IMPLICATIONS OF THE 1990 FARM

BILL ON THE ECONOMIC VIABILITY

OF TEXAS CROP AND DAIRY FARMS

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Ronald D. Knutson
James W. Richardson
Edward G. Smith
Robert B. Schwart
Daniel R. Sechrist
David P. Anderson
Joe L. Outlaw
John W. Miller

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SUMMARY

- Representative Texas crop and dairy farms are analyzed over the 1990-95 planning horizon under the provisions of the 1990 Farm Bill.

- Two of the nine crop farms appear to be able to increase equity over the study period. The large Texas Northern High Plains feedgrain and wheat farm and the moderate size Southern Blacklands grain sorghum and cotton farm experience real equity growth in excess of 33 percent.

- Six of the nine crop farms lose equity over the study period despite assuming a low initial debt of 10 percent on real estate assets and 20 percent on intermediate-term assets.

  -- Three of the six farms, two cotton and wheat farms in the Rolling Plains and the rice farm located West of Houston, lose more than 65 percent of their equity. These farms would have to see gross receipts increase by 17-20 percent annually, with no increase in input cost, before they would be able to maintain real equity.

  -- The moderate sized Southern High Plains cotton farm loses 31 percent of its real equity under the low debt scenario. This farm would have to see increases in annual cash receipts of 12 percent, holding expenses constant, before real equity levels could be maintained.

  -- The moderate size Northern High Plains feedgrain and wheat farm and the moderate sized Coastal Bend feedgrain and cotton farm lose real equity over the study period but at rates of less than 5 percent under low debt assumptions. An increase in gross receipts of 6 percent, holding costs constant, would allow these farms to maintain real equity under relatively high debt assumptions.

- The large Southern High Plains cotton farm is able to just maintain its real equity assuming low debt. As debt increases, however, the farm loses up to 22 percent of its real equity.

- All four Texas dairy farms lost equity even at low debt levels.

  -- The large Erath County dairy was the most resilient but still lost 17 percent of its real equity over the study period.

  -- The moderate sized Erath County dairy lost 56 percent of its initial equity. The dairy would have to see cash receipts increase by 12-13 percent, holding expenses constant, before equity could be maintained.

  -- The Hopkins County dairies fare even worse with the moderate sized dairy losing all of its equity while the large farm retains only 25 percent of its initial net worth. Receipts would have to increase by 20 percent on the moderate sized dairy and 11 percent on the larger operation before equity could be maintained.

The farm level economic impacts of the 1990 farm bill on Texas crop and dairy producers are projected in this report. The analysis was conducted over the 1990-1995 planning horizon using a whole farm simulation model. The model simulated representative crop and dairy farms in major production regions of Texas. Data to simulate the farms came from two sources. The Food and Agricultural Policy Research Institute's (FAPRI) November 1990 Baseline provided annual prices, policy parameters, yields, technology trends, rates of inflation, and interest rates. Information to describe the representative farms was developed by AFPC scientists using the Panel Farm Process described below. Readers interested in farm level impacts on production regions outside of Texas should obtain a copy of AFPC Working Paper 91-2.

The panel farm analyses represent the economic impacts on low debt producers who do not adjust cropping systems, management strategies, and tenure arrangements over the 1990-1995 planning horizon. Acreage flexing within the current cropping pattern is allowed and analyzed under the normal and optional flex acreage options available under the 1990 Farm Bill. The assumption of no change in cropping systems and management practices (other than the flexibility option) in the presence of policy changes is recognized as a limitation but was done for several reasons:

- Farm level analyses for the November 1990 Baseline were designed to show regions of Texas that may come under economic pressure,
- Direction and magnitude of a change in management practices are currently unknown,
- Introduction of new crops will likely require changes in machinery complement and yield distributions which are unknown, and
- Technological breakthroughs can not be predicted and their effect on yields and costs are unknown. Trend yields, therefore, are utilized to represent historical technology improvement.

The principle objective of the study was to identify those regions which could experience adverse economic pressure under the terms of the 1990 Farm Bill. The representative farms were simulated for three initial debt to asset situations in order to quantify the likely impacts of the 1990 farm bill on low, moderate, and high debt producers in each region. Low debt was represented by a 10 percent long-term and 20 percent intermediate-term debt to asset ratio. Moderate and high debt situations were represented by long-/intermediate-term debt asset ratios of 20/40 and 30/60, respectively.

This report is organized into five parts. The first section summarizes the panel farm process, outlines the key assumptions and presents a map showing where all U.S. the panel farms are located. The second section summarizes the FAPRI November 1990 Baseline and the policy, price, and yield assumptions used for the panel farm analyses. The third section presents the results of the simulation analyses for crop farms by region. The fourth section presents the simulation results for dairy farms by region. The final section of the report summarizes an analysis of net income adjustments required in order that each farm maintain real equity over the 1990-95 study period.

Panel Farm Process

Traditional policy analysis has involved analyzing the effects of farm programs on crops, dairy, and livestock at the national level. These analyses, while important to policy makers, do not provide sufficient detail as to the likely effects of farm programs on producers in different regions of the country. To overcome this deficiency, AFPC scientists developed, in 1980-81, a computer model for analyzing the effects of farm programs on representative farms, ranches, and dairies in different regions of Texas.

During the 1985 farm bill debate, AFPC scientists used the farm level policy model (FLIPSIM) to analyze a large number of alternatives that were considered by Congress. The consequences of each

alternative policy on the economic viability (profitability, survival, and success) of crop farms in Texas were reported without recommendation.[1]

Results of these analyses were provided to the House and Senate Agriculture Committees in Washington, D.C., to farmers, and to farm organizations. The farm level policy analyses proved to be useful in the 1985 farm bill debate and led to a Congressional appropriation to fund AFPC's expansion of farm level analyses to other states (Figure 1). Farms developed under this joint appropriation between AFPC and FAPRI were used to analyze policy options for the 1990 farm bill.

In meeting this expanded mandate, it was necessary to develop information to describe panel farms in selected production regions throughout the United States. The FLIPSIM model uses this producer derived information to simulate the economic impact of alternative policies on a representative farm, ranch, or dairy in a particular region. The initial information is obtained from producer panels with participants providing information on:

- Size of the typical operation (acres, head, etc.),
- Tenure (acres owned and leased),
- Enterprises (crops, livestock),
- Costs of production for each enterprise,
- Expected crop yields and a history of yields, and
- Machinery complement.

Once this raw data are collected, the information is processed and returned to the panel members for review. Data adjustments are made consistent with the panel's recommendations. The panel farm data are then used in FLIPSIM to develop pro forma financial statements. The financial statements are reviewed by the panel members. If adjustments need to be made, new pro forma financial statements are developed and the process is repeated until the panel is satisfied that the financial projections are reasonable for the representative farm they are describing.

Secondary data for panel farms are obtained in each region with the help of local land grant university personnel. This information includes:

- Local interest rates for operating loans, intermediate debt, long-term debt, and passbook savings accounts,
- Local CCC loan rates,
- Local prices received for commodities and/or livestock and prices paid for feedstuffs,
- Local prices paid for machinery and inputs, and
- State income tax information.

General macroeconomic data, policy assumptions, and prices for farm level policy analyses are provided by the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri - Columbia and Iowa State University or AFPC. This information includes:

- Projected inflation rates, interest rates, and CPI,
- Projected crop prices, loan rates, target prices, set aside fractions, diversion payment rates, marketing loans, Findley loan rates, and yield trends,
- Projected prices for crops, feedstuffs, livestock, and milk,
- Projected yield trends for crops and milk per cow, and
- Projected changes in livestock herd size.

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[1]The AFPC adheres strictly to the policy analysis framework that the consequences of alternative policies are to be estimated and presented without a recommendation or subjective ranking of the alternatives.

Key Assumptions

- The moderate farms are the size (acres or number of livestock) which is considered to be representative of full time commercial farming operations in the study area. In some regions a second farm panel was developed which represented operations 2-3 times the size of the moderate farm.

- Three debt scenarios for the panel farms are assumed. The first assumes 10 percent debt on real estate and 20 percent debt on intermediate-term assets. This initial debt assumption is then doubled to 20 percent on real estate, and 40 percent on intermediate-term assets. The final scenarios triples the debt to 30 percent on real estate, and 60 percent on intermediate-term assets.

- The farm participates in the farm program and chooses the flex alternative (within currently grown crops) which appears to be the most profitable.

  - Normal flexible acreage (NFA) is planted to the crop currently produced on the farm which generated the greatest returns above variable cost *excluding* government payments. Unless returns to an alternative crop exceed $5/acre the base crop is not flexed.

  - The optional flexible acreage (OFA) was "flexed" in those cases where a different crop's returns above variable cost *excluding* government payments was greater than the program crop's returns above variable cost *including* government payments by over $5/acre.

- Dairy farm herd size is held constant over the 1991-1995 planning horizon.

- Farm program parameters, average annual prices, crop yield trends, output per dairy cow, interest rates, real estate appreciation (depreciation), and input cost inflation (deflation) are based on the FAPRI November 1990 Baseline which assumed implementation of the 1990 Farm Bill.

- In cases where the panel farm produced both corn and grain sorghum, current planting proportions were maintained as a combined base throughout the 1991-1995 period. This assumption reflects the fact that a combined corn/sorghum base was allowed under the 1985 Farm Bill, is allowed in 1991, and likely will be allowed (albeit technical corrections by Congress) under the 1990 Act for 1992-1995.

- The farm was structured to be eligible for a $100,000 payment limit.

- Family living withdrawals were assumed at a base rate of $20,000 annually, the farms did not have any off farm income, and the farms were subject to owner/operator federal and state taxes as a sole proprietor operation.

Figure 1. Panel Farms Completed or in Process

NOVEMBER 1990 FAPRI

BASELINE

FAPRI Baseline

Macro-Economic Assumptions

- The outlook for the general economy was very uncertain at the time the FAPRI baseline was prepared in November 1990. There was no consensus as to whether the United States was entering a serious recession, nor was there agreement about the likely path of petroleum prices, given the uncertain Middle East situation. The FAPRI baseline is conditioned by macroeconomic projections prepared in October 1990 by The WEFA Group and Project Link, prior to the Middle East War.

- A mild, brief recession is projected for the U.S. economy. Real gross domestic product (GDP) increases by 1% per year in 1990 and 1991, in spite of negative growth in late 1990 and early 1991. The U.S. economy strengthens in the mid-1990s, with real GDP growth reaching 3% per year.

- The world economy is marked by sharp contrasts. Eastern Europe and the Soviet Union are in the midst of a serious economic contraction, as the transition to more market-based economic systems proves difficult. But, strong economic growth continues in most of Western Europe and the Pacific Rim. High rates of economic growth are projected for most of the world after 1991. Projected growth is slowest in Eastern Europe and the Soviet Union.

- Petroleum prices increased dramatically after the Iraqi invasion of Kuwait in August 1990. WEFA projections assume that the crisis is resolved in early 1991, resulting in a sharp reduction in petroleum prices. Prices reach their lowest level in 1993, but then increase as supplies tighten in the face of rising world demand.

- A weakening economy tempered the effect of higher petroleum prices on U.S. inflation rates in 1990. Projected inflation rates (as measured by the Consumer Price Index) average 5% per year in the 1990s.

- Interest rates are projected to increase slightly when the U.S. economy strengthens in the mid-1990s.

Domestic Economic Projections

	1990	1991	1992	1993	1994	1995
	-------------------- (Percent) --------------------					
Percentage Changes in Prices						
General Farm Production	2.16	-2.88	0.30	2.01	2.81	2.93
Chemicals	0.27	3.72	2.86	3.48	3.75	4.18
Fuel and Lube	23.60	13.23	-4.12	-1.11	7.73	9.00
Machinery and Equipment	3.54	3.81	4.10	4.29	4.79	4.87
Labor	3.44	3.23	3.49	3.98	4.41	5.10
Land Value	3.90	0.80	0.00	2.70	2.80	1.30
Consumer Price Index (CPI)	5.20	5.20	4.20	5.50	5.80	5.30
Interest Rates (%):						
Conventional Mortgages						
Long term	10.35	10.45	10.73	10.87	10.94	11.12
Bank Prime	10.01	10.12	10.49	10.48	10.64	10.85

Source: FAPRI, November 1990 Baseline.

FAPRI Baseline

U.S. Policy Assumptions

- In October 1990, the U.S. Congress approved the Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA-90). The act was signed into law by the President, thereby replacing the Food Security Act of 1985 (FSA-85) as the principal law governing U.S. agricultural policy for 1991-95.

- Almost immediately after Congressional approval of FACTA-90, it was amended by the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). The OBRA-90 mandates a variety of measures to reduce the agricultural budget by $13 billion over the next five years.

- FAPRI projections incorporate provisions of both FACTA-90 and OBRA-90. No GATT agreement that requires a change in U.S. policies is assumed in these baseline projections.

- FACTA-90 mandates a freeze in target prices for grains and cotton. The OBRA-90 reduces deficiency payments by restricting acres eligible for payments (the triple base) and by changing the formula used to calculate deficiency payments, beginning with the 1994-95 crop.

- FACTA-90 establishes a marketing loan program for soybeans and other oilseeds and continues the current marketing loan programs for cotton and rice. Loan rates for wheat and feedgrains are set by a formula that gives the Secretary of Agriculture less discretion to reduce loan rates than under the FSA-85.

- The triple-base program is established by OBRA-90, which makes 15% of a farmer's base acreage ineligible for deficiency payments. On those acres, farmers can plant any crop (except fruits and vegetables) without affecting current or future government payments.

- The conservation reserve program is continued with some modifications. It is assumed that total enrollment will not exceed the 40-million-acre minimum target specified by FACTA-90. It is further assumed that half of the land enrolled in the conservation reserve will return to crop production when contracts expire, beginning in the late 1990s.

- FACTA-90 specifies that the milk support price cannot be reduced below the 1990 level of $10.10 per cwt. Increases in support prices are triggered when government purchases fall below 3.5 billion pounds of milk equivalent, as measured on a total solids bases.

- Existing agricultural policies in other countries are assumed to remain in place, implying no GATT agreement requiring reduced levels of support. In the European Community and Japan, support prices are assumed to be frozen at current levels through 1995. Liberalization of the Japanese beef market is assumed to continue as specified by the 1988 agreement. Slow increases in EC milk delivery quotas are assumed, so that EC milk supply keeps pace with increases in domestic and world demand.

Farm Program Provisions

	90/91	91/92	92/93	93/94	94/95	95/96
Target Prices						
Corn ($/bu)	2.75	2.75	2.75	2.75	2.75	2.75
Sorghum ($/bu)	2.61	2.61	2.61	2.61	2.61	2.61
Barley ($/bu)	2.36	2.36	2.36	2.36	2.36	2.36
Oats ($/bu)	1.45	1.45	1.45	1.45	1.45	1.45
Wheat ($/bu)	4.00	4.00	4.00	4.00	4.00	4.00
Rice ($/cwt)	10.71	10.71	10.71	10.71	10.71	10.71
Cotton (cents/lb)	72.90	72.90	72.90	72.90	72.90	72.90
Loan Rates						
Corn ($/bu)	1.57	1.60	1.72	1.72	1.71	1.72
Sorghum ($/bu)	1.49	1.52	1.64	1.64	1.62	1.63
Barley ($/bu)	1.28	1.30	1.40	1.40	1.39	1.40
Oats ($/bu)	.81	.82	.89	.89	.88	.88
Soybeans ($/bu)	4.50	5.02	5.02	5.02	5.02	5.02
Wheat ($/bu)	1.95	2.05	2.22	2.36	2.27	2.24
Rice ($/cwt)	6.50	6.50	6.50	6.50	6.50	6.50
Cotton (cents/lb)	50.30	52.80	54.70	54.00	54.60	54.90
Acreage Reduction Program (ARP) Rate (Percent)						
Corn	10.0	7.5	7.5	7.5	7.5	7.5
Sorghum	10.0	7.5	7.5	7.5	7.5	7.5
Barley	10.0	7.5	7.5	7.5	7.5	7.5
Oats	5.0	0.0	0.0	0.0	0.0	0.0
Wheat	5.0	15.0	5.0	5.0	5.0	5.0
Rice	20.0	12.5	17.5	17.5	17.5	17.5
Cotton	12.5	10.0	10.0	10.0	10.0	10.0
Triple-Base Rate (Percent)						
Feedgrains	0.0	15.0	15.0	15.0	15.0	15.0
Wheat	0.0	15.0	15.0	15.0	15.0	15.0
Rice	0.0	15.0	15.0	15.0	15.0	15.0
Cotton	0.0	15.0	15.0	15.0	15.0	15.0
Milk Support Price ($/cwt)	10.10	10.10	10.10	10.35	10.60	10.85
Milk Assessment ($/cwt)	.05	.11	.11	.11	.11	.11

Source: FAPRI, November 1990 Baseline.

FAPRI Baseline

Crop And Livestock Prices And Crop Yields

- FAPRI Baseline used the WEFA projections of macroeconomic variables and domestic farm policy assumptions to project crop and livestock prices for 1990 through 1996.

- Crop yields and annual milk per cow projections reflect technology changes and supply responses to price and policy changes.

- Per acre corn yields are projected to increase by approximately two bushels per year for the 1990s. Soybean yields increase to 34.9 bushels per acre by 1995 assuming average weather conditions. Wheat yields increase about two bushels over the five year planning horizon, and cotton yields increase 30 pounds per acre.

- Corn prices are projected to increase to $2.45 per bushel in 1991/92 because of increased feed use and exports. Prices of corn are projected to range between $2.25 and $2.45 per bushel thereafter.

- Soybean prices fall in 1991/92 to $5.69/bushel but increase thereafter reaching $6.17/bushel in 1995/96.

- Wheat prices increase from $2.63 to $3.33 per bushel over the planning horizon due to increased exports but do not return to the 1989/90 level of $3.72 per bushel.

- Kansas City feeder steer prices are projected to decline over the 1990-94 period from $90.41 per cwt. to $81.83 per cwt. before strengthening to $82.18 per cwt. by 1995. Utility cow and Omaha steer prices follow this general pattern, as well.

- Barrow and gilt prices are projected to decline through 1992, before increasing to $56.52 per cwt. by 1995.

- The all-milk price is projected to fall $2.07 per cwt. from 1990 to 1991 before beginning a slow recovery in 1993. Milk price ends the period at $13.01 per cwt., about 64 cents per cwt. lower than in 1990.

Crop Yields And Crop And Livestock Prices, 1990-1995.

	90/91	91/92	92/93	93/94	94/95	95/96
CROPS:						
Corn						
Yield (bu/ac)	119.0	121.6	124.2	126.1	128.4	130.5
Price ($/bu)	2.30	2.45	2.30	2.39	2.40	2.43
Sorghum						
Yield (bu/ac)	60.5	63.4	65.4	66.9	67.8	68.4
Price ($/bu)	2.17	2.37	2.21	2.33	2.31	2.33
Barley						
Yield (bu/ac)	55.2	56.2	56.9	57.6	58.1	58.7
Price ($/bu)	2.21	2.26	2.29	2.39	2.37	2.39
Wheat						
Yield (bu/ac)	39.6	36.8	37.4	38.1	38.5	38.7
Price ($/bu)	2.63	2.82	3.20	3.34	3.23	3.33
Soybeans						
Yield (bu/ac)	33.7	33.9	34.4	34.4	34.7	34.9
Price ($/bu)	5.69	5.52	6.02	6.01	6.09	6.17
Cotton						
Yield (lbs/ac)	622	624	626	632	643	654
Price ($/lb)	.679	.632	.618	.64	.665	.675
Rice						
Yield (lbs/ac)	5499	5630	5734	5816	5888	5954
Price ($/cwt)	6.57	6.56	6.39	6.65	6.94	7.14
Hay						
Yield (tons/ac)	2.45	2.50	2.52	2.55	2.58	2.60
Price ($/ton)	84.10	81.89	82.11	85.20	87.58	89.32
	1990	1991	1992	1993	1994	1995
LIVESTOCK:						
Cattle						
Steers ($/cwt)	76.45	75.81	74.04	72.67	72.43	73.08
Feeders ($/cwt)	90.41	88.70	85.67	82.87	81.83	82.18
Cows ($/cwt)	49.95	49.45	48.26	44.78	43.97	44.44
Pork						
Barrows/Gilts ($/cwt)	55.72	48.41	41.34	46.20	52.53	56.57
Sows ($/cwt)	47.49	42.15	36.61	38.57	44.03	45.95
Milk						
Production/Cow (1000 lbs)	14.63	14.88	15.09	15.35	15.65	15.92
All Milk Price ($/cwt)	13.65	11.58	11.49	11.98	12.25	13.01

Source: FAPRI, November 1990 Baseline.

TEXAS CROP FARMS
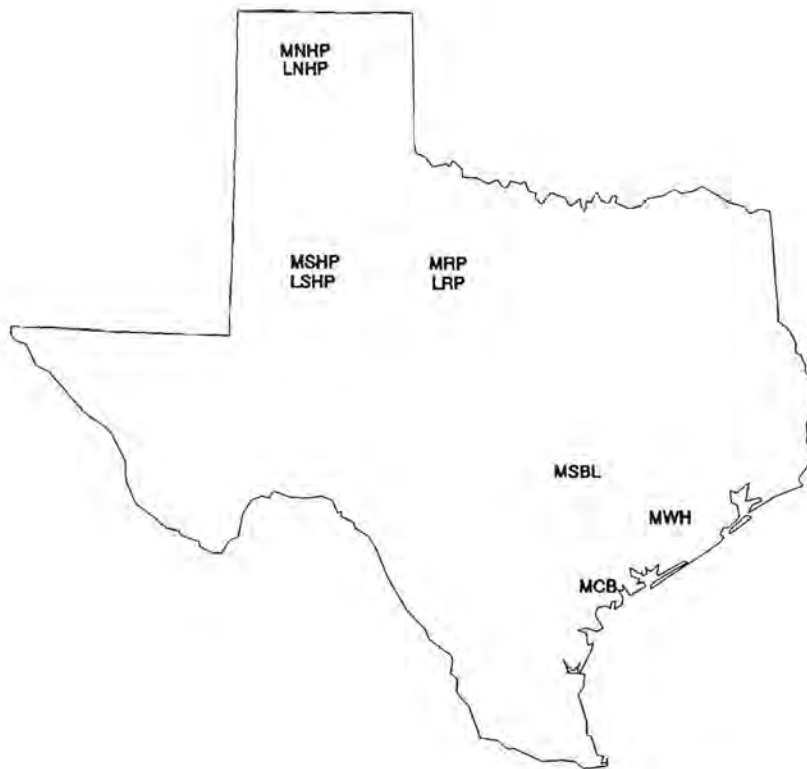
- FEEDGRAINS
- WHEAT
- COTTON
- RICE

Texas Crop Farm Characteristics

HP 1,600 acre Northern High Plains grain sorghum, corn, and wheat farm. The farm has a 600 acre wheat, a 400 acre corn, and a 280 acre grain sorghum base (combined feedgrain base of 680 acres). All crops are irrigated and gross receipts average $328,000 annually.

IP 4,500 acre Northern High Plains sorghum, corn and wheat farm which has a 1,680 wheat base, a 1,048 acre corn base, and a 847 acre grain sorghum base (combined feedgrain base of 1895 acres). All crops are irrigated and gross receipts average $886,000 annually.

HP 1,360 acre Southern High Plains cotton farm. The farm has a 911 acre cotton base which is planted in a 2 x 1 skip-row pattern. All cotton is dryland and gross receipts average $167,000 annually.

IP 3,309 acre Southern High Plains cotton farm. The farm has a 2,210 acre cotton base which is planted in a 2 x 1 skip-row pattern. All cotton is dryland and gross receipts average $393,000 annually.

P 1,300 acre Rolling Plains cotton and wheat farm. The farm has a 606 acre cotton base which is planted in a 2 x 1 skip-row pattern. The farm's wheat base totals 390 acres. Both crops are dryland and gross receipts average $131,000 annually.

› 2,000 acre Rolling Plains cotton and wheat farm. The farm has a 933 acre cotton base which is planted in a 2 x 1 skip-row pattern. The farm's wheat base totals 600 acres. Both crops are dryland and gross receipts average $201,000 annually.

BL 1,000 acre Southern Blacklands grain sorghum and cotton farm. The farm has a 590 acre grain sorghum base and a 400 acre cotton base. Both crops are dryland and gross receipts average $223,000 annually.

B 1,400 acre Coastal Bend grain sorghum, corn and cotton farm. The farm has a combined feedgrain base of 784 acres of which 689 acres are devoted to grain sorghum and 95 acres to corn. The cotton base totals 556 acres. All crops are dryland and gross receipts average $374,000 annually.

VH 1,500 acre rice farm located west of Houston. The farm has a 500 acre rice base, with normal rotation practices including an additional two acres idled for each base acre. Approximately 90 percent of the rice acreage yields a ratoon crop and gross receipts average $285,000 annually.

Representative Texas Crop Farm Characteristics

	MNHP	LNHP	MSHP	LSHP	MRP	LRP	MSBL	MCB	MWH
Total Acreage	1600	4500	1360	3309	1300	2000	1000	1400	1500
Owned	320	900	340	827	325	400	250	300	300
Leased	1280	3600	1020	2482	975	1600	750	1100	1200
				** ($1000's) **					
Assets									
Real Estate	170.0	495.0	150.8	377.6	172.5	217.5	250.0	324.0	270.0
Machinery	310.0	744.0	117.8	282.5	122.3	228.9	195.2	154.2	233.5
Other	41.4	40.0	0.0	0.0	25.9	0.0	0.0	0.0	0.0
Gross Receipts	328.4	885.9	166.8	393.3	131.4	200.8	222.8	374.3	285.3
				** (Acres) **					
Crop Acreage									
Wheat	600	1680	0	0	390	600	0	0	0
Grain Sorghum	280	847	0	0	0	0	590	689	0
Cotton	0	0	911	2210	606	933	400	556	0
Corn	400	1048	0	0	0	0	0	95	0
Rice	0	0	0	0	0	0	0	0	500
Ratoon Rice	0	0	0	0	0	0	0	0	450

Economic Impacts on Northern High Plains Feedgrains and Wheat Farms

- The economics of the flexibility options offered by the 1990 Farm Bill suggest that both the MNHP and LNHP would attempt to flex all eligible acres into corn production. This was not allowed as an option on either size farm because of irrigation water constraints and the fact that the farm did not switch corn and sorghum acreage under the 1985 Act. The MNHP farm therefore, flexed its NFA wheat acreage into grain sorghum and planted the maximum permitted acreage on its corn and grain sorghum base. The LNHP farm flexed both its NFA and OFA wheat acreage into grain sorghum and planted the maximum permitted acreage on its corn and grain sorghum base.

- At low initial debt levels, the MNHP is able to maintain the status quo. Real equity losses are less than 5 percent over the study period (1990-1995) and the farm has an 88 percent chance of averaging more than a 5 percent return to equity. As debt increases, however, the farm faces financial problems. At the moderate (20/40) debt level the farm loses 57 percentage points off of its chance of returning 5 percent to initial equity and sees its real equity erode by 12 percent. The probability of earning 5 percent on initial equity falls to zero with debt at the high level (30/60) and losses in real equity reach 28 percent.

- Reflecting the MNHP farm's relatively high ratio of cash expenses to cash receipts, the impact of the increase in debt servicing adversely affects net cash farm income. Relative to the initial debt assumption (10/20), an increase in debt to 20/40 results in a 5 percent increase in average cash expenses, and reduces average net cash income by 23 percent. Comparably, increasing debt to 30/60 increases average cash expenses by 10 percent and reduces average net cash income by 46 percent. While under the low debt assumption, the MNHP farm on average was able to meet its family living requirements, capital purchases, and principal payments without refinancing in four of the six years studied. The farm would have to refinance each year under the higher debt scenarios.

- The LNHP farm fares well under all three debt scenarios. Percentage growth in real equity increases from 66 to 98 percent as initial debt is increased. The ratio of expenses to receipts on the farm averages 67 to 71 percent range compared to 82-91 percent for the moderate size farm. As a result, average annual net cash income more than covers annual family living, capital replacement and principal payments. It is important to note that the minimum annual family living requirement for the farm is the same ($20,000) assumed for the moderate size farm. Naturally, if the farm were required to support an increased level of family living, its growth rate would be retarded. On average, the farm never had to refinance the operation to meet a cash flow deficit under any of the debt scenarios analyzed.

- Although both size farms have considerable wheat acreage, no grazing income is generated. It is likely that the MNHP farm would consider any opportunities offered by wheat grazing as net incomes erode and/or initial debt level increases. The low debt MNHP farm could maintain real equity if it could increase net income $15,800 per year. At higher debt levels, the MNHP farm needs a $21,400 and $27,600 annual increase in net cash income to maintain real equity over the 1990-1995 planning horizon. A more thorough presentation of the equity maintenance requirements for both size farms is presented in the equity maintenance section.

Implications of 1990 Farm Bill on the Texas Northern High Plains Grain Farms, Assuming Three Initial Debt Levels.[a]

	Moderate (MNHP)[b]			Large (LNHP)		
	Low[c]	Moderate	High	Low	Moderate	High
Probability of Survival (%)	100.00	100.00	98.00	100.00	100.00	100.00
Probability of Return > 5% (%)	88.00	31.00	0.00	100.00	100.00	100.00
Probability of Increasing Equity (%)	33.00	15.00	7.00	100.00	100.00	100.00
PVENW as % of Beginning NW (%)	96.46	87.79	72.16	166.29	178.03	197.75
Ending Equity Ratio	0.87	0.65	0.42	0.98	0.97	0.93
Ratio of Expenses to Receipts * 100	82.30	86.33	90.37	66.55	68.01	70.44
			** ($1,000's) **			
PVENW	416.71	309.74	197.42	1671.27	1436.30	1203.18
Average Annual						
Cash Receipts	328.44	328.44	328.44	885.87	885.87	885.87
Cash Expenses	270.37	283.55	296.81	589.56	602.46	623.99
Net Cash Income	58.06	44.89	31.63	296.30	283.41	261.88
Average Cash Receipts						
1990	303.79	303.79	303.79	777.89	777.89	777.89
1991	314.87	314.87	314.87	852.02	852.02	852.02
1992	328.58	328.58	328.58	893.76	893.76	893.76
1993	336.83	336.83	336.83	918.98	918.98	918.98
1994	338.95	338.95	338.95	922.66	922.66	922.66
1995	347.61	347.61	347.61	949.90	949.90	949.90
Average Cash Expenses						
1990	243.42	253.79	264.16	545.48	569.40	593.32
1991	260.82	272.46	284.12	573.45	597.79	624.24
1992	268.31	280.95	289.72	576.43	592.64	620.00
1993	268.19	282.00	295.94	581.70	590.04	614.19
1994	280.55	295.05	311.55	611.63	614.79	630.51
1995	300.96	317.03	335.35	648.71	650.10	661.69
Average Net Cash Farm Income						
1990	60.37	50.00	39.63	232.41	208.49	184.57
1991	54.05	42.41	30.75	278.57	254.23	227.78
1992	60.27	47.63	38.86	317.33	301.12	273.76
1993	68.64	54.83	40.89	337.28	328.94	304.79
1994	58.40	43.90	27.40	311.03	307.87	292.15
1995	46.65	30.58	12.26	301.19	299.80	288.21

a/ See "Definitions" for a definition of each variable

b/ MNHP flexed NFA wheat to grain sorghum; LNHP flexed NFA/OFA wheat to grain sorghum

c/ Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%, respectively.

Economic Impacts on Southern High Plains Cotton Farms

Both the MSHP and LSHP farms currently plant only cotton and thus did not lend themselves to exploring the flexibility options. Therefore, both farms planted the maximum permitted acreage of cotton in each year of the study period. While some might find fault with this analysis because of a failure to explore other flex alternatives, it is important to note that an alternative crop would have to net a return in excess of $35 per acre on the MSHP farm and $53 per acre on the LSHP farm before the economics would suggest planting a crop other than cotton on even the NFA acreage. The most viable dryland alternatives for the region, wheat and grain sorghum, will not likely generate this level of return.

- The MSHP farm loses 31 percent of its real equity, even under the lowest debt level. As the initial debt assumption increases to moderate (20/40) and high (30/60) levels, real losses in equity over the study period increased to 47 percent and 72 percent, respectively. The farm's probability of remaining solvent falls from 94 percent under the lowest debt assumption to 61 percent under the highest debt scenario. The farm expense to receipts ratio averages from 81 to 90 percent depending on the debt level assumption. At these levels the farm has to refinance each year to meet its principal payments, capital replacement and minimum $20,000 per year family living withdrawal requirement.

- The LSHP farm has a slightly improved expense to receipts ratio ranging from 79 to 87 percent, depending on the debt level assumption. While the ratios are only modestly improved over the moderate farm, the average revenues are more than doubled. Thus, the farm is better able to cover family living, capital replacement and principal payments due to the slight improvement in efficiency and its inherent revenue volume. At the lowest debt level, the LSHP is able to just maintain real equity over the period. As initial debt is increased to moderate and high levels, the farm loses 7 and 22 percent of its real equity, respectively. The probability of the farm being declared insolvent over the period is zero under the low debt assumption but increases by 5 and 14 percentage points as debt increases.

- It appears that the panel farms in the Southern High Plains have few alternatives to cotton under the foreseeable economic environment. Structural pressure, therefore, will likely force the moderate farms to increase farm size as a means of generating a modest return to management.

- The MSHP would need to increase annual net cash farm income by $26,400, $29,500, and $32,600, respectively, under the low, moderate, and high debt levels to maintain real equity over the period. To achieve a $26,400 increase in annual net cash farm income, the farm must either increase receipts 12.1 percent, reduce expenses 16.5 percent or some combination of both.

- At moderate debt levels, the LSHP farm must increase annual net cash farm income $21,300 (reduce expenses by 5.5 percent or increase receipts by 4.4 percent) to maintain real equity. A $29,700 increase in annual net cash income is needed to maintain real equity for the high debt LSHP farm.

plications of 1990 Farm Bill on the Texas Southern High Plains Cotton Farms, Assuming Three tial Debt Levels.[a]

	Moderate (MSHP)[b]			Large (LSHP)		
	Low[c]	Moderate	High	Low	Moderate	High
obability of Survival (%)	94.00	84.00	61.00	100.00	95.00	86.00
obability of Return > 5% (%)	44.00	26.00	20.00	57.00	39.00	24.00
obability of increasing Equity (%)	21.00	17.00	12.00	53.00	42.00	38.00
VENW as % of Beginning NW (%)	69.40	53.21	28.07	100.67	92.61	78.20
nding Equity Ratio	0.62	0.39	0.14	0.80	0.64	0.44
atio of Expenses to Receipts * 100	81.59	85.03	89.01	79.59	82.59	86.19
			($1000's)			
VENW	161.67	103.39	43.70	567.64	434.89	293.51
verage Annual Cash Receipts	166.79	165.95	162.76	393.31	393.31	390.42
Cash Expenses	136.08	141.11	144.88	313.05	324.82	336.51
Net Cash Income	30.71	24.85	17.89	80.26	68.49	53.90
verage Cash Receipts						
1990	166.29	166.29	166.29	392.40	392.40	392.40
1991	159.28	159.28	159.28	374.85	374.85	374.85
1992	167.16	167.16	167.16	393.83	393.83	393.83
1993	163.64	163.02	161.07	384.60	384.60	380.87
1994	168.11	167.91	169.94	396.94	396.94	399.60
1995	176.27	177.81	175.25	417.22	417.22	419.07
Average Cash Expenses						
1990	122.38	127.41	132.43	282.46	293.87	305.27
1991	128.65	133.31	138.79	303.10	313.55	325.78
1992	131.65	136.72	142.49	306.96	318.08	330.74
1993	134.61	139.44	144.17	307.88	319.29	330.69
1994	144.26	150.90	156.43	325.76	338.43	353.24
1995	154.95	161.33	166.26	352.14	365.69	379.51
Average Net Cash Farm Income						
1990	43.91	38.88	33.86	109.94	98.53	87.13
1991	30.63	25.97	20.49	71.75	61.3	49.07
1992	35.51	30.44	24.67	86.87	75.75	63.09
1993	29.03	23.58	16.90	76.72	65.31	50.18
1994	23.85	17.01	13.51	71.18	58.51	46.36
1995	21.32	16.48	8.99	65.08	51.53	39.56

a/ See "Definitions" for a definition of each variable

b/ MSHP and LSHP planted maximum permitted cotton acreage

c/ Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%, respectively

Economic Impacts on Rolling Plains Cotton and Wheat Farms

■ The MRP farm flexes its eligible NFA wheat acreage to cotton while the LRP farm flexes both NFA and OFA eligible wheat acreage base to cotton.

■ Both Rolling Plains farms are under considerable economic stress, even at the low (10/20) debt scenario. Over the six year study period, the MRP farm loses 65 percent of its real equity while the LRP farm loses all of its real equity.

■ Both size farms, with the exception of MRP with low debt, are unable to cover all cash expenses, let alone family living requirements, capital replacement, and principal payments. Therefore, even under the low debt level, both farms must carry over debt each year of the study period.

■ Probabilities of remaining solvent throughout the six year study period fall as debt load is increased. The low debt MRP farm has only a 74 percent chance of remaining solvent and this percentage declines to 11 percent under the high debt assumption. The low debt LRP farm is even worse off with only a 40 percent chance of remaining economically solvent over the study period. For the highest debt level, this farm was declared bankrupt 96 times out of 100 simulations over the 1990-95 study period.

■ Three things appear to be working against the Rolling Plains farms; chemical cost, harvesting cost, and size. Pesticide costs have increased between $20 - $30 per acre on these farms since 1987 and ginning costs run about 20 percent above those for comparable farms in the Southern High Plains. Thus, we have a farming area that can cover its out-of-pocket expenses but cannot cover all of its fixed overhead costs. Therefore while the short-run economic decision to produce is prudent, the long-term projections used in this analysis would eventually force these farms out of business.

■ Size of operations is also a problem. Even if the farms could make managerial changes that would bring the expenses to receipts ratio into the 80's, the present size of operations would not generate enough revenue above expenses to cover family living, capital replacement and principal payments.

■ The bottom line points to a need for major structural adjustments in the Rolling Plains at both the production and agribusiness level. To maintain real equity at low, moderate, and high debt levels, the MRP farm needs to increase annual net cash farm income by $35,600, $38,100, and $41,600, respectively. These increases in net income amount to either reducing annual expenses by 24.7, 25.4, and 26.5 percent or increasing revenue by 17.7, 18.6 and 19.9 percent, respectively.

■ For the LRP farm to maintain real equity, it must increase annual net cash farm income $67,500, $72,500, and $77,500, given low, moderate, and high initial debts, respectively. These increases are equivalent to a 26.3, 27.3, and 28.0 percent reduction in annual cash expenses. The same could be accomplished if the farm could increase revenue by 20.4, 21.5 and 22.6 percent, respectively.

■ Average net cash income figures for 1993-1995 can be misleading for this farm due to the low rates of survival at the two highest debt levels. Net cash income for the farm is calculated based on those iterations where the farm remained solvent through the years. In instances where the probability of survival is very low, the net cash income variable may be misleading due to the small sample size.

Implications of 1990 Farm Bill on the Texas Rolling Plains Cotton Farm, Assuming Three Initial Debt Levels.[a]

	Moderate (MRP)[b]			Large (LRP)[b]		
	Low[c]	Moderate	High	Low	Moderate	High
Probability of Survival (%)	74.00	40.00	11.00	40.00	15.00	4.00
Probability of Return > 5% (%)	3.00	1.00	0.00	0.00	0.00	0.00
Probability of Increasing Equity (%)	0.00	0.00	0.00	0.00	0.00	0.00
PVENW as % of Beginning NW (%)	35.02	9.83	-12.44	0.43	-22.22	-43.13
Ending Equity Ratio	0.26	0.03	-0.14	-0.07	-0.25	-0.38
Ratio of Expenses to Receipts * 100	97.30	102.33	105.54	111.14	115.26	118.42
			** (1000's) **			
PVENW	97.68	23.32	-24.33	1.63	-69.17	-105.15
Average Annual						
Cash Receipts	131.36	128.97	126.87	200.75	194.92	189.64
Cash Expenses	127.80	131.94	133.91	223.11	224.66	224.58
Net Cash Income	3.56	-2.97	-7.04	-22.36	-29.74	-34.94
Average Cash Receipts						
1990	124.18	124.18	124.18	188.59	188.59	188.59
1991	127.30	127.30	127.30	198.11	198.11	198.11
1992	136.32	136.32	136.32	210.61	211.72	210.82
1993	136.17	137.16	139.50	224.06	232.03	245.71
1994	128.57	127.48	127.24	209.17	200.57	218.58
1995	141.97	136.86	136.82	216.47	221.18	198.36
Average Cash Expenses						
1990	105.12	110.54	115.96	184.50	192.66	200.82
1991	119.03	125.12	131.21	209.47	218.60	227.79
1992	123.73	130.48	137.23	222.31	232.08	239.48
1993	127.59	134.74	141.63	236.37	247.33	258.97
1994	137.67	142.57	146.29	265.86	253.11	264.32
1995	159.09	163.75	167.25	151.39	279.19	272.13
Average Net Cash Farm Income						
1990	19.06	13.64	8.22	4.09	-4.07	-12.23
1991	8.27	2.18	-3.91	-11.36	-20.49	-29.68
1992	12.59	5.84	-0.91	-11.70	-20.36	-28.66
1993	8.58	2.42	-2.13	-12.31	-15.30	-13.26
1994	-9.10	-15.09	-19.05	-38.85	-52.54	-45.74
1995	-17.12	-26.89	-30.43	56.69	-58.01	-73.77

a/ See "Definitions" for a definition of each variable

b/ MRP flexed NFA wheat to cotton; LRP flexed NFA/OFA wheat to cotton

c/ Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%, respectively

Economic Impacts on Southern Blacklands Grain Sorghum and Cotton Farm

- The MSBL farm flexed both NFA and OFA grain sorghum acreage into cotton.

- With cash expenses per dollar of revenue averaging less than $0.68 even at the high (30/60) debt level, the MSBL farm is able to grow in real terms. The farm grew by more than 33 percent in real terms under all three debt levels.

- Only at the highest initial debt level did the MSBL farm have to carry over debt in any one year. Also, at the highest debt level, the MSBL farm was forced, on average, to refinance debt in four of the six years analyzed.

- Bottom line, the farm appears very resilient to the current economic environment and is able to service substantial debt.

- The low debt MSBL farm could suffer a $30,000 per year reduction in net cash farm income and still maintain real equity over 1990-1995. At moderate and high debt levels, the farm could suffer losses in net cash farm income of $24,400 and $19,400, respectively, and still maintain real equity.

ations of 1990 Farm Bill on the Texas Blacklands Grain Farm, Assuming Three Initial Debt Levels. [a/]

| | Moderate (MBLK) [b/] | | |
	Low[c/]	Moderate	High
ibility of			
vival (%)	100.00	100.00	100.00
ability of			
urn > 5% (%)	99.00	97.00	80.00
ability of			
reasing Equity (%)	98.00	98.00	94.00
NW as % of			
ginning NW (%)	133.10	133.28	134.06
ng Equity			
tio	0.94	0.81	0.66
o of Expenses			
Receipts * 100	57.63	62.26	66.77
		** ($1000's) **	
NW	534.31	449.64	366.40
rage Annual			
ish Receipts	222.81	222.81	222.81
ash Expenses	128.41	138.72	148.76
et Cash Income	94.40	84.09	74.05
rage Cash Receipts			
90	195.22	195.22	195.22
91	220.06	220.06	220.06
92	217.09	217.09	217.09
93	230.80	230.80	230.80
994	232.01	232.01	232.01
995	241.68	241.68	241.68
erage Cash Expenses			
990	106.90	115.23	123.56
991	126.46	135.76	145.12
992	126.46	136.70	146.19
993	126.88	137.15	147.33
1994	136.52	147.50	156.73
1995	147.27	160.00	173.60
verage Net Cash Farm Income			
1990	88.32	79.99	71.66
1991	93.60	84.30	74.94
1992	90.63	80.39	70.90
1993	103.92	93.65	83.47
1994	95.49	84.51	75.28
1995	94.41	81.68	68.08

See "Definitions" for a definition of each variable

Flexed NFA/OFA sorghum to cotton

Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%, respectively

Economic Impacts on Coastal Bend Feedgrains and Cotton Farm

- The Coastal Bend region was increasing cotton acreage even before the flexibility options were incorporated into the 1990 Farm Bill. The MCB farm flexed both NFA and OFA feedgrains base to cotton. Because the farm only had 95 acres of corn base, it used all of these acres when flexing to cotton and made up the remainder of the 25 percent NFA/OFA feedgrain acreage by flexing an additional 101 acres of grain sorghum to cotton.

- The MCB farm loses approximately 2 percent of its real equity under the low (10/20) debt scenario. At the highest debt level (30/60), the farm loses 22 percent of its equity.

- As debt levels increase, the probability of earning at least a 5 percent return on equity falls by 34 percentage points, from 64 percent to 30 percent.

- At the highest debt level, the farm on average must refinance debt each year to meet family living requirements, capital replacement and principal payments.

- As the initial debt level increases from low (10/20) to moderate (20/40) levels, cash expenses increased by only 2.5 percent but the net cash farm income declines by 14 percent. Compared to the lowest debt level, an increase to the highest (30/60) debt scenario, results in a 5 percent increase in cash expenses and a 32 percent decline in average net cash income.

- The MCB farm's cash expense per dollar of revenue averages from $0.85 to $0.90. Thus, the farm will need to increase revenues or decrease expenses if it is to remain economically viable.

- At the highest debt level, there is a 12 percent chance the MCB farm will be declared bankrupt over the 1990-95 period.

- To maintain real equity under the low, moderate, and high debt levels, the farm needs to increase net cash farm income $1,900, $6,900, and $11,300 per year, respectively. A $6,900 increase in net cash farm income can be generated by a 1.5 percent increase in cash receipts or a 1.8 percent decrease in cash expenses.

Implications of 1990 Farm Bill on the Texas Coastal Bend Farm, Assuming Three Initial Debt Levels.[a]

| | Moderate (MCB)[b] | | |
	Low[c]	Moderate	High
Probability of Survival (%)	100.00	99.00	88.00
Probability of Return > 5% (%)	64.00	49.00	30.00
Probability of Increasing Equity (%)	48.00	40.00	35.00
PVENW as % of Beginning NW (%)	97.81	91.29	77.51
Ending Equity Ratio	0.82	0.67	0.47
Ratio of Expenses to Receipts * 100	84.57	86.72	89.44
	** (1000's) **		
PVENW	408.82	323.84	225.94
Average Annual			
Cash Receipts	374.30	374.30	372.55
Cash Expenses	316.54	324.59	333.21
Net Cash Income	57.76	49.72	39.34
Average Cash Receipts			
1990	327.78	327.78	327.78
1991	368.48	368.48	368.48
1992	373.67	373.67	373.67
1993	372.29	372.29	372.29
1994	392.27	392.27	388.68
1995	411.33	411.33	412.52
Average Cash Expenses			
1990	265.34	273.52	281.71
1991	310.47	318.37	327.19
1992	312.36	319.81	329.04
1993	311.71	319.07	328.93
1994	332.11	339.82	352.14
1995	367.24	376.92	386.84
Average Net Cash Farm Income			
1990	62.44	54.26	46.07
1991	58.01	50.11	41.29
1992	61.31	53.86	44.63
1993	60.58	53.22	43.36
1994	60.16	52.45	40.13
1995	44.09	34.41	24.49

a/ See "Definitions" for a definition of each variable

b/ Flexed NFA/OFA feedgrains to cotton

c/ Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%

Economic Impacts on Houston Westside Rice Farm

■ As with cotton in the Southern High Plains, rice producers located west of Houston have few agricultural alternatives other than rice. Since the MWH rice farm grows, no other crop flexibility alternatives were not analyzed. Without government program benefits, the farm loses approximately $111.00 per acre. Therefore, the farm does not plant the NFA acreage and would benefit from the 50/92 option.

■ The MHW rice farm is in economic trouble even at the lowest debt level. The farm loses its entire equity over the 1990-95 study period.

■ For rice farming to continue, producers must find a profitable use for idled acres in the rotation program, in addition to significantly improving the expense to receipt ratio which currently averages 1.11 to 1.13.

■ To maintain real equity under the low debt assumption, the farm needs to increase annual net cash farm income $71,300. This amounts to increasing receipts 16.6 percent annually or decreasing expenses 20.1 percent each year. Maintaining real equity at moderate and high debt levels requires annual increases in net cash farm income of $77,500 and $82,500, respectively.

■ Average net cash income figures for 1993-1995 can be misleading for this farm due to the low rates of survival at the two highest debt levels. Net cash income for the farm is calculated based on those iterations where the farm remained solvent through the years. In instances where the probability of survival is very low, the net cash income variable may be misleading due to the small sample size.

mplications of 1990 Farm Bill and FAPRI Baseline on the West of Houston Rice Farm, Assuming Three Initial Debt Levels.[a]

| | Moderate (MWH)[b] | | |
	Low[c]	Moderate	High
Probability of Survival (%)	15.00	0.00	0.00
Probability of Return > 5% (%)	0.00	0.00	0.00
Probability of Increasing Equity (%)	0.00	0.00	0.00
PVENW as % of Beginning NW (%)	-12.10	-23.21	-22.64
Ending Equity Ratio	-0.15	-0.21	-0.18
Ratio of Expenses to Receipts * 100	111.36	112.13	112.96
	** ($1,000's) **		
PVENW	-51.99	-82.65	-63.95
Average Annual			
Cash Receipts	285.30	283.81	281.07
Cash Expenses	317.72	318.24	317.51
Net Cash Income	-32.42	-34.43	-36.44
Average Cash Receipts			
1990	273.65	273.65	273.65
1991	292.80	292.80	292.80
1992	278.21	278.21	278.21
1993	283.91	283.91	283.53
1994	292.51	293.06	0.00
1995	291.46	288.56	0.00
Average Cash Receipts			
1990	259.38	268.98	278.57
1991	311.97	322.79	333.62
1992	303.10	314.20	326.47
1993	313.53	327.70	340.20
1994	338.43	354.17	0.00
1995	382.19	392.12	0.00
Average Net Cash Farm Income			
1990	14.27	4.67	-4.92
1991	-19.17	-29.99	-40.82
1992	-24.89	-35.99	-48.26
1993	-29.62	-43.79	-56.67
1994	-45.92	-61.11	0.00
1995	-90.73	-103.56	0.00

a/ See "Definitions" for a definition of each variable

b/ NFA for rice was idled

c/ Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%

Average Net Cash Farm Income, 1990-1995

Moderate Texas Northern High Plains
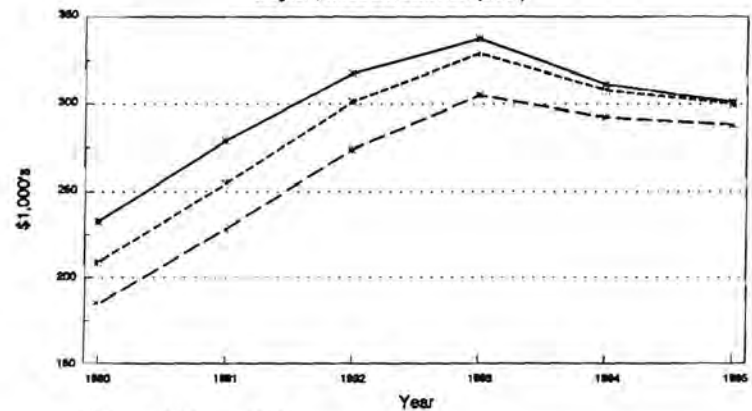### Sorghum, Wheat and Corn Farm (MNHP)
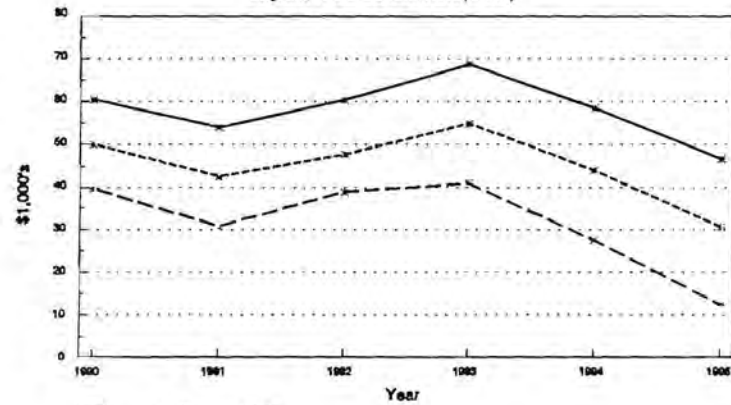
10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA Wheat to Sorghum

Large Texas Northern High Plains
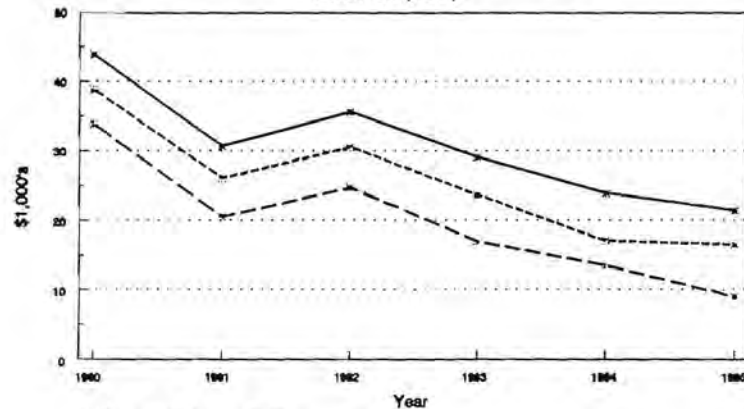### Sorghum, Wheat and Corn Farm (LNHP)

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA/OFA Wheat to Sorghum
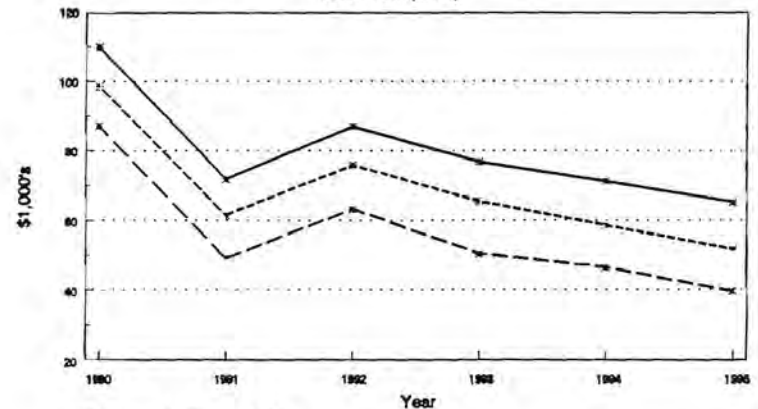
Moderate Texas Southern High Plains
Cotton Farm (MSHP)

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Plant NFA Cotton to Cotton

Large Texas Southern High Plains
Cotton Farm (LSHP)

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Plant NFA Cotton to Cotton

Change in Real Equity, 1990-1995

Moderate Texas Northern High Plains

Sorghum, Wheat and Corn Farm (MNHP)

Long & Intermediate Term Debt Asset Ratios
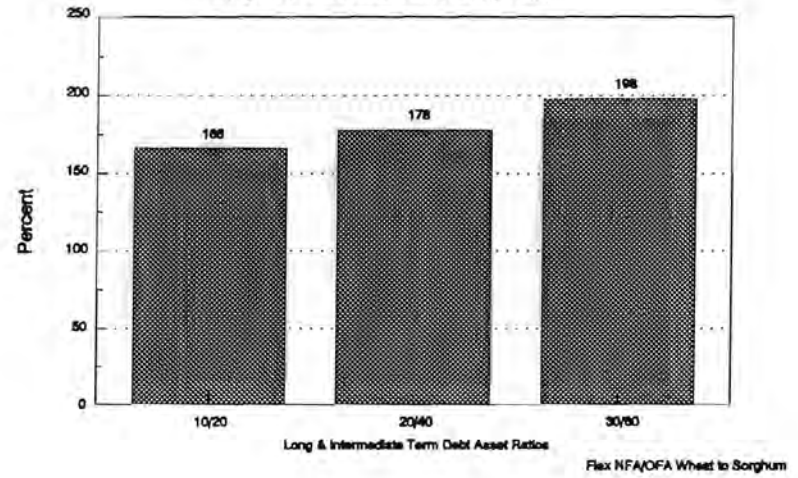
Flex NFA Wheat to Sorghum

Large Texas Northern High Plains

Sorghum, Wheat and Corn Farm (LNHP)

Long & Intermediate Term Debt Asset Ratios

Flex NFA/OFA Wheat to Sorghum

Moderate Texas Southern High Plains

Cotton Farm (MSHP)

Long & Intermediate Term Debt Asset Ratios

Plant NFA Cotton to Cotton

Large Texas Southern High Plains

Cotton Farm (LSHP)

Long & Intermediate Term Debt Asset Ratios

Plant NFA Cotton to Cotton
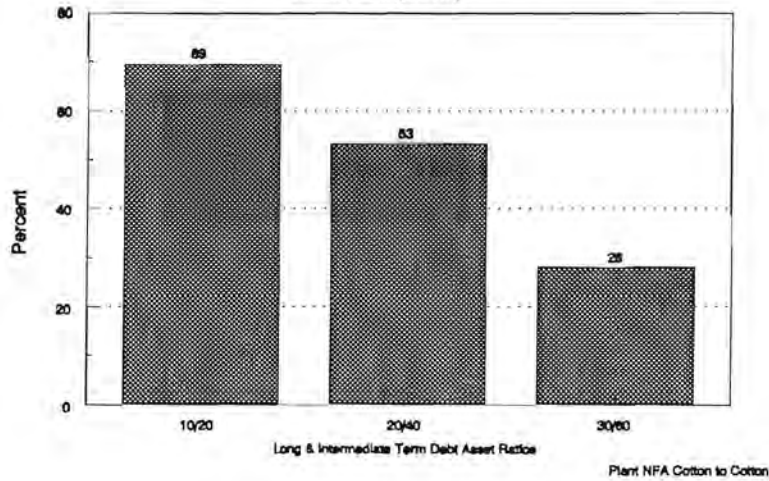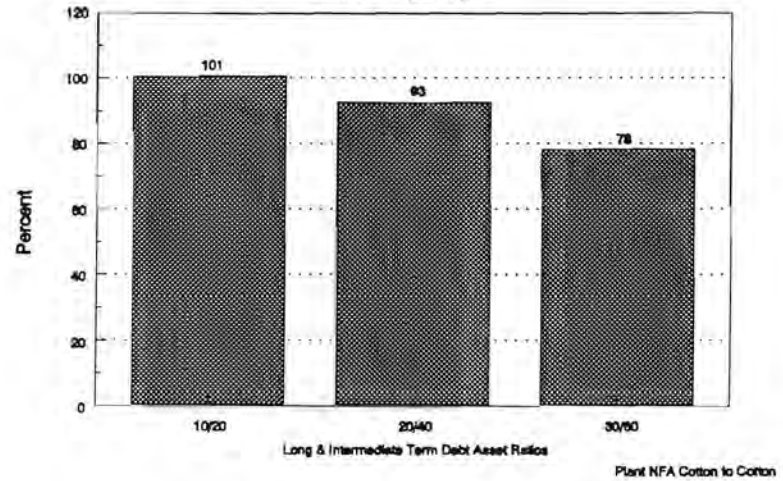
Average Net Cash Farm Income, 1990-1995

Moderate Texas Rolling Plains
Cotton and Wheat Farm (MRP)
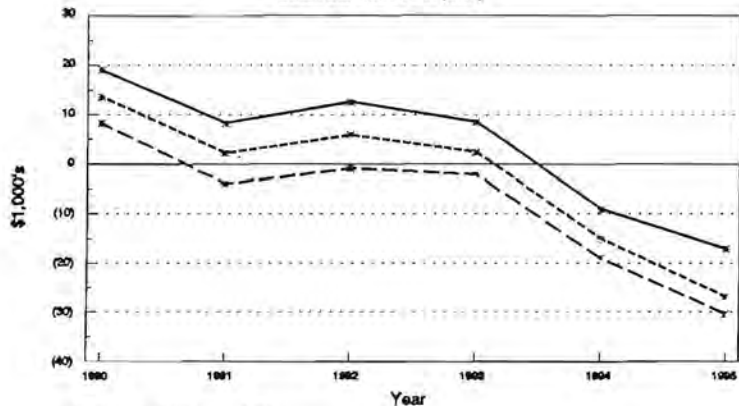
10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Pos. NFA Wheat to Cotton

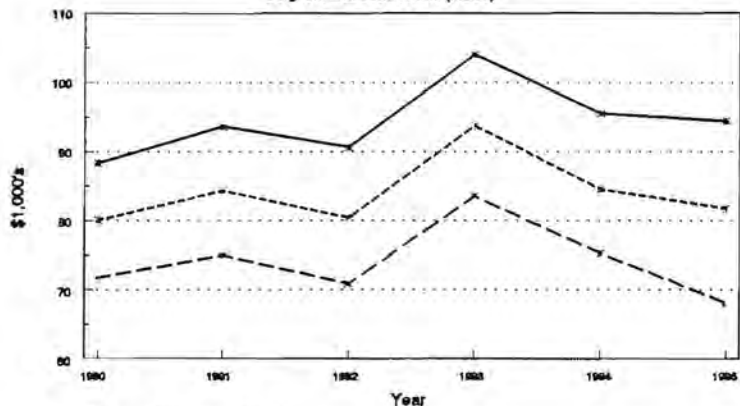## Large Texas Rolling Plains
Cotton and Wheat Farm (LRP)
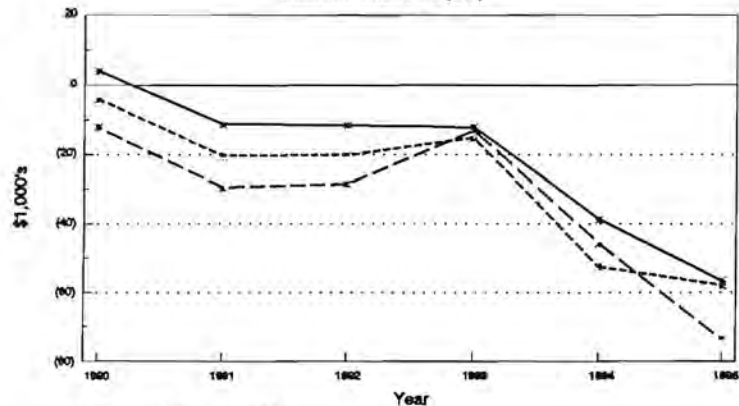
10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Pos. NFA/OFA Wheat to Cotton

Moderate Texas Southern Blacklands
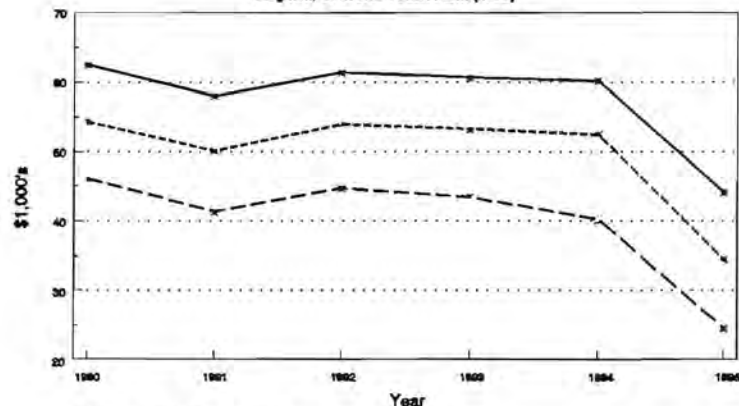### Sorghum and Cotton Farm (MSBL)

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Pos. NFA/OFA Sorghum to Cotton

Moderate Texas Coastal Bend
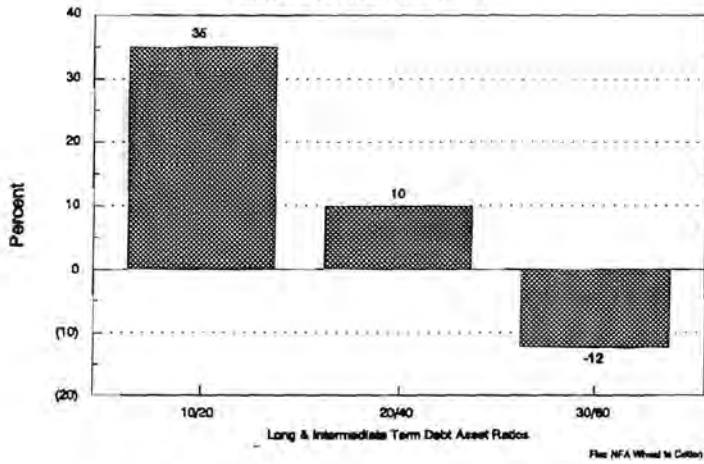### Sorghum, Corn and Cotton Farm (MCB)

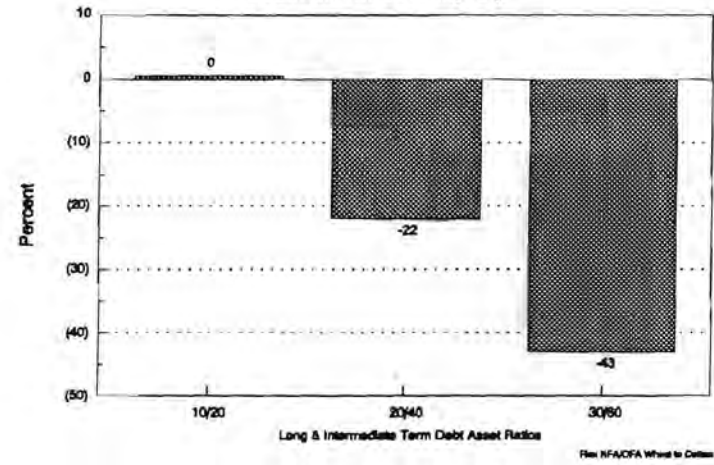10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Pos. NFA/OFA Feedgrains to Cotton
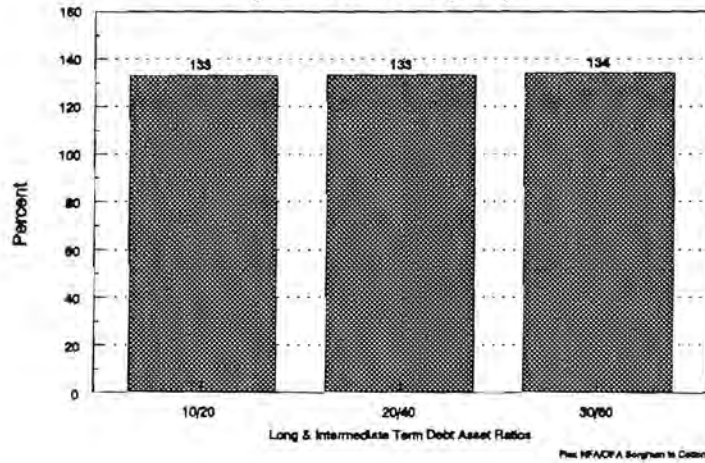
Change in Real Equity, 1990-1995

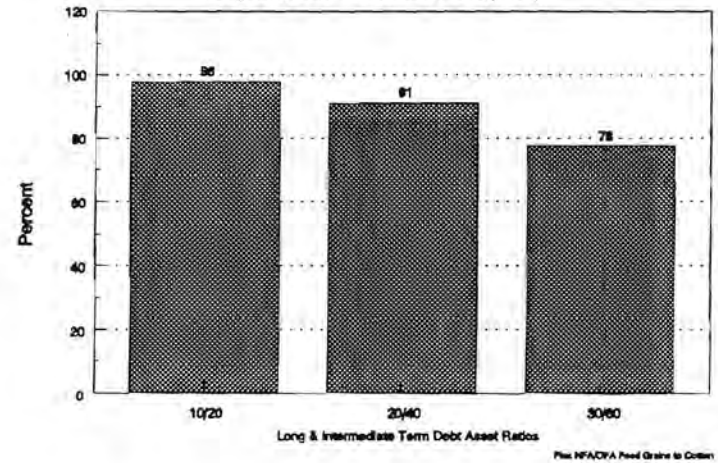## Moderate Texas Rolling Plains

Cotton and Wheat Farm (MRP)

Percent

35

10

-12

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA Wheat to Cotton

Large Texas Rolling Plains

Cotton and Wheat Farm (LRP)

Percent

0

-22

-43

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA/OFA Wheat to Cotton

Moderate Texas Southern Blacklands

Sorghum and Cotton Farm (MSBL)

Percent

133   133   134

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA/OFA Sorghum to Cotton

Moderate Texas Coastal Bend

Sorghum, Corn, and Cotton Farm (MCB)

Percent

98   91   78

10/20   20/40   30/60

Long & Intermediate Term Debt Asset Ratios

Flex NFA/OFA Feed Grains to Cotton

Average Net Cash Farm Income, 1990-1995

Moderate Houston Texas Westside
Rice Farm (MWH)

Long & Intermediate Term Debt Asset Ratios

10/20   20/40   30/60

Flex NFA Rice to Rice

Change in Real Equity, 1990-1995

Moderate Houston Texas Westside
Rice Farm (MWH)
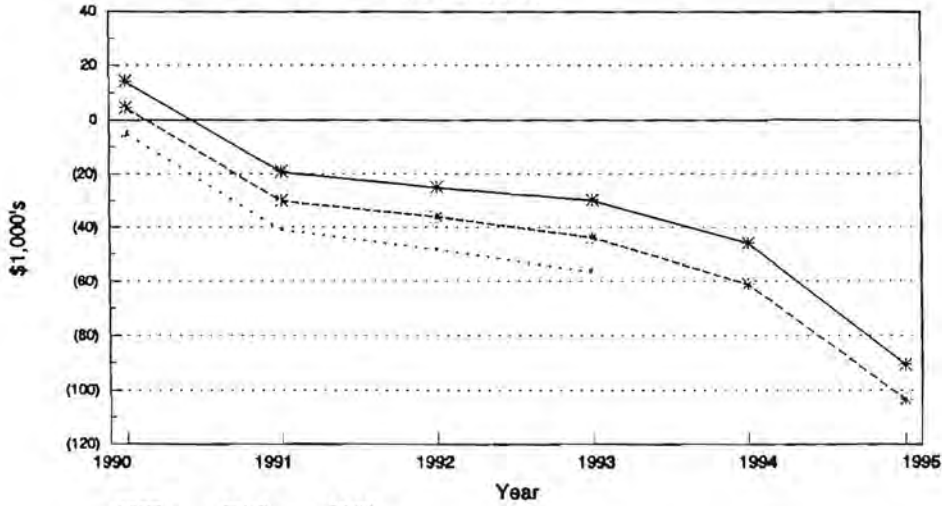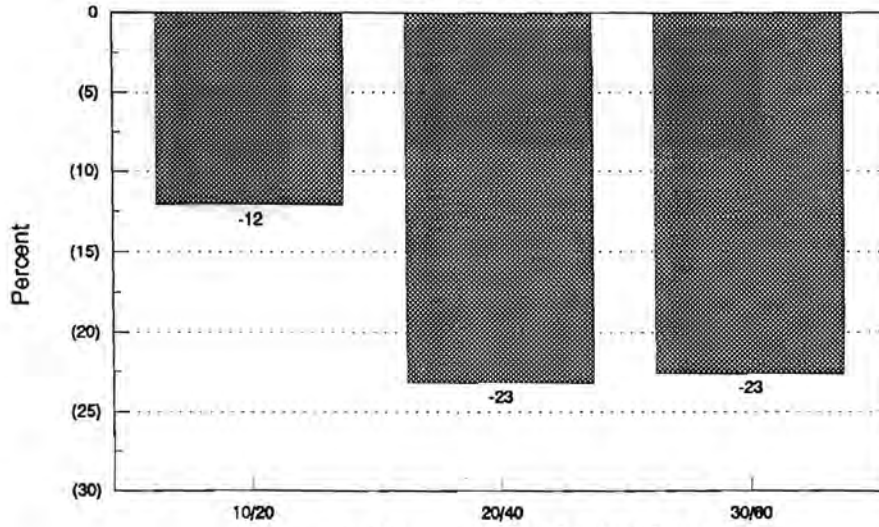
Long & Intermediate Term Debt Asset Ratios

Flex NFA Rice to Rice

TEXAS DAIRY FARMS

Dairy Farm Characteristics

300 cow dairy farm in Erath County with 606 acres of land. Milk production per cow on this farm averages 136.9 cwt per year. This farm grows 152 acres of coastal hay and 152 acres of sudan hay.

720 cow dairy farm in Erath County with 460 acres of land. Milk production per cow averaged 167.3 cwt per year. No crops are grown on the farm.

180 cow dairy farm in Hopkins County with 400 acres of land. Milk production per cow averaged 136.9 cwt per year. The farm grows 250 acres of coastal hay.

812 cow dairy farm in Hopkins County with 600 acres of land. Milk production per cow averaged 157.3 cwt per year. The farm grows 300 acres of coastal hay.

Representative Texas Dairy Farm Characteristics

	MER	LER	MHOP	LHOP
Total Acreage	606	460	400	600
Owned	303	160	200	400
Leased	303	300	200	200
No. of Cows	300	720	180	812
Production per				
Cow (cwt/year)	136.9	167.3	136.9	157.3
	** ($1000's) **			
Assets				
Real Estate	402.3	630.0	395.0	1170.0
Machinery	166.8	203.7	115.0	315.0
Livestock	470.9	677	172.3	775.9
Gross Receipts	595.3	1639.7	388.2	1779.9
	** (Acres) **			
Crop Acreage				
Coastal Hay	152	0	250	300
Sudan Hay	152	0	0	0
Pasture	0	0	150	100
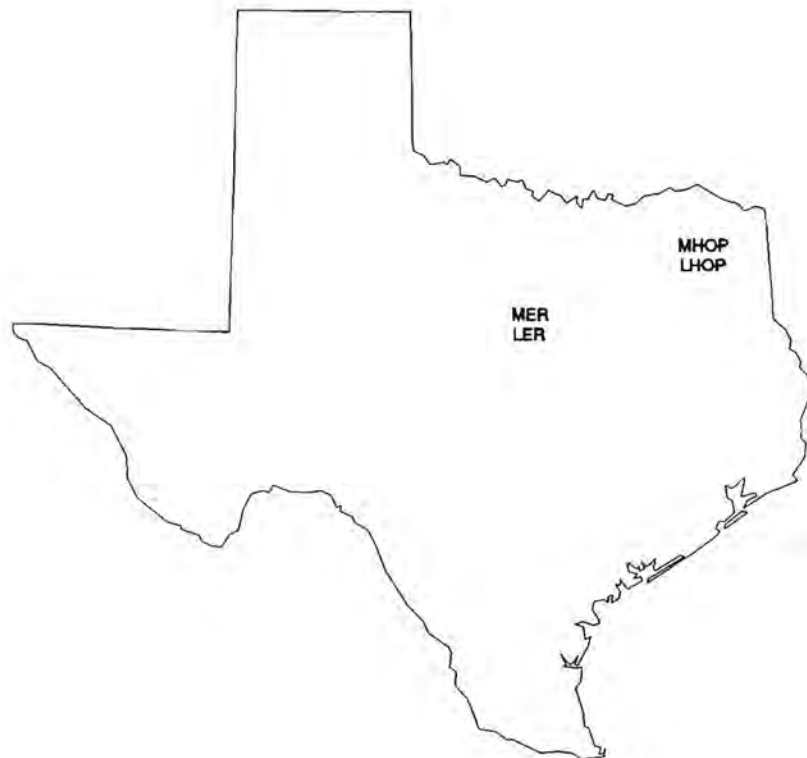
Economic Impacts on Erath County Dairy Farms

■ Texas dairies, like dairies in many other regions of the United States, are experiencing economic losses resulting from a projected $2.00/cwt decline in the farm level all milk price between 1990-1991.

■ The MER dairy experiences negative net cash incomes for five of the six years simulated even under the 10/20 debt level. As a result, the farm loses 56 percent of its real equity over the 1990-95 period. Increases in debt levels only exacerbate the problems facing the moderate sized dairy in Erath county.

■ The LER dairy experiences a positive net cash income in each year of the analysis at the low debt level but still loses 17 percent of its real equity over the period. As debt increases to the highest level analyzed, the farm experiences real equity losses of approximately 49 percent.

■ Although the LER dairy is more efficient than its moderate sized counterpart, it is very vulnerable to adverse charges in either expenses or revenues. For example, the increase in debt load from low to moderate results in only a 2 percent increase in cash expenses but net cash income falls by 31 percent. If the debt assumption is increased from 10/20 to 30/60, cash expenses increase by approximately 5 percent, while the net cash income decreases 70 percent.

■ Structural pressure in Erath county will force dairies to grow and become more efficient in milk output/cow. The big question, however, is whether the regions' dairy industries can survive, given projected milk prices and potential increased costs of environmental regulations.

■ The low debt MER dairy must increase annual net cash farm income $97,500 to maintain real equity over the period analyzed. This amounts to increasing receipts 11.8 percent or decreasing costs 13.7 percent. If the MER dairy farm has high debts, annual net cash farm income must be increased $188,800 to maintain real equity over the 1990-95 period.

■ For the low debt LER dairy to maintain real equity, it needs to increase net cash farm income $50,000 per year. This is equal to a 2.5 percent increase in receipts or a 2.7 percent reduction in expenses annually. At the high debt level, the farm needs to increase net income $75,000 to maintain real equity.

■ Average net cash income figures for 1993-1995 can be misleading for this farm due to the low rates of survival at the two highest debt levels. Net cash income for the farm is calculated based on those iterations where the farm remained solvent through the years. In instances where the probability of survival is very low, the net cash income variable may be misleading due to the small sample size.

plications of 1990 Farm Bill and FAPRI Baseline on the Erath County Dairy Farms, Assuming Three tial Debt Levels. [a/]

	Moderate (MER)			Large (LER)		
	Low[b/]	Moderate	High	Low	Moderate	High
ɔbability of ꭒrvival (%)	100.00	50.00	0.00	100.00	99.00	85.00
ɔbability of ᾰeturn > 5% (%)	0.00	0.00	0.00	99.00	95.00	79.00
ɔbability of ꞔncreasing Equity (%)	0.00	0.00	0.00	9.00	8.00	2.00
᾽ENW as % of ᾲeginning NW (%)	44.39	6.95	-26.24	83.25	73.55	50.98
ꞇding Equity ᾰatio	0.47	0.05	-0.22	0.86	0.63	0.33
ꞇtio of Expenses ɔ Receipts * 100	103.93	108.98	111.39	93.50	95.49	98.05
			** (1000's) **			
᾽ENW	387.13	48.96	-140.82	1058.51	759.33	404.40
ꞌerage Annual						
ꞔash Receipts	595.25	594.30	590.52	1639.67	1639.28	1637.05
ꞔash Expenses	618.67	647.65	657.76	1533.12	1565.49	1605.15
ꞈet Cash Income	-23.42	-53.35	-67.23	106.56	73.79	31.90
ꞌerage Cash Receipts						
ꞈ990	657.71	657.71	657.71	1827.89	1827.89	1827.89
ꞈ991	571.47	571.47	571.47	1568.75	1568.75	1568.75
ꞈ992	560.53	560.53	560.53	1536.07	1536.07	1536.07
ꞈ993	578.62	578.62	579.62	1590.57	1590.57	1590.57
ꞈ994	583.68	583.68	583.57	1604.14	1604.14	1605.63
ꞈ995	619.47	618.64	599.24	1710.62	1710.45	1708.85
ꞌerage Cash Expenses						
ꞈ990	588.51	610.45	632.39	1518.64	1549.89	1581.14
ꞈ991	586.78	611.20	636.07	1493.05	1515.36	1489.68
ꞈ992	592.03	619.48	648.40	1493.37	1521.03	1559.71
ꞈ993	621.39	652.77	685.81	1532.72	1566.87	1610.23
ꞈ994	647.36	683.86	714.57	1566.30	1603.58	1647.82
ꞈ995	675.94	713.74	712.79	1594.61	1636.52	1686.73
ꞌerage Net Cash Farm Income						
ꞈ990	69.20	47.26	25.32	309.25	278.00	246.75
ꞈ991	-15.31	-39.73	-64.60	75.70	53.39	19.07
ꞈ992	-31.50	-58.95	-87.87	42.70	15.04	-23.64
ꞈ993	-42.77	-74.15	-106.19	57.85	23.70	-19.66
ꞈ994	-63.68	-100.18	-131.00	37.84	0.56	-42.19
ꞈ995	-56.47	-95.10	-113.55	116.01	73.93	22.12

See "Definitions" for a definition of each variable
Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%/20%, 20%/40%, and 30%/60%, respectively

Economic Impacts on Hopkins County Dairy Farms

▪ Neither the MHOP or the LHOP dairy is able to remain economically viable under the prices projected for 1990-95. The MHOP dairy loses all of its equity over the period even with the lowest debt assumptions. The LHOP dairy is only able to maintain 25 percent of its real equity under the most favorable (low debt) scenario.

▪ The average annual net cash farm income is negative for both Hopkins County dairy farms under all three debt scenarios.

▪ Significant improvements in revenue and/or cost of production will be required if dairy farming in this region is to be sustained.

▪ The MHOP dairy requires about $120,000 annual increase in net cash farm income to maintain its real equity over the 1990-95 period. This amounts to a 20 percent increase in annual receipts or a 24 percent reduction in expenses.

▪ To maintain real equity on the low debt LHOP dairy, net cash income must be increased $267,500 per year. This is equivalent to a 10.9 percent increase in receipts or a 12 percent reduction in expenses. At higher debt levels (moderate and high), net cash income must be increased $282,500 and $307,500 (respectively).

▪ Average net cash income figures for 1993-1995 can be misleading for these farms due to the low rates of survival at the two highest debt levels. Net cash income for the farm is calculated based on those iterations where the farm remained solvent through the years. In instances where the probability of survival is very low, the net cash income variable may be misleading due to the small sample size.

Implications of 1990 Farm Bill and FAPRI Baseline on the Hopkins County Dairy Farms, Assuming Three Initial Debt Levels.[a]

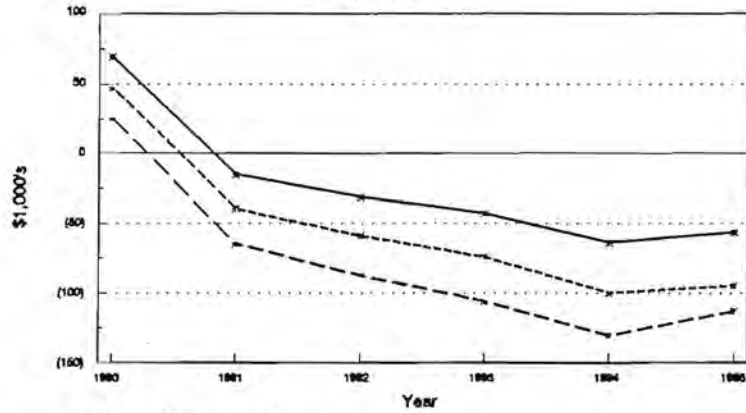|	Moderate (MHOP)			Large (LHOP)		
	Low[b]	Moderate	High	Low	Moderate	High
Probability of Survival (%)	18.00	0.00	0.00	81.00	18.00	3.00
Probability of Return > 5% (%)	0.00	0.00	0.00	14.00	3.00	0.00
Probability of Increasing Equity (%)	0.00	0.00	0.00	0.00	0.00	0.00
PVENW as % of Beginning NW (%)	-9.26	-23.69	-30.55	25.26	-9.35	-29.67
Ending Equity Ratio	-0.14	-0.26	-0.26	0.27	-0.13	-0.27
Ratio of Expenses to Receipts * 100	115.22	117.20	117.61	107.72	110.73	111.98
			** ($1,000's) **			
PVENW	-54.18	-115.69	-119.56	486.42	-148.70	-372.43
Average Annual						
Cash Receipts	388.21	385.83	387.91	1779.94	1769.58	1765.74
Cash Expenses	447.33	452.18	456.22	1917.32	1959.39	1977.35
Net Cash Income	-59.12	-66.36	-68.51	-137.38	-189.80	-211.61
Average Cash Receipts						
1990	428.76	428.76	428.76	1977.50	1977.50	1977.50
1991	375.72	375.72	375.72	1715.92	1715.92	1715.92
1992	367.38	367.38	367.38	1674.03	1674.03	1674.03
1993	377.42	377.42	379.00	1723.78	1723.78	1727.28
1994	380.05	379.88	400.82	1724.71	1727.04	1709.08
1995	407.66	419.40	0.00	1871.85	1869.67	1918.09
Average Cash Expenses						
1990	414.93	427.53	440.13	1838.24	1881.90	1925.56
1991	421.63	435.88	450.18	1842.47	1889.54	1938.66
1992	429.71	445.59	462.24	1843.65	1897.55	1954.57
1993	452.05	470.69	483.56	1924.89	1988.19	2047.77
1994	475.66	493.78	508.26	1990.01	2057.37	2089.30
1995	502.52	497.63	0.00	2069.48	2119.10	2097.27
Average Net Cash Farm Income						
1990	13.83	1.23	-11.37	139.26	95.60	51.94
1991	-45.91	-60.16	-74.46	-126.55	-173.62	-222.74
1992	-62.33	-78.21	-94.86	-169.62	-223.52	-280.54
1993	-74.63	-93.27	-104.56	-201.11	-264.41	-320.49
1994	-95.61	-113.90	-107.44	-265.30	-330.33	-380.22
1995	-94.86	-78.23	0.00	-197.63	-249.43	-179.18

[a] See "Definitions" for a definition of each variable
[b] Low, Moderate, and High debt levels are associated with long-term/intermediate-term debt asset ratios of 10%20% 20%40% and 30%60%, respectively

Average Net Cash Farm Income, 1990-1995
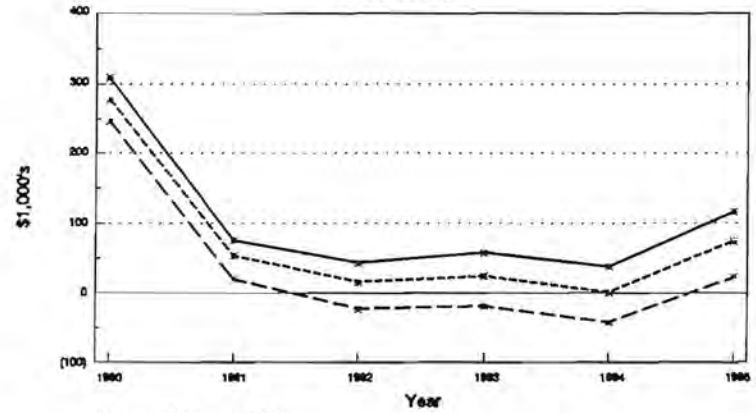
Moderate Erath County Texas
Dairy Farm (MER)

Large Erath County Texas
Dairy Farm (LER)

Moderate Hopkins County Texas
Dairy Farm (MHOP)

Large Hopkins County Texas
Dairy Farm (LHOP)

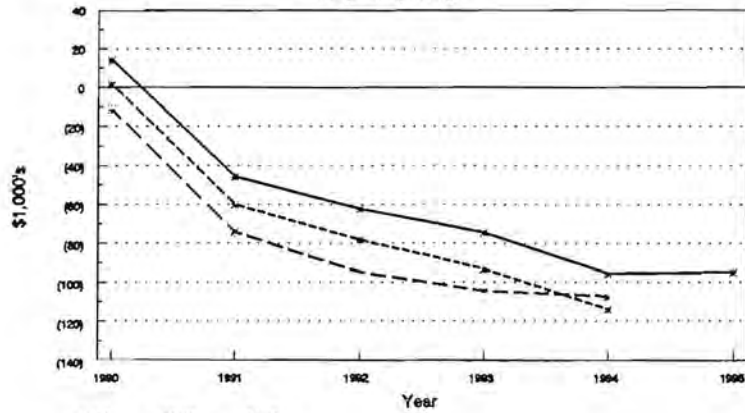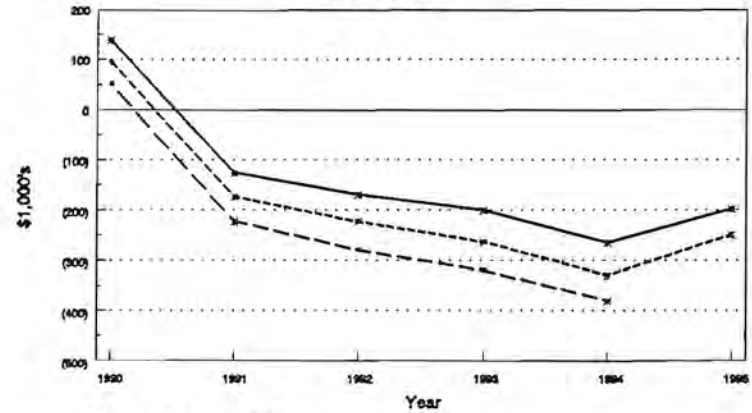# Change in Real Equity, 1990-1995

Moderate Erath County Texas

Dairy Farm (MER)

Long & Intermediate Term Debt Asset Ratios

Large Erath County Texas

Dairy Farm (LER)

Long & Intermediate Term Debt Asset Ratios

Moderate Hopkins County Texas

Dairy Farm (MHOP)

Long & Intermediate Term Debt Asset Ratios

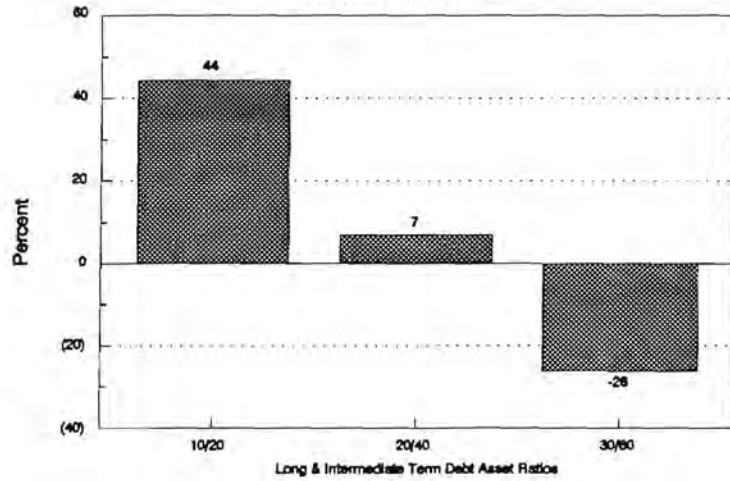## Large Hopkins County Texas

Dairy Farm (LHOP)

Long & Intermediate Term Debt Asset Ratios
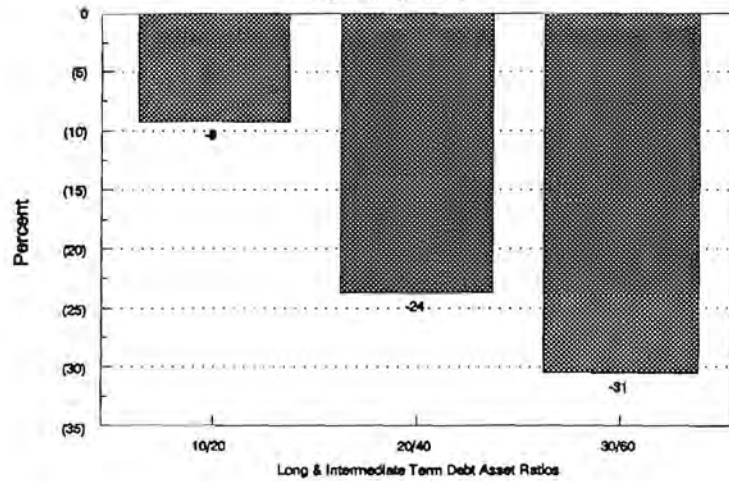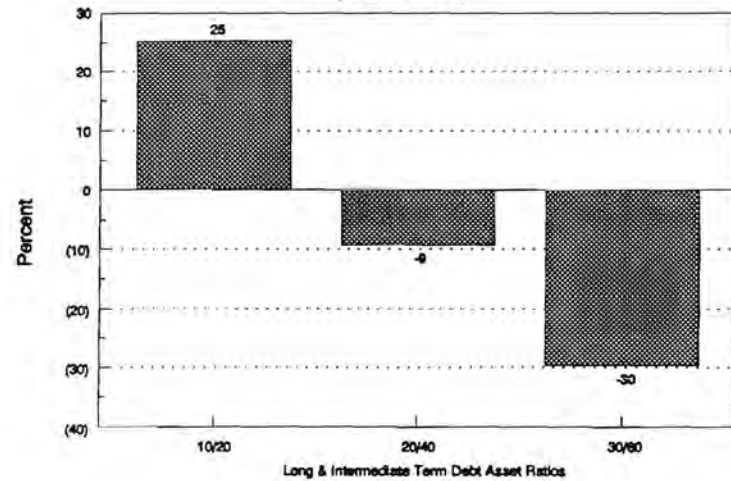
EQUITY MAINTENANCE

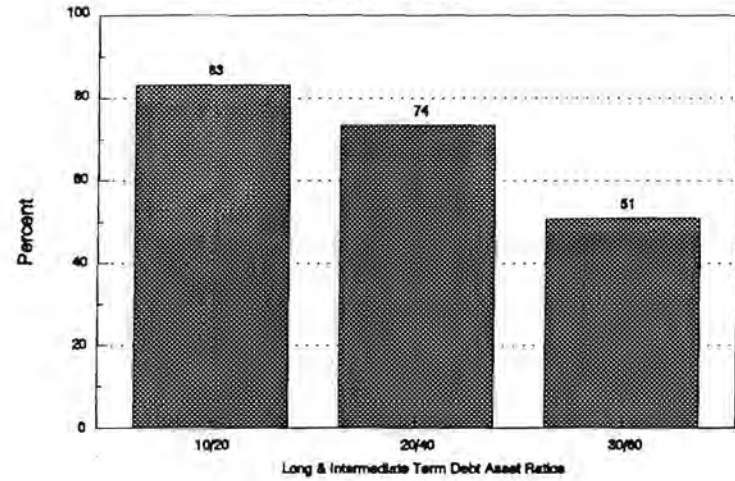## Equity Maintenance

- While it is not practical to simulate all possible managerial changes that can be adopted by farm operators in response to losses (gains) in equity, FLIPSIM can project the increase (decrease) in annual net income required to maintain initial real equity. This Net Income Adjustment (NIA) can be accomplished by increasing receipts, reducing expenses or by a combination of the two. The NIA values, therefore, represent the average annual change in net income that would approximately equilibrate the PVENW with beginning net worth. NIA is also expressed as a percent of average annual cash receipts or cash expenses.

- Even under the modest 10/20 debt assumption, six of the nine crop farms and all the dairy farms expressed losses in real equity over the 1990-95 study period. For example, the MNHP farm would require an annual NIA of $15,800 to maintain real equity over the study period. This increase would require the farm to either increase cash receipts by 4 percent or reduce cash expense by 4.9 percent.

- Two farms, LNHP and MSBL, appear to be able to grow in real terms regardless of the initial debt assumptions. For example, under the 30/60 debt scenario, the MSBL farm could give up $19,400 in annual income and still maintain real equity over the study period. Stated another way, the MSBL farm could withstand a 7.9 percent decline in cash receipts, or a 10.5 percent increase in cash input expense before it would see its real equity eroded.

- Of the six crop farms experiencing losses in real equity, three (MRP, LRP, MWH) require an NIA in excess of 15 percent of cash receipts in order to preserve real equity even under the 10/20 debt scenario. The MSHP cotton farm would need an NIA adjustment between 12-15 percent of cash receipts depending on the initial debt level. While possible, these levels of managerial adjustments are questionable given the economic and technological expectations thru 1995.

- Although all four panel dairy farms lose real equity, even at the lowest debt assumption, the LER dairy appears to be better able to make management changes that could maintain its real equity. Even with a 30/60 initial debt assumption, the LER dairy would need to increase cash receipts or reduce expenses by less than 5 percent to maintain real equity.
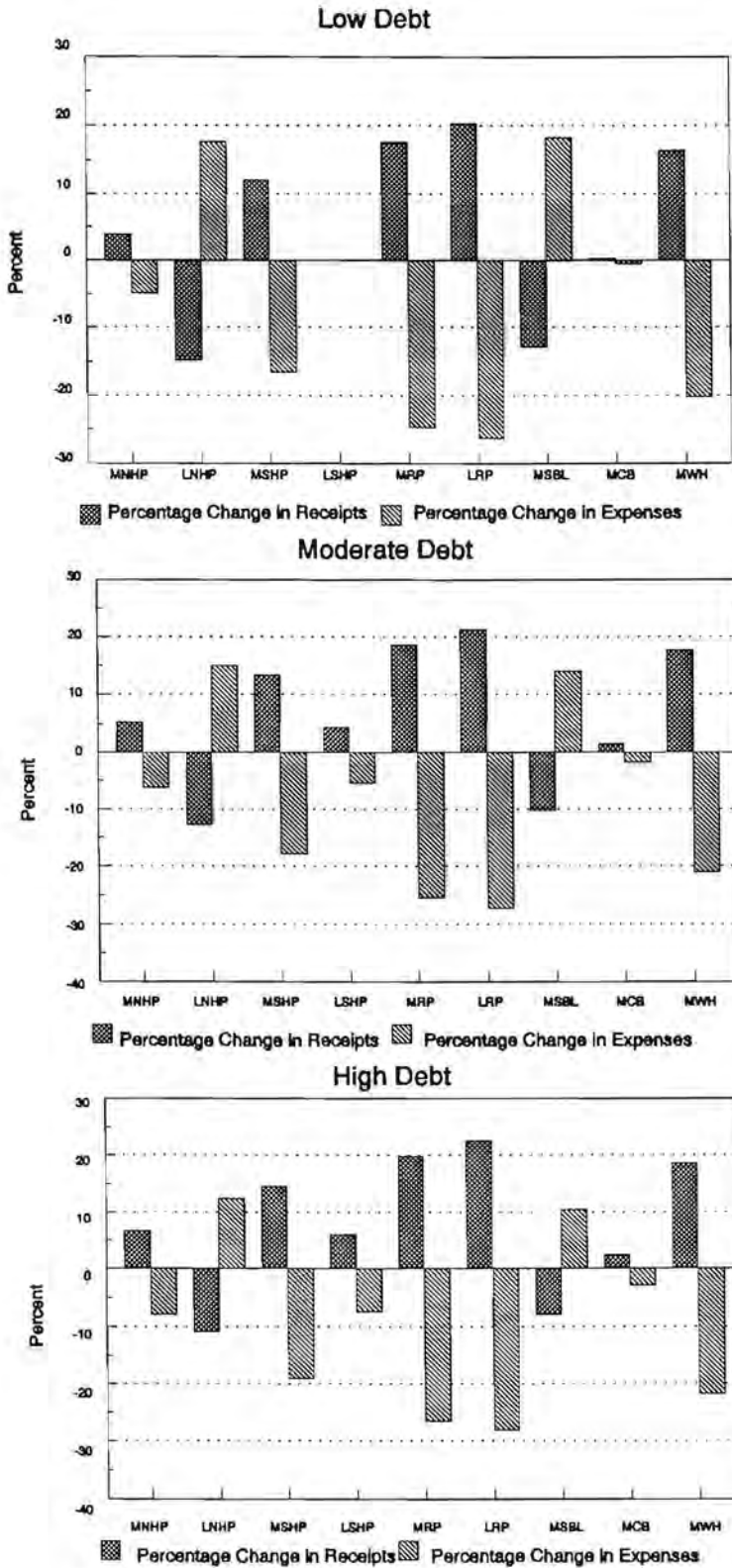
Annual Net Income Adjustments Required to Maintain Real Estate Equity for Representative Texas Cropland Dairy Farms Under Alternative Debt Scenarios.[a]

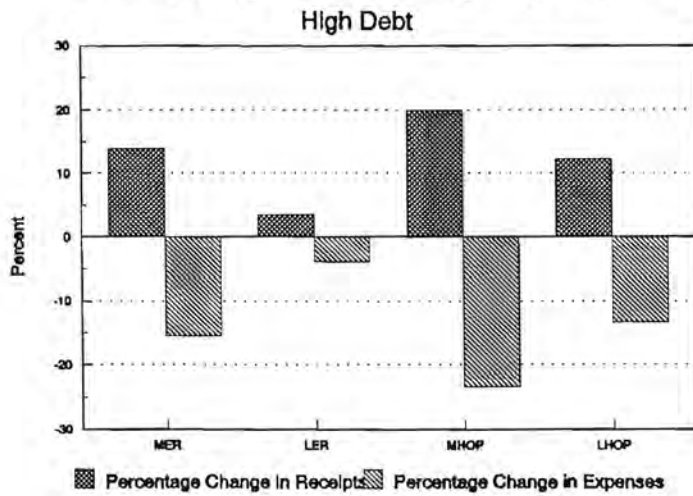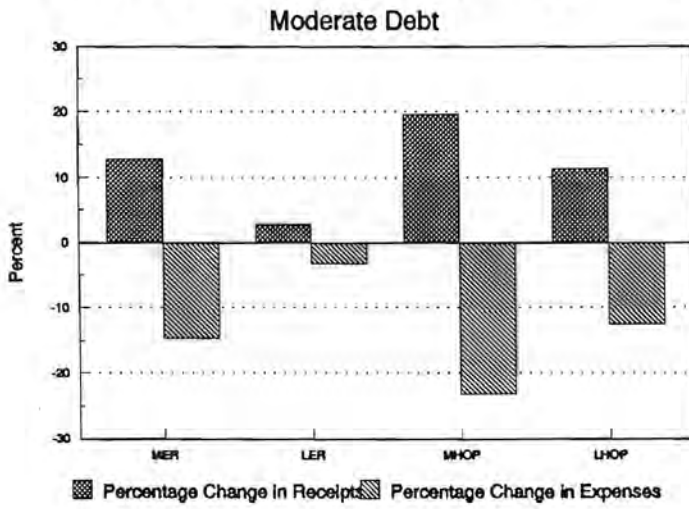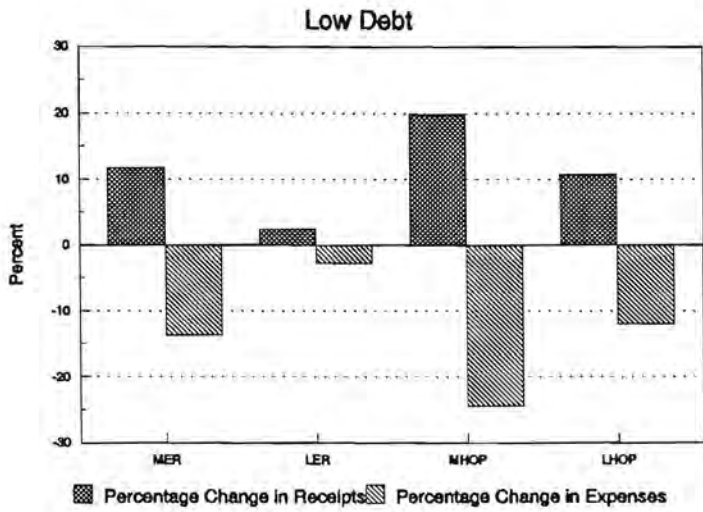| Farms | Annual Net Income Adjustment (NIA) | | | Annual Net Income as a Percent of: | | | | | |
				Cash Receipts			Cash Expenses		
	10/20[b]	20/40	30/60	10/20	20/40	30/60	10/20	20/40	30/60
	-------($1,000)--------			---------------------------- (%) ----------------------					
Crops									
MNHP	15.8	21.4	27.6	4.0	5.3	6.7	-4.9	-6.3	-7.9
LNHP	-128.9	-113.9	-98.9	-14.8	-12.8	-10.9	17.7	15.0	12.5
MSHP	26.4	29.5	32.6	12.1	13.4	14.5	-16.5	-17.9	-19.1
LSHP	-0.6	21.3	29.7	0	4.4	6.1	0	-5.5	-7.4
MRP	35.6	38.1	41.6	17.7	18.6	19.9	-24.7	-25.4	-26.5
LRP	67.5	72.5	77.5	20.4	21.5	22.6	-26.3	-27.3	-28.0
MSBL	-30.0	-24.4	-19.4	-12.8	-10.2	-7.9	18.4	14.0	10.5
MCB	1.9	6.9	11.3	0.4	1.5	2.4	-0.5	-1.8	-2.8
MWH	71.3	77.5	82.5	16.6	17.8	18.7	-20.1	-21.1	-21.7
Dairy									
MER	97.5	107.5	188.8	11.8	12.8	13.9	-13.7	-14.6	-15.5
LER	50.0	60.0	75.0	2.5	2.9	3.6	-2.7	-3.2	-3.9
MHOP	122.5	120.0	123.8	19.9	19.7	20.1	-24.4	-23.3	-23.3
LHOP	267.5	282.5	307.5	10.9	11.4	12.3	-12.0	-12.5	-13.3

[a] The annual net income adjustment (NIA) is the net change in annual income necessary to make the average present value of ending net worth equal beginning net worth. A positive NIA indicates the annual increase in net income necessary to insure that on the average the farm does not lose equity after adjusting for inflation. A negative NIA indicates the annual reduction in net income a farm can experience and still maintain real net worth.

[b] 10/20 assumes 10 percent initial debt on real estate and 20 percent initial debt on intermediate assets, 20/40 assumes 20 percent initial debt on real estate and 40 percent initial debt on intermediate assets, and 30/60 assumes 30 percent initial debt on real estate and 60 percent debt on intermediate assets.

Net Income Adjustment for Crops

Low Debt

Moderate Debt

High Debt

Net Income Adjustment for Dairies

Low Debt

Percentage Change in Receipts   Percentage Change in Expenses

Moderate Debt

Percentage Change in Receipts   Percentage Change in Expenses

High Debt

Percentage Change in Receipts   Percentage Change in Expenses

Annual Cash Expenses
   Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation, principal payments, and family living expenses.

Annual Cash Receipts
   Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.

Annual Net Cash Income
   Total cash receipts minus total cash expenses; excludes family living expenses, principal payments, and costs to replace capital assets.

Average Return Above Variable Cost Excluding Government Payments.
   This is the amount of revenue above variable cost a crop generates without deficiency payment support. It is used in determing what crops would be flexed under NFA options.

Average Return Above Variable Cost Including Government Payments.
   This is the amount of revenue above variable cost a crop generates including deficiency payment support. It is used in determining what crops would be flexed under OFA options.

Ending Equity Ratio
   Total net worth divided by total assets in the last year simulated.

Net Income Adjustment (NIA)
   Annual adjustment to net income necessary for the present value of ending net worth to equal beginning net worth.

PVENW as % of Beginning NW
   Ratio of present value of ending net worth and initial net worth (measures real change in equity).

Present Value Ending Net Worth (PVENW)
   Discounted value of farm's net worth in the last year simulated.

Probability of Increasing Equity
   Chance that the farm will experience an increase in net worth after adjusting for inflation.

Probability of Survival
   Chance that the farm will not be declared insolvent, i.e., equity to asset ratio remains greater than the minimum of 0.15.

Ratio of Expenses to Receipts
   Annual cash expenses divided by annual cash receipts, averaged over all years simulated.

Panel Farm Cooperators

Texas Northern High Plains Feedgrains and Wheat Farms
Facilitators
  Mr. Kenneth Holloway - Moore County Agricultural Extension Agent
  Dr. Steve Amosson - Extension Economist-Management, Texas A&M University
  Mr. Brad Johnson - Sunray Coop., Sunray, Texas
Panel Participants
  Mr. Wesley Spurlock   Mr. Kenneth Keisling
  Mr. Marion Garland   Mr. Ronnie Williams
  Mr. Gary Keisling   Mr. Tom Moore
  Mr. Charles Dooley

Texas Southern High Plains Cotton Farms
Facilitators
  Mr. John Farris - Dawson County Agricultural Extension Agent
  Dr. Jackie Smith - Extension Economist-Management, Texas A&M University
Panel Participants
  Mr. Norris Barron   Mr. Nolan Vogler
  Mr. Donald Vogler   Mr. Tom Anderson
  Mr. Milton Schneider   Mr. Bradley Boyd

Texas Rolling Plains Cotton and Wheat Farms
Facilitators
  Mr. Gary Stanford - Ellis County Agricultural Extension Agent (Formerly Jones County)
  Mr. Stan Bevers - Extension Economist-Management, Texas A&M University
Panel Participants
  Mr. Ed Ekdahl   Mr. Mark Lundgren
  Mr. Marvin McDuff   Mr. B.C. Spraberry
  Mr. Ronnie Richmond   Mr. Darrell Richards
  Mr. Denis Olson

Texas Southern Blacklands Grain Sorghum and Cotton Farm
Facilitators
  Mr. Ronald Leps - Williamson County Agricultural Extension Agent
  Mr. Christopher Sansone - Williamson County Extension Entomologist
Panel Participants
  Mr. Wilbert Vorwerk   Mr. Emzy Boehm
  Mr. James Stone   Mr. Wilburn Beckhusen
  Mr. Ron Schlabach

Texas Coastal Bend Feedgrains and Cotton Farm
Facilitator
  Mr. Darwin Anderson - San Patricio and Aransas County Agricultural Extension Agent
Panel Participants
  Mr. John Hunt   Mr. Darby Salge
  Mr. Howard Salge   Mr. Erich Schneider
  Mr. Wesley Schmidt
  San Patricio and Aransas County Field Crop Committees

Texas Houston Westside Rice Farms
Facilitator
  Dr. Ed Rister - Agricultural Economist, Texas A&M University
Panel Participants
  Mr. Curt Mowery   Mr. Jacko Garrett
  Mr. Leonard Steffens   Mr. Hal Koop
  Mr. L.G. Raun   — Mr. Layton Raun
  Mr. Loy Sneary   Mr. Steve Balas
  Mr. Dale Hunt   Mr. J.D. Woods, Jr.

Texas Erath County Dairy Farms
Facilitators
  Mr. Sonny Pride - Associated Milk Producers, Inc., Arlington, Texas
  Mr. John Cowan - Associated Milk Producers, Inc., Arlington, Texas
  Mr. Joe Pope - Erath County Agricultural Extension Agent
Panel Participants
  Mr. Bryan Parrish   Mr. Larry Ricks
  Mr. Von Scott   Mr. Jack Parks
  Mr. S.L. Fine   Mr. J.M. Howle, Jr.
  Mr. R.J. Kerr   Mr. Dan Paxton
  Mr. Larry Dee Gibson

Texas Hopkins County Dairy Farms
Facilitators
  Mr. Sonny Pride - Associated Milk Producers, Inc.
  Mr. Raymond Haygood - Associated Milk Producers, Inc.
  Mr. Gordon Ford - Hopkins County Agricultural Extension Agent
Panel Participants
  Mr. E.G. Durgin   Mr. Dwight Alexander
  Mr. Al Minter   Mr. Hershel Kelsoe
  Mr. Mike Hoybook   Mr. Doyle Wood
  Mr. Dan Humphrey