AN ANALYSIS OF THE SOUTHERN REGIONAL COTTON MARKETING RESEARCH PROJECT COMMITTEE'S RECOMMENDATIONS ON THE COTTON INDUSTRY IN NORTHWEST MISSISSIPPI

C. J. Lamkin
Professor of Agriculture and Economics
Southern Arkansas University
Department of Agriculture
Magnolia, AR

Abstract

The Southern Regional Cotton Marketing Research Project Committee made several recommendations on the cotton industry in Northwest Mississippi1/ in 1981. This study examined those recommendations and compared the theoretical model with the present cotton industry in Northwest Mississippi in 1996.

Introduction

Throughout history economics has usually been the catalyst for change in the cotton industry. During the Twentieth Century the cotton industry has undergone remarkable change, not just in Northwest Mississippi but wherever cotton is grown, assembled, processed and marketed. The Southern Regional Cotton Marketing Research Project Committee made several recommendations on the cotton industry in Northwest Mississippi in 1981. This study examined those recommendations and compared the theoretical model with the present cotton industry in Northwest Mississippi.

The drive toward increased economic efficiency in a global market place has dictated greater efficiency in cotton production, processing and transportation. This has resulted in new harvesting practices, better processing procedures, storing and transporting of cotton.

A study entitled "Efficiency of Identification, Assembly and Transportation of Cotton to Domestic Mills and Export Outlets" was started in 1976 by the Southern Regional Cotton Marketing Research Committee. The project had three major objectives: (1) To determine the methods, problems and costs associated with cotton for shipment from assembly points to domestic mills or export outlets. (2) To determine the rates and other costs of moving cotton from assembly points to domestic mills or export outlets by alternative modes of transportation. (3) To construct a quantitative model of the cotton marketing system in the Southeastern United States. Objectives one and two were completed in 1978 (Lafferty et. al., 1979). Objective three was completed in 1981(Lamkin et. al., 1982).

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:344-349 (1997)
National Cotton Council, Memphis TN

A mathematical model was formulated to determine the optimal sizes and locations for gins and warehouses in the Southeastern United States and to investigate the long-run planning problem for the cotton industry. An evaluation of an extended ginning season was conducted to determine what impact it would have on the optimum organization for the cotton industry. In order to introduce an opportunity cost into the extended ginning season a "delayed marketing charge" was utilized. The study made a determination of the most economically feasible mode or modes of transporting cotton where possible. The greatest benefit the quantitative model provided was that of a policy tool. The study provided policy makers with insight into the optimum organization of cotton gins and warehouses in the Southeastern United States. It also provided investors a means by which to select the most feasible size and location for replacements and expansions in the cotton industry. The opportunity cost analysis provided a more realistic assessment of an extended ginning season in the Southeastern United States.

The quantitative model provided the foundation for several studies (Brooker et. al., 1982) (Capstick et. al., 1983) (Emerson and Lamkin, 1995) (Hudson et. al., 1983) (Lamkin, 1994) (Lamkin, 1995) (Lamkin, 1996) (Lamkin et. al., 1981). These studies laid the groundwork for the present study. This study only concerned itself with Northwest Mississippi. The mathematical study was designed to incorporate several unique programs and multi source input data to provide as realistic a view of the cotton industry as possible (Bounds and Cole, 1987) (Candler et. al., 1972) (Chern and Polopolus, 1970) (Cleveland, 1976) (Fuller and Washburn, 1974) (Gass, 1964) (Ghetti et. al., 1977) (Graves, 1969) (Hawks, 1970) (Hurt and Tramel, 1965) (Hurt) (International Business Machine Corporation, 1968) (King and Logan, 1964) (kloth and Blakely, 1971) (Knudtson, 1958) (Ladd and Halvorson, 1970) (Moore and Courtney) (Rodriguiz, 1980) (Shaw et. al., 1977) (Sperry-Univad Corporation) (Stennis) (Stennis, 1970) (Stennis and Hurt, 1974) (Stollsteimer, 1963) (Toft et. al., 1970) (Tramel and Seale, Jr., 1963) (United States Department of Commerce, 1978) (United States Department of Commerce, 1980).

The Problem

It has been approximately fifteen years since the final results of the Committee's study were published. Using the information contained in the report on assembling, processing, storing and transporting cotton a comparison was made between the theoretical information published in 1981 and actual industry practices in Northwest Mississippi in 1996.

Objectives

The purpose of this project was to analyze the recommendations made on the cotton industry in Northwest

Mississippi by the Southern Regional Cotton Marketing Research Project Committee. The general objective of this research was to determine whether the Committee's recommendations to the cotton industry in Northwest Mississippi materialized.

Specific objectives were:

1) To evaluate the Committee's work that used a basic mathematical programming model to approximate the gin and warehouse locations and see how the suggested locations in 1981 compared to the actual locations of gins and warehouses in Northwest Mississippi in 1996.

2) To evaluate the estimated least-cost spatial flows identified in the Committee's study in 1981 to see if they have been adopted in Northwest Mississippi in 1996.

3) To evaluate the least-cost spatial organizations for gins and warehouses identified by the Committee's study in 1981 to see if they approximate the present spatial organizations for gins and warehouses in Northwest Mississippi in 1996.

4) To evaluate the "opportunity cost concept" used by the Committee's study in 1981 and see if an extended ginning season has been adopted in Northwest Mississippi in 1996.

5) To evaluate the most efficient mode or modes for transporting cotton from warehouses to domestic mills and export outlets by use of rail and/or truck transportation identified by the Committee's study in 1981 and see if those mode or modes have been adopted in Northwest Mississippi in 1996.

The Model

The purpose of this research was to do an analysis of the recommendations made by the Committee in 1981 to the cotton industry in Northwest Mississippi and compare the theoretical model with the real world practices in 1996. This study focused on the recommendations which related directly to Northwest Mississippi. The results of the theoretical study were: (1) The mathematical model suggested that a more efficient cotton marketing infrastructure would be possible not just in Northwest Mississippi, but for the entire Southeastern United States. (2) Even with the addition of an opportunity cost, the extended ginning season would be competitive with the 14-week season. (3) Fewer larger sized gins would be the trend of the future. (4) An extended ginning season would imply the use of modular storage of cotton. (5) Most cotton would move via truck to domestic mills and export outlets. There has never been an assessment to see how the theoretical model measured up against the actual industry. The previous research related to the field does not do a comparison of the theoretical and the real world.

Research Design

Actual field interviews were made of farmers, ginners, warehouses, cotton merchants, and transportation firms to determine the present practices now employed by the cotton industry in Northwest Mississippi in 1996 A similar procedure was used by the researchers in the Committee's original study in 1976 (Lafferty et. al., 1979).

Data Sources and Description

The data from the previous study were analyzed. It was theorized in 1981 that the industry would 1) move toward the economic optimal, 2) that in the future there would be fewer larger sized gins, 3) an extended ginning season would come about because it was competitive with the normal 14-week season, 4) the extended ginning season would necessitate the use of the module maker, and 5) cotton would move via the least expensive mode of truck and/or rail transportation to the domestic mills and export outlets. In order to determine whether the industry had moved toward the economic optimal a comparison of the recommended structure in 1981 was made with the existing structure in 1996. This was accomplished by on-site interviews with cotton industry persons. Northwest Mississippi for purposes of this study will consist of Coahoma, DeSoto, Panola, Quitman, Tate and Tunica Counties in Northwest Mississippi. These counties were identified as having significant cotton production in 1995 in Northwest Mississippi. See Table 11. A determination as to whether or not cotton production in Northwest Mississippi has changed since 1976 was made. A determination was made from the information gathered in the interviews as to whether the traditional 14-week ginning season was still being used in Northwest Mississippi or whether an extended ginning season had been brought about by other factors. The role the module maker has played in Northwest Mississippi was explored in the interviews. Information in the interviews was used to determine if cotton in 1996 was moving by the least expensive transportation mode.

Stability of the Supply Area

Northwest Mississippi has shown a remarkable increase in the amount of cotton that is produced in the area as demonstrated in Table 11. This increase in production can be attributed to increased irrigation and the improved varieties and better use of chemicals in Northwest Mississippi. This has resulted in changes in the infrastructure of the cotton industry in Northwest Mississippi.

The Economic Optimal

Using the results of the study conducted by Mississippi State University in 1981 as the mathematical optimal system, let us compare that with the actual economic reality of 1996. The 21 potential gin locations identified for the normal ginning season in the 1981 study in Northwest Mississippi are shown in Table 1. The same potential gin locations were also identified for the extended ginning season in 1981 in Northwest Mississippi. The gin locations chosen by the computer model, no opportunity cost solution, for 1981 are shown in Table 2. The gin locations chosen by the computer model, opportunity cost solution, for 1981 are shown in Table 3. The number of actual gin locations in 1981 in Northwest Mississippi are shown in Table 4. The actual gin locations in 1991 in Northwest Mississippi are shown in Table 5. The actual gin locations in 1995 in Northwest Mississippi are shown in Table 6.

The potential warehouse locations identified for the normal ginning season in the 1981 study for Northwest Mississippi are shown in Table 7. The same potential warehouse locations were also identified for the extended ginning season in 1981 in Northwest Mississippi. The warehouse locations chosen by the computer model, no opportunity cost solution, for 1981 are shown in Table 8. The warehouse locations chosen by the computer model, opportunity cost solution, for 1981 are shown in Table 9. The federally licensed warehouse locations remaining in 1995 in Northwest Mississippi are shown in Table 10.

There are many factors that cause any industry to continually move toward the economic optimal system. Northwest Mississippi has experienced market forces, use of irrigation, improved varieties, new and improved chemicals, insects, disease, weather, and structural changes such as farmers retiring and alternative crops. All these changes have resulted in a more efficient cotton industry in Northwest Mississippi.

Fewer Larger Sized Gins

Fewer larger sized gins characterized the remaining units in Northwest Mississippi. Many of the old abandoned gins stand as monuments to an industry that has witnessed massive consolidation over the last sixty years. Cotton went from being "King" to near extinction. However, the industry did not die. It became competitive by realizing survival was dependent upon economies of size and scale. This was true not only for the cotton industry as a whole but also for Northwest Mississippi as evidenced in the present structure of the cotton industry in the area. In 1981, there were 65 actual cotton gin locations. See Figure 5. The mathematical model evaluated 21 gin sites in Northwest Mississippi. In 1995, only 24 active gins remain. This is a dramatic drop in the number of actual gins as compared with the 65 found in the study area in 1981. Compared with 43 in 1991, we have witnessed the industry moving more toward equilibrium with a massive reduction in the number of gins over the last 15 years. The amount of cotton ginned in the area varies greatly from year to year as shown in Table 11.

Extended Ginning Versus The Normal

The advent of an extended ginning season was caused in part by the appearance of the module maker which will be addressed in a later section of this report. The extended ginning season allows a gin to spread its fixed costs over a longer period of time. The longer one can operate a gin each year, the lower the average fixed costs become to the operator. However, interviews indicated that in Northwest Mississippi the module maker has resulted in more efficient processing of cotton at the gin. The gin is better able to process cotton on a more even schedule than ever before because of the module maker. The module maker frees trailers that might not be available when needed by the farmers and the module maker guarantees the gin a steady supply of cotton. Thus, the actual ginning season may not be any longer because the module maker allows for the constant processing of cotton and improved ginning efficiency. The gins are actually able to process a greater amount of cotton in less time.

Impact of the Module Maker

The module maker provided the cotton industry with a tool to be more efficient. It helped reduce overtime and cut down on equipment wear because there was time to properly service the equipment. Employees can actually have better working conditions and time-off. In the past this was not possible due to the deterioration of the crop that would take place if the cotton was not processed (ginned) quickly. It allows the gins to be able to better schedule their work. The module maker has had a tremendous impact on the ginning efficiency in Northwest Mississippi. The advent of the boll buggy in the field and the module feeder at the gin have all served to further increase productivity in the cotton industry.

Least Expensive Transportation Mode

Trucks were determined to be the least expensive mode of transporting cotton from Northwest Mississippi in 1981. In 1996, most cotton moved via truck from Northwest Mississippi to domestic mills, concentration points or export outlets. Only a few warehouses in Northwest Mississippi have access to both rail and truck transportation modes. Truck transportation was preferred over rail because of the service reliability of trucks. Trucks deliver on time. Rail transportation does not have a timely reputation in Northwest Mississippi.

Results

The results found: (1) There has been a move by the cotton industry in Northwest Mississippi toward the optimal cotton marketing system that was identified by the mathematical model in 1981. (2) The use of the module maker is becoming the norm in Northwest Mississippi. (3) There are fewer and larger sized gins in Northwest Mississippi in 1996 than in 1976. (4) Modular storage of cotton is being practiced in Northwest Mississippi. (5) Most cotton is moved via truck from Northwest Mississippi to domestic mills and export outlets.

Implications and Conclusions

The cotton industry in Northwest Mississippi is continually moving toward the optimal. The changes evident in the structure in the past fifteen years point to a more competitive system. This had been predicted by the 1981 study. The 1981 study did a good job of foreseeing the dramatic changes that were going to occur in the cotton industry in Northwest Mississippi. Northwest Mississippi has moved to a more efficient cotton marketing structure since 1981. This move was in part due to the use of irrigation and improved varieties and use of chemicals and more efficient practices being employed by the cotton industry. However, it must be noted that only 21 gin sites were evaluated in 1981 and in 1996 only 24 gins remained out of the 65 actual in 1981. It would appear that even more consolidation is on the way for the Northwest Mississippi study area.

Endnotes

1/ Northwest Mississippi for the purposes of this study is defined as the following six counties: Coahoma, DeSoto, Panola, Quitman, Tate and Tunica.

2/ Numbers in brackets refer to items in the literature cited.

3/ For the purposes of the study, the Southeastern United States was delineated as the cotton producing counties or parishes in the states of Alabama, Arkansas, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina and Tennessee. Cotton producing counties or parishes were defined as those counties or parishes in which 500 or more bales of cotton were produced during the 1976 crop year (August 1, 1976 through July 31, 1977).

References

Bounds, Elaine and Ron Cole. May 1977. "Charges for Ginning Cotton, Cost of Selected Services Incident to Marketing, and Related Information," Commodity Economics Division, Economic Research Service and Cotton Division, Agricultural Marketing Service, U.S.D.A., Washington, D.C.

Brooker, John R., Corbet J. Lamkin, Timothy H. Fondren, and Earl A. Stennis. 1982. Optimum Organization of Gins and Warehouses for Marketing Cotton in Tennessee, Bulletin 609, University of Tennessee Agricultural Experiment Station, Knoxville, Tennessee.

Candler, W., J. C. Snyder, and W. Faught. February 1972. "Concave Programming Applied to Rice Mill Location." Am. J. Agr. Econ., 54:126-130.

Capstick, Daniel F., Corbet J. Lamkin, Timothy H. Fondren, and Earl A. Stennis. 1983. Optimum Organization of Gins and Warehouses for Marketing Cotton in Arkansas, Bulletin 865, University of Arkansas Agricultural Experiment Station, Fayetteville, Arkansas.

Chern, W., and L. Polopolus. November 1970. "Discontinuous Plant Costs Function and a Modification of the Stollsteimer Locations Model," Am. J. Agr. Econ., 52:581-586.

Cleveland, O. A., Jr. May 1976. "Optimum Organization of Gins and Warehouses for Marketing Cotton in the Oklahoma-Texas Plains," unpublished Ph.D. Dissertation, Oklahoma State University, Stillwater, Oklahoma.

Emerson, Christy and Corbet J. Lamkin. January 1995. "An Analysis of the Southern Regional Cotton Marketing Research Project Committee's Recommendations on the Cotton Industry in Southeast Arkansas South of the Arkansas River, "Proceedings 1995 Beltwide Cotton Conferences, Cotton Economics and Marketing Conference, Volume 1:358-361.

Fuller, Stephen and Monty Washburn. July 1974. "Application of a Plant Location Model to an Area's Cotton Ginning Industry," Southern J. Agr. Econ., Vol. 6, No. 1, pp. 151-157.

Gass, Saul I. 1964. Linear Programming, Second edition, McGraw-Hill Book Company, New York.

Ghetti, Joseph H., O. A. Cleveland, Jr. and Earl A. Stennis. May 1977. Domestic Shipments of U.S. Cotton, 1975-76 Season, Commodity Economics Division ERS-USDA and Mississippi Agricultural and Forestry Experiment Station, Bulletin No. 855, Mississippi State, Mississippi.

Graves, D. R. January 1969. "Reactive Programming of a Transshipment Problem," unpublished M.S. thesis, Mississippi State University, Mississippi State.

Hawks, W. T. May 1970. "Optimum Assembly, Processing, and Distribution Patterns for Fluid Milk in Mississippi," Mississippi State University, Mississippi State.

Hudson, James F., Timothy H. Fondren, Corbet J. Lamkin and Earl A. Stennis. May 1983. Optimum Organization of Gins and Warehouses, Mississippi Delta Area, Louisiana, Department of Agricultural Economics and Agribusiness D.A.E. Research Report No. 615. Louisiana Agricultural Experiment Station, Baton Rouge, Louisiana.

Hurt, V. G., and T. E. Tramel. August 1965. "Alternative Formulations of the Transshipment Problem," J. Farm Econ. 47:763-773.

Hurt, Verner G., "Reactive Programming of a Transshipment Problem," unpublished paper, Mississippi State University, Mississippi State.

International Business Machine Corporation. 1968. Mathematical Programming System 360, Version 2, Linear and Separable Programming User Manual. White Plains, N.Y., Ch.5.

King, G. A., and S. H. Logan. February 1964. "Optimum Location, Number and Size of Processing Plants with Raw Product and Final Product Shipments," J. Farm Econ., 46:94-108.

Kloth, D. W., and L. V. Blakely. August 1971. "Optimum Dairy Plant Location with Economies of Size and Market Share Restriction," Am. J. Agr. Econ., 53:461-466.

Knudtson, A. C. August 1958. "Estimating Economies of Scale,"
J. Farm Econ., 40:750-756.

Ladd, G. W. and M. P. Halvorson. November 1970. "Parametric Solutions to the Stollsteimer Model," Am. J. Agr. Econ., 52:578-580.

Lafferty, D. G. and et. al. January 1979. Assembling and Transporting Cotton to Domestic Mills and Ports by Southcentral and Southeastern Shippers, Southern Cooperative Series Bulletin No. 236, Arkansas Agricultural Experiment Station, University of Arkansas, Fayetteville, Arkansas.

Lamkin, Corbet J. January 1994. "An Analysis of the Southern Regional Cotton Marketing Research Project Committee's Recommendations on the Cotton Industry in the Red River Valley of Arkansas," Proceedings 1994 Beltwide Cotton Conferences, Cotton Economics and Marketing Conference, Volume 1:483-486.

Lamkin, Corbet J. January 1995. "An Analysis of the Southern Regional Cotton Marketing Research Project Committee's Recommendations on the Cotton Industry in the Missouri Bootheel," Proceedings 1995 Beltwide Cotton Conferences, Cotton Economics and Marketing Conference, Volumn 1:362-365.

Lamkin, Corbet J. January 1996. "An Analysis of the Southern Regional Cotton Marketing Research Project Committee's Recommendations on the Cotton Industry in the Southwest Tennessee," Proceedings 1996 Beltwide Cotton Conferences, Cotton Economics and Marketing Conference, Volume 1:460-466.

Lamkin, Corbet J., Timothy H. Fondren, and Earl A. Stennis. 1982. Optimum Cotton Marketing Structure for the Southern United States, Southern Cooperative Series, Bulletin 277. Southern Regional Agricultural Experiment Stations, C/O Mississippi Agricultural and Forestry Experiment Station. Mississippi State University.

Lamkin, Corbet J., Timothy H. Fondren, and Earl A. Stennis. 1981. "Optimum Organization of Gins and Warehouses in the Mississippi Delta Area of Mississippi," Mississippi Agricultural and Forestry Experiment Station, Agricultural Economics Department, Mississippi State University, Starkville, Mississippi.

Moore, John C., Jr. and Richard H. Courtney, Least-Cost Organization of Cotton Ginning Facilities in the San Joaquin Valley, California, Giannini Foundation Research Report No. 319, Division of Agricultural Sciences, University of California, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics.

Rodriguiz, J. E. M. May 1980. "Spatial Costs of an Integrated Broiler Firm as a Function of Plant Size, Location and Grower Density: A Case Study," unpublished Ph.D. Dissertation, Mississippi State University, Mississippi State.

Shaw, Dale L., O. A. Cleveland, Jr., and Joseph L. Ghetti. August 1977. Economic Models for Cotton Ginning, Commodity Economics Division ERS-USDA and College of Agricultural Sciences, Texas Tech University, Publication No. T-1-158, Lubbock, Texas.

Sperry-Univac Corporation, Functional Mathematical Programming System (FMPS), "User Manual."

Stennis, Earl A., "Air-line Distances Between Points in the United States," Spatial Equilibrium class notes, Mississippi State University.

Stennis, Earl A. June 1970. "Production Processing, and Consumption of Fluid Milk in the South, 1965 and 1975," unpublished Ph.D. Dissertation, Mississippi State University, Mississippi State.

Stennis, Earl A. and Verner G. Hurt. September 1974. "A Negative-Cost Approach to the Formulation of Transshipment Problems," AEC M.R. No. 64, Mississippi Agricultural and Forestry Experiment Station Mississippi State, Mississippi.

Stollsteimer, J. F. August 1963. "A Working Model for Plant Numbers and Locations," J. Farm Econ., 45;631-635.

Toft, H. I., P. A. Cassidy, and W. O. MacCarty, "Sensitivity Testing and the Plant Location Problem," Am. J. Agr. Econ. 52:403-410.

Tramel, Thomas E. and A. D. Seale, Jr. January 11, 1963. "Estimation of Transfer Functions," Interregional Competition Research Methods, edited by Richard A. King, paper presented at Interregional Competition workshop held at Raleigh, North Carolina.

United States Department of Commerce. May 1978. Survey of Current Business, Bureau of Economic Analysis, U.S. Government Printing Office, Washington, D.C.

United States Department of Commerce. March 1980. Survey of Current Business, Bureau of Economic Analysis, U.S. Government Printing Office, Washington, D.C.

Table 1. Northwest Mississippi: Potential Gin Locations Used in Computer Model, by County and Town, 1981.

County	Town
Coahoma	Lula
	Coahoma
	Friars Point
	Jonestown
	Clarksdale
	Sherard
	Farrell
DeSoto	Miller
	Walls
Panola	Como
	Batesville
	Courtland
Tate	Coldwater
	Senatobia
Tunica	Robinsonville
	Tunica
	Dundee

Table 2. Northwest Mississippi: Gin Locations Chosen by Computer Model, No Opportunity Cost Solution, by County and Town, 1981.

County	Town
DeSoto	Walls 14 week
Coahoma	Sherard 32 week
	Farrell 32 week
Panola	Courtland 32 week
Tate	Coldwater 32 week
	Senatobia 32 week
Quitman	Darling 32 week

Table 3. Northwest Mississippi: Gin Locations Chosen by Computer Model,Opportunity Cost Solution, by County and Town, 1981.

County	Town
DeSoto	Walls 14 week
Coahoma	Farrell 32 week
Quitman	Sledge 32 week
Panola	Batesville 32 week
	Courtland 32 week
Tate	Senatobia 32 week

Table 4. Northwest Mississippi: Actual Gin Locations by County and the Number in each county, 1981.

County	Number of Gins
Coahoma	24
DeSoto	3
Panola	12
Quitman	10
Tate	6
Tunica	10
TOTAL =	65

Source: Cotton Ginnings in the United States.

Table 5. Northwest Mississippi: Actual Gin Locations by County and the number in each county 1991.

County	Number of Gins
Coahoma	13
DeSoto	3
Panola	6
Quitman	8
Tate	4
Tunica	9
TOTAL =	43

Table 6. Northwest Mississippi: Actual Gin Locations by County and the number in each county 1995

County	Number of Gins
Coahoma	9
DeSoto	0
Panola	1
Quitman	5
Tate	4
Tunica	5
TOTAL =	24

Table 7. Northwest Mississippi: Potential Warehouse Locations Used by Computer Model, by County and Town, 1981.

County	Town
Coahoma	Clarksdale
Panola	Batesville
	Como
Quitman	Sledge
	Marks
Tunica	Tunica
Total = 6	

Table 8. Northwest Mississippi: Warehouse Locations Chosen by Computer Model, No Opportunity Cost Solution, by County and Town, 1981.

County	Town
Coahoma	Clarksdale
Panola	Batesville
Quitman	Sledge
Tunica	Tunica
Total =	4

Table 9. Northwest Mississippi: Warehouse Locations Chosen by Computer Model, Opportunity Cost Solution, by County and Town, 1981.

County	Town
Panola	Batesville
Quitman	Sledge
Coahoma	Clarksdale
Tunica	Tunica
Total =	4

Table 10. Northwest Mississippi: Actual Warehouse Locations, by County and Town, 1995.

County	Town
Coahoma	Clarksdale (3)
Panola	Batesville (1)
Total =	4

Table 11. Bales of Cotton Produced in the Six Counties of Northwest Mississippi 1976-1995.

Crop Year	Number of Bales Produced Per County					
Year	Coahoma	DeSoto	Panola	Quitman	Tate	Tunica
1976	77,000	19,800	28,500	38,000	12,300	36,800
1977	145,000	21,600	43,500	68,000	14,700	51,000
1978	119,500	20,700	35,300	58,000	13,700	41,500
1979	105,700	12,200	39,000	48,600	10,800	34,200
1980	81,500	15,300	36,000	36,700	13,800	34,300
1981	126,000	20,600	55,600	54,500	19,000	45,400
1982	114,400	21,300	58,000	55,400	17,500	51,000
1983	69,800	9,800	28,800	28,600	9,500	26,000
1984	107,000	12,800	46,500	40,000	13,500	38,000
1985	116,500	16,554	49,594	50,940	17,345	44,850
1986	77,900	14,900	36,600	33,500	12,700	34,100
1987	140,880	23,730	51,040	54,540	20,410	60,840
1988	146,900	23,190	52,740	48,800	20,000	62,330
1989	123,800	18,860	43,300	49,800	14,760	52,900
1990	131,300	22,300	49,500	46,300	18,000	62,200
1991	188,500	31,500	52,400	55,000	20,700	77,500
1992	177,000	27,700	66,000	69,700	21,500	84,500
1993	133,500	17,800	42,000	46,200	14,800	47,800
1994	187,200	28,100	63,100	56,800	20,600	70,800
1995	136,000	25,800	57,800	51,300	12,500	75,000

Source: National Agricultural Statistic Service; United States Department of Agriculture.