

Impacts of Farm Policy Alternatives on Two Representative Tennessee Cotton Farms^{1,2}

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50-word Abstract

This research estimates the farm-level impacts of alternative farm bill provisions (H.R.2646 and S.1731) on the financial performance and strength of two representative Tennessee cotton farms: 1,900 acre and 4,050 acre cotton farms in Southwest Tennessee. Both farms improve their cash position and reduce their risk considerably under both proposals.

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Introduction

Cotton has historically been a major component of crop agriculture in Tennessee. Cotton contributed nearly \$200 million to agricultural receipts in Tennessee in 2000, making it the second leading cash crop in the state. Similar to other cotton states, Tennessee cotton producers have been hit hard in recent years by dramatic price declines for U.S. cotton, rapidly rising costs of production, and strong international competition. Average farm prices for upland cotton dropped 40 percent from their recent peak in 1995/96 to 45 cents per pound in 1999/00, and up only slightly to \$50.4 cents per pound for 2000/01 before declining sharply again in late 2001. Cotton producers have received nearly \$4 billion in market loss payments, LDPs, and marketing loan gains over the last three years in addition to \$1.8 billion authorized over the same period by the 1996 Farm Bill as contract (AMTA) payments.

Such is the climate in which debate over the next round of comprehensive farm legislation moves into full swing. Recent cotton price and income problems have heightened interest in the development of new farm legislation and its impacts on the cotton industry. Given the current climate for the U.S. cotton industry, the challenge for the next farm legislation will be to continue some aspects of the 1996 Farm Bill like planting flexibility while providing a better safety net for producers that is budget-driven, environmentally responsible, enhances market access, and is within the guidelines of U.S. trade commitments.

The objective of this research is to estimate the impacts that relevant alternative farm policies currently under consideration (the House and Senate versions of a 2002 farm bill) would have on the financial strength and performance of two representative Tennessee cotton farms. The timely nature of this research allows policy makers and policy influencers (lobby groups and individual constituents) to make informed decisions and reactions. This research makes direct contributions to cotton farmers in the region, providing them with an easy-to-understand evaluation of how alternative policies would affect a farming operation similar to theirs. The results also serve as a resource for county agents and other agricultural interests who are in frequent contact with many farmers with questions about farm policy prospects. This farm-level evaluation of the impacts of these relevant policy alternatives is particularly important early in the year as farmers are making their final planting decisions.

Data and Methods

Two representative cotton farms have been developed typifying cotton production in Southwest Tennessee. One is a 1,900-acre, moderate-size farm producing primarily cotton, soybeans and corn. The other is a 4,050-acre, large farm producing cotton, soybeans, corn, and some double-cropped wheat. The representative farms were developed from detailed farm data (including enterprise, operations, costs, finances, machinery, marketing, etc.) collected from producer panels using a consensus method. Representative farms are processed using the stochastic FLIPSIM model and baseline agricultural and economic projections from the Food, Agricultural and Policy Research Institute (FAPRI). The research uses a whole farm analysis approach to evaluate relevant farm bill proposals as analyzed by the University of Tennessee's Agricultural

Policy Analysis Center (APAC), Texas A&M University's Agricultural and Food Policy Center (AFPC), and FAPRI at the University of Missouri-Columbia.

The representative farm concept recognizes the diversity of farm operations and the wide range of impacts that the same policy can have on farms with different characteristics. The representative farm models are created by panels of farmers using a consensus building approach rather than averaged individual farm data. This approach results in a representative farm that is recognizable and relevant for each panelist and the typical grower in that region, while preserving a high degree of anonymity of the farm panelists. Verification of representative farm panel data is an important contribution of the farm panelists. Upon initial data collection, panelists are required to review and verify input data and simulation output. This method verifies that the representative farm simulation is performing in a manner consistent with conditions in that region. The use of consistent farm panels over time to create and update representative farms enhances the credibility of the representative farm approach. This approach also assured policy makers that the farm panelists – his constituents – agree that this farm and the analyses based on the farm data accurately represent their interests.

Representative farm analyses are anchored to a baseline of projections for the farm. This approach allows farmers and policy makers a benchmark for comparing and interpreting policy alternatives. Since most agricultural policies introduce incremental changes from the current policy scenario, providing impact estimates in the context of a marginal change from a baseline scenario makes representative farm impact estimates easily interpreted and understood by farmers and decision makers. The representative farm approach also estimates a dynamic impact path over the projection period. Thus, production and profitability paths associated with policy alternatives evaluated are traceable. Representative farm panels are reconvened every two to three years to update farm data. The two representative Tennessee cotton farms used in this analysis were created in 1998 and updated in November and December 2001.

The FLIPSIM Model and Baseline Assumptions

Farm data have been processed for use in the Farm Level Income and Policy Simulation Model (FLIPSIM). FLIPSIM is a stochastic simulation model developed by James Richardson at Texas A&M University and research staff at Texas A&M's Agricultural and Food Policy Center. FLIPSIM uses accounting equations, identities, and probability distributions to simulate economic activities over a multi-year planning horizon. Incorporation of risk analysis in the model is an important feature for policy analysis. FLIPSIM has the ability to estimate the likelihood that predefined financial outcomes will occur in a given projection year, based on the representative farm's price and yield history. Using probability distributions based on actual historical data for the farm, the model calculates the annual probability of predefined outcomes, such as the probability of a cash flow deficit, the probability of meeting minimum cash needs, and the probability of declining real net worth. The analysis also solves for the amount of net cash income that a farm can withstand before equity declines. Analyses using FLIPSIM are anchored to a baseline scenario to project changes away from the baseline resulting from introducing alternative policies or conditions.

The 2001 FAPRI baseline projections for the agriculture sector were incorporated into the FLIPSIM model and baseline scenarios have been run for each of the two farms. The FAPRI baseline assumes that 1996 Farm Bill provisions (marketing loan, contract payments, LDPs, etc.) continue at their 2002 level through the 2005 projection period. The baseline does not assume that any market loss or disaster payments will be made after 2001. Approved market loss assistance payments and disaster program payments are included in the baseline for 2000, but market loss assistance is not included for 2001 crops in the baseline scenario. The baseline scenario further assumes that government payments are not restricted by payment limitations. Fixed payments (AMTA) are made on 85 percent of base acres under the baseline scenario.

The baseline projections do incorporate uncertainty around baseline prices and yields. Since principal and interest payments must be paid from farm receipts, the amount of debt a farm is carrying plays a large role in determining a farm's ability to cash flow. In this analysis, an assumption is that each farm had an initial debt level of 20 percent when the farm business was created in 1998. Moving forward, a farm's debt level may improve or deteriorate depending on the farm's performance over time. The analysis also assumes that the farms begin the simulation period with no cash reserves (i.e., no cash reserves on January 1, 2000). Operating expenses are financed with borrowed operating capital in the first simulation year (2000) and from cash reserves and/or additional short-term operating loans in subsequent years. MPC coverage is maintained at 50/100 over the baseline period.

Fayette County Moderate-Size Cotton Farm

The moderate representative cotton farm is a 1,900 acre West Tennessee (Fayette County) traditional cotton farm with rising popularity of corn and soybeans. The farm's crop mix is presented in figure 1. This farm plants 915 acres cotton, 370 acres corn, and 370 acres of soybeans. They plant equal parts corn/soybeans for crop rotation purposes. The farm plants 65 acres of double-cropped wheat and has recently introduced 150 acres of grain sorghum into their crop mix with plans to continue planting at least some sorghum acreage each year. This farm also has 30 acres enrolled in the CRP. Crop rotations and no-till practices are important management considerations for this farm. About two-thirds of the farm's acreage is under no-till practices.

Of the 1,900 farmed acres, 225 acres are owned land and the remaining 1675 acres are leased. Of the leased acres, about half is cash-rented, and about half is crop-shared. This farm owns approximately 60 additional acres including farmstead, roads, and wooded areas. This farm is in close proximity to Memphis, so land values are higher than they would be for other farms in West Tennessee further from a major metropolitan area. These higher land values indicate higher property taxes and cash rental costs, as well as offering farmers the safety net of better than average opportunities for liquidity if necessary.

The allocation of variable costs of production for cotton are presented in figure 2 and table 1 presents annual cash farm expenses over the baseline period. The farm spends \$29.60/acre for cotton seed and associated technology fees. Expenditures per acre are \$42.50 for fertilizer, \$36.00 for herbicides, and \$23.80 for insecticides. The farm pays \$30.00 per acre for the Boll Weevil Eradication Program (BWEP). The farm is currently in the fourth year of the BWEP, with three years remaining. A state appropriation covers part of the total cost of the BWEP (total

cost is \$36/acre and state pays \$6/acre). The farm's rental rate for cropland is \$55/acre. The farm employs one full-time laborer and about 550 hours of part-time labor per year. Total variable crop production costs are \$255,854 in 2001 for the farm and total cash expenses for the farm total \$409,616 in 2001. Costs are inflated annually according to the FAPRI baseline projections.

Under a continuation of the current farm bill, without ad hoc government payments (double AMTA, disaster, etc.), the baseline net cash farm income for this farm is presented in figure 3. Net cash farm income peaks at \$300,119 in 2001. This farm experienced an unexpectedly good year in 2001 with cotton yields up 35 percent (875 pounds per acre) over 2000. Favorable weather conditions, timing, and some attribution to the BWEP combined to give this farm an economic boost in 2001 that is above future expectations. The favorable conditions in 2001 set the stage for the farm to perform relatively well over the projection period. Net cash farm income is used to pay family living expenses, principal payments, income and self-employment taxes, and machinery replacement costs (not depreciation). The favorable cash position in 2001 allows the farm to generate a considerable cash reserve, preventing them from carrying over operating debt. Averaged over the baseline projection period, the farm has a zero percent probability of negative net cash farm income and less than a 25 percent probability that net cash farm income will fall below \$100,000. The farm has about a 92 percent probability that they will cash flow over the period.

Haywood County Large Cotton Farm

The large representative cotton farm is a 4,050 acre West Tennessee (Haywood County) traditional farm producing 2,670 acres of cotton, 820 acres of soybeans, 560 acres of yellow corn, and 328 acres of double-cropped wheat, as seen in figure 4. More than half of the farm's acreage is under no-till practices. According to one panelist, cotton farmers in this area view themselves as residue managers, not tillage farmers. This farm has increased their acreage over the past three years, primarily the result of a preference to buy or lease available farmland instead of allowing it to be offered for sale to a local cotton gin or for development. The farm has also recently begun to introduce some skip-row planting. Of the 4,050 acres farmed, 1,000 acres are owned and 3,050 acres are leased. Of the leased acres, 610 acres are cash rented and the remaining 2,440 are share-leased. In addition to 1,000 acres of owned cropland, the farm owns about 200 acres of other land including farmstead, roads, and wooded areas.

The allocation of variable costs of production for cotton for this farm are presented in figure 5 and table 2 presents annual cash farm expenses over the baseline period. The farm spends \$54.00/acre for cotton seed and associated technology fees. Expenditures per acre are \$57.00 for fertilizer, \$44.60 for herbicides and fungicides, and \$23.23 for insecticides. The farm pays \$24.50/acre for the BWEP. Although this farm is in the county adjacent to the moderate cotton farm, they are in a different BWEP zone, accounting for the difference in costs. The farm's rental rate for cropland is \$80/acre. Due to the size of the operation, this farm employs five full-time laborers. Total variable crop production costs are \$857,257 in 2001 for the farm and total cash expenses for the farm in 2001 total \$1,302,386.

In the baseline scenario, net cash farm income for this farm is presented in figure 6. Net cash farm income peaks in 2001 at \$94,505 before declining sharply and becoming negative in 2004.

Higher than expected yields in 2001 (808 pounds/acre) contribute to a better cash position in 2001, while future yields are projected at their trend levels (with yield variability incorporated). Recall that net cash farm income must be used to pay family living expenses, principal payments, taxes, and machinery replacement. Since the farm starts the simulation period without any cash reserves and does not generate a significant cash reserve to carry forward into 2001, the farm begins to carryover operating debt in 2001. Without additional government payments (above 2002-level AMTA), the farm's ability to cover its cash expenses deteriorates, worsening the farm's debt repayment picture. At trend yield levels, the farm is projected to experience cash flow deficits each year, carrying more than \$800,000 in operating losses forward into 2005 from 2004. The large cotton farm has between 25 and 50 percent probability that net cash farm income will be negative in any projection year. The odds of within-year cash flow deficits and of refinancing carryover debt exceed 60 percent annually from 2002 through 2006. The probability of decreasing real net worth increases from near zero in 2002 to near 75 percent by 2006.

Alternative Policy Scenarios

Simulations are conducted for each of two policy alternatives under consideration (House and Senate versions of the 2002 Farm Bill) and compared to the baseline scenario. The Farm Security Act of 2001 (H.R. 2646) was approved and passed in the House Agriculture Committee on July 27, 2001, and passed the full House of Representatives on October 5, 2001. The Agriculture, Conservation, and Rural Enhancement Act of 2001 (S. 1731) was approved and passed in the Senate Committee on Agriculture, Nutrition and Forestry on November 15, 2001. The proposed farm bill passed by the Senate Ag Committee was introduced on the Senate floor in early December but failed to reach a vote by the full Senate prior to the December recess. Both the House and Senate have expressed a desire to replace the 1996 Farm Bill prior to its expiration in September 2002 while the Administration has expressed a desire to move more slowly. This analysis includes the provisions of H.R.2646 and S.1731 that address loan rates and direct payments for producers of grains, cotton, and oilseeds other than peanuts. This analysis does not consider the impacts of other provisions of the legislation. Relevant loan rates, fixed payment rates, and counter-cyclical payment rates for each alternative policy scenario are presented in table 3.

H.R. 2646 continues fixed, decoupled payments, expanded to include soybeans and oilseeds, as well as continuing LDPs and marketing loans. The House plan continues planting flexibility and allows optional updating of farm base acres. The House proposal adds new counter-cyclical payments (variable AMTA) based on target prices and base acres. It covers commodities not included in the 1996 Farm Bill, expands conservation programs, and is projected to cost \$168 billion over 10 years.

Relevant provisions of the House proposal for the representative cotton farms include: planting flexibility; fixed-decoupled payments at their 2002 AMTA rates; marketing loans at the rates of 51.92 cents per pound for cotton, \$4.92 per bushel for soybeans, \$1.89 per bushel for corn, and \$2.58 per bushel for wheat; optional updating of base acreage; counter-cyclical payments based on target prices, where target prices are 73.6 cents per pound for cotton, \$5.86 per bushel for soybeans, \$2.78 per bushel for corn, and \$4.04 per bushel for wheat; and payment limits set at

\$50,000 for fixed decoupled payments, \$75,000 for counter-cyclical payments, and \$150,000 for marketing loan gains and LDPs.

The major elements of S. 1731 are conservation, commodity income protection, energy, and rural development. Senator Harkin's proposal retains fixed annual payments, but changes base acreage, yields, and rates. The Senate proposal adds a new counter-cyclical subsidy program, and has a 3 tiered payment plan for conservation practices. This bill doubles conservation spending with a cap of \$50,000 per farm per year. S. 1731 includes a renewable energy title. The commodity income protection component includes fixed decoupled payments, counter-cyclical payments based on target prices, and marketing loans. The Senate proposal is projected to cost \$170 billion over 10 years.

Relevant provisions for the representative cotton farm analysis include: planting flexibility; direct fixed payments of 4.6 cents per pound for cotton, 25 cents per bushel of soybeans, 15 cents per bushel of corn, and 24.7 cents per bushel of wheat; marketing loans at the rates of 51.92 cents per pound for cotton, \$5.20 per bushel for soybeans, \$2.08 per bushel for corn, and \$3.00 per bushel for wheat; optional updating of base acreage; counter-cyclical payments based on target revenue, where target revenues are 68 cents per pound for cotton, \$5.75 per bushel for soybeans, \$2.35 per bushel for corn, and \$3.45 per bushel for wheat; with payment limits set at \$100,000 for the total of direct and counter-cyclical payments; and limitations on the quantity of loan eligibility by commodity as follows: 2,300,00 pounds for cotton, 175,000 bushels for soybeans, 350,000 bushels for corn, and 200,000 bushels for wheat (where each unit would be converted to a common unit, with one bushel of soybeans equal to 1 unit and producers could use the loan program for a maximum of 175,000 units of eligible crops).

Both H.R. 2646 and S. 1731 give the producer the option of maintaining current AMTA contract area (according to the 1996 Farm Bill) for all crops on a farm or switching base acres to the average of 1998-2001 planted area for all crops on a farm. This decision must be on a farm-to-farm basis, rather than a crop-to-crop basis. If producers want to receive fixed and counter-cyclical payments for oilseeds, they must exercise the option to update their base acres to the average of 1998-2001 planted acres. Fixed and counter-cyclical payments are made on 100 percent of the base acres in S. 1731 and on 85 percent of the base acres in H.R. 2646. The proposed legislation also allows the producer to make a one-time decision to update payment yields. Under this option, the new payment yield is the four-year average of 1998-2001, excluding any year the crop was not planted and one additional year.

Results

Under both policy alternatives, both the moderate and large cotton farms maximize income by switching from current base acres to updated base acres. Base acres in the baseline scenario for the moderate cotton farm included 750 cotton acres and 250 corn acres, 1,000 total base acres. Under both H.R. 2646 and S. 1731, the moderate cotton farm's total base acreage increases to 1,900 acres: 915 cotton acres, 370 soybean acres, 370 corn acres, 65 wheat acres, and 150 grain sorghum acres. This is a net gain of 900 payment acres for the moderate cotton farm, or nearly double their original base acreage. Base acres in the baseline scenario for the large cotton farm

included 2,000 cotton acres, 250 corn acres, and 150 wheat acres. Under the farm bill alternatives, the large cotton farm's total base acreage increases to 4,050 acres: 2,670 cotton acres, 820 soybean acres, 560 corn acres, and 328 wheat acres. This represents a net gain of 1,650 base payment acres for the large cotton farm, a gain of more than two thirds compared to baseline base acreage.

Over the 2002-2006 projection period, net cash farm income for the moderate cotton farm averages \$172,930 under the baseline scenario. Under the H.R. 2646 scenario, average net cash farm income increases to \$214,510, a 24 percent increase over the baseline level. Under the S. 1731 scenario, average net cash farm income increases 32 percent to \$227,270. Figure 7 presents the cumulative distribution of net cash farm income over 100 iterations for the moderate cotton farm under the baseline, H.R. 2646 and S. 1731 scenarios, averaged over the 2002-2006 period. The vertical line indicates the average annual minimum cash needs required by the farm. This farm requires an average of \$136,080 to cover family living expenses, income and self-employment taxes, principal payments, and to replace machinery (according to a machinery purchase schedule developed by the farm panel). Under the baseline scenario, the probability that the farm will generate net cash farm income sufficient to meet minimum cash needs is 80 percent. Under both the H.R. 2646 and S. 1731 scenarios, the farm's probability of meeting minimum cash needs improves to near 100 percent.

As expected from the average values depicted in figure 7, the probability that the farm will experience a cash flow deficit in any year also declines under both policy scenarios. The probability of a cash flow deficit measures the ability of the farm to pay all cash costs on a year-to-year basis, a key indicator of the degree of risk facing the farm. Under the baseline, the probability of a cash flow deficit ranges from a low of 4.4 percent in 2003 to a high of 39.2 percent in 2004, averaging 26 percent over the five year simulation period. Under the H.R. 2646 scenario, the probability of a cash flow deficit falls to an average of 13.7 percent, and an average of 10.2 percent under the S.1731 scenario. Another key indicator of risk is the probability of the farm losing real (constant dollars) net worth in any year. This probability declines from a baseline value of 6.5 percent in the baseline to a probability near 1 percent for both policy scenarios.

Over the 2002-2006 projection period, net cash farm income for the large cotton farm averages \$77,640 under the baseline scenario. Under the H.R. 2646, net cash farm income averages \$242,520, an increase of more than 200 percent over the baseline level. Under the S. 1731 scenario, average net cash farm income increases even more to \$282,450. Under the baseline, average net cash farm income ranges from a low of \$72,240 in 2004 to a high of \$81,100 in 2005. Figure 8 presents the cumulative distribution of net cash farm income over 100 iterations for the large cotton farm under the baseline, H.R. 2646 and S. 1731 scenarios, averaged over the 2002-2006 simulation period. Under the baseline, the farm experiences a 33 percent probability that the average net cash farm income will be negative over the 2002-2006 period. This probability declines to under 3 percent under both the policy scenarios. Average minimum cash needs for the large farm are \$194,840. Under the baseline scenario, the farm has an 81 percent probability of a cash flow deficit, or only a 19 percent probability of meeting minimum cash

needs. This probability improves to a 63 percent probability of cash flowing under the H.R. 2646 scenario and a 71 percent probability of cash flowing under the S. 1731 scenario.

A key result for the large cotton farm is that they significantly improve their ending cash position under the two policy scenarios. In the baseline, the large farm experiences a cash flow deficit in the first year of the simulation. By assumption, the farm begins the simulation without a cash reserve, so a negative cash reserve indicates carryover debt for the farm that further penalizes their cash position in subsequent simulation years. Under the baseline scenario, ending cash reserves averaged over the 2002-2006 period are -\$485,500. In the H.R. 2646 scenario, average ending cash reserves improve to \$43,630. Average ending cash reserves over the period are further improved to \$84,150 in the S. 1731 scenario. As a result, the probability of the farm losing real net worth improves from an average of 64 percent over the period to an average under 14 percent. By 2006, the probability of losing real net worth declines from 76 percent in the baseline to under 24 percent in both policy scenarios, an improvement of 52 percentage points.

Discussion

The financial position of both the large and moderate cotton farms improves considerably under both the H.R. 2646 and S. 1731 policy scenarios. The primary cause of the rightward shift in net farm income over the baseline is the influx of government payments under the alternative policy scenarios. Recall that the baseline does not incorporate any emergency or ad hoc government payments beyond the 2000 crop year. Each of the policy scenarios essentially incorporates the higher-than-anticipated spending levels observed since 1998 into the new farm legislation through counter-cyclical payment programs (in effect, double-AMTA guarantees). The option to update base acres exercised by each farm also contributes to a significantly better financial position in the policy scenarios. Both farms significantly increase the total acreage on which payments are received. Since both farms add a soybean base, they benefit from program-crop treatment for soybeans that is not available under the baseline scenario. For these two Tennessee cotton farms, the difference between the soybean loan rates under the two scenarios is essentially negated by the difference in the fixed payment rate for soybeans. For the moderate farm, government payments as a portion of total cash receipts increases from an average level of near 12 percent in the baseline to about 17 percent in the H.R. 2646 scenario and near 20 percent in the S. 1731 scenario. For the large cotton farm, government payments as a portion of total cash receipts increases from an average of 9 percent in the baseline to over 17 percent in the H.R. 2646 scenario and nearly 20 percent in the S. 1731 scenario. The financial position of each farm over the period is slightly better under the S. 1731 scenario than under the H.R. 2646 scenario. This is primarily a result of higher loan rates in the Senate proposal.

Comparatively, the large Tennessee cotton farm experiences greater gains in profitability from the two policy alternatives. In large part, this result is a function of the baseline position of each farm. The moderate farm is on generally solid financial footing under the baseline scenario while the condition of the large farm is poor. High labor and equipment costs for the large farm, coupled with lower yields and higher variable costs per acre than the moderate farm lead to a much higher probability that the large farm will not be able to cash flow. By design, it is difficult for a farm to improve from a negative net cash farm income situation early in the simulation

period. The additional government payments provided in the policy scenarios move the farm's cash position up enough that they reduce the probability of having to refinance their debt in any given year, decreasing interest payments. Also, the significant gains in base acreage for the large farm and the program changes incorporated into the farm bills lead to proportionally larger gains in government payments for the large farm, further improving their relative position.

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Table 1. Cash farm expenses, West Tennessee (Fayette County) 1,900 acre moderate cotton farm.

	2000	2001	2002	2003	2004	2005	2006
Variable Prod. Costs (All Crops)	239,998	255,854	242,748	241,844	244,123	247,704	252,656
Cash Rent (Cropland)	46,063	46,063	46,063	46,063	46,063	46,063	46,063
Hired Labor	24,000	25,500	26,673	27,927	29,211	30,526	31,930
Property Taxes	1,355	1,381	1,352	1,320	1,304	1,288	1,285
Acct/Legal Fees	775	800	777	797	829	870	902
Maintenance	22,000	2,300	23,237	23,595	24,055	24,524	25,027
Utilities	1,500	1,584	1,453	1,409	1,386	1,374	1,394
Fuel/Lube	5,500	6,000	5,434	5,337	5,252	5,205	5,281
Liability Insurance	6,700	7,200	6,992	7,176	7,464	7,834	8,117
Miscellaneous	1,750	2,000	1,942	1,993	2,073	2,176	2,255
Environmental Compliance	300	300	303	308	314	320	326
Crop Insurance Premiums	4,156	4,156	5,937	6,009	6,083	6,159	6,266
Interest on Long Term Debt	14,842	11,666	10,179	9,587	9,400	8,093	6,803
Interest on Intermediate Debt	6,551	5,353	2,806	1,445	11,885	9,935	14,844
Interest on Operating Debt	23,817	18,770	10,965	9,934	7,744	7,456	5,572
Interest on Carryover Debt	-	-	-	-	-	-	-
Total Cash Expenses	399,307	388,927	386,861	384,744	397,186	399,527	408,721

Table 2. Cash farm expenses, West Tennessee (Haywood County) 4,050 acre large cotton farm.

	2000	2001	2002	2003	2004	2005	2006
Variable Production Costs (All Crops)	707,516	857,257	818,691	821,662	832,751	846,967	865,461
Cash Rent (Cropland)	42,700	48,800	48,800	48,800	48,800	48,800	48,800
Hired Labor	91,000	106,000	112,486	119,418	126,521	133,790	141,554
Property Taxes	4,800	5,000	4,898	4,779	4,724	4,665	4,653
Acct/Legal Fees	4,800	5,000	4,856	4,983	5,184	5,440	5,637
Maintenance	65,000	72,900	73,651	74,785	76,243	77,730	79,324
Utilities	2,436	2,664	2,413	2,370	2,332	2,311	2,345
Liability Insurance	9,300	10,000	9,711	9,966	10,367	10,880	11,273
Miscellaneous	5,169	5,142	4,993	5,124	5,330	5,594	5,796
Environmental Compliance	10,000	10,000	10,103	10,259	10,459	10,663	10,881
Crop Insurance Premiums	8,660	8,653	12,443	12,612	12,843	13,053	13,315
Interest on Long Term Debt	32,674	27,216	25,009	24,741	25,647	24,123	22,803
Interest on Intermediate Debt	32,087	28,539	21,725	21,090	32,715	29,532	30,781
Interest on Operating Debt	61,988	71,029	63,572	64,106	69,785	72,009	74,205
Interest on Carryover Debt	-	9,186	14,368	29,123	40,384	55,711	70,485
Total Cash Expenses	1,078,130	1,267,386	1,227,719	1,253,818	1,304,085	1,341,268	1,387,313

Table 3. Loan rates, fixed payment rates, and target prices under the baseline, H.R. 2646, and S. 1731.

Crop	Units	Loan Rate			Fixed Decoupled Payment Rate			Target Price / Revenue	
		2002 Baseline	H.R. 2646	S. 1731	2002 Baseline	H.R. 2646	S. 1731	H.R. 2646	S. 1731
Wheat	\$/Bu.	2.58	2.58	3.00	0.46	0.53	0.25	4.04	3.45
Corn	\$/Bu.	1.89	1.89	2.08	0.26	0.30	0.15	2.78	2.35
Sorghum	\$/Bu.	1.69	1.89	2.08	0.31	0.36	0.17	2.64	2.35
Upland Cotton	\$/Lb.	0.052	0.519	0.550	0.056	0.067	0.046	0.736	0.680
Soybeans	\$/Bu.	5.26	4.92	5.20	n.a.	0.42	0.25	5.86	5.75

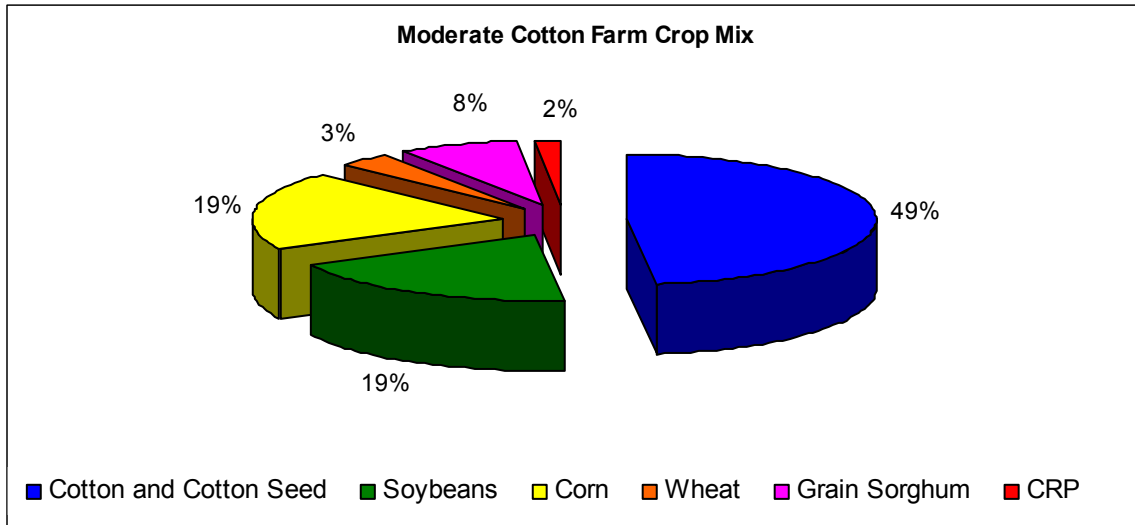


Figure 1. West Tennessee (Fayette County) 1,900 acre moderate cotton farm crop mix.

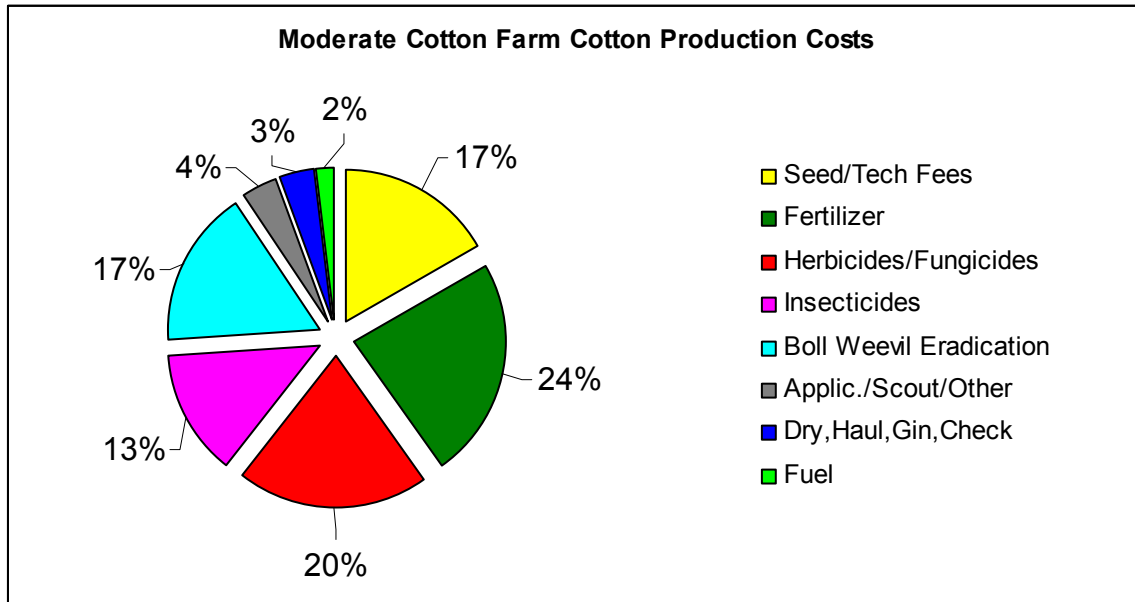


Figure 2. Variable costs of production for cotton, West Tennessee (Fayette County) 1,900 acre moderate cotton farm.

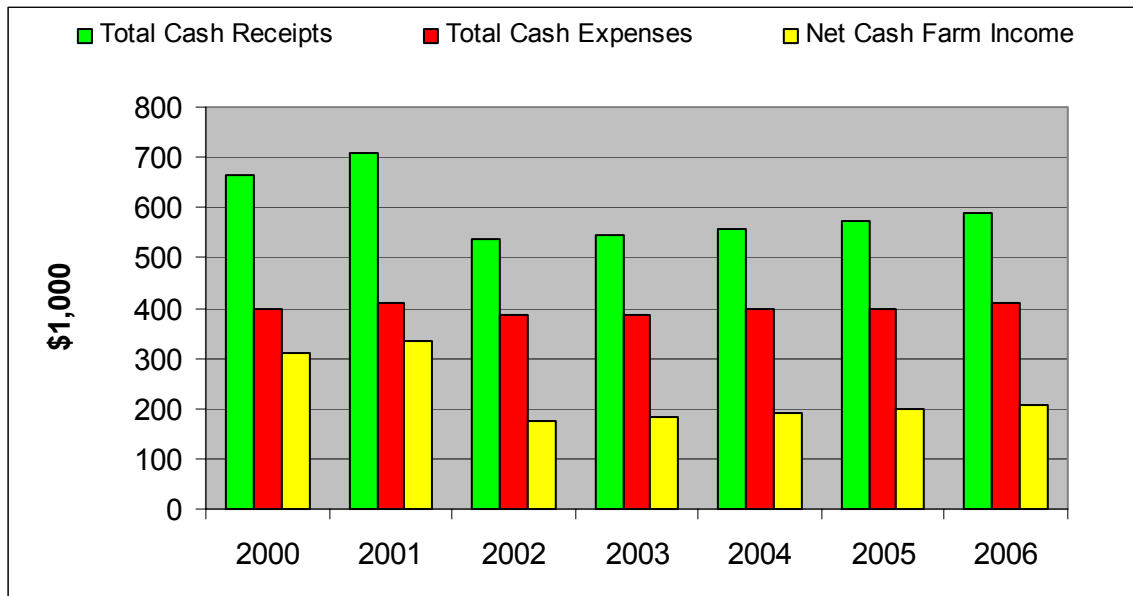


Figure 3. Baseline cash receipts, cash expenses and net cash farm income, West Tennessee (Fayette County) 1,900 acre moderate cotton farm.

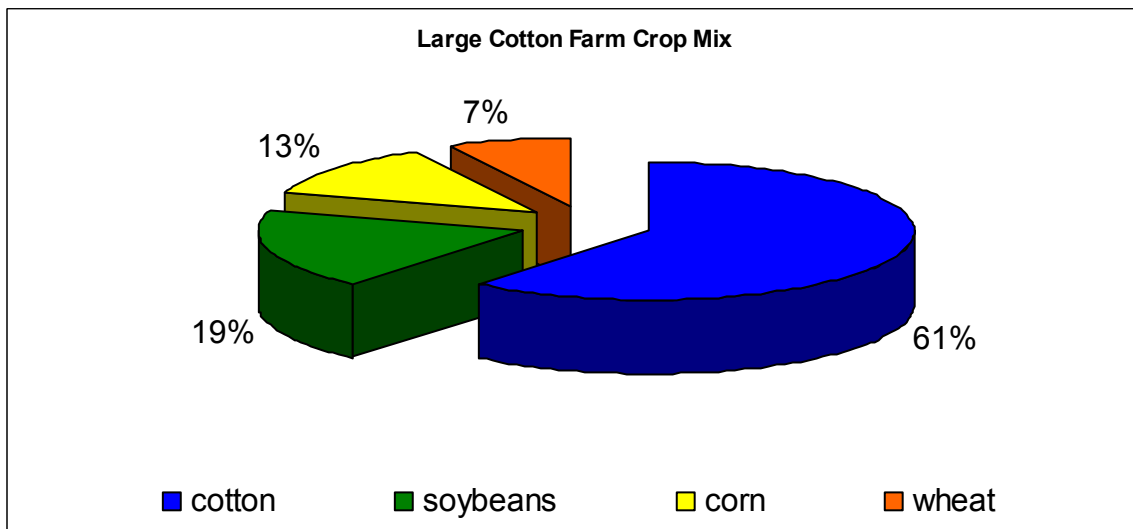


Figure 4. West Tennessee (Haywood County) 4,050 acre large cotton farm crop mix.

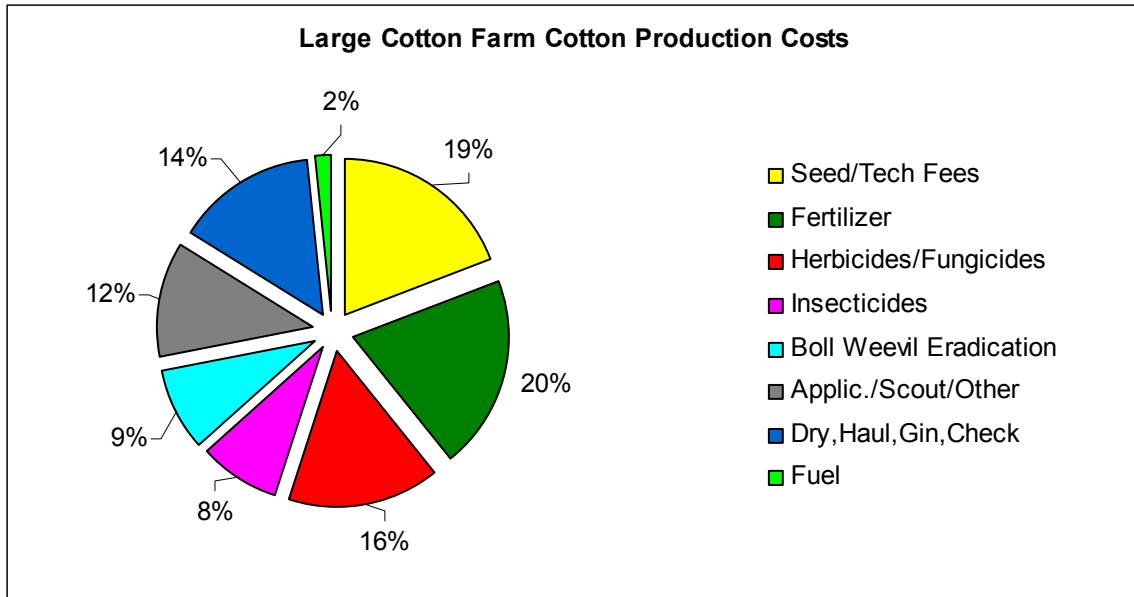


Figure 5. Variable costs of production for cotton, West Tennessee (Haywood County) 4,050 acre large cotton farm.

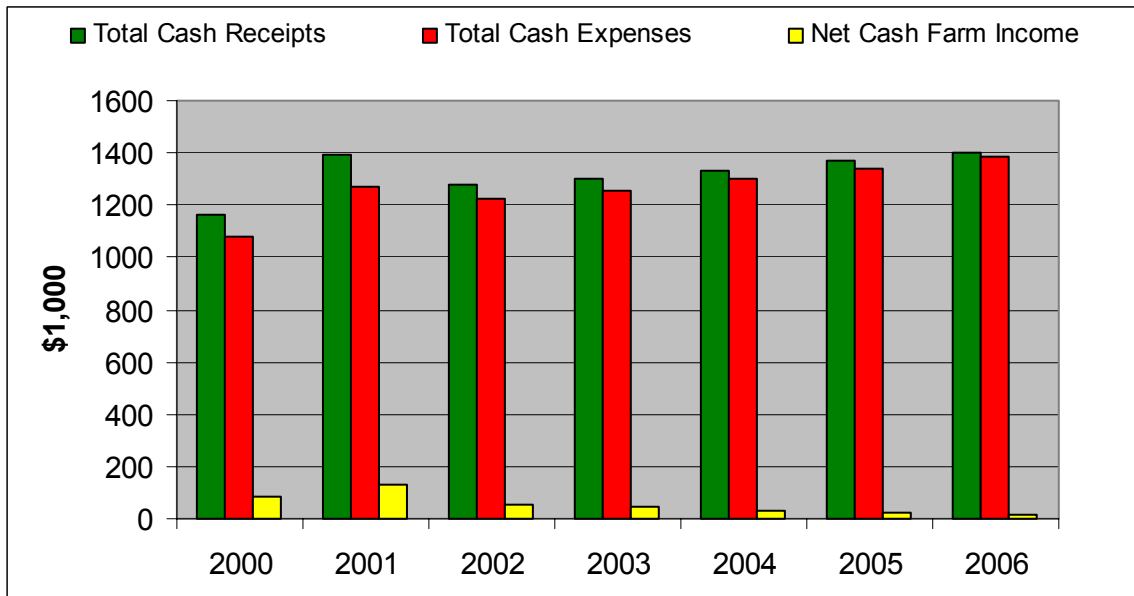


Figure 6. Baseline cash receipts, cash expenses and net cash farm income, West Tennessee (Haywood County) 4,050 acre large cotton farm.

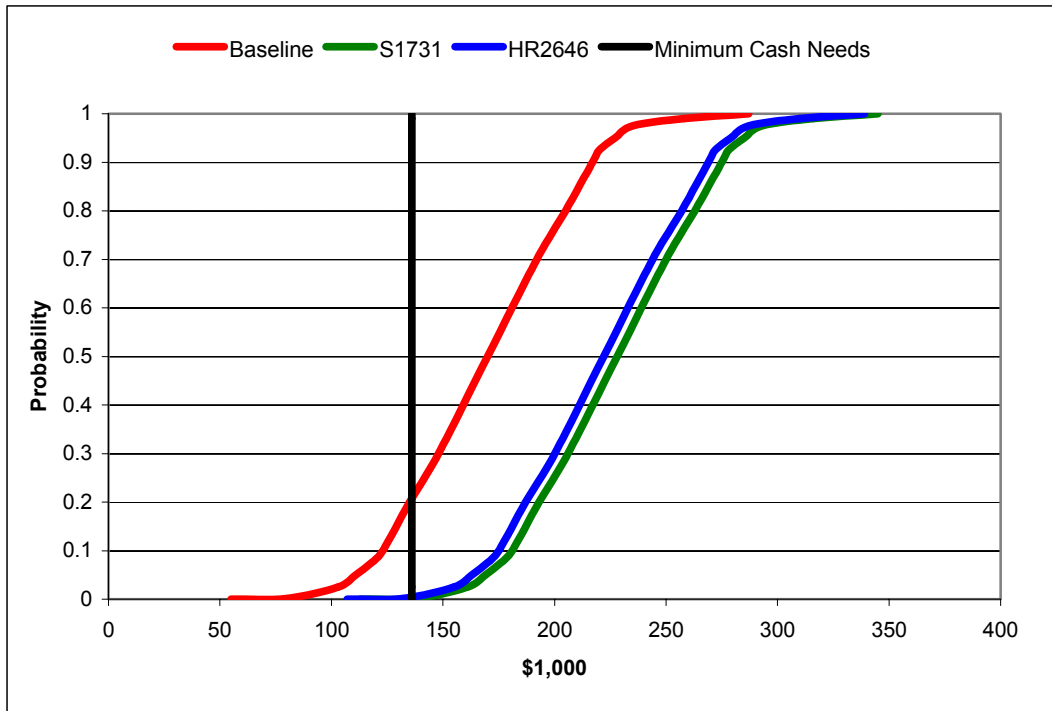


Figure 7. Cumulative distribution of 100 iterations of average annual net cash farm income, 2002-2006, under the baseline, H.R. 2646, and S. 1741 for the 1,900 acre moderate Tennessee cotton farm.

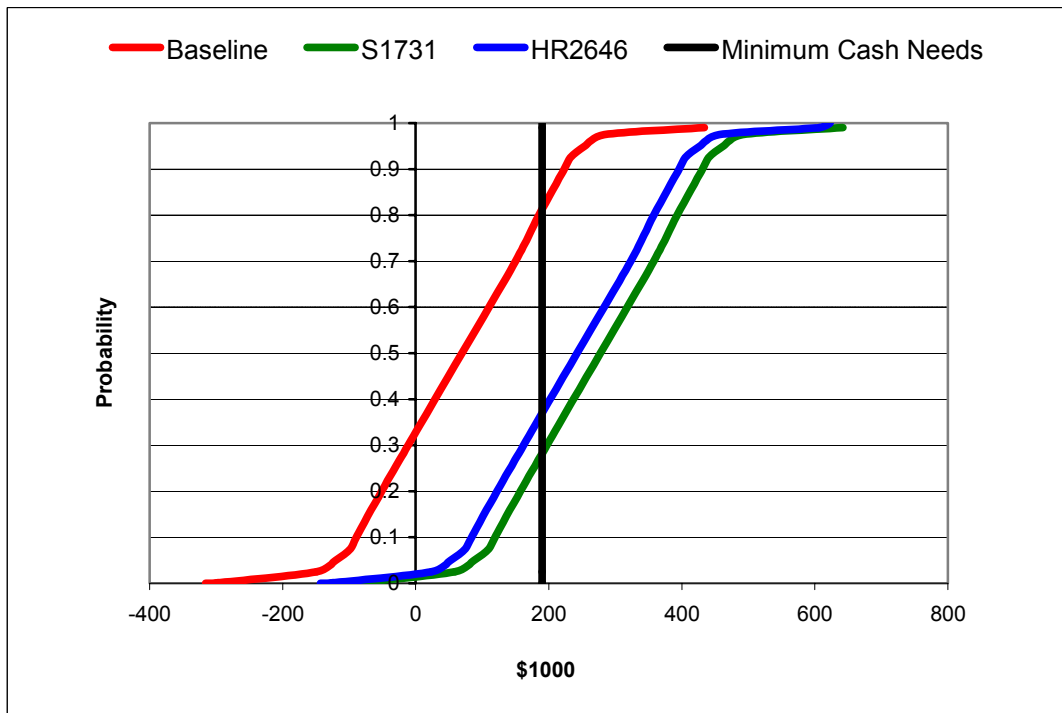


Figure 8. Cumulative distribution of 100 iterations of average annual net cash farm income, 2002-2006, under the baseline, H.R. 2646, and S. 1741 for the 4,050 acre large Tennessee cotton farm.