

# AFPC

## **Agricultural & Food Policy Center**

### at Texas A&M University

## Outlook for Texas Representative Cotton Farms



AFPC Working Paper 04-4

December 2004

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Texas AgFinance, AgCredit of South Texas, Capital Farm Credit,  
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## OUTLOOK FOR TEXAS REPRESENTATIVE COTTON FARMS

AFPC Working Paper 04-4

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## Executive Summary

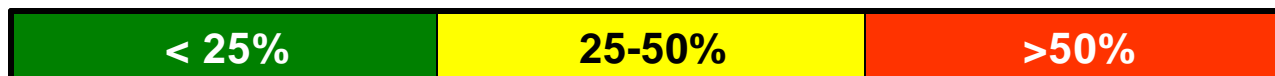
The Agricultural and Food Policy Center (AFPC) at Texas A&M University develops and maintains data to simulate nine representative cotton operations in major production areas throughout the state of Texas. The chief purpose of this analysis is to project those farms' economic viability for 2004 through 2008. The data necessary to simulate the economic activity of these operations is developed through ongoing cooperation with panels of Texas cotton farmers. The Food and Agricultural Policy Research Institute (FAPRI) provided projected prices and input inflation rates in their August 2004 Baseline, which assumes a continuation of the 2002 Farm Bill through 2008.

- Cotton prices are projected to increase marginally each year, from \$0.47/lb in 2004 to \$0.50/lb in 2007 and to more than \$0.52/lb in 2008.
- The graph on the following page contains the summary results for each farm that is typically presented to members of Congress and their staffs. Given the August 2004 FAPRI Baseline, the following observations of future Texas cotton farm viability can be made:
  - Two of the farms (TXEC5000 and TXCB5500) are projected to be in poor overall financial condition during the period. Those farms, along with TXVC4500, are expected to have greater than a 50 percent probability of annual cash flow deficits by 2008. The two farms in poor condition also have greater than a one-third chance of losing real net worth by 2008.
  - Seven of the farms are classified in overall marginal financial condition. These farms are marginal because of their moderate vulnerability (between a 34 and 49 percent chance of a 2008 deficit) to cash flow pressures through 2008. None of these seven farms have greater than an 11 percent probability of declining real net worth by 2008.
  - In summary, representative farms in Texas which derive a large proportion of their receipts from cotton sales appear to be extremely sensitive to low cotton prices during the 2004 through 2008 projection period.

# Economic Viability of Representative Texas Cotton Farms

## August 2004 Baseline

| Farm Name | P(Cash Flow Deficit) | P(Real Net Worth Declines) |
|-----------|----------------------|----------------------------|
| 0/7/2     | 2004-2008            | 2004-2008                  |
| TXSP2239  | 9-41                 | 1-2                        |
| TXSP3745  | 34-49                | 1-11                       |
| TXPC2500  | 15-44                | 1-1                        |
| TXEC5000  | 82-77                | 1-44                       |
| TXRP2500  | 14-34                | 1-11                       |
| TXMC3500  | 33-38                | 1-9                        |
| TXCB1850  | 38-48                | 1-8                        |
| TXCB5500  | 40-61                | 1-34                       |
| TXVC4500  | 47-52                | 1-8                        |



## **Outlook for Texas Representative Cotton Farms**

The farm level economic impacts of the Farm Security and Rural Investment Act of 2002 are projected for representative Texas cotton farms. The analysis was conducted over the 2001-2008 planning horizon using FLIPSIM, AFPC's whole farm simulation model. Data to simulate farming operations in Texas' major cotton production regions came from two sources:

- Producer panel cooperation to develop economic information to describe and simulate representative cotton farms.
- Projected prices, policy variables, and input inflation rates from the Food and Agricultural Policy Research Institute (FAPRI) August 2004 Baseline.

The primary objective of the analysis is to determine cotton farms' economic viability by region through 2008, assuming provisions of the 2002 Farm Bill.

The FLIPSIM policy simulation model incorporates the historical price and production risk faced by cotton farmers. This report presents the results of the August 2004 Baseline in a risk context using selected simulated probabilities and ranges for annual net cash farm income values. The probability of a farm experiencing annual cash flow deficits and the probability of a farm losing real net worth are included as indicators of the cash flow and equity risks facing farms through the year 2008.

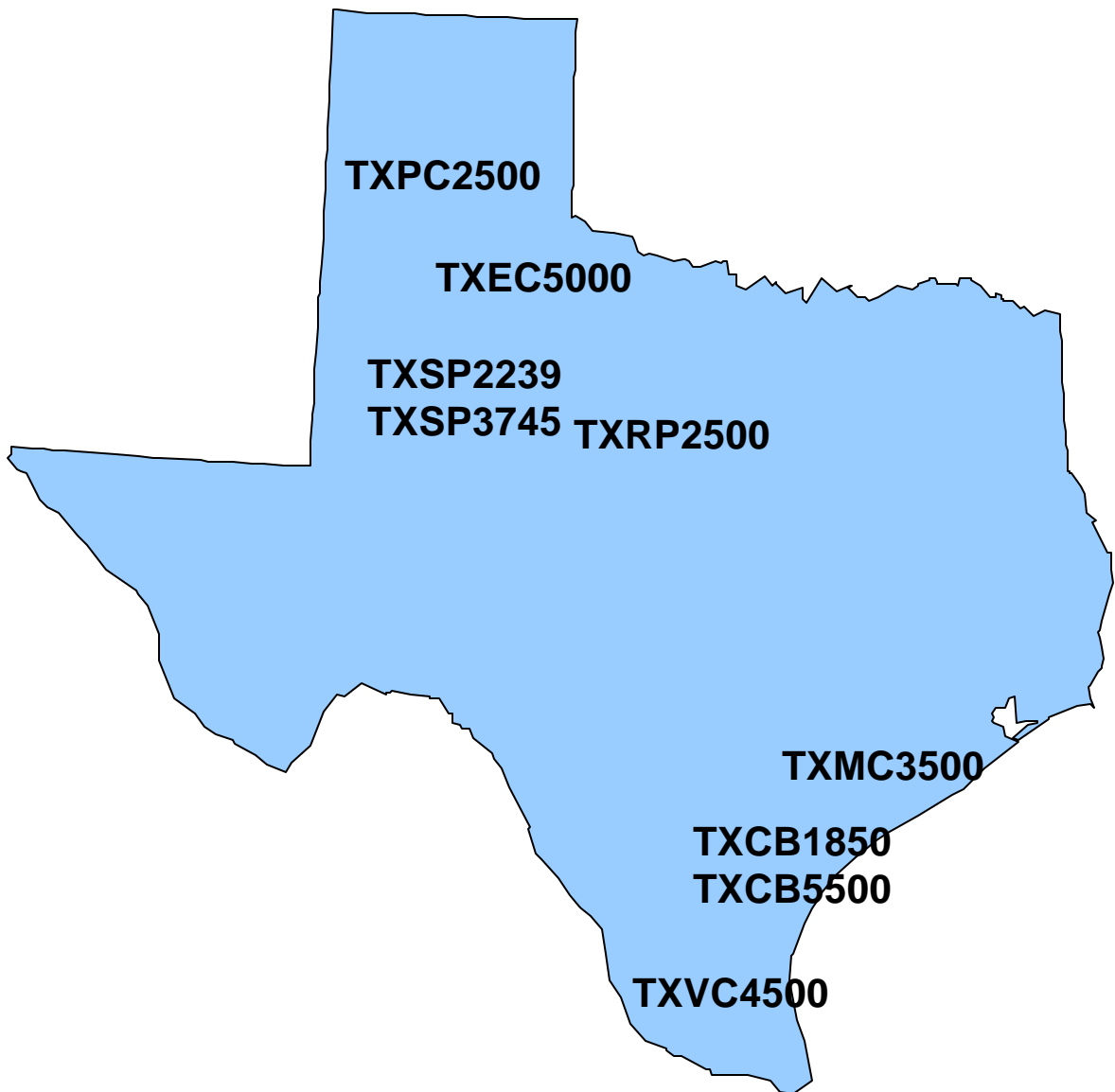
This report is organized into six sections. The first section summarizes the process used to develop the representative farms and the key assumptions utilized for the farm level analysis. The second section summarizes the FAPRI August 2004 Baseline and the policy and price assumptions used for the representative farm analyses. The third section presents the results of the simulation analyses for cotton farms. The fourth section summarizes and compares cost of production information for the nine cotton farms. Two appendices constitute the final sections of the report. Appendix A provides tables to summarize the physical and financial characteristics for each of the representative cotton farms. Appendix B provides the names of producers, land grant faculty, and industry leaders who cooperated in the panel interview process to develop the representative farms.

### **Panel Process**

AFPC has developed and maintains data to simulate nine representative cotton farms chosen from major production areas across Texas (Figure 1). Characteristics for each of the farms in terms of location, size, crop mix, assets, and average receipts are summarized in Appendix A. Information necessary to simulate the economic activity on these representative farms is developed from panels of producers using a consensus-building interview process. Farm locations were chosen to represent the major cotton-growing regions of Texas.

The data collected from the panel farms are analyzed in the whole farm simulation model (FLIPSIM) developed by AFPC. The producer panels are provided pro-forma financial statements for their representative farm and are asked to verify the accuracy of simulated results for the past year and the reasonableness of a five-year projection. Each panel must approve the model's ability to reasonably reflect the economic activity on their representative farm prior to the AFPC using the farm for policy analyses.

# FIGURE 1. LOCATIONS OF TEXAS REPRESENTATIVE COTTON FARMS



Note: Letters are AFPC regional descriptions and numbers represent total crop acres on the farms.

All farms used in the analysis have been updated with the panels since March 2002. All of the farms are assumed to begin 2001 with 20 percent intermediate- and long-term debt, based on information provided by ERS-USDA and the panel members. The debt levels the farms have at the outset of 2001 are based on a stratified tabulation of USDA's Farm Cost and Returns Survey for 2000, using the survey data for moderate to large size farms in states where AFPC has representative farms.

### **Key Assumptions**

- The farms were structured so government payment limits were not effective at reducing direct, counter-cyclical, and loan deficiency payments.
- Minimum family living withdrawals were assumed to be the higher of 10 percent of gross receipts or \$20,000 annually. Actual family living withdrawals are determined by historical consumption patterns. Therefore, as the farm's profitability increases so does the level of family living withdrawals.
- The farm is subject to owner/operator federal (income and self-employment) income taxes as a sole proprietor, based on the current income tax provisions.
- No off-farm-related income, including family employment, was included in the analyses. Therefore, the projections for each farm reflect only the ability of that farm to provide for family living and capital replacement.
- Farm program parameters, average annual prices, crop yield trends, interest rates, and input cost inflation (deflation) are based on the August 2004 FAPRI Baseline which assumes continuation of the 2002 Farm Bill through 2008.
- Direct payments are made based on 85 percent of their historical base acreage times direct payment yield times a direct payment rate.
- Marketing loan provisions for cotton were authorized in the 2002 Farm Bill and are assumed to be in place for the farm level analysis.
- Counter-cyclical payments are triggered by marketing year prices included in the August 2004 FAPRI Baseline.
- The farm level simulation model incorporates price and yield risk faced by farmers. Historical yield variability for crops and production for livestock (sale weights, birth rates, and milk per cow) over the past ten years are assumed to prevail for the planning horizon. Random crop and livestock prices are simulated using the 2004 August Baseline by FAPRI as the forecast of average prices. Prices reflect national price volatility caused by international production and demand as well as U.S production risk.



- Historical crop yields (2001, 2002, and 2003) were set at the actual values obtained from producer panels. Crop yields for 2004 through 2008 were simulated stochastically based on the average yields provided by the producers and the historical yield variability for the farm. Producer-provided prices were used for 2001-2003. FAPRI's August Baseline prices were localized for the farms and used as the average prices for 2004-2008 to simulate stochastic prices.
- Market loss assistance payments and disaster provisions passed in 2001 have been incorporated into the analysis for 2001.
- All farms are assumed to carry Multi-Peril Crop Insurance (MPCI) at the 65/100 level.

### **AFPC Color Classification Scheme**

AFPC assigns overall financial ratings that encompass projected cash flow and equity change. Green farms are in good financial condition, yellow farms are moderate, and red farms are poor. Green is assigned to farms having less than a 25 percent chance of cash flow deficits and loss of real net worth by 2008. Yellow indicates farms having a 25 to 50 percent chance of cash flow deficits and loss of real net worth over the 2004-2008 planning horizon. Red indicates a farm with greater than a 50 percent chance of cash flow deficits and decreasing real net worth over the 2004-2008 planning horizon.

### **FAPRI August 2004 Baseline**

Projected crop prices for FAPRI's August 2004 Baseline are summarized in Table 1. Cotton prices continue to increase gradually, from a period low of \$0.47/lb. in 2004 to \$0.52/lb. in 2008. Corn prices start at a high of \$2.40/bu. in 2003, decrease in 2004 to \$2.28/bu. and then are projected to increase marginally to \$2.44/bu. by 2008. Wheat prices are expected to increase from 2004 through 2008, peaking at \$3.41/bu. Rice prices are expected to decrease from \$7.48/cwt. in 2003 to \$6.03/cwt. in 2007. Peanut prices are assumed to rebound throughout the period, from a sharp decline in 2005 and then increase through 2008.

Assumed loan rates and direct payment rates are summarized in Table 1. The annual direct payment rates for 2002-2008 are those authorized by the 2002 Farm Bill.

Projected annual rates of change for variable cash expenses are summarized in Table 2. The rate of change in input prices and interest rates come from FAPRI's August 2004 Baseline which relies on Global Insight (formerly DRI and WEFA) macroeconomic projections. Annual interest rates paid for long- and intermediate-term loans and earned for savings are also summarized in Table 2. Assumed annual rates of change in land values over the 2004-2008 period are provided by the FAPRI Baseline and indicate roughly a 2 to 3% per year increase in nominal land values throughout the 2005-2008 period (Table 2).

**Table 1. FAPRI August 2004 Baseline Projections of Crop Prices, Loan Rates, and Direct Payment Rates, 2001-2008**

|                             | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Crop Prices</b>          |        |        |        |        |        |        |        |        |
| Corn (\$/bu.)               | 1.97   | 2.32   | 2.40   | 2.28   | 2.37   | 2.40   | 2.43   | 2.44   |
| Wheat (\$/bu.)              | 2.78   | 3.56   | 3.40   | 3.19   | 3.23   | 3.20   | 3.31   | 3.41   |
| Cotton (\$/lb.)             | 0.2980 | 0.4450 | 0.6240 | 0.4697 | 0.4691 | 0.4738 | 0.4969 | 0.5238 |
| Sorghum (\$/bu.)            | 1.94   | 2.32   | 2.38   | 2.20   | 2.30   | 2.30   | 2.32   | 2.33   |
| Soybeans (\$/bu.)           | 4.38   | 5.53   | 7.40   | 5.84   | 5.46   | 5.36   | 5.46   | 5.38   |
| Barley (\$/bu.)             | 2.22   | 2.72   | 2.83   | 2.45   | 2.57   | 2.59   | 2.58   | 2.57   |
| Oats (\$/bu.)               | 1.59   | 1.81   | 1.48   | 1.40   | 1.44   | 1.45   | 1.47   | 1.48   |
| Rice (\$/cwt.)              | 4.25   | 4.49   | 7.48   | 7.10   | 6.30   | 6.13   | 6.03   | 6.18   |
| Soybean Meal (\$/ton)       | 159.98 | 173.18 | 247.99 | 182.05 | 177.72 | 182.01 | 187.79 | 186.44 |
| All Hay (\$/ton)            | 96.50  | 92.40  | 92.90  | 87.03  | 89.06  | 90.81  | 91.87  | 92.81  |
| Peanuts (\$/ton)            | 468.00 | 364.00 | 376.00 | 374.56 | 359.71 | 372.72 | 378.13 | 379.80 |
| <b>Loan Rates</b>           |        |        |        |        |        |        |        |        |
| Corn (\$/bu.)               | 1.89   | 1.98   | 1.98   | 1.95   | 1.95   | 1.95   | 1.95   | 1.95   |
| Wheat (\$/bu.)              | 2.58   | 2.80   | 2.80   | 2.75   | 2.75   | 2.75   | 2.75   | 2.75   |
| Cotton (\$/lb.)             | 0.5192 | 0.5200 | 0.5200 | 0.5200 | 0.5200 | 0.5200 | 0.5200 | 0.5200 |
| Sorghum (\$/bu.)            | 1.71   | 1.98   | 1.98   | 1.95   | 1.95   | 1.95   | 1.95   | 1.95   |
| Soybeans (\$/bu.)           | 5.26   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   |
| Barley (\$/bu.)             | 1.65   | 1.88   | 1.88   | 1.85   | 1.85   | 1.85   | 1.85   | 1.85   |
| Oats (\$/bu.)               | 1.21   | 1.35   | 1.35   | 1.33   | 1.33   | 1.33   | 1.33   | 1.33   |
| Rice (\$/cwt.)              | 6.50   | 6.50   | 6.50   | 6.50   | 6.50   | 6.50   | 6.50   | 6.50   |
| Peanuts (\$/ton)            | 610.00 | 355.00 | 355.00 | 355.00 | 355.00 | 355.00 | 355.00 | 355.00 |
| <b>Direct Payment Rates</b> |        |        |        |        |        |        |        |        |
| Corn (\$/bu.)               | 0.5670 | 0.28   | 0.28   | 0.28   | 0.28   | 0.28   | 0.28   | 0.28   |
| Wheat (\$/bu.)              | 0.9952 | 0.52   | 0.52   | 0.52   | 0.52   | 0.52   | 0.52   | 0.52   |
| Cotton (\$/lb.)             | 0.1209 | 0.0667 | 0.0667 | 0.0667 | 0.0667 | 0.0667 | 0.0667 | 0.0667 |
| Sorghum (\$/bu.)            | 0.6795 | 0.35   | 0.35   | 0.35   | 0.35   | 0.35   | 0.35   | 0.35   |
| Soybeans (\$/bu.)           | 0.1195 | 0.44   | 0.44   | 0.44   | 0.44   | 0.44   | 0.44   | 0.44   |
| Barley (\$/bu.)             | 0.4268 | 0.24   | 0.24   | 0.24   | 0.24   | 0.24   | 0.24   | 0.24   |
| Oats (\$/bu.)               | 0.0453 | 0.02   | 0.02   | 0.02   | 0.02   | 0.02   | 0.02   | 0.02   |
| Rice (\$/cwt.)              | 4.4323 | 2.35   | 2.35   | 2.35   | 2.35   | 2.35   | 2.35   | 2.35   |
| Peanuts (\$/ton)            | 0.00   | 36.00  | 36.00  | 36.00  | 36.00  | 36.00  | 36.00  | 36.00  |

Source: Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri-Columbia and Iowa State University.

**Table 2. FAPRI August 2004 Baseline Assumed Rates of Change in Input Prices, Annual Interest Rates, and Annual Changes in Land Values, 2002-2008**

|   | 2002 | 2003  | 2004  | 2005  | 2006  | 2007 | 2008 |
|---|------|-------|-------|-------|-------|------|------|
| <b>Annual Rate of Change for Input Prices Paid</b>    |      |       |       |       |       |      |      |
| Seed Prices (%)                                       | 1.30 | 7.12  | 1.21  | 0.45  | 0.74  | 1.00 | 0.89 |
| Fertilizer Prices (%)                                 | 0.07 | 20.60 | -8.83 | -4.84 | -1.17 | 2.02 | 1.56 |
| Chemical Prices (%)                                   | 1.64 | 6.36  | -0.16 | 2.90  | 2.03  | 1.09 | 0.77 |
| Machinery Prices (%)                                  | 1.95 | 0.30  | 0.39  | 0.40  | 0.31  | 0.34 | 0.34 |
| Fuel and Lube Prices (%)                              | 0.14 | 20.60 | -8.83 | -4.84 | -1.17 | 2.02 | 1.56 |
| Labor (%)   | 4.38 | 0.76  | 0.73  | 0.73  | 0.68  | 0.69 | 0.67 |
| Other Input Prices (%)                                | 2.31 | 1.51  | 1.78  | 2.17  | 2.15  | 2.19 | 2.24 |
| Non-Feed Dairy Costs (%)                              | 0.56 | 4.86  | -0.76 | 0.12  | 0.56  | 0.96 | 0.82 |
| Non-Feed Beef Costs (%)                               | 0.56 | 4.86  | -0.76 | 0.12  | 0.56  | 0.96 | 0.82 |
| Non-Feed Hog Costs (%)                                | 0.56 | 4.86  | -0.76 | 0.12  | 0.56  | 0.96 | 0.82 |
| <b>Annual Change in Consumer Price Index (%)</b>      | 2.32 | 1.51  | 1.78  | 2.17  | 2.15  | 2.19 | 2.24 |
| <b>Annual Interest Rates</b>                          |      |       |       |       |       |      |      |
| Long-Term (%)   | 5.40 | 4.99  | 5.47  | 5.85  | 5.71  | 5.71 | 5.98 |
| Intermediate-Term (%)                                 | 4.53 | 3.65  | 4.34  | 5.10  | 5.24  | 5.36 | 5.84 |
| Savings Account (%)                                   | 1.70 | 1.11  | 1.11  | 1.80  | 2.17  | 2.44 | 3.18 |
| <b>Annual Rate of Change for U.S. Land Prices (%)</b> | 5.22 | 4.96  | 4.62  | 2.11  | 2.00  | 2.57 | 2.73 |

Source: Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri-Columbia and Iowa State University.

## Definitions of Variables in the Summary Tables

- **Overall Financial Position, 2004-2008** -- As a means of summarizing the representative farms' economic efficiency, liquidity, and solvency position AFPC classifies each farm as being in either a good, marginal or poor position. AFPC assumes a farm is in a good financial position when it has less than a 25 percent chance each of a cash flow deficit and a 25 percent chance of losing real net worth. If the probabilities of these events are between 25 and 50 percent the farm is classified as marginal. A probability greater than 50 percent places the farm in a poor financial position.
- **Change in Real Net Worth, 2004-2008** -- Annualized percentage change in the operator's net worth from January 1, 2004 through December 31, 2008, after adjusting for inflation. This value reflects the real annualized increase or decrease in net worth or equity for the farm over the planning horizon including changes in real estate values.
- **Net Income Adjustment (NIA) to Maintain Real Net Worth, 2004-2009** -- NIA is the annual change in net cash farm income necessary to insure the farm maintains its real net worth during 2004-2009. A positive NIA indicates the additional annual net income needed to maintain real net worth. A negative NIA indicates the annual loss in net income the farm can endure and still maintain real net worth.
- **Net Income Adjustment (NIA) for Zero Ending Cash Balance in 2009** -- NIA is the loss in annual net cash farm income a farm can withstand and have a zero ending cash balance in 2009. A positive NIA indicates the annual increase in receipts necessary for a zero ending cash balance, while a negative NIA indicates the annual decrease in receipts that results in a zero ending cash balance.
- **Government Payments/Receipts, 2004-2008** -- Sum of all farm program payments (CCP, direct and loan deficiency payments) divided by total receipts received from the market plus CCP, direct and loan deficiency payments, crop insurance indemnities, and other farm related receipts.
- **Total Cash Receipts** -- Sum of cash receipts from all sources, including market sales, CCP and direct payments, loan deficiency payments, crop insurance indemnities, and other farm related receipts.
- **Government Payments**-- Sum of annual counter cyclical payments, direct payments, and marketing loan gains/LDP for crops.
- **Net Cash Farm Income** -- Equals total cash receipts minus all cash expenses. Net cash farm income is used to pay family living expenses, principal payments, income taxes, self employment taxes, and machinery replacement costs. The values in the tables are the averages for each year in the planning horizon.
- **Probability of a Cash Flow Deficit** -- Is the number of times out of 100 that the farm's annual net cash farm income does not exceed cash requirements for family living, principal payments, taxes (income and self-employment), and actual machinery replacement expenses (not depreciation). This probability is reported for each year of the planning horizon to indicate whether the cash flow risk for a farm increases or decreases over the planning horizon.
- **Ending Cash Reserves** -- Equals total cash on hand at the end of the year. Ending cash equals beginning cash reserves plus net cash farm income and interest earned on cash reserves less principal payments, federal taxes (income and self employment), state income taxes, family living withdrawals, and actual machinery replacement costs (not depreciation).
- **Nominal Net Worth** -- Equity at the end of each year equals total assets including land minus total debt from all sources. Net worth is not adjusted for inflation and averages are reported for each year in the planning horizon.
- **Probability of Decreasing Real Net Worth Over 2001-2008** -- Is the number of times out of 100 that real net worth in 2008 is less than the net worth for the farm at the beginning of 2001.

## **Summary of Results for the Texas Representative Cotton Farms Under the August 2004 Baseline**

- The moderately-sized Texas Southern High Plains cotton farm (TXSP2239) plants just over 1,600 acres of cotton, with approximately 22 percent of that land under irrigation. Remaining cultivated land is devoted to peanuts while 183 acres remain in the CRP program. Average annual cash receipts for the farm range from \$633,000 to \$661,000 over the 2004-2008 projection period. Likelihood of a cash flow deficit ranges between 9 and 41 percent. The annual change in real (inflation adjusted) net worth is projected to be 5.3 percent. An increasingly volatile liquidity position leads to a marginal classification with respect to overall financial condition.
- The large Texas Southern High Plains cotton farm (TXSP3745) plants about 2,625 acres of cotton, accounting for almost three-fourths of total cash receipts. Peanuts are planted on the remaining 245 acres of cropland with 288 acres in the CRP program. This farm averages 3.2 percent growth in real net worth each year. Probabilities of a cash flow deficit range from 34 to 52 percent. Despite a good solvency position, marginal liquidity contributes heavily to this farm's overall marginal classification.
- The Texas Panhandle cotton farm (TXPC2500) is located near Hereford, Texas. This farm plants 1,184 acres of cotton annually. Approximately 85 percent of total cotton grown is pivot-irrigated. Wheat, grain sorghum, and corn are planted on the remaining cultivated land. Government payments comprise about 28 percent of this farm's total cash receipts. This farm is in a marginal financial condition as the probability of a cash flow deficit increases to 44 percent in the last projected year.
- The Texas Eastern Caprock cotton farm (TXEC5000) is located east of Lubbock in Ralls, Texas. Eighty-six percent of this farm's land is planted in cotton. Wheat and grain sorghum are planted on the remaining 700 acres. Average annual cash receipts fluctuate between \$1.16 million and \$1.19 million over the 2004-2008 period. The probability of a cash flow deficit ranges between 77 and 85 percent during the analysis period, contributing to the poor ranking with respect to overall financial condition.
- The Texas Rolling Plains cotton farm (TXRP2500) plants 1,122 acres of dryland, skip-row cotton. Wheat is planted on the remaining acreage, and the farm maintains a 12 head cow-calf operation. This farm is relatively efficient as its cost to receipts ratio remains just over 72 percent. Government payments comprise an average of over 31 percent of total receipts for this farm throughout the projection period. Overall, this farm is in marginal financial condition due to more than a 34 percent chance of a cash flow deficit after 2004.

Table 3. Implications of the August 2004 FAPRI Baseline on the Economic Viability of Texas Representative Cotton Farms.

|   | TXSP2239 | TXSP3745 | TXPC2500 | TXEC5000 | TXRP2500 |
|---|----------|----------|----------|----------|----------|
| Overall Financial Position                            |          |          |          |          |          |
| 2004-2008 Ranking                                     | Marginal | Marginal | Marginal | Poor     | Marginal |
| Change Real Net Worth (%)                             |          |          |          |          |          |
| 2004-2008 Average                                     | 5.33     | 3.21     | 3.29     | 0.66     | 5.60     |
| NIA to Maintain Real Net Worth (%/Rec.)               | -10.72   | -8.35    | -10.99   | -2.02    | -15.00   |
| NIA for Zero Ending Cash Balance (%/Rec.)             | -9.28    | -4.21    | -11.72   | 4.54     | -14.38   |
| Govt Payments/Receipts (%)                            |          |          |          |          |          |
| 2004-2008 Average                                     | 26.37    | 26.18    | 27.52    | 30.50    | 31.44    |
| Cost to Receipts Ratio (%)                            |          |          |          |          |          |
| 2004-2008 Average                                     | 79.86    | 84.26    | 81.29    | 91.32    | 72.81    |
| Total Cash Receipts (\$1000)                          |          |          |          |          |          |
| 2001  | 469.13   | 559.30   | 923.29   | 898.91   | 215.26   |
| 2002  | 664.88   | 862.38   | 1,140.93 | 1,100.70 | 272.20   |
| 2003  | 633.06   | 830.09   | 811.63   | 1,125.14 | 230.41   |
| 2004  | 656.83   | 860.22   | 884.01   | 1,197.14 | 258.52   |
| 2005  | 644.26   | 840.33   | 877.02   | 1,161.15 | 253.51   |
| 2006  | 647.97   | 842.31   | 873.37   | 1,165.84 | 251.48   |
| 2007  | 650.72   | 846.97   | 877.98   | 1,168.36 | 254.81   |
| 2008  | 661.73   | 861.22   | 898.59   | 1,189.18 | 255.15   |
| 2004-2008 Average                                     | 652.30   | 850.21   | 882.19   | 1,176.33 | 254.69   |
| Government Payments (\$1000)                          |          |          |          |          |          |
| 2001  | 128.90   | 183.69   | 358.82   | 483.96   | 94.71    |
| 2002  | 213.48   | 273.32   | 324.71   | 408.68   | 92.12    |
| 2003  | 96.35    | 109.42   | 102.34   | 131.12   | 35.31    |
| 2004  | 184.23   | 240.83   | 273.78   | 383.74   | 85.64    |
| 2005  | 177.08   | 226.56   | 251.52   | 353.94   | 81.96    |
| 2006  | 170.98   | 220.88   | 246.08   | 349.33   | 81.05    |
| 2007  | 158.10   | 199.84   | 216.48   | 300.91   | 71.54    |
| 2008  | 150.90   | 190.72   | 210.93   | 288.44   | 68.47    |
| 2004-2008 Average                                     | 168.26   | 215.77   | 239.76   | 335.27   | 77.73    |
| Net Cash Farm Income (\$1000)                         |          |          |          |          |          |
| 2001  | 24.66    | -47.82   | 194.61   | -77.14   | 47.22    |
| 2002  | 172.03   | 185.69   | 417.10   | 123.28   | 99.44    |
| 2003  | 109.55   | 120.07   | 86.26    | 55.24    | 57.81    |
| 2004  | 144.95   | 163.65   | 178.50   | 155.64   | 86.26    |
| 2005  | 132.93   | 145.50   | 174.83   | 127.72   | 80.28    |
| 2006  | 132.96   | 143.51   | 168.28   | 123.84   | 78.61    |
| 2007  | 133.49   | 142.61   | 163.75   | 107.39   | 77.90    |
| 2008  | 139.33   | 149.84   | 169.02   | 112.22   | 78.62    |
| 2004-2008 Average                                     | 136.73   | 149.02   | 170.88   | 125.36   | 80.33    |
| Prob. of a Cash Flow Deficit (%)                      |          |          |          |          |          |
| 2003  | 1        | 99       | 99       | 99       | 1        |
| 2004  | 9        | 34       | 15       | 82       | 14       |
| 2005  | 32       | 52       | 24       | 85       | 38       |
| 2006  | 28       | 46       | 28       | 85       | 35       |
| 2007  | 32       | 50       | 32       | 82       | 51       |
| 2008  | 41       | 49       | 44       | 77       | 34       |
| Ending Cash Reserves (\$1000)                         |          |          |          |          |          |
| 2001  | -21.20   | -134.20  | 70.09    | -196.73  | -5.71    |
| 2002  | 74.89    | -30.21   | 249.68   | -167.70  | 29.32    |
| 2003  | 81.94    | -31.53   | 170.90   | -251.63  | 35.17    |
| 2004  | 136.06   | 54.52    | 241.30   | -170.36  | 70.95    |
| 2005  | 157.81   | 79.44    | 283.15   | -162.76  | 95.53    |
| 2006  | 184.56   | 112.85   | 310.70   | -163.15  | 117.67   |
| 2007  | 211.79   | 134.27   | 340.17   | -195.60  | 132.12   |
| 2008  | 227.57   | 155.86   | 356.73   | -219.56  | 152.67   |
| Nominal Net Worth (\$1000)                            |          |          |          |          |          |
| 2001  | 509.68   | 1,060.58 | 1,143.45 | 674.73   | 301.36   |
| 2002  | 642.17   | 1,220.43 | 1,384.09 | 733.00   | 347.03   |
| 2003  | 679.06   | 1,281.89 | 1,367.39 | 695.51   | 373.42   |
| 2004  | 751.31   | 1,391.22 | 1,462.78 | 776.14   | 413.93   |
| 2005  | 797.48   | 1,444.17 | 1,523.86 | 788.36   | 442.89   |
| 2006  | 842.87   | 1,495.50 | 1,585.25 | 804.70   | 470.33   |
| 2007  | 902.72   | 1,553.67 | 1,653.74 | 797.41   | 498.32   |
| 2008  | 955.30   | 1,620.22 | 1,709.59 | 809.11   | 532.61   |
| Prob. of Decreasing Real Net Worth Over 2001-2008 (%) | 1        | 6        | 1        | 54       | 3        |

### Summary of Results (continued)

- The Texas Middle Gulf Coast cotton farm (TXMC3500) plants half of its 3,500 acres to cotton annually, accounting for almost 70 percent of gross receipts. The other 1,750 acres are divided equally between grain sorghum and corn. Probabilities of annual cash flow deficits ranging from 33 to 46 percent drive this farm to an overall marginal classification financially.
- Half of the acres on the typical Texas Coastal Bend cotton farm (TXCB1850) are planted to cotton. The farm also grows 775 acres of grain sorghum and 150 acres of corn. The probability of a cash flow deficit fluctuates between 38 and 48 percent during the 2004-2008 period. The farm increases its net worth at an average annual rate of 5.5 percent, due largely to increases in land value. This farm is classified in marginal overall condition, largely due to the farm's projected deficits.
- The large Texas Coastal Bend cotton farm (TXCB5500) plants half of its 5,500 acres to cotton and the other half to grain sorghum. This farm's average annual cash receipts fall between \$1.29 million and \$1.31 million throughout the projection period. Slightly more than 28 percent of these cash receipts are in the form of government payments. An 11 percent chance exists that this farm will lose net worth over the 2001-2008 period. Annual probabilities of cash flow deficits exceed 50 percent in three of the five years of the analysis, leading to an overall poor financial designation.
- The Texas Rio Grande Valley cotton farm (TXVC4500) typically plants 1,888 acres of dryland cotton and 500 acres of row-irrigated cotton. This farm plants grain sorghum on the other half of its dryland acreage along with 225 acres of irrigated sugarcane. The farm collects an average of 25.5 percent of its total cash receipts from government payments over the 2004-2008 period. Probability of cash flow deficits remain in the 50 to 60 percent area throughout the analysis period, while the farm has only a four percent chance of losing real net worth. Overall, the farm has a marginal overall financial classification.

Table 4. Implications of the August 2004 FAPRI Baseline on the Economic Viability of Texas Representative Cotton Farms.

|   | TXMC3500 | TXCB1850 | TXCB5500 | TXVC4500 |
|---|----------|----------|----------|----------|
| Overall Financial Position                            |          |          |          |          |
| 2004-2008 Ranking                                     | Marginal | Marginal | Poor     | Marginal |
| Change Real Net Worth (%)                             |          |          |          |          |
| 2004-2008 Average                                     | 8.42     | 5.50     | 1.75     | 5.92     |
| NIA to Maintain Real Net Worth (%/Rec.)               | -11.60   | -13.69   | -2.84    | -12.48   |
| NIA for Zero Ending Cash Balance (%/Rec.)             | -12.43   | -14.76   | -5.10    | -3.51    |
| Govt Payments/Receipts (%)                            |          |          |          |          |
| 2004-2008 Average                                     | 23.48    | 23.34    | 28.32    | 25.46    |
| Cost to Receipts Ratio (%)                            |          |          |          |          |
| 2004-2008 Average                                     | 82.29    | 79.81    | 90.31    | 83.69    |
| Total Cash Receipts (\$1000)                          |          |          |          |          |
| 2001  | 1,026.63 | 479.31   | 1,298.82 | 817.60   |
| 2002  | 1,107.73 | 563.56   | 1,370.82 | 949.94   |
| 2003  | 1,285.66 | 551.61   | 1,301.80 | 1,320.51 |
| 2004  | 1,300.09 | 555.96   | 1,308.80 | 1,347.34 |
| 2005  | 1,263.93 | 540.80   | 1,294.04 | 1,327.08 |
| 2006  | 1,271.17 | 542.94   | 1,296.51 | 1,328.93 |
| 2007  | 1,298.37 | 556.12   | 1,301.22 | 1,314.52 |
| 2008  | 1,323.81 | 565.46   | 1,311.17 | 1,343.46 |
| 2004-2008 Average                                     | 1,291.48 | 552.26   | 1,302.35 | 1,332.27 |
| Government Payments (\$1000)                          |          |          |          |          |
| 2001  | 369.84   | 187.89   | 481.71   | 288.60   |
| 2002  | 343.11   | 162.56   | 487.78   | 325.53   |
| 2003  | 182.68   | 75.50    | 221.46   | 208.80   |
| 2004  | 323.47   | 135.56   | 407.12   | 383.49   |
| 2005  | 297.74   | 125.23   | 380.59   | 355.38   |
| 2006  | 297.09   | 124.80   | 376.48   | 344.24   |
| 2007  | 261.29   | 109.98   | 328.82   | 312.77   |
| 2008  | 249.02   | 104.98   | 319.45   | 298.43   |
| 2004-2008 Average                                     | 285.72   | 120.11   | 362.49   | 338.86   |
| Net Cash Farm Income (\$1000)                         |          |          |          |          |
| 2001  | 80.05    | 88.24    | 229.11   | -59.18   |
| 2002  | 187.54   | 167.17   | 276.68   | 68.40    |
| 2003  | 259.02   | 138.19   | 150.26   | 237.15   |
| 2004  | 293.58   | 142.70   | 181.32   | 296.53   |
| 2005  | 251.43   | 131.27   | 164.87   | 277.72   |
| 2006  | 253.93   | 133.41   | 153.85   | 273.71   |
| 2007  | 270.63   | 143.52   | 146.12   | 252.32   |
| 2008  | 289.37   | 150.22   | 128.75   | 262.58   |
| 2004-2008 Average                                     | 271.79   | 140.23   | 154.98   | 272.57   |
| Prob. of a Cash Flow Deficit (%)                      |          |          |          |          |
| 2003  | 1        | 1        | 99       | 99       |
| 2004  | 33       | 38       | 40       | 47       |
| 2005  | 46       | 45       | 49       | 55       |
| 2006  | 42       | 45       | 53       | 62       |
| 2007  | 41       | 42       | 56       | 54       |
| 2008  | 38       | 48       | 61       | 52       |
| Ending Cash Reserves (\$1000)                         |          |          |          |          |
| 2001  | -22.16   | 40.60    | 122.64   | -151.64  |
| 2002  | 54.55    | 118.01   | 263.78   | -174.79  |
| 2003  | 148.46   | 150.64   | 262.65   | -63.40   |
| 2004  | 271.73   | 188.88   | 328.20   | 19.32    |
| 2005  | 317.67   | 218.72   | 349.74   | 85.14    |
| 2006  | 391.82   | 248.96   | 339.56   | 92.40    |
| 2007  | 480.72   | 287.89   | 337.35   | 125.69   |
| 2008  | 586.85   | 326.64   | 291.02   | 169.80   |
| Nominal Net Worth (\$1000)                            |          |          |          |          |
| 2001  | 642.93   | 632.16   | 862.65   | 1,285.14 |
| 2002  | 737.73   | 778.47   | 1,021.31 | 1,341.75 |
| 2003  | 860.66   | 845.57   | 1,052.68 | 1,550.70 |
| 2004  | 985.95   | 901.21   | 1,116.62 | 1,715.61 |
| 2005  | 1,054.69 | 953.58   | 1,158.58 | 1,837.00 |
| 2006  | 1,152.16 | 1,011.94 | 1,175.44 | 1,949.19 |
| 2007  | 1,274.05 | 1,085.11 | 1,220.94 | 2,084.83 |
| 2008  | 1,409.45 | 1,155.31 | 1,220.69 | 2,227.01 |
| Prob. of Decreasing Real Net Worth Over 2001-2008 (%) | 1        | 1        | 11       | 4        |



## Depiction of Income Risk

Figure 2 displays summary information on the economic viability of the Texas representative cotton farms. The upper panel illustrates the change in annual cash receipts a farm could bear and still end 2008 with a zero cash balance. Consider TXSP2239 and TXEC5000. The “-9.28%” for TXSP2239 means, if cash receipts decreased by 9.28% each year from 2004 through 2008, the farm would end 2008 with a zero cash balance. Conversely, the “4.54%” for TXER5000 means that farm would have to see an increase in cash receipts each year from 2004 to 2008 of at least 4.54% or end the period with negative cash. The lower panel reports the good-marginal-poor breakdowns for overall position, cash flow position, and equity maintenance position.

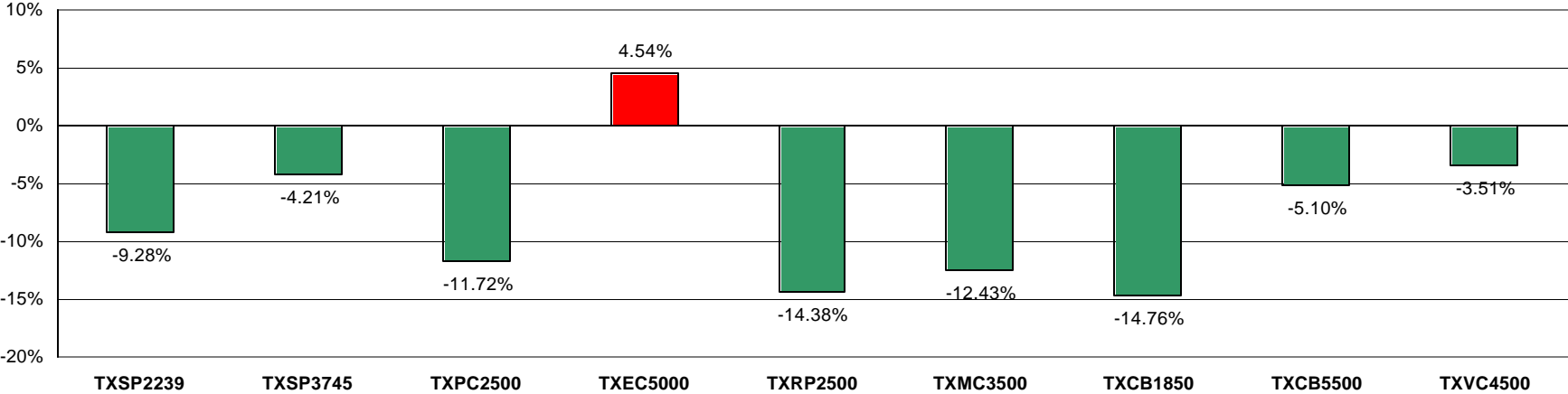
Figures 3-5 provide an indication of the risk in net cash farm income (cash receipts minus cash expenses) for each of the representative cotton farms.

The middle line on the graph is the average of 100 outcomes for each year. The inside set of lines with square markers are the 25th and 75th percentiles. This means that 50 percent of the projected annual outcomes occur between the two lines. Likewise, 50 percent of the projected outcomes are expected to occur outside this range. The 5th and 95th percentile lines (indicated by the circle markers) contain 90 percent of the 100 projected outcomes for each of the years. These outer lines are included to provide an indication of the wide range of possible outcomes that could occur based on historical price and yield variability.

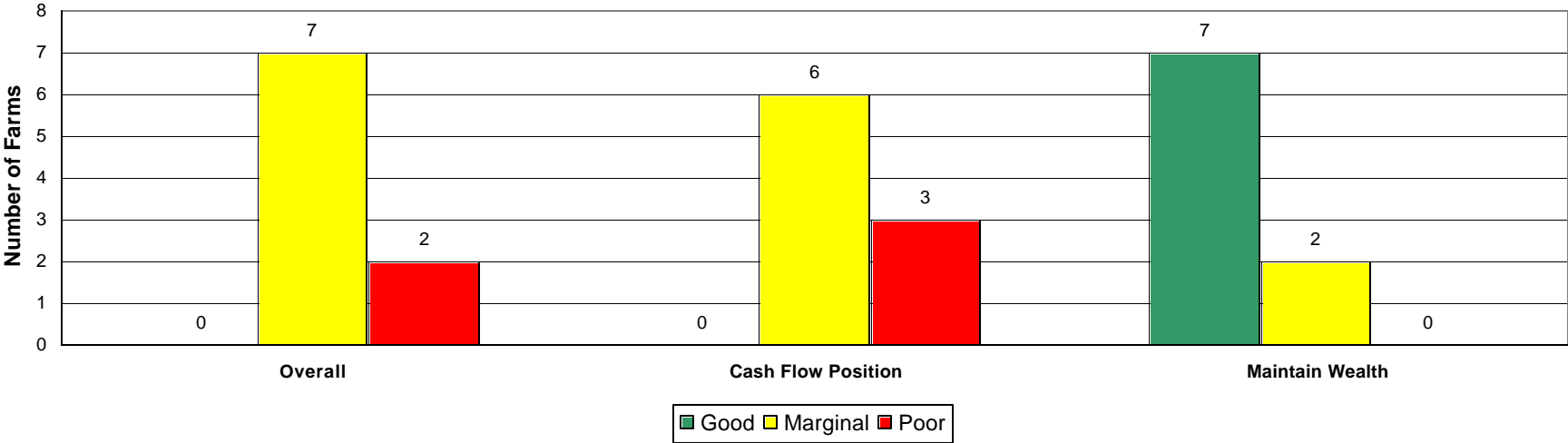
Most farms have a wide range between the top and bottom lines indicating substantial risk on net cash farm income. This income risk results from variability in projected prices and yields. The 25th and 75th percentile lines are generally in a tight range around the average for most farms.

# Figure 2. Texas Cotton Farms

Minimum Annual Percentage Change in Receipts, 2004-2008, Needed to Have a Zero Ending Cash Balance in 2008



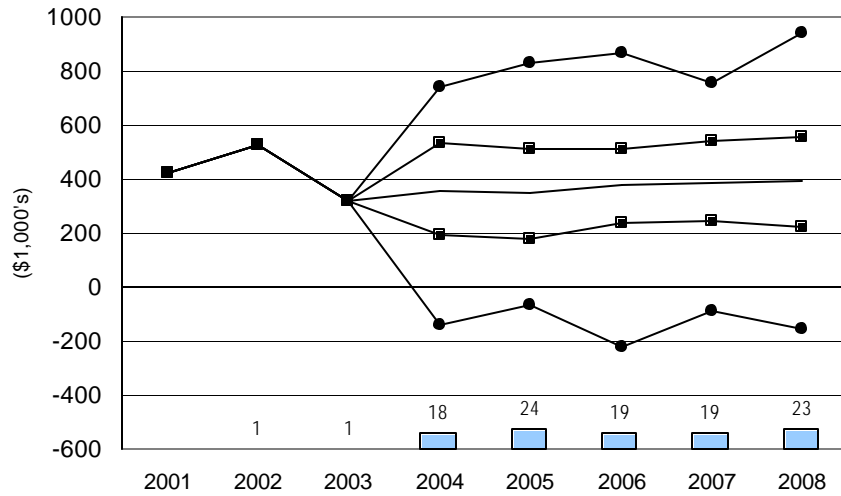
Economic and Financial Position Over the Period, 2004-2008, for all Texas Cotton Farms



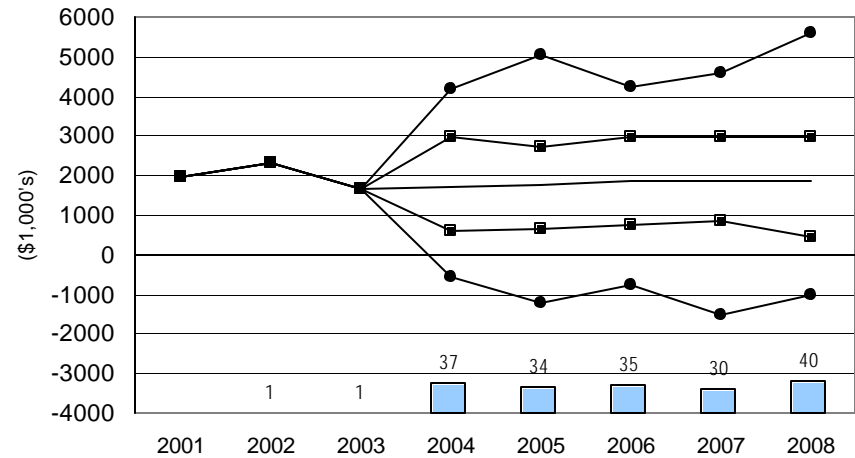
**Figure 3. Net Cash Farm Income and Probabilities of a Cash Flow Deficit:  
Texas Cotton Farms**

— Average NCFI    ■ 25 & 75 Percentile NCFI    ● 5 & 95 Percentile NCFI    □ Prob. of Cash Flow Deficit

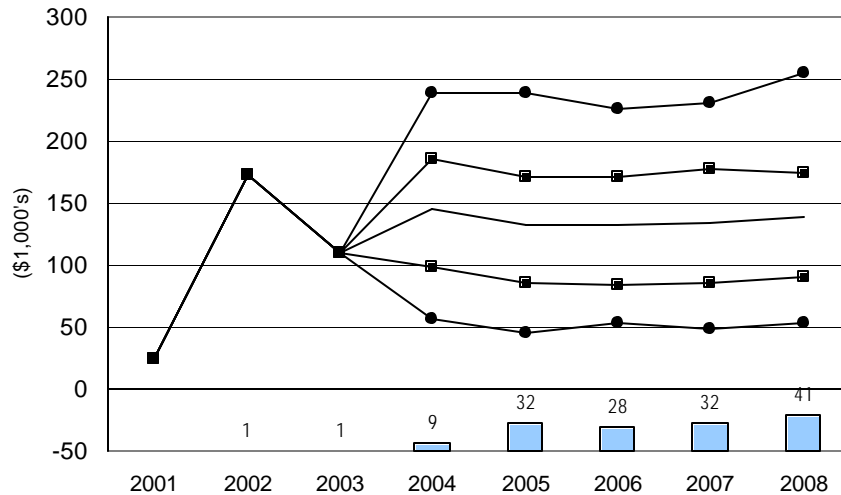
**TXSP2239 Texas Southern Plains Cotton Farm**



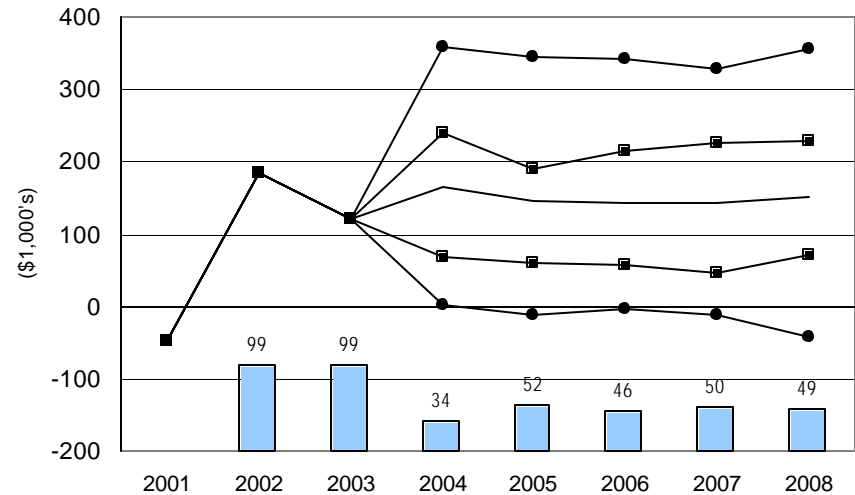
**TXSP3745 Large Texas Southern Plains Cotton Farm**



**TXPC2500 Texas Panhandle Cotton Farm**



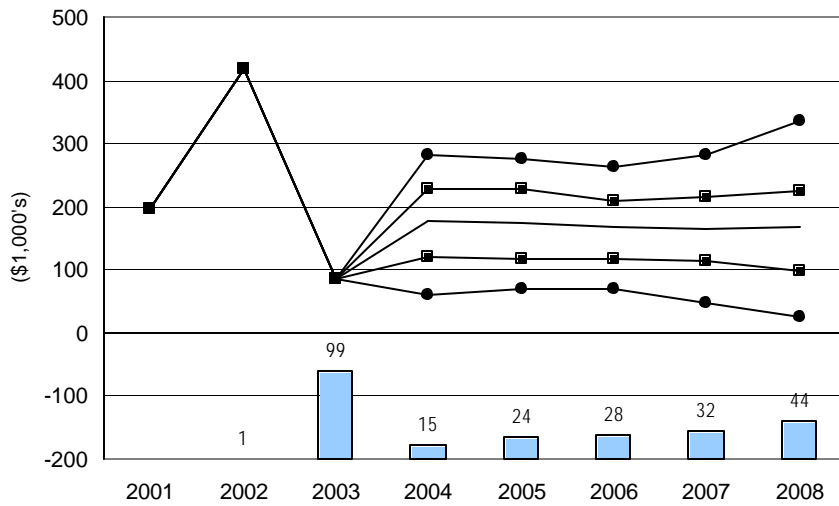
**TXEC5000 Texas Eastern Caprock Cotton Farm**



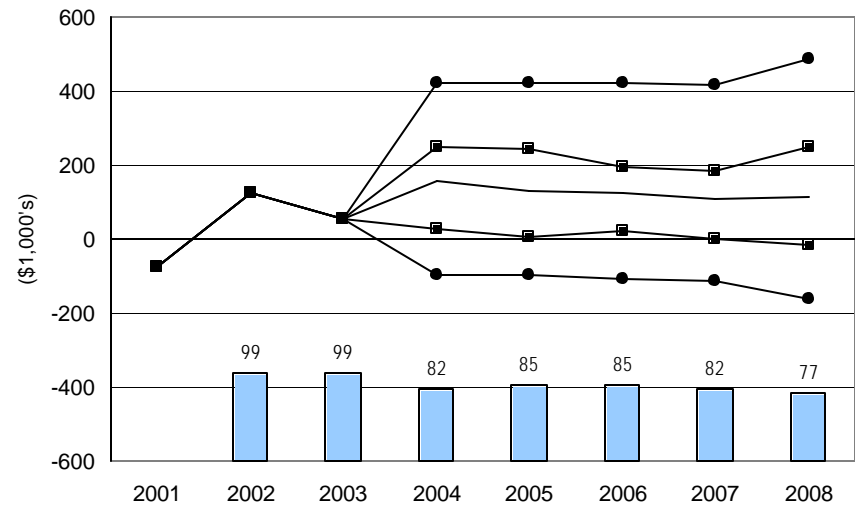
**Figure 4. Net Cash Farm Income and Probabilities of a Cash Flow Deficit:  
Texas Cotton Farms**

— Average NCFI    ■ 25 & 75 Percentile NCFI    ● 5 & 95 Percentile NCFI    □ Prob. of Cash Flow Deficit

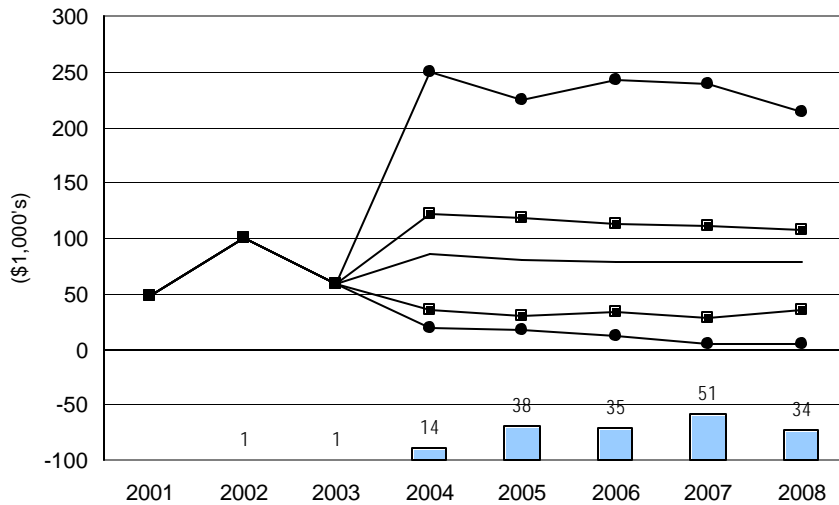
**TXRP2500 Texas Rolling Plains Cotton Farm**



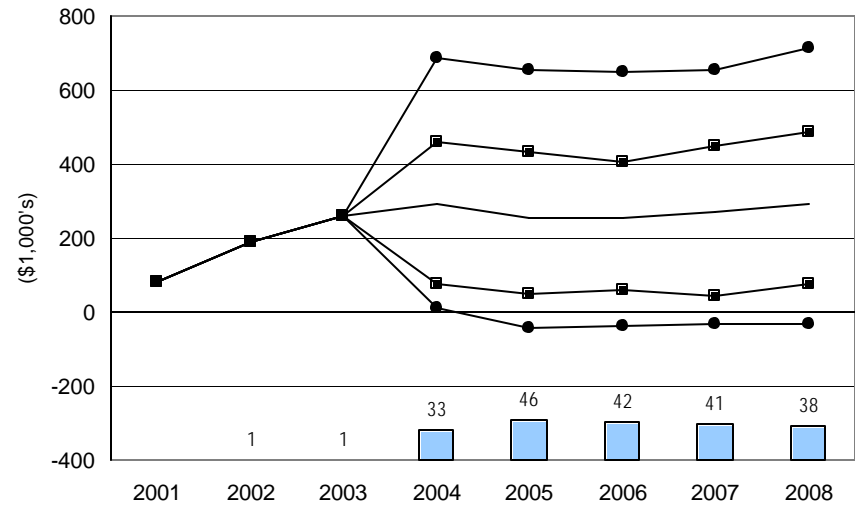
**TXMC3500 Texas Mid-Coast Cotton Farm**



**TXCB1850 Texas Coastal Bend Cotton Farm**



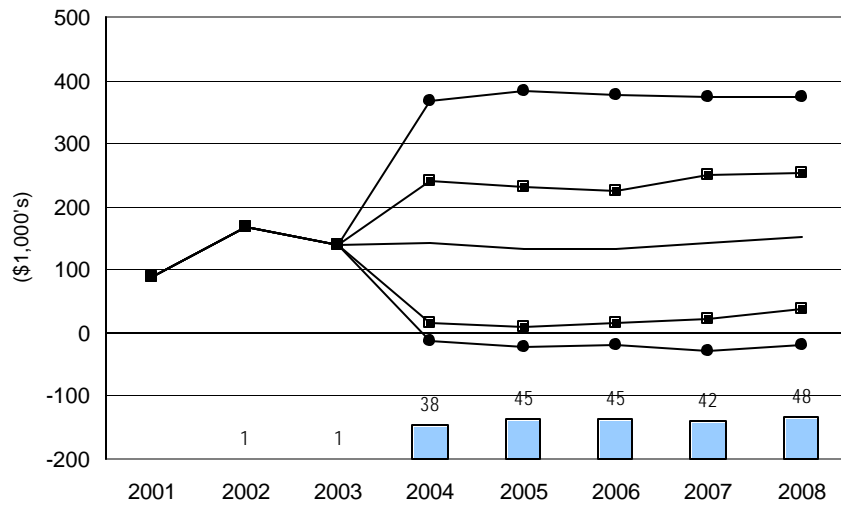
**TXCB5500 Large Texas Coastal Bend Cotton Farm**



**Figure 5. Net Cash Farm Income and Probabilities of a Cash Flow Deficit:  
Texas Cotton Farms**

— Average NCFI
■ 25 & 75 Percentile NCFI
● 5 & 95 Percentile NCFI
▭ Prob. of Cash Flow Deficit

**TXVC4500 Texas Rio Grande Valley Cotton Farm**



## Cost of Production Comparison for Representative Texas Cotton Farms

This section summarizes cost of production for the nine representative cotton farms located in Texas by major cost category. Table 5 deals with non-irrigated cotton production, and Table 6 reports costs for irrigated cotton production.

### Non-Irrigated Cotton Cost of Production

- Cost of production ranges from \$75.42/acre in the Rolling Plains to \$349.62/acre in the middle Gulf Coast area.
- The Panhandle farm (TXPC2500) has the highest per pound variable costs of production for non-irrigated cotton at \$0.44/lb. The mid Gulf Coast farm (TXMC3500) has the highest cost of production on a per acre basis. The Rolling Plains farm (TXRP2500) has the lowest cost of production, both on a per acre and a per pound basis.
- TXMC3500 spends more money per acre for seed, fertilizer, insecticide, and ginning than any of the other eight farms. TXMC also has the highest expected non-irrigated cotton yield of all the Texas representative cotton farms.
- The moderate-sized South Plains farm (TXSP2239) spends the least on cotton seed, insecticide, and herbicide/defoliant. The large Coastal Bend farm (TXCB5500) spends the most on herbicide/defoliant (\$40.50/acre).
- The Rio Grande Valley farm (TXVC4500) is the only representative farm located in an area which has completed its boll weevil eradication efforts. Costs per acre for boll weevil eradication range from \$6.00 (TXSP2239, TXSP3745, TXPC2500, and TXEC5000) to \$23.14 for the two Coastal Bend cotton farms.

### Irrigated Cotton Cost of Production

- Cost of production ranges from \$245.39/acre in the eastern Caprock area (TXEC5000) to \$403.01/acre for the moderate-sized South Plains farm (TXSP2239). TXSP2239 is also the highest cost farm when measured as cost per pound of expected production (\$0.53/lb).
- Irrigation costs range from \$21.99/acre for TXVC4500 to \$88.08/acre for TXSP2239. The low and irregular supply of irrigation water in the Rio Grande Valley is well-known and accounts for the low cost. Simply put, when water is not available, it cannot be purchased.
- TXEC5000 is the low-cost farm for fertilizer, ginning, and other production costs (which includes custom application expenses, crop scouting, and miscellaneous costs) than the other four farms that grow irrigated cotton. This farm also has the lowest expected yield of the five farms.
- The lower Rio Grande Valley farm spends more on insecticide and other production costs but has the lowest seed and herbicide/defoliant costs. TXVC4500 also has the highest expected irrigated cotton yields. Correspondingly, it has the lowest cost per expected pound of production of the five farms (\$0.33/lb).

**Table 5. Summary of Variable Costs Associated with Producing and Harvesting Non-Irrigated Cotton on Texas Representative Farms, 2004**

|                         | TXSP2239 | TXSP3745 | TXPC2500 | TXEC5000 | TXRP2500 | TXMC3500 | TXCB1850 | TXCB5500 | TXVC4500 |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Seed                    | \$3.29   | \$4.39   | \$16.26  | \$16.26  | \$9.40   | \$24.50  | \$21.42  | \$19.52  | \$19.79  |
| Fertilizer              | \$11.00  | \$16.51  | \$0.00   | \$5.50   | \$0.00   | \$32.99  | \$27.51  | \$27.49  | \$27.49  |
| Herbicide and Defoliant | \$5.40   | \$10.25  | \$38.76  | \$24.85  | \$11.51  | \$31.86  | \$29.14  | \$40.50  | \$27.62  |
| Insecticide             | \$0.00   | \$7.56   | \$3.03   | \$0.37   | \$3.05   | \$49.02  | \$19.97  | \$24.65  | \$31.86  |
| Boll Weevil             | \$6.00   | \$6.00   | \$6.00   | \$6.00   | \$14.93  | \$20.00  | \$23.14  | \$23.14  | \$0.00   |
| Other                   | \$11.68  | \$1.59   | \$14.53  | \$0.00   | \$0.00   | \$24.92  | \$13.28  | \$16.46  | \$25.44  |
| Fuel                    | \$11.56  | \$8.81   | \$13.19  | \$5.72   | \$9.01   | \$11.00  | \$7.74   | \$8.72   | \$8.55   |
| Ginning                 | \$38.03  | \$34.98  | \$28.48  | \$25.89  | \$27.52  | \$87.84  | \$39.01  | \$50.34  | \$55.00  |
| Acres                   | 1250     | 2120     | 184      | 1500     | 1122     | 1750     | 925      | 2750     | 1888     |
| Cost/Acre               | \$86.96  | \$90.10  | \$120.26 | \$84.59  | \$75.42  | \$282.12 | \$181.20 | \$210.81 | \$195.74 |
| Expected Yield          | 250      | 230      | 275      | 250      | 250      | 750      | 625      | 585      | 500      |
| Variable cost per pound | \$0.35   | \$0.39   | \$0.44   | \$0.34   | \$0.30   | \$0.38   | \$0.29   | \$0.36   | \$0.39   |

**Table 6. Summary of Variable Costs Associated with Producing and Harvesting Irrigated Cotton on Texas Representative Farms, 2004**

|                         | TXSP2239 | TXSP3745 | TXPC2500 | TXEC5000 | TXVC4500 |
|-------------------------|----------|----------|----------|----------|----------|
| Seed                    | \$37.34  | \$48.32  | \$28.19  | \$24.72  | \$20.60  |
| Fertilizer              | \$55.01  | \$35.21  | \$43.98  | \$26.39  | \$32.99  |
| Herbicide and Defoliant | \$41.01  | \$53.43  | \$60.54  | \$46.31  | \$32.26  |
| Insecticide             | \$28.06  | \$14.03  | \$16.67  | \$19.86  | \$50.97  |
| Boll Weevil             | \$12.00  | \$12.00  | \$12.00  | \$12.00  | \$0.00   |
| Irrigation              | \$88.08  | \$77.07  | \$65.97  | \$54.98  | \$21.99  |
| Other                   | \$14.34  | \$11.68  | \$12.46  | \$3.63   | \$25.44  |
| Fuel                    | \$11.56  | \$13.21  | \$13.19  | \$5.72   | \$8.55   |
| Ginning                 | \$115.60 | \$114.08 | \$77.67  | \$51.78  | \$96.25  |
| Acres                   | 366      | 505      | 1,000    | 2,800    | 500      |
| Cost/Acre               | \$403.01 | \$379.04 | \$330.67 | \$245.39 | \$289.04 |
| Expected Yield          | 760      | 750      | 750      | 500      | 875      |
| Variable cost per pound | \$0.53   | \$0.51   | \$0.44   | \$0.49   | \$0.33   |

Lowest Cost Farm for That Line Item  
 Highest Cost Farm for That Line Item

**APPENDIX A.**

**CHARACTERISTICS OF  
REPRESENTATIVE COTTON FARMS**



## 2003 CHARACTERISTICS OF PANEL FARMS PRODUCING COTTON

- TXSP2239** A 2,239-acre Texas South Plains (Dawson County) cotton farm that is moderate-sized for the area. TXSP2239 plants 1,616 acres of cotton (1,250 dryland, 366 irrigated), 270 acres of peanuts, and has 183 acres in CRP. For 2003, 59 percent of receipts came from cotton.
- TXSP3745** The Texas South Plains (Dawson County) is home to this 3,745-acre, large-sized cotton farm that grows 2,625 acres of cotton (2,120 dryland, 505 irrigated), 245 acres of peanuts, and has 288 acres in CRP. Cotton sales comprised 75 percent of 2003 receipts.
- TXPC2500** The Texas Panhandle is home to this 2,500-acre farm (Deaf Smith County). Annually, cotton is planted on 1,184 acres (1,000 irrigated and 184 dryland), 308 acres to sorghum (125 irrigated and 183 dryland), 883 acres planted to wheat (700 irrigated and 183 dryland), and 125 irrigated acres are planted to corn. Sixty-four percent of 2003 cash receipts were generated by cotton sales.
- TXEC5000** This 5,000-acre farm is located on the Eastern Caprock of the Texas South Plains (Crosby County). Annually, 4,300 acres are planted to cotton (2,800 irrigated and 1,500 dryland), 400 acres of wheat (100 irrigated and 300 dryland), and 300 acres of dryland sorghum. In 2003, cotton sales accounted for 96 percent of gross receipts.
- TXRP2500** TXRP2500 is a 2,500-acre cotton farm located in the Rolling Plains of Texas (Jones County). This farm plants 1,122 acres of cotton and 825 acres of winter wheat each year. Eighty percent of 2003 farm receipts came from cotton sales. Twelve head of beef cows generated approximately two percent of farm receipts.

Appendix Table A1. Characteristics of Texas Representative Cotton Farms.

|                                | TXSP2239 | TXSP3745 | TXPC2500   | TXEC5000 | TXRP2500 |
|--------------------------------|----------|----------|------------|----------|----------|
| County                         | Dawson   | Dawson   | Deaf Smith | Crosby   | Jones    |
| Total Cropland                 | 2,239.00 | 3,745.00 | 2,500.00   | 5,000.00 | 2,500.00 |
| Acres Owned                    | 670.00   | 1,650.00 | 1,250.00   | 640.00   | 400.00   |
| Acres Leased                   | 1,569.00 | 2,095.00 | 1,250.00   | 4,360.00 | 2,100.00 |
| Pastureland                    |          |          |            |          |          |
| Acres Leased                   | 0.00     | 0.00     | 0.00       | 0.00     | 500.00   |
| Assets (\$1000)                |          |          |            |          |          |
| Total                          | 765.00   | 1,455.00 | 1,628.00   | 1,134.00 | 427.00   |
| Real Estate                    | 354.00   | 868.00   | 681.00     | 343.00   | 195.00   |
| Machinery                      | 329.00   | 587.00   | 776.00     | 792.00   | 188.00   |
| Other & Livestock              | 82.00    | 0.00     | 171.00     | 0.00     | 44.00    |
| Debt/Asset Ratios              |          |          |            |          |          |
| Total                          | 0.11     | 0.12     | 0.16       | 0.39     | 0.12     |
| Intermediate                   | 0.09     | 0.09     | 0.16       | 0.50     | 0.10     |
| Long Run                       | 0.14     | 0.14     | 0.16       | 0.14     | 0.15     |
| Number of Livestock            |          |          |            |          |          |
| Beef Cows                      | 0.00     | 0.00     | 0.00       | 0.00     | 12.00    |
| 2003 Gross Receipts (\$1,000)* |          |          |            |          |          |
| Total                          | 633.10   | 830.10   | 811.60     | 1,125.10 | 230.40   |
| Cattle                         | 0.00     | 0.00     | 0.00       | 0.00     | 4.40     |
|                                | 0.00     | 0.00     | 0.00       | 0.00     | 0.02     |
| Cotton                         | 375.90   | 618.10   | 516.70     | 1,079.70 | 183.10   |
|                                | 0.59     | 0.75     | 0.64       | 0.96     | 0.80     |
| Sorghum                        | 0.00     | 0.00     | 36.60      | 0.00     | 0.00     |
|                                | 0.00     | 0.00     | 0.05       | 0.00     | 0.00     |
| Wheat                          | 0.00     | 0.00     | 116.00     | 20.10    | 42.90    |
|                                | 0.00     | 0.00     | 0.14       | 0.02     | 0.19     |
| Corn                           | 0.00     | 0.00     | 74.70      | 0.00     | 0.00     |
|                                | 0.00     | 0.00     | 0.09       | 0.00     | 0.00     |
| Peanuts                        | 252.00   | 202.50   | 0.00       | 0.00     | 0.00     |
|                                | 0.40     | 0.24     | 0.00       | 0.00     | 0.00     |
| Sorghum                        | 0.00     | 0.00     | 0.00       | 25.30    | 0.00     |
|                                | 0.00     | 0.00     | 0.00       | 0.02     | 0.00     |
| Other Receipts                 | 5.10     | 9.50     | 67.70      | 0.00     | 0.00     |
|                                | 0.01     | 0.01     | 0.08       | 0.00     | 0.00     |
| 2003 Planted Acres**           |          |          |            |          |          |
| Total                          | 2,069.00 | 3,158.00 | 2,500.00   | 5,000.00 | 1,947.00 |
| Cotton                         | 1,616.00 | 2,625.00 | 1,184.00   | 4,300.00 | 1,122.00 |
|                                | 0.78     | 0.83     | 0.47       | 0.86     | 0.58     |
| Sorghum                        | 0.00     | 0.00     | 308.00     | 0.00     | 0.00     |
|                                | 0.00     | 0.00     | 0.12       | 0.00     | 0.00     |
| Wheat                          | 0.00     | 0.00     | 883.00     | 400.00   | 825.00   |
|                                | 0.00     | 0.00     | 0.35       | 0.08     | 0.42     |
| Corn                           | 0.00     | 0.00     | 125.00     | 0.00     | 0.00     |
|                                | 0.00     | 0.00     | 0.05       | 0.00     | 0.00     |
| Peanuts                        | 270.00   | 245.00   | 0.00       | 0.00     | 0.00     |
|                                | 0.13     | 0.08     | 0.00       | 0.00     | 0.00     |
| Sorghum                        | 0.00     | 0.00     | 0.00       | 300.00   | 0.00     |
|                                | 0.00     | 0.00     | 0.00       | 0.06     | 0.00     |
| CRP                            | 183.00   | 288.00   | 0.00       | 0.00     | 0.00     |
|                                | 0.09     | 0.09     | 0.00       | 0.00     | 0.00     |

\*Receipts for 2003 are included to indicate the relative importance of each enterprise to the farm. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*Acreages for 2003 are included to indicate the relative importance of each enterprise to the farm. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

### **2003 CHARACTERISTICS OF PANEL FARMS PRODUCING COTTON (continued)**

- TXMC3500** A 3,500-acre cotton farm located on the middle Texas Gulf Coast (Jackson County) that farms 1,750 acres of cotton and 875 acres each of sorghum and corn. In 2003, cotton sales comprised 72 percent of total cash receipts on this operation.
- TXCB1850** A 1,850-acre cotton farm located on the Texas Coastal Bend (San Patricio County) that farms 925 acres of cotton, 775 acres of sorghum, and 150 acres of corn annually. Seventy-three percent of 2003 cash receipts were generated by cotton.
- TXCB5500** Nueces County, Texas is home to this 5,500-acre farm. Annually, 2,750 acres are planted to cotton and 2,750 acres to sorghum. Cotton sales accounted for 75 percent of 2003 receipts.
- TXVC4500** This 4,500-acre farm is located in the lower Rio Grande Valley of Texas (Willacy County) and plants 2,388 acres to cotton (500 irrigated and 1,888 acres dryland), 1,887 acres to sorghum, and 225 acres of sugarcane. In 2003, 72 percent of TXVC4500's cash receipts were generated by cotton sales.

Appendix Table A2. Characteristics of Texas Representative Cotton Farms.

|                                | TXMC3500 | TXCB1850     | TXCB5500 | TXVC4500 |
|--------------------------------|----------|--------------|----------|----------|
| County                         | Jackson  | San Patricio | Nueces   | Willacy  |
| Total Cropland                 | 3,500.00 | 1,850.00     | 5,500.00 | 4,500.00 |
| Acres Owned                    | 350.00   | 360.00       | 225.00   | 900.00   |
| Acres Leased                   | 3,150.00 | 1,490.00     | 5,275.00 | 3,600.00 |
| Assets (\$1000)                |          |              |          |          |
| Total                          | 1,006.00 | 965.00       | 1,265.00 | 2,031.00 |
| Real Estate                    | 313.00   | 496.00       | 248.00   | 1,416.00 |
| Machinery                      | 545.00   | 277.00       | 754.00   | 615.00   |
| Other & Livestock              | 148.00   | 192.00       | 263.00   | 0.00     |
| Debt/Asset Ratios              |          |              |          |          |
| Total                          | 0.14     | 0.12         | 0.17     | 0.24     |
| Intermediate                   | 0.14     | 0.09         | 0.17     | 0.43     |
| Long Run                       | 0.15     | 0.16         | 0.16     | 0.15     |
| 2003 Gross Receipts (\$1,000)* |          |              |          |          |
| Total                          | 1,285.70 | 551.60       | 1,301.80 | 1,320.50 |
| Cotton                         | 923.00   | 403.00       | 971.30   | 954.50   |
|                                | 0.72     | 0.73         | 0.75     | 0.72     |
| Sorghum                        | 169.10   | 128.10       | 330.50   | 243.60   |
|                                | 0.13     | 0.23         | 0.25     | 0.18     |
| Corn                           | 187.90   | 20.40        | 0.00     | 0.00     |
|                                | 0.15     | 0.04         | 0.00     | 0.00     |
| Rice                           | 5.70     | 0.00         | 0.00     | 0.00     |
|                                | 0.00     | 0.00         | 0.00     | 0.00     |
| Sugar Cane                     | 0.00     | 0.00         | 0.00     | 122.40   |
|                                | 0.00     | 0.00         | 0.00     | 0.09     |
| 2003 Planted Acres**           |          |              |          |          |
| Total                          | 3,500.00 | 1,850.00     | 5,500.00 | 4,500.00 |
| Cotton                         | 1,750.00 | 925.00       | 2,750.00 | 2,387.50 |
|                                | 0.50     | 0.50         | 0.50     | 0.53     |
| Sorghum                        | 875.00   | 775.00       | 2,750.00 | 1,887.50 |
|                                | 0.25     | 0.42         | 0.50     | 0.42     |
| Corn                           | 875.00   | 150.00       | 0.00     | 0.00     |
|                                | 0.25     | 0.08         | 0.00     | 0.00     |
| Sugar Cane                     | 0.00     | 0.00         | 0.00     | 225.00   |
|                                | 0.00     | 0.00         | 0.00     | 0.05     |

\*Receipts for 2003 are included to indicate the relative importance of each enterprise to the farm. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*Acreages for 2003 are included to indicate the relative importance of each enterprise to the farm. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

**APPENDIX B.**

**LIST OF PANEL FARM  
COOPERATORS**

## TEXAS COTTON FARMS

### Texas - Coastal Bend

#### *Facilitator*

Dr. Larry Falconer - Extension Economist - Management, Texas A&M University  
Mr. Mark Miller - Chief Operations Officer, Texas AgFinance  
Mr. Jeffrey Stapper - County Extension Agent, San Patricio County and Aransas County

#### *Panel Participants*

|                       |                   |
|-----------------------|-------------------|
| Mr. Marvin Beyer, Jr. | Mr. Brad Bickham  |
| Mr. Clarence Chopelas | Mr. Jimmy Dodson  |
| Mr. Joel Hoskinson    | Mr. Wayne Lambert |
| Mr. Larry McNair      | Mr. Mark Morris   |
| Mr. Darby Salge       |                   |

### Texas - Eastern Caprock

#### *Facilitator*

Mr. Jason Cox - Vice President, Ag Texas Farm Credit Services

#### *Panel Participants*

|                  |                    |
|------------------|--------------------|
| Mr. Lloyd Arthur | Mr. Brooks Ellison |
| Mr. Edwin Moore  | Mr. Marvin Schoepf |

### Texas - Mid Coast

#### *Facilitator*

Mr. Jeff Nunley - Executive Director, South Texas Cotton & Grain Assn.

#### *Panel Participants*

|                      |                  |
|----------------------|------------------|
| Mr. Daniel Gavaronic | Mr. Joe Jenkins  |
| Mr. Keith Johnson    | Mr. Rob Kainer   |
| Mr. Mark Malaer      | Mr. Dwain Nunley |

### Texas - Panhandle

#### *Facilitator*

Mr. Sean Smith - Credit Office President, First Ag Credit

#### *Panel Participants*

|                     |                  |
|---------------------|------------------|
| Mr. Michael Carlson | Mr. Roy Carlson  |
| Mr. Steve Hoffman   | Mr. Harold Sides |

### Texas - Rio Grande Valley

#### *Facilitator*

Mr. Reagan Florence - Exec. VP - Chief Lending Officer, Ag Credit of South Texas

#### *Panel Participants*

|                             |                       |
|-----------------------------|-----------------------|
| Mr. Derrick Swanberg        | Mr. Marshall Swanberg |
| Ms. Mitzi Swanberg-Anzaldua | Mr. Mark Willis       |

## TEXAS COTTON FARMS (continued)

### Texas - Rolling Plains

#### *Facilitator*

Mr. Stan Bevers - Extension Economist - Management, Texas A&M University

Mr. Mike Sloan - Regional Vice President, First Ag Credit

Mr. Todd Vineyard - County Extension Agent, Jones County

#### *Panel Participants*

Mr. Dennis Olson

Mr. Ronnie Richmond

Mr. Ronnie Riddle

Mr. Dale Spurgin

Mr. Ferdie Walker

### Texas - South Plains

#### *Facilitator*

Mr. John Farris - County Extension Agent, Dawson County

Dr. Jackie Smith - Extension Economist - Management, Texas A&M University

#### *Panel Participants*

Mr. Steven Archer

Mr. Brad Boyd

Mr. Jerry Chapman

Mr. Mark Furlow

Mr. Kent Nix

Mr. Donald Vogler