

PROGRESS REPORT

ON

Cost Of Production Route In Choctaw County, Mississippi, In 1924

By

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and

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United States Department of Agriculture

Bureau of Agricultural Economics

In Cooperation With

Mississippi Agricultural Experiment Station

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PROGRESS REPORT

COST OF PRODUCTION ROUTE IN CHOCTAW COUNTY, MISSISSIPPI.

This report is for the calendar year of 1924, which is the first period of a three year study of production costs on twenty-five farms in Choctaw County, Mississippi. These twenty-five farms comprise a cost of production route which is conducted jointly by the Mississippi Experiment Station and the Bureau of Agricultural Economics of the United States Department of Agriculture. These farms are representative of the upland section of the state and to some extent representative of the upland area of the central and eastern sections of the cotton belt.

Of the twenty-five farms studied, ten farms had share croppers, the total number of share croppers on these farms being fifteen. There were also four renters on these farms, who paid one-third of the corn and one-fourth of the cotton as rent. No record was kept of the renter's man or horse labor, but the financial statement includes rents received from renters. No record was kept of the cropper's man labor, but a record was kept of the cropper's horse labor as it is customary in share cropping for all horse labor to be furnished by the land-lord as his part of the contract.

Farm Management surveys had been made of these farms for four years, beginning with the year's business of 1920. The original idea was to make a farm efficiency study, by the survey method, as a basis for recommending changes in the management of these farms which would increase farm profits. The cost of production route has worked nicely into the original plan, and we hope that our cooperators may use our cost figures in replanning their farms for greater profits. We hope that this work may also be of value to other farmers of this area and the rest of the cotton belt.

The average size of the farms on this route was one hundred and twenty acres. Of this one hundred twenty acres there was an average of 37.2 acres in crops, 37.2 acres in pastures, and 45.6 acres in woodland, waste, and farmstead. The average cash receipts per farm were \$909.09. This \$909.09 includes \$86.56, which was the average amount received for labor performed off the farm, such as road work, carpenter work, driving school wagon, etc. Of the remaining \$822.45 per farm, \$480.05 was received from cotton and cotton seed, while \$342.48 was received from all other farm enterprises including receipts from the sale of timber and crossties.

Of the 37.2 acres of crop land per farm, 17.05 or 45.8% were in cotton; 15.94 acres or 42.8% in corn; 1.27 acres, or 3.4%, in oats; and 2.9 acres, or 7.8% in lespedeza.

If we include croppers Labor,* which in a way is wage labor paid on a profit sharing basis, there was an average of 4058 hours of man labor per farm. Of the 4058 hours of man labor per farm, 1072 hours, or 26%, were spent on cotton; 570, or 14% on corn; 27 hours, or less than 1%, on oats; and 29 hours, or less than 1%, on lespedeza. All livestock required 740 hours, or 18.2%, and all other labor amounted to 1618 hours, or 40.1%. A large part of the labor classed as "Other Labor" consisted of work performed off the farm for which pay was received.

Since cotton is our most important farm enterprise, and since we have considerable experimental data on cotton to serve as a guide in advising changes in present production methods, it seems that the quickest way to increase farm profits in this community is to improve our cotton production practices. The Agronomy Department of the Experiment Station, under the supervision of Messrs. O'Kelly and Cowart, are conducting fertilizer and variety experiments in the community, and these experiments are proving to be splendid guides in the use of fertilizers and in the selection of varieties. On the experimental plots conducted on the farm of Mr. E. B. Smith for the crop year of 1924, the average yield of lint cotton per acre was 247 pounds. This was a little over one-half bale per acre when bagging and ties are added. The average yield for our cooperators for 1924 was 172½ pounds of lint per acre, the average for the county was 125 pounds per acre (estimated from ginner's report), and the average for the State, including the Delta, was 172 pounds per acre. We hope that the average yield of all cotton on our route may be above one-half bale by the time this study is completed. The above figures suggest that farms included in this study were getting better returns for the resources used on cotton than most other farms, similarly situated. There were, however, some wide variations among these farms in returns received for the use of labor and capital. As an example of this variation some of these farms produced cotton at about one-half the cost of producing it on other farms. One of the big causes of variation in yields on different farms was fertilizer. Our experiments and observations indicate that a heavier use of fertilizer would increase profits on cotton. Another factor which does not show up in our data and which is not under our control was rain, as a part of the community received a much needed rain in July which the rest of the community did not. Some of the factors under our control which influence cotton yields

*Cropper labor calculated on the basis of average per acre requirements for the crops on these farms.

and reduce costs per pound are proper fertilization, close spacing, regular stands, and approved varieties. Steps are being taken by our cooperators to take advantage of improvements that may be made in these practices.

After cotton, corn is our most important crop. Our community yield was 18 bushels per acre as compared with the state average of 12 bushels. Good corn land is limited on most farms. A large acreage of corn competes with cotton for both land and labor. The ten year average farm price of corn in Mississippi from 1914 to 1923 was \$1.03 a bushel. The average farm price of cotton for the same period was twenty-two cents a pound. An acre of corn that uses 50 hours of man labor and 35 hours of horse work per acre and yields 15 bushels per acre worth \$1.03 a bushel will return about 12 cents an hour for man labor and about 12 cents an hour for horse work with the farm machinery and other expenses thrown in. These figures allow one-third of the yield as land rent.

An acre of cotton using 100 hours of man labor and 40 hours of horse work and for which one-fourth of the cotton and seed are paid as rent would have to produce 100 pounds of lint per acre in order to pay the same rate for man and horse labor as corn would pay at 15 bushels per acre.

At the prices suggested, the corn rent would be \$5.16 and the cotton rent would be \$5.50. In this comparison the cotton seed were allowed to pay for the fertilizer and ginning. This suggests that it is a doubtful practice to use any considerable amount of land and labor for corn that could be used for cotton, unless the chances for fifteen bushels of corn per acre are as good as the chances for 100 pounds of lint cotton. In fact, any man growing 15 bushels of corn or one-fifth bale of cotton per acre will have to work on a very low scale of wages. There is, no doubt, considerable improvement to be made in corn production, and experimental data are much needed as a guide for recommending changes in the growing of this important crop. Corn on fertile soils is a profitable crop, but on poor land it is a time and money loser.

Dairying has become a rather important industry in the community, but had two handicaps for 1924. First, owing to the extremely dry summer the pastures were below normal thereby reducing butter-fat production and increasing costs; second, the price of butter-fat was low compared to the price of other farm products. Our records show (see table on dairy cattle) that cows on these farms received an average of less than one-half a ton of hay per cow for the year. This is about half as much hay as is used by farmers in the older dairy sections of the state, while dairy authorities think that butter-fat costs could be lowered by still larger use of roughages. Good pastures and cheap roughage are essential to low butter-fat costs. The pastures in this

community are fairly good during a normal year, but hay production is usually below the farm need.

Pork production has a rather small place on most of these farms, owing to the scarcity and high value of feed. It appears that a marked increase in soil fertility or the production of soy beans or possibly peanuts as a supplementary crop would bring pork production into greater prominence. On farms with land that will grow 20 bushels or more of corn per acre, possibly more land can be profitably planted to corn for hogs.

Taking this study as a whole we find that from the standpoint of both volume and profit, cotton seems to be our leading enterprise. It is possible that the unusually dry season of 1924 gave cotton an advantage over other crops and livestock, as very little damage was done by boll weevils. In the light of our present experimental data regarding the possible improvements that can be made in the production of the various farm products, it seems that with the present price ratio cotton will continue to be our most profitable enterprise. With cotton as the principal crop, however, much time and land will be left for supplementary enterprises.

PRODUCTION OF COTTON

Labor, Material Requirements and Yield per Acre

Choctaw County, Mississippi

Year 1924

Farm No.**	No. Acres	Labor			Manure (Tons)	Fertilizer			Value \$	Yield (Lint) (lbs.)
		Man Hrs.	Horse Hrs.	Seed (Bu)		Phosphate (Lbs.)	Nitrate (Lbs.)	Mixed (Lbs.)		
10	3.27	*203.1	99.8	1.22	1.83	244.6	61.2	—	3.52	310
1	3.72	*237.1	80.1	1.08	8.06	295.7	107.5	—	5.19	269
20	6.00	159.9	57.8	1.67	3.00	300.0	150.0	—	6.41	268
22	9.54	119.4	47.1	1.26	—	272.5	83.8	—	4.36	256
12	7.43	92.8	38.6	1.48	.53	289.4	46.0	—	3.42	203
4	4.85	82.0	38.9	1.03	—	226.8	24.1	—	2.35	198
21	6.02	102.3	52.6	1.50	1.33	199.3	66.4	83.1	4.66	197
16	11.42	164.1	54.1	1.05	.53	218.9	56.5	—	3.20	192
23	19.85	122.4	57.7	.50	—	120.9	75.6	—	3.01	180
11	11.89	75.1	39.3	.88	.33	117.8	12.6	58.9	2.16	171
2	16.19	113.0	29.1	.77	—	92.6	—	111.2	2.46	169
13	5.99	70.4	34.9	.50	.83	133.6	50.1	—	2.39	166
25	20.10	120.2	43.7	1.24	—	139.3	49.8	—	2.42	164
6	6.50	92.2	34.9	1.23	.92	211.5	38.5	—	2.64	159
5	7.81	90.6	34.9	1.54	2.18	204.9	32.0	—	2.41	157
19	4.00	127.4	59.0	1.25	—	135.0	90.0	—	3.52	150
3	10.00	123.4	44.4	1.80	.75	200.0	65.0	—	3.30	150
18	16.86	109.5	41.5	1.19	—	132.4	60.3	—	2.66	146
24	19.89	75.4	30.2	.48	.25	65.4	—	55.3	1.37	143
15	5.81	127.5	48.1	1.20	—	180.7	51.6	—	2.78	140
14	8.30	69.4	30.8	1.20	—	36.1	—	96.4	1.81	139
7	9.37	* 41.7	28.0	.64	—	117.4	45.4	—	2.14	92
Wt. Av.	9.76	108.6	43.2	1.04	.53	156.6	46.6	22.8	2.82	172.5

How to figure the cost of cotton production. (Problem based on the average figures).

Man Labor	108.6 x \$.15	\$16.29
Horse Labor	43.2 x \$.12	5.18
Seed	1.04 x \$.60	.62
Manure	.53 x \$1.00	.53
Fertilizer—Acid Phosphate (156.6x\$.14.75) divided by 2000		1.16
Nitrate of Soda (46.6x\$.56.00) divided by 2000		1.30
Mixed (22.8x\$.1.60) divided by 100		.36
Equipment at \$.02 per horse hour		.86

Total cost per acre\$26.30

Cost per pound of lint, \$26.30 divided by 172.5..... .15

(In the above example, it is assumed that cotton seed credit is equivalent to ginning and wrapping and land rent.)

*Labor is questionable but is given as reported.

**Farms are listed in order of yield, beginning with the highest.

PRODUCTION OF CORN

Labor, Material Requirements and Yield per Acre.

Choctaw County, Mississippi.

Year 1924.

Farm No.	No. Acres	Labor		Seed (lbs)	Manure (Tons)	Fertilizer			Yield (bu.)
		Man Hrs.	Horse Hrs.			Acid Phosphate (lbs.)	Nitrate (lbs.)	Mixed (lbs.)	
1	9.07	61.9	49.8	9.9	—	143.3	—	—	30.9
2	14.21	46.6	25.8	10.0	—	30.2	—	14.1	11.8
3	16.51	43.8	37.7	10.0	.45	—	—	—	10.6
4	8.47	46.0	36.1	8.7	—	41.3	57.0	—	18.9
5	9.97	43.3	27.6	9.0	—	—	24.7	—	7.7
6	9.20	35.4	34.0	8.9	—	54.3	27.2	—	18.4
7	12.89	43.0	21.3	10.1	.81	124.1	33.0	—	16.8
8	18.83	56.1	50.7	10.0	—	—	—	—	23.4
9	9.18	47.5	50.1	10.0	—	207.0	113.3	—	13.3
10	11.52	77.5	61.0	10.0	—	173.6	—	—	20.9
11	13.15	54.9	38.2	10.0	—	15.2	—	—	23.9
12	15.57	36.3	27.1	10.0	—	72.9	6.4	—	11.3
13	10.83	28.2	23.2	10.0	—	—	—	—	15.9
14	7.28	36.9	32.1	10.0	.34	—	—	—	14.8
15	7.47	44.4	30.4	10.0	—	—	—	—	13.9
16	16.94	65.4	43.9	10.0	—	1.5	—	—	12.9
17	16.00	35.7	32.8	10.0	—	68.8	13.8	—	15.6
18	17.50	39.9	31.8	10.0	.14	37.1	8.6	—	21.8
19	9.00	66.7	52.3	10.0	—	100.0	—	—	15.1
20	13.00	35.5	25.7	10.0	—	46.2	7.7	—	15.2
21	5.60	67.0	51.2	10.0	.89	151.8	32.3	—	32.1
22	9.78	51.6	31.3	10.0	—	40.9	20.4	—	22.9
23	6.11	75.5	52.9	10.0	—	—	—	—	23.0
24	11.15	58.1	39.6	10.0	—	—	—	17.9	23.8
25	11.10	54.7	44.5	10.0	—	18.0	—	—	15.9
Wt. Av.	11.61	49.1	37.8	9.9	.10	58.6	11.7	1.4	18.0

How to figure the cost of corn production. (Example based on the average figures.)

Man Labor	49.1 x \$.15	\$ 7.36
Horse Labor	37.8 x \$.12	4.54
Seed	(9.9 x \$1.00) divided by 7014
Manure10 x \$1.0010
Fertilizer—Acid Phosphate	(58.6 x \$14.75) divided by 2000.....	.43
Nitrate of Soda	(11.7 x \$56.00) divided by 2000.....	.33
Mixed	(1.4 x \$1.60) divided by 100.....	.02
Equipment at \$.02 per horse hour76
Total cost per Acre—not including land rent		\$13.68
Cost per bushel, not including land rent, \$13.68 divided by 1876
Cost per bushel allowing one-third of yield as rent.....		1.24
Rent received per acre allowing one-third as rent (6 x \$1.25).....		7.50

PRODUCTION OF LESPEDEZA HAY
Labor, Material Requirements, and Yield per Acre.

Choctaw County, Mississippi.

Year 1924.

Farm Number	No. Acres	Labor		Seed (Bu.)	Yield (Tons)
		Man Hrs.	Horse Hrs.		
1	8.00	18.7	24.2	.50	.94
4	3.50	10.9	20.6	.50	.85
5	3.50	9.3	1.1	.50	.85
6	4.50	3.1	6.2	.50	1.22
7	3.00	8.3	10.0	.50	1.00
8	12.00	10.0	18.1	.50	1.00
10	3.00	18.7	27.0	.50	2.19
11	2.00	19.2	28.5	.50	.75
13	2.50	15.0	20.8	.50	.60
14	2.50	15.6	24.0	.50	.60
17	11.00	2.4	4.0	.50	.27
18	5.00	11.0	20.2	.50	.80
19	2.50	29.2	44.4	.50	1.00
20	3.00	11.7	12.0	.50	.92
21	1.00	43.0	30.0	.50	1.50
22	1.00	28.0	40.0	.50	1.00
24	1.75	17.1	17.1	.50	1.71
Wt. Av.	4.10	12.1	17.4	.50	.90

Average stand of Lespedeza—2 years.

One-half of seed sown is charged this year.

PRODUCTION OF OATS
Labor, Material Requirements and Yield per acre.

Choctaw County, Mississippi.

Year 1924.

Farm No.	No. Acres	Labor		Seed (Bu.)	Fertilizer Nitrate (lbs.)	Yield (Bu.)
		Man Hrs.	Horse Hrs.			
2	1.00	40.0	19.0	1.5		25.0
4	1.50	18.0	25.3	1.5		25.0
5	1.50	16.7	13.3	1.5		25.0
9	4.00	19.8	31.8	1.5		12.5
13	2.50	21.4	11.0	1.5		16.0
14	2.50	22.8	19.2	1.5		16.0
17	6.00	13.7	9.5	1.5		26.7
19	6.00	23.2	16.0	1.5	33.3	16.7
21	1.75	41.4	32.6	1.5	42.8	42.8
23	2.00	20.0	8.0	1.5		25.0
24	1.75	14.3	28.6	1.5		17.1
Wt. Av.	2.77	21.0	18.2	1.5	9.0	21.1

No twine used. Cut with mower or cradle.

WORK STOCK

Unit Requirements per Year for One Head of Work Stock.

Choctaw County, Mississippi

Year 1924.

Farm No.	No. Horses	Corn (Bu.)	Oats (Bu.)	Grain (lbs.)	Hay (lbs.)	Fodder & Tops (lbs.)	Pasture Days	Labor		Cash Costs \$	Hours Worked
								Man Hrs.	Horse Hrs.		
1	3	28.5	—	—	887	—	100	53.6	1.2	—	808
2	5	23.6	15.5	499	228	—	98	43.8	3.3	—	422
3	3	25.2	22.9	—	786	—	89	55.3	—	—	698
4	2	26.4	8.6	395	579	—	86	79.5	1.2	.75	918
5	2	25.2	1.6	54	484	—	187	55.8	3.0	.60	308
6	2	41.3	—	372	1639	—	183	87.2	—	—	937
7	2	27.0	—	—	985	—	126	78.2	—	—	546
8	8	27.8	—	—	593	—	68	38.4	3.6	—	635
9	2	28.3	—	—	1188	—	192	87.1	11.0	—	642
10	4	35.6	—	—	1967	—	102	66.8	2.4	—	513
11	2	35.2	—	—	1638	167	116	95.2	—	—	892
12	4	25.4	1.2	25	954	—	50	61.3	—	.38	385
13	1	35.3	8.5	—	75	341	91	63.2	12.8	—	974
14	2	32.2	10.8	15	356	233	195	98.4	2.0	—	442
15	2	12.4	9.0	550	232	—	150	113.8	1.5	—	324
16	3	31.5	—	—	993	222	207	87.9	.8	—	762
17	2	40.3	—	—	1277	31	84	34.9	—	—	468
18	3	22.4	—	—	855	—	122	36.4	2.8	—	676
19	2	16.0	18.3	—	184	54	131	63.7	—	—	773
20	2	25.8	—	752	750	—	130	37.0	.8	—	613
21	2	27.2	2.4	—	1050	—	214	38.9	4.8	—	581
22	4	40.5	2.4	128	1974	—	69	78.8	4.1	—	601
23	3	40.5	6.5	—	548	—	126	99.4	—	—	563
24	3	28.0	4.7	—	1334	62	164	84.1	—	—	542
Wt. Av.	2.8	29.4	4.1	97	939	33	119	65.4	2.1	.06	611

How to figure the cost of horse labor. (Example based on average figures.)

Man Labor	65.4 x \$.15.....	\$ 9.81
Horse Labor	2.1 x .12.....	.25
Corn	29.4 x \$1.00.....	29.40
Oats	4.1 x \$.60.....	2.46
Other Grain97 x \$.02¼.....	2.18
Hay	(939 x \$15.00) divided by 2000.....	7.04
Fodder	(33 x \$15.00) divided by 2000.....	.25
Pasture	(119 x \$.03).....	3.57
Depreciation (average for the 24 farms)		9.08
Interest and Taxes (average for the 24 farms)		7.52
Cash Costs (Shoeing, medicines, etc.)06

Total cost per horse per year\$71.62
 Cost per hour of horse labor \$71.62 divided by 611.....\$.12

(In the above example, it is assumed that manure credit is equivalent to equipment and building charges.)

