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A Preliminary Study Of Cotton Ginning Costs In North Carolina

OUTSIDE VIEW OF MODERN ALL-STEEL GIN SHOWING ONE BALE WRAPPED IN COTTON BAGGING AND SEVERAL IN JUTE BAGGING.

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The study would not have been possible without the cooperation and assistance given by gin operators throughout the state. To all of these, sincere appreciation is expressed.

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PRELIMINARY STUDY OF COTTON GINNING COSTS IN NORTH CAROLINA

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SUMMARY AND CONCLUSIONS

During recent years the ginning industry in the United States and in North Carolina has undergone considerable change. The number of active gins in North Carolina has declined from 2,625 in 1914 to 824 in 1940, a decrease of 69 per cent. The decline in number of gins for the United States for this same period was 53 per cent, but during this period the average number of bales per active gin in the state practically doubled. From 1906 to 1940 the average number of saws per gin plant in North Carolina increased from 80 to 211, an increase of 164 per cent. According to census estimates, North Carolina had sufficient gin capacity to gin its entire crop in 16.0 days of 12 hours each in 1935 and 23.2 days in 1940. Comparable figures for the United States were 19.0 and 24.1 days.

North Carolina gins in 1940, classified according to type of power used, were: electric, 38.1 per cent; diesel, 26.6 per cent; gasoline, 22.9 per cent; steam, 10.9 per cent; and water, 1.5 per cent.

The average cost per bale for 63 gins was $3.16, the range being from $2.42 to $6.54 per bale. Average costs per bale for the different items of expenses were: administration, 42 cents; ginning labor, 55 cents; repairs and upkeep, 18 cents; power and fuel, 38 cents; bagging and ties, 81 cents; and depreciation, 46 cents. The cost per bale appears to be affected more by the number of bales ginned than any other factor. The average cost per bale declined as the number of bales ginned increased up to the volume range from 1501 to 2000 bales. While an attempt was made to determine the effect of the size of the gin on costs, the number of gins in some classes was so small that the results are not significant. The power used did affect the cost per bale. For volumes up to 2000 bales, those gins using internal combustion engines for power had a lower cost than those gins using other types of power.

There is some relation between ginning costs and the fee charged the grower for ginning. Gins charging fees from $2.00 to $2.99 had average costs of $2.84 per bale. Those with fees from $3.00 to $3.99 had average costs of $3.13 per bale, and those with fees of $4.00 or more had average costs of $3.37 per bale. The estimated average receipts from ginning fees, assuming fees were collected on all bales ginned, was $3.37 per bale, or 21 cents per bale in excess of average costs. Approximately 43 per cent of the gins had costs in excess of estimated ginning receipts.

PURPOSE OF STUDY

It seems clear that a careful analysis of ginning costs should be of service to North Carolina ginners and growers. The primary interest of the ginner is to earn an income in excess of all his expenses of operation. Not all ginners attain this goal. The gin manager who has a thorough understand-

ing of the relationships between costs and those factors influencing costs is in a position to operate his business more efficiently than the manager who gives no thought to such matters or who uses only his bank balance at the close of the season as a measure of efficiency.

THIS GIN, OPERATED IN CONNECTION WITH A COTTON OIL MILL, IS A PERMANENT BRICK BUILDING.

In order to achieve maximum efficiency a ginner should analyze his own costs and compare his costs with those of other ginners in similar circumstances. A knowledge that certain of his costs are higher than the average of other gins should enable a ginner to make adjustments designed to reduce costs. Furthermore it is only when ginners have a thorough knowledge of their costs that they can intelligently and fairly fix their charges.

Ginners are frequently heard to say that the best they hope to do is to make their costs balance their receipts from actual ginning and to make a profit from their seed business or from the buying of cotton. If these ginners were to reduce any excessive costs, they could either increase their net incomes, or improve the service to growers, or reduce their charges to the growers, or possibly do all three of these things.

The grower, as well as the ginner, therefore, has a vital stake in the ginning industry of North Carolina. Growers of the state paid out more than two million dollars in 1940 for ginning services. Their interest lies not only in the fairness of the charge but also in the quality of the service received. If the ginning is improperly or poorly performed, resulting in poor preparation of the lint, the reduction in the value of the cotton may easily exceed the charge for ginning. Too frequently growers compare only the ginning rate charged by different gins without giving sufficient consideration to the quality of ginning done.

These are some of the reasons why both ginner and grower should be interested in an analysis of ginning costs throughout the industry. It is the purpose of this study to present an analysis of these costs and indicate some of the factors which influence them.

THIS MODERN GIN IS HOUSED IN A WOODEN BUILDING.

METHOD OF STUDY

It is a difficult task to get accurate data on the cost of ginning. In North Carolina, the majority of the ginners do not keep a complete expense record; and, when records are kept, the gin business may be operated in connection with some other business, such as sawmill, ice plant, or coal yard. This association of activities makes it difficult for the ginner to separate ginning costs from those of the other activities. With these difficulties in mind, a schedule was devised for recording information on the items of cost of ginning cotton. Using this schedule, data were obtained from about 40 gins during the 1939-40 season. Some of the gins surveyed were able to give accurate records from the books, while others could give only estimates of certain cost items. Prior to the 1940-41 ginning season arrangements were made with approximately 80 gins to obtain records from them at the end of the season. At the close of the season records were obtained from 63 of these gins. While the majority of these records came from books, carefully estimated reports were accepted from a few gins where the estimates were believed to be reliable and reasonably accurate. These records have been used for the analysis of ginning cost as presented in this bulletin.

A DESCRIPTION OF THE GINNING INDUSTRY

Number of gins and volume of ginning. A rather rapid reduction in the number of gins began long before the advent of the Agricultural Adjustment Administration with its crop curtailment program. According to table 1 and figure 2, the number of active gins in North Carolina has declined from

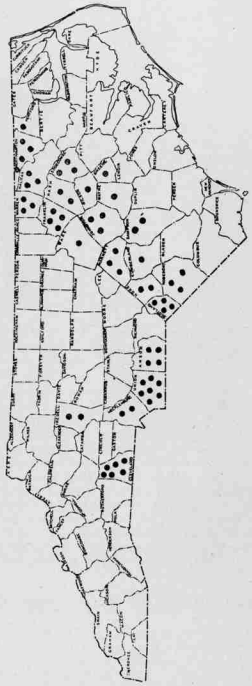

FIGURE 1. LOCATION OF GINS COOPERATING IN COST STUDY. (NO ATTEMPT HAS MADE TO SHOW LOCATION WITHIN COUNTIES)

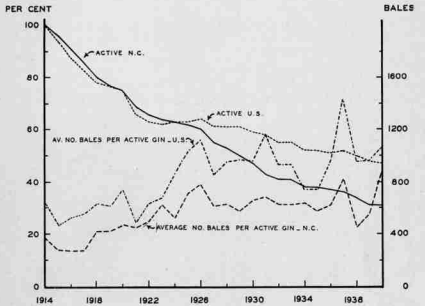

FIGURE 2. RELATIVE NUMBER OF ACTIVE GINS AND AVERAGE NUMBER OF BALES GINNED PER ACTIVE GIN, NORTH CAROLINA AND UNITED STATES, 1914-1940.

2,625 in 1914 to 824 in 1940. This represents a reduction of 69 per cent. In the United States the reduction was from 24,546 to 11,632, or 53 per cent. There has been, however, an increase in the average number of bales ginned per gin plant both in North Carolina and in the United States. From 1916 to 1926 the trend in both was decidedly upward. Since 1926 the year-to-year fluctuations have been wide; the trend has been much less pronounced. The average number of bales per gin in the state has been fluctuating around 640 bales for the 14 years; whereas in the United States as a whole the average was 979 bales.

Number of gin saws. Although the total number of gins in the state has been declining, the numebr of saws per gin plant has been increasing (see table 2).[1] The average number of saws per gin plant increased from 80 in 1906 to 211 in 1940. This is an increase of 164 per cent. A clearer picture of

[1]The United States Census Bureau has made six special surveys of the ginning industry in the United States. The first was in 1906.

TABLE 1. Number of Gins, Actual and Relative, and Average Number of Bales per Active Gin, North Carolina and United States, 1914-1940.

Year	NORTH CAROLINA					UNITED STATES				
	Number of gins			Percentage trend in active gins 1914 = 100%	Average number of bales per active gin	Number of gins			Percentage trend in active gins 1914 = 100%	Average number of bales per active gin
	Active	Idle	Total			Active	Idle	Total		
1914	2,625	313	2,938	100	370	24,546	2,793	27,339	100	648
1915	2,517	357	2,874	96	293	23,155	3,566	26,721	94	478
1916	2,380	432	2,812	91	291	21,624	4,375	25,999	88	526
1917	2,245	352	2,597	86	292	20,351	3,921	24,272	83	553
1918	2,096	425	2,521	80	439	19,259	4,180	23,439	78	618
1919	2,020	432	2,452	77	424	18,815	3,603	22,418	77	602
1920	1,961	397	2,358	75	484	18,440	3,436	21,876	75	720
1921	1,807	430	2,237	69	445	16,192	4,746	20,938	66	493
1922	1,730	410	2,140	66	508	15,420	4,519	19,939	63	631
1923	1,690	380	2,070	64	623	15,298	3,897	19,195	62	665
1924	1,648	384	2,032	63	522	15,478	3,178	18,656	63	881
1925	1,632	319	1,951	62	703	15,482	2,780	18,262	63	1,041
1926	1,574	361	1,935	60	792	15,753	2,426	18,179	64	1,127
1927	1,455	370	1,825	55	605	14,863	2,703	17,566	61	860
1928	1,397	339	1,736	53	622	14,974	2,353	17,327	61	955
1929	1,322	355	1,677	50	580	14,868	2,261	17,129	61	978
1930	1,240	315	1,555	47	646	14,508	2,141	16,649	59	948
1931	1,123	291	1,414	43	687	14,151	1,850	16,001	58	1,175
1932	1,074	260	1,334	41	633	13,570	1,890	15,460	55	937
1933	1,087	213	1,300	41	635	13,543	1,517	15,060	55	935
1934	999	261	1,260	38	642	12,663	2,121	14,784	52	748
1935	985	225	1,210	38	588	12,812	1,685	14,497	52	813
1936	962	211	1,173	37	631	12,625	1,739	14,364	51	962
1937	948	195	1,143	36	823	12,838	1,147	14,285	52	1,422
1938	871	237	1,108	33	457	12,279	1,719	13,998	50	947
1939	818	256	1,074	31	564	11,885	1,743	13,628	48	966
1940	824	185	1,009	31	897	11,632	1,441	13,073	47	1,080

Source: U. S. Bureau of Census: "Cotton Production and Distribution."

TABLE 2. Total Number of Active Gins, Total Number of Gin Saws, Average Number of Saws per Active Gin, and Number of 4/80 Equivalent Gins, North Carolina, Special Survey Years.

Year	Total active gins in North Carolina		Total number gin saws	Average number saws per active gin plant		Number gins 4/80 equivalent[1]	
	Actual number	Relative number 1906 = 100		Actual number	Relative number 1906 = 100	Actual number	Relative number 1906 = 100
1906	2,792	100	223,815	80	100	699	100
1909	2,781	100	242,160	87	109	757	108
1914	2,625	94	277,452	106	132	867	124
1919	2,020	72	259,330	128	160	810	116
1935	985	35	195,965	199	249	612	88
1940	824	30	173,701	211	264	543	78

Source: U. S. Bureau of Census reports. "Cotton Production and Distribution" and "Cotton Ginning Machinery and Equipment by States, 1940."

[1] Total saws of all gins divided by 320, the number of saws in a gin of 4 stands having 80 saws each.

this change will be obtained if the total number of gin saws in the state is expressed in terms of standard-sized gins. A gin of 4 stands with 80 saws per stand, giving a total of 320 saws to the gin, may be assumed as a standard. Dividing the total number of saws in the state by 320 gives the number of 4-stand gins having 80 saws to the stand. On this basis the 2,792 gins in the state in 1906 were equivalent to 699 of these standard gins, and the 824 gins in 1940 were equivalent to 543. These 4/80 equivalent gins increased from 1906 to 1914 and then declined to 1940. The 1914 figure was 24 per cent above that of 1906, while the 1940 figure was 22 per cent below it.

Excess capacity. In the special gin report issued by the Bureau of the Census for 1940, estimates were made of the total gin capacity per 12-hour day by states for 1935 and 1940. The estimates for North Carolina and for the United States are shown in table 3. It was estimated that in 1935 North

TABLE 3. Estimated Total Gin Capacity and Number of 12-hour Days Required to Gin Entire Crop Using Full Capacity, North Carolina and United States, 1935 and 1940.

Year	Total gin capacity per 12-hour day[1] (bales)		Number of 12-hour days required to gin crop using full capacity[2]	
	North Carolina	United States	North Carolina	United States
1919		557,966		20.3
1935	36,156	548,265	16.0	19.0
1940	31,822	521,448	23.2	24.1

[1] Bureau of Census reports: "Cotton Ginning Machinery and Equipment by States, 1940.

[2] Total production divided by the total gin capacity.

Carolina had gin equipment adequate for ginning 36,156 bales in a 12-hour day. The estimates for the United States were 548,265 bales and 521,448 bales for 1935 and 1940 respectively. Dividing these estimates into the total production figures for the corresponding years gives the number of 12-hour days required to gin the entire crop if gins were used to full capacity each day. According to these calculations, North Carolina had sufficient ginning equipment to gin the 1935 crop in 16 days and the 1940 crop in 23.2 days. For the United States as a whole, if full gin capacity had been utilized, 19.0 days would have been required to gin the 1935 crop and 24.1 days for the 1940 crop.

These estimates would suggest that the ginning industry has considerable excess capacity. If all gins in North Carolina could be operated at full capacity until the entire crop had been ginned, less than one month would be required to gin a normal crop. This is impossible, however, since the harvesting season normally extends over a period of three months or more. Consequently in certain parts of the harvesting season a large part of the capacity is unused and is a very important factor in excessive costs, especially labor costs.

Kinds of power. Table 4 shows a classification of North Carolina gins according to kinds of power used. In recent years there has been a considerable shift from gasoline and steam to electric and diesel power. In 1940, 38.1 per cent of all gins in the state were driven by electric motors and 26.6 per cent by diesel engines. In 1919 no diesel power gins were reported and only 6.4 per cent were electric. Animal power is no longer used, and water power gins have almost disappeared.

Gin ownership. According to the 1940 census report, 556 gins, or 55.1 per cent of all North Carolina gins, were owned by individuals; 301 gins, or 29.8 per cent, were owned by partnerships; 149, or 14.8 per cent, were owned by corporations; one was owned by a farmers' cooperative; and two were owned by governmental organizations.

Table 5 shows a frequency distribution of the 63 gins according to estimated present value. There are 7 gins with estimated present value of $2,500 or less and one gin over $20,000. Twenty-three gins, or 36.5 per cent of the total have estimated values between $2,501 and $5,000.

TABLE 4. Distribution of Active Gins by Predominant Type of Power, North Carolina, Specified Years.

Year	TYPE OF POWER										Total gins
	Electric		Diesel		Gasoline		Steam		Water		Animal		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number
1906	8	.3			76	2.7	2422	86.7	237	8.5	49	1.8	2792
1909	30	1.1			186	6.7	2342	84.2	201	7.2	22	0.8	2781
1914	74	2.8			513	19.5	1895	72.2	138	5.3	5	0.2	2625
1919	129	6.4			513	25.4	1304	64.5	73	3.6	1	0.1	2020
1935	300	30.5	199	20.2	273	27.7	193	19.6	20	2.0			985*
1940	314	38.1	219	26.6	189	22.9	90	10.9	12	1.5			824**

Source: Bureau of the Census reports: "Cotton Production and Distribution" and "Cotton Ginning Machinery and Equipment by States, 1940."

*In 1935 there were 109 gins that reported more than one kind of power.

**In 1940 there were 96 gins that reported more than one kind of power.

TABLE 5. FREQUENCY DISTRIBUTION SHOWING ESTIMATED PRESENT VALUES OF 63 COOPERATING GINS, NORTH CAROLINA, 1941.

Estimated present value	Number of gins	Percent of gins
$ 2,500 or less	7	11.1
2,501 - 5,000	23	36.5
5,001 - 7,500	9	14.3
7,501 - 10,000	9	14.3
10,001 - 12,500	6	9.5
12,501 - 15,000	3	4.8
15,001 - 17,500	3	4.8
17,501 - 20,000	2	3.1
20,007 - and over	1	1.6
Total	63	100.0

GINNING EXPENSES

Classification of ginning expenses. In this analysis it has been assumed that the actual ginning of cotton is the main business of the cotton gin, at least during the ginning season, even though the organization buys cottonseed and lint cotton. No attempt has been made to allocate any part of the management or office expense to these additional phases of the business. Of course direct expenses incurred in handling these products, such as drayage on cottonseed, are not charged to ginning. Since gin operators differ somewhat in their classification of expenses, a uniform classification was adopted. A brief description of the classification used is given below.

Administrative expense. Under this heading was placed all office salaries, manager's salary, and manager's official travel expense. In many instances, since the manager performs certain tasks in addition to managing the enterprise, it was impossible to determine accurately what part of his compensation was for management and what part for labor. Consequently the item administrative expense may include payment for an undetermined amount of labor.

Ginning labor. This item represents the payment for all labor used in the ginning of cotton. It does not include the cost of labor used for hauling cotton or seed, or labor used in repairing the plant. Actually a small amount of repair labor is in this item, since a few gins surveyed did not separate accounts for repair labor and ginning labor.

Repairs and upkeep. In this item are repair labor, repair materials, and miscellaneous gin supplies, lubricating oil and greases. As indicated above, the repairs and upkeep item is reduced slightly by the fact that a few ginners combine repair labor with ginning labor. Replacements of whole units of machinery or buildings that will last more than one year are not considered as expenses but as capital expenditures.

Power and fuel. This item includes electricity, oil or gasoline, and wood or coal used for power.

Bagging and ties. The cost of bagging and ties is considered as a ginning expense rather than as an income to the gin. The actual cost of these materials to the gin is charged as an expense, but is added to the ginning rate.

Insurance. This includes insurance premiums of all kinds, such as fire and tornado insurance, fire insurance on cotton and cottonseed, and workmen's compensation insurance.

Taxes. Under this item are county and town property taxes, city or town privilege license, and social security tax. Federal and state income taxes are omitted.

Miscellaneous expense. Considered in this ite mare cost of lights, water, heat, office supplies and postage, telephone and telegraph, advertising, dues, bank exchange, auditing and legal expense, hauling cotton for growers, and other miscellaneous expenses. The cotton hauling expense, as used in this study, is the net cost in excess of the fee received from the grower.

GIN PLANTS LIKE THIS ARE RAPIDLY BEING REPLACED BY MORE MODERN STRUCTURES AND EQUIPMENT.

Depreciation. This is the estimated depreciation on buildings, machinery, and equipment derived from estimates of present value and years of remaining life. The gin officials who gave the records were asked to estimate the present value of these assets and the number of years of life remaining, assuming normal repairs. These estimates were then checked by the gin specialist of the State Department of Agriculture and revisions were made in those instances where the estimates appeared to be too high or too low. Also in this account is rent paid for four gins which were rented by the operators. It is not entirely correct to include rent in the depreciation account since rent covers cost other than depreciation, such as insurance and taxes. However, since no information was available for breaking down the rent into its component parts, this seems to be the most appropriate place for it. As there were only four gins rented the average is affected very little by this discrepancy.

TABLE 6. ANALYSIS OF GINNING EXPENSES OF 63 COOPERATING GINS.

Expense items	Cost per bale (dollars)	Percent of total cost
Administrative expense	$0.42	13.2
Ginning labor	.55	17.4
Repairs and upkeep	.18	5.7
Power and fuel	.38	11.9
Bagging and ties	.81	25.7
Insurance	.17	5.5
Taxes	.06	2.0
Miscellaneous	.13	4.2
Depreciation	.46	14.4
Total	3.16	100.0

The cost per bale. Table 6 shows the average cost per bale for each of these items of expense and a percentag distribution of the total cost. The average cost of ginning, based on the expense records of these 63 gins, was $3.16 a bale.[2] Table 7 shows a frequency distribution of the 63 gins on the basis of average cost per bale.

TABLE 7. FREQUENCY DISTRIBUTION OF GINS CLASSIFIED ON THE BASIS OF AVERAGE COST OF GINNING PER BALE.

Average cost per bale	Number of gins
Less than $2.50	2
2.50 - 2.74	12
2.75 - 2.99	14
3.00 - 3.24	8
3.25 - 3.49	8
3.50 - 3.74	4
3.75 - 3.99	4
4.00 - 4.24	4
4.25 - 4.49	5
4.50 - 4.74	1
4.75 - 4.99	0
5.00 and over	1
Total	63

Relation of volume of ginning and number of gin stands to ginning costs. It is generally recognized that ginning cost is related to the number of bales ginned and that the capacity of the gin is related to the number of gin stands in the plant. In general, it may be said that as the volume of a given gin increases, the cost per bale decreases. The reason for this is that there are certain expenss which vary directly with the volume, while other expenses remain almost constant regardless of volume. Table 8 shows for cooperating gins the relation of volume to the total cost per bale ginned for gins with 2 and 3 stands, with 4 stands, and with more than 4 stands. Since there were only 5 gins having 2 stands, these were combined with the 3-stand gins, giving a total of 30 gins in this group. There were twenty-five 4-stand gins. Only 8 of the 63 gins had more than 4 gin stands and none of these had as low as 1,000 bales. The average cost declined as the volume of the plant increased up to gins with a capacity varying from 1,501 to 2,000 bales. After this point the cost per bale did not vary markedly. The average cost per bale was not greatly affected by the number of gin stands when volume was ignored. It would appear that the cost per bale is affected more by the number of bales ginned than by any other factor.

[2]Hathcock in 1924-25 estimated the average cost of ginning in Wake, Harnett, and Johnston Counties, N. C., to be $4.35 per bale distributed as follows: Management and Labor, $1.23; bagging and ties, $.92; maintenance, $.76; interest on investment, $.56; power, $.58; insurance, $.14; taxes, $.09; and miscellaneous, $.07. It will be noted that in the present study no interest on investment was charged. Hathcock, James S., "Practices and Costs of Cotton Gin Operation in a Selected Section of North Carolina, 1924-25," a Preliminary Report, Bureau of Agricultural Economics, U.S.D.A., 1927.

TABLE 8. RELATION OF THE VOLUME OF COTTON GINNED AND NUMBER OF STANDS IN THE GIN PLANTTO COST OF GINNING PER BALE.

Volume per gin plant (bales)	NUMBER OF GIN STANDS											
	2 and 3 stands[1]			4 stands			More than 4 stands			Total		
	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)
1 - 500	5	350	4.05	1	357	6.54				6	351	4.47
501 - 1000	12	737	3.18	4	726	3.87				16	735	3.35
1001 - 1500	8	1226	2.97	7	1213	3.02	3	1255	3.71	18	1226	3.12
1501 - 2000	5	1717	2.81	4	1818	2.78	1	1909	4.36	10	1776	2.97
2001 - 2500				6	2255	3.31	3	2118	3.01	9	2220	3.21
2501 - 3000				3	2555	3.12	1	2547	2.71	4	2553	3.02
Total	30	967	3.05	25	1609	3.18	8	1822	3.31	63	1330	3.16

[1]There were only five 2-stand gins.

TABLE 9. RELATION OF THE VOLUME OF COTTON GINNED AND TYPE OF POWER USED TO GINNING COST PER BALE.

Volume per gin plant (bales)	TYPE OF POWER											
	Electric			Int. Combustion Engine			Steam			All types		
	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)	Number gins	Average number bales per gin	Average cost per bale (dollars)
1 - 500	3	378	4.78	3	324	4.11				6	351	4.47
501 - 1000	5	707	3.68	10	749	3.23	1	731	2.95	16	735	3.35
1001 - 1500	13	1240	3.18	5	1189	2.93				18	1226	3.12
1501 - 2000	7	1786	3.05	2	1660	2.72	1	1944	2.86	10	1776	2.97
2001 - 2500	8	2179	3.17	1	2450	3.47				9	2220	3.21
2501 - 3000	3	2570	3.14	1	2504	2.66				4	2553	3.02
Total	39	1498	3.21	22	1031	3.08	2	1338	2.89	63	1330	3.16

The relation of volume of cotton ginned and the type of power used to the cost of ginning.[1] Among the 63 gins supplying cost records, there were 39 using electric power, 22 using internal combustion engines, and 2 using steam power. The data showing the effect of the power used and the volume ginned on the cost of ginning are shown in table 9. Analysis of these data indicate that the cost of ginning varies according to the volume and the type of power employed. There is not much difference in the cost per bale for gins operated by electricity and for those operated by internal combustion engines; however, the 2 gins operated by steam power apparently had a lower cost than those using other forms of power.

Table 10 presents a comparison of the various items of expense of electric gins with those of gins using internal combustion engines in the two volume groups 501 to 1,000 and 1,001 to 1,500 bales and with all gins using these types of power. These data indicate that electricity costs, on the average, approximately 30 cents a bale more than fuel oil and gasoline used in internal combustion engines.

GINNING INCOME

Data in table 11 show the relation between ginning costs and gin fees or charges. The fees tend to be low for low-cost gins and high for high-cost gins.

The only item relating to income which was obtained in this study was the ginning fee charged the grower. Tables 12 and 13 give some idea as to the various methods of charging and the variety of fees charged. Some gins make a flat charge per bale for ginning and wrapping, whereas others make an extra charge for bales in excess of 500 pounds. In this study these flat charges varied from $2.00 to $4.00 per bale. In some areas the prevailing practice is to charge according to the weight of the seed cotton before ginning. This charge in some instances includes wrapping the bale. In other cases an extra charge is made for bagging and ties. In other areas the custom is to charge a fixed fee per 100 pounds of lint cotton for ginning, usually including wrapping the bale. One gin operating on this basis made an additional charge of $1.00 for wrapping. The most common fee was a flat charge of $3.00 per bale. There were 11, or 17.4 per cent, which charged $4.00 per bale.

[1]Because of the small number of gins within the various subgroups the average cost shown for different volumes within each of the three gin size groups cannot be considered statistically significant. Nevertheless they are shown in the table becaus they aid in giving a clearer description of the nature of the data.

TABLE 10. THE ANALYSIS OF GINNING COSTS FOR GINS USING ELECTRIC POWER AND FOR THOSE USING INTERNAL COMBUSTION ENGINES WITH VARYING VOLUME OF GINNINGS.

Expense Items	501-1000 bale volume		1001 to 1500 bale volume		All Gins	
	Electric (5 gins)	Internal Combustion Engine (10 gins)	Electric (13 gins)	Internal Combustion Engine (5 gins)	Electric (39 gins)	Internal Combustion Engine (22 gins)
Administrative expense	.53	.52	.45	.36	.40	.45
Ginning labor	.50	.54	.45	.52	.56	.52
Repairs and upkeep	.07	.21	.18	.25	.17	.22
Power and fuel	.57	.23	.51	.13	.47	.17
Bagging and ties	.85	.81	.83	.84	.80	.83
Insurance	.34	.20	.15	.22	.17	.19
Taxes	.07	.06	.06	.05	.07	.06
Miscellaneous	.22	.04	.07	.10	.14	.12
Depreciation	.53	.62	.48	.46	.43	.52
Total cost	3.68	3.23	3.18	2.93	3.21	3.08

TABLE 11. AVERAGE GINNING COST PER BALE FOR GINS MAKING DIFFERENT CHARGES FOR GINNING.[2]

Expense item	AVERAGE COST PER BALE		
	Gin fees $2.00-2.99 (Dollars)	Gin fees $3.00-3.99 (Dollars)	Gin fees $4.00 and over (Dollars)
Administrative expense	.39	.39	.49
Ginning labor	.37	.54	.63
Repairs and upkeep	.18	.17	.22
Power and fuel	.45	.35	.42
Bagging and ties	.76	.81	.84
Insurance	.12	.17	.20
Taxes	.05	.06	.08
Miscellaneous	.06	.16	.09
Depreciation	.46	.48	.40
Total	2.84	3.13	3.37
Number of gins	7	39	17
Average number of bales per gin	1120	1406	1242

[2]The average estimated value of gins in the low-charge group was $6,514, in the medium-charge group $7,486, and in the high-charge group $6,729.

In analyzing costs of ginning in Texas, W. E. Paulson used investment as one of the factors influencing cost. "Costs of Ginning" by W. E. Paulson, Progress Report No. 570, Texas Agr. Exp. Station, 1938.

TABLE 12. GINNING CHARGES MADE BY 63 COOPERATING GINS, NORTH CAROLINA, 1940-41.

Ginning rate	Gins	
	Number	Percent
$2.00 per bale	2	3.2
2.50 " "	1	1.6
2.73 " "	1	1.6
3.00 " "	16	25.4
3.00 " " plus 1 cent per pound above 500 pounds	1	1.6
3.50 " "	6	9.5
3.50 " " plus 1 cent per pound above 500 pounds	1	1.6
4.00 " "	11	17.4
.25 per cwt. seed cotton	2	3.2
.30 " " " "	6	9.5
.15 " " " " plus $1 for wrapping	2	3.2
.15 plus $.75 for wrapping	1	1.6
.20 " " " " plus $1 for wrapping	5	7.9
.20 " " " " plus $.62 for wrapping	1	1.6
.60 per cwt. lint cotton	4	6.3
1/20 of seed cotton toll or $.25 per cwt seed cotton	2	3.2
1/20 of seed cotton toll plus $1 for wrapping	1	1.6
Total	63	100.0

TABLE 13. FREQUENCY DISTRIBUTION SHOWING ESTIMATED PROFIT OR LOSS OF 63 COOPERATING GINS FROM GINNING OPERATIONS, NORTH CAROLINA, 1940-41.

Estimated profit (+) or loss (—)	Gins	
	Number	Percent
(Dollars)		
—1001 to —1500	3	4.8
— 501 to —1000	8	12.7
0 to — 500	16	25.4
+ 1 to + 500	15	23.8
+ 501 to +1000	12	19.0
+1001 to +1500	2	3.2
+1501 to +2000	2	3.2
+2001 and over	5	7.9
Total	63	100.0

From the ginning fees charged, an estimate was made of the weighted average fee charged by all 63 cooperating gins, the assumption being made that the fee was collected on all bales ginned.[1] According to this estimate the of $3.16 per bale. This would indicate an average margin of $.21 per bale above costs.

From the ginning fee and the volume ginned, it was possible to estimate the total receipts of each gin from ginning fees and to estimate the profit or loss from ginning. The results of these estimates are shown in table 13. There were 27 gins, or 42.9 per cent of the 63 cooperating gins, which showed a loss, whereas there were 36 gins, or 57.1 per cent, which made a profit.

[1]This assumption was not entirely correct, since a certain percentage of the cotton was bought by the ginner in the seed before it was ginned, and in some instances a part of the cotton was produced by the ginner.

average fee for all gins was $3.37 per bale, as compared with an average cost