

**BIENNIUM REPORT ON THE
COTTON ECONOMICS RESEARCH
LINE-ITEM, 1995/96 - 1996/97**

CER-97-16

**Department of Agricultural and Applied Economics
College of Agricultural Sciences and Natural Resources
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**BIENNIUM REPORT ON THE COTTON ECONOMICS RESEARCH
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Funding for the Cotton Economics Research line-item from the Texas Legislature became effective on September 1, 1995. During the first year, the College of Agricultural Sciences and Natural Resources and the Department of Agricultural and Applied Economics established research priorities and implemented six research projects with the resources. An annual report of the first year's activities and accomplishments was produced in September, 1996 (Report No. CER-96-1). This report summarizes the activities and progress made during the two years of the biennium. Some of the specific research projects are continued from 1995/96, but some are new and the new projects for 1997/98 and beyond are discussed.

Six two-year projects were initiated with the funding in 1995/96 (\$133,500 for each year of the biennium), one project for each of six faculty principal investigators. Proposals were submitted by the faculty, reviewed by Drs. Robert Albin, Sujit Roy, and Don Ethridge, and approved for funding. The project titles, principal investigators, and funding amounts were as follows:

Dr. Emmett Elam; Selecting Cotton Varieties Based on Lint Revenue and Seed Revenue, and the Impact on Producer Net Return and Variance; \$10,000/year M.S. student Assistantship + \$2,000/year operating funds + 6 weeks summer salary; 2-year project.

Dr. Terry Ervin; Economic Analysis of Using Crustacea Byproducts for the Coverage of Neps in the Dyeing of Cotton; \$10,000/year M.S. student Assistantship + \$2,000/year operating funds + 6 weeks of summer salary; 2-year project.

Dr. Don Ethridge; Market Valuation of Cotton Quality by Textile Mills;

\$7,000/year partial Ph.D. student Assistantship + \$2,000/year operating funds + 25% salary during the academic year and 6 weeks summer salary; 2-year project.

Dr. Phillip Johnson; Standardized Performance Analysis for Cotton Production; \$10,000/year M.S. Assistantship + \$2,000/year operating funds; 2-year project.

Dr. Sukant Misra; An Analysis of the Impacts of Changes in Supply and Demand of Cotton on the Cotton Agribusiness Sector of Texas and the U.S.; \$15,000/year Ph.D. assistantship + \$2,000/year operating expenses + 6 weeks of summer salary; 2 year project.

Dr. Eduardo Segarra and Dr. Wayne Keeling; Economic and Risk Assessment of Cotton Farming Systems for the Texas High Plains; \$10,000/year M.S. assistantship + \$2,000/year operating funds; 2 year project.

Of the \$268,800 funding for the biennium, \$140,000 (52%) was allocated for student assistantships, \$91,523 (34%) for faculty salaries, and \$37,280 (14%) for maintenance and operation (supplies, travel, equipment, etc.). Additional externally funded projects are also being conducted. Each of the projects, both line-item and externally funded, is further explained in the attached progress reports (Appendix A).

An advisory committee has been established, with members representing a composite of industry and academic/research perspectives. The advisory committee members in 1996/97 were:

Dr. John Abernathy, Director, Texas A&M Research and Extension Center, Lubbock, Texas (through 1996/97),

Dr. Carl Anderson, Extension Economist-Cotton Marketing, Texas A&M University, College Station, Texas (through 1998/99).

Mr. Roy Baker, Research Leader, Cotton Production and Processing Research Unit, Agricultural Research Service, USDA, Lubbock, Texas (through 1998/99).

Mr. Tommy Fondren, cotton farmer and agribusinessman, Lorenzo, Texas

(through 1998/99).

Mr. George Herron, Vice-President of Cotton Procurement, Dan River Mills, Danville, Virginia (through 1997/98).

Mr. Bob Poteet, Executive Vice-President, Texas Cotton Association, Dallas, Texas (through 1996/97).

At the first advisory committee meeting on September 10, 1996, the committee reviewed the activities in cotton economics research, gave input and recommendations for future directions and actions. Among the recommendations was that the Department develop a “newsletter” to keep the public informed about research and other activities. The first issue of the newsletter, “Cotton Economics Research Update,” was distributed in January 1997, and the second issue was distributed in July 1997. The newsletter is mailed to cotton industry people, elected officials, and researchers. Copies of the newsletter are provided in Appendix E.

The terms of John Abernathy and Bob Poteet expired in August, 1997. The new members on the advisory committee for 1997/98 through 2000/01 are:

Dr. James Supak, Associate Department Head and Extension Program Leader for Soil and Crop Sciences, Texas A&M University, and

Mr. Robert Joseph, President, International Cotton Marketing, Inc., Lubbock, Texas.

Progress on each of the projects funded by the line-item, plus other externally funded projects is reported in Appendix A. The line-item funding was instrumental in generating external funding, a summary of which is shown in Appendix B. The leverage ratio of 1.2:1 shows that \$1.20 in external funding was generated for each \$1.00 in state

line-item support. Other measures of output or productivity are publications and service to the cotton industry. A listing of publications is provided in Appendix C. Overall, the department published 9 professional journal articles, 24 proceedings papers from industry and professional meetings, 9 published abstracts from professional meetings, and 9 technical reports related to cotton economics research during the two year period. Faculty members in the department also engaged in a broad range of service activities for industry, government, and professional organizations that are directly related to cotton; these are summarized in Appendix D.

The Cotton Economics Research Line-Item has been funded at \$133,478 per year over the 1997/98-1998/99 biennium. A Request for Proposals for line-item funding for the biennium were sought in the Spring, 1997, evaluated by the Advisory Committee members, and final decisions regarding funding were made by Interim Dean Robert Albin, Interim Associate Dean Reed Richardson, and Don Ethridge. Five proposed projects were approved for funding:

Emmett Elam; Demand for and Marketing of Cotton Gin Trash as a Feedlot Ration Ingredient in the Texas High Plains; \$10,000/year M.S. student Assistantship + \$2,000/year operating funds + 6 weeks summer salary; 2-year project.

Don Ethridge; Market Valuation of Cotton Quality by Textile Mills (continuation project); \$7,000/year partial Ph.D. student Assistantship + \$2,000/year operating funds + 25% academic year and 6 weeks summer salary; 2-year project.

Phillip Johnson; Standardized Performance Analysis for Cotton Production (continuation project); \$10,000/year M.S. student Assistantship + \$2,000/year operating funds; 2-year project.

Sukant Misra; An Analysis of the Impacts of Changes in Supply and Demand of Cotton on the Cotton Agribusiness Sector of Texas and the U.S. (continuation project); \$15,000/year Ph.D. student Assistantship + \$2,000/year operating funds + 6 weeks summer salary; 1-year project.

Eduardo Segarra (with Wayne Keeling and Art Onken, TAES); The Economics of Precision Farming in Cotton Production; \$10,000 first year, \$15,000 second year Ph.D. student Assistantship + \$2,000/year operating funds; 2-year project.

The Department of Agricultural and Applied Economics has a vacant faculty position.

The Department and the College plan to provide a new faculty member with enough funding from the yet uncommitted funds for the new faculty member to initiate research in the cotton economics area.

APPENDIX A

PROGRESS REPORTS OF COTTON ECONOMICS

RESEARCH PROJECTS, 1995/96 - 1996/97

RESEARCH PROJECT PROGRESS REPORT

Title: Assessment of the Economic Impact of the Boll Weevil in the Texas High Plains

Principal Investigators: Task Force composed of TAES, TAEX, and TTU personnel and private crop consultants. Don Ethridge and Eduardo Segarra, TTU representatives.

Source and Amount of Funding: Texas A&M University and Texas Tech University; no external funding was provided.

Time Period: Nov. 15, 1996 - Jan. 15, 1997.

Objectives: To estimate the economic impacts of the establishment of the boll weevil in the Texas High Plains on the High Plains economy ten years in the future.

Description of Project and Significance: The boll weevil invaded Texas from Mexico in 1892, but has not been an economic problem in the Texas High Plains, primarily because of winters cold enough to destroy overwintering populations and the existence of a diapause control program since the early 1960s. However, a series of mild winters, increased availability of overwintering habitat, and adaptation of weevils to colder weather have allowed boll weevils, perhaps the most costly insect pest in cotton production, to become established on the Texas High Plains.

Texas A&M University (TAMU) and Texas Tech University (TTU) were requested by cotton industry leaders to conduct the analysis. A task force of 18 economists, entomologists, and crop consultants was formed to conduct the research. Procedures to achieve the objectives were developed, the group convened and individuals provided input based on specialized expertise, and estimates of impacts were made.

Accomplishments to Date: The study was completed and a report was disseminated to all interested parties. The analysis found that the region would likely lose almost 600,000 acres and 800,000 bales of cotton per year. The region will lose \$500 million per year in gross business sales; net farm income will decline by about \$140 million per year. The central portion of the region will incur the largest economic losses, followed by the southern portion of the region. This study is being used in other regions as a model of how to conduct this type of analysis.

The study may have increased the knowledge among the agricultural and non-agricultural groups within the region and the state about the potential severity of the problem. The task force noted that the boll weevil establishment is an extremely serious economic problem to the region, but took no position on what should be done, believing that

determination belongs with the political leadership in the region and the cotton industry.

Funding Generated: The costs of the project were carried by TAMU and TTU as a service to the industry and the region; no external funding has been generated.

Future Plans: There are no plans for further analysis at this time; if the industry and the region require further assistance, we will attempt to provide it.

Public Dissemination of Results: A report of findings from the study was published and distributed widely within industry and state and regional government circles. Presentations to industry groups have been made by many individuals on the task force and the findings of the study have been widely discussed across the region in the debates over weevil control programs.

RESEARCH PROJECT PROGRESS REPORT

Title: Cost Tradeoffs of Stripper-Mounted Bur Extractors

Principal Investigators: Sukant Misra and Alan Brashears (USDA-ARS)
Research Assistant: Blake Bennett and Jeannie Nelson

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; \$20,600.

Time Period: Jan. 1996 - Dec. 1997.

Objectives: To study the costs and benefits of investing in field cleaners for stripper harvesting from growers' and ginners' perspective.

Description of Project and Significance: Bur extractors are now commercially available to cotton producers for use on stripper harvesters to remove extraneous material at the time of harvest. Research indicates that field cleaners have the potential to improve lint turnout and generate savings for producers in ginning charges. However, producers' saving may come at the expense of ginners. If ginners have to absorb a loss, it may greatly affect their profitability. However, ginners may also experience savings in transportation costs and operating costs of gins. Overall estimates for cost and benefits of field cleaners are currently unavailable. This research is designed to study the costs and benefits of investing in field cleaners for stripper harvesting from growers' and ginners' perspective. It will help the producers in making an informed decision about investing in field cleaners and will help ginners in making an informed decisions about ginning price structure.

Accomplishments to Date: Results indicate that the bur extractor has a significant effect in reducing bur percent, stick percent, and in increasing seed cotton percent and lint turnout, while it showed no statistically significant effect on any of the quality attributes. Results also suggest that investment in bur extractors is profitable for both irrigated and dryland cotton production situations with an operation of at least 750 acres. Producers using bur extractors were found to save between \$4.52 and \$6.63 in ginning charges per bale of cotton lint. To investigate the Cost/Benefit Analysis of Burr Extractors in Cotton Ginning, we have now completed the survey work to collect primary data from several gins in the Southern High Plains of Texas.

Funding Generated: Texas Cotton Ginners Association; \$ 5,000.

Future Plans: Immediate future work in the project will focus on tabulation and analysis of survey data to estimate the costs due to reduction in ginning charges due to producer

adoption of field cleaners. Cost savings due to the effect of field cleaner on module hauling cost, ginning rate, drying efficiency, cleaning efficiency, trash disposal cost, and wear and tear on ginning equipment will be estimated and the net benefit/loss of investing in field cleaner to a cotton gin will be calculated.

Public Dissemination of Results: One professional journal article and one presentation at the Beltwide Cotton Conferences and one presentation at the Gin School (USDA and CI).

RESEARCH PROJECT PROGRESS REPORT

Title: Daily Price Analysis and Reporting for the Texas-Oklahoma Cotton Market

Principal Investigator: Don Ethridge

Cooperators: Plains Cotton Coop. Assn., The Network (now DTN - Cotnet),
Satellite

Cotton Exchange (now Intelligent Cotton Market).

Research Assistant: Darren Hudson, Kevin Hoelscher, and Hope Floeck.

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; \$62,800.

Time Period: 1996 and 1997.

Objectives: To develop, validate, and operate an objective system for estimating cotton prices and quality attribute premiums and discounts in the Texas-Oklahoma markets and disseminate that information to market participants.

Description of Project and Significance: The Daily Price Estimation System (DPES) has been developed, tested, and reported. Daily estimates of prices and premiums/discounts are generated for each day that has sufficient spot market activity to make reliable estimates. Daily, weekly, and annual reports are produced and released to the market. Several major papers documenting the system and presenting the procedures that have been developed to insure its continued accuracy have been published in professional journals, and numerous industry-oriented publications and presentations have been produced. The DPES offers the only obvious vehicle for improving the producer spot price analysis and reporting system for cotton in the U.S. at this time.

Accomplishments to Date: The research has demonstrated that price estimation and reporting can be done in such a way as to be scientifically verifiable, based on a large daily volume of actual producer spot market transactions, and very timely. It has also shown that USDA's Daily Spot Cotton Quotations (DSCQ) contain errors that are large in some instances, and that the errors are systematic; producers are receiving larger quality premiums and smaller quality discounts from the market than the DSCQ indicate, at least in the Texas-Oklahoma markets. The research further shows that this persistent pattern has resulted in a loan schedule that is causing marketing system pricing inefficiencies.

Funding Generated: This work was initially funded by USDA, then was picked up by CI/TSSC. No other direct funding has been generated from this research, but it was instrumental in securing funding from the Committee for Cotton Research Inc. (\$268,700)

for analysis of prices paid for quality attributes by U.S. textile mills and has the prospect of facilitating funding to establish a national DPES.

Future Plans: We want to continue this work for as long as funding can be secured to support it. We would like to achieve larger distribution of the results and expand the system to the other three major production regions of the U.S.

Public Dissemination of Results: During the two years covered by this report, there have been three professional journal articles from the research, four technical reports, five Beltwide Cotton Conferences papers, one magazine article, one Engineered Fiber Selection System presentation, three presentations at professional meetings, and three presentations at other industry meetings. All daily, weekly, and annual results are provided to the Texas Agricultural Extension Service as well as to individuals in the cotton industry.

RESEARCH PROJECT PROGRESS REPORT

Title: Economic Analysis of Various Processes Used for the Coverage of Neps in the Dyeing of Cotton

Principal Investigators: R. Terry Ervin and R.D. Mehta (International Textile Center - Retired)

Research Assistant: Steve G. Teal

Source and Amount of Funding: Cotton Economics Research Line-Item; \$40,000.

Time Period: Sept. 1995 - Aug. 1997.

Objectives: To conduct an economic assessment of the statewide use of various treatments for the coverage of neps in cotton yarns and fabrics.

Description of Project and Significance: An economic assessment was conducted for the use of chitosan pretreatments and aftertreatments, submercerization treatments, and cellulase enzyme treatments on cotton yarns and fabrics. Issues such as decreased rejection of fabric at the mill, and reduction in the amount of dye which must be used were considered. The specific objective was to determine whether it was cost effective for textile processors to adopt any of these treatments as a standard practice. A comparison of those treatments shown to be cost effective was conducted to determine the most appropriate process for a specific scenario.

Accomplishments to Date: The results of this project are at the review stage of the final draft writeup. A benefit cost analysis was conducted on each process to determine whether it would be cost effective for the representative textile mill to adopt these process. Benefits considered include decreased use of dye and decreased rejection of fabric due to the presence of neps. Costs considered in this research included the cost of each product (i.e., chitosan, sodium hydroxide, and enzymes), the cost of additional chemicals used in the process, and increased costs of labor, variable overhead, and fixed overhead. Using benefit and cost values from the representative mill, it was determined that each of the pretreatments were not cost effective while both aftertreatments were cost effective. A thesis entitled "Economic Analysis of Cotton Textile Finishing Processes" is nearing the stage of defending by the Graduate Research Assistant, Mr. Steve G. Teal.

Funding Generated: None.

Public Dissemination of Results: A presentation of some results was made at the 1997 Beltwide Cotton Conferences; two additional presentations are planned at the 1998 Beltwide Conferences.

RESEARCH PROJECT PROGRESS REPORT

Project Title: Economics and Risk Assessment of Cotton Farming Systems

Principal Investigators: Eduardo Segarra and J. Wayne Keeling (Tex. Agr. Exp. Sta.)
Research Assistants: Marty Middleton, Jason L. Johnson, and Man Yu.

Source and Amount of Funding: Cotton Economics Line Item; \$24,000.

Time Period: Sept. 1995 - Aug. 1997.

Objectives: To evaluate the profitability and risk characteristics associated with the most economically promising irrigated and dryland cotton farming systems developed at AG-CARES.

Description of Project and Significance: The majority of the irrigated and dryland cotton production in the Texas High Plains (between 2.6 and 3.3 million acres per year) takes place under a cotton monoculture type production system which typically involves 12 to 15 mechanical operations on fields prior to harvest. These practices are not only economically detrimental, but leave the soil vulnerable to wind and water erosion. Long-term farming systems research conducted on the AG-CARES facility in Lamesa, Texas, has shown significant increases in cotton lint yields and profitability with conservation tillage systems.

Accomplishments to Date: The first year of the project was focussed on analyzing the profitability and risk characteristics of *dryland* cotton farming systems. In the second year of this project the evaluation of the profitability and risk characteristics of *irrigated* cotton farming systems was conducted.

The research results show that conventional-tillage farming systems in cotton are less profitable than several alternative systems (reduced-till, no-till, sorghum-cotton rotation, wheat-cotton rotation). On dryland cotton, all of these conservation systems showed higher average net revenues and less variation in revenue than conventional till. The research on irrigated cotton production systems indicates that conventional till is likewise less profitable; the most profitable conservation till system varies with availability of irrigation water.

Funding Generated: Eduardo Segarra serves as a co-principal investigator on an ongoing project related to this one for which funding through the Texas Agricultural Experiment Station. January 1996 - August 1997; \$34,500.

Public Dissemination of Results: In addition to the two professional journal articles and three presentations at professional meetings, results have been presented to the industry through six presentations at the Beltwide Cotton Conferences and other industry meetings.

RESEARCH PROJECT PROGRESS REPORT

Title: Effects of Cotton Price Policies in India and Pakistan on Domestic Cotton and Textile Industries and on Trade in Cotton and Yarn.

Principal Investigator: Don Ethridge

Cooperators: International Cotton Advisory Committee; Dr. Sukant Misra
Research Associate: Dr. Darren Hudson

Source and Amount of Funding: USDA National Research Initiative Program; \$115,000.

Time Period: Aug. 1995-July 1998 (extended for one year).

Objectives: To estimate the effects of cotton policy structures in India and Pakistan on (1) production, consumption, and trade in cotton and textiles in those countries, (2) global trade of cotton and textiles, (3) societal welfare in those countries, and (4) economic growth in those countries.

Description of Project and Significance: This research involves econometric modeling of the cotton, textile, and trade sectors of India and Pakistan for the purpose of analyzing the effects of a set of cotton policies on those countries and on major trading partners. This research, while focused on other countries, has important policy implications for the U.S. industry, which is why USDA supports it. It also has implications for sectoral policies in other countries, which is why the World Bank and ICAC are interested. The research also represents a potentially important approach to analyzing programs designed to penalize one industry segment to subsidize another, and the side-effects of pursuing those types of policies.

Accomplishments to Date: The analysis on Pakistan has been completed. The export taxes on cotton fiber pursued by Pakistan until 1995 kept internal prices low in order to subsidize the Pakistani yarn industry. The policy served to expand yarn production and exports, but relatively little benefit accrued to the Pakistan economy. That is, importers of Pakistani yarns captured most of the benefits through lower prices and the yarn mills failed to re-invest in the industry. The overall effect of the policy was that it cost Pakistan about 2% of its Gross Domestic Product. A Ph.D. dissertation was completed on the work.

The analysis of India, which has similar policies, is still ongoing; the major problem has been collection of all of the data needed for model estimation. Work is underway to obtain the data with the assistance of Sukant Misra. The one-year extension on the project should provide the means to complete a similar analysis on India; whether the

results for India will be similar to those of Pakistan is unknown.

Funding Generated: The research has generated no further funding at this time.

Future Plans: The plan for the next year is to complete the study on India. Further extensions are uncertain, except that we would like to continue econometric policy modeling research.

Public Dissemination of Results: A report of findings for Pakistan has been provided to USDA and two journal papers have been submitted. A presentation on India and Pakistan was made at the 1997 Beltwide Cotton Conferences and a presentation on the Pakistan study will be presented at the Beltwide Cotton Conferences in 1998.

RESEARCH PROJECT PROGRESS REPORT

Title: Ethiopian Cotton Textile Sector Study

Principal Investigator: Don Ethridge, Dean Ethridge (International Textile Center), and Kary Mathis (International Center for Arid and Semi-Arid Land Studies)

Source and Amount of Funding: U.S. Agency for International Development, through Chemonics International; \$191,350 total, \$47,840 to AAEC Dept.

Time Period: Feb.-July, 1996.

Objectives: To evaluate the structure and performance of the cotton and textile sectors of Ethiopia and advise the Government of Ethiopia and the U.S. State Department on changes to make the sectors more efficient and viable in a global market.

Description of Project and Significance: We worked with Chemonics in developing the project proposal and the sub-contracted with Chemonics for the project. A team of nine people spent time in Ethiopia during the study. The analysis has been completed and a report submitted to U.S.A.I.D. and the Ethiopian Government. A.I.D. appears to be pleased with the work, but the Ethiopian Government was not satisfied. The significance of this project from Texas Tech's perspective is that it gave us a presence in a major international cotton project for the first time, establishing credentials to do development projects in cotton in the international arena. From a Texas and U.S. industry perspective, it improves our understanding and analytical capabilities of the global cotton markets.

Accomplishments to Date: The major recommendations from the study were that the Ethiopian Government should privatize both the cotton and textile sectors and that the government should concentrate its resources on providing the infrastructure (power, transportation, information, etc.) that would allow industry to conduct business and commerce effectively and efficiently. It appears that the government does not wish to relinquish ownership and control of those enterprises, which are presently too inefficient to survive in a global environment.

From our perspective, we view the project as successful. The reasons are that (1) we successfully completed the project on time, with a clear set of recommendations and prescriptions and (2) the recommendations and prescriptions given (unanimous on the part of the team), while requiring some difficult political actions, constitute the only way for the country to retain those sectors (other than continue to provide massive subsidies to those economic units, which the government clearly cannot continue indefinitely).

Funding Generated: This project has generated no additional funding, although we have been offered several additional projects since completing this project. The administrative philosophy of the University makes projects of this type difficult to conduct.

Future Plans: While we hope to continue involvement in this type of foreign activity, we cannot free the human resources to engage in too many of these projects. We have no specific plans for extending this project, but there will be other opportunities for foreign study in the future.

Public Dissemination of Results: A presentation/paper to describe the structure and operation of the Ethiopian cotton sector was to be presented at the 1997 Beltwide Cotton Conferences. However, U.S.A.I.D. did not approve the presentation.

RESEARCH PROJECT PROGRESS REPORT

Title: Gin Lint Cleaning to Maximize Producer Net Returns

Principal Investigators: Sukant Misra

Cooperators: Gary Barker (ARS/USDA)

Research Assistant: Blake Bennett

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; \$8,000.

Time Period: 1994-1996.

Objective: To determine the optimum number of lint cleanings in the gin plant which maximizes producer profit.

Description of Project and Significance: A persisting question with cotton cleaning is that of determining the optimum number of lint cleanings in the gin plant which maximizes producer profit. Previous research on machine-stripped cotton had found two lint cleanings to be maximizing producer net returns and existing practice also calls for two lint cleanings in the gin plant. This research investigated the question of lint cleaning for a limited number of cultivars and management practices from the 1995 crop, and prescribed one lint cleaning in the gin plant as the optimum from producers' perspective.

Accomplishments to Date: This study found net returns to be consistently higher for one lint cleaning in the gin plant for six varieties of stripper-harvested, non-field cleaned, irrigated cotton. Under these conditions one lint cleaning can increase producers' net revenue by an average of \$4.54/bale, thus prescribing one lint cleaning as the optimum from producers' perspective. A change in pricing structure with the inception of the HVI measurements was primarily responsible for redefining the optimal level of lint cleaning at the gin plant.

Funding Generated: None

Future Plans: We intend to modify the analysis to determine whether one lint cleaning is optimum for a broader spectrum of cotton varieties and management practices.

Public Dissemination of Results: In addition to a professional article, findings have been provided to the industry through a presentation at the EFS Conference, a Plains Cotton Growers meeting, and in *The Cotton Gin and Oil Mill Press*.

RESEARCH PROJECT PROGRESS REPORT

Title: Inter-Sectoral Relationships in the Cotton Industry

Principal Investigators: Sukant K. Misra
Research Assistant: Blake Bennett

Source and Amount of Funding: Cotton Economics Line Item: \$45,150.

Time Period: Sept. 1995 - Aug. 1997.

Objectives: To determine the economic interrelationships between the production and agribusiness sectors of the Texas cotton industry and to measure the economic effects of changes in the production sector on the agribusiness sectors.

Description of Project and Significance: Along with the obvious interdependence among the cotton production, ginning, merchandizing, and textile mill sectors, the cotton industry brings together many other agribusinesses such as input, cottonseed oil, and warehousing sectors. Some empirical tools are available to evaluate the impact of market changes on the production sector; however, no tools are available to assess the economic interdependence of the production and the agribusiness sectors of the cotton industry. This project should provide not only a better understanding of how these sectors are interdependent on each other, but also provide a tool to measure the economic effects of changes in one sector on others. Such an economic tool should be beneficial for both the cotton industry and policy makers in maintaining the competitive position of U.S. cotton in the domestic market and abroad.

Accomplishments to Date: Blake Bennett, a graduate student of the department, is working on this project in connection with his doctoral thesis. Given the complexity of the research project, Blake has spent a considerable amount of time reviewing literature and analyzing the structure of the cotton industry in terms of the physical flow of cotton, the price structure, and the interdependence of the production and the agribusiness sectors.

Theoretical conceptualization and model development of the economic interrelationships among the input, production, ginning, cottonseed oil mill, warehousing, merchandizing, and textile mill sectors has been completed. We are currently in the process of completing collection of data to model the inter-sectoral relationships in the cotton industry.

Funding Generated: None

Future Plans: The dissertation should be complete by August 1998. We want to continue this work for as long as funding can be secured to support it. We would like to expand this analysis to the other major production regions of the U.S. and to the national level. It is anticipated that this research will provide the foundation for a research “program” that could take several years of refinement.

Public Dissemination of Results: None

RESEARCH PROJECT PROGRESS REPORT

Title: Optimum Organization of Cotton Ginning Industry in Texas

Principal Investigator: Sukant K. Misra

Cooperators: Roy Baker (USDA-ARS) and Don Ethridge

Research Assistant: Brent McPeek

Source and Amount of Funding: Cotton Economics Line Item, USDA, State Support Committee, and Department Funds: \$20,000.

Time Period: Jan. 1996 - May 1997.

Objectives: To determine the optimal (least cost) number, size, and spacing of gin plants in Texas by allowing for excess capacity that is inherent to the market structure of the ginning industry.

Description of Project and Significance: The number of active gins in Texas declined 44% between 1980 and 1993, while average volume per gin increased 174% . These changes reflect rapid technological changes in harvesting, seed cotton storage and handling, gin feeding, ginning, and bale packaging and handling systems in the industry. The changing structure of the ginning industry has affected costs and efficiency of ginning. Some gins are currently operating at annual volumes too small to cover costs while others continue to adopt new capacity-expanding technologies. The number of gins in Texas is likely to continue to decrease while remaining gins continue to get larger. To make this transition economical, this study proposed to determine the optimal number, size, and spatial distribution of gin plants in Texas. This research would determine the least cost transition to the optimal gin structure and provide information to process the Texas crop effectively and at a minimum cost. The major difference of this study from previous studies is that it recognizes the existence of excess capacity that is inherent to the structure of the ginning industry.

Accomplishments to Date: A Masters thesis was completed by Brent McPeek in May 1997. Brent's thesis addressed all the objectives of the project, but was limited to the Southern High Plains of Texas.

The current annual total cost of ginning and transportation in the Southern High Plains of Texas was estimated at \$104 million. The ginning industry was found to be operating with an excess capacity of 1.04 million bales per season, which translates to about 34% excess capacity. The optimal solution consisted of 61 gins versus 127 in the existing structure. The annual total cost of ginning and transportation for the optimal structure

was estimated at \$90.19 million. These results indicated that a cost savings of about \$15 million per year could be realized if the Texas Southern High Plains cotton ginning industry was optimally organized.

Funding Generated: None

Future Plans: We plan to expand this work to the entire state of Texas. However, continuation of this research project will depend on availability of some external financial support.

Public Dissemination of Results: One presentation at a professional meeting.

RESEARCH PROJECT PROGRESS REPORT

Title: Prices Paid for Cotton Quality Attributes by U.S. Textile Mills

Principal Investigator: Don Ethridge

Cooperators: Ten textile manufacturing firms and two regional marketing cooperatives.

Research Assistants: Rabih Karky, Hope Floeck, Jane Bondurant, and Darren Hudson.

Time Period: Sept. 1995 - Aug. 1997.

Source and Amount of Funding: Cotton Economics Research Line-item; \$32,800/year.

Objectives: To measure the premiums and discounts paid for cotton quality attributes (color, leaf, staple, micronaire, and strength) by the U.S. textile industry for cotton from different production regions.

Description of Project and Significance: An econometric structure has been developed, cooperators are providing bona fide market transactions data (representing over 40% of U.S. mill use of cotton), and results for the 1992-1994 U.S. crops have been generated and disseminated. Data have been periodically updated and new results are generated and analyzed. This is the only research to date that estimates the quality premiums and discounts paid by U.S. textile manufacturers for cotton attributes; as such, it is fundamental information for the entire cotton industry.

Accomplishments to Date: Results to date show what premiums and discounts U.S. textile manufacturers have been paying. They also show that there are differences in pricing structures for cotton from different production regions, and there are some major differences in regional markets. The differences have been especially pronounced for Western cotton and with respect to micronaire. Updates of the results appear to be showing that price differentials may be quite variable overtime, particularly with respect to some quality attributes. The variations appear to be driven by mill buying behavior in the absence of good market information.

This is the first time these quality and regional differentials have been systematically estimated. The findings are being integrated into CI's EFS system for use by both mills and producers (gins). If we can secure sufficient funding and people to run these estimates on a systematic basis, it can provide the industry with valuable and timely marketing information.

Funding Generated: Initial funding for the development work was from the Committee for Cotton Research Inc. Funding at a reduced level is currently from the Line-Item. No additional source(s) of funding has been generated.

Future Plans: To continue to operate and refine the system and expand the size of the data set used in the estimation. A research proposal to Cotton Incorporated is in progress.

Public Dissemination of Results: In addition to a professional journal article and two presentations at professional meetings, four presentations have been made to the industry.

RESEARCH PROJECT PROGRESS REPORT

Title: Standardized Performance Analysis For Cotton Production

Principal Investigators: Phillip N. Johnson and James McGrann (TAEX)

Cooperators: Jeffery Johnson (TTU Farm Operations), Jackie Smith (TAEX), and Carl Anderson (TAEX)

Research Assistant: April Clark

Student Assistants: Dee Dee Beaty and Kent Durham

Sources and Amounts of Funding: Cotton Economics Research Line-Item (\$24,000) and the Texas State Support Committee (\$42,200).

Time Period: Sept. 1995 - Aug. 1997.

Objectives: To develop Standardized Performance Analysis (SPA) procedures and software for integrated production, marketing, and financial analysis for farms engaged primarily in cotton production, devise performance measures, and provide for gathering a data base on Texas farms.

Description of Project and Significance: This research project is a cooperative effort of the Department of Agricultural and Applied Economics at Texas Tech University and the Department of Agricultural Economics, Texas Agricultural Extension Service of the Texas A&M University System. The purpose of this research is the development and field testing of Standardized Performance Analysis (SPA) software for crops and the implementation of a program to provide SPA to cotton producers in Texas. This program will assist cotton producers in evaluating their farming operations with regard to production, marketing, and financial measures, focusing on cost of production. It will provide an on-farm analytical tool for improved management and decision information. The information gathered through this program will also help develop a data base of standardized production, marketing, and financial information that will assist producers and the cotton industry. The application of SPA to the cotton production sector will improve the quality of diagnostic information available to cotton producers to evaluate their performance within the cotton industry. Issues such as effective business management, competitiveness, and the selection of profitable production practices and technologies are all supported by information generated through implementation of SPA guidelines.

The implementation of SPA will provide cotton producers in Texas with an on-farm management tool that will provided better information, based on their farm, to be used in the decision making process. The SPA program helps producers identify major cost items

within their operations so attention can be directed to management of those costs. SPA will help cotton producers evaluate their costs and financial performance by comparing their results to other producers. The data base of standardized production and financial information resulting from SPA will help researchers and extension personnel identify characteristics of farming operations that will be useful for a wide range of applications, ranging from evaluations of financial viability, impacts of insect control measures, and assessment of alternative government program proposals on the Texas cotton industry.

Accomplishments to Date: The development of a management tool designed to assist cotton producers with farm financial and production analysis was initiated in 1996. A prototype crop SPA program (SPA-ME, Standardized Performance Analysis - Multiple Enterprise) was developed. The SPA-ME program includes measures for production, financial, and economic performance of a farm operation and is an integrated analysis that links both financial and production performance. SPA worksheets for cotton and grain crops were developed in assist in gathering crop production information. Additional documentation has been developed and is included in the Crop SPA Handbook.

Preliminary field testing of the SPA-ME program was initiated in the Texas High Plains Region. Analysis for the 1995 crop year have been completed for 15 participants with a total of 70 observations for irrigated and dryland cotton. Analysis for the 1996 crop year has been completed for 5 participants with a total of 30 observations for irrigated and dryland cotton.

Work has been started on the development of the format for the data base of production, marketing, and financial results. The construction of a data base of cost, income, marketing, and financial measures of performance will give farmers a means to compare their results with other farmers and give the cotton industry better information to evaluate policy issues.

Funding Generated: None.

Future Plans: A SPA workshop in cooperation with the Texas Agricultural Extension Service has been planned for March 1998 in Lubbock to provide hands on training to farmers in the completion of the SPA analysis for their operations. This workshop will initiate an effort to expand the participant base within the project. Work will continue on the development of a program to construct the data base of production, marketing, and financial results.

Public Dissemination of Results: Preliminary results have been presented at the Beltwide Cotton Conferences and the TAEX Master Marketing Program. The system has been described in the popular press by *Progressive Farmer* and *Commentator*, a publication by

Plains Cotton Cooperative Association. Knowledge of it is also being disseminated by TAEX.

RESEARCH PROJECT PROGRESS REPORT

Title: Texas Tech Cotton Variety Selection Model

Principal Investigator: Emmett Elam

Cooperators: Don Ethridge and John Gannaway (TAES)

Research Assistants: Jason Beddow

Sources and Amounts of Funding: Cotton Economics Research Line-item, \$38,750; Cotton Foundation and Southern Cotton Ginners, \$13,000.

Time Period: Sept. 1995 - Aug. 1997.

Objectives: To develop a computer model using lint and seed components to aid in cotton variety selection for the U.S. Cotton Belt.

Description of Project and Significance: Two products result from cotton production--cotton lint and cottonseed. Research has primarily focused on increasing lint yield and quality, perhaps because lint revenue accounts for 88% of total revenue from an acre of cotton. In practice, cotton producers select cotton varieties to grow based on lint yield/quality, which is a reasonable approach given the importance of lint revenue. However, to ignore the seed component entirely may not be the optimum strategy for maximizing return per acre. The seed component needs to be incorporated in evaluation of alternative cotton varieties.

Accomplishments to Date: A cotton variety selection model has been developed to include both seed and lint components. The model is programmed as a user-friendly application that works in the MS-Windows environment. A version of the program is under test by a group of users. The program can be used by producers, breeders, seed companies, etc. to evaluate the relative advantages and disadvantages of alternative varieties under different situations. The program evaluates varietal performance using the National Cotton Variety Test data set (USDA, ARS), which is a compilation of cotton performance test data from agricultural experiment stations. The program requires that the user enter information on location, years under analysis, varieties to analyze, and components of analysis (lint yield and price, and/or seed yield and price). The software develops lint prices based on lint quality characteristics. Using the input information, the program provides estimates of total revenue per acre and variability in total revenue (i.e., risk). The program is novel because it includes the seed component as part of total revenue. There is relatively little agronomic or economic research on the seed component, and this research will help fill this void.

Funding Generated: The Cotton Foundations and Southern Cotton Ginners, \$6,000 for 1996/97 and \$7,000 for 1997/98.

Future Plans: There is need to expand the data set used by the variety selection program. An Advanced Technological Program proposal has been submitted to collect data on cottonseed yield and quality for all cotton varieties grown in performance tests in Texas. These data along with lint component data (currently available) will provide a complete set of cotton performance data for Texas to be used in the variety selection program.

Public Dissemination of Results: Demonstrations of the software have been given at the Beltwide Cotton Conferences (a workshop and a Ginners' Conference), at the Lubbock Gin Show, and to the Ginning Technology Committee of the National Cotton Ginners Association. Stories about the system have appeared in the popular press (*Cotton Farming Management* and *Fiber Innovator*).

APPENDIX B

SUMMARY OF COTTON ECONOMICS RESEARCH FUNDING

External and Line-item Funding of Cotton Economics Research: Dept. of Agri. & Applied Econ.

Name/Funding Source	1995/96	1996/97	Cummulative
Emmett Elam			
Line-item	19,257	20,037	39,294
Cotton Found.	6,600	6,000	12,600
Total External	6,600	6,000	12,600
Leverage Ratio	0.3:1	0.3:1	0.3:1
Terry Ervin			
Line-item	19,611	20,469	40,080
Total External	0	0	0
Leverage Ratio	0.0:1	0.0:1	0.0:1
Don Ethridge			
Line-item	32,892	34,100	66,892
F&F Inst.	8,000	8,000	16,000
CI	32,000	30,800	62,800
USDA	38,333	38,333	76,666
Ethiopia Project ¹	47,838		47,838
Total External	126,171	77,133	203,304
Leverage Ratio	3.8:1	2.3:1	3.0:1
Phillip Johnson			
Line-item	12,000	12,000	24,000
CI	21,500	20,700	42,200
Total External	21,500	20,700	42,200
Leverage Ratio	1.8:1	1.7:1	1.8:1
Sukant Misra			
Line-item	21,198	23,451	45,149
USDA	6,000		6,000
CI	11,000	9600	20,600
Total External	17,000	9600	26,600
Leverage Ratio	0.8:1	0.4:1	0.6:1
Eduardo Segarra			
Line-item	12,000	12,000	24,000
REP, TAES	13,800	20,700	34,500
Total External	17,000	20,700	34,500
Leverage Ratio	0.8:1	1.2:1	1.4:1
Total			
Line-item ²	133,500	135,304	268,804
Total External	185,071	134,133	319,204
Leverage Ratio	1.4:1	1.0:1	1.2:1

¹ 25% of the \$191,350 project (other 75% to ICASALS & ITC).

² Includes dept. operating expenses.

APPENDIX C

PUBLISHED OUTPUT RELATED TO COTTON ECONOMICS,

1995/96 - 1996/97

**PUBLICATIONS ON COTTON ECONOMICS,
SEPTEMBER 1995 - AUGUST 1997**

**Department of Agricultural and Applied Economics
Texas Tech University**

Journal Articles:

Bennett, B., M. Middleton, E. Segarra, and J.W. Keeling. "Economics of Yield and Returns Variability with Dryland Cropping Systems." *Texas Journal of Agriculture and Natural Resources* 10 (No. 1, 1997): 65-75.

Bennett, B.K., S.K. Misra, and G. Barker. "Lint Cleaning Stripper-Harvested Cotton for Maximizing Producer Net Returns." *Applied Engineering in Agriculture* 13 (1997): 459-463.

Brown, J.E., D.E. Ethridge, D. Hudson, and C. Engels. "An Automated Econometric Approach for Estimating and Reporting Daily Cotton Market Prices." *Journal of Agricultural and Applied Economics* 27 (No. 2, Dec. 1995): 1-7.

Brown, J.E., and D. Ethridge. "Functional Form Model Specification: An Application to Hedonic Pricing." *Agricultural and Resources Economics Review* 24 (No. 2, 1995): 166-173.

Chen, C., D.E. Ethridge, and S.M. Fletcher. "Textile Manufacturers' Market Valuation of Cotton Fiber Attributes." *Journal of Agricultural and Applied Economics*, 29 (No. 1, July 1997): 185-195.

Hudson, D., E. Elam, D. Ethridge, and J. Brown. "Price Information in Producer Markets: An Evaluation of Futures and Spot Cotton Price Relationships in the Southern Region Using Co-Integrations." *Agribusiness: An International Journal* 12 (No. 4, 1996): 363-369.

Hudson, D., D. Ethridge, and J. Brown. "Producer Prices in Cotton Markets: An Evaluation of Reported Price Information Accuracy." *Agribusiness: An International Journal* 12 (No. 4, 1996): 353-362.

Johnson, J.L., and E. Segarra. "The Economic Impacts of Agricultural Sustainability: An Application to Irrigated Cotton Production." *Journal of the American Society of Farm Managers and Rural Appraisers* 60 (No. 1, 1996): 93-100.

Segarra, E., M. R. Darwish, and D. Ethridge. "Returns to Municipalities from Integrating Crop Production with Wastewater Disposal." *Resources, Conservation, and Recycling* 17 (1996): 97-107.

Proceedings Papers:

Beddow, J., E. Elam, and M. Lopez. "The Cotton Wizard: A Quantitative Tool for Cotton Variety Selection." *1997 Beltwide Cotton Conferences Proceedings*. National Cotton Council, pp. 1585-89.

Bennett, B. K. and S.K. Misra. "Minimizing Farm-to-Mill Cleaning Cost for Irrigated and Dryland Cotton." *1997 Beltwide Cotton Conferences Proceedings*. National Cotton Council, pp. 301-306.

Bennett, B.K., S.K. Misra, and A. Brashears. "Economic Analysis of a Field Cleaner for Irrigated and Dryland Cotton." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 378-380.

Bennett, B.K. and S.K. Misra. "Analysis of Cost Minimization of Cotton Cleaning in a Systems Framework." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 466-472.

Carr, C., and D. Ethridge. "A Loan Schedule Based on Texas and Oklahoma Producer Market Premiums and Discounts," *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 287-292.

Chen, C., and D. Ethridge. "Textile Market Valuation of Cotton Quality Attributes." *Proceedings of the NCR-134 Conferences on Applied Commodity Analysis, Forecasting, and Market Risk Management*, Apr. 1996, pp. 232-243.

Chen, C., and D. Ethridge. "Valuation of Cotton Characteristics by U.S. Textile Manufacturers." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 427-434.

Clark, A., P. Johnson, J. McGrann, and J. Smith. "Standardized Performance Analysis of Cotton Production: Initial Results From the Texas High Plains." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 318-323.

Ethridge, D. "Valuing HVI Quality Differences in U.S. Cotton." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 78-83.

Floeck, H., D. Hudson, and D. Ethridge. "Texas-Oklahoma producer Cotton Market Summary: 1995/96." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 349-352.

Hudson, D. "The Turkish Cotton Industry: Structure and Operation." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 285-287.

Hudson, D., and D. Ethridge. "Patterns in Exports of Cotton Fiber and Yarn From Southwest Asian Countries." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 442-446.

Hudson, D., and D. Ethridge. "Texas-Oklahoma Producer Cotton Market Summary: 1994/95." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 380-384.

Hudson, D., D.E. Ethridge, and C. Chen. "Producer Prices Received and Mill Prices Paid for Quality in Southwest Cotton: Similarities and Differences." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 437-440.

Johnson, J.L., and E. Segarra. "Economic Feasibility of Feedlot Manure Utilization in Cotton Production: An Application to the Texas High Plains." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 323-326.

Johnson, J.L., E. Segarra, and T.R. Owens. "Maintaining Soil Productivity in Irrigated Cotton Production in the Texas High Plains." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 390-394.

Lopez, M.F., and E. Elam. "Estimating Seed Yield Using Lint Yield and Lint Percentage of Seed Cotton." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 486-489.

Middleton, M.R., and E. Segarra. "Economic Impacts of Crop Biotechnology in a Risky Cotton Production System: An Application to the High Plains of Texas." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 274-278.

Middleton, M.R., E. Segarra, P.N. Johnson, and A. Haynes. "Economic Evaluation of Climatological Stress Factors in Cotton Production in the Texas High Plains." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 473-477.

Middleton, M.R., E. Segarra, and J.W. Keeling. "Dryland Cropping System Effects on Yield and Returns in the Texas High Plains." *1996 Beltwide Cotton Conferences*

Proceedings, National Cotton Council, pp. 407-409.

Misra, S.K., B. K. Bennett, B. D. McPeck, and A. Brashears. "Cost Trade-offs of Stripper-Mounted Burr Extractors From the Producers' Perspective." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 355-358.

Misra, S., D. Ethridge, D. Hudson, and B. Bennett. "Importance of Accurate Market Price Information." *Proceedings, 10th Annual Engineered Fiber Selection System Conference*, May 12-14, 1997 (in press).

Segarra, E., S. Teal, and J.W. Keeling. "Farm Level Profitability and Resource Requirements of Cotton Farming Systems." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 259-262.

Teal, S.G., R.T. Ervin, and R.D. Mehta. "Economic Analysis of Using Crustacea Byproducts for the Coverage of Neps." *1997 Beltwide Cotton Conferences Proceedings*, National Cotton Council, pp. 709-713.

Abstracts:

Bennett, B.K. and S.K. Misra. "Minimizing Cotton Cleaning Cost." Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 28 (No. 1, 1996): 226.

Bennett, B.K., S.K. Misra, and A. Brashears. "Break-Even Cost Analysis of a Field Cleaner." Selected Posters Abstracts, *Journal of Agricultural and Applied Economics* 28 (No. 1, 1996): 234.

Chen, C., D. Ethridge, and S. Fletcher. "U.S. Cotton Quality Attributes Relative to Prices Paid by Textile Manufacturers: A Hedonic Analysis." Selected Papers Abstracts, *American Journal of Agricultural Economics* 78, (No. 5, 1996): 1401.

Chen, C., E. Elam, and D. Ethridge. "Mean Reversion in Cotton Futures Prices: Implications for Hedging Strategies and Trading Profits." Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 27 (No. 2, 1995): 403.

Elam, E., C. Chen, and D.E. Ethridge. "Mean Reversion in Cotton Futures Prices." Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 28 (No. 1, 1996): 227.

Ethridge, D.E., C. Chen, and M.D. Hudson. "Pricing of Cotton Quality Attributes."

Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 28 (No. 1, 1996): 221-222.

Johnson, J.L., and E. Segarra. "Implications of Sustainable Agricultural Practices for Irrigated Cotton Production in the High Plains of Texas." Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 28 (No. 1, 1996): 228.

Johnson, J.L., and E. Segarra. "The Economic Implications of Feedlot Manure Utilization in Predominant Cropping Practices of the Texas High Plains." Selected Papers Abstracts, *Journal of Agricultural and Applied Economics* 29 (No. 1, 1997): 213.

Lopez, M.F., and E. Elam. "Cotton Variety Selection Model." *1996 Beltwide Cotton Conferences Proceedings*, National Cotton Council, p. 578.

Zhang, P., S. Fletcher, and D. Ethridge. "Effectiveness of Generic Promotion: The Case of Cotton." Selected Posters Abstracts, *American Journal of Agricultural Economics* 77 (No. 5, 1995): 1391.

Technical Reports:

Bennett, B., M. Middleton, J.W. Keeling, and E. Segarra. "Economics of Yield Variability with Dryland Cotton Cropping Systems." Texas Tech University College of Agricultural Sciences and Natural Resources Publication No. T-1-436, 1996.

Boll Weevil Assessment Task Force (D. Ethridge and E. Segarra, Texas Tech representatives). "Assesment of the Economic Impact of the Boll Weevil in the Texas High Plains." The Agriculture Program, The Texas A&M University System, and College of Agricultural Sciences and Natural Resources, Texas Tech University. Special Report 97-1, Jan. 15, 1997.

Carr, C., and D. Ethridge. "Evaluation of CCC Loan Premiums and Discounts for the Texas and Oklahoma Cotton Market." Department of Agricultural and Applied Economics, Texas Tech University, CER-96-3, Sept. 1996.

Floeck, H., D. Hudson, and D. Ethridge. "Texas-Oklahoma Producer Cotton Market Summary: 1995/96." Department of Agricultural and Applied Economics, Texas Tech University, CER-96-4, Oct. 1996.

Hoelscher, K., and D. Hudson. "Daily Price Estimation System Operations Manual." Department of Agricultural and Applied Economics, Texas Tech University, CER-97-12,

June 1997.

Hoelscher, Kevin, D. Hudson, D. Ethridge. "Texas-Oklahoma Producer Cotton Market Summary: 1996/97." Department of Agricultural and Applied Economics, Texas Tech University, CER-97-14, July 1997.

Hudson, D., and D. Ethridge. "The Effects of an Export Tax on Cotton Lint on the Domestic Cotton and Yarn Sectors, Trade , and Sectoral Economic Growth in Pakistan." Department of Agricultural and Applied Economics, Texas Tech University, CER-97-13, July 1997.

Middleton, M., E. Segarra, and P.N. Johnson. "Economic Impacts of Plant Biotechnology in the Northern High Plains Region of Texas. Texas Tech University College of Agricultural Sciences and Natural Resources Publication No. T-1-454, June 1997.

Misra, S.K., D.E. Ethridge, and B.K. Bennett. "Efficient Cotton Cleaning in a System Framework." Texas Tech University College of Agricultural Sciences and Natural Resources Publication No. T-1-417, Sept. 1995.

Technical Articles:

Misra, S., D. Ethridge, D. Hudson, and B. Bennett. "Importance of Accurate Market Price Information." *The Cotton Gin and Oil Mill Press*, Aug. 2, 1997, pp. 6-8.

Misra, S. K. and Blake K. Bennett. "One Lint Cleaning Maximizes Producer Net Return." *The Cotton Gin and Oil Mill Press*, July 5, 1997, pp. 10-11.

APPENDIX D

SUMMARY OF SERVICE ACTIVITIES RELATED TO COTTON ECONOMICS,

1995/96 - 1996/97

SUMMARY OF COTTON ECONOMICS SERVICE ACTIVITIES

Faculty in the Department of Agricultural and Applied Economics are consistently involved in cotton related service activities with the cotton industry, government, the research and educational communities, and the general public. We become involved in these activities almost entirely on a request basis; groups and individuals come to us because (1) we are a public institution capable of providing information and assistance and (2) we are recognized as having a broad range of expertise related to cotton economics and the cotton sector in general. This report gives a summary description of these activities during the past two years.

The faculty have provided assistance on dozens of individual requests for information and assistance that are too numerous to list. These have included requests from students outside the department and at other universities, firm, and individuals from all segments of the cotton industry (farmers, ginners, merchants, financial institutions, input suppliers, marketing associations, textile manufacturers, oilseed processors, etc), other universities, the print and broadcast media (interviews and background for stories related to cotton), and the general public who are not connected directly to the cotton industry. Several members of the department have made presentations to numerous groups of farmers, ginners, seed companies, bankers, textile manufacturers, chemical companies, equipment manufacturers, and other cotton industry groups. We received requests from numerous other countries (e.g., Greece, Turkey, Australia, Egypt, Ethiopia, Mexico). Faculty members also made presentations to various groups on various aspects of the cotton industry, including presentations to a group of Egyptians touring the U.S., two groups of students and faculty from Mexico, a group of ginners in Memphis, the merchant sector in exports of Texas cotton, and the Texas State Defense Adjustment Advisory Council.

Other substantial types of service involvements during the biennium included assistance to elected officials, the National Cotton Council, and several media organizations regarding the Step 3 imports of cotton into the U.S. . Assistance was also provided to organic cotton producers and marketers on market potential. Faculty have provided substantial information to the industry and general public on boll weevil economic impacts. Faculty also assisted in the Master Marketing Program conducted by the Texas Agricultural Extension Service. One member of the department has served as Vice-Chair and Chair of the Cotton Economics and Marketing Conference, Beltwide Cotton Conferences, and another serves as Historian for that Conference. One member of the department served on the Lubbock City Council's Value Added Task Force to evaluate potential value-added industry, including textiles, prospects for the High Plains region, and another is a member of the Textile Industry Economic Development Subcommittee of the Task Force on Lubbock Area Development. Kary Mathis is also a

member of the Executive Committee of the Texas Agricultural Forum and the Agriculture Committee of the Lubbock Chamber of Commerce, both of which emphasize cotton industry matters.

APPENDIX E

COTTON ECONOMICS RESEARCH UPDATE

January 1997 and July 1997 Issues

