

# COTTON GIN OPERATING COSTS IN WEST TEXAS



CONTENTS

	<u>Page</u>
Summary.....	iv
Introduction.....	1
Objectives.....	2
Scope.....	3
Sampling Procedure.....	4
Methodology.....	6
Costing Methods.....	6
Cost Allocations.....	7
Seasonal Volumes and Rated Capacities.....	8
Ginning Costs, By Size Groups.....	8
Ginning Revenues.....	13
Break-Even Volumes.....	13
Interpretation of Findings.....	16
Plans for Continuing Study.....	19
Appendix.....	21

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## SUMMARY

The cotton ginning industry continues to face a serious problem: Throughout the Cotton Belt, there are too many modern, high-capacity gins, representing investments of \$350,000 to \$500,000 or more. This long-term problem was greatly intensified by sharply reduced cotton production in the fall of 1966.

In West Texas, estimated ginning capacity exceeded actual cotton production by 44 percent during the 1965-66 season, and by 66 percent in the following season. Gins competing for the dwindling seed cotton production grant price concessions and give extra services, while their operating costs continue to set record highs. Under these conditions, only the most efficient gins can survive, and then only by using all available information and assistance to maintain peak operating efficiencies.

Ginning volumes in the 36-gin sample described in this report ranged from 2,017 to 24,277 bales in 1965-66 and from 300 to 13,136 in 1966-67. Estimated hourly ratings of the sample firms ranged from 7 to 44 bales per hour.

Wide variations in gin size and capacity utilized significantly influenced costs. Low-to-high-range costs, by hourly bale capacities per firm, for the two successive seasons were: Group 1 (8 bales or less)--\$18.59 to \$20.03 and \$22.84 to \$25.80; Group 2 (9 to 11 bales)--\$19.19 to \$21.56 and \$26.53 to \$31.66; Group 3 (12 to 20 bales)--\$17.10 to \$20.18 and \$21.98 to \$27.07; and Group 4 (21 bales or more)--\$18.77 to \$22.20 and \$26.68 to \$32.20. Repairs, management, and labor--in that order--were the principal items accounting for higher book and standardized book costs. These items offer immediate possibilities for reducing costs.

Future transfer of cotton allotments, destruction or obsolescence of existing gins, or merging of several old gins may require new gin construction. Under present conditions, an investment in ginning equipment and machinery should pay for itself in 8 years, plus a 12-percent profit before taxes. Averages for 1965-66 show that a capacity use of 70 to 80 percent for Groups 3 and 4 would have been required to justify constructing new plants. During the 1966-67 season, due to the increase in average revenue of approximately \$3.50 per bale, the maintenance of a capacity use of 50 to 60 percent for Groups 1 and 2 and of 40 to 50 percent for Groups 3 and 4 would have been sufficient.

If anticipated net earnings for a given situation are insufficient to warrant a complete gin replacement, modifying or renovating an old plant may be warranted.

Plans are to continue this study with the issuance of an annual report on ginning costs. These reports will be based on the voluntary mailing of necessary cost information by cooperating ginners.

## COTTON GIN OPERATING COSTS IN WEST TEXAS

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### INTRODUCTION

Cotton ginnerers throughout the Cotton Belt have recently experienced some of the most difficult times in the history of ginning. The past decade has seen a rapid increase in the development and adoption of higher capacity ginning facilities to meet the faster rates of harvest and the competition from other ginning firms. <sup>1/</sup>

With the advent of the high-capacity gin during the late 1950's and early 1960's, remodeling or replacing older plants and adding new plants to existing complexes increased throughout most U.S. cotton producing areas. During this period, investments in new gin plants rose to record highs--often doubling, tripling, and even quadrupling. Today, modern high-capacity ginning facilities, representing investments of \$350,000 to \$500,000 or more, are relatively common throughout the major cotton producing regions.

Heavier investments in ginning facilities resulted in higher depreciation and interest costs, but most other operating costs of today's ginning firms are also higher. Management costs rose substantially during recent years, along with the general increase in the cost of living and the need for men with greater managerial and technical skills to supervise the larger, more elaborately equipped plants. Horsepower and fuel requirements also rose with the incorporation of more drying, processing, and materials-handling equipment in ginning complements. Wages have increased appreciably since the late 1940's. Fortunately, the escalating effect of wage hikes on total ginning costs has been largely offset by the reduction in ginning labor requirements with the net result of only a very slight increase in average labor costs per bale. Net cost increases in insurance, taxes, and bagging and ties have also been relatively small, and plant repair costs per bale have actually declined in the newer plants. The combined effect has been an overall increase in average ginning costs per bale of at least 50 percent during the past two decades in plants of similar size and ginning volumes.

To maintain a relatively stable profit level, according to economic theory, a business with continually rising operating costs must (1) increase its output, (2) raise its prices, or (3) achieve some satisfactory combination of (1) and (2). Such compensating adjustments have not occurred in the ginning industry. During the most active transitional period--1959-65--when high-capacity plants

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<sup>1/</sup> Ginning firm denotes the presence of ginning facilities without regard to the number of separate ginning batteries or plants at any one location.

were replacing conventional gins at a rapid rate in most areas, cotton production in Crop Reporting District 1, West Texas, <sup>2/</sup> the focal point of this study, remained relatively stable (fig. 1). Total production in this area was 1,895,700 bales in 1959, compared with 2,251,800 bales in 1965. Ginning charges, likewise, failed to rise at a rate proportional to the estimated increase in operating costs. In the 1947-49 ginning period, an average charge for ginning was 50 cents per hundredweight of seed cotton throughout the High Plains. <sup>3/</sup> Today this rate is still in effect in some localities, although 60 cents would probably be more typical of the whole area.

The buildup in total ginning capacity over the past 10 years and the more recent decline in seed cotton production have left the industry with a serious surplus of ginning facilities. During the 1965-66 season, the total estimated ginning capacity in District 1, for example, exceeded average cotton production for that year by 44 percent (table 1). <sup>3/</sup> During the 1966-67 season, this figure rose to an estimated 66 percent, following a 40-percent drop in cotton production. Surplus capacities of this magnitude mean indefinite inactivation for some plants and closing for others. Active gin plant numbers are declining in West Texas and elsewhere throughout the Belt; the decline will continue as long as the serious imbalance between production and ginning capacity persists. Only the more efficient plants can survive and continue to operate on an economic basis.

If ginners are to make sound decisions concerning their businesses, they need current and representative cost figures for their areas and firm size groups as bases for evaluating and appraising their own operations. In previous cost studies involving the collection of primary data, researchers had to personally visit each individual firm in the sample. This is a slow, costly procedure which partially accounts for the rather infrequent updating of ginning costs in the past. After the initial visit was made to sample gins for this report, future updating will not usually require further visits.

## OBJECTIVES

The objectives of this study were to (1) determine the current costs of ginning on the High Plains of West Texas; (2) analyze the effects of declines in cotton production on ginning costs; (3) evaluate the possibilities of reducing operating costs through more efficient ginning; and (4) develop procedures which would provide for an annual updating of ginning costs through the voluntary transmittal of necessary data by managers of sample ginning firms.

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<sup>2/</sup> Most of Crop Reporting District 1 is served by the Lubbock Classing Office, Cotton Division, Consumer and Marketing Service, USDA, working in compliance with the Smith-Doxey Act to provide free classing of cotton lint. A complete list of the gins served by this office provided the universe from which the sample was selected for this study.

<sup>3/</sup> Looney, Zolon M., Robert A. Montgomery, and William E. Franklin, Jr., Evaluation of Cotton Ginning Costs and Quality, High Plains Area of Texas, 1946 through 1948, Cotton Branch, Prod. and Mktg. Admin., U.S. Dept. Agr., July 1950.

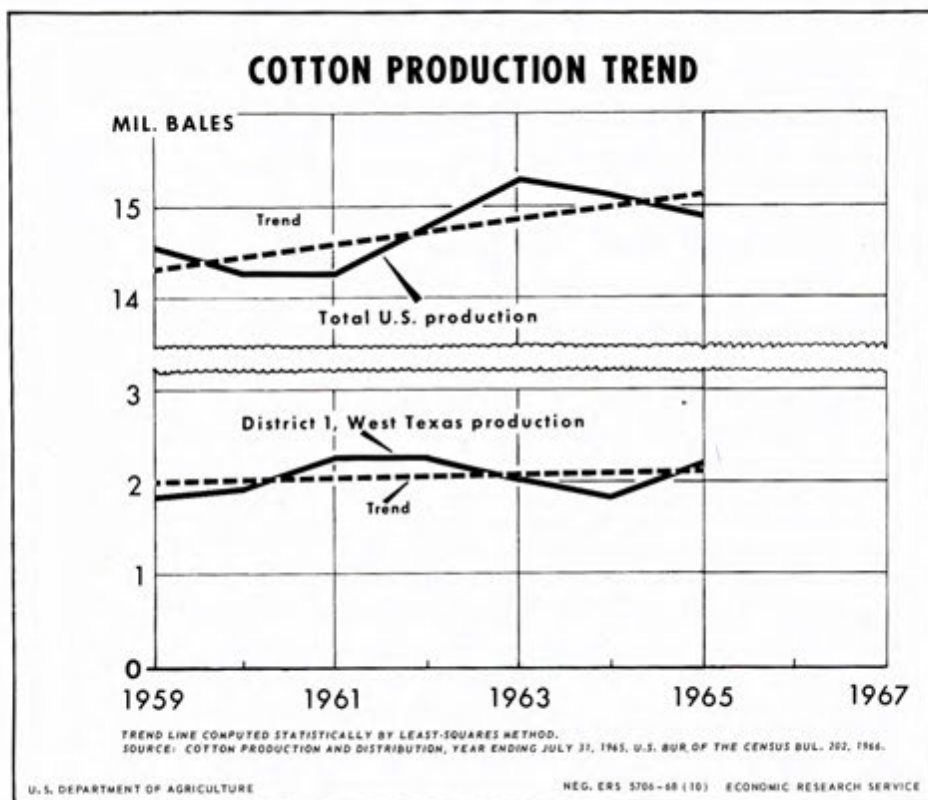


Figure 1

Table 1.--Estimated total ginning capacity compared with total production,  
District 1, West Texas, 1965-66 and 1966-67 seasons

Season	Ginning firms <u>1/</u>	Ginning capacity <u>2/</u>	Total production	Excess capacity
	Number	Bales	Bales	Percent
1965-66....	434	4,010,681	2,251,800	44
1966-67....	427	3,945,992	1,344,750	66

1/ Denotes presence of ginning facilities regardless of number of separate ginning batteries or plants at any one location.

2/ Estimates. Based on an assumed average hourly capacity of 10.2 bales--a rate which can be sustained throughout the season--and the availability of 906 operating hours, and no seed-cotton storage during a typical ginning season.

#### SCOPE

This study was confined to the area served by the Lubbock Classing Office, which comprises the greater part of District 1 of the High Plains of West Texas. This area encompasses approximately 2.4 million acres of farmland. The firms selected in the sample were located in 14 of the 22 cotton producing counties.

During the 1965-66 season, these 14 counties accounted for approximately 82 percent of all ginning firms and over 86 percent of the total cotton production for this area.

### SAMPLING PROCEDURE

The identity and location of each of the 371 ginning firms were determined from current data on file at the Lubbock Classing Office. All active firms in the list were first arrayed by size, based on hourly capacities, from smallest to largest. <sup>4/</sup> Capacity ranged from 6 to 44 bales per hour. A majority, however, had capacities of 11 bales per hour or less. To eliminate the likelihood of a disproportionately high number of small firms appearing in the sample, the arrayed list was stratified into four groups of nearly equal size, based on estimated total hourly capacities. Size groups ranged in hourly capacities for individual firms as follows: Group 1--8 bales or less; Group 2--9 through 11 bales; Group 3--12 through 20 bales; and Group 4--21 bales or more (table 2). In making the actual sample selection, 9 firms were drawn at random from each group, making a total of 36 firms, or a sampling rate of approximately 10 percent. Geographical distribution of sample firms, by counties, was: Hale--8; Dawson--5; Lubbock--4; Gaines--3; Lynn--3; Hockley--3; Lamb--2; Floyd--2; Castro--1; Yoakum--1; Terry--1; Crosby--1; Martin--1; and Howard--1 (fig.2).

Table 2.--Distribution of ginning firms by size groups and by estimated rated hourly capacities, District 1, West Texas, 1965-66 season

Size groups	: Sample : : firms :	: Rated hourly : : capacity per firm :	: Total	
			: Ginning firms : : 2/ :	: Hourly capacity : : 1/ :
	: Number	: Bales	: Number	: Bales
Group 1.....	: 9	: 8 or less	: 141	: 1,049
Group 2.....	: 9	: 9 -- 11	: 111	: 1,067
Group 3.....	: 9	: 12 -- 20	: 78	: 1,192
Group 4.....	: 9	: 21 or more	: 41	: 1,184
Total or average.....	: 36		: 371	: 4,492

<sup>1/</sup> Based on manufacturers' hourly capacity rating of gin stand complex.

<sup>2/</sup> Denotes presence of ginning facilities without regard to number of separate ginning batteries or plants at any one location.

<sup>4/</sup> Assigned plant capacities were based on manufacturers' ratings of the gin stand complexes. Information regarding number and models of gin stands at each plant was obtained from current information provided by the Lubbock Classing Office.

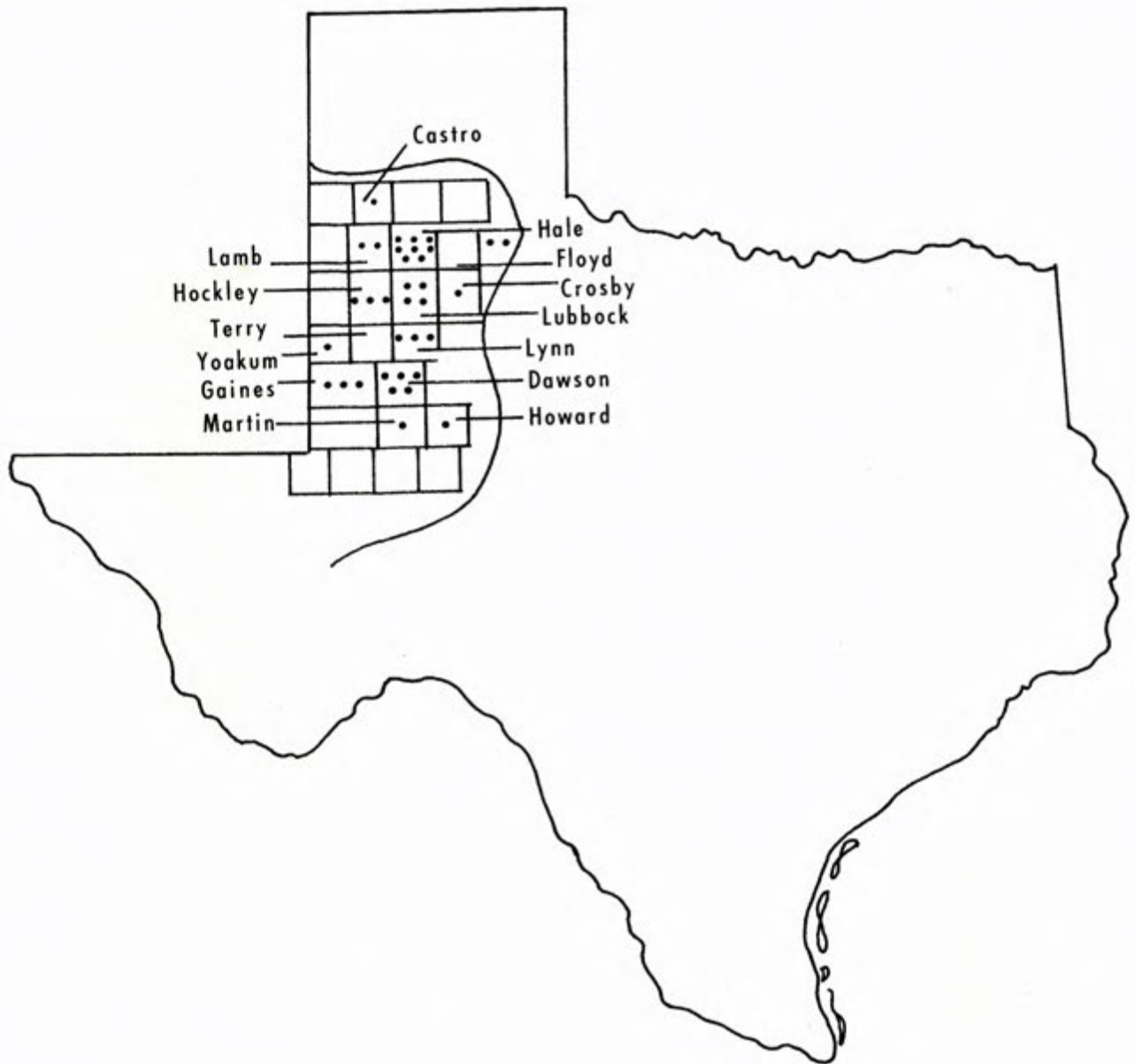


Figure 2.--Texas High Plains cotton producing area and distribution of sample ginning firms, by counties, 1965-66 and 1966-67 seasons. Each dot represents a ginning firm within the county from which ginning cost data were secured for the two seasons. References to ginning firms denotes presence of ginning facilities, regardless of number of separate ginning batteries or plants at any one location.



## METHODOLOGY

In the course of this study, each ginning firm was visited to (1) seek cooperation of the owner or manager; (2) collect ginning cost data for the 1966-67 season; (3) become familiar with the firm's accounting system; and (4) explain and discuss plans regarding the firm's role in assisting with the proposed annual updating of the data.

During the initial visit in April 1967, most ginning firms in the area, operating on fiscal year bases, had their accounting record closing dates ranging from February 28 to August 31. This meant that complete cost data for the 1966-67 ginning season was not available at that time for all firms in the sample. Therefore, an immediate decision was made to collect total cost data for the 1965-66 season, and as much data for the 1966-67 season as was then available. The final collection of supplemental data necessary to complete the 1966-67 cost picture was carried out during the fall of 1967.

Allocation of costs must be uniform if useful and meaningful cost comparisons are to be made between and among ginning firms. This is difficult to accomplish because ginning firm records vary widely in cost accounting procedures. For example, office labor is treated as a separate item in some bookkeeping systems and combined either with management or ginning labor in others. Repair labor also may be listed separately or combined with ginning labor. Social security taxes and workmen's compensation insurance payments are recorded in several different ways. These are only a few of the many variations noted in recordkeeping systems employed by ginning firms.

A standard cost schedule was designed for recording costs initially and for reporting findings later. However, because of the dissimilarities in methods of charging off specific cost items, it proved much easier and faster to transcribe the operating costs directly as they appeared in the firm records, and to defer making the necessary allocations until later. Assistance in making these allocations was subsequently provided by the ginning firms either by telephone or mail.

### Costing Methods

For comparative purposes, three types of costs were developed for each size group: book, standardized book, and standardized model ginning costs.

Book costs are those taken directly from a firm's accounting records and adjusted to achieve the necessary uniformity for making meaningful comparisons between individual firms and firm size groups.

Standardized book costs differ from book costs in only two respects--depreciation and interest. To overcome the disparities in charges made for depreciation and interest, these items were standardized at a uniform rate for all firms. Depreciation was set at 10 percent of the total cost of capital items carried on the depreciation schedule (average rate for all gin buildings and related equipment in the ginning firm sample). Interest was charged at 6 percent of the estimated average land values for the general area and 6 percent of half of the value of buildings, machinery, and equipment.

Model costs are estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize unit costs of production that were described in an earlier report. <sup>5/</sup> Although largely theoretical, these cost estimates are realistic and represent goals attainable to those willing to take advantage of the latest processing and handling technologies. In this analysis, model costs were standardized on the same basis as book costs to provide for direct comparisons with standardized book costs.

### Cost Allocations

Allocation of costs to functions was made in a uniform manner according to the following system:

1. Management: Where applicable, included manager's salary; manager's bonus or commission; owner's drawing and manager's or owner's expense allowances and personal insurance; manager's house rent; bookkeeper and other office salaries; home office cost (line companies); social security taxes, workmen's compensation insurance, and any other insurance on management and office labor.
2. Depreciation: Reported as found on gin records except under standardized book and standardized model costs (see Costing Methods).
3. Interest: Reported as found in gin records except under standardized book and standardized model costs (see Costing Methods).
4. Insurance: Insurance on all gin buildings and equipment, dwellings, barracks, and automotive equipment (except large trucks and trailers).
5. Taxes: Real property only.
6. Energy: All utilities--electricity, gas, and water--used in connection with the ginning operations.
7. Labor: Combined social security, workmen's compensation, and any other insurance on gin labor borne by the gin through wages paid. Also included cost of any rented housing furnished gin labor.
8. Bagging and ties: Actual cost of bagging and ties purchased.
9. Repairs: Gin repair labor (both inside and out); repair materials and supplies; and social security, workmen's compensation, and all other insurance paid by the gin on repair labor.
10. Miscellaneous: Combined car and pickup, tractor, and other automotive expense; telephone and telegraph; advertising and promotion; legal and audit; dues (excluding C.P.I. dues), memberships, and subscriptions; annual meetings, directors' fees and expenses; conventions and travel expenses; rental fees; bad debts; donations and contributions; cotton losses from fire; sampling, compressing, and related charges; gin supplies; and any miscellaneous costs not included elsewhere.

Costs of hauling cottonseed, lint, and burs were excluded. Specific items excluded were truck drivers' wages, depreciation, insurance, road-use taxes, storage of seed cotton, and any truck operating costs associated with these operations.

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<sup>5/</sup> Wilmot, Charles A., Victor L. Stedronsky, Zolon M. Looney, and Vernon P. Moore, Engineering and Economic Aspects of Cotton Gin Operations--Midsouth, West Texas, Far West, U.S. Dept. Agr., Agr. Econ. Rpt. 116, July 1967.

## SEASONAL VOLUMES AND RATED CAPACITIES

During the 1965-66 season, volumes ginned at the sample firms ranged from 2,017 to 24,277 bales. Averages for the four firm size groups were: Group 1--4,734 bales, Group 2--4,840 bales, Group 3--8,933 bales, and Group 4--11,729 bales (table 3). During the following season, ginning volumes were much lower--ranging from 300 to 13,136 bales. Averages during the 1966-67 season were: Group 1--3,144 bales, Group 2--2,670 bales, Group 3--5,460 bales, and Group 4--6,448 bales.

Estimated capacity ratings of sample ginning firms ranged from 7 to 44 bales per hour. <sup>6/</sup> Hourly rated averages were: Group 1--7.7 bales, Group 2--9.3 bales, Group 3--16.0 bales, and Group 4--28.3 bales.

## GINNING COSTS, BY SIZE GROUPS

Standardized book costs, because of the higher depreciation and interest charges, were highest, and standardized model costs, because of the theoretical efficiencies incorporated, tended to be lowest, in comparing costs by costing methods. This was true in all but two cases. The exceptions were Group 1 for 1965-66, when book costs and standardized model costs were identical, and Group 4 for 1966-67 when book costs were lowest.

To avoid revealing the identity of any individual operation, only the averages for the nine ginning firms comprising each group are shown in the appendix tables. The effects on costs of varying capacity utilization rates, <sup>7/</sup> were shown by extrapolating from the group average cost estimates of utilization rates ranging from 100 to 10 percent at intervals of 10.

### Group 1

During the 1965-66 ginning season, total operating costs for Group 1, with an 80 percent capacity utilization, ranged from \$18.59 per bale for both book and standardized model costs, to \$20.03 per bale for standardized book costs (table 4). In 1966-67, with 53-percent capacity utilization, the range was \$22.30 to \$25.80 per bale for book and standardized model costs. Individual cost items which accounted mainly for standardized model costs being lower than standardized book costs, in order of importance, were repairs, management, and labor. The extent to which these costs were lower in the standardized models, for the two seasons were: repairs--46 and 60 percent; management--32 and 38 percent; and labor--19 and 20 percent.

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<sup>6/</sup> Based on manufacturers' ratings of gin stand complexes.

<sup>7/</sup> Ratio of volume ginned to estimated total seasonal ginning capability without seed cotton storage. Seasonal capability based on average rated hourly capacity times 906 (estimated number of operating hours available during a typical ginning season) and reduced to 85 percent (estimated level of ginning efficiency which can be maintained throughout the season). Seed cotton storage was excluded.

Table 3.--Seasonal volume ginned, estimated rated hourly capacity, and estimated average capacity utilization, for sample ginning firms, District 1, West Texas, 1965-66 and 1966-67 seasons.

Ginning firm size group, by season	Seasonal volume ginned		Rated hourly capacity 1/		Average estimated capacity utilization 2/
	Range	Average	Range	Average	
	<u>Bales</u>	<u>Bales</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
<u>1965-66:</u>					
1.....	2,017- 7,610	4,734	7- 8	7.7	80
2.....	2,386- 9,983	4,840	9-10	9.3	68
3.....	4,015-18,707	8,938	12-20	16.0	73
4.....	6,592-24,277	11,729	21-44	28.3	54
<u>1966-67:</u>					
1.....	1,452- 5,786	3,144	7- 8	7.7	53
2.....	300- 6,573	2,670	9-10	9.3	37
3.....	1,525- 9,031	5,460	12-20	16.0	44
4.....	2,776-13,136	6,448	21-44	28.3	30

1/ Manufacturers' rating of gin stand complex.

2/ Ratio of volume ginned to estimated total seasonal ginning capacity without seed cotton storage. Seasonal capability based on average rated hourly capacity times 906 (estimated number of operating hours available during a typical ginning season) and reduced to 85 percent (estimated level of ginning efficiency which can be sustained throughout the season). Seed cotton storage was not included.

#### Group 2

Capacity utilization for the Group 2 average was 68 percent in 1965-66 and 37 percent in 1966-67. Total ginning costs at these utilization rates ranged from \$19.19 for standardized model ginning costs to \$21.56 for standardized book costs during the first season and \$26.53 to \$31.66 for these two costing methods during the second season (table 5). Only two cost items--repairs and management--differed appreciably between the two methods. Standardized model repair costs were lower by 48 percent in 1965-66 and by 65 percent during 1966-67. Standardized model management costs were lower by 30 and 25 percent for the two successive seasons.

#### Group 3

Total costs per bale in Group 3 ranged from \$17.10 for standardized models to \$20.18 for standardized book costs during 1965-66, with capacity utilization at 73 percent, and from \$21.98 to \$27.07 for these same costs in 1966-67, with a utilization rate of 44 percent (table 6). Repairs under standardized model costs were 45 percent less in 1965-66 and 58 percent less in 1966-67 than under

Table 4.--Average ginning costs per bale for Group 1 ginning firms, by costing methods, items, and seasons, at estimated rates of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons 1/

Cost item	1965-66 costs per bale			1966-67 costs per bale		
	Book	Standardized	Standardized	Book	Standardized	Standardized
	<u>2/</u>	book	model	<u>2/</u>	book	model
	3/		4/	3/		4/
-----Percent of capacity use <u>5/</u> -----						
	80	80	80	53	53	53
-----Dollars-----						
Management....	2.53	2.53	1.71	3.82	3.82	2.35
Depreciation..	2.50	3.29	4.34	3.65	5.05	6.55
Interest.....	.49	1.14	1.45	.56	1.75	2.19
Insurance.....	.27	.27	.43	.31	.31	.30
Taxes.....	.19	.19	.15	.32	.32	.23
Energy.....	1.37	1.37	1.60	1.76	1.76	1.74
Labor.....	3.59	3.59	2.92	3.72	3.72	2.99
Bagging and ties.....	2.98	2.98	3.02	2.86	2.86	2.93
Repairs.....	3.05	3.05	1.66	4.20	4.20	1.69
Miscellaneous..	1.62	1.62	1.31	2.01	2.01	1.33
Total.....	18.59	20.03	18.59	23.21	25.80	22.30

1/ Group 1--sample ginning firms with rated hourly capacities of 8 bales or less. Average--7.7 bales per hour.

2/ From firms' accounting records; adjusted for necessary uniformity to make meaningful comparisons among individual firms and firm size groups.

3/ Same as book costs except for 2 items: Depreciation standardized at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

4/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize unit costs of production. Standardized on same basis as book costs to provide for direct comparisons. See text footnote 5.

5/ Ratio of volume actually ginned to estimated total seasonal ginning capability without seed cotton storage.

Table 5.--Average ginning costs per bale for Group 2 ginning firms, by costing methods, items, and seasons, at estimated rates of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons 1/

Cost item	1965-66 costs per bale			1966-67 costs per bale		
	Book <u>2/</u>	Standardized book <u>3/</u>	Standardized model <u>4/</u>	Book <u>2/</u>	Standardized book <u>3/</u>	Standardized model <u>4/</u>
	-----Percent of capacity <u>5/</u> -----					
	68	68	68	37	37	37
	-----Dollars-----					
Management....	2.42	2.42	1.69	3.91	3.91	2.92
Depreciation..	3.00	4.47	4.68	5.03	8.13	8.59
Interest.....	.66	1.52	1.56	1.05	2.75	2.86
Insurance.....	.30	.30	.45	.49	.49	.36
Taxes.....	.27	.27	.16	.50	.50	.30
Energy.....	1.78	1.78	1.56	2.20	2.20	1.80
Labor.....	3.38	3.38	3.10	3.92	3.92	3.74
Bagging and ties.....	2.98	2.98	3.02	3.01	3.01	2.93
Repairs.....	3.19	3.19	1.66	4.84	4.84	1.69
Miscellaneous..	1.25	1.25	1.31	1.91	1.91	1.34
Total.....	19.23	21.56	19.19	26.86	31.66	26.53

1/ Group 2--sample ginning firms with rated hourly capacities ranging from 9 through 11 bales. Average--9.3 bales per hour.

2/ From firms' accounting records; adjusted for necessary uniformity to make meaningful comparisons among individual firms and firm size groups.

3/ Same as book costs except for 2 items: Depreciation standardized at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

4/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize unit costs of production. Standardized on same basis as book costs to provide for direct comparisons. See text footnote 5.

5/ Ratio of volume actually ginned to estimated total seasonal ginning capability without seed cotton storage.

Table 6.--Average ginning costs per bale for Group 3 ginning firms, by costing methods, items, and seasons, at estimated rates of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons 1/

Cost item	1965-66 costs per bale			1966-67 costs per bale		
	Book	Standardized	Standardized	Book	Standardized	Standardized
	<u>2/</u>	book	model	<u>2/</u>	book	model
	3/	3/	4/	3/	3/	4/
	----- <u>Percent of capacity use 5/</u> -----					
	73	73	73	44	44	44
	----- <u>Dollars</u> -----					
Management.....	1.90	1.90	1.13	2.76	2.76	2.04
Depreciation...	3.46	4.32	3.99	5.51	7.22	6.61
Interest.....	.70	1.41	1.30	1.07	2.34	2.16
Insurance.....	.24	.24	.39	.34	.34	.30
Taxes.....	.23	.23	.14	.38	.38	.23
Energy.....	1.58	1.58	1.60	1.77	1.77	1.79
Labor.....	3.59	3.59	2.64	3.82	3.82	2.93
Bagging and ties.....	2.95	2.95	3.02	2.87	2.87	2.93
Repairs.....	2.91	2.91	1.59	3.92	3.92	1.65
Miscellaneous..	1.05	1.05	1.30	1.65	1.65	1.34
Total.....	18.61	20.18	17.10	24.09	27.07	21.98

1/ Group 3--sample ginning firms with rated hourly capacities ranging from 12 through 20 bales. Average 16.0 bales per hour.

2/ From firms' accounting records; adjusted for necessary uniformity to make meaningful comparisons among individual firms and firm size groups.

3/ Same as book costs except for 2 items: Depreciation standardized at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

4/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize unit costs of production. Standardized on same basis as book costs to provide for direct comparisons. See text footnote 5.

5/ Ratio of volume actually ginned to estimated total seasonal ginning capability without seed cotton storage.

standardized book costs. Likewise, management cost was 41 and 26 percent less for the two seasons.

#### Group 4

Standardized book costs were highest for both years in Group 4 while standardized model costs were lowest during the 1965-66 season and book costs were lowest during the following season. The average capacity utilization during 1965-66 was 54 percent; for the following year it was only 20 percent (table 7). Total ginning costs per bale ranged from \$18.77 to \$22.20 for 1965-66 and from \$26.68 to \$32.20 during 1966-67. Repairs, labor, and management continued to show up as cost items which were consistently lower under standardized model costs. The extent to which standardized model costs were lower than standardized book costs, by cost items, for the two seasons were: repairs--44 and 62 percent, labor--39 and 18 percent, and management--33 and 12 percent.

#### GINNING REVENUES

Revenue per bale varies widely among gins, depending upon the fee charged for ginning plus profit margins or losses realized from associated enterprises. There are three main sources of revenue which directly relate to ginning. These are fees charged for ginning and bagging and ties, and profit on sale of cottonseed purchased from the farmer. In West Texas, the ginning fee is usually based on a flat rate, ranging from 50 to 60 cents per hundredweight of seed cotton. The charge for bagging and ties covers the cost of these materials plus a profit margin which varies, depending upon competition and other factors. Profit from purchase and sale of cottonseed also fluctuates rather widely, depending upon oil mill margins and seed quality. This transaction can result in a net loss to the ginner, especially during seasons of declining seed prices and poor seed quality.

The combined revenue per bale from these three sources averaged \$22.22 during the 1965-66 season and \$25.71 during the following season (table 8). Higher average revenue in 1966-67 was due to an overall increase in the amount of seed cotton required to produce a bale of lint (reduction in turnout) and an average increase of about \$2 per bale in the profit realized on cottonseed.

#### BREAK-EVEN VOLUMES

The nature of the ginning industry is such that relatively small changes in volumes ginned have a marked effect on unit costs. Therefore, it is important to consider ginning volumes necessary to break even for different firm size groups. In 1965-66, the average volume for each size group exceeded that required to break even under book costs (table 9). However, even under these conditions, it is possible that some ginning firms in each group lacked sufficient volumes necessary for revenue to equal costs. When book costs were standardized, the average volume for each group still was more than sufficient to break even, but the profit margin was greatly reduced.



Table 7.--Average ginning costs per bale for Group 4 ginning firms, by costing methods, items, and seasons, at estimated rates of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons 1/

Cost item	1965-66 costs per bale			1966-67 costs per bale		
	Book	Standardized	Standardized	Book	Standardized	Standardized
	<u>2/</u>	book	model	<u>2/</u>	book	model
	3/	4/	4/	3/	4/	4/
----- <u>Percent of capacity use 5/-</u> -----						
	54	54	54	30	30	30
----- <u>Dollars</u> -----						
Management....	1.63	1.63	1.09	2.70	2.70	2.38
Depreciation..	3.91	5.64	5.52	7.22	10.34	9.93
Interest.....	.62	1.81	1.76	.91	3.31	3.18
Insurance.....	.27	.27	.54	.39	.39	.38
Taxes.....	.25	.25	.19	.45	.45	.33
Energy.....	1.81	1.81	1.54	2.15	2.15	1.86
Labor.....	3.81	3.81	2.32	3.85	3.85	3.14
Bagging and ties.....	3.10	3.10	3.02	2.99	2.99	2.93
Repairs.....	2.87	2.87	1.62	4.52	4.52	1.70
Miscellaneous..	1.01	1.01	1.17	1.50	1.50	1.22
Total.....	19.28	22.20	18.77	26.68	32.20	27.05

1/ Group 4--sample ginning firms with rated hourly capacities of 21 bales or more. Average--28.3 bales per hour.

2/ From firms' accounting records; adjusted for necessary uniformity to make meaningful comparisons among individual firms and firm size groups.

3/ Same as book costs except for 2 items: Depreciation standardized at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

4/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize unit costs of production. Standardized on same basis as book costs to provide for direct comparisons. See text footnote 5.

5/ Ratio of volume actually ginned to estimated total seasonal ginning capability without seed cotton storage.

Table 8.--Estimated ginning revenue per bale, sample gin average, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons 1/

Revenue source	Ginning season	
	1965-66	1966-67
	-Dollars-	
Ginning.....	12.93	14.38
Bagging and ties.....	5.94	6.00
Cottonseed.....	3.35	5.33
Total.....	22.22	25.71

1/ Based on information furnished by 27 sample gins.

Table 9.--Break-even volumes for ginning firms in 4 size groups based on book costs and standardized book costs, District 1, West Texas, 1965-66 and 1966-67 seasons

Season and firm size groups	Average volume ginned	Break-even volumes			
		<u>1/</u>			
		Book costs		Standardized book costs	
	<u>Bales</u>	<u>Bales</u>	<u>Percent 2/</u>	<u>Bales</u>	<u>Percent 2/</u>
<u>1965-66:</u>					
1.....	4,734	3,053	51.5	3,580	60.4
2.....	4,840	3,368	47.0	4,218	58.9
3.....	8,938	5,915	48.0	6,920	56.2
4.....	11,729	9,222	42.3	11,725	53.8
<u>1966-67:</u>					
1.....	3,144	2,598	43.8	3,160	53.3
2.....	2,670	2,875	40.1	3,792	53.0
3.....	5,460	4,823	39.1	5,883	47.8
4.....	6,448	7,000	32.1	9,690	44.5

1/ Based on estimated average revenues of \$22.22 per bale in 1965-66 and \$25.71 per bale in 1966-67. These estimates are based on information supplied by 27 sample gins. The increased revenue for 1966-67 was due mainly to a wider spread between prices paid and prices received for cottonseed.

2/ Break-even volumes expressed as a percentage of estimated maximum seasonal volume attainable without seed cotton storage.

In 1966-67, production was greatly curtailed and average volumes of ginning were down. Even with the estimated increases in total revenue of about \$3.50 per bale, only Groups 1 and 3 had volumes sufficient to break even under book

costs. Under standardized book costs, average volumes were insufficient to break even in all four groups.

Break-even volumes, expressed as percentages of total seasonal capacities, decreased as gin sizes increased. This was due to a disproportionate investment required for larger gins and economies of scale reflected in certain cost items such as management.

Break-even volumes for individual operations may vary considerably from these size group averages. Higher volumes would be required where local customs or competition force revenue per bale down. Likewise, where a plant is already fully depreciated, it may be operated profitably at much lower volumes than these. For example, an owner of a firm similar in size to the Group 1 average, who performed the managerial duties himself and whose plant facilities were already fully depreciated, could have recovered his actual operating costs with a volume of approximately 1,000 bales in 1965-66 (appendix table 1).

Most ginners should be able to make fairly good estimates of their own break-even volumes by using the appropriate appendix tables (appendix tables 1-8).

#### INTERPRETATION OF FINDINGS

A gin plant must be fully utilized in order to achieve minimum operating costs. Declines in capacity utilization rates are accompanied by increases in ginning costs. Ginning costs at 50 percent of capacity utilization will average from 29 to 42 percent higher, and at 30 percent capacity utilization, from 65 to 96 percent higher than when operating at full capacity, depending upon size of plant (appendix tables 1-8). During the 1965-66 season, the average capacity utilization rate for the 36 sample gins combined averaged 64 percent. During the following season this average dropped to 38 percent. If these conditions of declining production, rising costs, and inadequate revenues continue unabated, more and more gins will eventually be forced to close. Those that remain and are able to operate at a profit will do so only by continually seeking out and adopting ways and means of cutting costs and increasing operating efficiencies. Judging from the comparisons between standardized book and standardized model costs, cost items which merit particular attention as areas offering immediate possibilities for reducing costs are labor, repairs, and management.

Inefficient use of labor is a perennial problem confronting the ginning industry. Frequently more gin hands are maintained on the payroll than are actually needed at any one time to satisfactorily and efficiently operate a gin plant. While it is convenient to have an extra employee available to fill an unexpected vacancy in a gin crew, this practice adds substantially to the cost of ginning. Recent research findings provide guides as to recommended gin crew complements, by plant size, for the most efficient utilization of gin labor known at present levels of technology. 8/

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8/ Cable, C. Curtis, Jr., Zolon M. Looney, and Charles A. Wilmot, Utilization and Cost of Labor for Ginning Cotton, U. S. Dept. Agr., Agr. Econ. Rpt. 70, April 1965.

Higher repair costs are to be expected in sample gins compared with models, since plants of various ages and operating practices are represented in the sample, while model costs are based entirely on new plant operations and efficient practices. However, the wide differences noted appear to be excessive and constitute an area that should be thoroughly explored for potential cost savings.

Variations in management costs appeared to be more directly related to type of ownership than to size of firm, degree of managerial responsibility, or the apparent capabilities of the individuals concerned. This area, likewise, should be carefully examined for cost reduction possibilities.

As noted earlier, ginning capacity in West Texas exceeded actual requirements by 44 percent during the 1965-66 season and by 66 percent during 1966-67. Although yearly fluctuations in production are bound to occur, due to changes in Government programs, weather conditions, and various other reasons, this area will continue to be plagued with surplus ginning capacity for some time to come. On the surface, this would seem to rule out any gin plant construction at this time.

Occasionally, however, even with restricted cotton acreage and excess ginning capacity in most areas, it still may be necessary or desirable to replace some gins with modern plants and to relocate others. Reduced production in areas normally served by several gins may force one or more with marginal volumes to close, leaving a smaller plant to operate at or near peak capacity. The difficulty of obtaining competent gin hands for two shifts during the relatively short peak ginning period, combined with certain other operating inefficiencies often present in some older, slower plants, could make it economically feasible to modify or replace such a gin with new high-capacity equipment. For the same reasons, it might be desirable for several owners of older, slower gins to merge their operations and build a single high-capacity plant capable of handling their combined volume with fewer men per shift, and possibly with only one shift instead of two during the harvest peak. The transfer of cotton allotments to a new producing area, for example, may necessitate either new construction in the immediate locality or the transporting of seed cotton--often long distances--to the nearest established gin plant. Also, if an existing plant is destroyed or becomes completely worn out, a decision must be made as to whether it should be replaced.

Many cities have expanded so rapidly in recent years that even newer, more modern gins have occasionally been encircled by residential and commercial property. In many such cases, the land upon which these gins are located may have appreciated sufficiently to make it not only desirable but profitable to relocate. In others, the projected cost of complying with local ordinances against air pollution and other annoyances may force relocation to more isolated areas or closing the gin.

Recent functional and design improvements have greatly reduced the useful life expectancy of new ginning machinery and equipment. The continual threat of obsolescence, combined with the uncertainty of future Government cotton programs, has appreciably reduced the planning horizon for most ginners.

Before one can justify investing in either new or used ginning equipment, he should be assured of recouping his investment in a reasonable length of time while enjoying an adequate profit. Satisfactory rates of return on investments are often determined by trial and error. The rate selected must be somewhat higher than the going rate of interest paid on borrowed capital since all allowances for risk must also be considered. There is no one formula to determine the soundness of proposals governing gin investments. Based on average rates observed among industrial companies with similar degrees of risk, however, it would appear that an 8-year payback period and an annual rate of return of 12 percent before taxes are reasonable limits to impose upon any investments in ginning equipment.

The acceptability of a proposed capital investment may be determined in several different ways. One technique commonly employed is the present value method. Under this method, a loan or an investment proposal is acceptable if the present value of its anticipated earnings equals or exceeds its face value.

The present value method is governed by certain basic qualifications. Advance acknowledgement of these qualifications is necessary to assure meaningful results from its use. The specified annual earnings rate must be maintained throughout the planned period. Depreciation must be excluded from operating costs before calculating rate of return, since present value tables automatically provide for recouping of investment, and the inclusion of a depreciation charge would be counting the recoupment twice. <sup>9/</sup> Interest, likewise, must be excluded from cost calculations, since the overall rate of return on investment is determined regardless of the source of funds, whether borrowed or provided by the owners. <sup>10/</sup> Finally, the usefulness of this method as an aid in decisionmaking is limited to purely quantitative aspects of an investment decision.

The present value of anticipated average annual earnings over a given period of time (n) and a specified rate of return (i) is determined from the formula  $\frac{1}{(1+i)^n}$ . The present value of \$1 for various rates of return-payback period combinations are shown in table 10. Here we see that the present value factor under the 8-year payback--12 percent rate of return specified above is 4.97.

The required annual earnings rate necessary to justify the construction of a new gin plant is easily determined by dividing the estimated construction cost by the product of the anticipated average seasonal volume and the present value factor. For example, the estimated construction cost of an 8-bale gin (less land) is \$214,000. The required annual earnings rate at 90 percent of capacity would be \$7.77 per bale [ $\$214,000 \div (5,544 \times 4.97)$ ]. The required and anticipated annual earnings rates, at various levels of capacity utilization, have been computed for model gins recommended as replacements for the averages of the four gin size groups (table 11). Likewise, the net earnings for each of these model gin replacements, at these same levels of capacity utilization, were estimated and are shown in parallel columns in table 12. This provides a simple means of determining the capacity utilization level which must be maintained to

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<sup>9/</sup> Anthony, Robert N., Management Accounting, Text and Cases (Homewood, Ill. Richard D. Irwin, Inc., 1964, 3d ed.), p. 622.

<sup>10/</sup> Anthony, page 625.

Table 10.--Acceptable capital investments for each dollar of anticipated annual earnings with 5-to-10 year payback period and 12-to-22-percent rates of return before taxes 1/

Rate of return (percent)	Payback period (years)					
	5	6	7	8	9	10
	-----Dollars-----					
12.....	3.61	4.11	4.56	4.97	5.33	5.65
13.....	3.52	4.00	4.42	4.80	5.13	5.43
14.....	3.43	3.89	4.29	4.64	4.95	5.22
15.....	3.35	3.78	4.16	4.49	4.77	5.02
16.....	3.27	3.68	4.04	4.34	4.61	4.83
17.....	3.20	3.59	3.92	4.21	4.45	4.66
18.....	3.13	3.50	3.81	4.08	4.30	4.49
19.....	3.06	3.41	3.71	3.95	4.16	4.34
20.....	2.99	3.33	3.60	3.84	4.03	4.19
21.....	2.93	3.24	3.51	3.73	3.91	4.05
22.....	2.86	3.17	3.42	3.62	3.79	3.92

$$\frac{1}{(1+i)^1} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^n}$$

i = rate of return (percent).  
n = number of years.

justify the construction of a complete new gin plant. Based on the 1965-66 averages, it appears that a capacity utilization of 70 to 80 percent for Group 1, 60 to 70 percent for Group 2, and 50 to 60 percent for Groups 3 and 4 would have had to be maintained to justify new plants in each of those situations. During the following season, a capacity utilization of 50 to 60 percent for Groups 1 and 2 and 40 to 50 percent for Groups 3 and 4 would have been sufficient to justify these investments.

The emphasis thus far has been on annual earnings rates necessary to justify the construction of complete new gin plants. However, operating costs can often be reduced substantially, and net earnings increased accordingly, through carefully engineered modifications to existing plants. Since continual use can frequently be made of part or all of existing buildings and foundations and much of the machinery, costs of remodeling are usually somewhat lower than those for new construction. Therefore, if anticipated net earnings for a given situation are insufficient to warrant new construction, renovating the old plant should be considered. Again, costs of renovation should be compared with expected earnings, just as for complete new construction.

#### PLANS FOR CONTINUING STUDY

Ginning firm managers and accountants were most cooperative in providing information for this study. Complete operating cost information was readily supplied for the two seasons requested and assistance in making the cost

Table 11.--Capacity utilization necessary to justify construction of a new gin plant with 8-year payback and 12-percent rate of return before taxes, based on the required and anticipated net earnings at various capacity levels, by size groups, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Season and ginning firm size group <u>1/</u>	Capacity utilization (percent) <u>2/</u>						
	100	90	80	70	60	50	40
	----- Dollars -----						
<u>1965-66</u>							
Group 1:							
Net earnings required.....	6.99	7.77	8.74	9.99	11.65	13.98	17.47
Net earnings anticipated..	10.50	10.02	9.42	8.63	8.85	7.66	6.00
Group 2:							
Net earnings required.....	6.40	7.11	8.00	9.15	10.67	12.80	16.01
Net earnings anticipated..	11.11	10.67	10.13	9.42	9.66	8.61	7.12
Group 3:							
Net earnings required.....	5.86	6.51	7.33	8.38	9.77	11.73	14.66
Net earnings anticipated..	11.72	11.32	10.84	10.24	10.46	9.56	8.30
Group 4:							
Net earnings required.....	5.99	6.66	7.49	8.56	9.99	11.98	14.98
Net earnings anticipated..	12.39	12.02	11.56	11.00	11.25	10.39	9.23
<u>1966-67</u>							
Group 1:							
Net earnings required.....	6.99	7.77	8.74	9.99	11.65	13.98	17.47
Net earnings anticipated..	14.24	13.80	13.26	12.55	12.89	11.84	10.38
Group 2:							
Net earnings required.....	6.40	7.11	8.00	9.15	10.67	12.80	16.01
Net earnings anticipated..	14.73	14.32	13.83	13.18	13.49	12.56	11.24
Group 3:							
Net earnings required.....	5.86	6.51	7.33	8.38	9.77	11.73	14.66
Net earnings anticipated..	15.18	14.81	14.35	13.79	14.05	13.21	12.05
Group 4:							
Net earnings required.....	5.99	6.66	7.49	8.56	9.99	11.98	14.98
Net earnings anticipated..	15.77	15.41	14.98	14.43	14.71	13.89	12.77

1/ Required net earnings determined by dividing total cost of new plant (less land) by product of anticipated seasonal volume and present value factor for specified payback period and rate of return. Replacement plant sizes based on models with hourly capacity ratings of 8, 10, 16, and 28 bales, as recommended replacements for the sample firm averages for Groups 1-4. Plant costs (less land), by size, estimated as follows: \$214,000--8 bales, \$245,000--10 bales, \$359,000--16 bales, and \$642,000--28 bales. Anticipated net earnings based on difference between sample gin average revenue and out-of-pocket costs (total cost less depreciation and interest) for model gins prescribed as replacements for the 4 group averages.

Average rated hourly capacities of sample ginning firms, by size groups: Group 1--7.7 bales, Group 2--9.3 bales, Group 3--16.0 bales, and Group 4--28.3 bales.

2/ Ratio of volume ginned to estimated total seasonal volume capability, without seed cotton storage, during a typical ginning season.

allocations was generously provided later. The proposal for continuing the study through the voluntary transmittal of necessary cost data, at the close of each fiscal year, also received favorable response. Current plans are to submit a letter to each gin cooperator before the close of his fiscal year, reminding him of plans to continue the study and outlining specific needs regarding cost information from his firm.

Appendix table 1.--Book costs per bale, 1/ Group 1 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) <u>3/</u>									
	100	90	80	70	60	50	40	30	20	10
	- - - - - Dollars - - - - -									
<b>1965-66:</b>										
Management.....	2.06	2.26	2.53	2.89	3.34	3.98	4.93	6.54	9.74	19.34
Depreciation...	2.00	2.22	2.50	2.85	3.33	3.99	4.99	6.66	9.99	19.99
Interest.....	.39	.43	.49	.55	.65	.78	.97	1.30	1.94	3.89
Insurance.....	.22	.24	.27	.31	.36	.43	.53	.70	1.05	2.08
Taxes.....	.15	.17	.19	.22	.26	.31	.39	.52	.77	1.55
Energy.....	1.32	1.34	1.37	1.41	1.46	1.53	1.64	1.81	1.95	1.95
Labor.....	2.88	3.20	3.59	4.10	3.22	3.87	4.71	4.88	7.33	14.64
Bagging and ties.....	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98
Repairs.....	3.03	3.05	3.05	3.07	3.09	3.09	3.11	3.13	3.16	3.16
Miscellaneous..	1.61	1.61	1.62	1.62	1.65	1.66	1.67	1.67	1.67	1.68
Total.....	16.64	17.50	18.59	20.00	20.34	22.62	25.92	30.19	40.58	71.26
<b>1966-67:</b>										
Management.....	2.25	2.45	2.69	3.02	3.43	4.02	4.91	6.38	9.32	18.15
Depreciation...	1.93	2.15	2.42	2.76	3.22	3.87	4.84	6.45	9.68	19.38
Interest.....	.30	.33	.37	.42	.49	.59	.74	.99	1.48	2.96
Insurance.....	.21	.23	.24	.26	.28	.32	.37	.46	.64	1.18
Taxes.....	.17	.19	.21	.24	.28	.34	.42	.57	.85	1.70
Energy.....	1.53	1.56	1.60	1.65	1.70	1.79	1.91	2.11	2.28	2.28
Labor.....	2.93	3.26	3.66	4.18	3.28	3.95	4.80	4.97	7.47	14.92
Bagging and ties.....	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86
Repairs.....	4.11	4.13	4.13	4.17	4.19	4.19	4.22	4.25	4.28	4.28
Miscellaneous..	1.97	1.97	1.98	1.98	2.01	2.02	2.03	2.03	2.04	2.05
Total.....	18.26	19.13	20.16	21.54	21.74	23.95	27.10	31.07	40.90	69.76

1/ Taken from accounting records and adjusted to achieve necessary uniformity for making meaningful comparisons between individual firms and firm size groups.

2/ Group 1--9 sample ginning firms with rated hourly capacities of 8 bales or less. Average--7.7 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.



Appendix table 2.--Book costs per bale, 1/ Group 2 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/										
	100	90	80	70	60	50	40	30	20	10	
-----Dollars-----											
<b>1965-66:</b>											
Management.....	1.67	1.84	2.06	2.35	2.72	3.24	4.01	5.32	7.92	15.74	
Depreciation..	2.03	2.26	2.54	2.90	3.39	4.06	5.08	6.77	10.15	20.29	
Interest.....	.44	.49	.55	.63	.74	.89	1.11	1.48	2.21	4.42	
Insurance.....	.21	.23	.25	.29	.34	.40	.49	.66	.98	1.95	
Taxes.....	.18	.20	.23	.26	.31	.37	.46	.61	.92	1.83	
Energy.....	1.65	1.68	1.71	1.77	1.82	1.91	2.04	2.27	2.43	2.44	
Labor.....	2.30	2.56	2.88	3.29	2.58	3.10	3.77	3.90	5.87	11.72	
Bagging and ties.....	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	
Repairs.....	2.88	2.90	2.92	2.94	2.96	2.99	3.01	3.03	3.05	3.05	
Miscellaneous..	1.47	1.47	1.49	1.50	1.51	1.52	1.52	1.53	1.53	1.55	
<b>Total.....</b>	<b>15.81</b>	<b>16.61</b>	<b>17.61</b>	<b>18.91</b>	<b>19.35</b>	<b>21.46</b>	<b>24.47</b>	<b>28.55</b>	<b>38.04</b>	<b>65.97</b>	
<b>1966-67:</b>											
Management.....	1.70	1.85	2.03	2.26	2.57	3.00	3.65	4.73	6.89	13.38	
Depreciation..	1.88	2.09	2.35	2.68	3.12	3.75	4.69	6.25	9.38	18.74	
Interest.....	.39	.43	.49	.56	.65	.78	.98	1.30	1.95	3.90	
Insurance.....	.27	.29	.30	.33	.35	.39	.46	.57	.79	1.43	
Taxes.....	.19	.21	.23	.27	.31	.37	.47	.62	.93	1.86	
Energy.....	1.72	1.75	1.78	1.84	1.90	1.99	2.13	2.36	2.53	2.54	
Labor.....	2.21	2.46	2.77	3.16	2.48	2.98	3.63	3.75	5.64	11.27	
Bagging and ties.....	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	
Repairs.....	4.40	4.43	4.46	4.49	4.52	4.56	4.59	4.62	4.66	4.66	
Miscellaneous..	2.08	2.09	2.11	2.12	2.14	2.15	2.16	2.17	2.17	2.20	
<b>Total.....</b>	<b>17.85</b>	<b>18.61</b>	<b>19.53</b>	<b>20.72</b>	<b>21.05</b>	<b>22.98</b>	<b>25.77</b>	<b>29.38</b>	<b>37.95</b>	<b>62.99</b>	

1/ Taken from accounting records and adjusted to achieve necessary uniformity for making meaningful comparisons between individual firms and firm size groups.

2/ Group 2--9 sample ginning firms with rated hourly capacities of 9 to 11 bales. Average--9.3 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 3.--Book costs per bale, 1/ Group 3 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) <u>3/</u>									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management.....	1.41	1.56	1.73	1.97	2.27	2.71	3.35	4.42	6.57	13.01
Depreciation..	2.52	2.79	3.14	3.59	4.19	5.03	6.29	8.38	12.58	25.15
Interest.....	.51	.56	.63	.72	.84	1.01	1.27	1.69	2.53	5.07
Insurance.....	.18	.20	.22	.25	.29	.34	.42	.56	.83	1.64
Taxes.....	.17	.19	.21	.24	.28	.33	.42	.56	.84	1.67
Energy.....	1.49	1.52	1.56	1.59	1.65	1.73	1.85	2.04	2.20	2.20
Labor.....	2.62	2.90	3.27	3.74	2.93	3.52	4.27	4.44	6.66	13.31
Bagging and ties.....	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Repairs.....	2.62	2.66	2.66	2.69	2.73	2.75	2.79	2.83	2.85	2.88
Miscellaneous..	1.25	1.26	1.27	1.29	1.30	1.33	1.34	1.35	1.35	1.37
Total.....	15.72	16.59	17.64	19.03	19.43	21.70	24.95	29.22	39.36	69.25
<b>1966-67:</b>										
Management.....	1.45	1.56	1.71	1.89	2.13	2.49	2.99	3.87	5.59	10.77
Depreciation..	2.44	2.71	3.05	3.49	4.07	4.88	6.11	8.14	12.21	24.42
Interest.....	.47	.52	.59	.67	.79	.94	1.18	1.57	2.36	4.72
Insurance.....	.22	.23	.24	.25	.28	.31	.36	.44	.61	1.10
Taxes.....	.17	.19	.21	.24	.28	.34	.42	.56	.84	1.68
Energy.....	1.47	1.49	1.53	1.57	1.63	1.70	1.82	2.01	2.16	2.16
Labor.....	2.50	2.78	3.13	3.57	2.80	3.36	4.08	4.24	6.36	12.71
Bagging and ties.....	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87
Repairs.....	3.47	3.52	3.52	3.57	3.62	3.64	3.70	3.75	3.78	3.81
Miscellaneous..	1.78	1.80	1.82	1.84	1.86	1.89	1.91	1.92	1.93	1.95
Total.....	16.84	17.67	18.67	19.96	20.33	22.42	25.44	29.37	38.71	66.19

1/ Taken from accounting records and adjusted to achieve necessary uniformity for making meaningful comparisons between individual firms and firm size groups.

2/ Group 3--9 sample ginning firms with rated hourly capacities of 12 to 20 bales. Average--16.0 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 4.--Book costs per bale, 1/ Group 4 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
----- Dollars -----										
<b>1965-66:</b>										
Management....	.91	1.01	1.12	1.27	1.46	1.74	2.15	2.83	4.21	8.32
Depreciation..	2.10	2.34	2.63	3.01	3.51	4.21	5.26	7.02	10.53	21.05
Interest.....	.33	.37	.42	.48	.56	.67	.84	1.11	1.67	3.34
Insurance.....	.15	.17	.18	.21	.24	.29	.35	.47	.69	1.37
Taxes.....	.13	.15	.17	.19	.22	.27	.34	.45	.67	1.35
Energy.....	1.60	1.62	1.66	1.70	1.76	1.84	1.98	2.18	2.35	2.35
Labor.....	3.06	3.40	3.83	4.37	3.44	4.12	5.01	5.20	7.81	15.59
Bagging and ties.....	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Repairs.....	2.45	2.49	2.52	2.56	2.62	2.66	2.70	2.76	2.80	2.84
Miscellaneous:	1.15	1.16	1.19	1.20	1.22	1.25	1.27	1.30	1.31	1.32
<b>Total.....</b>	<b>14.98</b>	<b>15.81</b>	<b>16.82</b>	<b>18.09</b>	<b>18.13</b>	<b>20.15</b>	<b>23.00</b>	<b>26.42</b>	<b>35.14</b>	<b>60.63</b>
----- Dollars -----										
<b>1966-67:</b>										
Management....	1.04	1.12	1.22	1.35	1.51	1.76	2.11	2.70	3.90	7.45
Depreciation..	2.14	2.38	2.67	3.05	3.56	4.28	5.34	7.13	10.69	21.37
Interest.....	.27	.30	.34	.38	.45	.54	.67	.90	1.34	2.68
Insurance.....	.20	.21	.22	.23	.25	.28	.32	.39	.53	.96
Taxes.....	.13	.15	.17	.19	.22	.27	.33	.44	.66	1.33
Energy.....	1.57	1.60	1.64	1.68	1.74	1.82	1.95	2.15	2.32	2.32
Labor.....	2.27	2.52	2.84	3.24	2.55	3.05	3.71	3.85	5.78	11.55
Bagging and ties.....	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99
Repairs.....	3.79	3.86	3.91	3.98	4.07	4.13	4.19	4.28	4.34	4.41
Miscellaneous:	1.54	1.56	1.60	1.62	1.64	1.68	1.70	1.74	1.76	1.78
<b>Total.....</b>	<b>15.94</b>	<b>16.69</b>	<b>17.60</b>	<b>18.71</b>	<b>18.98</b>	<b>20.80</b>	<b>23.31</b>	<b>26.57</b>	<b>34.31</b>	<b>56.84</b>

1/ Taken from accounting records and adjusted to achieve necessary uniformity for making meaningful comparisons between individual firms and firm size groups.

2/ Group 4--9 sample ginning firms with rated hourly capacities of 21 or more bales. Average--28.3-bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 5.--Standardized book costs per bale, 1/ Group 1 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management.....	2.06	2.26	2.53	2.89	3.34	3.98	4.93	6.54	9.74	19.34
Depreciation..	2.63	2.92	3.29	3.76	4.38	5.26	6.58	8.77	13.16	26.29
Interest.....	.91	1.01	1.14	1.30	1.52	1.82	2.28	3.04	4.55	9.10
Insurance.....	.22	.24	.27	.31	.36	.43	.53	.70	1.05	2.08
Taxes.....	.15	.17	.19	.22	.26	.31	.39	.52	.77	1.55
Energy.....	1.32	1.34	1.37	1.41	1.46	1.53	1.64	1.81	1.95	1.95
Labor.....	2.88	3.20	3.59	4.10	3.22	3.87	4.71	4.88	7.33	14.64
Bagging and ties.....	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98
Repairs.....	3.03	3.05	3.05	3.07	3.09	3.09	3.11	3.13	3.16	3.16
Miscellaneous:	1.61	1.61	1.62	1.62	1.65	1.66	1.67	1.67	1.67	1.68
<b>Total.....</b>	<b>17.79</b>	<b>18.78</b>	<b>20.03</b>	<b>21.66</b>	<b>22.26</b>	<b>24.93</b>	<b>28.82</b>	<b>34.04</b>	<b>46.36</b>	<b>82.77</b>
-----Dollars-----										
<b>1966-67:</b>										
Management.....	2.25	2.45	2.69	3.02	3.43	4.02	4.91	6.38	9.32	18.15
Depreciation..	2.68	2.98	3.35	3.83	4.47	5.36	6.70	8.94	13.41	26.80
Interest.....	.93	1.03	1.16	1.32	1.54	1.85	2.32	3.09	4.63	9.26
Insurance.....	.21	.23	.24	.26	.28	.32	.37	.46	.64	1.18
Taxes.....	.17	.19	.21	.24	.28	.34	.42	.57	.85	1.70
Energy.....	1.53	1.56	1.60	1.65	1.70	1.79	1.91	2.11	2.28	2.28
Labor.....	2.93	3.26	3.66	4.18	3.28	3.95	4.80	4.97	7.47	14.92
Bagging and ties.....	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86
Repairs.....	4.11	4.13	4.13	4.17	4.19	4.19	4.22	4.25	4.28	4.28
Miscellaneous:	1.97	1.97	1.98	1.98	2.01	2.02	2.03	2.03	2.04	2.05
<b>Total.....</b>	<b>19.64</b>	<b>20.66</b>	<b>21.88</b>	<b>23.51</b>	<b>24.04</b>	<b>26.70</b>	<b>30.54</b>	<b>35.66</b>	<b>47.78</b>	<b>83.48</b>

1/ Identical to book costs except for 2 items: Depreciation at 10 percent of total costs of capital items carried on depreciation schedule and interest at 6 percent of estimated average land values for the area and 6 percent on 1/2 of the value of buildings, machinery, and equipment.

2/ Group 1--9 sample ginning firms with rated hourly capacities of 8 bales or less. Average--7.7 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 6.--Standardized book costs per bale, 1/ Group 2 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management.....	1.67	1.84	2.06	2.35	2.72	3.24	4.01	5.32	7.92	15.74
Depreciation.....	3.02	3.36	3.78	4.32	5.04	6.04	7.55	10.07	15.10	30.23
Interest.....	1.02	1.14	1.28	1.46	1.71	2.05	2.56	3.41	5.12	10.24
Insurance.....	.21	.23	.25	.29	.34	.40	.49	.66	.98	1.95
Taxes.....	.18	.20	.23	.26	.31	.37	.46	.61	.92	1.83
Energy.....	1.65	1.68	1.71	1.77	1.82	1.91	2.04	2.27	2.43	2.44
Labor.....	2.30	2.56	2.88	3.29	2.58	3.10	3.77	3.90	5.87	11.72
Bagging and ties.....	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98
Repairs.....	2.88	2.90	2.92	2.94	2.96	2.99	3.01	3.03	3.05	3.05
Miscellaneous:	1.47	1.47	1.49	1.50	1.51	1.52	1.52	1.53	1.53	1.55
<b>Total.....</b>	<b>17.38</b>	<b>18.36</b>	<b>19.58</b>	<b>21.16</b>	<b>21.97</b>	<b>24.60</b>	<b>28.39</b>	<b>33.78</b>	<b>45.90</b>	<b>81.73</b>
-----Dollars-----										
<b>1966-67:</b>										
Management.....	1.70	1.85	2.03	2.26	2.57	3.00	3.65	4.73	6.89	13.38
Depreciation.....	3.03	3.37	3.79	4.33	5.05	6.06	7.57	10.10	15.14	30.31
Interest.....	1.03	1.14	1.28	1.47	1.71	2.05	2.57	3.42	5.13	10.27
Insurance.....	.27	.29	.30	.33	.35	.39	.46	.57	.79	1.43
Taxes.....	.19	.21	.23	.27	.31	.37	.47	.62	.93	1.86
Energy.....	1.72	1.75	1.78	1.84	1.90	1.99	2.13	2.36	2.53	2.54
Labor.....	2.21	2.46	2.77	3.16	2.48	2.98	3.63	3.75	5.64	11.27
Bagging and ties.....	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01
Repairs.....	4.40	4.43	4.46	4.49	4.52	4.56	4.59	4.62	4.66	4.66
Miscellaneous:	2.08	2.09	2.11	2.12	2.14	2.15	2.16	2.17	2.17	2.20
<b>Total.....</b>	<b>19.64</b>	<b>20.60</b>	<b>21.76</b>	<b>23.28</b>	<b>24.04</b>	<b>26.56</b>	<b>30.24</b>	<b>35.35</b>	<b>46.89</b>	<b>80.93</b>

1/ Identical to book costs except for 2 cost items. Depreciation at 10 percent of total costs of capital items carried on depreciation schedule and interest standardized at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 2--9 sample ginning firms with rated hourly capacities of 9 to 11 bales. Average--9.3 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 7.--Standardized book costs per bale, 1/ Group 3 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
----- Dollars -----										
<b>1965-66:</b>										
Management.....	1.41	1.56	1.73	1.97	2.27	2.71	3.35	4.42	6.57	13.01
Depreciation...	3.14	3.48	3.92	4.48	5.23	6.27	7.84	10.45	15.94	31.35
Interest.....	1.02	1.13	1.27	1.46	1.70	2.04	2.55	3.40	5.18	10.20
Insurance.....	.18	.20	.22	.25	.29	.34	.42	.56	.83	1.64
Taxes.....	.17	.19	.21	.24	.28	.33	.42	.56	.84	1.67
Energy.....	1.49	1.52	1.56	1.59	1.65	1.73	1.85	2.04	2.20	2.20
Labor.....	2.62	2.90	3.27	3.74	4.27	4.93	5.71	6.66	7.81	9.26
Bagging and ties.....	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Repairs.....	2.62	2.66	2.69	2.73	2.79	2.85	2.92	3.00	3.08	3.17
Miscellaneous:	1.25	1.26	1.27	1.29	1.30	1.33	1.34	1.35	1.35	1.37
<b>Total.....</b>	<b>16.85</b>	<b>17.85</b>	<b>19.06</b>	<b>20.66</b>	<b>21.33</b>	<b>23.97</b>	<b>27.78</b>	<b>33.00</b>	<b>45.37</b>	<b>80.58</b>
----- Dollars -----										
<b>1966-67:</b>										
Management.....	1.45	1.56	1.71	1.89	2.13	2.49	2.99	3.87	5.59	10.77
Depreciation...	3.20	3.55	4.00	4.57	5.33	6.40	8.00	10.66	16.25	31.98
Interest.....	1.04	1.15	1.30	1.48	1.73	2.08	2.60	3.46	5.28	10.38
Insurance.....	.22	.23	.24	.25	.28	.31	.36	.44	.61	1.10
Taxes.....	.17	.19	.21	.24	.28	.34	.42	.56	.84	1.68
Energy.....	1.47	1.49	1.53	1.57	1.63	1.70	1.82	2.01	2.16	2.16
Labor.....	2.50	2.78	3.13	3.57	4.08	4.74	5.51	6.44	7.54	8.81
Bagging and ties.....	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87
Repairs.....	3.47	3.52	3.52	3.57	3.62	3.64	3.70	3.75	3.78	3.81
Miscellaneous:	1.78	1.80	1.82	1.84	1.86	1.89	1.91	1.92	1.93	1.95
<b>Total.....</b>	<b>18.17</b>	<b>19.14</b>	<b>20.33</b>	<b>21.85</b>	<b>22.53</b>	<b>25.08</b>	<b>28.75</b>	<b>33.78</b>	<b>45.67</b>	<b>79.41</b>

1/ Identical to book costs except for 2 cost items. Depreciation at 10 percent of total costs of capital items carried on depreciation schedule and interest standardized at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 3--9 sample ginning firms with rated hourly capacities of 12 to 20 bales. Average--16.0 bales per hour.

3/ Ratio of volume to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 8.--Standardized book costs per bale, 1/ Group 4 ginning firms 2/ at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management....	.91	1.01	1.12	1.27	1.46	1.74	2.15	2.83	4.21	8.32
Depreciation..	3.04	3.37	3.80	4.34	5.06	6.07	7.59	10.12	15.18	30.37
Interest.....	.97	1.08	1.22	1.39	1.62	1.95	2.43	3.24	4.86	9.73
Insurance.....	.15	.17	.18	.21	.24	.29	.35	.47	.69	1.37
Taxes.....	.13	.15	.17	.19	.22	.27	.34	.45	.67	1.35
Energy.....	1.60	1.62	1.66	1.70	1.76	1.84	1.98	2.18	2.35	2.35
Labor.....	3.06	3.40	3.83	4.37	3.44	4.12	5.01	5.20	7.81	15.59
Bagging and ties.....	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Repairs.....	2.45	2.49	2.52	2.56	2.62	2.66	2.70	2.76	2.80	2.84
Miscellaneous:	1.15	1.16	1.19	1.20	1.22	1.25	1.27	1.30	1.31	1.32
Total.....	16.56	17.55	18.79	20.33	20.74	23.29	26.92	31.65	42.98	76.34
<b>1966-67:</b>										
Management....	1.04	1.12	1.22	1.35	1.51	1.76	2.11	2.70	3.90	7.45
Depreciation..	3.06	3.40	3.82	4.37	5.10	6.12	7.65	10.19	15.29	30.59
Interest.....	.98	1.09	1.22	1.40	1.63	1.96	2.45	3.26	4.90	9.79
Insurance.....	.20	.21	.22	.23	.25	.28	.32	.39	.53	.96
Taxes.....	.13	.15	.17	.19	.22	.27	.33	.44	.66	1.33
Energy.....	1.57	1.60	1.64	1.68	1.74	1.82	1.95	2.15	2.32	2.32
Labor.....	2.27	2.52	2.84	3.24	2.55	3.05	3.71	3.85	5.78	11.55
Bagging and ties.....	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99
Repairs.....	3.79	3.86	3.91	3.98	4.07	4.13	4.19	4.28	4.34	4.41
Miscellaneous:	1.54	1.56	1.60	1.62	1.64	1.68	1.70	1.74	1.76	1.78
Total.....	17.57	18.50	19.63	21.05	21.70	24.06	27.40	31.99	42.47	73.17

1/ Identical to book costs except for 2 cost items. Depreciation at 10 percent of total costs of capital items carried on depreciation schedule and interest standardized at 6 percent of estimated average land values for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 4--9 sample ginning firms with rated hourly capacities of 21 or more bales. Average--28.3 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season. Costs at all specified capacity utilization levels, extrapolated from the group average.

Appendix table 9.--Standardized model costs per bale, 1/ Group 1, 2/ comparative model, at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management.....	1.39	1.53	1.71	1.95	2.26	2.69	3.33	4.42	6.58	13.07
Depreciation.....	3.47	3.86	4.34	4.96	5.79	6.95	8.68	11.58	17.37	34.74
Interest.....	1.16	1.29	1.45	1.66	1.93	2.32	2.90	3.86	5.80	11.59
Insurance.....	.35	.39	.43	.49	.57	.68	.84	1.12	1.67	3.31
Taxes.....	.12	.13	.15	.17	.20	.24	.30	.40	.60	1.20
Energy.....	1.55	1.57	1.60	1.64	1.69	1.76	1.86	2.02	2.15	2.15
Labor.....	2.34	2.60	2.92	3.34	2.62	3.15	3.83	3.97	5.96	11.91
Bagging and ties.....	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Repairs.....	1.65	1.66	1.66	1.67	1.69	1.69	1.70	1.71	1.72	1.72
Miscellaneous:	1.30	1.30	1.31	1.31	1.32	1.33	1.34	1.34	1.35	1.36
<b>Total.....</b>	<b>16.35</b>	<b>17.35</b>	<b>18.59</b>	<b>20.21</b>	<b>21.00</b>	<b>23.83</b>	<b>27.80</b>	<b>33.44</b>	<b>46.22</b>	<b>84.07</b>
<b>1966-67:</b>										
Management.....	1.38	1.50	1.65	1.85	2.10	2.46	3.01	3.91	5.71	11.12
Depreciation.....	3.47	3.86	4.34	4.96	5.79	6.95	8.68	11.58	17.37	34.74
Interest.....	1.16	1.29	1.45	1.66	1.93	2.32	2.90	3.86	5.80	11.59
Insurance.....	.20	.22	.23	.25	.27	.31	.36	.45	.62	1.14
Taxes.....	.12	.13	.15	.17	.20	.24	.30	.40	.60	1.20
Energy.....	1.55	1.57	1.60	1.64	1.69	1.76	1.86	2.02	2.15	2.15
Labor.....	2.34	2.60	2.92	3.34	2.62	3.15	3.83	3.97	5.96	11.91
Bagging and ties.....	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Repairs.....	1.65	1.66	1.66	1.67	1.69	1.69	1.70	1.71	1.72	1.72
Miscellaneous:	1.30	1.30	1.31	1.31	1.32	1.33	1.34	1.34	1.35	1.36
<b>Total.....</b>	<b>16.10</b>	<b>17.06</b>	<b>18.24</b>	<b>19.78</b>	<b>20.54</b>	<b>23.14</b>	<b>26.91</b>	<b>32.17</b>	<b>44.21</b>	<b>79.86</b>

1/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize per unit costs of production. Depreciation at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land value for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 1 average--7.7 bales per hour. Comparative model--8.0 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season.



Appendix table 10.--Standardized model costs per bale, 1/ Group 2, 2/ comparative model, at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management....	1.17	1.29	1.44	1.64	1.89	2.25	2.80	3.70	5.50	10.93
Depreciation....	3.18	3.54	3.98	4.55	5.30	6.36	7.95	10.61	15.91	31.82
Interest.....	1.06	1.18	1.33	1.52	1.77	2.13	2.66	3.55	5.32	10.64
Insurance.....	.32	.35	.39	.44	.51	.61	.76	1.01	1.50	2.97
Taxes.....	.11	.12	.14	.16	.18	.22	.28	.37	.55	1.10
Energy.....	1.47	1.49	1.51	1.55	1.60	1.66	1.75	1.91	2.03	2.04
Labor.....	2.11	2.35	2.64	3.02	2.37	2.84	3.46	3.58	5.38	10.75
Bagging and ties.....	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Repairs.....	1.62	1.63	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.72
Miscellaneous:	1.29	1.30	1.30	1.31	1.32	1.33	1.34	1.35	1.35	1.36
<b>Total.....</b>	<b>15.35</b>	<b>16.27</b>	<b>17.40</b>	<b>18.87</b>	<b>19.63</b>	<b>22.10</b>	<b>25.71</b>	<b>30.80</b>	<b>42.27</b>	<b>76.35</b>
-----Dollars-----										
<b>1966-67:</b>										
Management....	1.25	1.36	1.49	1.66	1.89	2.20	2.68	3.47	5.06	9.82
Depreciation....	3.18	3.54	3.98	4.55	5.30	6.36	7.95	10.61	15.91	31.82
Interest.....	1.06	1.18	1.33	1.52	1.77	2.13	2.66	3.55	5.32	10.64
Insurance.....	.20	.21	.22	.24	.26	.29	.34	.42	.58	1.05
Taxes.....	.11	.12	.14	.16	.18	.22	.28	.37	.55	1.10
Energy.....	1.47	1.49	1.51	1.55	1.60	1.66	1.75	1.91	2.03	2.04
Labor.....	2.11	2.35	2.64	3.02	2.37	2.84	3.46	3.58	5.38	10.75
Bagging and ties.....	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Repairs.....	1.62	1.63	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.72
Miscellaneous:	1.29	1.30	1.30	1.31	1.32	1.33	1.34	1.35	1.35	1.36
<b>Total.....</b>	<b>15.22</b>	<b>16.11</b>	<b>17.19</b>	<b>18.60</b>	<b>19.29</b>	<b>21.64</b>	<b>25.08</b>	<b>29.89</b>	<b>40.82</b>	<b>73.23</b>

1/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize per unit costs of production. Depreciation at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land value for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 2 average--9.3 bales per hour. Comparative model--10.0 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season.

Appendix table 11.--Standardized model costs per bale, 1/ Group 3, 2/ comparative model, at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) <sup>3/</sup>									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management.....	.84	.93	1.03	1.17	1.35	1.61	1.99	2.63	3.91	7.74
Depreciation..	2.91	3.24	3.64	4.16	4.86	5.83	7.28	9.71	14.57	29.14
Interest.....	.95	1.06	1.19	1.36	1.59	1.90	2.38	3.17	4.76	9.52
Insurance.....	.29	.32	.36	.40	.47	.55	.69	.91	1.35	2.67
Taxes.....	.10	.11	.12	.14	.17	.20	.25	.33	.50	1.00
Energy.....	1.52	1.54	1.58	1.61	1.66	1.73	1.83	1.99	2.13	2.13
Labor.....	1.92	2.13	2.40	2.74	2.15	2.58	3.13	3.25	4.88	9.75
Bagging and ties.....	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Repairs.....	1.55	1.57	1.58	1.60	1.62	1.64	1.66	1.68	1.69	1.70
Miscellaneous:	1.26	1.28	1.29	1.30	1.32	1.33	1.35	1.36	1.37	1.39
<b>Total.....</b>	<b>14.36</b>	<b>15.20</b>	<b>16.21</b>	<b>17.50</b>	<b>18.21</b>	<b>20.39</b>	<b>23.58</b>	<b>28.05</b>	<b>38.18</b>	<b>68.06</b>
<b>1966-67:</b>										
Management.....	1.06	1.14	1.25	1.38	1.56	1.82	2.19	2.83	4.09	7.88
Depreciation..	2.91	3.24	3.64	4.16	4.86	5.83	7.28	9.71	14.57	29.14
Interest.....	.95	1.06	1.19	1.36	1.59	1.90	2.38	3.17	4.76	9.52
Insurance.....	.19	.20	.21	.22	.25	.27	.32	.39	.54	.97
Taxes.....	.10	.11	.12	.14	.17	.20	.25	.33	.50	1.00
Energy.....	1.52	1.54	1.58	1.61	1.66	1.73	1.83	1.99	2.13	2.13
Labor.....	1.92	2.13	2.40	2.74	2.15	2.58	3.13	3.25	4.88	9.75
Bagging and ties.....	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Repairs.....	1.55	1.57	1.58	1.60	1.62	1.64	1.66	1.68	1.69	1.70
Miscellaneous:	1.26	1.28	1.29	1.30	1.32	1.33	1.35	1.36	1.37	1.39
<b>Total.....</b>	<b>14.39</b>	<b>15.20</b>	<b>16.19</b>	<b>17.44</b>	<b>18.11</b>	<b>20.23</b>	<b>23.32</b>	<b>27.64</b>	<b>37.46</b>	<b>66.41</b>

<sup>1/</sup> Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize per unit costs of production. Depreciation at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land value for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

<sup>2/</sup> Group 3 average--16.0 bales per hour. Comparative model--16.0 bales per hour.

<sup>3/</sup> Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season.

Appendix table 12.--Standardized model costs per bale, 1/ Group 4, 2/ comparative model, at specified levels of capacity utilization, area served by Lubbock Classing Office, District 1, West Texas, 1965-66 and 1966-67 seasons

Cost item and season	Capacity utilization (percent) 3/									
	100	90	80	70	60	50	40	30	20	10
-----Dollars-----										
<b>1965-66:</b>										
Management....	.61	.67	.75	.85	.98	1.16	1.44	1.89	2.82	5.56
Depreciation..	2.98	3.31	3.72	4.25	4.96	5.96	7.44	9.93	14.89	29.78
Interest.....	.95	1.06	1.19	1.36	1.59	1.91	2.39	3.18	4.77	9.55
Insurance.....	.30	.33	.37	.41	.48	.58	.70	.93	1.38	2.75
Taxes.....	.10	.11	.12	.14	.16	.20	.25	.33	.49	.99
Energy.....	1.36	1.39	1.41	1.45	1.50	1.57	1.69	1.86	2.00	2.00
Labor.....	1.85	2.05	2.31	2.64	2.07	2.49	3.02	3.14	4.71	9.41
Bagging and ties.....	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Repairs.....	1.50	1.52	1.55	1.57	1.60	1.63	1.66	1.70	1.72	1.74
Miscellaneous:	1.09	1.11	1.13	1.14	1.16	1.18	1.21	1.22	1.24	1.26
Total.....	13.76	14.57	15.57	16.83	17.52	19.70	22.82	27.20	37.04	66.06
-----Dollars-----										
<b>1966-67:</b>										
Management....	.92	.99	1.07	1.19	1.34	1.55	1.86	2.38	3.44	6.58
Depreciation..	2.98	3.31	3.72	4.25	4.96	5.96	7.44	9.93	14.89	29.78
Interest.....	.95	1.06	1.19	1.36	1.59	1.91	2.39	3.18	4.77	9.55
Insurance.....	.19	.20	.21	.22	.24	.27	.32	.38	.52	.94
Taxes.....	.10	.11	.12	.14	.16	.20	.25	.33	.49	.99
Energy.....	1.36	1.39	1.41	1.45	1.50	1.57	1.69	1.86	2.00	2.00
Labor.....	1.85	2.05	2.31	2.64	2.07	2.49	3.02	3.14	4.71	9.41
Bagging and ties.....	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Repairs.....	1.50	1.52	1.55	1.57	1.60	1.63	1.66	1.70	1.72	1.74
Miscellaneous:	1.09	1.11	1.13	1.14	1.16	1.18	1.21	1.22	1.24	1.26
Total.....	13.87	14.67	15.64	16.89	17.55	19.69	22.77	27.05	36.71	65.18

1/ Estimates of operating costs for synthesized ginning plant models incorporating sound engineering and economic principles and designed to minimize per unit costs of production. Depreciation at 10 percent of total cost of capital items carried on depreciation schedule and interest at 6 percent of estimated average land value for the area and 6 percent of 1/2 of the value of buildings, machinery, and equipment.

2/ Group 4 average--28.3 bales per hour. Comparative model--28.0 bales per hour.

3/ Ratio of volume ginned to estimated total seasonal ginning capability, without seed cotton storage, during a typical ginning season.