agricultural Chemicals

The cotton farmer uses agricultural chemicals to protect his cotton plant during the growth, development, and maturing stages of the cotton plant from aphids, cut worms, flea hoppers, bollworms, boll weevils,

cabbage loopers, lygus bugs, and many other cotton-damaging insects. During the last few years there has been mounting criticism of the careless use of insecticides and pesticides. However, many crops could not survive the insect damage without the use of agricultural chemicals. Of course, cotton is included in this group along with many vegetables and citrus fruits.

Texas has 84 firms engaged in the production of agricultural chemicals. The Bureau of the Census reported these firms employed 2,183 workers with a payroll of \$11,752,000 during 1963. The USDA estimates that Texas farmers spent \$24,368,000 on agricultural chemicals during 1963. Cotton Economic Research estimates that the Texas agricultural chemical firm sales amounted to \$156,800,000 and that the Texas cotton growers used \$16,600,000 worth of agricultural chemicals during 1963. Therefore, the Texas cotton industry accounts for approximately 10.6 percent of the employees and payroll of the agricultural chemical firms, or 231 workers and \$1,240,000.

Apparel Industry

Through the use of skilled labor, cutting and sewing machines, and other manufacturing facilities, the Texas apparel industry manufactured products valued at \$301 million from cotton alone during 1964. The average value of the manufactured apparel was \$957,000 per firm, and the total value for the state's apparel manufacturing facilities was estimated at \$111 million.

The two main types of products within the apparel and related products classification are men's and boy's furnishings and women's and misses' outerwear. Other products include women's and children's

underwear, children's outerwear, miscellaneous apparel, and other fabricated textiles. There are over 570 firms in the Texas apparel industry that employ approximately 43,300 manufacturing employees with an estimated annual payroll of \$146 million during 1964.¹ Table 6 shows that the Texas apparel industry uses cotton in 55 percent of its products. Therefore, cotton apparel accounts for over 23,000 employees with an annual payroll of \$80,300,000.

The Texas apparel manufacturers spent an estimated \$139 million for cotton fabrics. Nineteen percent of these cotton fabrics came from within the state, 23 percent from New York, and 12 percent each from North and South Carolina. The remaining 34 percent came from other sources.

Representatives of the apparel manufacturers stated that their "number one" reason for using cotton was consumer demand for cotton fabrics. The second reason was the suitability of cotton to the style of garment and ease of manufacture. However, one manufacturer stated, "The cost of cotton is forcing us to use synthetics, and synthetics are more widely advertised." This last statement seems to be the main reason for some apparel manufacturers to shift to synthetic fibers even though the apparel manufacturers stated that their customers knew that cotton was more durable in home and commercial washing than synthetics. One respondent stated, "Cotton is soft to the touch, easy to wash, absorbent, and the best fabric for year-round wear in our retail sales area."

Table 6 shows the various fabrics used in the Texas apparel industry and their finished products.

¹Derived from Bureau of Labor Statistics and Bureau of the Census figures.

Table 6. FABRICS USED IN THE TEXAS APPAREL INDUSTRY IN PERCENT

Product Description	Cotton	Rayon	Nylon	Others*	Other**		Total
					Synthetics	Blends	
Hats, caps, neckwear, knee patches, belt backing, etc.	19	8	4	66		3	100
Dresses, girls' and women's	69	11	7	12		1	100
Western wear, men's and women's	70	7	20	3			100
Infant wear including sleepwear	80	2	13			5	100
Clothing, children's	60	15	20			5	100
Men's, boys' & women's slacks, jeans, shirts, jackets, work clothes	61	6	3	24	2	4	100
Ladies' ready-to-wear	4	10	11	31	41	3	100
State average	55	8	9	23	2	3	100

* Wool, silk, acetate.

** Dacron, Spandex, Orlon, etc.

Source: Original data.

Banking Industry

All phases of the Texas cotton industry use the financial services of Texas banks. Starting with the farmers, the banks finance the purchase of seed, fertilizers, pesticides, farm machinery, and labor costs. Banks also provide seasonal working capital and finance the construction and/or modernization needed by Texas ginneries. Other phases of the Texas cotton industry that do business with Texas banks include cottonseed oil mills, food processors, compresses and warehouses, merchants, transportation

companies, textile mills, apparel manufacturers, and local retail stores. All of these concerns make up the distribution chain of cotton and its by-products.

The cotton industry of the State relies on Texas banking services in an effort to keep abreast of competition and to remain solvent. Conversely, it must be remembered that banking services are mutually profitable, for without the cotton industry in the economy of the State, there would be fewer people employed; and as a result the banks would have fewer depositors and opportunities to initiate loans.

Texas had over 1,100 banks in 1964. Approximately 47 percent of these were state banks, while the remaining 53 percent were national banks. Cotton Economic Research took a sample survey of Texas banks to determine the percent of their business due to the Texas cotton industry. The results showed that the cotton industry was responsible for about three percent of the banking business. In terms of employees, it can be said that the Texas cotton industry accounts for approximately 930 bank employees with an annual payroll of \$4,577,000.

Farm Machinery and Equipment Manufacturers

Farm Machinery and equipment manufacturers have made it possible for the American farmer to become more and more productive. The large commercial cotton farms located in the various cotton-growing areas of the state would not be possible without farm machinery and the dealer services. For that matter, many of the small farms could not produce cotton without some help in the form of farm machinery.

Many of these farm machines such as cultivators, land levelers, scrapers, shredders, strippers, cotton trailers, spraying equipment,

blowers, and irrigation equipment are produced in Texas. According to the 1965 Directory of Texas Manufacturers, Texas has 99 farm machinery and equipment manufacturers (plant location). These firms range in size from one-man shops to large industrial plants that employ hundreds of workers. Questionnaires were sent to each of these firms asking each manufacturer to estimate the percentage of their sales due to cotton machinery and equipment. The weighted average for all the responding manufacturers was 37 percent. The Bureau of the Census lists 1,428 workers with a payroll of \$6,254,000 for this class of industry in Texas in 1963. Therefore, 37 percent of these figures (528 workers and \$2,314,000) was attributed to the sales of cotton-producing machinery and equipment.

Gin and Associated Machinery Manufacturers

There are over 25 firms in the State of Texas that manufacture cotton gins and such related equipment as gin stands, feeders, stick machines, extractors, blowers, dryers, lint cleaners, condensers, and presses. The associated machinery manufacturers also make some of the above equipment plus such items as seed scales, moisture control devices, burners, motors, and pumps. Also included in this category are metal fabricating firms which make the duct work, etc., so necessary to the gin plant.

In addition to the construction of new gin plants, these manufacturers' activities include maintenance, service, and modernizing the gin plant between ginning seasons. Research by the gin machinery manufacturers continues to stress the need for the constant improvement of the cotton gin and equipment. This research has been necessary because of the ever-increasing need for gins with faster ginning rates and higher capacities. This need has been brought about by the increased use of mechanical

harvesting. Mechanical harvesting shortens the harvesting season so that gins often become swamped with trailers full of seed cotton at harvest time.

The gin and associated machinery manufacturers are classified under "Special Industrial Machinery" under the Standard Industrial Classification. All "Special Industrial Machinery" manufacturers in Texas were polled, and it was found that this industry had 4,354 employees with a payroll of \$18,870,000 in Texas in 1964. The manufacturers stated that approximately 56 percent of their employment and payroll (2,426 workers and \$10,670,000) were due to production of machinery and equipment used in the cotton industry.

Mattress and Bedspring Manufacturers

Texas had over 170 mattress and bedspring manufacturers scattered throughout the state in 1964. Over 60 percent of these manufacturers use cotton in some form in the manufacture of their products, and this does not include the use of cotton ticking.

The estimated total number of employees listed by the 1965 Texas Directory of Manufacturers was 4,300. However, the manufacturing employees are estimated at 2,250 workers with an annual payroll of \$8,309,000 in 1964.¹

The firms that use cotton derive 52 percent of their revenue from the manufacture of such items as felt, canvas articles, outdoor furniture, etc. This use of cotton is estimated at approximately 750 bales

¹Derived from Bureau of Labor Statistics and Bureau of the Census figures.

of raw cotton. Some 210 bales of loose cotton are also used by this industry along with some 279,000 pounds of cotton batting.

The average plant value for all Texas mattress and bedspring firms amounts to \$66,000, while the average value of those handling cotton amounts to \$25,500. The reason for this difference is due to the fact that firms using cotton in the manufacture and reovation of mattresses are more numerous and smaller in size than some of the larger firms which do not use any cotton except in ticking.

The cost of all raw materials used by Texas mattress and bedspring manufacturers amounts to \$18.8 million. This is \$108,700 per plant, and approximately \$1.3 million of this cost is due to cotton.

Transportation

Transportation of raw cotton is accomplished by trucks, railroads, and steamships. The most recent information of traffic patterns of cotton shipments is shown in Table 7; the volume and destination of cotton shipments from Oklahoma and Texas for the 1961-62 season. Notice that the motor trucks, which are usually faster than rail shipments on short runs, make most of their hauls to concentration points and ports.

The revenues received for hauling Texas cotton by Texas motor carriers are estimated at \$2,112,000 in 1963 and \$1,840,000 in 1964. These figures are based on estimates derived from Texas cotton production data and a national average revenue of \$.0245 per ton-mile for motor carriers. Since the motor carriers in the Southwest average one employee (with an annual compensation of \$6,831) for each \$15,777 in revenues in 1964,¹

¹Statistical Abstract, 1965, p. 577

Table 7. DESTINATION AND METHOD OF TRANSPORTATION OF 4,478,000
BALES OF OKLAHOMA AND TEXAS COTTON, 1961-62

Destination	Percent of Total	Percent Shipped	
		Rail	Truck
Alabama, Georgia	19	97	3
S. Carolina, N. Carolina, Virginia	12	98	2
Interior Concentration Points	8	62	38
Northeastern States	1	67	33
Texas Ports	56	69	31
Canada	2	100	*
Others	2	65	35
Total	<u>100</u>	<u>78</u>	<u>22</u>

* Less than .5 percent.

Source: The Traffic Patterns of Raw Cotton Shipped from Warehouses in the United States, 1961-62, Economic Research Service, U. S. Department of Agriculture, ERS-184, p. 31.

the Texas cotton industry accounted for 117 employees with an annual payroll of \$799,000 during 1964.

As Table 7 shows, most Oklahoma and Texas cotton shipments are made by rail. While rail shipments are usually slower than motor freight, their rates are lower. This is particularly true for long hauls. The Texas Railroad Commission reported that during 1963, Class I railroads in Texas hauled 3,202,715 tons of cotton, cottonseed, and cottonseed by-products. This freight amounted to 2.058 percent of all rail freight hauled in Texas during 1963.² Since Class I railroads had an employment

²Texas Railroad Commission, 73rd Annual Report

of 38,541 with a payroll of \$263,722,509 during 1963, it can be said that 2.058 percent of the employees and payroll (793 workers and \$5,427,409) can be attributed to the Texas cotton industry.

Figures obtained from Texas port directors indicate that Texas ports exported over 742,000 tons of unmanufactured United States cotton (excluding Mexican cotton) during 1964. Based on rates from Texas port directors and union leaders, it would take approximately 194 longshoremen working full-time for 52 weeks a year to load this amount of cotton. Therefore, the cotton industry accounted for approximately 194 workers and \$3,066,000 in wages to Texas longshoremen in 1964. Table 8 shows cotton exports through Gulf ports during 1962-63 season. The revenues to shipping lines for transporting this amount of cotton would amount to approximately \$28 million.

Table 8. DESTINATIONS OF GULF PORT* COTTON AND LINTERS EXPORTS, SEASON ENDING JULY 31, 1963

Destination	Bales of Cotton	Bales of Linters
Great Britain	136,003	37,041
Continent of Europe	1,121,614	150,309
Japan	558,515	27,450
Rest of Orient	709,989	1,975
Canada	--	--
Other Foreign Countries	72,446	463
Total	2,598,567	217,238

* Includes Brownsville, Corpus Christi, Galveston, Houston, and New Orleans.

Source: H. L. Ziegler, Inc., Freight Forwarding, Houston.

If the transportation of finished products were considered, the freight revenues due to cotton would increase significantly. Motor carriers and railroads also transport cottonseed, gin machinery, harvesting equipment, farm equipment, cottonseed by-products, and the numerous other items necessary to the operation and existence of the many related phases of the cotton industry of the state.

Additional Parties

The additional parties to the processing of Texas cotton include those parties listed in Figure 1 that were not discussed. The reason for these parties not being included was due to the lack of reliable figures. Many of these additional parties are federal and state government employees, and some of them are in specialized businesses that are only slightly related or do only a small amount of business in connection with the cotton industry. Examples of this latter type include electrical and gas utilities. Both organizations obtain revenues from cotton farmers, ginners, oil mills, textile mills, etc.; therefore, the cotton industry accounts for a portion of their employment and income.

Insurance companies insure the physical plants plus the facilities and equipment of oil mills, textile mills, warehouses and compresses, etc. Insurance is also available to growers against crop loss. Cotton merchants, buyers, and compresses and warehouses insure cotton during shipment and storage against damage or loss. When the whole Texas cotton crop is considered, this amounts to a large amount of business for insurance companies.

Electrical, plumbing, and maintenance service industries benefit from servicing the cotton industry's vast mechanical equipment facilities.

One firm specializing in the repair and supply of fork lifts and parts stated that 80 percent of their business was due to the cotton industry. Certainly the cotton industry does not account for 80 percent of all fork lifts in Texas; however, it does account for a large amount of business.

Another segment of financial services industries that benefits from the cotton industry includes bookkeeping services. Many of the larger Texas gins and other industry segments employ independent accountants to audit their books and perform other services such as payrolls and tax work. Other financial services include factoring firms which specialize in financing accounts receivable. These firms do some business with textile mills, apparel manufacturers, and wholesalers. Their primary function is to provide working capital for their customers.

End-product processors use cotton in many forms to manufacture their products. The apparel firms, already mentioned, use large amounts of different cotton textiles, while mattress and bedspring manufacturers use cotton linters for batting in mattresses, upholstery, and padding. Some cotton is used as medical supplies and as surgical dressings. Many manufacturers use cottonseed oil as a basic ingredient. Among these are manufacturers of margarine, shortening, salad and cooking oils, and soap. Cottonseed cake and meal are used as livestock feed, fertilizer, and in flour for human consumption.

Finally, the wholesalers and retailers who make up the last link of the distribution system have not been considered. The fact that the annual mill consumption of cotton is approximately 23 pounds per capita means that these marketing channels employ several thousand workers to provide the final consumer with cotton products.

IV. SUMMARY

This report has attempted to measure the economic impact of the Texas cotton industry by examining the different segments in terms of employment and earnings. Figures from the Texas Employment Commission indicate that the total 1965 nonfarm and agricultural employment in Texas will be approximately 3,728,800 persons. Of this number, 308,000 persons, or about 8.3 percent of the workers, were employed in agricultural jobs. The classifications of agriculture and nonfarm jobs tend to minimize the importance of agriculture when many of the nonfarm jobs are actually dependent upon agriculture. The agriculture job classification does not include braceros, migrant farm workers, ginners, oil mill employees or any employees of the manufacturing industries that depend upon agriculture for their raw materials. One has to remember that cotton in particular and agriculture in general are basic industries, and their economic value is multiplied several times by service industries.

Table 8 shows that the Texas cotton industry is responsible for approximately 235,000 regular and seasonal workers with an annual payroll of approximately \$322 million. These figures are conservative since they do not include any of the additional parties listed on pages 27 and 28. By any measure of economic activity, the Texas cotton industry is big business and is a big employer.

Table 9. EMPLOYMENT AND PAYROLLS DUE TO THE TEXAS COTTON INDUSTRY

Group	Employment	Payroll
Cotton Farms	160,400 RS	\$116,130,000
Cotton Gins	19,000 S	20,000,000
Cottonseed Oil Mills	2,400 RS	10,400,000
Compresses and Warehouses	16,100 RS	34,623,000
Merchants-Shippers	1,400 RS	7,114,000
Textile Mills	4,600 R	15,526,000
Aerial Applicators	450 RS	1,550,500
Agricultural Chemicals	230 R	1,240,000
Apparel Industry	23,000 R	80,300,000
Banking Industry	930 R	4,577,000
Farm Machinery Equipment Manufacturers	530 R	2,314,000
Gin and Associated Machinery Manufacturers	2,430 R	10,670,000
Mattress and Bedspring Manufacturers	2,250 R	8,309,000
Transportation and Longshoremen	1,100 R	9,292,400
Additional Parties	NA	NA
Total	234,820 RS	\$322,045,900

R - Regular workers
S - Seasonal workers
RS - Regular and seasonal workers
NA - Not available

Source: Determined from USDA and USDC publications and various industry sources.

