ANNUAL REPORT ON
COTTON ECONOMICS RESEARCH
2001/02

CER-02-08

Cotton Economics Research Institute
Department of Agricultural and Applied Economics
College of Agricultural Sciences and Natural Resources
Texas Tech University

September 2002

Compiled by Don Ethridge and Julie Wheeler
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ANNUAL REPORT ON COTTON ECONOMICS RESEARCH
2001/02

Summary

This report summarizes the activities and accomplishments in Cotton Economics Research, which is conducted within the Cotton Economics Research Institute at Texas Tech University, during the 2001/02 year. The Institute had access to $142,182 of internal funding during the year ($129,453 from the Applied Economics Research fund, $4,500 from the “Excellence Fund”, and $8,229 from the Thornton Agricultural Finance Institute). Of this internal funding, 79% was spent on student and faculty salaries and 21% on maintenance and operation expenses (supplies, travel, equipment, etc.)

Six cotton economics research projects were funded in total or in part directly by the Institute during the last year. A total of 20 cotton economics research projects were managed during the same time period. Each of the projects, both internally and externally funded, is summarized in the attached progress reports (Appendix B). These research activities covered diverse subject-matter areas, including consumer demand, production inputs and costs, production management practices, harvesting costs, ginning performance and costs, ginning by-products, marketing and pricing, industry structural relationships, and textile processing costs. Examination of the evolution of the research program shows that it is becoming somewhat more nationally and internationally focused, driven in part by expanded funding from federal and international sources.

From the internal funding, another $413,233 of external competitive cotton research grant funds were generated (Appendix C). Thus, the leverage ratio for the last year was 2.91:1, which shows that $2.91 in external funding was generated for each
$1.00 in internal support. This represents a large increase from a leverage ratio of 1.7:1 in 2000/01 and moves us closer to our long-term strategic plan target of 3.0:1.

Other measures of productivity are publications and service to the cotton industry. A listing of publications is provided in Appendix D. Overall, the faculty authored/co-authored 31 publications during the past year (compared to 32 publications during the 2000/01 year), which included 5 professional journal articles, 10 proceedings papers at industry and professional meetings, 4 technical research reports, and 12 published abstracts from professional meetings related to cotton economics research. Faculty members in the department also engaged in a broad range of service activities for industry (domestic and international), government, and professional organizations that are directly related to cotton. Principal Investigators also answer many questions and requests for information to the industry and general public on a regular basis, although no formal record of all these activities is maintained.

Another important result of the program is the education and training of students. During the last year there were 19 graduate students (6 Ph.D. and 13 M.S.) supported in whole or in part from research funding of cotton economics projects; another 10 undergraduate students worked on these projects as well. It is noteworthy that the departmental students co-authored 19 of the 31 cotton related research publications and made several presentations at important industry meetings such as the Beltwide Cotton Conferences.

Many of the accomplishments of the Cotton Economics Research Institute have been with important advice from the Cotton Economics Research Advisory Committee (Appendix A). The Committee represents industry segments as well as academic and
government research perspectives and the members assist with keeping the program focused on issues relevant to the cotton industry and in the management of the program.

The advisory committee members for 2001/02 were:

Dr. Carl Anderson, Cotton Marketing Specialist, Texas Agricultural Extension Service, Texas A&M University, College Station, TX – 1996-02.


Mr. Curtis Griffith, CEO, City Bank, Lubbock, TX – 1999-02.

Dr. Jaroy Moore, Resident Director, Texas Agricultural Experiment Station, Lubbock, TX – 2000-03.

Mr. Vern Tyson, Sara Lee Knit Products, National Textiles, Winston-Salem, NC – 2001-04.

Dr. Dan Upchurch, Director, Cropping Systems Research Laboratory, USDA-Agricultural Research Service, Lubbock, TX – 1999-02.

Mr. Steve Verett, Executive Vice President, Plains Cotton Growers, Lubbock, TX – 1999-05.

Mr. Tony Williams, Executive Vice President, Texas Cotton Ginners Association, Austin, TX – 1999-02.

Three members rotate off the committee in 2002 --Dr. Carl Anderson, Dr. Jaroy Moore, and Mr. Tony Williams. As they graduate to “emeritus” status, we extend our most sincere appreciation for their contributions and commitment to the program. Their replacements are Dr. Edward Smith, Texas A&M University System; Mr. Leslie Meyer, Economic Research Service, U.S. Department of Agriculture; and Mr. Bill Norman, National Cotton Council of America.

The 3rd Annual Research/Extension Symposium was held on April 3, 2002, targeting a select group of extension professionals involved in cotton economics and marketing programs. The focus of the symposium was to inform the group of the
research projects being conducted within the Institute. Participants also provided input about future research they felt should be given priority in the Institute.

Three new faculty members (Drs. Thomas Knight, Vernon Lansford, and Roderick Rejesus) have joined the Department and the faculty team of researchers during the past year. We welcome them and look forward to their contributions to the Cotton Economics Research program. Drs. Knight and Rejesus will be developing a new initiative in Risk Management, with emphasis on crop insurance. We are also one year into research to build structural econometric models of the U.S. cotton industry. These models will be used to forecast production, consumption, trade, stocks, and prices and to analyze expected impacts of government policy changes. This research, funded by USDA, is in partnership with the Agricultural Policy Center at Texas A&M University.
APPENDIX A

ADVISORY COMMITTEE MEMBERS

1996/97 - 2002/03
Cotton Economics Research Advisory Committee Members

1996/97

Dr. John Abernathy  
Director  
Texas A&M Research and Extension Center  
Lubbock, Texas

Dr. Carl Anderson  
Extension Economist-Cotton Marketing  
Texas A&M University  
College Station, Texas

Mr. Roy Baker  
Research Leader  
Cotton Production and Processing Research Unit  
Agricultural Research Service, USDA  
Lubbock, Texas

Mr. Tommy Fondren  
Cotton farmer and agribusinessman  
Lorenzo, Texas

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

Mr. Bob Poteet  
Executive Vice-President  
Texas Cotton Association  
Dallas, Texas

1997/98

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

Dr. Carl Anderson  
Extension Economist-Cotton Marketing  
Texas A&M University  
College Station, Texas

Mr. Roy Baker  
Research Leader  
Cotton Production and Processing Research Unit  
Agricultural Research Service, USDA  
Lubbock, Texas

Mr. Tommy Fondren  
Cotton farmer and agribusinessman  
Lorenzo, Texas

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

Mr. Robert Joseph  
President  
International Cotton Marketing, Inc.  
Lubbock, Texas
1998/99

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

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

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

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

Mr. Tommy Fondren  
Cotton farmer and agribusinessman  
Lorenzo, Texas

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

1999/00

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

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

Mr. Steve Verett  
Executive Vice President  
Plains Cotton Growers  
Lubbock, Texas

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

Mr. Curtis Griffith  
CEO  
City Bank  
Lubbock, Texas

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

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

Tony Williams  
Executive Vice President  
Texas Cotton Ginners Association  
Austin, Texas
2000/01

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

Dr. Jaroy Moore  
Resident Director  
Texas Agricultural Experiment Station  
Lubbock, Texas

Mr. Curtis Griffith  
CEO  
City Bank  
Lubbock, Texas

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

Mr. Carleton Davis  
Economist  
Dunavant Enterprises, Inc.  
Memphis, Tennessee

Mr. Steve Verett  
Executive Vice President  
Plains Cotton Growers  
Lubbock, Texas

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

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

2001/02

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

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Texas Agricultural Experiment Station  
Lubbock, Texas

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Sara Lee Knit Products  
National Textiles  
Winston-Salem, North Carolina

Mr. Steve Verett  
Executive Vice President  
Plains Cotton Growers  
Lubbock, Texas

Mr. Tony Williams  
Executive Vice President  
Texas Cotton Ginners Association  
Austin, Texas
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<th>Name</th>
<th>Position</th>
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<tr>
<td>Dr. Edward G. Smith</td>
<td>Associate Director for Agricultural and Natural Resource Sciences</td>
<td>Texas A&amp;M University</td>
<td>College Station, Texas</td>
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<tr>
<td>Dr. Jaroy Moore</td>
<td>Resident Director</td>
<td>Texas Agricultural Experiment Station</td>
<td>Lubbock, Texas</td>
</tr>
<tr>
<td>Mr. Lynn Scherler</td>
<td>Vice President – Cobank – Agribusiness Banking Group</td>
<td>Lubbock, TX</td>
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<tr>
<td>Mr. Leslie Meyer</td>
<td>Agricultural Economist</td>
<td>USDA Economic Research Service</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>Mr. Carleton Davis</td>
<td>Economist</td>
<td>Dunavant Enterprises, Inc.</td>
<td>Memphis, Tennessee</td>
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<tr>
<td>Mr. Bill Norman</td>
<td>Vice President of Ginning Services</td>
<td>National Cotton Council</td>
<td>Memphis, Tennessee</td>
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APPENDIX B

PROGRESS REPORTS OF COTTON ECONOMICS RESEARCH PROJECTS, 2001/02
Project Title: An Empirical Investigation of the Cotton Basis for the Southern High Plains of Texas

Principal Investigators: Sukant Misra

Primary Funding Agency: Cotton Economics Research Institute

Funding Amount: $10,000 (none in 2001/02)

Beginning Date: 01/01/2000

Ending Date: 12/31/2001

Project Objective: The general objective of this study was to investigate and identify factors that affect the cotton basis for the West Texas region and to examine the causes of fluctuations in the basis level over time.

Project Summary and Accomplishments: Results indicate that U.S. cotton production, U.S. beginning stocks, and the price of rayon directly affected the level of the cotton basis for the West Texas region over the time period ranging from 1980 to 2000. The Texas beginning stocks and the opportunity cost of storage were found to inversely affect the level of the West Texas cotton basis for the same time period. Further, results suggested that the basis was wider during months when harvesting and marketing occurred. The level of the basis was found to be narrowest during the 1985 farm bill policy periods when compared with the 1980 and 1996 farm bill policy time periods. However, the volatility of the West Texas cotton basis was reduced during the 1996 farm bill period.

Keywords: Cotton Basis, Futures Price, GARCH
**Project Title:** Business Models for Competitive Success in the Texas Textile Industry

**Principal Investigators:** Conrad Lyford and Jaime Malaga

**Primary Funding Agency:** USDA/CSREES (through the International Cotton Research Center)

**Funding Amount:** $70,176

**Beginning Date:** 09/01/02

**Ending Date:** 08/31/04

**Project Objective:** Identify business models that can be successful in the Texas textile industry.

Specific objectives:
A. Evaluate reasons for success and failure of existing firms
B. Evaluate key forces of change and potential responses
C. Determine the cost structure of textile production in Texas relative to the competition.

**Project Summary and Accomplishments:**

Having a strong and viable Texas textile industry is important to the Texas cotton industry because local textile production increases demand and returns. Recently, firms in the Texas and broader U.S. textile industry have been under substantial competitive pressure due to the strong U.S. dollar and other factors, including international competitors’ goals to capture market share. This has caused many U.S. textile facilities (including some in Texas) to close.

This research focuses on identifying business models that can be successful competitively currently and in the future for the Texas textile industry.

Procedurally, the research will (1) determine the business models that currently exist and key reasons for their success; (2) evaluate the forces of change in the textile industry and the stability of the business models defined in (1) above, and (3) identify the cost structure of textile production in Texas relative to its competition.

As business models are identified, the primary benefit will be to show economic/business opportunities for the Texas textile industry. In addition, this information could be used to promote effective industry practice in key areas as well as indicate the future of the industry.

**Keywords:** Business Models, Textile, Texas
Project Title: Center for North American Studies (CNAS)-Texas Tech Component

Principal Investigators: Jaime E. Malaga

Collaborators and Collaborating Agencies: Texas A&M University, Louisiana State University, New Mexico State University

Primary Funding Agency: USDA-CSRESS (through the Center for North American Studies)

Funding Amount: $ 21,189 (Texas Tech Portion)

Beginning Date: 06/01/02

Ending Date: 03/31/03

Project Objective: Overall Objective: Promote stronger agricultural trade relationships among North American partners (USA, Mexico, Canada)

Specific Objectives: Cooperate with other CNAS partners in extension and educational initiatives related to CNAS goal. Analyze the main issues affecting the competitiveness of Texas sorghum in the Mexican market. Analyze the US-Mexico cotton-textile-apparel trade system to evaluate the potential impacts of the MFA elimination on Mexican textile exports and cotton imports from the USA.

Project Summary and Accomplishments: All CNAS members were involved in the organization of the Conference: "Free Trade of The Americas, the WTO and New Farm Legislation: Responding to Opportunities and Challenges" in San Antonio, Texas, March 2002.

Specific Texas Tech research component started in June 2002 with the gathering of basic data on Mexican cotton/textile/apparel sector. Some 96%-98% of Mexican apparel exports are directed to the US market. In part due to NAFTA, Mexican share of the US apparel market greatly expanded during the 90's reaching 27% in 2000/2001 (from 2% in 1989-1990). Reflecting this expansion, Mexico became the largest importer of US cotton. A potential crisis of the Mexican textile/apparel industry (due to MFA elimination) would jeopardize the expansion of the US cotton exports to the Mexican market.

Keywords: Trade, NAFTA
Project Title: Daily Price Analysis and Reporting for the Texas Oklahoma Cotton Market

Principal Investigators: Sukant Misra and Don Ethridge

Collaborators and Collaborating Agencies: Plains Cotton Coop. Assn., E-cotton

Primary Funding Agency: Texas State Support Committee of Cotton Incorporated

Funding Amount: $ 32,000

Beginning Date: 1/1/2002

Ending Date: 12/31/2002

Project Objective: 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.

Project Summary and 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.

The "Texas-Oklahoma Producer Cotton Market Summary: 2000/2001" and the "Estimated 2001 Crop Pre-Season Price Schedule for the Texas and Oklahoma Cotton Markets” have been completed and can be accessed from the web at, http://www.aeco.ttu.edu/DPES/

A web-based "Cotton Price Calculator" has also been developed to assist the market participants on estimating a price for a specific bale of cotton based on DPES research. This calculator can be accessed on the web at http://www.aeco.ttu.edu/CER-Institute/Resourcepage.htm

Keywords: Cotton, prices
Project Title: Demand for U.S. Made Cotton Apparel and its Implications for the Cotton Industry

Principal Investigators: Sukant Misra and Octavio Ramirez

Collaborators and Collaborating Agencies: Mark Messura, Cotton Incorporated

Primary Funding Agency: USDA/CSREES (through the International Cotton Research Center)

Funding Amount: $ 32,966

Beginning Date: 9/1/2001

Ending Date: 8/31/2002

Project Objective: The central objective of this research is to understand consumer demand for U.S. made cotton apparel (cotton and denim) and to analyze their demand growth potential relating to consumer socioeconomic profiles and geographical regions.

Project Summary and Accomplishments: Mohamadou Fadiga, a Ph.D. student is working on this project. The econometric models have been developed, which will provide the conceptual and procedural foundation for the proposed work. The survey database from Cotton Incorporated has been received. Analysis is yet to begin. Modeling work is expected to be completed by December 2002.

Keywords: Cotton, consumer demand, apparel
Project Title: Developing a Cotton Processing Quality Simulation Model

Principal Investigators: Sukant Misra and Gary Barker

Collaborators and Collaborating Agencies: ARS/ USDA

Primary Funding Agency: ARS/USDA

Funding Amount: $ 80,783 ($ 6,667 in 2001/02)

Beginning Date: 8/2/98

Ending Date: 12/31/01

Project Objective: The objective of this project was to develop a cotton processing simulation model with which to evaluate effects of operating parameters, drying, cleaning and ginning on fiber quality factors.

Project Summary and Accomplishments: The simulation model estimates cotton quality as it passes through the various sequences of gin machinery used to process stripper harvested cotton and assists ginners to optimize the ginning process. The mathematical lint-cleaner relationships of the simulation model and a web-based simulation program have been completed. The web-based "GINQUAL" is currently available for use on the web at http://www.aeco.ttu.edu/CER-Institute/Resourcepage.htm

Keywords: Cotton, quality, simulation model
Project Title: Development of Web-Based Cotton Production Cost Calculator

Principal Investigators: Phillip Johnson and Sukant Misra

Primary Funding Agency: Cotton Incorporated

Funding Amount: $12,817

Beginning Date: 01/01/02

Ending Date: 12/31/02

Project Objective: Develop a standardized performance analysis method to evaluate enterprise profitability and cost of production for cotton that can be web-based to allow cotton producers to evaluate a past crop year or use as a planning tool.

Project Summary and Accomplishments: Knowledge of the true costs of production is required for cotton producers to make sound production, financial, and marketing decisions. An information based management tool that can be used in conjunction with their present record system would assist producers in calculating their true production costs. A web-based production cost calculator will aid producers in evaluating enterprise costs and returns by using income statement financial information in addition to enterprise production information. The allocation of income and cost items from the income statement to enterprises and sub- enterprises through the use of specified allocation methods facilitate the calculation of a true cost of production and enterprise profitability.

Keywords: Standardized performance analysis
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<tr>
<th><strong>Project Title:</strong></th>
<th>Economic Models for Risk Management in Agricultural Production Systems</th>
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<tr>
<td><strong>Principal Investigators:</strong></td>
<td>Octavio A. Ramirez</td>
</tr>
<tr>
<td><strong>Collaborators and Collaborating Agencies:</strong></td>
<td>Sukant Misra</td>
</tr>
<tr>
<td><strong>Primary Funding Agency:</strong></td>
<td>Cotton Economics Research Institute</td>
</tr>
<tr>
<td><strong>Funding Amount:</strong></td>
<td>$80,000 ($8,925 in 2001/02)</td>
</tr>
<tr>
<td><strong>Beginning Date:</strong></td>
<td>01/01/99</td>
</tr>
<tr>
<td><strong>Ending Date:</strong></td>
<td>08/31/02</td>
</tr>
<tr>
<td><strong>Project Objective:</strong></td>
<td>To develop and experiment with the use of state-of-the-art econometric methods and procedures that help to better analyze and manage agricultural production system risk.</td>
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<tr>
<td><strong>Project Summary and Accomplishments:</strong></td>
<td>Summary:</td>
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This project has focused on the development of application of improved econometric methods and procedures for the modeling, forecasting and simulation of key agricultural production system variables such as prices, yields, production and profitability.

Accomplishments:

1. County and farm-level irrigated and dryland cotton yield probability distribution function (pdf) models for the Texas High Plains have been developed, which have been used for the evaluation of Crop Insurance products.

2. Price and production pdf models for cotton, corn, sorghum and wheat have been developed, which have been used for a preliminary economic analysis of the temporal changes in the returns and risks associated with irrigated agricultural production in the Texas High Plains.

3. Models for making probabilistic forecasts of the prices of key agricultural commodity prices in the U.S. have been developed.

4. A structural model for the West Texas cotton basis has been developed, which has been used for an applied analysis of the factors affecting the basis and of the inter-temporal behavior of the basis.
Keywords: Crop prices, yields, profitability, risk and returns
Project Title: Evaluating Crop and Revenue Insurance Products as Risk Management Tools for Texas Cotton Producers

Principal Investigators: Sukant Misra

Primary Funding Agency: Cotton Economics Research Institute

Funding Amount: $ 20,000  (no funding in 2001/02)

Beginning Date: 1/1/1999

Ending Date: 12/31/2001

Project Objective: The overall objective of this research was to evaluate the effectiveness of various crop and revenue insurance products as risk management tools for Texas cotton producers. The proposed research develops a flexible means of evaluating economic impacts of crop and revenue insurance purchase decisions for cotton producers.

Project Summary and Accomplishments: By utilizing producer-level information, the study found that the Catastrophic option, the MPCI 50 and 60 yield coverage levels, and the CRC 50 coverage level are cost-effective risk management tools from producers’ perspectives. Premium rates were, however, determined to be generally high for most other buy-up insurance products.

Keywords: Cotton, crop insurance, price analysis, risk management
Project Title: Evaluating Crop Insurance Products as a Risk Management Tool for Cotton Producers

Principal Investigators: Phillip Johnson and Sukant Misra

Primary Funding Agency: Cotton Incorporated

Secondary Funding Agency: TTU Excellence Funding and Applied Economics Research Fund

Funding Amount: $17,950 ($10,000 Cotton Inc.; $4,500 Excellence Fund; $3,450 Applied Economics Research Fund)

Beginning Date: 01/01/02

Ending Date: 12/31/02

Project Objective: Develop and illustrate the application of an empirical procedure to evaluate and compare economic implications of various existing and new cotton insurance products as risk management tools.

Project Summary and Accomplishments: Cotton producers are subject to unpredictable, random shocks, such as adverse weather, pest infestations, and other natural disasters, such as drought and flooding. Crop insurance represents one tool that is available to producers to manage certain risks. This project will evaluate the economic implications of crop insurance products with regard to cost effectiveness and the impact on producers’ net revenues.

Keywords: Crop insurance, risk management
**Project Title:** Further Development of the Cotton Wizard Cotton Variety Selection Program  

**Principal Investigators:** Emmett Elam  

**Primary Funding Agency:** Cotton Incorporated  

**Funding Amount:** $12,695  

**Beginning Date:** 01/01/02  

**Ending Date:** 12/31/02  

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

**Project Summary and Accomplishments:**  

Summary: A cotton variety selection model was developed to include the seed component (seed yield and quality) in addition to the usual lint component (lint yield and quality). A computer implementation of the model—the “Cotton Wizard”, has been developed to assist decision makers in cotton variety selection. The program uses objective data generated by agricultural experiment stations across the U.S., or from other sources provided by the program user. The decision criteria for variety selection is based on expected economic return (mean net revenue) of a variety and the variability of returns (coefficient variation). Total revenue is calculated from lint prices and seed prices, and lint and seed yields. Lint and seed prices are determined by their respective quality characteristics. Adjustments are made for costs that may differ among varieties, such as planting seed cost, and harvest and ginning costs. Users are provided with information on varieties--such as mean net revenue (total revenue - costs), variability in net revenue, and argonomic characteristics--to aid in the decision process. The Cotton Wizard program is distributed as a Microsoft Windows compatible product.  

Accomplishments: Two datasets used by the Cotton Wizard program were updated. The National Cotton Variety Test dataset was updated to include data for the entire U.S. Cotton Belt for 1990-2000 (latest available data). The West Texas performance trials dataset was updated to include all varieties grown at five West Texas locations for irrigated and dryland trials for the years 1991-2001. The length uniformity measurement was added to both datasets to allow its use in cotton lint pricing. Work was initiated on adding length uniformity as a pricing characteristic in the Cotton Wizard program.
Two publications about the Cotton Wizard program were revised to include new information about using the program for selecting transgenic versus non-transgenic cotton varieties.

Keywords: Cotton lint, cottonseed, variety selection, economic return
**Project Title:** Harvest Timing, Bur Extracting, and Weathering Effects on Cotton Production and Quality, Ginning Characteristics and Economics

**Principal Investigators:** Eduardo Segarra and Randy Boman

**Collaborators and Collaborating Agencies:** Texas Agricultural Extension Service - Lubbock, Texas A&M University

**Primary Funding Agency:** Cotton Incorporated

**Funding Amount:** Total $75,000 (share $7,000)

**Beginning Date:** 01/01/2000

**Ending Date:** 12/31/2002

**Project Objective:** To evaluate the profitability and implications of alternative harvesting approaches for cotton in the Texas High Plains.

**Project Summary and Accomplishments:**

Project Significance: Cotton profitability in the Texas High Plains is uncertain, especially towards the end of the season when producers must make decisions with respect to crop termination and harvesting. In this project, the effects of harvest timing as field weathering losses on cotton seed and lint quality are documented and evaluated for economic impacts.

Accomplishments: The major finding to date has been that the aggregate economic impact on revenues from delayed harvesting of the 2000 irrigated cotton crop resulted in a loss of $38.88/bale, as compared to the level of revenues resulting from optimal crop termination and harvesting approach. This study is continuing and similar experiments and analysis will be carried out in the 2002 season.

**Keywords:** Optimal crop termination, weathering effects on cotton production
Project Title: Improving Nitrogen Fertilizer Use-Efficiency in Deficit-Irrigation Systems for Cotton in the Southern High Plains

Principal Investigators: Eduardo Segarra and Kevin Bronson

Collaborators and Collaborating Agencies: Texas Agricultural Experiment Station - Lubbock, Texas

Primary Funding Agency: NRI - CSREES/USDA (National Research Initiative)

Funding Amount: Total $318,500 (share $34,000)

Beginning Date: 09/01/1999

Ending Date: 08/31/2002

Project Objective: To evaluate the profitability and environmental implications of improved nitrogen fertilizer use efficiency in irrigated cotton production in the Texas High Plains

Project Summary and Accomplishments: Project Significance: Production agriculture is facing significant changes, including changing federal farm programs, escalating costs of production, pest resistance to chemicals, and public concern about the impacts of agricultural production on the environment. This project seeks to improve the economics of nitrogen fertilizer use while minimizing environmental damages in irrigated cotton production in the Texas High Plains.

Accomplishments: Data generated from two experiments at two different locations conducted in this study are being analyzed. The same two experiments are being duplicated in 2002.

Keywords: Optimal nitrogen use, environmental implications of nitrogen use
Project Title: Input Management to Increase the Profitability of Irrigated Cotton Production in the Texas High Plains.

Principal Investigators: Octavio A. Ramirez

Collaborators and Collaborating Agencies: Phillip Johnson, Danniel Krieg, Don Ethridge, and Dean Ethridge

Primary Funding Agency: USDA/CSREES (through the International Cotton Research Center)

Secondary Funding Agency: The Texas State Support Committee of Cotton Incorporated

Funding Amount: $52,000

Beginning Date: 09/01/98

Ending Date: 12/31/01

Project Objective: Objectives were to:

1. Determine the cotton lint and seed yields, quality, and turnout from using different combinations of production practices and input levels, and the associated costs and revenues under the average growing conditions of the Texas Southern Plains.

2. Assess how changes in temperature and rainfall affect yield, quality and per-acre gross revenues when using these different combinations of crop production practices and input levels.

3. Identify the combinations of production practices and input use levels for maximum profit per acre under alternative temperature and rainfall regimes.

Project Summary and Accomplishments: This research provides West Texas cotton farmers with information about how to adjust crop production practices and input use levels in response to changes in price (base quality ± premiums/discounts), cost, and weather. Specifically, it identifies varieties, irrigation water rates, nitrogen and phosphorus fertilization methods, and nitrogen and phosphorous fertilization rates that result in the highest profits per acre, given temperature and rainfall, prices and per-unit input (seed, irrigation water, fertilizer, labor, etc.) costs. It also concludes that quality considerations and improved weather information when making variety and input use decisions can significantly increase profitability and reduce financial risk.
Accomplishments to date include analyses indicating that cotton quality attributes (micronaire, staple and strength) are substantially affected by genetic factors (variety), weather (rainfall and heat unit accumulation), and input (irrigation water/nitrogen and phosphorous fertilizer) use. Economic analyses suggest that quality considerations can significantly increase profitability when making variety and input-use decisions. They also show that improved weather information can be used by cotton producers to make better input-use decisions and increase profitability. The models developed in this research could be made available to farmers in the form of user-friendly software to aid their decision making. Additional analyses are being conducted to quantify the relative importance of the different factors (genetic, weather, input use) on determining lint quality.

**Keywords:** Irrigated cotton production, quality, weather information, profitability
Project Title: Potential Economic Benefits of Adjusting Dryland Cropping Strategies Based on Seasonal Rainfall Forecasts

Principal Investigators: Eduardo Segarra, Co-PI

Collaborators and Collaborating Agencies: S. J. Maas, S. A. Mauget, and R. J. Lascano - Plant and Soil Science, Texas Tech University; Agricultural Research Service - Lubbock, USDA; and Texas Agricultural Experiment Station - Lubbock, Texas A & M University

Primary Funding Agency: CASNR Research Enhancement Program and Applied Economics Research Fund

Funding Amount: $ 29,450 dept. share ($ 8,450 in 2001/2002)

Beginning Date: 11/01/2000

Ending Date: 12/31/2002

Project Objective: To evaluate the profitability and implications of adjusting dryland cropping production practices based on improved weather forecasts in the Texas High Plains.

Project Summary and Accomplishments: Project Significance: Production agriculture is facing significant changes, including changing federal farm programs, escalating costs of production, pest resistance to chemicals, and public concern about the impacts of agricultural production on the environment. In addition, Texas High Plains producers face significant levels of uncertainty and risk associated with dryland agricultural production in a semi-arid environment. This project seeks to evaluate dryland farm management practices that could reduce economic risks in semi-arid environments.

Accomplishments: Naveen Musunuru, a Ph.D. research assistant is working in this project. Work on CROPMAN, the simulation model being used in this project, and the formulation of representative farm quadratic optimization models will continue this coming year.

Keywords: Dryland cropping systems, dryland production profitability, economic risk reduction
Project Title: Precision Farming - Site Specific Production Systems: Economics of Precision Farming Practices in the Texas High Plains

Principal Investigators: Eduardo Segarra


Primary Funding Agency: Texas A&M University Precision Agriculture Initiative

Funding Amount: $ 78,333

Beginning Date: 09/01/1999

Ending Date: 08/31/2002

Project Objective: To evaluate the profitability and environmental implications of precision application of fertilizer and irrigation water, weather factors, and pests (weeds, diseases, and bugs) in grain sorghum, corn, peanuts, and cotton production in the Texas High Plains.

Project Summary and Accomplishments: Project Significance: Texas High Plains agricultural producers increasingly compete in the global economy to produce a quality product at competitive prices while using production practices that are benign to the environment. Agricultural researchers and producers are responding to these challenges by developing and adopting new and advanced agricultural production technologies. Historically, agricultural crop production management practices treat crop fields uniformly. That is, no within-field spatial disaggregation of inherent characteristics and/or the impacts of applied inputs of production is conducted with respect to soil fertility, soil water holding capacity characteristics, weed and pest infestations, fertilizer use, water use, and yield potential. Precision farming, precision agriculture or site-specific management recognizes within field spatial variability and seeks to optimize variable input use within the field. These practices have implications for input utilization efficiency, profits, and environmental impacts.

Accomplishments: Susan Watson, the Ph.D. research assistant working on this project, has completed several sub-projects dealing with grain sorghum production, cotton, corn and peanut issues. Specific findings will be available in the Fall of 2002.
Keywords: Precision farming, precision agriculture, technology adoption, optimal input use
Project Title: Profitability and Production Costs of Grain Sorghum and Cotton in Texas

Principal Investigators: Phillip Johnson

Collaborators and Collaborating Agencies: Larry Falconer, TAES

Primary Funding Agency: TAEX, PROFIT

Secondary Funding Agency: Applied Economics Research Fund and Thornton Agricultural Finance Institute

Funding Amount: $48,504 (9/01-8/02; $20,000 PROFIT, $20,225 Applied Economics Research, $8,229 Thornton Agricultural Finance Institute)

Beginning Date: 09/01/01

Ending Date: 08/31/03

Project Objective: Perform integrated enterprise and whole farm analysis of farming operations in the High Plains and Coastal Bend regions of Texas, and to compile a database of grain sorghum and cotton production costs and profitability.

Project Summary and Accomplishments: The long-term financial viability of farming operations in Texas will depend on the profitability of the various enterprises within farming operations. This study evaluates profitability and production costs of grain sorghum and cotton production in the Texas High Plains (THP) and Coastal Bend (CB) regions using the Standardized Performance Analysis (SPA) program. SPA is a management tool designed to complete an integrated financial, production, and marketing analysis of an entire farming operation using farm financial statements and relevant production data. Results from this project will provide individual producers with a detailed financial analysis and enterprise costs and profitability for their entire farming operation. A database of farm-level financial and economic analyses, including production cost and profitability information is also being compiled for grain sorghum and cotton enterprises across the THP and CB regions. The SPA program has been used with individual cooperators in the THP since 1995 and the CB since 1999 to complete farm financial analysis and enterprise profitability analysis.

The data gathered from this project have been used in various analyses, including Roundup Ready versus conventional cotton varieties and the evaluation of cotton-grain sorghum rotations.
Keywords: Standardized performance analysis, financial analysis
Project Title: Structural Models of the U.S. and the Rest-of-the-World Natural Fiber Market

Principal Investigators: Samarendu Mohanty and Octavio Ramirez

Collaborators and Collaborating Agencies: Jaime Malaga, Don Ethridge

Primary Funding Agency: USDA/CSREES (Congressional Initiative)

Funding Amount: $377,349 ($152,649 2001/02)

Beginning Date: 09/01/01

Ending Date: 8/31/03

Project Objective: The main objective of this project is to develop and maintain the models, procedures, and expertise needed to respond to Congressional requests of information, analysis and advise on the expected response of natural fiber markets in response to potential change in U.S. and foreign agricultural policies.

Project Summary and Accomplishments: This research develops structural econometric models for the world cotton market to aid analysis of the expected behavior/response of the natural fiber markets (cotton, wool and mohair). During the first year of the project, significant progress has been made in the area of model development. Cotton supply response models for the United States and three other major producing countries such as India, Australia and Pakistan, have been developed.

For the United States, models have been developed for each of the major cotton producing regions, separated into irrigated and non-irrigated, when necessary. These models are based on recently developed statistical techniques that allow for more precise supply forecasts and more reliable confidence intervals for the forecasts. The magnitude of the effects of policy and climatic variables on planted acres and yields can be better measured through these techniques.

Significant resources have also been utilized in developing country models for China, India and Mexico. These country models include behavioral equations for supply, substitutability between cotton and man-made fibers, and appropriate linkage between cotton and textile sectors. The demand for cotton is estimated using a quasi-two stage budgeting process. In the first stage, total fiber demand (cotton, wool, the cellulosic and synthetic fibers) is calculated by summing fiber demand in apparel, home furnishing and industrial sectors. In the second step, total fiber consumption
is disaggregated among cotton, synthetic, cellulosics and wool based on relative prices and other factors in share demand equations. Prices of cotton substitutes are endogenized in the model by having a supply response for each of these sectors. Man-made fiber supply response, for both synthetic and cellulosic, is derived through the estimation of production capacity and capacity utilization equations for each market.

Since estimation of the cotton supply and demand for various countries is extremely time-consuming task, we are also working on developing a synthetic world cotton model, where supply and demand parameters are borrowed from the existing literature. Once the synthetic model in place within the next six months, we will be able to respond to Congressional and other requests for various policy impacts on the U.S. and the world cotton markets.

**Keywords:** Structural model, cotton
Project Title: Supply and Demand for Fiber Attributes for the Texas and Oklahoma Producer Cotton Model

Principal Investigators: Sukant Misra and Don Ethridge

Collaborators and Collaborating Agencies: Plains Cotton Cooperative Association, e-Cotton

Primary Funding Agency: Cotton Economics Research Institute

Funding Amount: $ 20,000 for 1/1/01 – 12/31/01

Beginning Date: 1/1/2000

Ending Date: 5/1/2001

Project Objective: The general objective of this study is to analyze changes in cotton fiber attribute values for the Texas and Oklahoma cotton marketing regions resulting from the supply of and demand for these attributes.

Project Summary and Accomplishments: The results of this study provide an empirical application of a two-stage hedonic framework, and is the first to present the perspective that second-stage hedonic estimation of characteristics bid and offer functions rather than supply/demand relationships. In addition, several questions were raised concerning the relationship between general price levels and characteristic price levels as well as the contribution of characteristic values to the overall price of a commodity. This study provides the groundwork for future research which can be devoted to answering these questions.

Keywords: Supply, demand, fiber attributes, cotton
Project Title: U.S. Textile Manufacturer’s Pricing of Cotton Quality

Principal Investigators: Don Ethridge and Conrad Lyford

Collaborators and Collaborating Agencies: Cotton Incorporated, 10 U.S. textile manufacturing firms

Primary Funding Agency: Cotton Inc.

Funding Amount: $ 25,000

Beginning Date: 01/01/02

Ending Date: 12/31/02

Project Objective:
The general objective is to identify premium and discount levels for cotton fiber attributes. Specific objectives are:
A) To develop, expand and update the database of cotton purchases from textile mills.
B) To establish reliable estimates of price differentials paid for fiber attributes by textile mills, by production regions.
C) If regional differences persist, identify the reasons why different U.S. cotton producing regions receive differing prices.
D) To disseminate the information to the cotton industry.

Project Summary and Accomplishments:
This is an ongoing project for discovering and reporting cotton premiums and discounts paid for cotton by the textile sector. Contract purchase data are collected quarterly, hedonic price models are used to estimate premiums and discounts, and results are reported to the industry. Work has been done with Cotton Incorporated to automate the data collection process, and four of the 10 firms are now using the automated electronic system. Future plans call for construction of a web-based system for reporting the premium and discount estimates.

Keywords: Cotton, quality, pricing
APPENDIX C

SUMMARY OF COTTON ECONOMICS

RESEARCH FUNDING

2001/02
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*Includes general operating expenses, as well as allocations to research Principal Investigators
APPENDIX D

PUBLISHED OUTPUT RELATED

TO COTTON ECONOMICS

2001/02
PUBLICATIONS ON COTTON ECONOMICS
September 2001 – August 2002
Department of Agricultural and Applied Economics
Texas Tech University

JOURNAL ARTICLES


TECHNICAL BULLETINS AND REPORTS


PROCEEDINGS PAPERS


ABSTRACTS


APPENDIX E

COTTON ECONOMICS RESEARCH UPDATE

January 2002, and July 2002 Issues
Cotton Economics Research Update

Welcome

Cotton Economics Research activities are continuing to change, expand, and unfold. New faculty bring added dimensions to our activities in the Agricultural and Applied Economics Department, and the Cotton Economics Research Institute. For example, Conrad Lyford has become involved in the analytical work on cotton prices and is pursuing new agribusiness management issues. Jaime Malaga is becoming involved with Sam Mohanty and Octavio Ramirez in the cotton policy analysis work and pursuing international trade issues with Mexico within NAFTA, both in collaboration with our partners at Texas A&M. We are also expanding the focus of our Research/Extension Symposium beyond the economics realm to include agronomic and communications related matters, thus further emphasizing our multi-disciplinary, problem-solving focus in the program. This is being done under the leadership of Sukant Misra, and Jacqui Lockaby in Agricultural Education and Communications. In addition, Dr. Vernon Lansford, a native of Las Cruces, New Mexico, and recent graduate of the University of Missouri - Columbia, will be joining the AAEC Department faculty working in Production and Resource Economics in May.

We welcome your input. Page four of this newsletter provides contact information.

Don Ethridge, Director

Recent Studies

Assessing Competitiveness of Indian Cotton Production

This research uses a policy analysis matrix (PAM) approach to assess the comparative advantage of cotton in India. The results indicate that cotton is not efficiently produced in the second largest cotton producing state in the country. Without government interventions, it is likely that area will move away from cotton to more profitable crops such as sugarcane and groundnut. Under this scenario, India might emerge as major cotton importer to meet the growing domestic demand.

This project is funded by the USDA. For more information contact Sam Mohanty.

Profitability of Cotton-Grain Sorghum Rotations in Texas

Grain sorghum was shown to be profitable in the Coastal Bend region for dryland operations under crop share rental agreements in 1999 and 2000. Results for grain sorghum as primary and replacement crops indicated profitability concerns in both the Northern and Southern High Plains. Analysis of cotton yields in a cotton – grain sorghum rotation indicated an increase of 170 and 142 lbs. per acre following grain sorghum one and two years, respectively. These rotational effects on cotton yields proved to have a significant impact on increased cotton profits and provided evidence for the profitability potential of utilizing grain sorghum in cotton rotations.

This project is funded through PROFIT Initiative. For more information contact Phillip Johnson.
Forecasting Foreign Cotton Production: The Case of India, Pakistan, and Australia

This research identifies and analyzes the causes of cotton yield and acreage variations in Australia, India, and Pakistan. In general, it was found that yields are affected by cotton price, competing crop prices, fertilizer price, rainfall, and the number of acres planted. Acres planted are affected by the expected returns and the variability of the returns from cotton production expectations from the production of competing crops and rainfall.

In Australia, the rate of yield growth has been modest and decelerating, but this study shows that acreage is likely to continue to increase at an accelerated rate. In India, yields have been climbing at an increasing rate and acreage continues to expand at a slow rate. In Pakistan, yields are climbing at an increasing rate, while acreage is climbing at a moderate rate. These results do not support the predictions that Pakistan is about to become a net importer of cotton.

This project is funded by USDA/CREES. For more information contact Octavio Ramirez.

Recent Activities

Misra Moves to Deans Office

Sukant Misra has been appointed as Associate Dean of Research for the College of Agricultural Sciences and Natural Resources on a halftime basis. He will continue to serve as the Associate Director of the Cotton Economics Research Institute and as a faculty member of the Department of Agricultural and Applied Economics.

FAPRI Baseline

Sam Mohanty and Octavio Ramirez traveled to Washington, DC on December 14 & 15, 2001 to attend the FAPRI annual baseline review conference. The FAPRI conference is attended by leading crop analysts around the country and is very useful in gathering supply and demand situations of world cotton. They provided useful insights to FAPRI analysts on cotton outlook.


The department has produced a 2000/2001 annual report of research activities and accomplishments in Cotton Economics Research which is conducted within the Cotton Economics Research Institute at Texas Tech University. If you are interested in receiving a copy, please call or write to the department.

You can also access this report on our web page, http://www.aeco.ttu.edu/CER-Institute/AnnualCER00-01.PDF

Bankers Agricultural Credit Conference

The 29th Annual Bankers Agricultural Credit Conference was held November 16, 2001. Mr. Mark Scanlan, Independent Community Bankers of America and Dr. Edward Smith, Texas Cooperative Extension Service, spoke on the new farm policy legislation currently being debated in Congress. Dr. Scott Hein, Professor of Finance and Briscoe Chair of Bank Management at Texas Tech University, presented an overview of the financial outlook for the U.S. economy in 2002. The Bankers Agricultural Credit Conference is sponsored by the Thornton Agricultural Finance Institute, Texas Tech University.

Agricultural Policy Summit

Advisory Committee Meeting

The Cotton Economics Research Advisory Committee (Carl Anderson, Carleton Davis, Curtis Griffith, Jaroy Moore, Vern Tyson, Dan Upchurch, Steve Verett, and Tony Williams) met on October 5, 2001. Principal Investigators gave oral reports on projects, and the committee met with students working on Cotton Economics projects. Dean John Abernathy met with the committee and Associate Dean Robert Albin joined the meeting as the major events of the previous year were reviewed. The committee closed with their remarks and recommendations for the CER program.

For more information contact Sukant Misra or Don Ethridge.

Third Annual Research/Extension Symposium on Cotton Economics Issues Scheduled for April 2002

The Cotton Economics Research Institute will be sponsoring the third annual research/extension symposium in April, 2002 in collaboration with the Texas Agricultural Extension Service. The motivation behind this symposium is to 1) deliver important research results directly to selected agricultural extension scientists for further dissemination to the cotton industry and 2) provide an opportunity to our extension colleagues to evaluate the relevancy of our research activities and help shape the future research focus of the cotton economics research program.

For more information contact Sukant Misra or Don Ethridge.

Beltwide Cotton Conference Activities

Thirteen faculty and students from the Agricultural & Applied Economics department attended the National Cotton Council’s Beltwide Cotton Conferences in Atlanta, GA, held January 8-12, 2002. Included were the posters of two students in the undergraduate College of Agricultural Sciences and Natural Resources Research Program, Joshua Burris and Phil Peabody. Papers/Posters and authors were:

Jason Blackshear, Phillip Johnson and Heidi Gum. “Profitability and Cost of Production of Roundup Ready Versus Conventional Cotton in the Texas High Plains.”

Carlos Carpio and Octavio Ramirez. “Forecasting Foreign Cotton Production: The Case of India, Pakistan and Australia.”

Susan Watson, Eduardo Segarra, Man Yu, Hong Li, Robert Lascano, and Kevin Bronson. “Assessment of the Profitability of Precision Farming in Irrigated Cotton Production.”


Phil Peabody, Efrem Bechere, Dick Auld, and Phillip Johnson. “Chemical Mutation Breeding as a Tool in Developing of Short Season Cotton Genotypes on the Texas High Plains.”


Invited Presentation:
Sukant Misra and Jeanne Reeves. “Cotton Harvesting Cost Calculator.”
Web Site and E-Mail Address

The Cotton Economics Research Institute now has a Web Site of its own. Information on current research projects, publications, activities, etc., can be obtained through this site at:


The e-mail address for the Institute is:

cer@ttu.edu.

For more information on cotton economics research, contact the department at:

Box 42132
Lubbock, TX 79409-2132
(806) 742-2821
FAX (806) 742-1099

Individual researchers can be reached as followed:

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Octavio Ramirez
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Eduardo Segarra
742-0277 ext.242; Eduardo.Segarra@ttu.edu
David Willis
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Welcome

Change is inevitable in the face of progress, and the Cotton Economics Research Institute is no exception. One source of change within our program is the infusion of new faculty with a unique mix of ideas and talents. Their perspectives and initiatives take us in some new/different directions. Some changes are driven by sources of funding. Since our state-level funding remains static or diminishes while our Federal funding is increasing, we are expanding our focus toward national and international issues. Our program continues to expand, but some things remain constant.

New Projects

Business Models for Competitive Success in the Textile Industry

Having a strong and viable domestic and Texas textile industry is important to Texas because it provides economic activity and stable markets. Firms in the Texas and broader U.S. textile industry have been under excessive competitive pressure due to the strong U.S. dollar and other factors, including international competitors’ policies to capture market share. This has caused many U.S. textile (including some Texas) facilities to close.

The research will identify business models that can be competitively successful for the Texas textile industry. As business models are identified, the primary benefit will be to show economic/business opportunities for the Texas textile industry that offer strong prospects. In addition, this information could be used to promote effective industry practice in key areas as well as indicate the future of the industry.

This project is funded by USDA through the International Cotton Research Center. For additional information, contact Conrad Lyford.

Texas Tech is joining CNAS

Texas Tech University is joining the Center for North American Studies, a consortium which also includes Texas A&M University, Louisiana State University, and New Mexico State University. CNAS is a federal initiative promoting stronger trade relationships among the U.S., Mexico, and Canada with emphasis on agricultural production in the U.S. Southern states. The impact of the Mexican textile industry on U.S. cotton exports ranks among the main topics to be analyzed. Our work in CNAS began in 2002.

For additional information, contact Jaime Malaga.
Recent Studies

Producer Supply Response for Cotton in the United States

Upland cotton is an important commodity in the United States, with the location and amount of domestic production determined by differences in environmental, economic and policy factors. Though upland cotton production occurs in 17 southern states, differences in production conditions and systems require regional aggregation of upland cotton production on the basis of concentrations in four main areas within the southern half of the U.S.

Dramatic shifts in production shares of the four primary regions have occurred during the last 25 years. The general objective of this study was to analyze producer supply response in the four major cotton-producing regions in the U.S. through quantification of the effects of environmental, economic and policy factors on cotton yields and acreage.

Among other things, this research concluded that changes in cotton and competing crop prices and costs of production have a larger impact on cotton yields and acreage than previously believed. Cotton production was also found to respond to changes in the level of volatility of cotton prices, relative to other crop prices. The study also identified significant shifts in regional acreage caused by changes in agricultural policies over the last 20 years.

This project was funded by USDA as part of the Cotton Policy Modeling Initiative. For additional information, contact Octavio Ramirez.

Recent Activities

Travel and Presentations

Jaime Malaga was an invited speaker at the conference, “Free Trade of the Americas, the WTO and New Farm Legislation: Responding to Opportunities and Challenges” held in San Antonio, TX on May 23-24.

Don Ethridge traveled to Mannheim, Germany, April 23-28. He presented an invited paper, “Daily Hedonic Price Analysis,” at the Symposium on Price Indices and Quality Change sponsored by the Centre for European Economic Research at the University of Mannheim. The presentation featured research that has been sponsored by Cotton Incorporated.

On May 24th, Don Ethridge attended the Board of Directors meeting of TeXas Economists, an organization of professional economists with the goal of emphasizing applications of economic principles in state policy matters.

Don Ethridge, Eduardo Segarra, and Sukant Misra attended the TeXas Economists - Economic Conference in Austin, on April 10th. Dr. Segarra made an invited presentation, “Valuing Groundwater in Agricultural Production in the Southern High Plains of Texas.”

The Southern Agricultural Economics Association 34th Annual Meetings Program was February 3-6 in Orlando, Florida and was attended by Don Ethridge, Sukant Misra, Octavio Ramirez, Conrad Lyford and David Willis. Students in attendance at the Southern Agricultural Economics Association meetings were Megan Britt, Jagada Chaudhary, and the members of the Quiz Bowl Team which are Dane Sanders, Jennifer Christian, Katie Yates, and Carman Hayworth.

Dr. Sukant Misra attended the Ag Summit, “Food and Agricultural Biosecurity: Everyone’s Responsibility,” in Austin, May 6-7th.

Don Ethridge attended the Texas Agricultural Cooperatives Council / Texas AgCredit joint annual meeting in Corpus Christi, March 10-12.

Conrad Lyford traveled to Las Vegas, NV for the Western Coordinating Committee on Agribusiness and Research meeting on June 23-25. He also attended Cotton Incorporated’s 15th Annual Engineered Fiber Selection System Conference June 10-12 in Memphis, TN.
Advisory Committee Meeting

This year’s annual Cotton Economics Research Advisory Committee meeting is scheduled for Friday, October 4, 2002. Continuing committee members are Vern Tyson, Jaroy Moore, Carleton Davis, and Steve Verett. Joining the committee this year will be Bill Norman, Edward Smith, Lynn Scherler and Leslie Meyer. We would like to thank the members rotating off the committee this year for their service to the program. Outgoing active committee members are Carl Anderson, Dan Upchurch, Curtis Griffith and Tony Williams. Their work is much appreciated.

New Faculty Members to Join AAEC Department

Dr. Tom Knight will join the department August 1. Dr. Knight has his M.S. from Oklahoma State University and his Ph.D. from the University of Missouri-Columbia, and has been teaching for the last 18 years at Texas A & M University. Dr. Roderick Rejesus will also be joining the faculty in August, 2002. He received his Ph.D. from the University of Illinois and has been at Tarleton State University the past year. Both Knight and Rejesus will focus on risk management/crop insurance, which will include cotton industry issues. Dr. Vernon Lansford joined the faculty in May, 2002 after completing his Ph.D. program at the University of Missouri.

CER News Releases

The following news releases have been written to provide information to the public about the recent projects being conducted through the Cotton Economics Research Institute. For more information contact Sukant Misra or Don Ethridge, or go to our web site at http://www.aeco.ttu.edu/cerinstitute.htm, then go to “Press Release.”

1) Profitability and Production Costs
2) Harvest Timing, Bur Extracting, and Weathering Effects on Cotton Production
3) Modeling and Forecasting Cotton Supply and Demand
4) Improving Nitrogen Fertilizer Use-Efficiency
5) Precision Farming
6) Potential Economic Benefits of Adjusting Dryland Cropping Strategies

Research/Extension Symposium

The Cotton Economics Research Institute at Texas Tech University held their 3rd Annual Research/Extension Symposium on Wednesday, April 3. This symposium was organized by the Cotton Economics Research Institute and Texas Cooperative Extension. The event was targeted at a select group of extension agents and specialists involved in cotton production and marketing programs. The focus of the Research/Extension Symposium was to inform the group of the research projects being conducted within the Institute. Participants also provided input about future research for the Institute. Speakers from Texas Cooperative Extension reviewed on-going research activities and offered suggestions for future collaboration.

The symposium was funded through the CER Institute, the College of Agricultural Sciences and Natural Resources, and Cotton Incorporated. For more information, contact Sukant Misra.

Students Involved in Cotton Economics Research

Our continued dedication to quality student instruction is exemplified by the number of students who are involved in the cotton economics research program. At the present time (spring and summer), they are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree Program</th>
<th>Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Blackshear</td>
<td>Ph.D.</td>
<td>Johnson/Segarra</td>
</tr>
<tr>
<td>Andy Boyd</td>
<td>M.S.</td>
<td>Malaga</td>
</tr>
<tr>
<td>Jagada Chaudhary</td>
<td>Ph.D.</td>
<td>Mohanty</td>
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<tr>
<td>Megan Denning</td>
<td>M.S.</td>
<td>Ramirez</td>
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<tr>
<td>Tyler Denning</td>
<td>JD</td>
<td>Lyford</td>
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<tr>
<td>Mohamad Fadiga</td>
<td>Ph.D.</td>
<td>Misra/Ramirez</td>
</tr>
<tr>
<td>Travis Ferguson</td>
<td>M.S.</td>
<td>Segarra</td>
</tr>
<tr>
<td>Janet Fetch</td>
<td>Undergrad</td>
<td>Johnson</td>
</tr>
<tr>
<td>Heidi Gum</td>
<td>M.S.</td>
<td>Johnon</td>
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<tr>
<td>Deidra Howell</td>
<td>Undergrad</td>
<td>Lyford</td>
</tr>
<tr>
<td>Hongyuan Li</td>
<td>M.S.</td>
<td>Mohanty</td>
</tr>
<tr>
<td>Antonio Lopez</td>
<td>M.S.</td>
<td>Ramirez</td>
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<tr>
<td>Enrique Lopez</td>
<td>M.S.</td>
<td>Ramirez</td>
</tr>
<tr>
<td>Naveen Musunuru</td>
<td>Ph.D.</td>
<td>Segarra</td>
</tr>
<tr>
<td>Dane Sanders</td>
<td>Undergrad</td>
<td>Misra</td>
</tr>
<tr>
<td>Ginger Sides</td>
<td>Undergrad</td>
<td>Johnson</td>
</tr>
<tr>
<td>Raghu Vamshi</td>
<td>M.I.S. (CS)</td>
<td>Misra</td>
</tr>
<tr>
<td>Jason Ward</td>
<td>M.S.</td>
<td>Misra</td>
</tr>
<tr>
<td>Susan Watson</td>
<td>Ph.D.</td>
<td>Segarra</td>
</tr>
</tbody>
</table>
Contact Information

Web Site and E-Mail Address

Information on current research projects, publications, activities, etc., can be obtained through the following web site:


The e-mail address for the Institute is:

cer@ttu.edu.

For more information on cotton economics research, contact the department at:

Box 42132
Lubbock, TX 79409-2132
(806) 742-2821
FAX (806) 742-1099

Individual researchers can be reached as followed:

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APPENDIX F

NOTES ON COTTON ECONOMICS RESEARCH

ADVISORY COMMITTEE MEETING

October 6, 2001
Notes on Cotton Economics Research Advisory Committee Meeting; 10-6-01

The day began with breakfast at 7:00 a.m. at the University Center on the Texas Tech campus. In attendance were Committee members Carl Anderson, Carleton Davis, Curtis Griffith, Jaroy Moore, Dan Upchurch, and Tony Williams; Dean Abernathy and Associate Deans Robert Albin, Marvin Cepica, and Norm Hopper; and Don Ethridge and Sukant Misra. Introductions and welcomes were made by Don Ethridge.

The sessions began in the AAEA Conference room at 8:00 a.m. In attendance were Committee members Carl Anderson, Carleton Davis, Curtis Griffith, Jaroy Moore, Dan Upchurch, and Tony Williams (Steve Verett and Vern Tyson were unable to attend); Dean Abernathy, Associate Dean Robert Albin; and Emmett Elam, Don Ethridge, Phillip Johnson, Conrad Lyford, Jaime Malaga, Sukant Misra, Sam Mohanty, Octavio Ramirez, and Eduardo Segarra. John Abernathy began the session by summarizing several college and university initiatives that may have bearing on future cotton economics research activities. Following Dean Abernathy's introductory remarks, from 8:30 am to 11:00 a.m. was spent with the Principal Investigators (Jaime Malaga, Conrad Lyford, Phil Johnson, Sam Mohanty, Sukant Misra, Emmett Elam, Octavio Ramirez, and Eduardo Segarra) giving reports on 19 ongoing research projects and future research plans. Students working on cotton economics projects met with the committee from 11:00 to 11:45 a.m. This was followed by lunch at 12 noon at the University Center.

The Committee reconvened in the Conference Room at 1:15 p.m. Don Ethridge and Sukant Misra reviewed major events of the previous year. Three specific items discussed were the department's new research initiative on cotton modeling/forecasting (FAPRI initiative), the proposed initiative on crop insurance, and planned establishment of an Agribusiness Research Center. The Committee went into executive session beginning at 2:00 p.m. to review the Cotton Economics Research program and its progress and activities.

At 2:40 p.m., the faculty and Dr. Albin met with the Committee to hear their remarks and recommendations. A summary of the Committee's comments follows:

1. The Committee endorsed all of the projects, and commended the applied-focus of research activities, and the dissemination efforts (fact sheets, news releases, Extension/Research Symposium, Web page, etc.) of research results to the industry and the public. The Committee emphasized the need for continuation of these activities.
2. The Committee commended the instruction (student involvement) components of the cotton economics research program and emphasized continued focus on student involvement at professional and industry meetings.
3. The Committee applauded the Web-based delivery of research results and the development of Web-based decision tools. The Committee recommended that we should seriously consider hiring a Web Administrator for managing and maintaining the Institute's Web page.
4. The Committee praised the faculty for their commitment to high quality and relevant research and noted that the department with its diverse faculty and student body is well positioned for internationally focused research on cotton related issues.

5. The Committee supported the FAPRI initiative.

6. The Committee acknowledged the need and the importance of scientific research in crop insurance, but cautioned the faculty to be cognizant of the political nature of how crop insurance products are developed. The Committee suggested that the department should carefully evaluate the potential for meaningful research contribution in the area of crop insurance.

7. The Committee encouraged faculty to be proactive in research pertaining to water resource economics.

8. The Committee supported the department's goal of establishing an Agribusiness Research Center. However, it was pointed out that we must first clearly define the goal and objectives of the Center and develop a strategic plan.

The meeting adjourned at 3:00 p.m.
APPENDIX G
COTTON ECONOMICS RESEARCH
FACT SHEETS
2001/02
PROJECT TITLE: Comparing Costs of Alternative Cotton Harvesting Systems in Texas

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The objective of this research was to evaluate the performance and cost effectiveness of selected harvesting systems in Texas and to develop a web-based harvesting cost calculator.

➢ This information should help producers determine the cost effectiveness of alternative harvesting systems, and the harvesting cost calculator would provide producers with a user-friendly means to accurately estimate harvesting costs.

MAJOR FINDINGS TO DATE:

➢ Results of the study have indicated that a typical Texas cotton producer would minimize the cost of harvesting by investing in a four-row stripper. For picker harvesting, the cost would be minimized with the ownership of a two-row picker.

➢ The second phase of the project has developed a web-based harvesting cost calculator. The calculator is currently located at the Web site:
http://www.aeco.ttu.edu/CER-Institute/CottonHarvesting/default.htm

FOR MORE INFORMATION:

➢ Contact Dr. Sukant Misra at:
(806) 742-2808 or sukant.misra@ttu.edu

SPONSOR:

➢ Cotton Incorporated
Cotton Economics Research Institute
Fact Sheet

April 2002
Fact Sheet #2

PROJECT TITLE: Comparing Profitability of Ultra-Narrow-Row Cotton With Conventional Stripper Harvested Cotton

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The objective of this research was to evaluate and compare the profitability of cotton produced under ultra-narrow-row and conventional row spacing.

➢ This project should help producers determine which cotton system is more profitable.

MAJOR FINDINGS TO DATE:

➢ An enterprise analysis of the 2000 crop did not reveal a reduction in total costs for the ultra-narrow-row cotton production in the Southern High Plains of Texas.

➢ The research continued in 2001, which will result in an expanded dataset.

FOR MORE INFORMATION:

➢ Contact Dr. Sukant Misra at: (806) 742-2808 or sukan.t.misra@ttu.edu

➢ Contact Dr. Phillip Johnson at: (806) 742-0261 ext. 237 or phil.johnson@ttu.edu

SPONSOR:

➢ Cotton Incorporated
PROJECT TITLE: Daily Price Analysis and Reporting for the Texas Oklahoma Cotton Market

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The purpose of this project is to develop, validate, and operate an objective system for estimating cotton prices and quality attribute premiums and discounts in the Texas Oklahoma markets.

➢ This information will be disseminated to market participants.

MAJOR FINDINGS TO DATE:

➢ The research has demonstrated that price, premium, and discount estimation and reporting can be done in such a way as to be timely, scientifically verifiable, and reproducible based on a large daily volume of actual producer spot market transactions.

➢ In addition to estimating and reporting daily, weekly, year-to-date, and an annual summary of producer level cotton prices and quality premiums and discounts, this project provides a web-based “Price Calculator.” The Web site for this project is: http://www.aeco.ttu.edu/DPES/

FOR MORE INFORMATION:

➢ Contact Dr. Sukant Misra at: (806) 742-2808 or sukan.tmisra@ttu.edu

➢ Contact Dr. Don Ethridge at: (806) 742-2821 or don.ethridge@ttu.edu

SPONSOR:

➢ Texas State Support Committee

➢ Cotton Incorporated
PROJECT TITLE: Demand for U.S. Made Cotton Apparel and its Implications for the Cotton Industry

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The central objective of this research is to understand consumer demand for U.S. made cotton apparel and to analyze the demand growth potential relating to consumer socioeconomic profiles and geographical regions.

MAJOR FINDINGS TO DATE:

➢ A preliminary analysis of retail level consumer survey data indicate that average expenditure on apparel is not independent of gender, income, and race of the primary buyer. Further, there is also a regional difference on amount spent on cotton apparel by an average consumer. These findings indicate that a thorough understanding of consumer demand for U.S. made cotton apparel could be beneficial in developing market strategies with potential for demand growth.

➢ Development of an econometric model that captures consumer demand as well as a consumer's purchasing decision for U.S. made cotton apparel is currently under way.

FOR MORE INFORMATION:

➢ Contact Dr. Sukant Misra at: (806) 742-2808 or sukanit.misra@ttu.edu

➢ Contact Dr. Octavio Ramirez at: (806) 742-0277 ext. 245 or octavio.ramirez@ttu.edu

SPONSOR:

➢ USDA/CSREES (through the International Cotton Research Center, College of Agricultural Sciences and Natural Resources, Texas Tech University)
PROJECT TITLE: Developing a Cotton Processing Quality Simulation Model

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

- The objective of this project is to develop a cotton processing simulation model to provide insight into the effects of operating parameters, drying, cleaning and ginning on fiber quality factors.
- This simulation model should allow the ginner to optimize the ginning process by estimating cotton quality as it passes through various sequences of gin machinery used to process stripper harvested cotton.

MAJOR FINDINGS TO DATE:

- The development of the mathematical lint-cleaner relationships of the simulation model has been completed.
- The second phase of the project has developed a web-based simulation program that would allow the ginning industry to accurately determine a ginning configuration to optimize fiber qualities of cotton and to maximize producer profits. The simulator is currently located at the Web site: http://www.aeco.ttu.edu/CER_Institute/newginqual/default.htm

FOR MORE INFORMATION:

- Contact Dr. Sukant Misra at: (806) 742-2808 or sukan@ttu.edu
- Contact Garry Barker at: gary_barker@hotmail.com

SPONSOR:

- ARS/USDA
PROJECT TITLE: Economic Thresholds for Boll Weevil Management in the Southern Plains

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

- The purpose of this project is to determine economically optimal decision criteria for the chemical control of the cotton boll weevil in the Texas Southern Plains using recently developed procedures.

- This project takes advantage of a newly developed procedure to calculate "economically optimal" thresholds that maximize the returns to the farmer's investment in pest control.

MAJOR FINDINGS TO DATE:

- In the case of mid-to-late season boll weevil infestation, it was concluded that by using the economic threshold (ET) determined through this research (10% - 15% damaged squares), instead of the currently recommended ET (20% - 30% damaged squares), the producer could substantially increase farm-level profitability and reduce risk.

- The estimated ET models also provide for a theoretical explanation of the argument often found in the entomological economics literature that producers tend to use lower than optimal ETs and over apply pesticides because of risk aversion.

FOR MORE INFORMATION:

- Contact Dr. Octavio Ramirez at:
  (806) 742-0277 ext. 245 or octavio.ramirez@ttu.edu

SPONSOR:

- Internal (Texas Tech University)
**Cotton Economics Research Institute**

**Fact Sheet**

**April 2002**  
**Fact Sheet #7**

**PROJECT TITLE:** Development of a Web-Based Cotton Production Cost Calculator

**DESCRIPTION OF PROJECT AND SIGNIFICANCE:**

- The central objective of this research is to develop a standardized performance analysis method to calculate enterprise profitability and cost of production for Texas cotton producers.

- In addition, the objectives extend to making this empirical procedure available to producers via a producer-friendly, web-based "Production Cost Calculator."

**MAJOR FINDINGS TO DATE:**

- The development of a simple, easy to use empirical procedure to calculate the true production cost and profitability of a cotton enterprise within a multi-enterprise operation is currently under way.

- The second phase of the project will focus on the development of a web-based production cost calculator based on the standardized performance analysis method of calculating enterprise profitability and cost of production.

**FOR MORE INFORMATION:**

- Contact Dr. Phillip Johnson at: (806) 742-0261 ext. 237 or phil.johnson@ttu.edu

- Contact Dr. Sukant Misra at: (806) 742-2808 or sukant.misra@ttu.edu

**SPONSOR:**

- Texas State Support Committee

- Cotton Incorporated
PROJECT TITLE: Further Development of the Cotton Wizard Cotton Variety Selection Program

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The purpose of this project is to develop a computer model using lint and seed components to aid in cotton variety selection for the U.S. Cotton Belt.

➢ The model will aid cotton producers in selecting cotton varieties for their areas that will provide the greatest economic return.

MAJOR FINDINGS TO DATE:

➢ A cotton variety selection model was developed to include the seed component in addition to the usual lint component. A computer implementation of the model, named the Cotton Wizard, has been developed to assist decision makers in cotton variety selection. Users are provided with information on varieties such as mean net revenue, variability in net revenue, and agronomic characteristics to aid in the decision process. The Cotton Wizard is distributed as a Microsoft Windows compatible product.

➢ A new data set was developed for the Cotton Wizard program to include cotton varieties grown in West Texas performance trials. Final checking of the program output results was completed.

FOR MORE INFORMATION:

➢ Contact Dr. Emmett Elam at: (806) 742-2023 ext. 243 or emmett.elam@ttu.edu

SPONSOR:

➢ Cotton Incorporated
PROJECT TITLE: Harvest Timing, Bur Extracting, and Weathering Effects on Cotton Production and Quality, Ginning Characteristics and Economics

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The study evaluates the profitability and possible implications of alternative harvesting approaches for cotton in the Texas High Plains.

➢ Cotton profitability in the High Plains is uncertain. Producers will benefit from this project because the effects of harvest timing, field-weathering losses, cotton seed and lint quality will be documented. These findings will allow producers to improve their decision making when determining crop termination and harvesting decisions.

MAJOR FINDINGS TO DATE:

➢ The aggregate economic impact on revenues from delayed harvesting of the 2000 irrigated cotton crop resulted in a loss of as much as $38.88/bale, as compared to the level of revenues resulting from optimal crop termination and harvesting approach.

➢ This study is continuing and similar experiments will be conducted.

FOR MORE INFORMATION:

➢ Contact Dr. Eduardo Segarra at: (806) 742-0277 ext. 242 or eduardo.segarra@ttu.edu

➢ Contact Randy Boman at: (806) 746-6101 or R-boman@TAMU.edu

SPONSOR:

➢ Cotton Incorporated
PROJECT TITLE: Improving Nitrogen Fertilizer Use-Efficiency in Deficit Irrigation Systems for Cotton in the Southern High Plains

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The study will evaluate the profitability and possible environmental implications of improved nitrogen fertilizer use efficiency in irrigated cotton production in the Texas High Plains.

➢ Production agriculture is facing significant changes. These changes include changing federal farm programs, escalating costs of production, pest resistance to chemicals, and public concern about the impacts of agricultural production on the environment. This project seeks to aid producers by improving the economics of nitrogen fertilizer use while minimizing possible environmental damages in irrigated cotton production.

MAJOR FINDINGS TO DATE:

➢ Data generated from two experiments at two different locations conducted in this study are being analyzed. The same two experiments are being duplicated this year. The results, thus far, seem to be quite favorable and it is hoped that positive data will be coming out of this year’s experiments.

FOR MORE INFORMATION:

➢ Contact Dr. Eduardo Segarra at: (806) 742-0277 ext. 242 or Eduardo.segarra@ttu.edu

➢ Contact Kevin Bronson at: (806) 746-6101 or K-bronson@TAMU.edu

SPONSOR:

➢ NRI – CSREES/USDA (National Research Initiative)
PROJECT TITLE: Input Management to Increase the Profitability of Irrigated Cotton Production in the Texas High Plains

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

- The objective of this study is to determine the lint and seed yields, quality (micronaire, staple and strength) and turnout that could be expected from commonly used varieties under different irrigation water/nitrogen and phosphorus fertilizer use levels, given the rainfall and heat units observed during the cotton growing season.

- This research provides West Texas cotton farmers with information about how to adjust variety selection and input use levels responding to the price and cost environment and to variations in weather to maintain profitability.

MAJOR FINDINGS TO DATE:

- Cotton quality attributes are substantially affected by variety, weather and input use.

- Consideration of quality and expected weather when making variety and input use decisions can substantially increase profitability and reduce risks.

FOR MORE INFORMATION:

- Contact Dr. Octavio Ramirez at: (806) 742-0277 ext. 245 or octavio.ramirez@ttu.edu

- Contact Dr. Phillip Johnson at: (806) 742-0261 ext. 237 or phil.johnson@ttu.edu

SPONSOR:

- USDA (through the International Cotton Research Center)

- The Texas State Support Committee of Cotton Incorporated
Cotton Economics Research Institute
Fact Sheet

April 2002

PROJECT TITLE: Modeling the Demand of Cotton in the U.S. and Major Cotton Importing Countries

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The main objective of this project is to develop and maintain the models, procedures and expertise needed to respond to Congressional requests of information, analysis and advice on the expected response of natural fiber markets in response to potential change in U.S. and foreign agricultural policies.

MAJOR FINDINGS TO DATE:

➢ Research is currently in progress for this study. A synthetic world cotton model is currently being developed to respond to Congressional request by the fall of 2002. In addition, four graduate students are working on various country models. These country models will be incorporated into the world cotton model upon completion.

FOR MORE INFORMATION:

➢ Contact Dr. Samarendra Mohanty at: (806) 742-0277 ext. 240 or smohanty@ttu.edu

➢ Contact Dr. Octavio Ramirez at: (806) 742-0277 ext. 245 or octavio.ramirez@ttu.edu

SPONSOR:

➢ USDA (Congressional Institute)
PROJECT TITLE: Modeling and Forecasting of the Supply of Cotton in the U.S. and other Major Cotton-Producing Countries

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

- The purpose of this project is to build economic models that help identify and measure the impact of the main factors affecting the supply of cotton in different regions of the U.S. and other major cotton-producing countries of the world, and to be able to predict future cotton supply with the highest possible accuracy.

- Given the current trend of increased agricultural trade globalization, an improved understanding of the determinants of the supply of cotton and more precise forecasts of future supplies are essential for industry policy discussions, analysis and planning.

MAJOR FINDINGS TO DATE:

- Preliminary supply-response models have been developed for the four major cotton-producing regions of the United States and for India, Pakistan and Australia.

FOR MORE INFORMATION:

- Contact Dr. Octavio Ramirez at: (806) 742-0277 ext. 245 or octavio.ramirez@ttu.edu

SPONSOR:

- Cotton Economics Research Institute
Cotton Economics Research Institute
Fact Sheet

April 2002

PROJECT TITLE: Potential Economic Benefits of Adjusting Dryland Cropping Strategies Based on Seasonal Rainfall Forecasts

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The purpose of this study is to evaluate the profitability and possible implications of adjusting dryland cropping production practices based on improved weather forecasts in the Texas High Plains.

➢ This program seeks to aid producers by evaluating dryland farm management practices that could effectively reduce economic risk of crop production in semi-arid environments.

MAJOR FINDINGS TO DATE:

➢ Work on CROPMAN began in the summer of 2001. Work on the formulation of representative farm quadratic optimization models will begin this year.

FOR MORE INFORMATION:

➢ Contact Dr. Eduardo Segarra at: (806) 742-0277 ext. 242 or Eduardo.segarra@ttu.edu

SPONSOR:

➢ College of Agricultural Sciences and Natural Resources, Texas Tech University

➢ Texas Agricultural Experiment Station – Lubbock, Texas A&M University
Cotton Economics Research Institute
Fact Sheet

April 2002

PROJECT TITLE: Precision Farming – Site Specific Production Systems: Economics of Precision Farming Practices in the Texas High Plains

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The objective of this study is to evaluate the profitability and possible environmental implications of precision farming practices in grain sorghum, corn, peanut and cotton production in the Texas High Plains.

➢ Precision farming could benefit producers by allowing them to optimize variable input use within fields. These practices have great potential for improved input utilization efficiency, enhancement of profits, and reduction of environmental impacts from crop production.

MAJOR FINDINGS TO DATE:

➢ To date, several sub-projects dealing with grain sorghum production, cotton, corn and peanut issues have been completed. Two briefing papers were completed and will become a base for two journal articles that will be submitted for publication this year.

FOR MORE INFORMATION:

➢ Contact Dr. Eduardo Segarra at: (806) 742-0277 ext. 242 or Eduardo.segarra@ttu.edu

SPONSOR:

➢ Texas A&M University Precision Agriculture Initiative
Cotton Economics Research Institute
Fact Sheet

April 2002

PROJECT TITLE: Profitability and Production Costs of Grain Sorghum and Cotton in Texas

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The purpose of this project is to perform integraded enterprise and whole farm analysis of grain sorghum producing farms in the Texas High Plains (THP) and Coastal Bend (CB) regions of Texas and to compile a database of grain sorghum production costs and profitability.

➢ Results from this project will provide producers with a detailed analysis of their financial information over their entire farm.

MAJOR FINDINGS TO DATE:

➢ Cooperators have been identified in the THP and CB regions, and analyses for the 1999 and 2000 crop years have been completed. In addition, databases have been developed for the THP and CB regions evaluating irrigated milo, dryland milo, irrigated milo behind failed cotton, and dryland milo behind failed cotton.

FOR MORE INFORMATION:

➢ Contact Dr. Phillip Johnson at: (806) 742-0261 ext. 237 or phil.johnson@ttu.edu

SPONSOR:

➢ TAEX, PROFIT

➢ Cotton Economics Research Institute and Thornton Agricultural Finance Institute
PROJECT TITLE: U.S. Textile Manufacturers Pricing of Cotton Quality Attributes

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

- The general objective of this study is to identify and report premium and discount levels for cotton fiber attributes.
- A secondary goal of this study is to develop a web-based system of reporting results back to the industry that will provide information on the pricing structure at the mill end of the market to all market participants, allowing the industry to function more efficiently.

MAJOR FINDINGS TO DATE:

- Evidence to date shows the four cotton production regions have distinctly different pricing structures. Analyses also show the pricing structures vary somewhat between crop years.
- The approach and procedures are being developed into a system that will provide faster estimation and reporting. In cooperation with Cotton Incorporated, data collection is being converted to electronic handling (a part of the EFS System), placing the data in a standardized format that can be handled and processed more rapidly.

FOR MORE INFORMATION:

- Contact Dr. Don Ethridge at: (806) 742-2821 or don.ethridge@ttu.edu
- Contact Dr. Conrad Lyford at: (806) 742-2821 or Conrad.Lyford@ttu.edu

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- Cotton Incorporated
Cotton Economics Research Institute
Fact Sheet

April 2002
Fact Sheet #18

PROJECT TITLE: Value Added Cotton Products for Animal Feed

DESCRIPTION OF PROJECT AND SIGNIFICANCE:

➢ The objective of this study is to design new formulations and develop technology that will enable the economical production and use of value-added cotton products for animal feeding.

➢ This research will benefit anyone who raises cattle as well as cotton gins because of the cost reductions of using cotton gin waste. This research will enable enterprise growth that can create jobs and increase income in rural communities.

MAJOR FINDINGS TO DATE:

➢ A pilot extrusion process is in operation at the USDA Gin Lab in Lubbock. The pilot process is being used to formulate technically feasible gin trash feed products. Preliminary estimates suggest economies of size, with in-plant process, cost as low as $45 per ton. The estimated interval rate of reflux (IRR) on investment for an extrusion plant ranges from 19% - 80% per year.

FOR MORE INFORMATION:

➢ Contact Dr. Emmett Elam at: (806) 742-2023 ext. 243 or Emmett.elam@ttu.edu

➢ Co-principal investigators: Reed Richardson and Sam Jackson, (ASFT); Carlos Villalobos, (RWFM); and Jacqui Lockaby (AE&C)

SPONSOR:

➢ College of Agricultural Sciences and Natural Resources
APPENDIX H

COTTON ECONOMICS RESEARCH

NEWS RELEASES

2001/02
Profitability and Production Costs
written by Kimberly Warinski, senior agricultural communications major, Texas Tech University

The long-term viability of grain sorghum production in Texas depends on its profitability within farming operations. Researchers in the Cotton Economics Research Institute at Texas Tech University are evaluating profitability and production costs of grain sorghum in the Texas High Plains and Coastal Bend regions using the Standardized Performance Analysis (SPA) program. SPA is a management tool that is used to complete an integrated financial, production and marketing analysis of an entire farming operation.

Farmers, researchers, and extension personnel all benefit from the results of this study. The SPA analysis provides producers with information to assist them with management decisions and gives them the ability to evaluate their individual performance with other producers. A database of farm level financial and economic analysis is also being compiled for grain sorghum production across the Texas High Plains and Coastal Bend regions.

Dr. Phillip Johnson, researcher in the Cotton Economics Research Institute, said the database gives producers a good set of financial information about profitability of their farms.

“The database allows the producer to look at profitability and cost of production of a specific enterprise and gives them better management information,” Johnson said. “Then the producer can see what farms and enterprises are making money.”

-More-
Cooperators have been identified in the High Plains and Coastal Bend regions, and analysis for the 1999 and 2000 crop years have been completed. In these regions, databases have been developed to evaluate irrigated grain sorghum, dryland grain sorghum, irrigated grain sorghum behind failed cotton, and dryland grain sorghum behind failed cotton.

Johnson said that in addition to the project's primary objective, the study was expanded to evaluate the economic impact of a cropping system using grain sorghum in rotation with cotton in the Southern High Plains of Texas.

"The rotational effects of planting cotton one and two years behind grain sorghum has shown an increase in cotton yield," Johnson said.

Johnson said grain sorghum generally shows negative net returns in the High Plains. However, these losses may be offset by the increased cotton profits.

Researchers will continue to obtain cost and profit information each year from the group of cooperating producers. The project has also expanded to include wheat in its study.

For more information, contact Dr. Phillip Johnson at (806) 742-0261 ext. 237 or e-mail him at phil.johnson@ttu.edu.

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Harvest Timing, Bur Extracting, and Weathering Effects on Cotton Production

written by Kimberly Warminski, senior agricultural communications major, Texas Tech University

In recent years, cotton profitability in the Texas High Plains has become uncertain. Specifically, when producers must make several decisions with respect to crop termination and harvesting approaches at the end of a growing season.

Researchers in the Cotton Economics Research Institute at Texas Tech University have documented the effects of harvest timing, field weathering losses, cotton fiber and seed quality in the Texas High Plains. The results of this Cotton Incorporated Texas State Support Committee funded project should help producers improve their decision-making regarding these factors.

Dr. Randy Boman, an Extension cotton agronomist at Texas A&M Research and Extension Center at Lubbock, is cooperating with Dr. Eduardo Segarra, a researcher with the Cotton Economics Research Institute. Boman said the goal of this project is to document the value of an early harvest because researchers in the Texas High Plains had not done this in the past.

"We are finding that for the first time, we are able to collect hard data from large plots on the weathering effects and reductions in yield and quality," Boman said. "With the help of Dr. Alan Brashears with the USDA-ARS Ginning Laboratory at Lubbock, we have been able to quantify the value of early harvesting in the Texas High Plains."

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USDA Classing Office analyses of the 2000 harvest data indicated that significant reductions in lint quality were observed after encountering 3.1 inches of rainfall in October. Also, USDA loan value for the lint was about 44 cents/pound with the early harvest and reached a low of 38 cents in January. This is equivalent to about $28.80/bale in terms of loan value losses. Late harvesting dates resulted in shorter cotton lint with higher short fiber content, according to detailed AFIS and other fiber quality analyses conducted by Dr. Eric Hequet at the Texas Tech University International Textile Center.

“Results show that when harvest is delayed past an optimum and when as little as 3 inches of precipitation occurs during a later harvest period, significant reductions in lint yield and quality, and planting seed quality are encountered,” Boman said.

For more information, contact Randy Boman at (806) 746-6101 or R-boman@TAMU.edu.

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Modeling and Forecasting Cotton Supply and Demand
written by Kimberly Warinski, senior agricultural communications major, Texas Tech University

Cotton is a major agricultural commodity throughout Texas and many other states. Cotton prices have recently reached record lows, which has resulted in a need of federal program intervention. In free market economies, prices are determined by the interaction of supply and demand. An improved understanding of the determinants of the supply of cotton in the United States and other major cotton producing countries of the world along with precise forecasts of future cotton supplies are essential for industry policy, discussions, analysis and planning.

Researchers in the Cotton Economics Research Institute at Texas Tech University are building economic models that help identify and measure the impact of the main factors affecting the supply of cotton in different regions of the United States and other major cotton-producing countries of the world. Using these models, researchers hope to predict future cotton supply with the highest possible accuracy.

Dr. Octavio Ramirez, a researcher in the Cotton Economics Research Institute, said it is essential to understand how different factors affect the supply and demand of cotton in countries around the world and in the United States to be able to make sound policy analyses and decisions.

Preliminary supply-response models have been developed for the four major cotton-producing regions of the United States and for India, Pakistan and Australia.

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“Once you have developed the models, you are able to analyze demand and supply. You can also make informed predictions about the price levels that would be expected in the future under alternative trade and policy scenarios,” Dr. Samarendra Mohanty, another researcher in the Cotton Economics Research Institute, said.

Ramirez and Mohanty are working to develop models, procedures, and the expertise needed to respond to Congressional requests of information, analysis, and advice on the expected response of the natural fiber markets to potential changes in U.S. and foreign agricultural policies, including trade agreements.

A preliminary world model is currently being developed to respond to Congressional request by the fall of 2002. Four graduate students are working on various country-level models that will be incorporated into the world cotton model upon completion.

“We hope to eventually be able to respond to requests from Congress and provide one to three year ahead outlooks for the future supply, demand, and price of cotton in the United States and the rest of the world,” Ramirez said.

“We also will be able to analyze proposed policies and trade agreements and see what impact they could have on the cotton markets around the world and in the United States,” Mohanty said.

For additional information, contact Dr. Octavio Ramirez at (806) 742-0277 ext. 245 or e-mail him at Octavio.Ramirez@ttu.edu, or contact Dr. Samarendra Mohanty at (806) 742-0277 ext. 240 or e-mail him at smohanty@ttu.edu.

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Improving Nitrogen Fertilizer Use-Efficiency

written by Kimberly Warminski, senior agricultural communications major, Texas Tech University

Producers face many changes in agriculture including changing federal farm programs, escalating costs of production, pest resistance to chemicals, and public concern about the impacts of agricultural production on the environment.

The Cotton Economics Research Institute at Texas Tech University seeks to aid producers by improving the economics of nitrogen fertilizer use while minimizing possible environmental damages in irrigated cotton.

Dr. Eduardo Segarra, a researcher in the Cotton Economics Research Institute, said this project is important to this area because the Texas High Plains has a unique source of water, the Ogallala Aquifer, and it is important that producers do not contaminate the aquifer by applying too much nitrogen fertilizer.

“We want to make sure we don’t apply a lot of nitrogen that will leach down,” Segarra said. “On the other hand, if you don’t use enough nitrogen, you will not get good production in the crop. We want to help producers optimize nitrogen use and help the environment at the same time.”

Segarra said researchers are also studying the proper technology to use to apply the fertilizer and trying to determine the best times to apply it.

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Researchers established field studies at the Texas A&M Experiment Station and in Ropesville. Segarra said a variety in conditions is important to the study, and researchers want to perform their experiments in conditions that will be representative of farmers' conditions in reality.

"Thus far, we are getting data," Segarra said. "We are in the process of analyzing data and waiting for more data that will help us look into the optimal use of nitrogen."

For more information, contact Dr. Eduardo Segarra at (806) 742-0277 ext. 242 or e-mail him at Eduardo.segarra@itu.edu

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Precision Farming
written by Kimberly Warinski, senior agricultural communications major, Texas Tech University

Producers in the Texas High Plains compete in the global economy to produce a high-quality crop. To meet the challenge of competition, many producers look to adopt new and advanced agricultural production technologies. One of these new technologies is precision agriculture.

Traditionally, agricultural production treats a field uniformly when applying inputs. However, most fields contain variability, and precision agriculture recognizes this variability and seeks to optimize variable input use within the field. These practices have great potential for improved input utilization efficiency, enhancement of profits, and reduction of environmental impacts from crop production.

Dr. Eduardo Segarra, a researcher in the Cotton Economics Research Institute at Texas Tech University, said farmers utilize their resources well, but that new technologies are always developing that have a direct impact on producers and can help them manage their resources better.

“One of the ways we can contribute to doing things better is through the adoption of new technologies,” Segarra said. “Precision agriculture is one of these technologies to come along, and we are looking to see if precision agriculture can help reduce impact of water scarcity.”

Researchers are evaluating the profitability and possible environmental implications of precision farming practices in grain sorghum, corn, peanuts and cotton production in the Texas High Plains.

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Segarra said the true potential for using precision agriculture is that it will allow the producer to pinpoint specific locations within fields that require more management, which is important in the utilization of chemicals.

Researchers want to determine if this technology will benefit producers through the better use of inputs. Results from the study show precision agriculture can increase profitability from 3 to 6 percent on a per area basis.

Segarra said this research is a continued project, and he wants to learn more about precision agriculture so he can contribute knowledge to the producers who are considering adopting the technology.

"If these things are going to be adopted," Segarra said, "we have to find out if increases in profit will pay for the equipment."

For additional information, contact Dr. Eduardo Segarra at (806) 742-0277 ext. 242 or e-mail him at Eduardo.segarra@ttu.edu.

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Potential Economic Benefits of Adjusting Dryland Cropping Strategies

written by Kimberly Warinski, senior agricultural communications major, Texas Tech University

Significant changes have affected production agriculture including changing federal farm programs, escalating costs of production, pest resistance to chemicals, and public concern about the impacts of agricultural production on the environment. In the Texas High Plains, producers face significant levels of uncertainty and risks associated with dryland agricultural production in a semi-arid environment.

Researchers in the Cotton Economics Research Institute at Texas Tech University are evaluating dryland farm management practices that could effectively reduce economic risks of crop production in semi-arid environments.

Dr. Eduardo Segarra, researcher in the Cotton Economics Research Institute, said dryland farming may become more important to the High Plains region in the future because water is a limited resource.

“If water was to become too expensive or scarce, we want to start finding out what kind of dryland practices will be feasible around here,” Segarra said. “This area can produce crops using dryland, but the question is what is the best way of doing it.”

Segarra said that an important aspect of this study is predicting the weather and utilizing seasonal rainfall in the best possible way.

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“Weather is a pretty hard thing to forecast, but patterns do exist,” Segarra said. “We are looking into developing advanced systems that will take advantage of that.”

Work on CROPMAN, a computer simulation model used to simulate weather happenings, began in the summer of 2001. Researchers are currently in the process of calibrating CROPMAN because it is a broad-based model used for many crops and locations.

“We are tailor-making it for this area,” Segarra said.

Research will continue through December 2003. Segarra said he hopes to find answers for dryland producers and learn more information to help producers with their planning.

For further information, contact Dr. Eduardo Segarra at (806) 742-0277 ext. 242 or e-mail him at Eduardo.segarra@ttu.edu.

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