ANNUAL REPORT ON THE

COTTON ECONOMICS

RESEARCH PROGRAM

1997/98

CER- 98 -21

Department of Agricultural and Applied Economics

College of Agricultural Sciences and Natural Resources

Texas Tech University

September 1998

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ANNUAL REPORT ON THE COTTON ECONOMICS RESEARCH PROGRAM, 1997/98

Summary

Funding from the Texas Legislature provides the base of support for the Cotton Economics Research Program at Texas Tech University. This funding, while not the major source of funds, is critical to the program because it gives the means to leverage faculty and student time and secure funding from industry and government sources. With this support, Texas Tech has built, and continues to build, a center of excellence in cotton economics research that is valuable to the State of Texas and the Texas cotton industry.

The overall program is administered by the College of Agricultural Sciences and Natural Resources, through the Department of Agricultural and Applied Economics. A Cotton Economics Research Institute was approved in 1997/98, and is being activated in 1998/99. The Institute is housed in the Department, under the administration of the Dean's Office. The program uses an Advisory Committee (see Appendix A) to assist with keeping the program focused on issues relevant to the State and the cotton industry. The committee members represent different industry segments and other research groups, and they give advice in the administration and management of the program.

During 1997/98, five projects were supported directly by the Special Item funding ($133,478) from the Legislature. These projects are summarized in Appendix B, along with other Cotton Economics projects; there were 11 active projects during 1997/98. Many of the other projects would not have been possible without the Special Item funds. It is noteworthy that a substantial proportion of total project funding is from the cotton industry. Overall funding of the program is summarized in Appendix C. The funding shown in Appendix C includes funding

beyond 1997/98 that has already been secured. Since the inception of the Special Item funding, the State has provided approximately $402,000 of funding for the program during the first three years; it has been leveraged to secure $979,000 to date, with about 65% of this funding directly from the cotton industry and the remainder primarily from the federal government.

The subject-matter areas covered in the program are diverse; the commonality is that they all are focused on economic matters related to the cotton industry. The subject-matter areas address production inputs and costs, production technologies, ginning performance and costs, marketing and pricing, use of ginning by-products, industry structural relationships, and textile processing costs as they relate to Texas cotton. Published output from the program for the September 1997 through August 1998 period is listed in Appendix D. Note that the published output ranges from respected disciplinary journals to proceedings papers to popular magazine articles. It is important that the research results from the program reach industry audiences as well as professional audiences; the disciplinary journals are important because the peer review process establishes the scientific validity of the procedures used to obtain the results. In the 1997/98 year, a total of 30 papers were published. The activities in the previous years of the program are documented in A Biennium Report of the Cotton Economics Research Line-Item, 1995/96-1996/97, Dept. of Agr. & Applied Econ., College of Agr. Sciences & Natural Resources, CER-97-16, Sept. 9, 1997.

Another important result of the program is the education and training of students. This component is not as easily documented, but no less important. During the 1997/98 year, there were 12 graduate students (four Ph.D. and eight M.S.) supported in whole or in part from research funding of cotton economics projects; another 13 undergraduate students worked on

these projects as well. In addition to learning how to use economic concepts, tools, and techniques to address economic issues, they learned many important aspects of cotton and the cotton/textiles industry. This is an added dimension to the human capital formation at Texas Tech University that is of value to Texas and to the nation.

Texas Tech has no formal extension component, so the public dissemination of the research is limited by resource and institutional constraints. We nevertheless place considerable emphasis on getting research output to the industry and the general public. All of the research results are provided directly to the Texas Agricultural Extension Service, which has the formal responsibility to disseminate pertinent research to the industry and the public. Researchers in the program make deliberate efforts to present the research at meetings attended by industry personnel and to present the results in any forum that is made available. For example, faculty and students in the Cotton Economics Research program presented 12 papers at the 1998 Beltwide Cotton Conferences, the premier forum for providing research results to the cotton industry; in 1998, Texas Tech alone produced about 25% of the research reported in the Cotton Economics and Marketing Conference. There were also several stand-alone invited presentations at important industry meetings that were not published (see Appendix E). Two newsletters for the public were also produced and distributed (Appendix F). Finally, all of the Principal Investigators answer many questions and requests for information to the industry and the general public on a regular basis, although we have no formal record of all of these requests.

APPENDIX A

ADVISORY COMMITTEE MEMBERS

1997/98, 1998/99

Cotton Economics Research Advisory Committee Members:

1997/98

Dr. Carl Anderson
Cotton Marketing Specialist
Texas Agricultural Extension Service
Texas A&M University
College Station, Texas

Mr. Roy Baker, Research Leader
Cotton Ginning Laboratory
Agricultural Research Service, USDA
Lubbock, Texas

Mr. Tommy Fondren
Farmer and Agribusinessman
Lorenzo, Texas

Mr. George Herron, Vice-President
Cotton Procurement
Dan River, Inc.
Danville, Virginia

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

Dr. James Supak, Associate Head
Soil and Crop Sciences
Texas A&M University
College Station, Texas

1998/99

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Mr. Robert Joseph, President
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Lubbock, Texas

Mr. Curtis Griffith, CEO
City Bank
Lubbock, Texas

Dr. James Supak, Associate Head
Soil and Crop Sciences
Texas A & M University
College Station, Texas

Mr. Darryl Lindsey, Vice President
Plains Cotton Cooperative Association
Lubbock, Texas

Mr. Tony Williams, Executive Vice-Pres.
Texas Cotton Ginners Association
Austin, Texas

Dr. Dan Upchurch, Director
Cropping Systems Research Laboratory
USDA-Agricultural Research Service
Lubbock, Texas

APPENDIX B

PROGRESS REPORTS OF COTTON ECONOMICS

RESEARCH PROJECTS, 1997/98

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Cost Trade-offs of Stripper-Mounted Bur Extractors

Principal Investigators: Sukant Misra and Alan Brashears (ARS/USDA)

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; $20,600 for Jan.-Dec. 1998.

Objectives: To determine 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 suggests that field cleaners have the potential to improve lint turnout and generate savings for producers in ginning charges. However, producers' saving comes at the expense of ginners. If ginners have to absorb this loss, it could 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' perspectives. It will help producers in making an informed decision about investing in field cleaners and will help ginners in making an informed decision about ginning price structure.

Accomplishments: This study provides estimates of cost/trade-offs of stripper mounted bur extractors from the producer, ginner, and the overall cotton industry perspective. Results to date indicate that cotton producers incur net savings of about $7.00 per bale as a result of using a bur extractor in the harvesting process. It was also determined that gins incur a net loss of about $3.00 per bale of cotton by processing bur extracted cotton. The overall cotton industry was thus found to experience savings of about $4.00 per bale when a bur extractor is used in the harvesting process.

Funding Generated: Texas Cotton Ginners Association; $ 5,000 for 1998.

Future Plans: There are no plans to pursue this research beyond 1997.

Public Dissemination of Results: Results were presented at the Beltwide Cotton Conferences in 1998 and at the Texas Cotton Ginners'/NSDA Gin School in 1998. One journal article has been published and another is under review. All results are provided to the Texas Agricultural Extension Service.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Cottonseed Pricing Structure in Texas: The Role of Quality, Supply, and Demand Factors

Principal Investigator: Sukant K. Misra

Source and Amount of Funding: Cotton Economics Special Item, USDA, and Texas State Support Committee; $10,000 in 1998.

Objectives: To determine how supply and demand factors and variations in cottonseed quality attributes affect the price of whole cottonseed.

Description of Project and Significance: The effects of supply, demand, and quality factors on the pricing structure of the Texas cottonseed market are currently unknown. Knowing how supply and supply factors influence cottonseed prices would help cotton producers to better anticipate cottonseed revenues in a given marketing year. If the actual contribution of each quality factors to the cottonseed price were known, it would allow cotton producers to use this information in making production decisions.

Accomplishments: Jane Bondurant, a graduate student of the department, is currently working on this project in connection with her masters thesis. Theoretical conceptualization and model development of the effects of supply, demand, and quality factors on the pricing structure of the Texas cottonseed have been completed. We currently have all the necessary data and are running the models to generate estimates of the influence of various factors on cottonseed prices. Final results should be available by December 1998.

Funding Generated: None.

Future Plans: We plan to expand this work to other major production regions of the U.S. and to the national level. However, continuation of this research project will depend on availability of some external financial support.

Public Dissemination of Results: None.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

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

Principal Investigators: Don Ethridge and Sukant Misra
Cooperators: Plains Cotton Coop. Assn., DTN - Cotnet, Intelligent Cotton Market.

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; $29,025 for 1998.

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: 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 research is instrumental in securing funding of $368,228 from the Committee for Cotton Research Inc. for research in 1998/99-2000/01.

Future Plans: We want to continue this work for as long as funding can be secured to support it.

Public Dissemination of Results: Results were presented at the Beltwide Cotton Conferences, in 1998. Results were also used in two presentations to industry groups–the National Cotton Farm Bureau Cotton Division in July 1998. All research results are provided to the Texas Agricultural Extension Service as they are generated so that they can be made available to the public and the cotton industry through their educational system.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Demand for and Marketing of Cotton Gin Trash as a Feedlot Ingredient in the Texas High Plains

Principal Investigator: Emmett Elam
Cooperator: Reed Richardson (Animal Science, Texas Tech University)

Source and Amount of Funding: Cotton Economics Research Special Item ($19,780 for Sept. 1997-Aug. 1998).

Objectives: To evaluate the demand for cotton gin waste (CGW) as a roughage ingredient to feedlots in the Texas High Plains.

Description of Project and Significance: The process of ginning cotton produces substantial amounts of a byproduct called cotton gin waste (CGW) that has little value to the gin. Cotton ginners are pleased if they can dispose of CGW at no cost to the gin. One important use of CGW is for roughage in cattle rations (to reduce ration density). The purpose of this project was to estimate the feedlot demand for CGW and to determine the value of CGW in a cattle feedlot ration. A linear programming (LP) model was used to develop a least-cost feedlot ration. Alternative roughages such as alfalfa, cottonseed hulls, corn silage, and CGW were included as choices. Solving the LP model with varying prices of CGW derived the demand for CGW and observing the quantity of CGW used in the ration. The value of CGW to a feedlot operator was estimated by solving the LP model with and without CGW and comparing the reduction in cost from using CGW compared to traditional roughage ingredients (alfalfa, hulls, and silage). The results of the study demonstrate the value of CGW as a feedlot roughage ingredient, and provide important information for developing strategies to promote and market CGW to feedlots.

Accomplishments: A survey form was developed and sent to 238 cotton gins in the Texas High and Low Plains areas. Eighty-five usable forms were returned. The survey results were compiled and presented at the Beltwide Cotton Conferences in Jan. 1998. One proceedings paper was published. One M.S. thesis was completed and defended by Mark Castleberry. One journal article is in progress.

Funding Generated: None.

Future Plans: To work with industry groups to demonstrate the value of CGW as a roughage ingredient in feedlot rations and to promote CGW as a roughage ingredient.

Public Dissemination of Results: Results were presented at the Beltwide Cotton Conferences in Jan. 1998. Copies of the Cotton Gin Waste Survey results were sent to 85 cotton gin operators who completed the survey.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: The Economics of Precision Farming in Cotton Production

Principal Investigators: Eduardo Segarra and Wayne Keeling (Tex. Agr. Experiment Station)

Source and Amount of Funding: Cotton Economics Special Item ($12,000 for Sept. 1997-Aug. 1998)

Objectives: To evaluate the profitability and environmental implications of precision farming practices in cotton production in the Texas High Plains.

Description of Project and Significance: Cotton is the most important crop produced on the Texas High Plains. Annual cotton plantings vary between 2.6 and 3.3 million acres in a 25 county region within the Texas High Plains. Approximately 50 percent of this acreage is irrigated with water from the Ogallala Aquifer. A large proportion of the cotton production in the Texas High Plains takes place on sandy soils where potential nitrate leaching exists if maximum yields are pursued through intensive irrigation and fertilization. Conventional production practices do not recognize inherent within-field variability and yield potential, which can lead to sub-optimal input use. Economic evaluation and analysis of within-field spatial disaggregation of inherent characteristics and impacts of applied production inputs, with respect to direct impacts and interactions of soil fertility, soil water holding capacity, and production systems is needed to determine the profitability of precision farming approaches. Integrating the application of advanced production technologies requires a system approach to farming. Profit maximization, enhanced allocative efficiency, environmentally benign practices, and sustainability must all be jointly evaluated in keeping up with resource endowment constraints, government regulation, and global economic realities. It is anticipated that the results stemming from this project will provide key information needed to enhance cotton production efficiency and profitability while minimizing environmental impacts in the Texas High Plains.

Accomplishments: Accomplishments to date include the completion of a report on optimal phosphorous fertilizer utilization in cotton production using site specific fertility characteristics.

Funding Generated: This research helped secure $14,300 for cotton and sorghum research from the Precision Agriculture Initiative through TAES, Texas A&M University, for Sept. 1998-Aug. 1999.

Future Plans: To continue to work with Agronomists, Agricultural Engineers, and Entomologists on the implementation aspects of this project to enhance the likelihood of securing additional funding in the future.

Public Dissemination of Results: A presentation on optimal phosphorous fertilizer utilization in cotton production using site specific fertility characteristics was presented at the Beltwide Cotton Conferences in 1998. All results are made available to the Texas Agricultural Extension Service for distribution to the industry.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

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

Principal Investigators: Don Ethridge, Sukant Misra, and Darren Hudson (Miss. State Univ.)
Cooperators: International Cotton Advisory Committee, Dr. Lal Almas, and Dr. G.C. Kar.

Source and Amount of Funding: USDA National Research Initiative Program; $115,000 for 1995/96-1998/99.

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: 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.

The analysis of India, which has a policy structure with a host of special exceptions and variant elements, is still ongoing; the major problem has been collection of all of the data needed for model estimation. Now we have obtained what appears to be most of the necessary data for the policy analysis on India. Dr. Hudson has begun the data tabulation and analysis and is in the process of beginning the initial empirical estimation.

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

Future Plans: We have received another one-year extension for completing the project and we intend to make the results available by August 1999.

Public Dissemination of Results: A presentation on Pakistan was made at the 1998 Beltwide Cotton Conferences and another presentation was made at the Southern Agricultural Economics Association annual meeting in August 1998. Two journal articles are in progress.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Gin Lint Cleaning to Maximize Producer Net Returns

Principal Investigators: Sukant Misra and Gary Barker (ARS/USDA)

Source and Amount of Funding: Cotton Incorporated and the Texas State Support Committee; $7,740 for Jan.-Dec. 1998.

Objectives: 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. Bennett, Misra, and Barker (1996) investigated the question of lint cleaning for a limited number of cultivars and management practices, and prescribed one lint cleaning in the gin plant as the optimum from producers' perspective. The objective of this proposed research is to determine whether one lint cleaning is optimum for a broader spectrum of cotton varieties and management practices.

Accomplishments: Initial results indicate net returns to be consistently higher for one lint cleaning in the gin plant for a broader spectrum of cotton varieties and management practices. Exact estimates are currently unavailable, but one lint cleaning appears to increase producers' net revenue by an average of $5.00/bale. Final results should be available by December 1998.

Funding Generated: This research has helped to secure funding of $60,783 from USDA/ARS for a forthcoming project entitled "Developing a Cotton Processing Simulation Model."

Future Plans: No further extensions of this research are planned at the present.

Public Dissemination of Results: Results were presented at the Beltwide Cotton Conferences, in 1998 and one journal article and another magazine article were also published. All results have been provided to the Texas Agricultural Extension Service for further dissemination.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Inter-Sectoral Relationships in the Cotton Industry

Principal Investigator: Sukant K. Misra

Source and Amount of Funding: Cotton Economics Line Item; $24,226 for 1997/98.

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, merchandising, and textile mill sectors, the cotton industry brings together many other agribusinesses such as production input, cottonseed oil mill, 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 should 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: Blake Bennett, a graduate student of the department, is currently working on this project in connection with his doctoral thesis. Theoretical conceptualization and model development of the economic interrelationships among the input, production, ginning, cottonseed oil mill, warehousing, merchandizing, and textile mill sectors have been completed. We currently have all the necessary data and are running the models to generate estimates of inter-sectoral relationships in the cotton industry. Final results should be available by December 1998.

Funding Generated: None.

Future Plans: 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 the current work will provide the foundation to the beginning of a research "program" that could take several years of refinement.

Public Dissemination of Results: None to date.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Standardized Performance Analysis for Cotton Production

Principal Investigators: Phillip Johnson and James McGrann (Texas A&M University)

Source and Amount of Funding: Texas State Support Committee ($21,285 for 1/1/98 through 12/31/98) and Cotton Economics Special Item ($12,000 for 9/1/97 through 8/31/98.)

Objectives: (1) Develop standardized guidelines for an integrated production, marketing, and financial analysis of the cotton enterprise; (2) Support development and field testing of the crop SPA software for farms that are primarily engaged in cotton production, (3) Implement the crop SPA to develop cotton production, marketing, and financial performance measures for cotton producers, (4) Initiate development of a program to summarize SPA analysis into a meaningful data base of production, marketing, and financial information.

Description of Project and Significance: The SPA Project is an ongoing project in cooperation with the Texas Agricultural Extension Service. SPA is an integrated production, marketing, and financial analysis program for enhancing farm level decision making. The SPA program analyzes the whole farm financial performance of an agricultural operation using accrual adjusted financial statements constructed from the farm's records. In addition to the whole farm analysis, the SPA program also compiles an analysis of the individual crop enterprises within the farming operation. This includes an analysis of total crop production, unit cost of production, and profitability of the crop enterprises. The information from the crop enterprise analysis is then further broken down into a sub-enterprise analysis, which focuses on the performance of specific farms or fields within each crop enterprise. There are approximately 15 current participants in the project.

Accomplishments: The SPA has been used to analyze cotton-farming operations in the Texas High Plains Region for the crop years 1995, 1996 and 1997. Currently, there is a Research Assistant and two student assistants working on the project, with responsibilities of working with participants to complete their analysis.

A database of results is being compiled. A software program to assist in building the database is currently being developed and tested. A masters thesis was completed in 1998.

Funding Generated: Additional funding from the Texas State Support Committee has been recommended for 1999.

Future Plans: Expansion of the base of participants. Currently we are starting work with a group of limited resource farmers (approx. 20).

Public Dissemination of Results: Papers were presented at the Beltwide Cotton Conferences. Titles for two additional papers have been submitted for the 1999 Beltwide Cotton Conference and a journal article of this research is in departmental review.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Texas Tech Cotton Variety Selection Model

Principal Investigator: Emmett Elam
Cooperators: Don Ethridge and John Gannaway (TAES)

Sources and Amount of Funding: Cotton Foundation and Southern Cotton Ginners ($7,000, July 1997-June 1998; $5,000, July 1998-June 1999).

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.

A cotton variety selection model was 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 preliminary 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.

Accomplishments: The Cotton Wizard program was demonstrated to industry representatives for their input. Suggested changes were incorporated in the program and the User's Manual was revised. A new color grade pricing routine was added to incorporate the revised color grade pricing relationship developed by USDA.

Funding Generated: The Cotton Foundations and Southern Cotton Ginners will continue funding of $5,000 for the project for 1998/99.

Future Plans: The data set used by the variety selection model is being expanded to include additional varieties. The initial effort focuses on west Texas and includes performance tests from Lubbock, Lamesa, and Halfway. Futures plans call for putting the Cotton Wizard program on the Internet to allow a selected group of uses to further test the model.

Public Dissemination of Results: The Cotton Wizard program was demonstrated to (1) cotton breeders on the Cotton Breeders' Tour, Maricopa, AZ, Sept. 1997; (2) state extension specialists and members of the National Cotton Ginners Assoc., Beltwide Cotton Conferences, San Diego, CA, Jan. 1998; (3) "Cotton Improvement Workshop: A Partnership with Producers," Beltwide Cotton Conferences, San Diego, CA, Jan. 1998.

RESEARCH PROJECT PROGRESS REPORT, 1997/98

Title: Textile Manufacturers' Pricing of Cotton Quality Attributes

Principal Investigator: Don Ethridge

Source and Amount of Funding: Cotton Economics Special Item ($11,399 for Sept. 1997-Aug. 1998) and Cotton Incorporated ($14,297 for Jan.-Dec. 1998)

Objectives: To identify market premiums and discounts paid for cotton fiber attributes by U.S. textile manufacturers.

Description of Project and Significance: Data on contracted purchases of cotton by textile manufacturers are collected from those market participants; all data are *bona fide* market transactions. The data are compiled into a pooled data set, which represents a large sample of transactions across that market spectrum. Hedonic price analysis is used to estimate the market premium and discount structure for the various HVI quality attributes of cotton, by region of origin of the cotton.

Comparison of results across regions gives producers and other market participants in each region from the end-users' perspective. This information is important for the efficient functioning of the cotton marketing system; knowledge of how the end-users of cotton value the attributes of the cotton affects all of the other market segments—merchants, ginners, and farmers. These market signals must be analyzed and reported for the industry to have the information because the complex premiums and discounts are not directly observable in the marketplace.

Accomplishments: Updates of the large and complex data set from cooperating firms have been done twice, and a third update was initiated in August. Estimates of premiums and discounts were done in 1997, with results reported at the 1998 Beltwide Cotton meetings. Work is underway, in cooperation with the Cotton Incorporated EFS system to computerize the data gathering and reporting of results. The data and models are being organized to facilitate a study of the changes in price structures over time.

Funding Generated: Special Item funding was used to secure funding from Cotton Incorporated.

Future Plans: To continue collecting data from cooperators, updating the premium/discount estimates, and to determine the causes of price differences across regions and through time.

Public Dissemination of Results: Results were presented at the Beltwide Cotton Conferences in 1998. Results were also used in two presentations to industry groups—the National Cotton Council's Loan Premium and Discount Task Force in March 1998, and a meeting of the Texas Farm Bureau Cotton Division in July 1998. All research results are provided to the Texas Agricultural Extension Service as they are generated so that they can be made available to the public and the cotton industry through their educational system.

APPENDIX C

SUMMARY OF COTTON ECONOMICS FUNDING

1997/98

External & Special-item Funding of Cotton Economics Research: Dept. of Agri. & Applied Economics

Name/Funding	1997/98	1998/99	1999/00	2000/01
Emmett Elam				
Special-item	19,780	20,528		
Cotton Foundation	7,000	5,000		
CI	0	7,000		
Total External	7,000	12,000		
Don Ethridge				
Special-item	11,399	9,000		
F & F Institute	8,078	8,078		
CI	14,513	14,400		
USDA	14,375	14,375		
CCR	0	61,667	61,667	61,667
Total External	36,966	98,520		
Phillip Johnson				
Line-item	12,000	12,000		
CI	22,000	21,283	20,000	
ICRC	0	25,285		
Total External	22,000	46,568		
Sukant Misra				
Line-item	24,226	19,711		
USDA	14,375	43,525	30,400	
CI	22,512	15,000		
TCGA	5,000			
CCR	0	61,667	61,667	61,667
Total External	41,887	120,292		
Eduardo Segarra				
Line-item	12,000	17,000		
CI	4,000			
TAES	14,300	14,300		
Total External	18,300	14,300		
Total				
Special-item1	133,478	133,478		
Total External	126,153	291,630		
Leverage Ratio	0.9:1	2.2:1		

1Includes department operating expense

APPENDIX D

PUBLISHED OUTPUT RELATED TO COTTON ECONOMICS

1997/98

Publications on Cotton Economics, September 1997 – August 1998

Department of Agricultural and Applied Economics
Texas Tech University

JOURNAL ARTICLES:

Beddow, Jason, Emmett Elam, and Mario Lopez. "The Cotton Wizard: A Quantitative Decision Tool for Cotton Variety Selection." *Cotton Ginning Journal*, (1997-98): 48-53.

Bennett, Blake K. and Sukant K. Misra. "Minimizing Farm-to-Mill Cotton Cleaning Cost." *Journal of Agricultural and Applied Economics*, 29(Dec. 1997): 363-372.

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

Bennett, Blake K., Sukant K. Misra, and A. Brashears. "Cost/Benefit Analysis of Bur Extractors in Cotton Harvesting." *Journal of Agribusiness*, 15(Fall 1997): 189-198.

Ethridge, D. E. and C. Chen. "Values Placed on Cotton Fiber Attributes by Textile Manufacturers." *Journal of the Textile Institute*, 88(No. 1, Part 2, 1997): 4-12.

Ethridge, D. and D. Hudson. "Cotton Market Price Information: How it Affects the Industry." *Journal of Cotton Science*, 2(No. 1, 1998): 68-76. (http://www.jcotsci.org/1998/issue01/x_contemp/art01/page68.html)

PROCEEDINGS PAPERS:

Bennett, B. K. and Sukant K. Misra. "A Decision Tool to Determine the Optimal Level of Lint Cleanings for Irrigated and Dryland Cotton." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: Vol. 1:318-322.

Bondurant J. and D. Ethridge. "Proportions of the Retail Dollar Received by Cotton Industry Segments: Selected Consumer Goods." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 306-311.

Castleberry, Mark and Emmett Elam. "Production and Disposal/Utilization of Cotton Gin Waste from the Texas High and Low Plains." *1998 Beltwide Cotton Conferences Proceedings*. National Cotton Council, Memphis, TN: 1669-1674.

Clark, April, Phillip Johnson, and James McGrann. 1998. "Standardized Performance Analysis of Cotton Production in the Texas High Plains." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 348-356.

Ethridge, D., D. Hudson, and E. Segarra. "Relevance of Price Information to the Cotton Industry." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 325-329.

Floeck, H. and D. Ethridge. "How Textile Manufacturers Dealt With Sticky CottonFrom the 1995 Crop." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 284-287.

Hoelscher, K. and D. Ethridge. "How Much Does the Market Fear Stickiness? Evidence from the 1995 Crop Year." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 331-334.

Hoelscher, K., D. Hudson, and D. Ethridge. "Texas-Oklahoma Producer Cotton Market Summary: 1996/97. *1998 Beltwide Cotton Conference Proceedings*, National Cotton Council, Memphis, TN: 394-398.

Hudson, D. and D. Ethridge. "The Pakistani Cotton Industry: Impacts of Policy Changes." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 294-297.

Karaky, R. H., D. Ethridge, and H. Floeck. "Cotton Quality Price Differentials Paid by U. S. Textile Mills." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Memphis, TN: 370-373.

Nelson, J, Sukant K. Misra, B. K. Bennett, and A. Brashears. "Cost/Benefit Analysis of Bur Extractors in Cotton Ginning." *1998 Beltwide Cotton Conferences Proceedings*, National Cotton Council, Vol. 1:398-403.

Yu, M., E. Segarra, and A. B. Onken. "The Economics of Soil Fertility Under Precision Agriculture: The Case of Phosphorus." *1998 Beltwide Cotton Conference Proceedings*, National Cotton Council, Memphis, TN: 289-292.

ABSTRACTS:

Bennett, Blake and Sukant K. Misra. "Determination of the Optimal Number of Lint Cleanings for Irrigated Cotton." *Journal of Agricultural and Applied Economics*. 30(1998): 247.

Hudson, D. and D. Ethridge. "Policy Implications of an Export Tax: The Case of Cotton and Yarn in Pakistan." *Journal of Agricultural and Applied Economics* 30(No. 1, July 1998): 232.

Johnson, J. L. and E. Segarra. 1997. "When the Chips are Down: Feedlot Manure Utilization in the Texas High Plains." *American Journal of Agricultural Economics*, 79(5, 1997): 1711.

McPeek, B. D. and S. K. Misra. Optimum Organization of the Texas Southern High Plains Cotton Ginning Industry." *American Journal of Agricultural Economics*, 79(1997): 1737.

TECHNICAL ARTICLES:

Misra, S. K. and Don Ethridge. "Why Producers Need Accurate Price Information -- An Example From Ginning." *Cotton Farming Management*. January 1998: 10-12.

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

RESEARCH REPORTS:

Clark, April, and Phillip Johnson. 1998. "Standardized Performance Analysis: An Application to the Texas High Plains." Texas Tech University, College of Agricultural Sciences & Natural Resources Publication No. T-1-482. Cotton Economics Research Report CER-98-38.

Dept. of Agr. & Applied Economics. "Biennium Report on the Cotton Economics Line-item,, 1995/96 – 1996/97." College of Agr. Sciences & Natural Resources, Cotton Economics Research Report, CER-97-16, Sept. 9, 1997.

Floeck, H. and D. Ethridge. "A Descriptive Analysis of Sticky Cotton and Textile Manufacturers' Costs". Dept. of Agr. & Applied Econ., Texas Tech University, CER-97-22, Dec. 1997.

Nelson, Jeannie, S. K. Misra, B. K. Bennett, and A. Brashears. "Cost/Trade-Offs of Stripper Mounted Bur-Extractors from the Cotton Industry Perspective." Texas Tech Univ., College of Agr. Sciences & Natural Resources Publication No. T-1-481, June 1998.

McPeek, B., S. K. Misra, and E. Segarra. "Optimum Structure of the Cotton Ginning Industry in the Southern High Plains of Texas." Texas Tech Univ., College of Agr. Sciences & Natural Resources Publication No. T-1-459, Nov. 1997.

Misra, S. K., J. L. Phillips, and B. D. McPeek. "Operational and Cost Characteristics of the Cotton Ginning Industry in the Southern High Plains of Texas." Texas Tech Univ., College of Agr. Sciences & Natural Resources Publication No. T-1-464, Dec. 1997.

APPENDIX E

PRESENTATIONS THAT WERE NOT

PUBLISHED IN ANY OUTLET

Elam, Emmett. Demonstrations of the Cotton Wizard variety selection program were given to: (1) cotton breeders on the Cotton Breeders' Tour, Maricopa, AZ, Sept. 1997; (2) state extension specialists and members of the National Cotton Ginners Assoc., Beltwide Cotton Conferences, San Diego, CA, Jan. 1998; (3) "Cotton Improvement Workshop: A Partnership with Producers", Beltwide Cotton Conferences, San Diego, CA, Jan. 1998.

Ethridge, D. "Case Study: The Ethiopian Cotton and Textile Sector." Presentation to the International Management Workshop, sponsored by ICASALS, Texas Tech University, May 13, 1998.

Ethridge, D. "Loan Schedule Price Calculations and Commodity Price Risk." Presentation to Texas Farm Bureau Cotton Division, July 8, 1998, Nacadoches, TX.

Ethridge, D. "Pricing Analysis for HVI Reporting." Presentation at the Cotton Incorporated Texas State Support Committee, Dec. 9, 1997, Dallas, TX.

Ethridge D. and D. Hudson. "Relevance of Accurate Market Price Reporting to the CCC Loan Structure." Presentation to the NCC Loan Premium and Discount Task Force, Memphis, TN, Mar. 18-19, 1998.

Johnson, Phillip. "Developing a Management Information System". Presentation at the Women in Agriculture-Business Management Program. College Station, TX, Jan. 29, 1998 and Lubbock, TX, Feb. 26, 1998.

Johnson, Phillip. "Standardized Performance Analysis of Cotton Production in the Texas High Plains". Presentation at the Cotton Inc. Texas State Support Committee Review Meeting, Dallas, TX, Dec. 9, 1997.

Misra, Sukant. "Cost/Benefit Analysis of Bur Extractors in Cotton Ginning." Presentation at the Cotton Incorporated Texas State Support Committee Review Meeting, Dallas, TX, Dec. 9, 1997.

Misra, Sukant. "The Field-Cleaner Debate." Presentation at the GINSCHOOL, organized jointly by Cotton Incorporated and the U.S. Department of Agriculture, Lubbock, TX, April 1998.

APPENDIX F

NEWSLETTERS, 1997/98