

COST OF GINNING COTTON
William Mayfield
National Program Leader - Cotton
USDA-CSREES
Memphis, TN
Herbert Willcutt
Extension Agricultural Engineer
Mississippi State University
Mississippi State, MS
Kelley Green
Texas Cotton Ginners' Association
Austin, TX
Lee Todd
Southern Cotton Ginners Association
Memphis, TN
Roger Isom
California Cotton Ginners Association
Fresno, CA
Dusty Findley
Southeastern Cotton Ginners Association
Dahlonega, GA

Abstract

In order to make their gins more cost efficient, gin managers compare their component costs to industry averages. Also, potential gin investors use cost estimates to help determine the economic feasibility of purchasing ginning systems. Variable costs from 221 gins for the 1997 crop were determined by survey and grouped according to cotton production region and according to gin capacity. Fixed costs were estimated by using a traditional economic model. Straight line depreciation over useful lives of 10 and 20 years and a 10 percent annual interest rate were assumed. Property taxes, insurance, and miscellaneous costs were also included. The cost of seed cotton transportation, which gins incur in most areas, are not included in these estimates.

Introduction

To be successful, any business must keep costs low. A good way for a business manager to analyze costs is to compare each cost component to similar businesses. Also, investors who are considering purchasing an existing gin, erecting a new or used system, or significantly increasing the capacity of an existing gin need estimates of operating costs. The total cost per bale for ginning cotton varies widely with the total investment, annual volume, interest rates, labor costs, energy costs, etc.

Variable Costs

A survey of actual variable costs from active cotton gins was conducted following the 1997 crop. A total of 221 gins

furnished useful cost data. These gins were separated into four regions representing the (1) Mid-South, (2) Southeast, (3) Southwest, and (4) California. These data from each region were segregated into three groups according to gin capacity. The three groups are (1) 15 bales/hr or less; (2) 16-24 bales/hr; and (3) 25 bales/hr and up (Tables 1-12). Average variable costs by region for each size category are summarized in Table 13.

This survey confirms previous surveys and research reports which indicate that the cost of electricity and drier fuel depend more on the design of the individual ginning system and on management than on the capacity. Repair costs also do not vary consistently with capacity. The higher repair cost associated with ginning the stripper harvested Southwest crop is obvious.

Ginning capacity has more effect on seasonal labor than on any other variable cost component. Note from Table 13 that average seasonal labor cost ranged from \$10.14/bale for small Southwestern gins to \$4.88 in large California gins and \$5.27 for large Mid-South gins. This is due primarily to automation and higher capacities in newer gins.

The cost for seed cotton insurance is about \$.50/bale. There are also other costs such as office expense, travel, telephone, etc. which must be included. Thus, \$3.00/bale was added as miscellaneous costs.

Any costs associated with transporting seed cotton to the gin are not included in these estimates. Independent studies indicate that seed cotton transportation costs can add significantly to ginning costs, and these costs should be included in any economic feasibility study.

Fixed Costs

Fixed costs are about the same regardless of how much the gin is used. They include depreciation, interest on investment, taxes, insurance, and salaries for permanent employees.

Depreciation is a large component of the cost of ginning cotton. The useful life of new gin machinery should be at least 20 years. The useful life of a used gin may be no more than 10 years. Thus, costs are estimated for both 10 year and 20 year useful lives. In each case, a salvage value of 10 percent of the initial investment is assumed. Also, annual interest costs of 10 percent of the remaining value are calculated and then averaged over the life of the machinery.

From previous surveys and informal validation, annual property taxes and insurance on the machinery and buildings combined are estimated at 1.0 percent of the initial investment.

The combined annual salaries for permanent employees, including the gin manager, permanent ginner and office

staff normally varies with the total investment in the gin. Estimates of fixed labor and management costs are included in the total costs.

Total Costs

The estimated total cost of operating a cotton gin (excluding seed cotton transportation costs) are presented in Tables 14, 15 and 16.

Obviously the total cost per bale of operating a cotton gin decreases with higher annual volumes. However, this incremented decrease in cost becomes smaller at higher annual volumes. For example, consider the \$2.0 million investment, Southeast gin, 20 year life. With an annual volume of 10,000 bales, the estimated cost is \$55.17 per bale (Table 15). If the volume increases to 12,000 bales, the cost decreased \$5.36 to \$49.81 per bale. However, the difference in cost between 34,000 and 36,000 bales per year is only \$.52 per bale.

When gins first adopted modules, the decrease in ginning costs due to the added volume paid for the module expenses and improved the profitability of the gin. But as volumes get higher, the differences in costs decrease, and the additional volume does not improve the profitability nearly as much. Thus, this gin cannot profitably move modules as far in order to increase the annual volume from 34,000 to 36,000 bales as it could from 10,000 to 12,000 bales.

Using These Estimates

Generally, this information has two uses. The most obvious use is for potential investors in a gin. In this case, the cost estimates from Tables 14, 15 and 16 should be used only as a general guide because they may not accurately predict ginning costs in any particular location or situation. If cost estimates from these tables compare favorably with potential returns in a particular location, an economic feasibility should be developed using component costs and returns specific to the situation. GINMODEL, an economic engineering simulation of cotton ginning cost (Reference 3 and 6) are excellent tools for this purpose.

The other potential use of these results may be very important to current ginners. Component costs from this survey are good benchmarks for evaluating your costs. For example, if your labor costs are well above the average for gins similar to yours, that might be an area that needs to be evaluated in your operation.

References

1. Shaw, Dale L., 1978. Economic-Engineering Simulation of Cotton Ginning Costs. Texas Tech University, College of Agriculture Science Publication No. T-1-174, Lubbock, TX.

2. Anthony, W. Stanley and William Mayfield, 1984. Influence of Bale Volume on Ginning Costs. Proceedings of Beltwide Cotton Production Research Conferences, National Cotton Council, Memphis, TN.
3. Wolfe, Wesley, O. A. Cleveland, Earl A. Stennis, and Craig L. Slay, 1989. GINMODEL: An Economic-Engineering Simulation of Cotton Ginning Costs. Mississippi State University, Mississippi Agricultural and Forestry Equipment Station, Technical Bulletin No. 166, Mississippi State, MS.
4. Mayfield, William, 1992. Cost of Ginning Cotton. Proceedings of Beltwide Cotton Conferences. Pages 1406-1407.
5. Mayfield, William, Herbert Willcutt, and Roy Childress, 1996. Cost of Ginning Cotton. Proc. of Beltwide Cotton Prod. Res. Conf. PP.1609-1618.
6. To, S. D. Filip and Herbert Willcutt, 1998. Gin Model with Windows-95, a Technology Update. Proc. of Beltwide Cotton Prod. Res. Conf. PP 1720-1722.

Table 1. Cotton ginning cost survey for Southeast (1997) - 15 or less bales/hr

Gin No.	Bales Ginned (No.)	Average Ginning Rate (Bales/Hr)	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
1	2,163	9	--	3.31	--	2.29	9.76	6.19	6.09
2	1,071	5	--	3.78	L	0.68	8.35	2.92	8.64
3	5,471	11.5	52.8	3.93	N	0.47	10.99	3.25	1.37
4	5,940	12.5	61.8	4.13	N	1.94	8.70	4.17	3.21
5	6,060	13.5	--	--	N	0.51	9.07	3.23	1.32
9	12,644	12	32.4	2.11	L	1.75	8.78	3.26	1.68
14	16,404	15	30.7	2.94	L	1.32	8.16	3.85	3.75
11	14,008	5	40.6	1.44	L	0.41	12.29	3.68	1.72
34	7,010	11	41.6	3.94	L	0.98	6.84	3.13	3.85
35	5,796	10	--	4.49	--	1.17	17.20	3.75	5.10
Avg	7,657	10.5	43.3	3.34		1.15	10.01	3.74	3.67

Table 2. Cotton ginning cost survey for Southeast (1997) - 16-24 bales/hr

Gin No.	Bales Ginned (No.)	Average Ginning Rate (Bales/Hr)	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
6	11,166	18	4	2.80	L	0.51	10.22	3.15	4.48
8	12,619	16	37.8	2.38	L	1.16	8.17	3.15	3.96
10	13,000	22	33.3	2.23	--	0.72	8.89	2.80	7.00
12	15,249	18	41.8	2.47	N	0.95	7.90	3.80	2.62
13	16,000	16	--	5.36	--	1.05	8.44	4.23	4.57
15	17,039	16	44.0	2.58	N	1.53	13.21	3.50	5.87
16	17,677	18	--	3.38	L	2.08	14.53	4.95	5.81
17	17,850	16	33.2	3.30	L	0.87	7.31	2.79	3.56
18	20,050	18	43.7	1.89	N	0.90	7.54	3.60	2.99
19	20,906	22	35.9	2.20	L	1.52	7.79	3.09	1.77
22	24,232	20	40.9	2.81	L	0.98	6.88	3.39	6.19
24	25,570	24	39.5	1.98	N	1.25	7.05	3.50	1.94
28	33,835	21	--	1.81	N	1.20	7.57	3.70	2.75
29	36,317	16.8	46.2	1.87	L	1.63	13.01	3.10	4.13
37	32,696	23.7	33.5	1.68	L	1.07	5.29	--	2.29
39	22,704	24.3	52.0	4.39	N	1.51	3.29	2.92	8.64
Avg.	21,057	19.4	40.5	2.70		1.18	8.57	3.44	4.29

Table 3. Cotton ginning cost survey for Southeast (1997) - 25 and above bales/hr

Gin No.	Bales Ginned (No.)	Average Ginning Rate (Bales/Hr)	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
7	12,000	30	38.1	2.53	L	1.03	8.75	3.00	3.50
20	22,326	28	42.4	2.78	N	1.04	9.41	2.50	4.59
21	23,535	36	37.2	2.37	L	0.56	9.31	3.00	3.19
23	25,542	25	40.2	2.13	L	1.45	7.53	2.95	0.44
25	30,086	27	--	2.23	--	0.62	4.59	2.86	2.49
26	31,496	25	--	2.86	L	1.25	4.29	3.20	3.18
27	33,079	36	46.8	2.27	N	1.98	6.16	--	--
30	52,393	27	33.5	1.72	--	0.94	3.63	3.30	2.09
31	53,000	53	39.6	2.22	N	1.41	3.90	2.77	3.65
32	54,003	38	40.8	2.45	L	1.83	5.76	2.75	3.80
33	55,510	30	37.7	1.17	N	1.88	8.20	2.79	1.23
36	11,402	36	56.2	5.45	L	1.39	4.92	3.17	5.70
38	66,690	30	45.3	1.86	N	0.93	4.90	2.76	2.60
Avg.	36,236	32.4	41.6	2.46		1.25	6.26	2.92	3.04

Table 4. Cotton ginning cost survey for Mid-South (1997) - 15 or less bales/hr

Gin No.	Bales	Average	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg.	
	Ginned (No.)	Ginning Rate (Bales/Hr)						Material Cost (\$/Bale)	Repair Cost (\$/Bale)
1	6,262	7.0	43.0	2.71	N	1.30	12.35	3.50	4.72
7	12,775	12.0	32.2	1.28	N	1.16	9.94	3.38	2.33
8	9,402	14.0	--	5.24	N	2.33	8.40	1.44 ¹	4.73
10	5,172	14.0	48.9	5.38	N	1.64	9.85	1.77 ¹	1.84
12	18,319	13.0	--	--	N	0.83	8.38	--	1.20
13	4,911	13.8	45.3	3.66	N	1.37	6.22	3.35	3.66
17	8,312	12.0	48.0	2.72	N	1.84	2.49	--	6.86
21	9,912	12.0	47.5	3.89	L	1.41	12.31	4.25	1.51
34	10,283	11.0	36.8	4.46	L	0.90	9.24	1.70 ¹	2.92
46	6,036	15.0	46.4	3.25	N	1.00	10.34	3.10	5.11
47	1,057	11.0	--	7.38	--	2.06	10.22	3.85	1.74
49	9,307	15.0	--	2.07	L	1.43	8.06	3.15	4.25
59	12,984	15.0	--	1.44	N	2.60	5.34	--	5.45
61	5,212	12.0	44.8	4.72	--	0.48	18.23	4.00	12.47
62	5,230	15.0	51.4	4.09	N	1.00	7.65	3.27	3.11
63	910	10.0	50.6	2.36	L	2.20	4.40	3.55	0.55
64	6,349	14.0	35.6	1.31	N	1.00	2.78	1.40	2.41
65	7,846	12.0	43.7	3.47	N	1.03	9.56	3.27	5.10
AVG	7,793	12.7	44.2	3.50		1.42	8.65	3.51	3.89

¹Strapping material only; not included in averages.

Table 5. Cotton ginning cost survey for Mid-South (1997) - 16-24 bales/hr

Gin No.	Bales	Average	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg.	
	Ginned (No.)	Ginning Rate (Bales/Hr)						Material Cost (\$/Bale)	Repair Cost (\$/Bale)
2	14,098	19.3	41.0	3.12	N	0.82	8.60	3.25	4.83
4	16,218	18.0	36.5	2.55	N	0.68	8.85	3.02	5.72
5	24,829	21.0	37.2	3.56	N	1.15	5.64	2.95	7.05
6	22,362	20.0	36.7	3.64	N	1.18	10.90	2.80	5.90
9	21,769	20.0	43.0	3.58	N	0.52	4.59	3.00	8.54
11	10,596	20.0	26.3	3.87	L	1.83	7.32	4.34	1.70
14	10,592	18.0	39.4	3.98	N	1.08	7.08	4.25	2.83
16	13,850	16.0	35.9	3.51	L	1.27	7.52	1.06 ¹	4.47
18	7,465	19.1	46.1	1.81	N	0.62	8.39	3.36	7.55
23	14,994	20.0	56.6	5.43	N	--	7.07	3.70	3.00
24	15,062	18.0	--	3.01	L	0.75	4.35	4.25	4.78
25	8,524	18.0	--	3.75	L	0.79	5.98	2.35	8.82
26	26,140	21.0	32.9	2.70	L	1.47	5.59	--	3.25
28	13,581	19.0	32.6	1.75	L	2.15	4.09	4.99	2.72
32	20,184	20.0	48.0	4.67	L	1.73	9.81	3.45	3.13
35	25,204	23.0	38.8	4.42	L	0.97	6.65	2.88	4.18
36	21,060	21.0	39.2	3.27	N	0.36	5.28	3.36	3.91
37	17,917	18.0	42.1	1.49	N	0.86	7.04	--	4.11
38	8,914	19.0	45.4	4.58	L	1.02	5.99	4.20	3.67
40	24,407	22.8	38.7	3.40	N	0.66	6.60	--	2.69
48	11,942	20.0	34.9	1.66	L	1.20	5.73	--	5.34
50	18,694	20.0	40.5	3.97	N	0.82	6.60	3.53	5.62
52	33,470	22.0	40.5	2.76	N	0.81	6.01	--	1.30
53	9,710	16.0	34.1	1.30	N	1.13	10.30	3.15	5.15
54	22,234	24.0	--	3.70	L	1.62	7.87	3.35	3.21
55	9,580	18.0	48.2	4.04	N	1.17	7.61	3.00	5.26
60	16,208	17.0	36.4	3.52	L	0.69	5.40	--	3.42
66	20,264	19.0	35.2	3.44	L	1.77	8.00	2.75	6.42
AVG	17,057	19.4	39.4	3.33		1.06	7.10	3.22	4.54

¹Strapping material only; not included in averages.

Table 6. Cotton ginning cost survey for Mid-South (1997) - 25 or more bales/hr

Gin No.	Bales Ginned (No.)	Average Ginning Rate (Bales/Hr)	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
3	21,385	33.0	51.9	4.03	N	0.72	7.46	1.51 ¹	3.71
15	46,193	32.0	37.2	3.55	L	1.35	6.55	4.06	2.90
19	34,746	36.0	40.3	3.79	L	1.01	7.88	1.63 ¹	5.02
20	21,473	26.0	51.3	3.79	L	1.16	5.30	--	2.84
22	30,099	29.0	50.0	5.92	L	0.50	3.10	2.75	3.19
27	19,863	25.0	35.7	2.52	N	0.17	4.38	1.50 ¹	8.84
29	26,215	26.0	--	2.95	?	0.80	5.61	3.33	3.78
30	30,721	29.0	44.3	3.11	N	0.51	3.20	1.85 ¹	7.16
31	57,326	45.0	61.3	4.09	--	--	--	--	--
33	26,349	32.0	35.7	3.54	N	0.52	3.69	2.44	3.42
39	26,741	25.0	34.7	3.34	N	0.87	3.26	4.31	4.81
41	56,395	55.0	33.1	3.13	N	0.91	4.99	1.38 ¹	3.37
42	34,223	25.0	44.5	3.36	N	1.46	6.87	1.50 ¹	3.50
43	14,280	25.0	51.5	4.79	--	--	11.27	2.79	2.79
44	27,758	30.0	46.0	2.59	N	0.90	4.21	1.40 ¹	1.90
51	49,177	40.0	28.4	1.02	N	0.53	4.30	2.83	2.74
56	40,432	26.0	31.5	2.41	L	0.69	3.74	3.00	1.30
57	43,686	34.0	27.7	1.20	N	1.39	4.77	5.00	4.58
58	26,917	31.0	45.1	4.43	N	0.45	4.29	3.33	3.05
AVG	33,367	31.8	41.9	3.35	N	0.82	5.27	3.38	3.83

¹Strapping material only; not included in averages.

Table 7. Cotton ginning cost survey for Southwest (1997) - 15 or less bales/hr

Gin No.	Bales Ginned (No.)	Average Ginning Rate (Bales/Hr)	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
1	1,071	12	--	--	N	1.49	7.46	3.90	1.87
2	1,464	10	46.2	7.13	N	1.29	16.35	5.00	8.20
3	1,685	13	52.5	4.24	N	0.74	5.53	3.90	3.33
4	2,861	8	36.9	4.87	N	0.39	16.46	4.04	6.25
5	3,003	12	30.9	4.02	L	0.51	9.07	3.23	1.32
6	3,184	6	72.9	5.25	N	2.41	13.03	3.82	7.59
7	4,063	9	55.6	4.57	N	0.86	10.64	3.40	7.38
8	4,089	13	61.1	3.46	N	1.15	3.65	4.34	6.47
9	4,252	8	43.9	3.49	N	1.12	15.01	4.95	13.41
10	4,383	8.5	--	2.73	N	0.52	16.00	3.99	2.28
11	4,872	14	--	--	--	--	7.59	3.95	4.93
12	4,887	9	56.4	4.10	N	0.94	14.54	3.80	6.20
13	4,913	10	49.8	4.49	N	1.20	17.36	4.01	--
14	4,931	10	46.5	4.23	N	0.85	6.48	3.90	4.23
15	5,437	11	42.8	2.83	N	0.68	9.30	3.70	2.91
16	5,527	13	42.4	4.63	N	0.97	9.97	--	4.64
17	5,642	12	48.4	5.26	L	--	20.76	3.95	2.13
18	6,156	9	68.3	2.47	N	1.66	8.28	3.50	3.83
19	6,507	13	47.0	3.43	N	0.56	9.17	3.91	2.39
20	6,711	10	40.7	2.82	N	0.52	17.50	3.65	2.66
21	7,017	--	42.1	3.76	N	0.31	7.43	--	--
22	7,224	14	--	3.05	--	1.74	10.17	3.10	8.08
53	18,400	15	43.5	2.81	N	1.29	6.95	3.72	3.77
54	397	11	41.1	3.18	L	1.21	--	3.65	1.90
25	8,627	10	51.9	4.14	--	0.83	--	3.40	4.52
26	8,868	8	52.7	3.54	N	0.46	13.89	3.74	11.15
27	8,903	15	56.5	6.08	N	0.75	7.86	3.25	--
28	8,959	12	41.3	3.00	N	0.94	6.54	3.60	6.54
29	9,279	12	47.8	4.19	L	0.61	6.19	3.65	1.64
55	18,798	13	52.2	3.60	N	0.63	7.29	3.70	--
31	9,726	13	61.7	4.28	N	0.73	11.42	3.70	9.26
66	23,150	12	68.1	3.98	N	2.09	6.91	3.83	8.64
84	13,416	15	43.5	2.53	L	1.05	10.49	3.90	5.96
34	10,277	15	45.5	3.01	L	0.61	9.81	3.71	4.75
35	10,407	13	47.2	3.44	L	0.68	6.55	3.70	2.49
36	10,571	13	35.5	2.06	N	0.60	8.00	3.10	4.82
37	11,017	13	49.0	2.77	L	0.41	5.95	3.40	1.82
38	11,030	11	48.5	3.08	L	0.70	8.14	3.85	7.53
39	11,638	10	48.1	4.03	N	0.86	7.40	2.75	2.65
40	11,722	12	--	--	L	1.12	6.65	3.45	5.03
85	3,050	10	67.6	5.32	N	1.50	12.57	3.70	1.80
42	12,141	12	55.5	3.96	N	1.18	--	--	7.50
43	12,916	15	40.2	3.51	N	0.88	8.13	3.50	4.98
44	13,672	12	50.5	3.50	N	1.17	7.77	3.43	4.32
45	13,991	10	47.4	3.04	N	0.76	9.80	3.73	5.52
46	14,049	14	49.5	5.64	N	0.32	8.66	4.00	3.35
47	15,014	15	61.2	3.50	N	0.87	11.26	3.70	6.89
89	5,238	8	42.5	4.88	L	2.18	16.34	3.78	8.42
Avg	12,607	11.7	49.6	3.86		0.96	10.14	3.73	5.12

Table 8. Cotton ginning cost survey for Southwest (1997) - 16-24 bales/hr

Gin No.	Bales	Average	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
	Ginned (No.)	Ginning Rate (Bales/Hr)							
24	7,848	16	53.4	4.14	--	0.96	6.52	3.60	7.52
30	9,527	17	40.5	2.58	N	0.99	6.30	2.86	2.57
32	9,728	17	49.7	4.08	N	0.57	9.63	3.82	8.50
33	9,908	18	51.7	4.19	N	0.59	8.23	3.50	4.55
41	11,728	18	33.7	2.42	L	0.55	7.12	4.25	2.34
48	16,353	16	40.5	2.25	N	0.43	7.43	3.45	2.70
49	16,375	18	30.1	1.78	N	0.50	7.26	3.50	3.65
50	16,519	16	57.8	3.87	N	1.96	7.41	3.45	2.27
52	17,435	17	47.8	2.66	N	0.98	7.60	3.76	6.19
56	18,886	20	41.5	2.10	N	1.22	10.72	3.92	5.82
57	19,482	24	67.9	4.69	N	0.65	7.23	3.60	6.43
58	17,686	18	48.9	5.28	L	1.21	6.51	3.70	7.07
61	20,274	20	56.7	3.02	N	0.62	6.91	4.08	7.25
62	20,961	22	52.6	3.81	N	1.11	6.53	3.60	7.20
65	22,757	16	45.3	2.21	N	2.85	5.93	3.60	4.39
68	25,219	16	59.7	3.83	N	0.35	6.13	3.50	2.38
69	25,470	19	45.4	3.13	N	1.25	8.06	3.70	3.28
70	26,771	21	61.1	4.10	N	0.55	6.40	3.81	6.72
72	28,057	21	45.7	2.46	N	0.45	5.81	3.70	8.91
77	41,559	24	32.7	1.68	N	0.92	2.92	3.70	1.95
78	43,255	22	46.9	3.53	N	0.67	6.36	4.50	3.46
80	44,465	24	46.5	2.42	N	1.00	13.74	3.48	6.54
86	9,847	19	56.0	3.64	L	1.69	8.40	4.04	6.78
Avg	20,874	19.1	48.4	3.21		0.96	7.35	3.70	5.15

Table 9. Cotton ginning cost survey for Southwest (1997) - 25 or more bales/hr

Gin No.	Bales	Average	Electricity Usage (KWH/Bale)	Electricity Cost (KWH/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
	Ginned (No.)	Ginning Rate (Bales/Hr)							
23	7,464	28	50.2	3.80	L	0.48	4.04	3.83	3.83
51	16,561	25	33.8	2.52	L	2.06	5.13	--	--
59	20,049	27	34.8	2.05	N	0.69	6.89	3.90	6.47
60	20,130	40	35.5	2.50	N	0.22	6.40	3.75	6.22
63	21,404	31	29.8	2.34	L	2.21	7.66	3.35	2.07
64	22,597	35	36.1	2.75	L	1.57	4.94	3.63	3.66
67	23,437	30	36.3	2.27	L	0.56	7.52	3.50	5.11
71	17,665	27	44.6	2.75	N	0.68	8.31	4.04	5.90
73	28,115	30	55.7	4.07	N	1.36	9.56	3.65	6.73
74	33,050	30	40.8	3.37	N	0.48	3.82	3.58	5.20
75	38,062	30	48.4	2.63	N	1.54	9.37	3.69	--
76	41,119	26	44.4	2.76	N	0.82	6.08	3.70	4.52
79	44,248	27	37.4	2.36	N	0.98	10.28	3.60	4.18
81	54,748	30	46.3	2.40	N	0.62	7.27	3.50	5.48
82	60,439	47	48.5	3.14	N	1.23	9.77	3.70	4.14
83	67,959	42	71.5	4.05	N	0.72	9.36	3.60	8.05
87	16,031	30	42.8	2.83	N	1.01	8.77	3.93	6.81
88	27,358	28	--	6.51	N	0.35	10.32	3.80	5.44
90	29,417	30	42.0	2.79	N	0.91	8.62	3.93	6.81
AVG	31,045	31.2	43.3	3.05		0.97	7.58	3.70	5.33

Table 10. Cotton ginning cost survey for California (1997) - 15 or less bales/hr

Gin No.	Bales	Average	Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. Material Cost (\$/Bale)	Repair Cost (\$/Bale)
	Ginned (No.)	Ginning Rate (Bales/Hr)							
4	5,586	14	52.8	6.64	L	1.59	12.73	2.95	4.34
7	18,988	10	43.6	4.50	N	0.74	5.79	3.26	5.37
8	11,708	10	55.5	4.54	N	0.59	4.61	3.20	3.16
9	14,537	12	54.6	4.75	L	0.59	10.16	3.25	1.63
12	23,732	14.5	50.3	4.03	L	0.84	4.19	3.92	3.37
14	12,325	13.2	45.8	3.84	L	0.61	6.49	3.37	4.56
AVG	14,779	12.3	50.4	4.72		0.83	7.33	3.33	3.74

Table 11. Cotton ginning cost survey for California (1997) - 16-24 bales/hr

Gin No.	Bales		Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg.	
	Ginned (No.)	Average Ginning Rate (Bales/Hr)						Material Cost (\$/Bale)	Repair Cost (\$/Bale)
1	50,776	24	51.9	3.60	N	0.59	4.70	4.00	4.92
5	30,587	17.5	42.4	3.19	L	2.11	6.51	3.27	5.12
6	37,391	19.1	43.0	3.53	N	1.21	6.15	3.03	3.56
10	14,322	16.5	52.6	4.07	--	0.00	6.80	3.40	2.59
15	26,639	22	47.7	3.79	N	0.47	3.83	3.50	3.90
17	28,868	20	40.7	3.39	L	0.29	3.50	3.72	2.88
18	24,245	21.3	54.3	4.60	L	1.11	4.73	3.50	4.25
19	38,969	22	43.0	3.25	L	1.00	4.24	3.34	1.72
21	22,412	17.9	47.4	4.07	N	0.61	5.43	3.65	2.69
24	31,268	20	52.5	4.57	L	1.17	4.57	3.70	2.40
25	23,137	16	40.9	3.37	L	1.17	4.97	3.70	2.25
26	20,740	16	40.3	3.21	L	0.92	4.85	3.70	2.27
AVG	29,113	19.4	46.4	3.72		0.89	5.02	3.54	3.21

Table 12. Cotton ginning cost survey for California (1997) - 25 or more bales/hr

Gin No.	Bales		Electricity Usage (KWH/Bale)	Electricity Cost (\$/Bale)	Drier Fuel Type	Drier Fuel Cost (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg.	
	Ginned (No.)	Average Ginning Rate (Bales/Hr)						Material Cost (\$/Bale)	Repair Cost (\$/Bale)
2	31,346	25	53.3	3.81	N	0.21	6.39	4.21	4.41
3	31,347	25	53.3	3.81	N	0.21	6.39	4.21	4.41
11	33,936	38	57.6	5.16	N	0.29	5.13	4.00	5.00
13	34,465	30.9	38.6	3.18	N	0.64	3.23	3.27	4.10
16	45,685	29.5	54.5	4.26	N	0.70	4.95	3.40	3.17
20	42,974	28	37.4	2.61	N	0.47	3.08	3.50	4.56
22	95,575	30	44.6	3.51	N	0.80	3.89	3.23	1.37
23	34,599	35	53.6	4.44	L	1.17	5.98	3.70	--
AVG	43,791	30.2	49.1	3.85		0.56	4.88	3.69	3.86

Table 13. Average electrical usage and variable costs by region, 1997.

REGION	Gins	Capacity		Usage (kw/Bale)	Electricity Cost (\$/Bale)	Drier Fuel (\$/Bale)	Seasonal Labor (\$/Bale)	Bale Pkg. (\$/Bale)	Repair (\$/Bale)	Seed Cotton Ins. & Misc. (\$/Bale)	Total Variable (\$/Bale)
		(Bales/hr)	(Avg.)								
SOUTHEAST	10	15 or less	(10.5)	43.3	3.46	1.26	10.01	3.99	3.12	3.00	24.84
	16	16-24	(19.4)	40.5	2.70	1.18	8.57	3.44	4.29	3.00	23.18
	13	25 or more	(32.4)	41.9	2.46	1.25	6.26	2.92	3.04	3.00	18.93
MID-SOUTH	18	15 or less	(12.7)	44.2	3.50	1.42	8.65	3.51	3.89	3.00	23.97
	28	16-24	(19.4)	39.4	3.33	1.06	7.10	3.22	4.54	3.00	22.25
	19	25 or more	(31.8)	41.9	3.35	0.82	5.27	3.38	3.83	3.00	19.65
SOUTHWEST	48	15 or less	(11.7)	49.6	3.86	0.96	10.14	3.73	5.12	3.00	26.81
	23	16-24	(19.1)	48.4	3.21	0.96	7.35	3.70	5.15	3.00	23.37
	19	25 or more	(31.2)	43.3	3.05	0.97	7.58	3.70	5.33	3.00	23.63
CALIFORNIA	6	15 or less	(12.3)	50.4	4.72	0.83	7.33	3.33	3.74	3.00	22.95
	12	16-24	(19.4)	46.4	3.72	0.89	5.02	3.54	3.21	3.00	19.38
	8	25 or more	(30.2)	49.1	3.85	0.56	4.88	3.69	3.86	3.00	19.84

Table 14. Estimated total cost of ginning cotton, 1997¹, **15 or less capacity bales per hour**

Total Investment (Millions \$)	Fixed Labor & Management (Thousand \$/Yr)	Annual Volume (Thousand Bales)	Southeast Total Cost (\$/Bale)		Mid-South Total Cost (\$/Bale)		Southwest Total Cost (\$/Bale)		California Total Cost (\$/Bale)			
			10 Yr Life	20 Yr Life	10YrLife	20YrLife	10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life		
0.5	50	4	56.71	51.09	55.84	50.22	58.68	53.06	54.82	49.20		
		5	50.34	45.84	49.47	44.97	52.31	47.81	48.45	43.95		
		6	46.09	42.34	45.22	41.47	48.06	44.31	44.20	40.45		
		7	43.05	39.84	42.18	38.97	45.02	41.81	41.16	37.95		
		8	40.78	37.96	39.91	37.09	42.75	39.93	38.89	36.07		
		9	39.01	36.51	38.14	35.64	40.98	38.38	37.12	34.62		
		10	37.59	35.34	36.72	34.47	39.56	37.31	35.70	33.45		
		0.75	50	4	66.40	57.96	65.53	57.09	68.37	59.93	64.51	56.07
				5	58.09	51.34	57.22	50.47	60.06	53.31	56.20	49.45
				6	52.54	46.92	51.67	46.05	54.51	48.89	50.65	45.03
				7	48.59	43.77	47.72	42.90	50.56	45.74	46.70	41.88
				8	45.62	41.40	44.75	40.53	47.59	43.37	43.73	39.51
9	43.31			39.56	42.44	38.69	45.28	41.53	41.42	37.67		
		10	41.46	38.09	40.59	37.22	43.43	40.06	39.57	36.20		
		11	39.95	36.88	39.08	36.01	41.92	38.85	38.06	34.99		
		12	38.69	35.88	37.82	35.01	40.66	37.85	36.80	33.99		

Table 15. Estimated total cost of ginning cotton, 1997¹, **16-24 capacity bales per hour**

Total Investment (Millions \$)	Fixed Labor & Management (Thousand \$/Yr)	Annual Volume (Thousand Bales)	Southeast Total Cost (\$/Bale)		Mid-South Total Cost (\$/Bale)		Southwest Total Cost (\$/Bale)		California Total Cost (\$/Bale)			
			10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life		
1.0	60	8	50.05	44.43	49.12	43.50	50.24	44.62	46.25	40.63		
		10	44.68	40.18	43.75	39.25	44.87	40.37	40.88	36.38		
		12	41.09	37.34	40.16	36.41	41.28	37.53	37.29	33.54		
		14	38.54	35.32	37.61	34.39	38.73	35.51	34.74	31.52		
		16	36.62	33.80	35.69	32.87	36.81	33.99	32.82	30.00		
		18	35.12	32.62	34.19	31.69	35.31	32.81	31.32	28.82		
		20	33.93	31.68	33.00	30.75	34.12	31.87	30.13	27.88		
		22	32.95	30.91	32.02	29.98	33.14	31.10	29.15	27.11		
		24	32.14	30.26	31.21	29.33	32.33	30.45	28.34	26.46		
		1.5	80	8	62.24	53.80	61.31	52.87	62.43	53.99	58.44	50.00
				10	54.43	47.68	53.50	46.75	54.62	47.87	50.63	43.88
				12	49.22	43.59	48.29	42.66	49.41	43.78	45.42	39.79
14	45.50			40.68	44.57	39.75	45.69	40.87	41.70	36.88		
16	42.71			38.49	41.78	37.56	42.90	38.68	38.91	34.69		
18	40.54			36.79	39.61	35.86	40.73	36.98	36.74	32.99		
20	38.80			35.43	37.87	34.50	38.99	35.62	35.00	31.63		
22	37.38			34.31	36.45	33.38	37.57	34.50	33.58	30.51		
24	36.20			33.39	35.27	32.46	36.39	33.58	32.40	29.59		
26	35.20			32.60	34.27	31.67	35.39	32.79	31.40	28.80		
2.0	100			10	64.17	55.17	63.24	54.24	64.36	55.36	60.37	51.37
				12	57.34	49.81	56.41	48.91	57.53	50.03	53.54	46.04
		14	52.46	46.03	51.53	45.10	52.65	46.22	48.66	42.23		
		16	48.80	43.18	47.87	42.25	48.99	43.37	45.00	39.38		
		18	45.95	40.95	45.02	40.02	46.14	41.14	42.15	37.15		
		20	43.68	39.18	42.75	38.25	43.87	39.37	39.88	35.38		
		22	41.81	37.72	40.88	36.79	42.00	37.91	38.01	33.92		
		24	40.26	36.51	39.33	35.58	40.45	36.70	36.46	32.71		
		26	38.95	35.49	38.02	34.56	39.14	35.68	35.15	31.69		
		28	37.82	34.61	36.89	33.68	38.01	34.80	34.02	30.81		
		30	36.84	33.84	35.91	32.91	37.03	34.03	33.04	30.04		
		32	35.99	33.18	35.06	32.25	36.18	33.37	32.19	29.38		
34	35.24	32.59	34.31	31.66	35.43	32.78	31.44	28.79				
36	34.57	32.07	33.64	31.14	34.76	32.26	30.77	28.27				

Table 16. Estimated total cost of ginning cotton 1997¹, 25 or less capacity bales per hour

Total Investment (Millions \$)	Fixed Labor & Management (Thousand \$/Yr)	Annual Volume (Thousand Bales)	Southeast Total Cost (\$/Bale)		Mid-South Total Cost (\$/Bale)		Southwest Total Cost (\$/Bale)		California Total Cost (\$/Bale)	
			10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life	10 Yr Life	20 Yr Life
			3.0	150	12	70.17	58.92	70.89	59.64	74.87
		16	57.36	48.92	58.08	49.64	62.06	53.62	58.27	49.83
		20	49.68	42.93	50.40	43.65	54.38	47.63	50.59	43.84
		24	44.55	38.93	45.27	39.65	49.25	43.63	45.46	39.84
		28	40.89	36.07	41.61	36.79	45.59	40.77	41.80	36.98
		32	38.15	33.93	38.87	34.65	42.85	38.63	39.06	34.84
		36	36.01	32.26	36.73	32.98	40.71	36.96	36.92	33.17
		40	34.30	30.93	35.02	31.65	39.00	35.63	35.21	31.84
		44	32.91	29.84	33.63	30.56	37.61	34.54	33.82	30.75
		48	31.74	28.93	32.46	29.65	36.44	33.63	32.65	29.84
		52	30.76	28.16	31.48	28.88	35.46	32.86	31.67	29.07
		56	29.91	27.50	30.63	28.22	34.61	32.20	30.82	28.41
		60	29.18	26.93	29.90	27.65	33.88	31.63	33.88	31.63
		64	28.54	26.43	29.26	27.15	33.24	31.13	30.09	27.84
		68	27.97	25.99	28.69	26.71	32.67	30.69	28.88	26.90
4.0	170	12	84.75	69.75	85.47	70.47	89.45	74.45	85.86	70.66
		16	68.30	57.05	69.02	57.77	73.00	61.75	69.21	57.96
		20	58.42	49.42	59.14	50.14	63.12	54.12	59.33	50.33
		24	51.84	44.34	52.56	45.06	56.54	49.04	52.75	45.25
		28	47.14	40.91	47.86	41.43	51.84	45.41	48.05	41.62
		32	43.61	37.99	44.33	38.71	48.31	42.69	44.52	38.90
		36	40.87	35.87	41.59	36.59	45.57	40.57	41.78	36.78
		40	38.68	34.18	39.40	34.90	43.88	38.88	39.59	35.09
		44	36.88	32.79	37.60	33.51	41.58	37.49	37.79	33.70
		48	35.39	31.64	36.11	32.36	40.09	36.34	36.30	32.55
		52	34.12	30.66	34.84	31.38	38.82	35.36	35.03	31.57
		56	33.04	29.82	33.76	30.54	37.74	34.52	33.95	30.73
5.0	190	12	99.33	80.58	100.05	81.30	104.03	85.28	100.24	81.49
		16	79.23	65.17	79.95	65.89	89.93	69.87	80.14	66.08
		20	67.17	55.92	67.89	56.64	71.87	60.62	68.08	56.83
		24	59.13	49.76	59.85	50.48	63.83	54.46	60.04	50.67
		28	53.39	45.35	59.11	46.07	58.09	50.05	54.30	46.26
		32	49.08	42.05	49.86	42.77	53.78	46.75	49.99	42.96
		36	45.73	39.48	46.45	40.20	50.43	44.18	46.64	40.39
		40	43.05	37.43	43.77	38.15	47.75	42.13	43.96	38.34
5.0	190	44	40.86	35.74	41.58	36.46	45.56	40.44	41.77	36.65
		48	39.03	34.34	39.75	35.06	43.73	39.04	39.94	35.25
		52	37.48	33.16	38.20	33.88	42.18	37.86	38.39	34.07
		56	36.16	32.14	36.88	32.86	40.86	36.84	37.07	33.05
		60	35.01	31.26	35.73	31.98	39.71	35.96	35.92	32.17
		64	34.01	30.49	34.73	31.21	38.71	35.19	34.92	31.40
		68	33.12	29.81	33.84	30.53	37.82	34.51	34.03	30.72
6.0	210	12	113.92	91.42	114.64	92.14	118.62	96.12	114.83	92.33
		16	90.17	73.29	90.89	74.01	94.87	77.99	91.08	74.20
		20	75.92	62.42	76.64	63.14	80.62	67.12	76.83	63.33
		24	66.42	55.17	67.14	55.89	71.12	59.87	67.33	56.08
		28	59.64	50.00	60.36	50.72	64.34	54.70	60.55	50.91
		32	54.55	46.11	55.27	46.83	59.25	50.81	55.46	47.02
		36	50.59	43.09	51.31	43.81	55.29	47.79	51.50	44.00
		40	47.43	40.68	48.15	41.40	52.13	45.38	48.34	41.59
		44	44.84	38.70	45.56	39.42	49.54	43.40	45.75	39.61
		48	42.68	37.05	43.40	37.77	47.38	41.75	43.59	37.96
		52	40.85	35.66	41.57	36.38	45.55	40.36	41.76	36.57
		56	39.28	34.46	40.00	35.18	43.98	39.16	40.19	35.37
		60	37.93	33.43	38.65	34.15	42.63	38.13	38.84	34.34
		64	36.74	32.52	37.46	33.24	41.44	37.22	37.65	33.43
		68	35.69	31.72	36.41	32.44	40.39	36.42	36.60	32.63

¹Average cost for bale packaging materials, repairs, electricity, drier fuel, and seasonal labor by capacity from table 13 are included in total costs.