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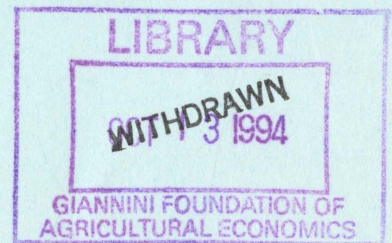
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# IMPLICATIONS OF THE 1990 FARM BILL AND FAPRI 1993 BASELINE ON REPRESENTATIVE FARMS

*Policy*  
AFPC Working Paper 93-1

February 1993



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AFPC Working Paper 93-1 was produced at AFPC with grateful acknowledgement  
of the contributions by Dawne Hicks

This material is based upon work supported by the Cooperative State Research Service, U.S.  
Department of Agriculture, under Agreement Nos. 89-34201-4237 and 90-34228-5003.

Any opinions, findings, or conclusions expressed in this publication are those of the authors  
and do not necessarily reflect the views of the U.S. Department of Agriculture or The Texas  
A&M University System.

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## EXECUTIVE SUMMARY

- Purpose:** To present the farm level impacts for a continuation of current macroeconomic and farm policies over the period 1992-97.
- Present farm level impacts for 64 moderate and large size farms representing a cross-section of American agriculture.
  - Utilize the 1993 FAPRI baseline.
  - Identify those commodities and regions that are likely to experience the greatest economic pressure over the next five years.
- Situation:** Contemporary conditions in the absence of major breakthroughs in international trade mean that target prices set an upper limit on returns to crop producers.
- Reduced Normal Flexible Acreage basically (NFA) payments in the absence of profitable cropping alternatives, frozen target prices, frozen farm program yields, and continued inflation of input costs have meant reduced real farm income for crop producers.
  - The significant unknowns are:
    - The prospects for significant increases in export demand.
    - The pace of economic recovery.
    - The rate at which inflation increases farm costs.
- Results:**
- Feed grain farms: While net cash income was relatively stable, real net cash incomes declined on the predominant feed grain farms. A majority of the farms, however, increased real net worth.
  - Oilseeds: While oilseeds only contributed a majority of receipts on one representative farm, none of the farms growing oilseeds were found to be extremely vulnerable. Real net cash farm income declined from 1992 to 1997 for all oilseed farms.
  - Wheat farms: Two-thirds of the wheat farms experienced lower nominal net cash income with real income declining for all wheat farms. Farms in primarily wheat producing areas lost substantial equity.
  - Cotton: Lower nominal net cash income was experienced by all of the cotton farms over the 1992 to 1997 period. A fourth of the farms realized a decline in real equity.

- Rice: A majority of the farms realized lower real equity reflecting reduced levels of net cash income. Particularly adversely affected were the Texas farms and the larger California operation.
- Dairy: Six of the 20 dairies were able to generate higher nominal net cash incomes while all but one of the farms earned lower real net incomes. One-third of the dairies lost equity. Large dairies consistently did better than moderate size dairies.
- Beef: Fighting a cyclical decline in beef prices, all cow/calf operations lost equity over the 1992-1997 planning horizon.
- Hogs: Despite reduced earnings through 1992, all hog farms increased real equity over the 1992-1997 period as a result of hog prices recovering from 1993 through 1996.
- Flex opportunities appeared to be more limited than in the 1992 Baseline. Most flexing was to oilseeds and feed grains, reflecting a more favorable outlook for those commodities.

**Potential Problem Areas:**

- Rice
- Wheat
- Moderate size farms
- Farms with limited flex options

## INTRODUCTION

The farm level economic impacts of the 1990 farm bill on crop and livestock producers are projected in this report. The analysis was conducted over the 1990-1997 planning horizon using a whole farm simulation model. The model simulated economic activity for representative crop and livestock farms in major production regions of the United States. Data to simulate the farms came from three sources. The Food and Agricultural Policy Research Institute's (FAPRI) 1993 Baseline provided annual prices, policy parameters, yields, technology trends, rates of inflation, and interest rates for the period 1993-1997. Observed values were used for these variables in 1990-1992. In addition, AFPC and FAPRI scientists used the panel farm process described below to develop information to describe the representative farms.

The panel farm analyses represent the economic impacts on commercial scale farms and ranches that do not adjust cropping systems, management strategies, tenure arrangements, and cost structures over the 1990-1997 planning horizon. Acreage flexing within the current cropping pattern, however, is allowed under the normal and optional flex acreage options. The assumption of no change in cropping systems and management practices in the presence of policy changes is recognized as a limitation but was done for several reasons:

- Direction and magnitude of future change in management practices are currently unknown.
- Introduction of new crops on the farms will likely require changes in the machinery complement and yield distributions, both of which are unknown.
- Technological breakthroughs cannot be predicted and, even so, their effect on yields and costs are unknown. Therefore, trend-estimated technology in the Baseline is maintained.

The primary objective of the study was to identify those regions and commodities which could experience adverse economic pressure under the terms of the 1990 farm bill. Initial debt levels on the representative farms were based on the average debt obtained in the ERS-USDA farm cost and returns surveys for farms of similar size and commodity makeup in each state (see Appendix B).

This report is organized into eleven parts. The first section summarizes the panel farm process, key assumptions and a map showing where the panel farms are located. The second section summarizes the FAPRI 1993 Baseline and the policy, price, and yield assumptions used for the panel farm analyses. The third through seventh sections present the results of the simulation analyses for feed grains, wheat, oilseed, cotton, and rice farms. The eighth through tenth sections summarize simulation results for dairy, cattle and hog farms. Four appendices constitute the final section of the report. Appendix A provides a comparison of the panel farms to USDA survey data. Appendix B presents the initial debt to asset situation



in 1990 for each of the farms. Appendix C provides a brief description of the farm level simulation model (FLIPSIM). Appendix D provides the names of farmers who cooperated in the panel farm process in each state, as well as the land grant scientists who assisted in the panel farm development.

### **Panel Farm Process**

Traditional policy analysis has involved analyzing the effects of farm programs on crops, dairy, and livestock in the aggregate, primarily at the national level. These analyses, while vital to policymakers, do not provide sufficient detail on the effects of farm programs on producers in different regions of the country. To overcome this deficiency, AFPC scientists developed a farm simulation model (FLIPSIM) in 1980-81 to analyze the effects of farm programs on representative farms, ranches, and dairies in different regions of Texas. Since then, the FLIPSIM model has been continuously updated, refined, and expanded.

During the 1985 and the 1990 farm bill debates, AFPC scientists used the farm level policy model 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 and livestock farms were reported without policy recommendation.<sup>1</sup> Results of these analyses were provided to the House and Senate Agriculture Committees, to farmers, and to farm organizations. The usefulness of the farm level policy analyses has led to a Congressional appropriation to fund AFPC's expansion of farm level analyses to additional states (see map of panel farms, Figure 1).

The FLIPSIM model uses panel farm production, cost, and financial information from major U.S. production regions to simulate the economic impact of alternative policies on a representative farm, ranch, or dairy in a particular region. The initial information to describe a farm is obtained from producer panels that provide the following data:

- 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.
- Machinery complement.

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<sup>1</sup>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 a ranking of the alternatives.

Once the 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 for the panel farm. 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 farm panel is satisfied that the financial projections are reasonable for the type of farm being described.

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.
- State income tax information.

General macro economic 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. This information includes:

- Projected inflation and interest rates.
- Projected crop prices, loan rates, target prices, acreage reduction requirements, diversion payment rates, marketing loan repayment rates, Findley loan rates, and yield trends.
- Projected livestock and milk prices and yield trends.
- Projected changes in livestock herd size.

How representative are the panel farms? To answer this question, the panel farms have been compared to the USDA-ERS Farm Cost and Returns Survey (FCRS) for similar size and type of farms. A side-by-side comparison of several crop, dairy, and hog farms is provided in Appendix A. In general, the panel farms have proven to be representative of a substantial share of the farms in the study areas. A second use of the FCRS data has been to use the average debt to asset ratios for USDA survey farms that are similar to the panel farms. A description of the debt information for the panel farms is provided in Appendix B.

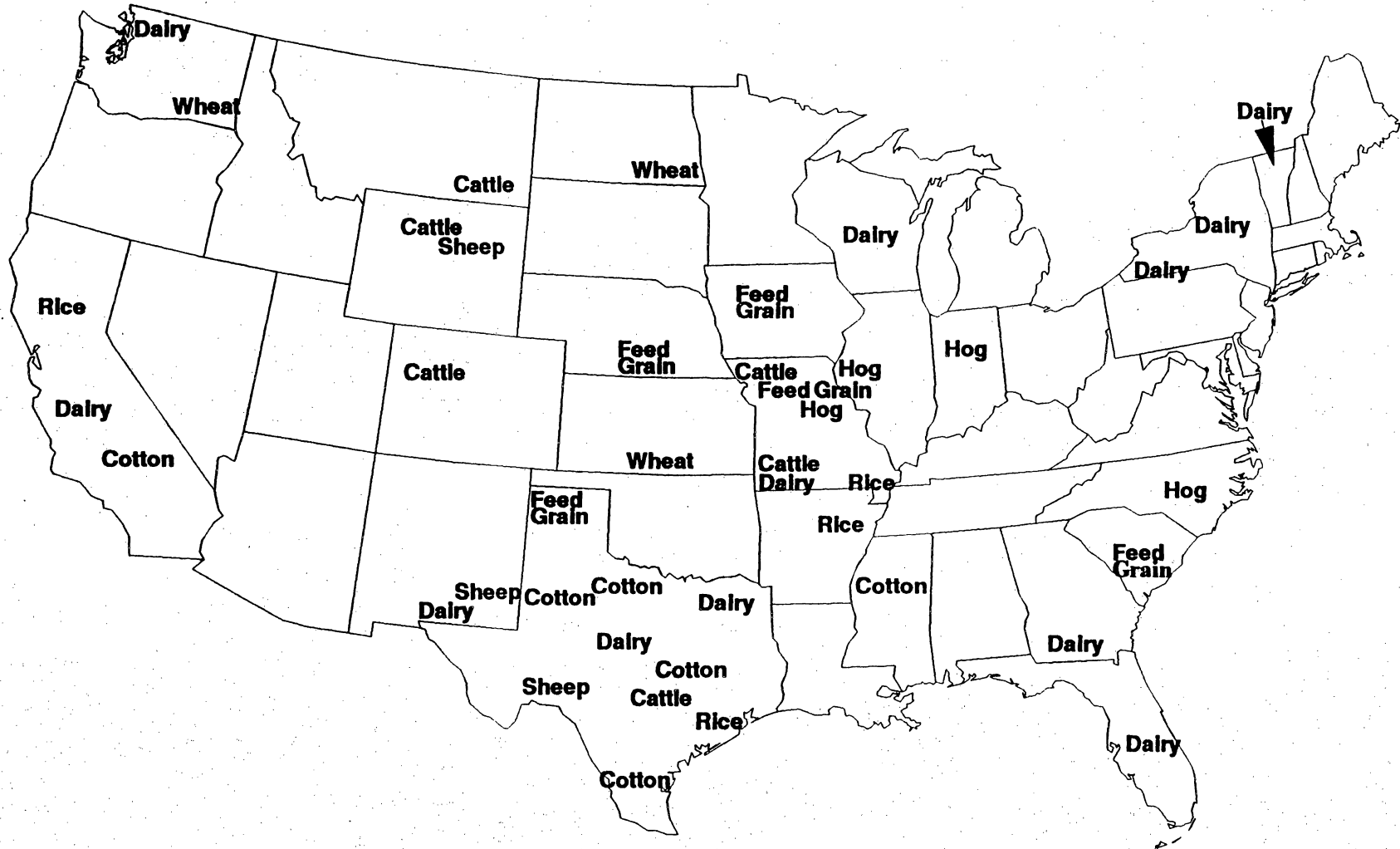
## Key Assumptions

- All farms classified as moderate scale are the size (acres or number of livestock) considered to be representative of a majority of full-time commercial farming operations in the study area. In many regions, a second farm that is normally two to three times larger than the moderate scale farm is developed as an indicator of economies of size.
- Initial debt for the panel farms in 1990 is assumed to be the average for farms of similar size and commodity makeup as obtained by the ERS-USDA farm cost and returns survey. Initial debt for 1992 was estimated by simulating the farms for 1990 and 1991. See Appendix B for a discussion of the USDA debt information.
- The farm participates in the farm program and chooses the flex alternative (within its current crop mix) that appears to be the most profitable.
  - Normal flexible acreage (NFA) is planted to an eligible crop that is currently being produced on the farm and has generated the greatest returns above variable cost *excluding* government payments. AFPC analysts arbitrarily adopted a decision rule that if returns above variable cost could not be increased more than \$5/acre by flexing to another crop, then the producer would continue to produce the current crop.
  - The optional flexible acreage (OFA) was "flexed" in those cases in which a different crop's returns above variable cost *excluding* government payments were greater than the returns above variable cost *including* government payments for the currently planted program crop. Since the cost of production for each enterprise on the farm was developed from a single budget, the farm is assumed to operate under one farm number for flexing purposes or it is assumed that all acres maintain homogeneous production and cost relationships within a single enterprise.
- Dairy farm herd size is held constant over the 1990-1997 planning horizon.
- Hog farm herd size is held constant over the 1990-1997 planning horizon.
- Cow herd size is held constant over the 1990-1997 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 1993 Baseline which assumed implementation and continuation of the 1990 farm bill.
- When the panel farm produced both corn and grain sorghum, current planting proportions were maintained as a combined base throughout the 1992-1997 period.



- The farm was structured so government payment limits were not effective at reducing deficiency payments.
- Family living withdrawals were assumed at a minimum base rate of \$20,000 annually (maximum \$40,000) with the farm subject to owner/operator federal and state income taxes as a sole proprietor. This assumption was applied to all farms regardless of their size or profitability.
- No off-farm-related income was included in the analyses. The farm, therefore, must annually contribute between \$20,000-\$40,000 to cover family living expenditures.

# Panel Farms Maintained By AFPC



1993 FAPRI

BASELINE



## 1993 FAPRI BASELINE

### Domestic Economic Projections

- FAPRI relies heavily on the WEFA group and Project LINK for macroeconomic projections over the study period. The following comments are abstracted primarily from the FAPRI 1993 Baseline.
- The U.S. economy is projected to recover slowly from the recession of the early 1990s. Real GDP is projected to increase 2 percent in 1992 and 3 percent in 1993. Modest growth in the economy of 2.8 to 3.3 percent per year over the 1994-1997 period is projected.
- A record federal budget deficit of \$329.3 billion was realized in 1992 with WEFA projecting the deficit would rise to \$363 billion in 1993. The deficit is projected to decline after 1993 to about \$311 billion.
- Annual percentage increases in prices for selected inputs vary from a low of 0.76 percent to a high of 6.28 percent over the 1993-97 period. Over the 1991-1997 period, the prices paid for production inputs increase 19.43 percent.
- Interest rates declined in 1992 and are projected to decline further in 1993 before beginning a moderate increase from 1993-1997.
- The rate of inflation, as indicated by changes in the CPI, declined to 3.03 percent in 1992. The rate of inflation increases each year during the 1993-1996 period before a small decline occurs in 1997. Over the 1991-1997 period, the CPI increases 29 percent, and over the 1992-1997 period, the CPI increases about 23 percent.

**Domestic Economic Projections, 1991-1997**

	1991	1992	1993	1994	1995	1996	1997
	----- (Percent) -----						
<b>Percentage Changes in Prices:</b>							
General Farm Production	1.28	1.39	0.76	3.15	3.27	2.87	2.79
Chemicals	5.39	3.10	1.59	2.44	3.05	3.49	3.44
Fertilizer	1.53	-0.88	1.65	2.25	2.51	2.79	2.85
Fuel and Lube	-0.80	-0.80	3.01	5.47	6.28	2.13	0.87
Machinery and Equipment	1.91	0.28	1.25	2.66	2.96	2.93	2.82
Labor	4.18	3.34	0.76	2.03	2.10	2.06	2.22
Land Value	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<b>Gross Domestic Product</b>	-1.16	2.01	3.01	3.32	2.80	2.93	2.86
<b>Consumer Price Index (CPI):</b>							
Percentage Change	4.23	3.03	3.23	3.63	3.98	4.05	3.83
<b>Interest Rates (%):</b>							
Conventional Mortgages							
Long Term	9.31	8.20	8.17	8.35	8.66	9.04	9.36
Bank Prime	8.46	6.25	6.40	7.46	8.54	9.14	9.21

Source: FAPRI, 1993 Baseline.

## 1993 FAPRI BASELINE

### U.S. Policy Assumptions

- FAPRI incorporates provisions from both the Food, Agriculture, Conservation and Trade Act of 1990 (FACTA-90) and the Omnibus Budget Reconciliation Act of 1990 (OBRA-90) in their projections, hereinafter referred to as the 1990 farm bill. GATT and NAFTA are assumed to have no affect on the policy provisions incorporated in the 1993 Baseline, and basic farm program parameters are assumed to extend beyond the life of the 1990 farm bill.
- Target prices are frozen at 1990 levels and loan rates are determined by formula. The Secretary is assumed to use the discretionary authority granted by law to announce the lowest effective loan rate for wheat and feed grains. No marketing loan for wheat and feed grains was introduced for 1993-1997.
- The annual acreage reduction programs are assumed to be consistent with the supply/demand requirements mandated by the 1990 farm bill. The Secretary is assumed to use his discretionary authority to manage the ARP with the objective of achieving stable domestic prices and competitiveness in world markets.
- The normal flexible acres (NFA) established by the 1990 farm bill are maintained at the 15 percent level for the period 1993-1997.
- The milk price support rests on the statutory \$10.10/cwt minimum through 1997. The milk assessment on producers who increase production is increased to \$0.1125/cwt in 1992-93 and is held at that level through 1997-98.



## Farm Program Provisions, 1990-1998

	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98
<b>Target Prices</b>								
Corn (\$/bu)	2.75	2.75	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	2.61	2.61
Barley (\$/bu)	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Oats (\$/bu)	1.45	1.45	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	4.00	4.00
Rice (\$/cwt)	10.71	10.71	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	72.90	72.90
<b>Loan Rates</b>								
Corn (\$/bu)	1.57	1.62	1.72	1.72	1.63	1.55	1.56	1.56
Sorghum (\$/bu)	1.49	1.54	1.63	1.63	1.55	1.47	1.49	1.49
Barley (\$/bu)	1.28	1.32	1.40	1.40	1.33	1.26	1.27	1.27
Oats (\$/bu)	.81	.83	.88	.88	.84	.80	.80	.80
Soybeans (\$/bu)	4.50	5.02	5.02	5.02	5.02	5.02	5.02	5.02
Wheat (\$/bu)	1.95	2.04	2.21	2.45	2.33	2.21	2.22	2.29
Rice (\$/cwt)	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Cotton (cents/lb)	50.30	50.80	52.35	52.35	50.44	50.00	50.00	50.00
<b>Acres Reduction Program (ARP) Rate (Percent)</b>								
Corn	10.0	7.5	5.0	10.0	10.0	10.0	10.0	7.5
Sorghum	10.0	7.5	5.0	5.0	5.0	5.0	5.0	5.0
Barley	10.0	7.5	5.0	0.0	0.5	0.5	0.5	0.5
Oats	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheat	5.0	15.0	5.0	0.0	5.0	5.0	5.0	5.0
Rice	20.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
Cotton	12.5	5.0	10.0	7.5	5.0	5.0	5.0	5.0
<b>NFA - Triple-Base Rate (Percent)</b>								
Feed Grains	0.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Wheat	0.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Rice	0.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Cotton	0.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
<b>Milk Support Price and Assessment (\$/cwt)</b>								
Support Price	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10
Milk Assessment	0.0	0.05	0.1125	0.1125	0.1125	0.1125	0.1125	0.1125

Source: FAPRI, 1993 Baseline.

## 1993 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 1993-1997.
- Crop yields and annual milk per cow projections reflect technology changes and supply responses to price and policy changes for 1993-97.
- Feed grain and wheat yields in 1991-92 were below trend. This was followed by yields for all crops except rice being above trend for 1992-93. The Baseline assumes that all crop yields will return to their respective trends in 1993-94 and increase steadily until 1997-98.
- Corn prices are projected to increase from \$2.07/bu in 1992-93 to \$2.09/bu in 1993-94 and increase annually until a drop in 1997-98 to \$2.22/bu.
- Soybean prices increase \$0.15/bu in 1993-94 from \$5.40/bu in 1992-93. Prices increase to \$6.05/bu in 1995-96 before declining for each of the last two years.
- Wheat prices are projected to drop \$0.40/bu in 1993-94 and increase in three of the next four years. The high price will be \$3.35/bu in 1996-97.
- Oklahoma City feeder steer prices are projected to decrease from \$85.54/cwt in 1992-93 to \$76.88/cwt in 1996-97 before increasing to \$81.84/cwt in the final year. Utility cow prices also follow this pattern.
- Barrow and gilt prices are projected to drop in 1993-94 and increase each year until peaking at \$55.32/cwt in 1996-97. The price drops \$7.79/cwt in the final year to \$47.53/cwt.
- The all-milk price is projected to drop \$0.68/cwt in 1993-94, followed by a modest recovery in 1994-95 to \$13.04/cwt. Milk prices hold fairly constant through the remainder of the period.

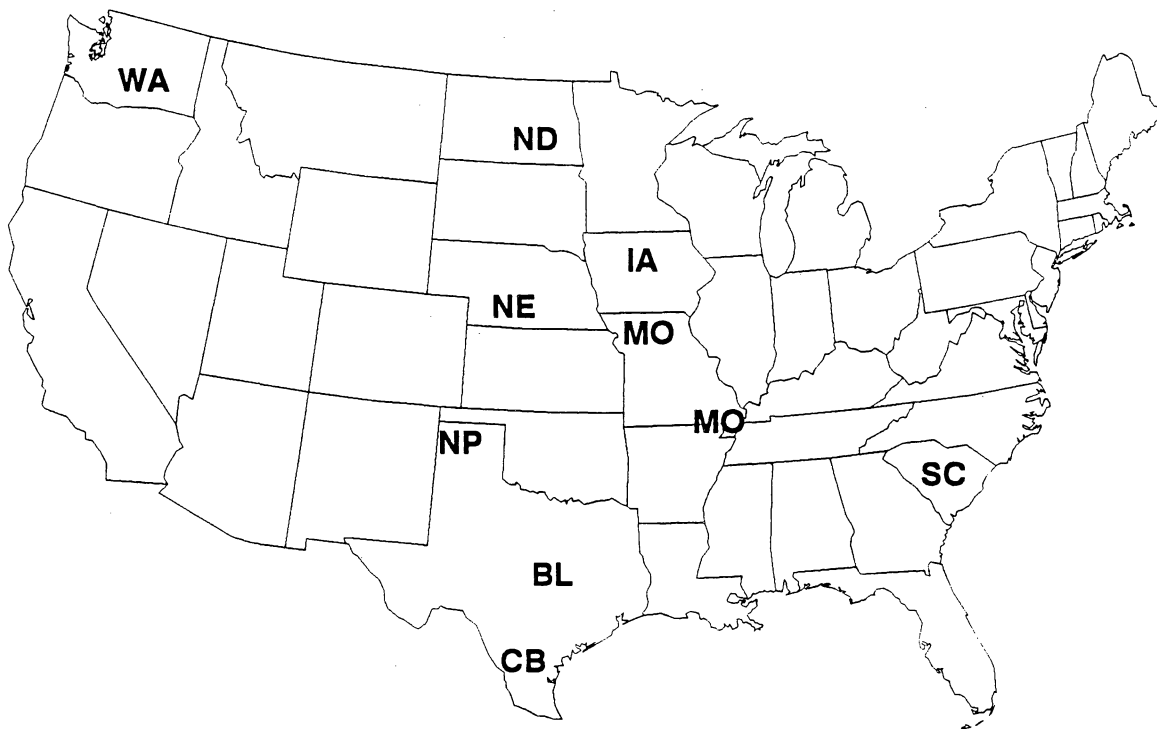
## Crop Yields And Crop And Livestock Prices, 1990-1998

	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98
<b>CROPS:</b>								
Corn								
Yield (bu/ac)	118.5	108.6	131.40	121.80	123.6	125.1	126.2	126.3
Price (\$/bu)	2.28	2.45	2.07	2.09	2.11	2.26	2.36	2.22
Sorghum								
Yield (bu/ac)	62.9	59.0	72.8	66.4	66.6	66.9	67.1	67.3
Price (\$/bu)	2.12	2.37	1.92	2.03	1.98	2.15	2.23	2.05
Barley								
Yield (bu/ac)	56.1	55.2	62.4	57.4	57.6	58.1	58.3	58.3
Price (\$/bu)	2.14	2.09	2.05	2.03	2.02	2.18	2.22	2.09
Wheat								
Yield (bu/ac)	39.5	34.3	39.4	38.3	38.7	39.0	39.2	39.3
Price (\$/bu)	2.61	3.07	3.30	2.90	2.91	3.26	3.35	3.31
Soybeans								
Yield (bu/ac)	34.1	34.3	37.6	35.3	35.5	35.7	35.9	36.0
Price (\$/bu)	5.75	5.44	5.40	5.55	6.00	6.05	6.03	5.69
Cotton								
Yield (lbs/ac)	634	656	696	679	683	689	692	692
Price (\$/lb)	.681	.593	.522	.535	.551	.583	.587	.585
Rice								
Yield (lbs/ac)	5529	5617	5722	5705	5719	5738	5754	5771
Price (\$/cwt)	6.70	7.25	6.12	6.82	7.14	7.48	7.55	7.65
All Hay								
Yield (tons/ac)	2.39	2.51	2.43	2.47	2.47	2.46	2.46	2.44
Price (\$/ton)	83.20	71.24	71.34	71.78	74.31	75.59	79.46	77.07
Soybean Meal								
Price (\$/ton)	169.00	174.74	179.76	169.77	178.63	184.99	186.76	181.36
<b>LIVESTOCK:</b>								
Cattle								
Feeders (\$/cwt)	90.86	89.14	85.54	85.39	81.94	78.42	76.88	81.84
Cows (\$/cwt)	53.13	52.29	44.79	45.28	42.95	41.33	40.08	41.64
Pork								
Barrows/Gilts (\$/cwt)	54.45	49.03	43.13	40.75	45.84	51.74	55.32	47.53
Sows (\$/cwt)	48.18	44.37	34.03	31.80	37.90	42.42	44.01	39.59
Milk								
Production/Cow (1,000 lbs)	14.64	14.85	15.44	15.60	15.92	16.14	16.48	16.78
All Milk Price (\$/cwt)	13.73	12.24	13.11	12.43	13.04	12.76	13.06	12.67

Source: FAPRI, 1993 Baseline.



## Panel Farms Producing Feed Grains



## CHARACTERISTICS OF PANEL FARMS PRODUCING FEED GRAINS

- WAMG** a 1,276-acre-Southeastern Washington (Whitman County) moderate size grain farm that grew 583 acres of wheat, 130 acres of barley, and 498 acres of dry peas in 1992. The farm flexed NFA and OFA barley acreage to wheat and generated 8 percent of its revenue from barley.
- WALG** a 4,250-acre Southeastern Washington (Whitman County) large grain farm that grew 1,900 acres of wheat, 294 acres of barley, and 1,890 acres of dry peas. The farm flexed NFA and OFA barley acreage to wheat and generated about 6 percent of its receipts from barley.
- NDMG** a 1,600-acre South Central North Dakota (Barnes County) moderate size grain farm that grew 640 acres of wheat, 500 acres of barley, and 400 acres of sunflowers in 1992. The farm flexed NFA wheat acreage to barley and received about 31 percent of its receipts from barley.
- NDLG** a 4,000-acre South Central North Dakota (Barnes County) large grain farm that grew 1,760 acres of wheat, 1,280 acres of barley, and 800 acres of sunflowers in 1992. The farm flexed NFA wheat acreage to barley and received about 32 percent of its receipts from barley.
- NEMG** a 630-acre South Central Nebraska (Phelps County) moderate size irrigated grain farm that grew 513 acres of corn and 60 acres of soybeans in 1992. The farm continued to plant corn on its NFA acreage and generated about 95 percent of its gross receipts from corn.
- NELG** a 1,575-acre South Central Nebraska (Phelps County) large irrigated grain farm that grew 1,330 acres of corn and 100 acres of soybeans in 1992. The farm continued to plant corn on its NFA acreage and generated more than 96 percent of its gross receipts from corn.

Characteristics of Panel Farms Producing Feed Grains.

	WAMG	WALG	NDMG	NDLG	NEMG	NELG
Total Cropland	1276.	4250.	1600.	4000.	630.	1575.
Acres Owned	638.	1700.	400.	1600.	315.	1040.
Acres Leased	638.	2550.	1200.	2400.	315.	535.
Assets (\$1000)						
Total	1233.	3176.	464.	1552.	860.	2664.
Real Estate	946.	2397.	179.	732.	609.	1986.
Machinery	258.	648.	242.	694.	249.	481.
Other	28.	131.	43.	127.	2.	197.
Debt/Asset Ratios*						
Total	0.09	0.12	0.39	0.30	0.16	0.16
Intermediate	0.08	0.17	0.49	0.34	0.07	0.13
Long Run	0.10	0.10	0.25	0.26	0.20	0.17
1992 Gross Receipts (\$1,000)**						
Total	230.7	718.5	199.0	509.7	208.2	620.2
Barley	18.5 8.0%	40.7 5.7%	62.0 31.2%	163.0 32.0%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	196.9 94.6%	599.5 96.7%
Wheat	144.5 62.7%	456.1 63.5%	87.1 43.8%	252.9 49.6%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	11.3 5.4%	20.7 3.3%
Dry Peas	67.6 29.3%	221.6 30.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Sunflowers	0.0 0.0%	0.0 0.0%	49.9 25.1%	93.8 18.4%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***						
Total	1212.4	4084.5	1540.0	3840.0	573.0	1430.0
Barley	130.9 10.8%	294.0 7.2%	500.0 32.5%	1280.0 33.3%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	513.0 89.5%	1330.0 93.0%
Wheat	583.5 48.1%	1900.5 46.5%	640.0 41.6%	1760.0 45.8%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	60.0 10.5%	100.0 7.0%
Dry Peas	498.0 41.1%	1890.0 46.3%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Sunflowers	0.0 0.0%	0.0 0.0%	400.0 26.0%	800.0 20.8%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING FEED GRAINS -- Continued

- IAMG** a 680-acre Northwestern Iowa (Webster County) moderate size grain farm that grew 304 acres of corn and 325 acres of soybeans in 1992. The farm continued to plant corn on its NFA acreage and received about 59 percent of its receipts from corn.
- IALG** a 1,320-acre Northwestern Iowa (Webster County) large grain farm that grew 563 acres of corn and 681 acres of soybeans in 1992. The farm flexed NFA corn to soybeans and generated 55 percent of its gross receipts from corn.
- MOMG** a 1,100-acre North Central Missouri (Carroll County) moderate size grain farm with 160 acres of wheat, 240 acres of corn, and 575 acres of soybeans in 1992. The farm flexed NFA wheat and corn to soybeans and generated about 32 percent of its total revenue from corn.
- MOLG** a 2,100-acre North Central Missouri (Carroll County) large grain farm with 320 acres of wheat, 630 acres of corn, and 1,000 acres of soybeans in 1992. The farm flexed NFA wheat to corn and generated about 42 percent of its total revenue from corn.
- MOMR** a 1,500-acre Southeastern Missouri (Butler County) moderate size rice farm with 600 acres of rice, 190 acres of sorghum, 190 acres of corn, and 500 acres of soybeans planted in 1992. The farm did not flex rice or feed grain base acres and generated about 20 percent of its total revenue from feed grains.
- MOLR** a 3,150-acre Southeastern Missouri (Butler County) large rice farm with 1,275 acres of rice, 142 acres of sorghum, and 1,725 acres of soybeans planted in 1992. The farm did not flex rice or sorghum base acres and generated only 3 percent of its gross receipts from sorghum.
- KSMG** a 1,175-acre South Central Kansas (Sumner County) moderate size grain farm that grew 880 acres of wheat and 236 acres of sorghum in 1992. The farm flexed NFA wheat to sorghum and generated 17 percent of its total revenue from sorghum in 1992.



Characteristics of Panel Farms Producing Feed Grains.

	IAMG	IALG	MOMG	MOLG	MOMR	MOLR	KSMG
Total Cropland	680.	1320.	1100.	2100.	1500.	3150.	1175.
Acres Owned	140.	132.	550.	840.	500.	788.	388.
Acres Leased	540.	1188.	550.	1260.	1000.	2362.	787.
Assets (\$1000)							
Total	406.	519.	822.	1310.	1443.	2683.	483.
Real Estate	259.	236.	564.	918.	747.	1555.	311.
Machinery	111.	194.	242.	292.	408.	1068.	172.
Other	35.	89.	16.	100.	288.	60.	0.
Debt/Asset Ratios*							
Total	0.36	0.28	0.28	0.25	0.16	0.25	0.59
Intermediate	0.31	0.17	0.26	0.19	0.14	0.31	0.47
Long Run	0.39	0.42	0.29	0.28	0.18	0.21	0.65
1992 Gross Receipts (\$1,000)**							
Total	140.8	240.3	191.7	353.7	502.0	975.2	126.3
Corn	82.8 58.8%	132.1 55.0%	60.7 31.7%	148.0 41.9%	60.0 11.9%	0.0 0.0%	0.0 0.0%
Wheat	0.0 0.0%	0.0 0.0%	29.9 15.6%	56.1 15.9%	0.0 0.0%	0.0 0.0%	104.7 82.9%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	40.6 8.1%	27.4 2.8%	21.5 17.1%
Soybeans	58.0 41.2%	108.2 45.0%	101.1 52.7%	149.6 42.3%	93.8 18.7%	257.6 26.4%	0.0 0.0%
Rice	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	307.6 61.3%	690.3 70.8%	0.0 0.0%
1992 Planted Acres***							
Total	629.0	1244.8	975.0	1950.0	1480.0	3142.5	1116.3
Corn	304.0 48.3%	563.2 45.2%	240.0 24.6%	630.0 32.3%	190.0 12.8%	0.0 0.0%	0.0 0.0%
Wheat	0.0 0.0%	0.0 0.0%	160.0 16.4%	320.0 16.4%	0.0 0.0%	0.0 0.0%	880.0 78.8%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	190.0 12.8%	142.5 4.5%	236.3 21.2%
Soybeans	325.0 51.7%	681.6 54.8%	575.0 59.0%	1000.0 51.3%	500.0 33.8%	1725.0 54.9%	0.0 0.0%
Rice	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	600.0 40.5%	1275.0 40.6%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING FEED GRAINS - Continued

- NPMG** a 1,600-Northern High Plains of Texas (Moore County) moderate size irrigated grain farm with 513 acres of wheat, 362 acres of sorghum, and 446 acres of corn in 1992. The farm flexed NFA wheat to sorghum and generated about 72 percent of its total receipts from feed grains.
- NPLG** a 4,500-acre Northern High Plains of Texas (Moore County) large irrigated grain farm with 1,344 acres of wheat, 1,056 acres of sorghum, and 995 acres of corn in 1992. The farm flexed NFA wheat to sorghum and generated about 70 percent of its total revenue from feed grains.
- BLMC** a 1,200-acre Texas Blacklands (Williamson County) moderate size cotton farm with 684 acres of sorghum and 414 acres of cotton in 1992. The farm did not flex sorghum and cotton base and generated about 42 percent of its total receipts from sorghum.
- CBLC** a 1,700-acre Texas Coastal Bend (San Patricio County) large cotton farm with 816 acres of sorghum and 765 acres of cotton in 1992. The farm flexed NFA sorghum to cotton and generated about 27 percent of its total revenue from sorghum in 1992.
- SCMG** a 1,500-acre South Carolina (Clarendon County) moderate size grain farm with 600 acres of wheat, 600 acres of corn, and 975 acres of soybeans in 1992. The farm flexed its NFA corn and wheat to soybeans and generated about 37 percent of its total receipts from corn.
- SCLG** a 3,500-acre South Carolina (Clarendon County) large grain farm with 880 acres of wheat, 315 acres of cotton, 1,330 acres of corn, and 1,915 acres of soybeans in 1992. The farm flexed NFA wheat to soybeans. About 35 percent of total receipts for the farm came from corn.

Characteristics of Panel Farms Producing Feed Grains.

	NPMG	NPLG	BLMC	CBLC	SCMG	SCLG
Total Cropland Acres Owned	1600.	4500.	1200.	1700.	1500.	3500.
Acres Leased	320.	900.	250.	300.	500.	1400.
	1280.	3600.	950.	1400.	1000.	2100.
Assets (\$1000)						
Total	646.	1604.	582.	605.	849.	2773.
Real Estate	175.	510.	250.	269.	536.	1846.
Machinery	389.	638.	229.	203.	185.	590.
Other	82.	455.	103.	133.	128.	337.
Debt/Asset Ratios*						
Total	0.17	0.10	0.06	0.21	0.22	0.22
Intermediate	0.18	0.06	0.07	0.23	0.31	0.32
Long Run	0.15	0.18	0.03	0.19	0.17	0.16
1992 Gross Receipts (\$1,000)**						
Total	342.9	872.3	258.2	457.8	485.3	1107.0
Corn	163.8 47.8%	356.8 40.9%	0.0 0.0%	0.0 0.0%	179.8 37.0%	384.1 34.7%
Sorghum	83.2 24.3%	252.5 28.9%	107.8 41.8%	124.6 27.2%	0.0 0.0%	0.0 0.0%
Wheat	95.9 28.0%	263.0 30.1%	0.0 0.0%	0.0 0.0%	131.8 27.2%	164.3 14.8%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	173.8 35.8%	358.7 32.4%
Cotton	0.0 0.0%	0.0 0.0%	150.4 58.2%	333.2 72.8%	0.0 0.0%	199.8 18.1%
1992 Planted Acres***						
Total	1322.4	3396.2	1098.0	1581.0	2175.0	4440.0
Corn	446.5 33.8%	995.6 29.3%	0.0 0.0%	0.0 0.0%	600.0 27.6%	1330.0 30.0%
Sorghum	362.3 27.4%	1056.6 31.1%	684.0 62.3%	816.0 51.6%	0.0 0.0%	0.0 0.0%
Wheat	513.6 38.8%	1344.0 39.6%	0.0 0.0%	0.0 0.0%	600.0 27.6%	880.0 19.8%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	975.0 44.8%	1915.0 43.1%
Cotton	0.0 0.0%	0.0 0.0%	414.0 37.7%	765.0 48.4%	0.0 0.0%	315.0 7.1%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## FEED GRAIN IMPACTS

- The tables and charts in this section include projections for all AFPC panel farms that produce a feed grain (corn, sorghum, barley, and oats) regardless of the feed grain's percentage contribution to total receipts.
  - Feed grains contribute more than 50 percent of the gross receipts on the NEMG (95 percent), NELG (96 percent), IAMG (59 percent), IALG (55 percent), NPMG (72 percent), and NPLG (70 percent) farms.
  - Feed grains contribute 33 to 50 percent of the gross receipts on the MOLG (42 percent), BLMC (42 percent), SCMG (37 percent), and SCLG (35 percent) farms.
  - The WAMG (8 percent), WALG (6 percent), NDMG (33 percent), NDLG (32 percent), CBLC (27 percent), MOMG (32 percent), MOMR (20 percent), MOLR (3 percent), and KSMG (17 percent) farms generate less than 33 percent of the farm's gross receipts from feed grains.
- All farms experienced an increase in net cash farm income in 1992 (see charts) reflecting above trend feed grain yields. Higher 1992 sorghum, corn, and wheat yields helped offset the loss of deficiency payments due to the 1990 Budget Reconciliation Act NFA provisions.
- Under the FAPRI Baseline, net cash incomes will decline for all of the feed grain farms in 1993, despite higher corn, sorghum, and barley prices. The explanation is that yields for sorghum, corn, and wheat will return to trend, and inflation will increase input costs.
- For the 1993-1997 period, prices for all program crops were not projected to exceed frozen target price levels. Therefore, the revenue was effectively frozen while input cost continued to escalate at 3 to 4 percent per year. The resulting cost price squeeze caused nominal net cash farm income for all of the 19 farms to decline from 1992 to 1997. Real net cash farm income decreases ranged from 17 percent on the IALG to 121 percent for the KSMG farm.
- Although nominal net cash farm income declined for all 19 feed grain farms, 13 of the 19 increased real net worth due to debt reduction, retained earnings, and experienced modest increases in land values.
- Two of the farms losing real equity, WAMG and WALG, generated less than 10 percent of their receipts from feed grains. Of the remaining four, the large Missouri rice farm (MOLR) lost about 7 percent of its real equity. The moderate Nebraska (NEMG) farm was vulnerable (31 percent loss) due to relatively small average annual cash receipts (\$199,000) and an unfavorable ratio of cash costs to receipts (93 percent). The KSMG

farm lost more than 80 percent of its real net worth and exited farming in 1996 due to an unfavorable ratio of costs to receipts (92 percent).

- The moderate Northern High Plains grain farm (NPMG) generated more than \$330,000 annually in cash receipts but still lost 12 percent of its real equity over the study period. Because the farm had a cash cost to receipts ratio of 85 percent, it was not able to retain sufficient earnings to accumulate real net worth.
- The large Iowa grain farm (IALG) experienced real growth of about 64 percent. The farm is the most efficient of all the feed grain farms when the criteria is the ratio of cash costs to receipts (45.4 percent). The farm easily covered family living expenses, principal payments, and capital replacement with net cash farm income averaging \$132,000 per year.
- The NPLG farm experienced an average real net worth growth of about 49 percent. The farm is not as efficient as its Iowa counterpart with cash expenses averaging 67.5 cents per dollar of receipts. Due to its size (4,500 acres), however, the irrigated NPLG farm annually generated about \$841,000 of cash receipts with an average annual net cash farm income of \$274,000.
- In the major feed grain producing regions (Iowa, Nebraska, Missouri and Texas High Plains), the large farms experienced a significant advantage in economic viability when compared to their moderate scale counterparts. All had significantly lower cash expense to revenue ratios with the differences ranging from approximately 9 percentage points in Missouri to 21 percentage points in Nebraska.
- A 24 percent increase in annual cash receipts was required to neutralize the loss in real net worth for the moderate Nebraska grain farm (NEMG) and the KSMG farm. This fraction, referred to as the net income adjustment (NIA), is 16 percent for the WAMG farm, 2.7 percent for the WALG farm, and 3.8 percent for the NPMG farm.
- The WALG, NDLG, NELG, MOMR, MOLR, NPLG, CBLC, and SCLG all received average annual government payments in excess of the \$50,000 payment limit. A \$100,000 limit, with both spouses qualifying as a "person," would have allowed on average all but the MOLR, NPLG, and SCLG farm to not leave substantial government payment money on the table. The MOLR needed 5 "persons" involved with the operation or else government payments would need to be restricted.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Feed Grains.

	WAMG	WALG	NDMG	NDLG	NEMG	NELG
Average Change in Real Net Worth (%)	-13.28	-3.59	12.36	6.06	-31.13	2.66
Average Annual Ratio Expense/Receipts (%)	77.15	77.50	67.84	75.48	93.43	72.22
Average Present Value End Net Worth (\$1000)	962.64	2630.96	290.49	1073.54	492.19	2206.56
Average Annual Cash Receipts (\$1000)	233.84	730.56	193.56	501.99	199.36	593.64
Average Annual Cash Expenses (\$1000)	180.17	565.52	130.49	376.15	186.00	428.00
Average Annual Net Cash Income (\$1000)	53.67	165.04	63.08	125.84	13.36	165.64
Average Change Real Net Cash Farm Income (%)	-29.60	-25.69	-52.35	-51.05	-110.21	-33.77
Average Annual Govt. Payments (\$1000)	22.08	72.35	22.08	56.35	26.37	73.72
Average Annual Cash Receipts (\$1000)						
1992	230.66	718.47	199.00	509.67	208.20	620.21
1993	229.46	717.60	193.33	499.63	186.52	554.54
1994	225.46	706.10	192.12	499.88	197.17	585.23
1995	237.79	742.18	194.57	508.11	199.95	595.45
1996	239.20	747.05	193.52	503.04	201.76	602.56
1997	240.46	751.94	188.85	491.62	202.58	603.88
Average Annual Net Cash Income (\$1000)						
1992	59.80	178.93	79.76	158.10	37.15	199.35
1993	54.60	165.02	69.17	138.73	14.59	137.23
1994	49.16	149.21	63.94	128.05	18.53	161.46
1995	55.11	172.02	64.37	123.89	10.31	168.46
1996	52.74	165.28	55.55	113.27	4.15	168.67
1997	50.59	159.77	45.68	93.01	-4.56	158.67

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Feed Grains.

	IAMG	IALG	MOMG	MOLG	MOMR	MOLR	KSMG
Average Change in Real Net Worth (%)	9.55	64.49	1.78	28.34	27.26	-6.70	-80.76
Average Annual Ratio Expense/Receipts (%)	61.37	45.41	65.76	56.38	60.89	87.24	91.88
Average Present Value End Net Worth (\$1000)	268.61	541.46	578.90	1156.23	1410.54	1748.40	40.79
Average Annual Cash Receipts (\$1000)	141.41	241.27	194.44	355.21	492.22	957.56	128.21
Average Annual Cash Expenses (\$1000)	86.50	109.23	127.50	199.83	299.57	834.53	117.51
Average Annual Net Cash Income (\$1000)	54.91	132.05	66.95	155.38	192.65	123.03	10.70
Average Change Real Net Cash Farm Income (%)	-39.23	-16.80	-41.10	-23.05	-31.44	-87.10	-120.73
Average Annual Govt. Payments (\$1000)	12.04	21.57	15.34	28.01	101.37	216.93	20.70
Average Annual Cash Receipts (\$1000)							
1992	140.75	240.29	191.70	353.73	501.97	975.25	126.27
1993	132.21	225.51	182.71	333.58	482.37	942.23	128.79
1994	142.34	243.06	195.14	354.55	492.52	953.68	125.67
1995	148.10	252.61	200.52	366.58	493.49	971.47	130.34
1996	142.26	242.39	202.13	367.82	494.56	955.03	130.72
1997	142.78	243.79	194.46	355.02	488.44	947.68	
Average Annual Net Cash Income (\$1000)							
1992	58.91	131.67	70.80	158.33	211.49	206.20	25.27
1993	51.20	120.04	62.73	141.55	191.46	160.86	24.26
1994	59.65	133.80	72.16	155.88	197.44	143.07	5.91
1995	61.79	144.49	77.23	164.59	193.34	121.40	3.28
1996	54.88	130.65	68.65	165.52	187.95	74.67	-5.55
1997	43.02	131.65	50.11	146.41	174.24	31.97	

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1996.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Feed Grains.

	NPMG	NPLG	BLMC	CBLC	SCMG	SCLG
Average Change in Real Net Worth (%)	-12.39	49.00	51.69	29.35	42.67	28.09
Average Annual Ratio Expense/Receipts (%)	85.23	67.49	51.72	78.08	67.97	71.97
Average Present Value End Net Worth (\$1000)	449.22	1874.10	730.59	550.80	859.02	2549.84
Average Annual Cash Receipts (\$1000)	330.19	841.26	254.52	446.78	486.93	1104.83
Average Annual Cash Expenses (\$1000)	281.20	567.32	131.10	346.96	329.93	791.94
Average Annual Net Cash Income (\$1000)	48.99	273.94	123.42	99.81	157.00	312.90
Average Change Real Net Cash Farm Income (%)	-75.66	-39.17	-24.42	-51.11	-27.46	-30.13
Average Annual Govt. Payments (\$1000)	44.83	113.82	55.82	96.98	47.16	135.50
Average Annual Cash Receipts (\$1000)						
1992	342.89	872.30	258.22	457.79	485.30	1106.95
1993	319.58	816.20	245.90	452.11	466.68	1044.33
1994	323.62	823.06	253.52	434.13	490.17	1090.61
1995	330.04	842.32	250.32	443.40	494.83	1120.48
1996	335.99	856.26	257.55	442.82	497.21	1154.44
1997	329.00	837.41	261.62	450.40	487.38	1112.17
Average Annual Net Cash Income (\$1000)						
1992	78.03	324.27	132.56	128.38	162.63	340.44
1993	56.34	270.89	123.34	120.71	146.77	282.16
1994	52.66	270.54	125.47	99.38	166.91	307.31
1995	45.83	270.46	117.85	91.14	162.65	318.81
1996	38.27	270.42	120.92	83.82	161.29	342.81
1997	22.82	237.03	120.39	75.43	141.76	285.84

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

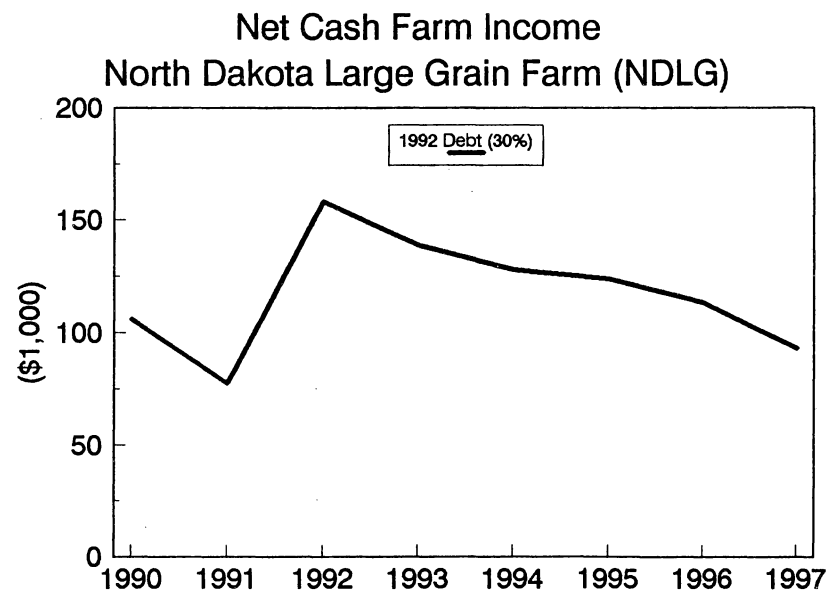
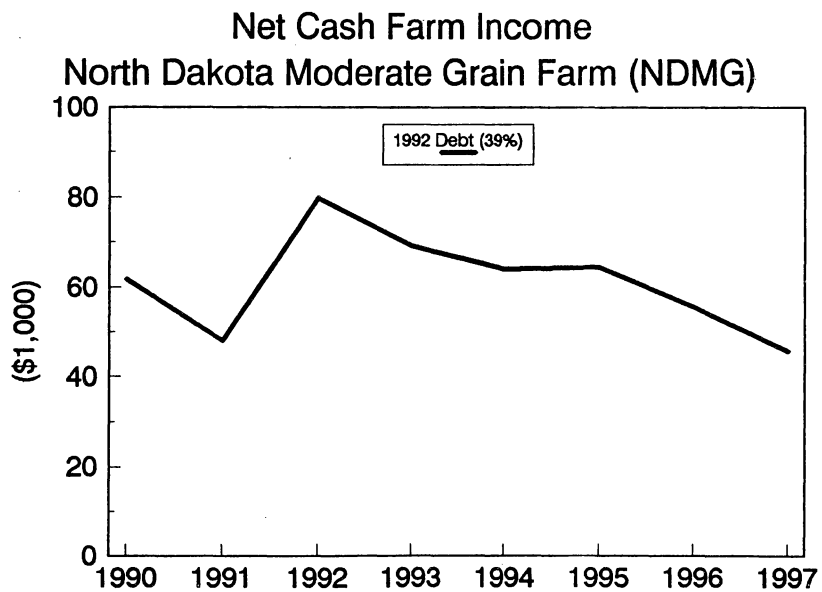
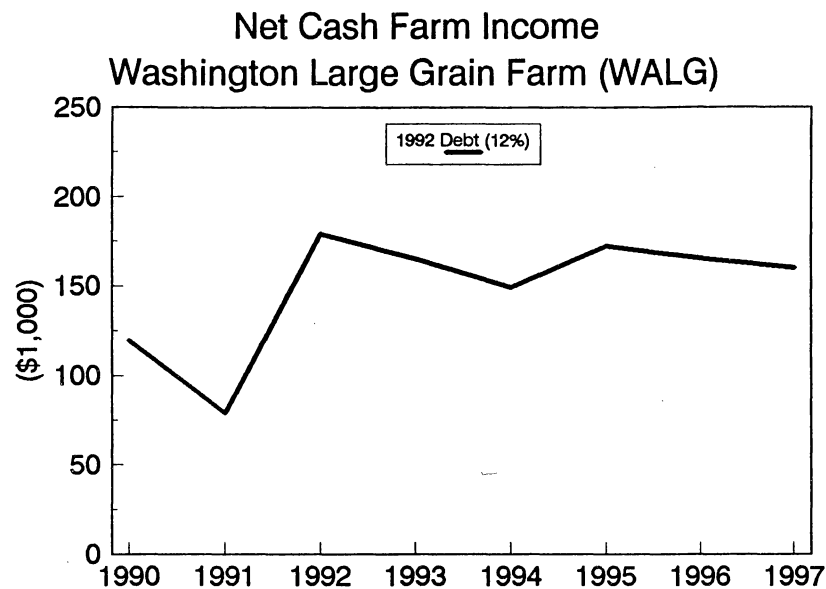
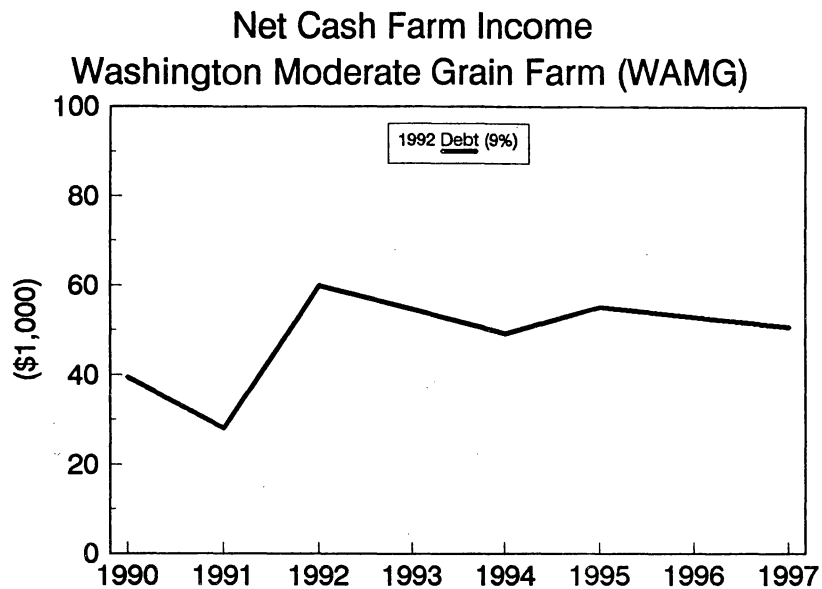
Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

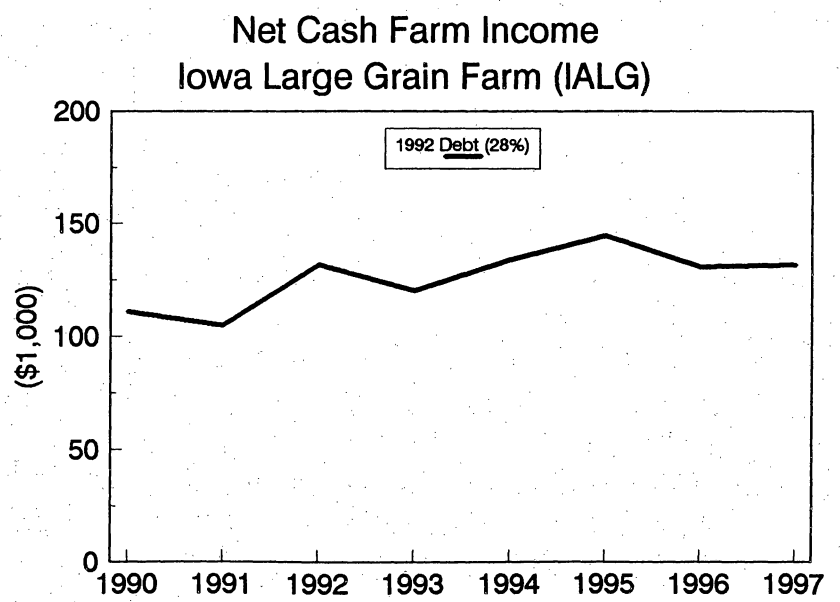
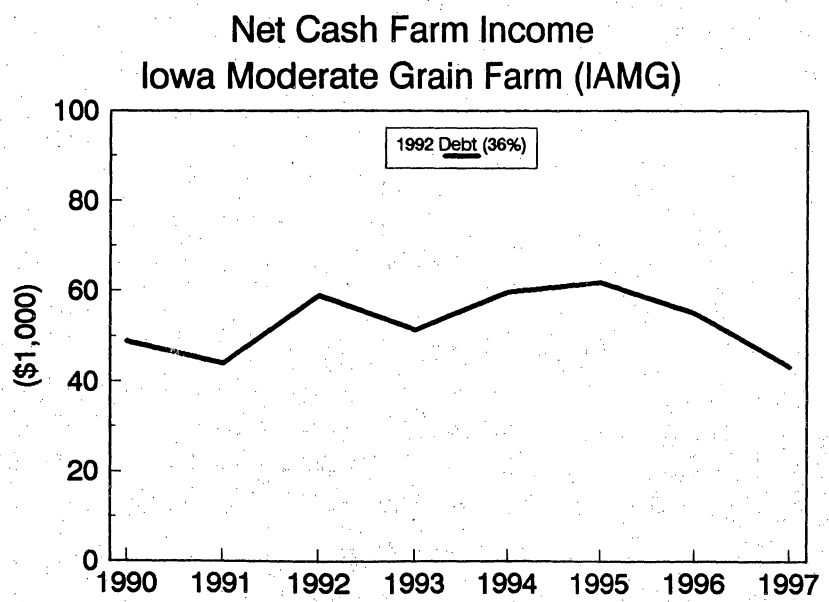
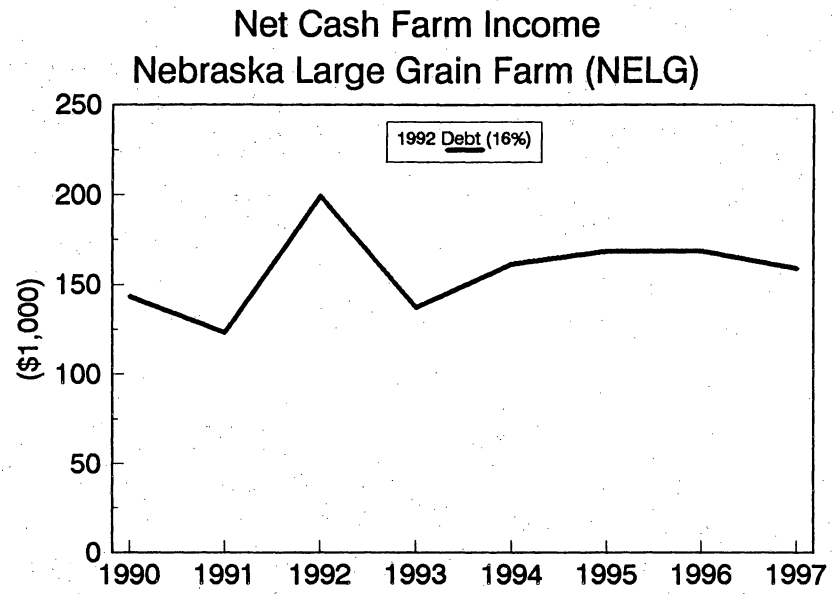
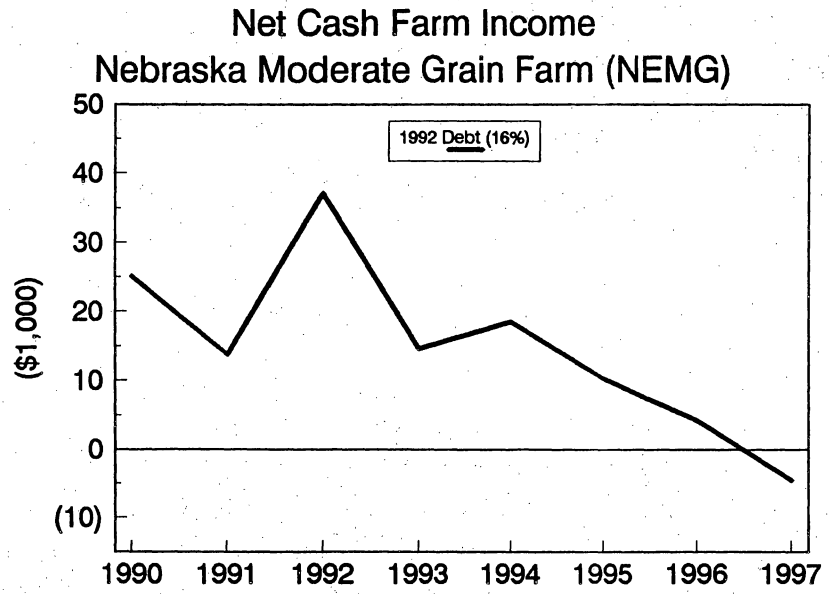
Annual Net Cash Income - Total cash receipts minus total cash expenses; excludes family living expenses, principal payments, and costs to replace capital assets.

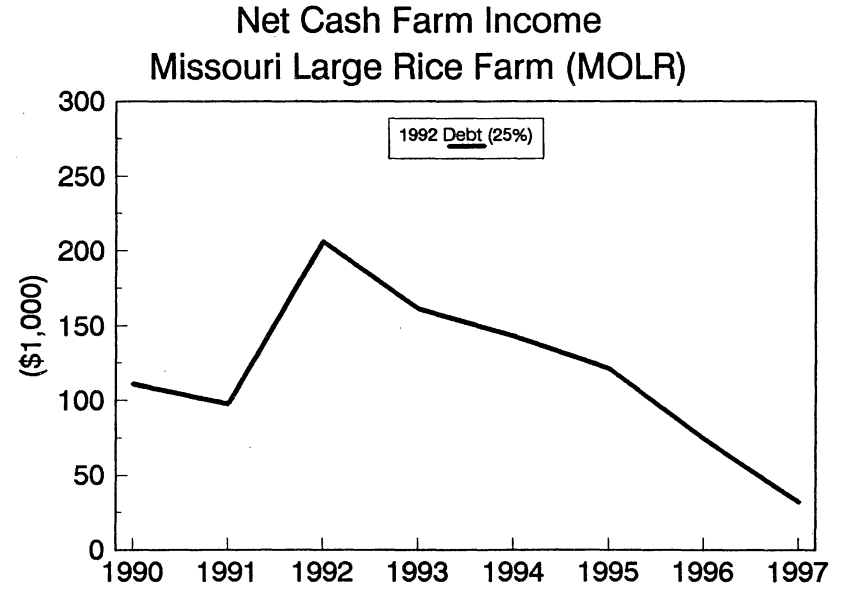
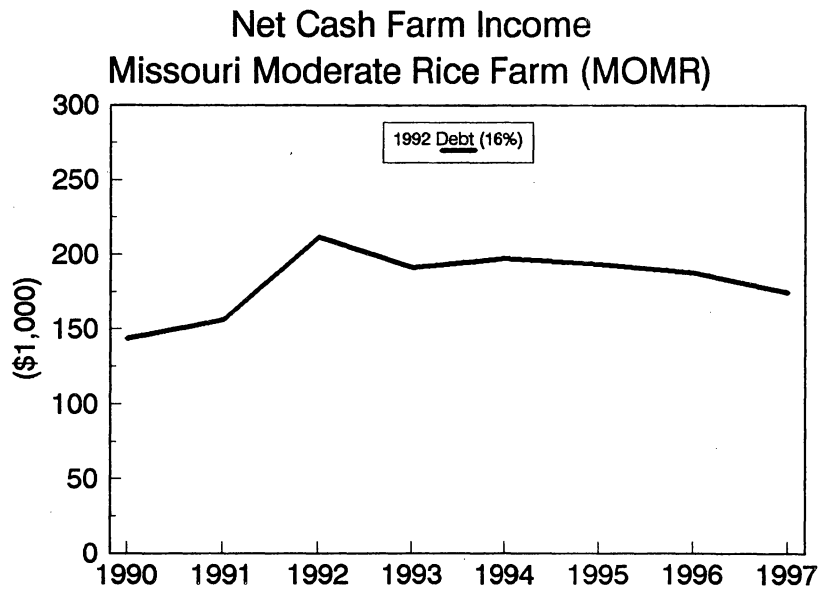
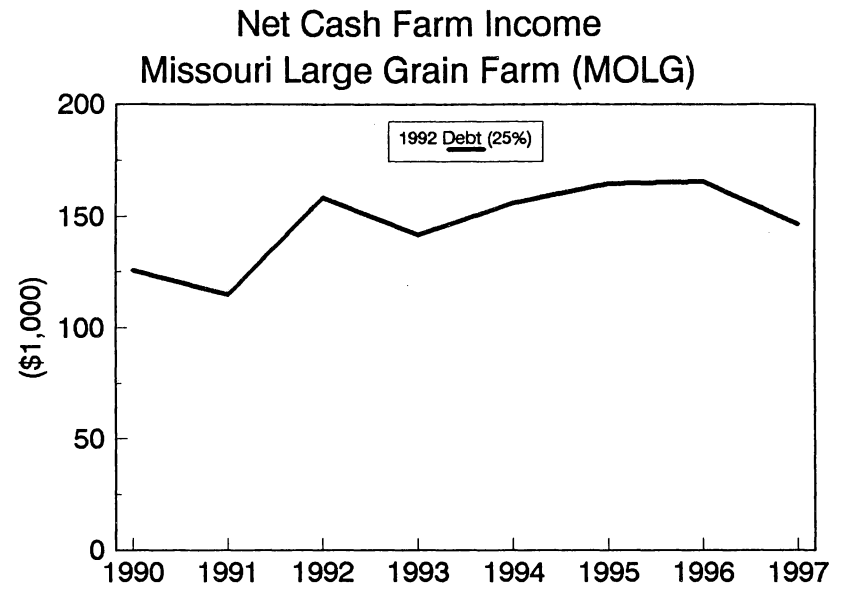
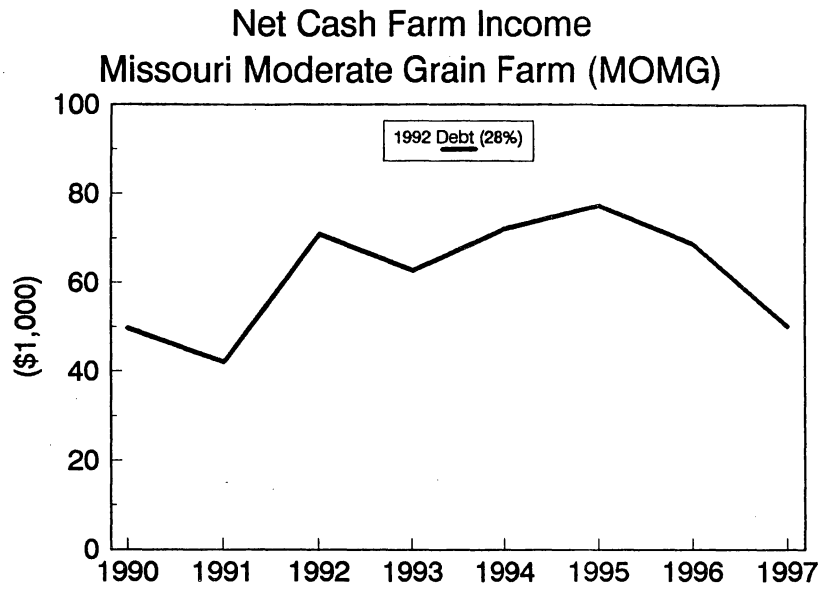
Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

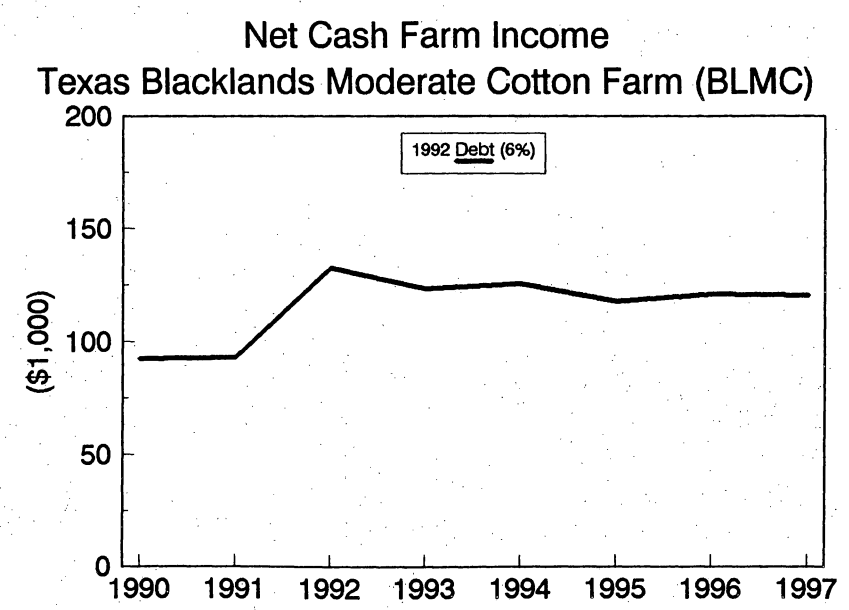
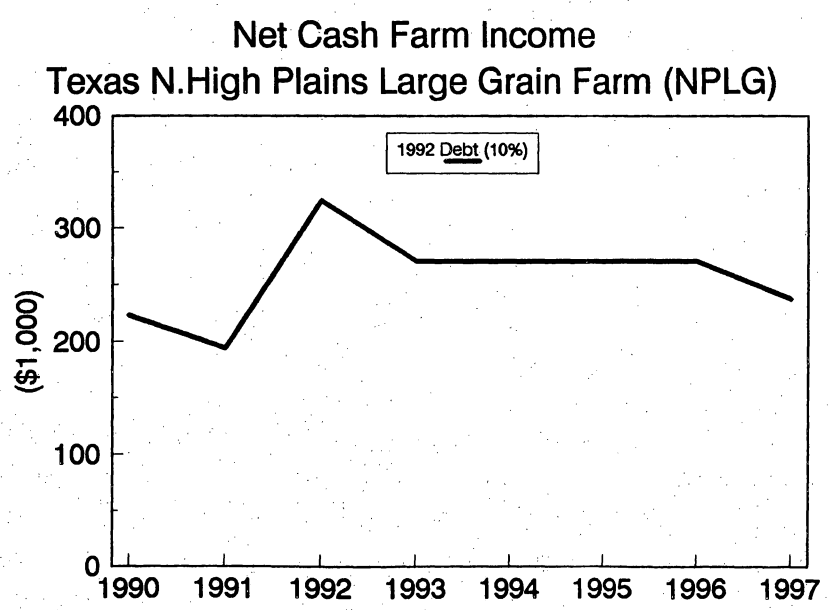
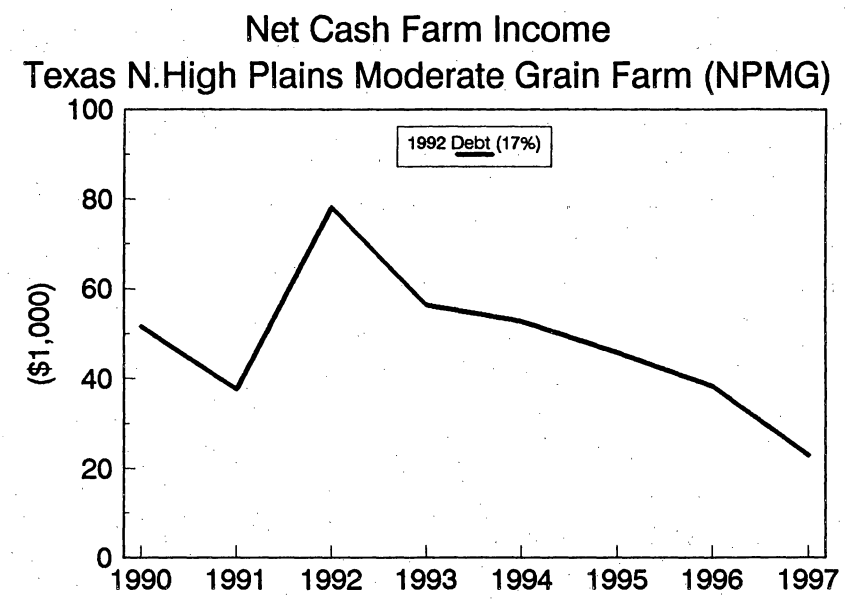
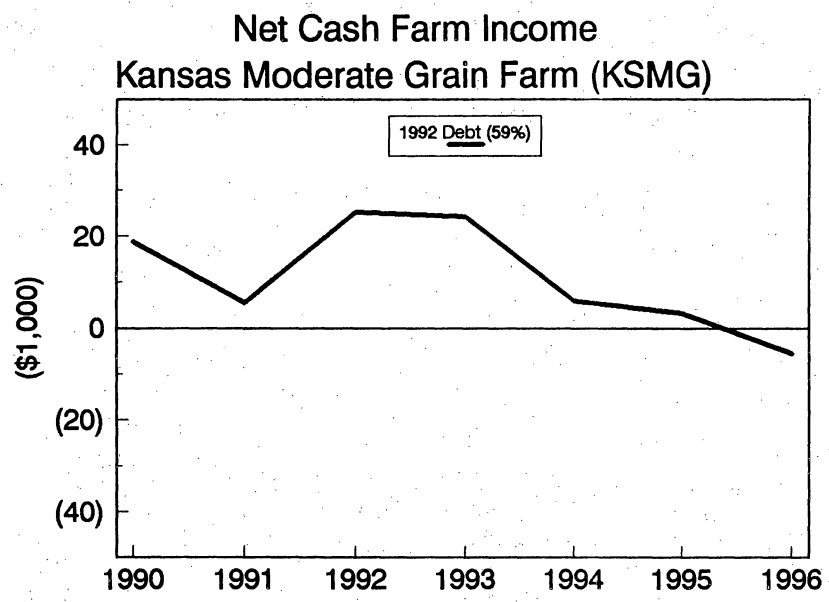
Annual Government Payments - Total deficiency, diversion, and other program payments.



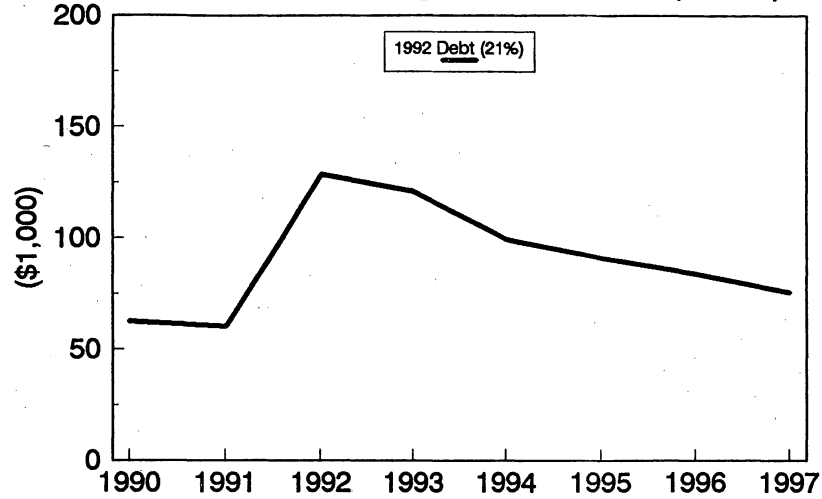




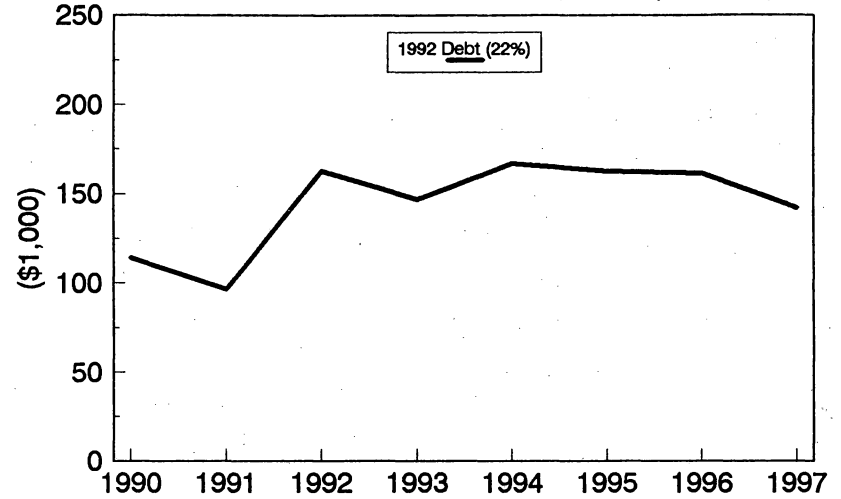




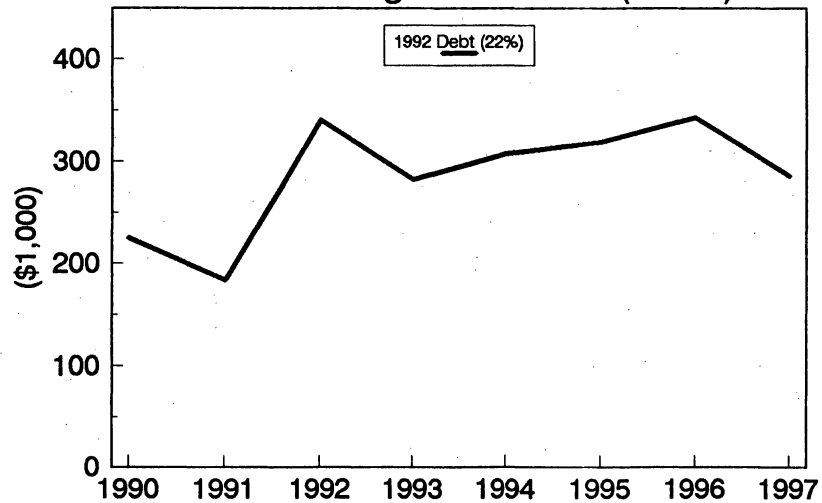
Net Cash Farm Income  
Texas Coastal Bend Large Cotton Farm (CBLC)



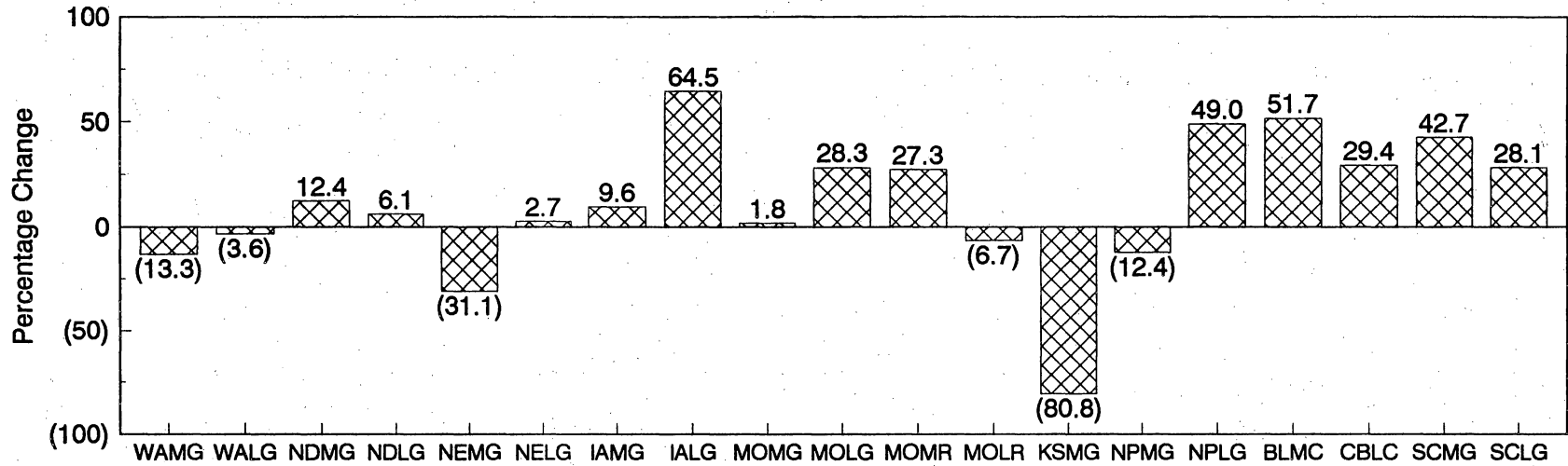
Net Cash Farm Income  
South Carolina Moderate Grain Farm (SCMG)



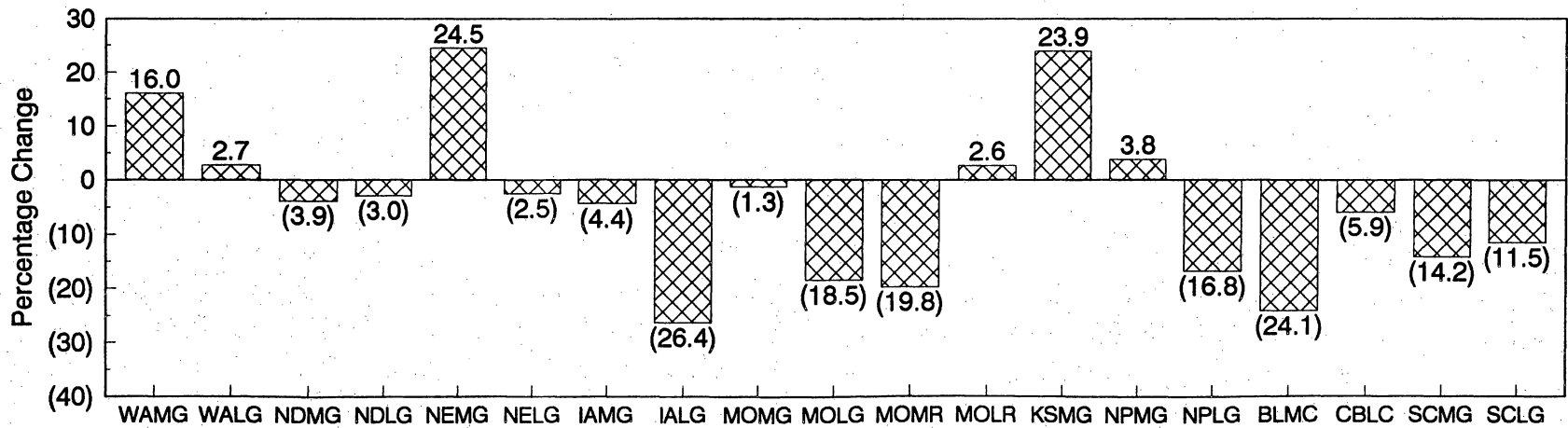
Net Cash Farm Income  
South Carolina Large Grain Farm (SCLG)



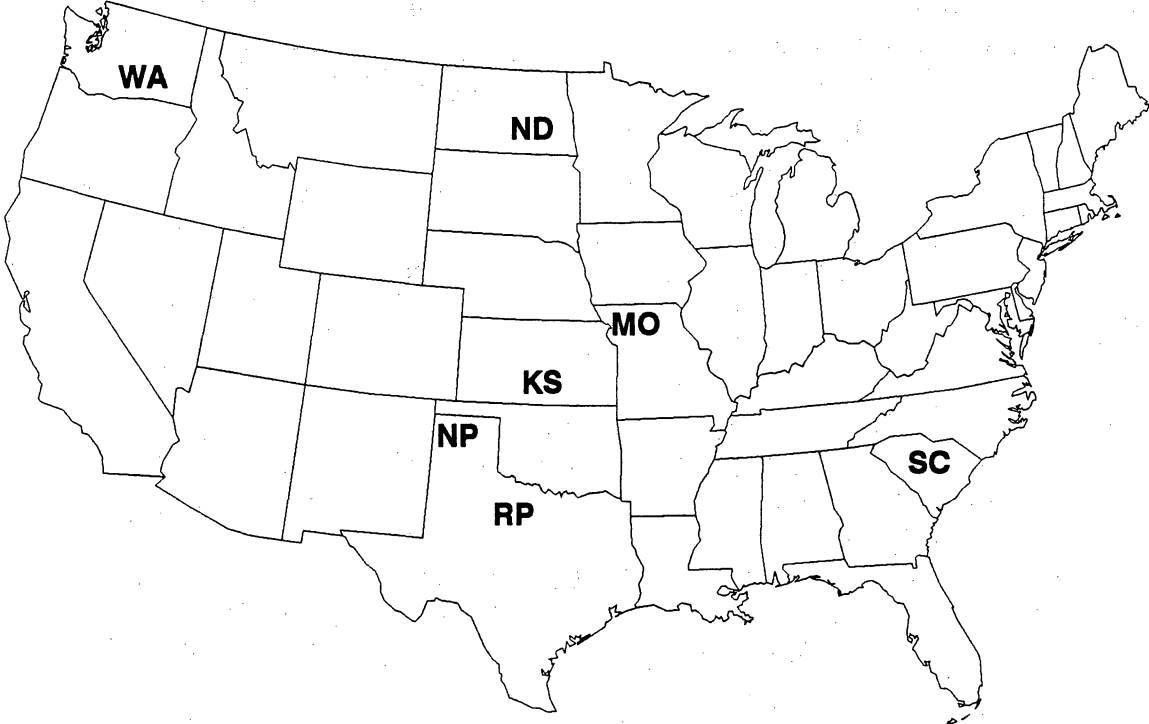
Real Change in Net Worth for All  
Feed Grain Farms, 1992 to 1997



Annual Percentage Change in Receipts Needed  
to Maintain Real Net Worth From 1992 to 1997:  
Feed Grain Farms



# Panel Farms Producing Wheat



## CHARACTERISTICS OF PANEL FARMS PRODUCING WHEAT

- WAMG** a 1,276-acre Southeastern Washington (Whitman County) moderate size grain farm that grew 583 acres of wheat, 131 acres of barley, and 498 acres of dry peas in 1992. The farm flexed NFA and OFA barley acreage to wheat and generated about 63 percent of its revenue from wheat.
- WALG** a 4,250-acre Southeastern Washington (Whitman County) large grain farm that grew 1,900 acres of wheat, 294 acres of barley, and 1,890 acres of dry peas in 1992. The farm flexed NFA and OFA barley to wheat and generated about 63 percent of its receipts from wheat.
- NDMG** a 1,600-acre South Central North Dakota (Barnes County) moderate size grain farm that grew 640 acres of wheat, 320 acres of barley, and 580 acres of sunflowers in 1992. The farm flexed NFA wheat and barley acreage to sunflowers and received about 44 percent of its receipts from wheat.
- NDLG** a 4,000-acre South Central North Dakota (Barnes County) large grain farm that grew 1,760 acres of wheat, 1,280 acres of barley, and 800 acres of sunflowers in 1992. The farm flexed NFA wheat acreage to barley and received about 50 percent of its receipts from wheat.
- KSMG** a 1,175-acre South Central Kansas (Sumner County) moderate size grain farm that grew 880 acres of wheat and 236 acres of sorghum in 1992. The farm flexed NFA wheat to sorghum and generated about 83 percent of its total revenue from wheat in 1992.
- KSLG** a 2,500-acre South Central Kansas (Sumner County) large grain farm that grew 2,375 acres of wheat in 1992. The farm grew only wheat and, therefore, had no flex alternatives. Wheat generated 100 percent of the revenue on this farm.
- MOMG** a 1,100-acre North Central Missouri (Carroll County) moderate size grain farm with 160 acres of wheat, 240 acres of corn, and 575 acres of soybeans in 1992. The farm flexed NFA corn and wheat acreage to soybeans and generated about 16 percent of its total revenue from wheat.
- MOLG** a 2,100-acre North Central Missouri (Carroll County) large grain farm with 320 acres of wheat, 630 acres of corn, and 1,000 acres of soybeans in 1992. The farm flexed NFA wheat acres to corn and generated about 16 percent of its total revenue from wheat.



Characteristics of Panel Farms Producing Wheat.

	WAMG	WALG	NDMG	NDLG	KSMG	KSLG	MOMG	MOLG
Total Cropland	1276.	4250.	1600.	4000.	1175.	2500.	1100.	2100.
Acres Owned	638.	1700.	400.	1600.	388.	250.	550.	840.
Acres Leased	638.	2550.	1200.	2400.	787.	2250.	550.	1260.
Assets (\$1000)								
Total	1233.	3176.	464.	1552.	483.	676.	822.	1310.
Real Estate	946.	2397.	179.	732.	311.	327.	564.	918.
Machinery	258.	648.	242.	694.	172.	349.	242.	292.
Other	28.	131.	43.	127.	0.	0.	16.	100.
Debt/Asset Ratios*								
Total	0.09	0.12	0.39	0.30	0.59	0.53	0.28	0.25
Intermediate	0.08	0.17	0.49	0.34	0.47	0.41	0.26	0.19
Long Run	0.10	0.10	0.25	0.26	0.65	0.66	0.29	0.28
1992 Gross Receipts (\$1,000)**								
Total	230.7	718.5	199.0	509.7	126.3	242.7	191.7	353.7
Wheat	144.5 62.7%	456.1 63.5%	87.1 43.8%	252.9 49.6%	104.7 82.9%	242.7 100.0%	29.9 15.6%	56.1 15.9%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	60.7 31.7%	148.0 41.9%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	21.5 17.1%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Barley	18.5 8.0%	40.7 5.7%	62.0 31.2%	163.0 32.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	101.1 52.7%	149.6 42.3%
Dry Peas	67.6 29.3%	221.6 30.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Sunflowers	0.0 0.0%	0.0 0.0%	49.9 25.1%	93.8 18.4%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***								
Total	1212.4	4084.5	1540.0	3840.0	1116.3	2375.0	975.0	1950.0
Wheat	583.5 48.1%	1900.5 46.5%	640.0 41.6%	1760.0 45.8%	880.0 78.8%	2375.0 100.0%	160.0 16.4%	320.0 16.4%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	240.0 24.6%	630.0 32.3%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	236.3 21.2%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Barley	130.9 10.8%	294.0 7.2%	500.0 32.5%	1280.0 33.3%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	575.0 59.0%	1000.0 51.3%
Dry Peas	498.0 41.1%	1890.0 46.3%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Sunflowers	0.0 0.0%	0.0 0.0%	400.0 26.0%	800.0 20.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING WHEAT - Continued

- NPMG** a 1,600-acre Northern High Plains of Texas (Moore County) moderate size irrigated grain farm with 513 acres of wheat, 362 acres of sorghum, and 446 acres of corn in 1992. The farm flexed NFA wheat to sorghum and generated about 28 percent of its total receipts from wheat.
- NPLG** a 4,500-acre Northern High Plains of Texas (Moore County) large irrigated grain farm with 1,344 acres of wheat, 1,056 acres of sorghum, and 995 acres of corn in 1992. The farm flexed NFA wheat to sorghum and generated about 30 percent of its total revenue from wheat.
- RPMC** a 1,300-acre Rolling Plains of Texas (Jones County) moderate size cotton farm that grew 312 acres of wheat and 604 acres of cotton in 1992. The farm flexed NFA wheat to cotton and generated about 15 percent of its total revenue from wheat in 1992.
- RPLC** a 2,000-acre Rolling Plains of Texas (Jones County) large cotton farm that grew 480 acres of wheat and 930 acres of cotton in 1992. The farm flexed NFA wheat to cotton and generated about 14 percent of its revenue from wheat.
- ARMR** a 1,100-acre Arkansas (Poinsett County) moderate size rice farm that grew 425 acres of rice, 100 acres of wheat, and 594 acres of soybeans in 1992. The farm flexed NFA rice and wheat to soybeans and generated about 5 percent of its gross receipts from wheat.
- SCMG** a 1,500-acre South Carolina (Clarendon County) moderate size grain farm with 600 acres of wheat, 600 acres of corn, and 975 acres of soybeans in 1992. The farm flexed its NFA corn and wheat to soybeans and generated 27 percent of its total receipts from wheat.
- SCLG** a 3,500-acre South Carolina (Clarendon County) large grain farm with 880 acres of wheat, 315 acres of cotton, 1,330 acres of corn, and 1,915 acres of soybeans in 1992. The farm flexed NFA wheat to soybeans. About 15 percent of total receipts for the farm came from wheat.

Characteristics of Panel Farms Producing Wheat.

	NPMG	NPLG	RPMC	RPLC	ARMR	SCMG	SCLG
Total Cropland	1600.	4500.	1300.	2000.	1100.	1500.	3500.
Acres Owned	320.	900.	325.	400.	440.	500.	1400.
Acres Leased	1280.	3600.	975.	1600.	660.	1000.	2100.
Assets (\$1000)							
Total	646.	1604.	330.	454.	906.	849.	2773.
Real Estate	175.	510.	176.	222.	537.	536.	1846.
Machinery	389.	638.	114.	204.	228.	185.	590.
Other	82.	455.	40.	28.	142.	128.	337.
Debt/Asset Ratios*							
Total	0.17	0.10	0.23	0.25	0.05	0.22	0.22
Intermediate	0.18	0.06	0.29	0.30	0.10	0.31	0.32
Long Run	0.15	0.18	0.18	0.20	0.01	0.17	0.16
1992 Gross Receipts (\$1,000)**							
Total	342.9	872.3	154.4	273.5	385.8	485.3	1107.0
Wheat	95.9 28.0%	263.0 30.1%	22.7 14.7%	38.0 13.9%	18.3 4.8%	131.8 27.2%	164.3 14.8%
Corn	163.8 47.8%	356.8 40.9%	0.0 0.0%	0.0 0.0%	0.0 0.0%	179.8 37.0%	384.1 34.7%
Sorghum	83.2 24.3%	252.5 28.9%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Cotton	0.0 0.0%	0.0 0.0%	131.7 85.3%	235.5 86.1%	0.0 0.0%	0.0 0.0%	199.8 18.1%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	113.0 29.4%	173.8 35.8%	358.7 32.4%
Rice	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	253.5 65.9%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***							
Total	1322.4	3396.2	915.9	1409.7	1118.8	2175.0	4440.0
Wheat	513.6 38.8%	1344.0 39.6%	312.0 34.1%	480.0 34.0%	100.0 8.9%	600.0 27.6%	880.0 19.8%
Corn	446.5 33.8%	995.6 29.3%	0.0 0.0%	0.0 0.0%	0.0 0.0%	600.0 27.6%	1330.0 30.0%
Sorghum	362.3 27.4%	1056.6 31.1%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Cotton	0.0 0.0%	0.0 0.0%	603.9 65.9%	929.7 66.0%	0.0 0.0%	0.0 0.0%	315.0 7.1%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	593.8 53.1%	975.0 44.8%	1915.0 43.1%
Rice	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	425.0 38.0%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## WHEAT IMPACTS

- The tables and charts in this section include projections for all AFPC panel farms that produce wheat regardless of the wheat's percentage contribution to total receipts.
  - Wheat contributes more than 40 percent of the gross receipts on the WAMG (63 percent), WALG (63 percent), NDMG (43 percent), NDLG (49 percent), KSMG (83 percent), and KSLG (100 percent) farms.
  - All other farms in this section -- MOMG (16 percent), MOLG (16 percent), NPMG (28 percent), NPLG (30 percent), RPMC (15 percent), RPLC (14 percent), ARMR (5 percent), SCMG (27 percent), and SCLG (15 percent) -- generated less than one-third of their revenues from wheat.
- Significantly higher wheat yields in 1992 over 1991 resulted in increased net cash incomes in 1992 over the low values in 1991 for all 15 wheat farms. The increase in wheat yields and reduced ARP requirements more than offset the loss in deficiency payments due to the NFA provisions from 1990.
- In 1993 net cash incomes on all 15 wheat farms fell as wheat yields returned to their trend values and wheat prices fell by 40 cents per bushel. Because receipts are largely protected from price declines by deficiency payments, the lower net cash incomes in 1993 are a result of lower yields.
- For the 1992-97 period, prices for all program crops were not projected to exceed frozen target price levels. Therefore, the revenue base was effectively frozen while input cost continued to escalate. This cost price squeeze resulted in all 15 farms experiencing lower nominal net cash farm income in 1997 than they generated in 1992. Real net cash farm income declined 25 to 131 percent from 1992 to 1997 for the wheat farms.
- Unlike feed grains, the farms that are dependent on wheat for the majority of their revenue had difficulty in protecting their equity over the 1992-1997 period. The Kansas moderate grain farm went out of business over the period while its larger scale counterpart lost 45 percent of its real equity. The moderate Washington farm (WAMG) lost 13 percent of its equity and the large farm (WALG) lost about 4 percent.
- The Kansas wheat farms needed increased annual revenues of 23.8 percent for the moderate operation (KSMG) and 11.9 percent for the larger farm (KSLG) to maintain real equity during the study period. The WAMG and the WALG farms would need 16 and 3 percent, respectively.
- Payment limits did not appear to be a significant issue with the farms heavily dependent on wheat for their primary source of revenue. Qualifying both spouses as a "person" would have eliminated the major wheat farms from leaving government payments on the table.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Wheat.

	WAMG	WALG	NDMG	NDLG	KSMG	KSLG	MOMG	MOLG
Average Change in Real Net Worth (%)	-13.28	-3.59	12.36	6.06	-80.76	-40.21	1.78	28.34
Average Annual Ratio Expense/Receipts (%)	77.15	77.50	67.84	75.48	91.88	86.04	65.76	56.38
Average Present Value End Net Worth (\$1000)	962.64	2630.96	290.49	1073.54	40.79	187.89	578.90	1156.23
Average Annual Cash Receipts (\$1000)	233.84	730.56	193.56	501.99	128.21	244.14	194.44	355.21
Average Annual Cash Expenses (\$1000)	180.17	565.52	130.49	376.15	117.51	209.45	127.50	199.83
Average Annual Net Cash Income (\$1000)	53.67	165.04	63.08	125.84	10.70	34.69	66.95	155.38
Average Change Real Net Cash Farm Income (%)	-29.60	-25.69	-52.35	-51.05	-120.73	-85.72	-41.10	-23.05
Average Annual Govt. Payments (\$1000)	22.08	72.35	22.08	56.35	20.70	39.04	15.34	28.01
Average Annual Cash Receipts (\$1000)								
1992	230.66	718.47	199.00	509.67	126.27	242.66	191.70	353.73
1993	229.46	717.60	193.33	499.63	128.79	244.51	182.71	333.58
1994	225.46	706.10	192.12	499.88	125.67	243.75	195.14	354.55
1995	237.79	742.18	194.57	508.11	130.34	249.87	200.52	366.58
1996	239.20	747.05	193.52	503.04	130.72	239.31	202.13	367.82
1997	240.46	751.94	188.85	491.62		244.75	194.46	355.02
Average Annual Net Cash Income (\$1000)								
1992	59.80	178.93	79.76	158.10	25.27	55.41	70.80	158.33
1993	54.60	165.02	69.17	138.73	24.26	50.62	62.73	141.55
1994	49.16	149.21	63.94	128.05	5.91	43.22	72.16	155.88
1995	55.11	172.02	64.37	123.89	3.28	36.68	77.23	164.59
1996	52.74	165.28	55.55	113.27	-5.55	12.70	68.65	165.52
1997	50.59	159.77	45.68	93.01		9.51	50.11	146.41

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.  
Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.  
Annual Cash Receipts - Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.  
Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.  
Annual Net Cash Income - Total cash receipts minus total cash expenses; excludes family living expenses, principal payments, and costs to replace capital assets.  
Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.  
Annual Government Payments - Total deficiency, diversion, and other program payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Wheat.

	NPMG	NPLG	RPMC	RPLC	ARMR	SCMG	SCLG
Average Change in Real Net Worth (%)	-12.39	49.00	-49.27	-53.23	22.47	42.67	28.09
Average Annual Ratio Expense/Receipts (%)	85.23	67.49	87.61	92.34	65.51	67.97	71.97
Average Present Value End Net Worth (\$1000)	449.22	1874.10	126.49	149.62	977.50	859.02	2549.84
Average Annual Cash Receipts (\$1000)	330.19	841.26	148.32	260.11	378.10	486.93	1104.83
Average Annual Cash Expenses (\$1000)	281.20	567.32	127.12	234.00	247.55	329.93	791.94
Average Annual Net Cash Income (\$1000)	48.99	273.94	21.20	26.11	130.54	157.00	312.90
Average Change Real Net Cash Farm Income (%)	-75.66	-39.17	-113.00	-131.45	-41.14	-27.46	-30.13
Average Annual Govt. Payments (\$1000)	44.83	113.82	37.93	67.80	89.81	47.16	135.50
Average Annual Cash Receipts (\$1000)							
1992	342.89	872.30	154.45	273.46	385.83	485.30	1106.95
1993	319.58	816.20	147.59	260.75	370.28	466.68	1044.33
1994	323.62	823.06	147.29	259.99	381.69	490.17	1090.61
1995	330.04	842.32	142.92	252.45	379.42	494.83	1120.48
1996	335.99	856.26	160.56	281.30	381.97	497.21	1154.44
1997	329.00	837.41	139.87	243.59	369.38	487.38	1112.17
Average Annual Net Cash Income (\$1000)							
1992	78.03	324.27	40.71	61.68	149.66	162.63	340.44
1993	56.34	270.89	32.61	48.07	135.89	146.77	282.16
1994	52.66	270.54	26.70	33.28	139.67	166.91	307.31
1995	45.83	270.46	16.00	15.01	128.05	162.65	318.81
1996	38.27	270.42	16.23	17.08	124.13	161.29	342.81
1997	22.82	237.03	-4.42	-15.82	105.86	141.76	285.84

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

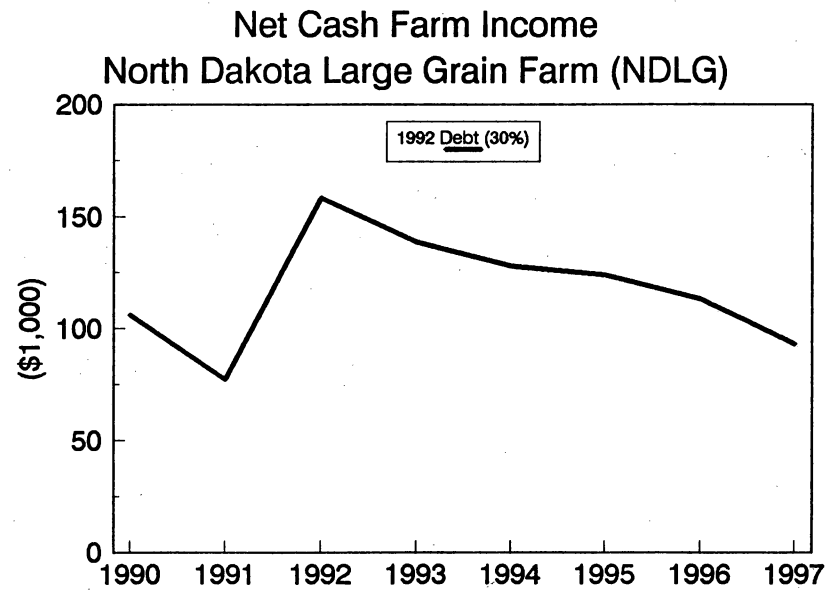
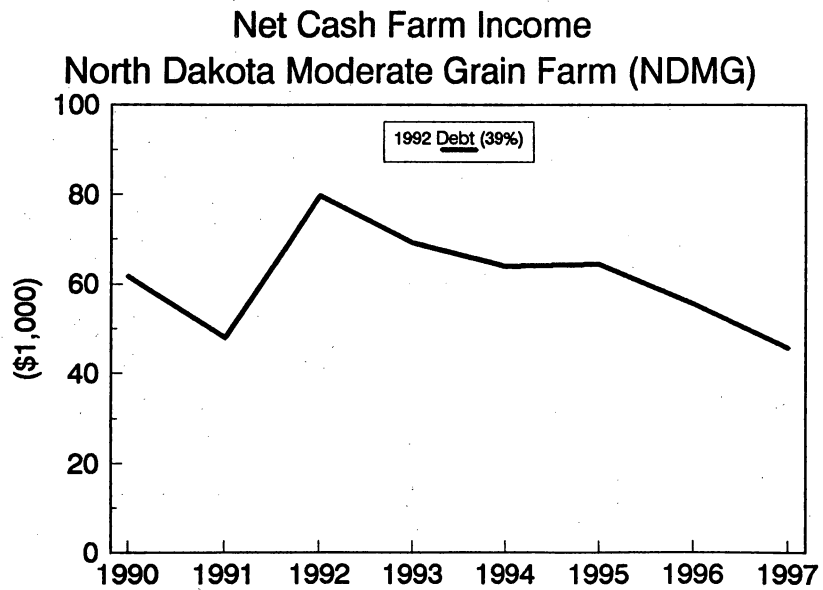
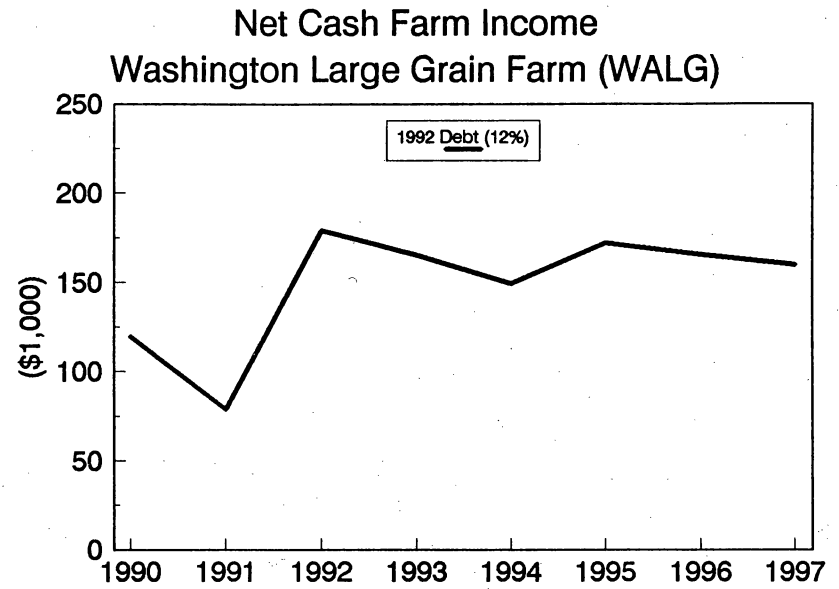
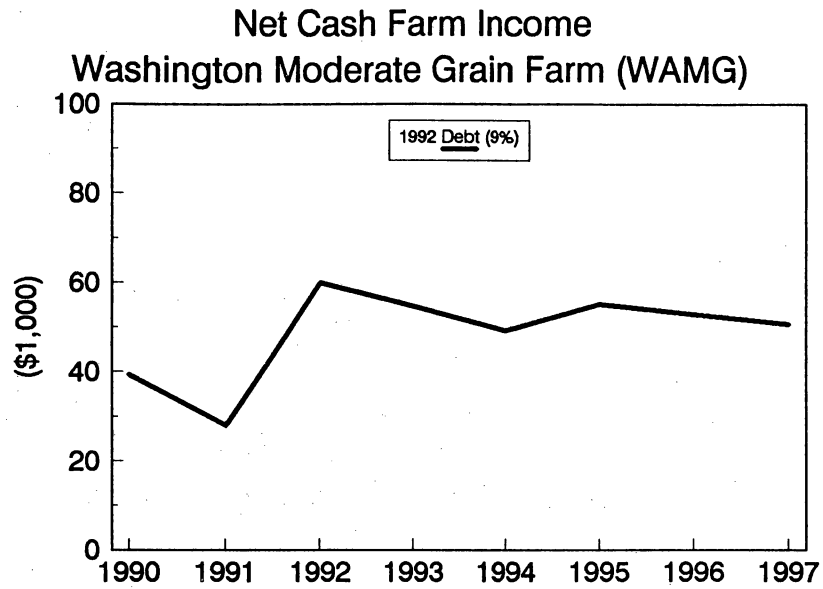
Annual Cash Receipts - Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.

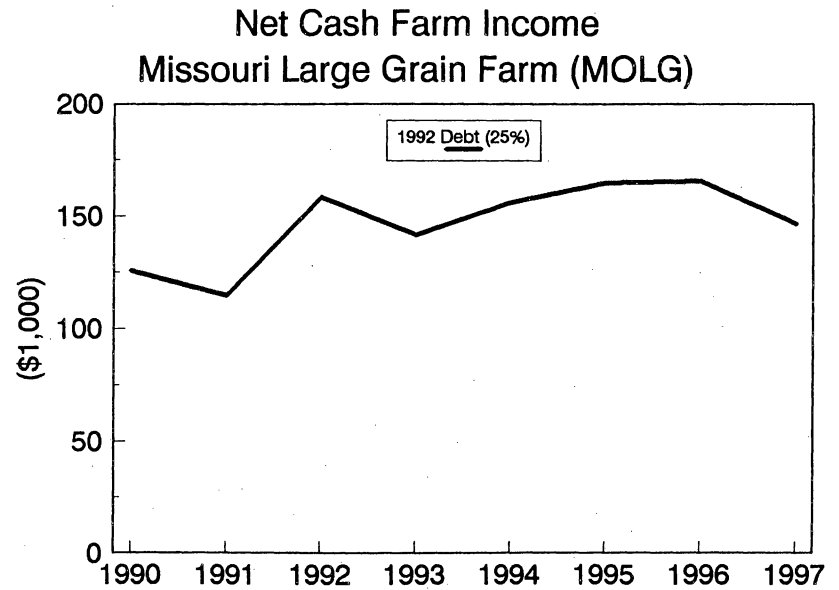
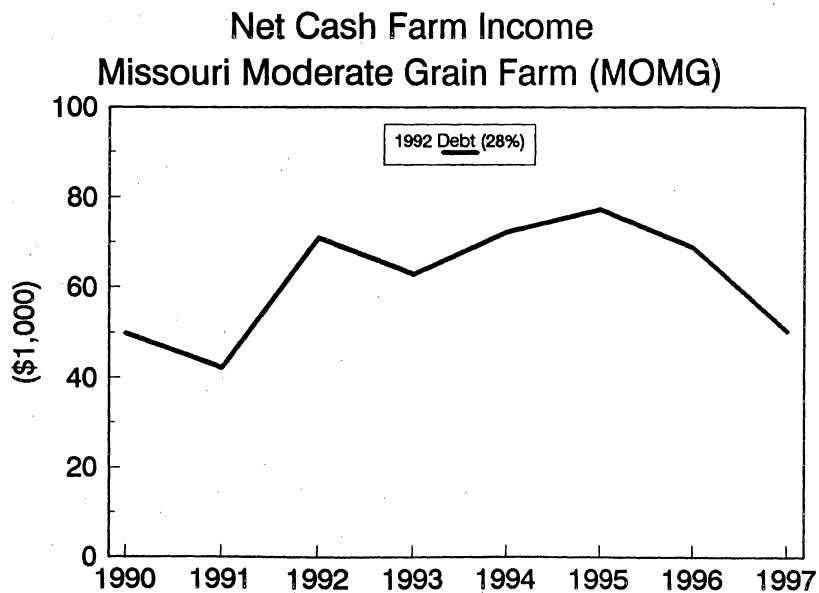
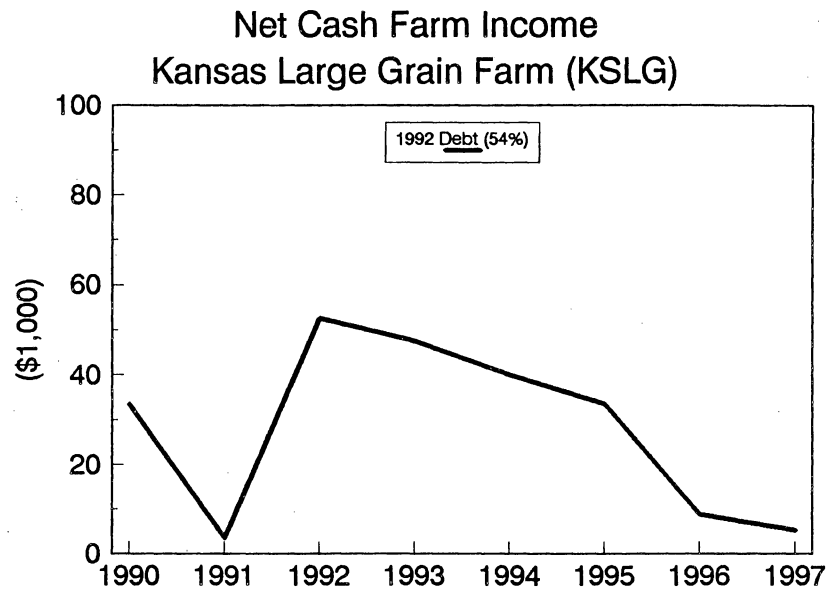
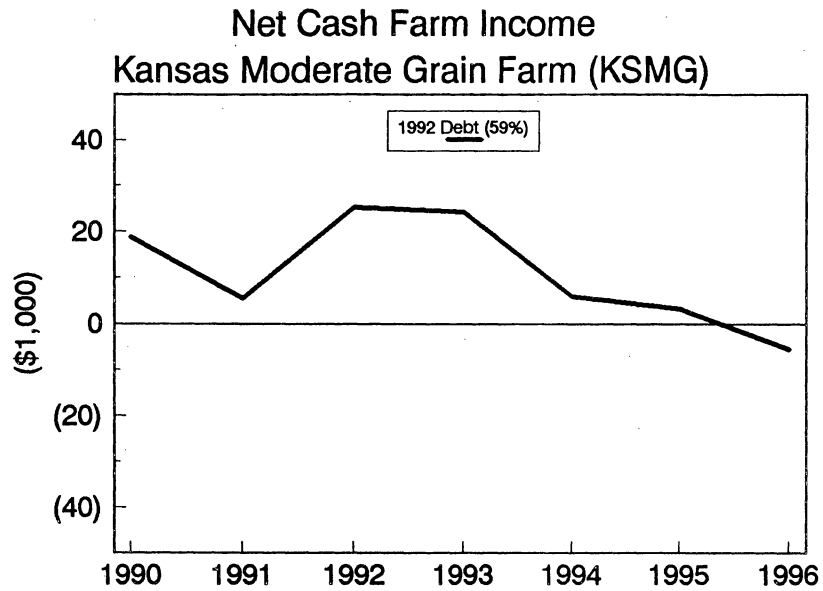
Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

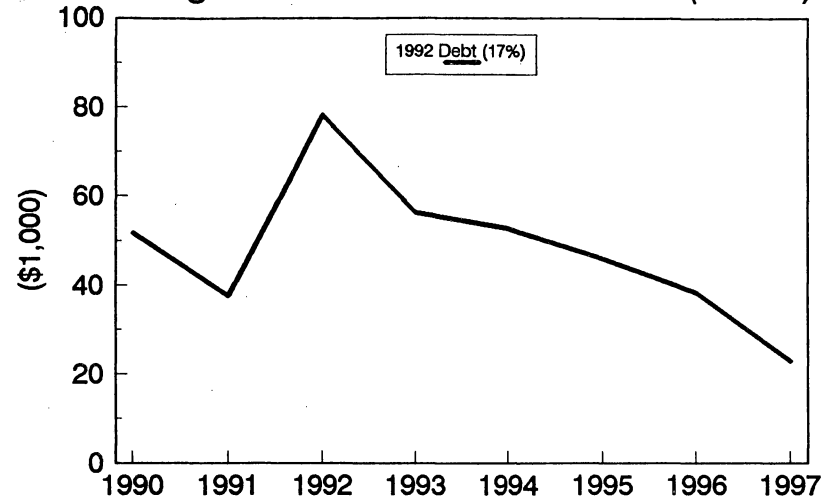
Annual Government Payments - Total deficiency, diversion, and other program payments.



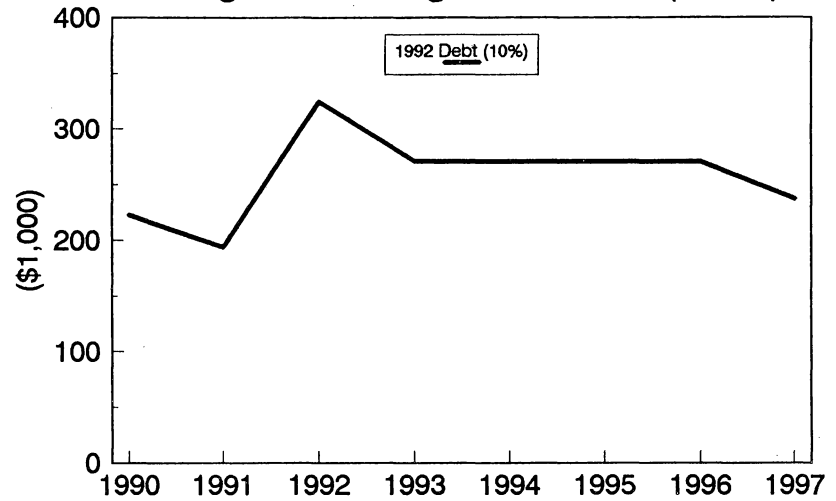




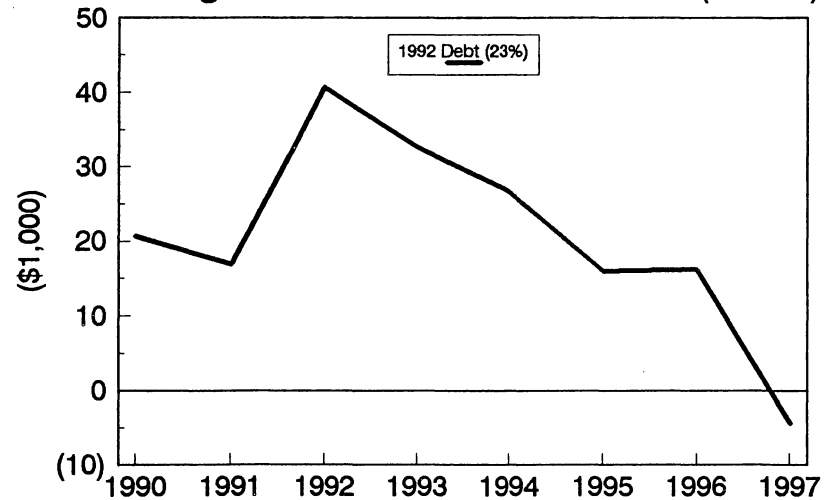
Net Cash Farm Income  
Texas N.High Plains Moderate Grain Farm (NPMG)



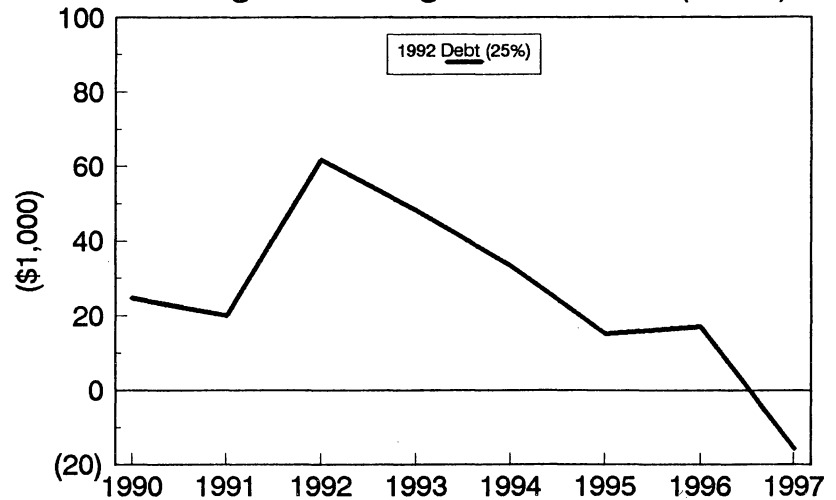
Net Cash Farm Income  
Texas N.High Plains Large Grain Farm (NPLG)



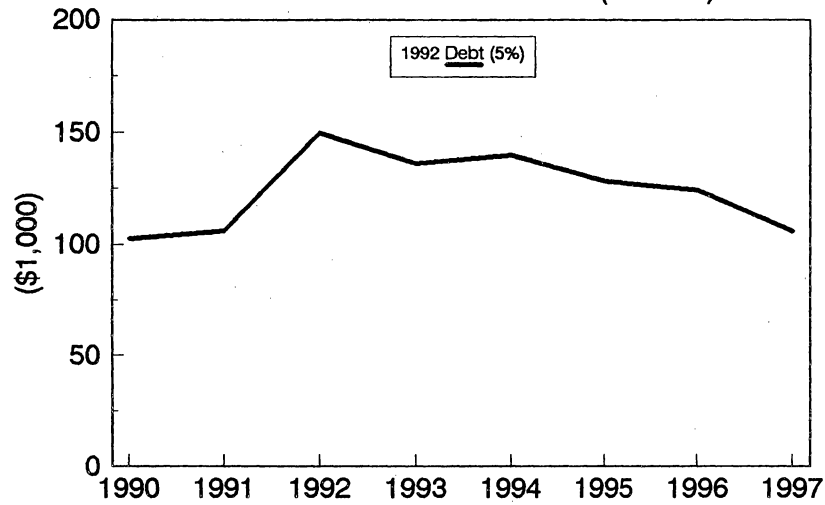
Net Cash Farm Income  
Texas Rolling Plains Moderate Cotton Farm (RPMC)



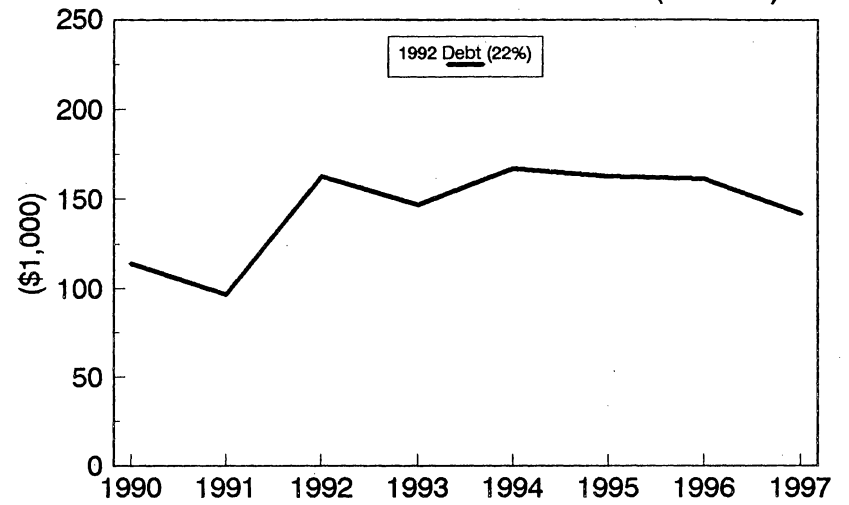
Net Cash Farm Income  
Texas Rolling Plains Large Cotton Farm (RPLC)



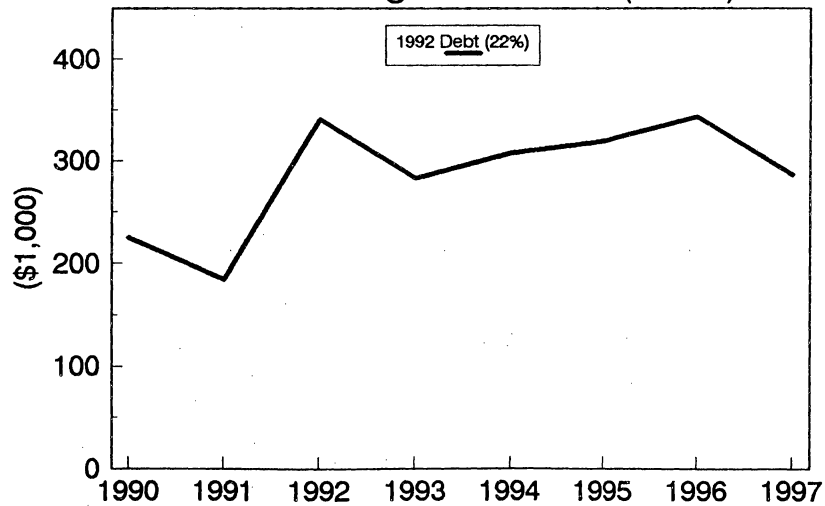
Net Cash Farm Income  
Arkansas Moderate Rice Farm (ARMR)



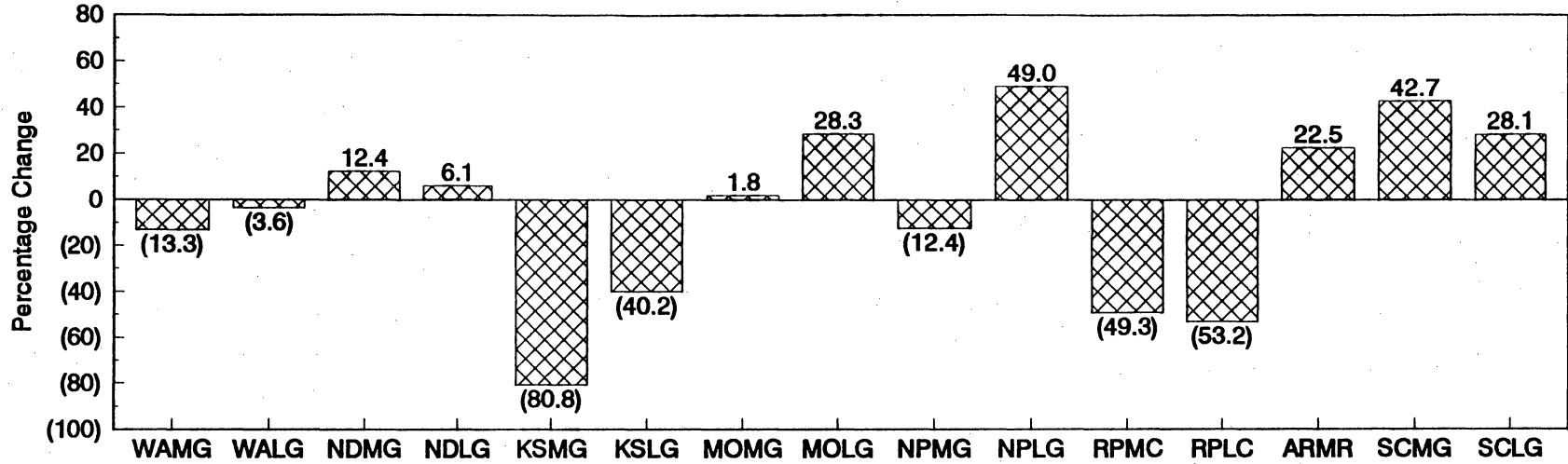
Net Cash Farm Income  
South Carolina Moderate Grain Farm (SCMG)



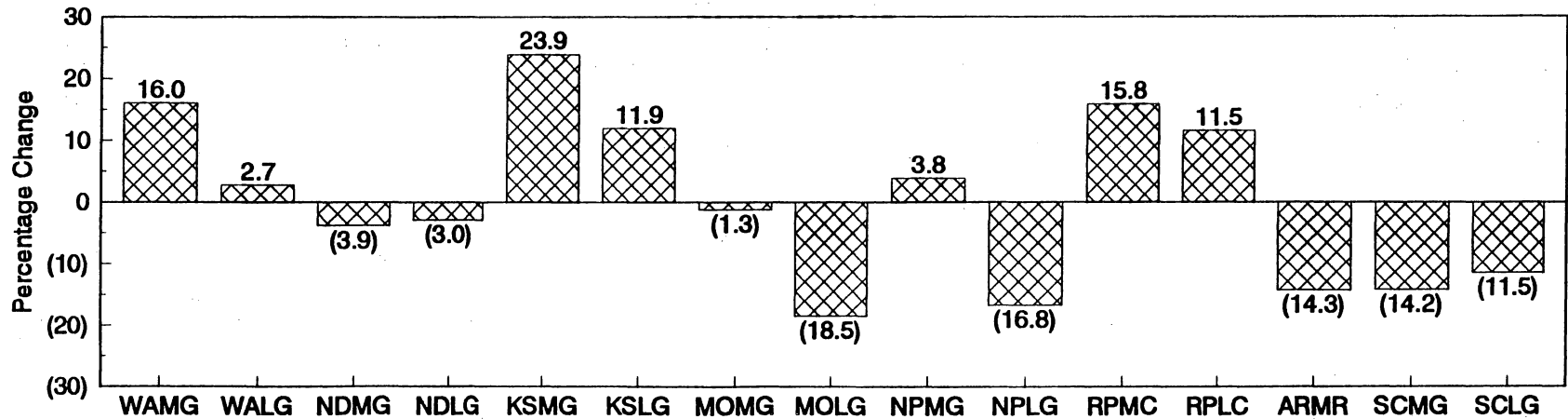
Net Cash Farm Income  
South Carolina Large Grain Farm (SCLG)



### Real Change in Net Worth for All Wheat Farms, 1992 to 1997

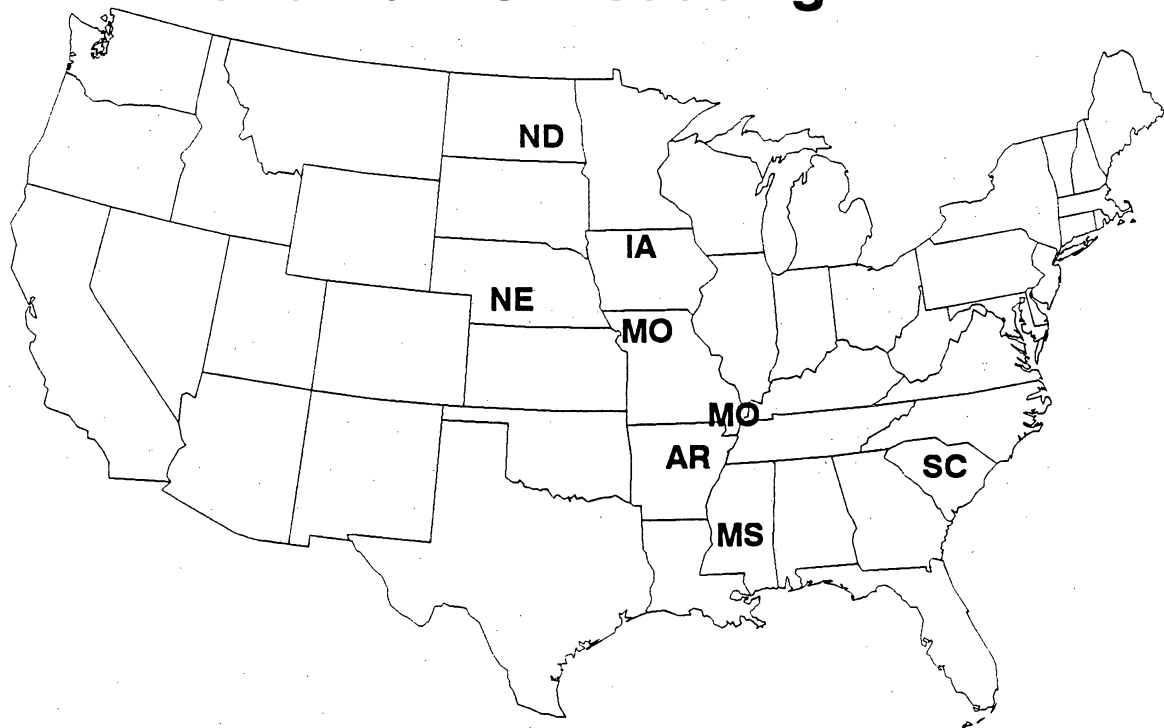


### Annual Percentage Change in Receipts Needed to Maintain Real Net Worth From 1992 to 1997: Wheat Farms





# Panel Farms Producing Oilseeds



## CHARACTERISTICS OF PANEL FARMS PRODUCING OILSEEDS

- NDMG** a 1,600-acre South Central North Dakota (Barnes County) moderate size grain farm that grew 640 acres of wheat, 500 acres of barley, and 400 acres of sunflowers in 1992. The farm flexed NFA wheat acreage to barley and received about 25 percent of its receipts from sunflowers.
- NDLG** a 4,000-acre South Central North Dakota (Barnes County) large grain farm that grew 1,760 acres of wheat, 1,280 acres of barley, and 800 acres of sunflowers in 1992. The farm flexed NFA wheat acreage to barley and received about 18 percent of its receipts from sunflowers.
- NEMG** a 630-acre South Central Nebraska (Phelps County) moderate size irrigated grain farm that grew 513 acres of corn and 60 acres of soybeans in 1992. The farm did not flex any crops and generated 5 percent of its gross receipts from soybeans.
- NELG** a 1,575-acre South Central Nebraska (Phelps County) large irrigated grain farm that grew 1,330 acres of corn and 100 acres of soybeans in 1992. The farm did not flex any crops and generated about 3 percent of its gross receipts from soybeans.
- IAMG** a 680-acre Northwestern Iowa (Webster County) moderate size grain farm that grew 304 acres of corn and 325 acres of soybeans in 1992. The farm did not flex any crops and received about 41 percent of its receipts from soybeans.
- IALG** a 1,320-acre Northwestern Iowa (Webster County) large grain farm that grew 563 acres of corn and 681 acres of soybeans in 1992. The farm flexed NFA corn to soybeans and generated about 45 percent of its gross receipts from soybeans.
- MOMG** a 1,100-acre North Central Missouri (Carroll County) moderate size grain farm with 160 acres of wheat, 240 acres of corn, and 575 acres of soybeans in 1992. The farm flexed NFA wheat and corn to soybeans and generated about 53 percent of its total revenue from soybeans.
- MOLG** a 2,100-acre North Central Missouri (Carroll County) large grain farm with 320 acres of wheat, 630 acres of corn, and 1,000 acres of soybeans in 1992. The farm flexed NFA wheat to corn and generated about 42 percent of its total revenue from soybeans.

Characteristics of Panel Farms Producing Oilseeds.

	NDMG	NDLG	NEMG	NELG	IAMG	IALG	MOMG	MOLG
Total Cropland	1600.	4000.	630.	1575.	680.	1320.	1100.	2100.
Acres Owned	400.	1600.	315.	1040.	140.	132.	550.	840.
Acres Leased	1200.	2400.	315.	535.	540.	1188.	550.	1260.
Assets (\$1000)								
Total	464.	1552.	860.	2664.	406.	519.	822.	1310.
Real Estate	179.	732.	609.	1986.	259.	236.	564.	918.
Machinery	242.	694.	249.	481.	111.	194.	242.	292.
Other	43.	127.	2.	197.	35.	89.	16.	100.
Debt/Asset Ratios*								
Total	0.39	0.30	0.16	0.16	0.36	0.28	0.28	0.25
Intermediate	0.49	0.34	0.07	0.13	0.31	0.17	0.26	0.19
Long Run	0.25	0.26	0.20	0.17	0.39	0.42	0.29	0.28
1992 Gross Receipts (\$1,000)**								
Total	199.0	509.7	208.2	620.2	140.8	240.3	191.7	353.7
Soybeans	0.0 0.0%	0.0 0.0%	11.3 5.4%	20.7 3.3%	58.0 41.2%	108.2 45.0%	101.1 52.7%	149.6 42.3%
Sunflowers	49.9 25.1%	93.8 18.4%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Wheat	87.1 43.8%	252.9 49.6%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	29.9 15.6%	56.1 15.9%
Barley	62.0 31.2%	163.0 32.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	196.9 94.6%	599.5 96.7%	82.8 58.8%	132.1 55.0%	60.7 31.7%	148.0 41.9%
1992 Planted Acres***								
Total	1540.0	3840.0	573.0	1430.0	629.0	1244.8	975.0	1950.0
Soybeans	0.0 0.0%	0.0 0.0%	60.0 10.5%	100.0 7.0%	325.0 51.7%	681.6 54.8%	575.0 59.0%	1000.0 51.3%
Sunflowers	400.0 26.0%	800.0 20.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Wheat	640.0 41.6%	1760.0 45.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	160.0 16.4%	320.0 16.4%
Barley	500.0 32.5%	1280.0 33.3%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	513.0 89.5%	1330.0 93.0%	304.0 48.3%	563.2 45.2%	240.0 24.6%	630.0 32.3%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING OILSEEDS - Continued

- MSMC** a 1,470-acre Mississippi Delta (Washington County) moderate size cotton farm that grew 756 acres of cotton and 560 acres of soybeans in 1992. The farm did not flex any crops and generated about 12 percent of its total receipts from soybeans.
- MSLC** a 3,300-acre Mississippi Delta (Washington County) large cotton farm that grew 1,350 acres of cotton and 1,500 acres of soybeans in 1992. The farm did not flex any crops and generated about 18 percent of its revenue from soybeans.
- ARMR** a 1,100-acre Arkansas (Poinsett County) moderate size rice farm that grew 425 acres of rice, 100 acres of wheat, and 594 acres of soybeans in 1992. The farm flexed NFA wheat to rice and generated about 29 percent of its revenue from soybeans.
- MOMR** a 1,500-acre Southeastern Missouri (Butler County) moderate size rice farm with 600 acres of rice, 190 acres of sorghum, 190 acres of corn, and 500 acres of soybeans in 1992. The farm did not flex rice or feed grain base acres and generated about 19 percent of its receipts from soybeans.
- MOLR** a 3,150-acre Southeastern Missouri (Butler County) large rice farm with 1,275 acres of rice, 142 acres of sorghum, and 1,725 acres of soybeans planted in 1992. The farm did not flex rice or corn base acres and generated about 26 percent of total revenue from soybeans.
- SCMG** a 1,500-acre South Carolina (Clarendon County) moderate size grain farm with 600 acres of wheat, 600 acres of corn, and 975 acres of soybeans in 1992. The farm flexed its NFA corn and wheat to soybeans and generated about 36 percent of its total receipts from soybeans.
- SCLG** a 3,500-acre South Carolina (Clarendon County) large grain farm with 880 acres of wheat, 315 acres of cotton, 1,330 acres of corn and 1,915 acres of soybeans in 1992. The farm flexed NFA wheat to soybeans. About 32 percent of total receipts for the farm came from soybeans.



Characteristics of Panel Farms Producing Oilseeds.

	MSMC	MSLC	ARMR	MOMR	MOLR	SCMG	SCLG
Total Cropland	1470.	3300.	1100.	1500.	3150.	1500.	3500.
Acres Owned	735.	1650.	440.	500.	788.	500.	1400.
Acres Leased	735.	1650.	660.	1000.	2362.	1000.	2100.
Assets (\$1000)							
Total	1507.	3327.	906.	1443.	2683.	849.	2773.
Real Estate	750.	1852.	537.	747.	1555.	536.	1846.
Machinery	552.	1047.	228.	408.	1068.	185.	590.
Other	206.	429.	142.	288.	60.	128.	337.
Debt/Asset Ratios*							
Total	0.10	0.07	0.05	0.16	0.25	0.22	0.22
Intermediate	0.19	0.16	0.10	0.14	0.31	0.31	0.32
Long Run	0.00	0.00	0.01	0.18	0.21	0.17	0.16
1992 Gross Receipts (\$1,000)**							
Total	695.0	1320.3	385.8	502.0	975.2	485.3	1107.0
Soybeans	80.3 11.6%	235.9 17.9%	113.0 29.4%	93.8 18.7%	257.6 26.4%	173.8 35.8%	358.7 32.4%
Cotton	614.7 88.4%	1084.4 82.1%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	199.8 18.1%
Wheat	0.0 0.0%	0.0 0.0%	18.3 4.8%	0.0 0.0%	0.0 0.0%	131.8 27.2%	164.3 14.8%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	60.0 11.9%	0.0 0.0%	179.8 37.0%	384.1 34.7%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	40.6 8.1%	27.4 2.8%	0.0 0.0%	0.0 0.0%
Rice	0.0 0.0%	0.0 0.0%	253.5 65.9%	307.6 61.3%	690.3 70.8%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***							
Total	1316.0	2850.0	1118.8	1480.0	3142.5	2175.0	4440.0
Soybeans	560.0 42.6%	1500.0 52.6%	593.8 53.1%	500.0 33.8%	1725.0 54.9%	975.0 44.8%	1915.0 43.1%
Cotton	756.0 57.4%	1350.0 47.4%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	315.0 7.1%
Wheat	0.0 0.0%	0.0 0.0%	100.0 8.9%	0.0 0.0%	0.0 0.0%	600.0 27.6%	880.0 19.8%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	190.0 12.8%	0.0 0.0%	600.0 27.6%	1330.0 30.0%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	190.0 12.8%	142.5 4.5%	0.0 0.0%	0.0 0.0%
Rice	0.0 0.0%	0.0 0.0%	425.0 38.0%	600.0 40.5%	1275.0 40.6%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## OILSEED IMPACTS

- The tables and charts in this section include projections for all AFPC panel farms that produce oilseeds, regardless of the oilseeds' percentage contribution to total receipts.
  - The North Dakota farms grow sunflowers while all other farms grow soybeans.
  - Oilseeds contribute a majority of the cash receipts on only 7 of the 15 farms. They are primarily grown in rotation programs and in double cropping situations.
- The North Dakota farms are discussed primarily in the wheat section, the Iowa and Nebraska farms in the feed grains section, the Mississippi farms in the cotton section, and the Arkansas farm in the rice section.
- Soybeans are the leading contributors to gross receipts on the MOMG (59 percent), MOLG (51 percent), SCMG (45 percent), SCLG (43 percent), IAMG (52 percent), IALG (55 percent), MSLC (53 percent), ARMR (53 percent), and MOLR (55 percent) farms.
- All 15 farms growing oilseeds experienced reduced nominal net cash farm income over the 1992-1997 study period. Real net cash farm income declined from 16 (IALG) to 110 (NEMG) percent for the oilseed farms during the study period.
- Net cash farm income did not decline significantly until after 1996 for most of the feed grain/oilseed farms (e.g., NDLG, NELG, ARMR, MOMR, MOLG, IAMG, SCMG, and SCLG). Lower soybean prices in 1996 and 1997 took their toll on these farms as inflation continued to increase production costs during the study period.
- The Mississippi cotton and soybean farms experienced substantial decreases in net cash farm income after 1992 due, in part, to lower soybean prices. The same was observed for the MOLR farm which experienced large decreases in net cash income after 1995 as soybean prices declined.
- Real net worth declined 31 percent for the NEMG farm, and 6.7 percent for the MOLR farm. The other oilseed-producing farms experienced real increases in net worth of 1 to 64 percent.
- An annual increase in cash receipts of 24.4 percent was necessary to prevent the loss in real net worth for the NEMG farm. A 2.6 percent increase in receipts for the MOLR farm would have prevented the loss of real net worth.
- The two Mississippi cotton and soybean farms (MSMC and MSLC) would have lost real net worth if cash receipts had fallen by only 0.7 and 0.3, respectively.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Oilseeds.

	NDMG	NDLG	NEMG	NELG	IAMG	IALG	MOMG	MOLG
Average Change in Real Net Worth (%)	12.36	6.06	-31.13	2.66	9.55	64.49	1.78	28.34
Average Annual Ratio Expense/Receipts (%)	67.84	75.48	93.43	72.22	61.37	45.41	65.76	56.38
Average Present Value End Net Worth (\$1000)	290.49	1073.54	492.19	2206.56	268.61	541.46	578.90	1156.23
Average Annual Cash Receipts (\$1000)	193.56	501.99	199.36	593.64	141.41	241.27	194.44	355.21
Average Annual Cash Expenses (\$1000)	130.49	376.15	186.00	428.00	86.50	109.23	127.50	199.83
Average Annual Net Cash Income (\$1000)	63.08	125.84	13.36	165.64	54.91	132.05	66.95	155.38
Average Change Real Net Cash Farm Income (%)	-52.35	-51.05	-110.21	-33.77	-39.23	-16.80	-41.10	-23.05
Average Annual Govt. Payments (\$1000)	22.08	56.35	26.37	73.72	12.04	21.57	15.34	28.01
Average Annual Cash Receipts (\$1000)								
1992	199.00	509.67	208.20	620.21	140.75	240.29	191.70	353.73
1993	193.33	499.63	186.52	554.54	132.21	225.51	182.71	333.58
1994	192.12	499.88	197.17	585.23	142.34	243.06	195.14	354.55
1995	194.57	508.11	199.95	595.45	148.10	252.61	200.52	366.58
1996	193.52	503.04	201.76	602.56	142.26	242.39	202.13	367.82
1997	188.85	491.62	202.58	603.88	142.78	243.79	194.46	355.02
Average Annual Net Cash Income (\$1000)								
1992	79.76	158.10	37.15	199.35	58.91	131.67	70.80	158.33
1993	69.17	138.73	14.59	137.23	51.20	120.04	62.73	141.55
1994	63.94	128.05	18.53	161.46	59.65	133.80	72.16	155.88
1995	64.37	123.89	10.31	168.46	61.79	144.49	77.23	164.59
1996	55.55	113.27	4.15	168.67	54.88	130.65	68.65	165.52
1997	45.68	93.01	-4.56	158.67	43.02	131.65	50.11	146.41

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

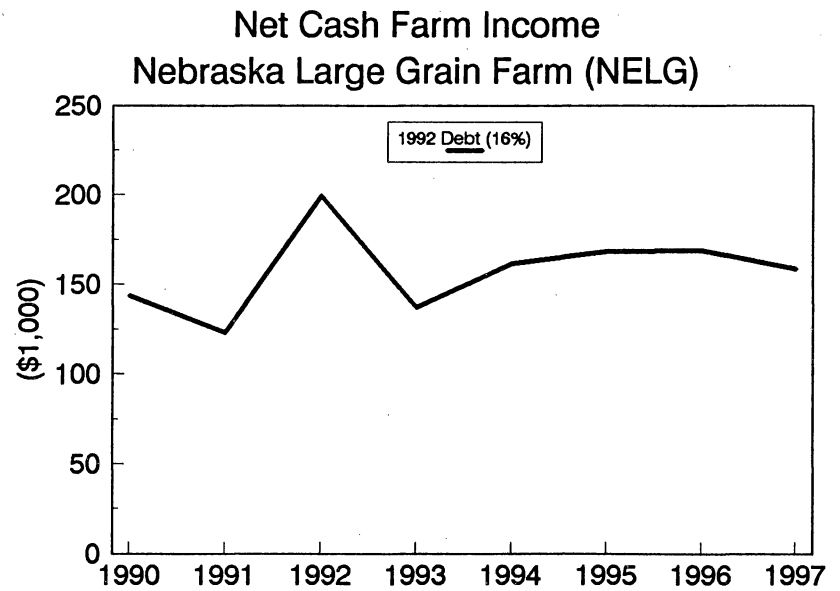
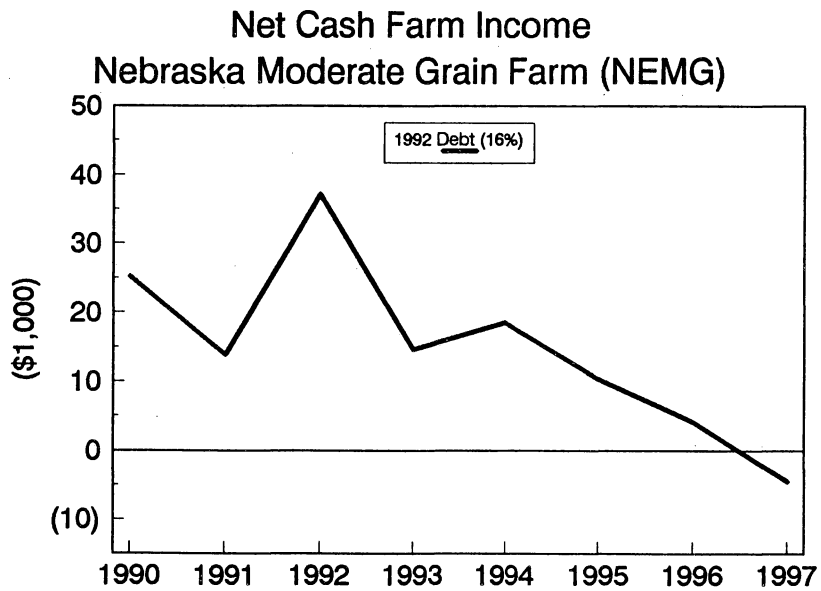
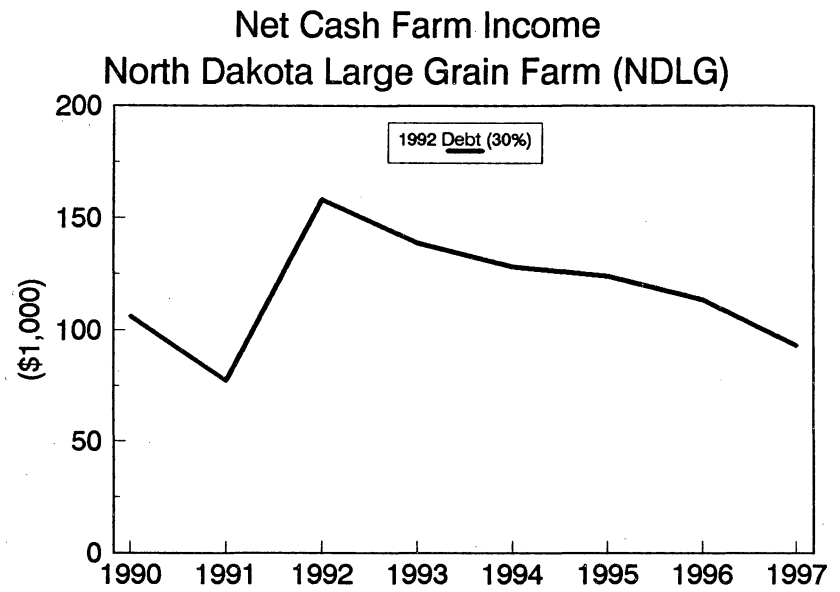
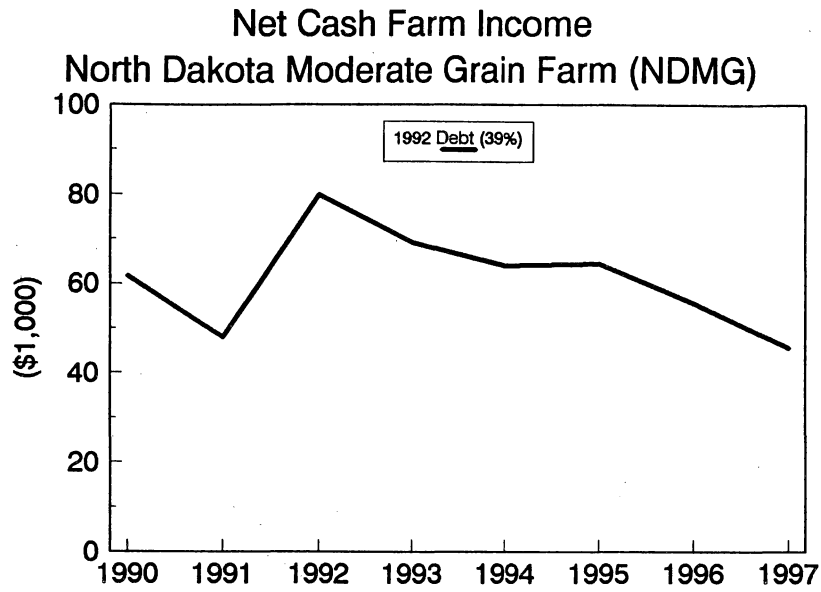
Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

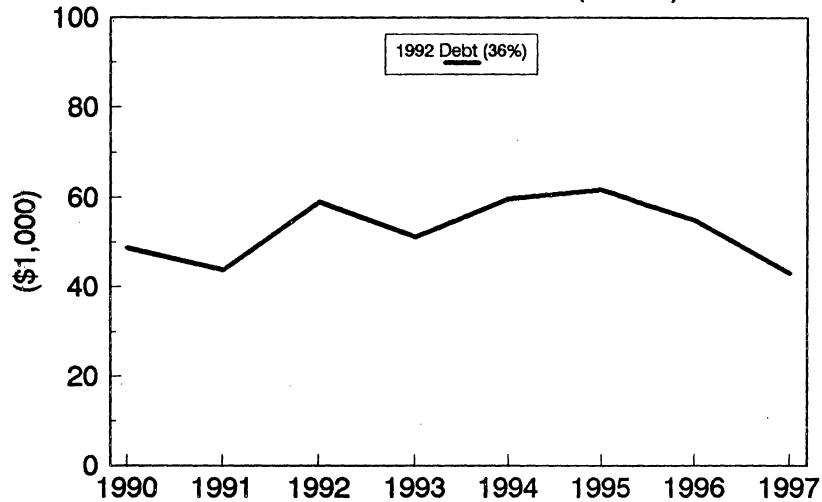
Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Oilseeds.

	MSMC	MSLC	ARMR	MOMR	MOLR	SCMG	SCLG
Average Change in Real Net Worth (%)	1.30	1.24	22.47	27.26	-6.70	42.67	28.09
Average Annual Ratio Expense/Receipts (%)	83.32	83.55	65.51	60.89	87.24	67.97	71.97
Average Present Value End Net Worth (\$1000)	1308.26	2989.45	977.50	1410.54	1748.40	859.02	2549.84
Average Annual Cash Receipts (\$1000)	692.94	1322.02	378.10	492.22	957.56	486.93	1104.83
Average Annual Cash Expenses (\$1000)	576.90	1103.56	247.55	299.57	834.53	329.93	791.94
Average Annual Net Cash Income (\$1000)	116.05	218.46	130.54	192.65	123.03	157.00	312.90
Average Change Real Net Cash Farm Income (%)	-60.65	-60.39	-41.14	-31.44	-87.10	-27.46	-30.13
Average Annual Govt. Payments (\$1000)	137.26	248.67	89.81	101.37	216.93	47.16	135.50
Average Annual Cash Receipts (\$1000)							
1992	694.97	1320.29	385.83	501.97	975.25	485.30	1106.95
1993	671.58	1276.99	370.28	482.37	942.23	466.68	1044.33
1994	700.29	1337.85	381.69	492.52	953.68	490.17	1090.61
1995	701.66	1340.40	379.42	493.49	971.47	494.83	1120.48
1996	697.71	1337.36	381.97	494.56	955.03	497.21	1154.44
1997	691.45	1319.24	369.38	488.44	947.68	487.38	1112.17
Average Annual Net Cash Income (\$1000)							
1992	158.13	289.30	149.66	211.49	206.20	162.63	340.44
1993	125.53	233.09	135.89	191.46	160.86	146.77	282.16
1994	130.03	248.88	139.67	197.44	143.07	166.91	307.31
1995	112.83	219.22	128.05	193.34	121.40	162.65	318.81
1996	94.99	182.59	124.13	187.95	74.67	161.29	342.81
1997	74.78	137.69	105.86	174.24	31.97	141.76	285.84

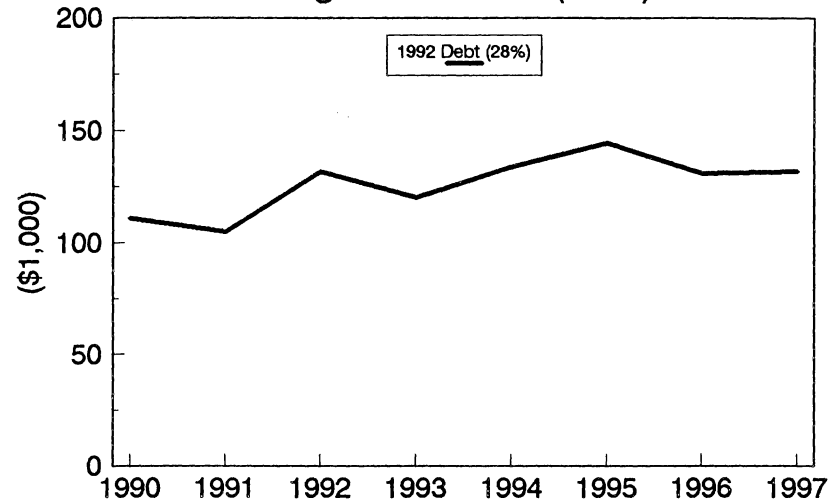
Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.  
Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.  
Annual Cash Receipts - Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.  
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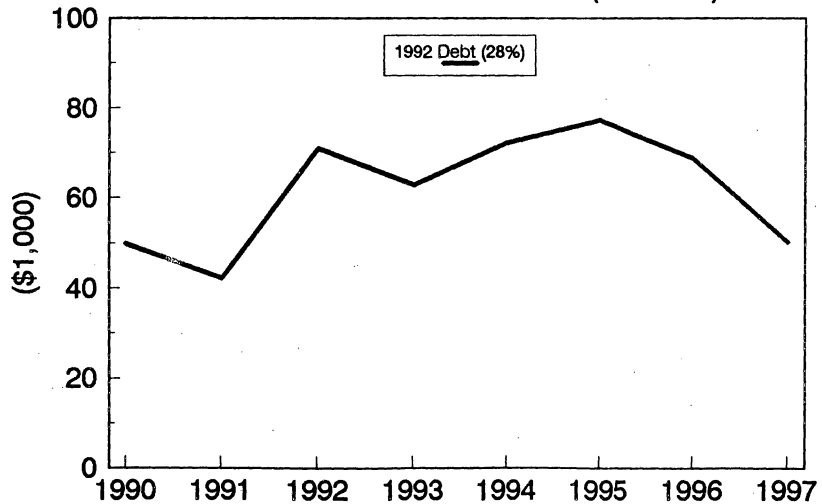
Net Cash Farm Income  
Iowa Moderate Grain Farm (IAMG)



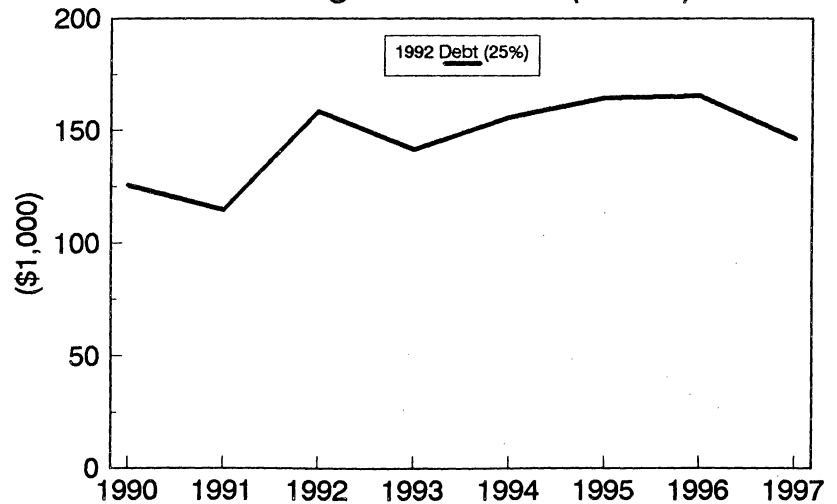
Net Cash Farm Income  
Iowa Large Grain Farm (IALG)

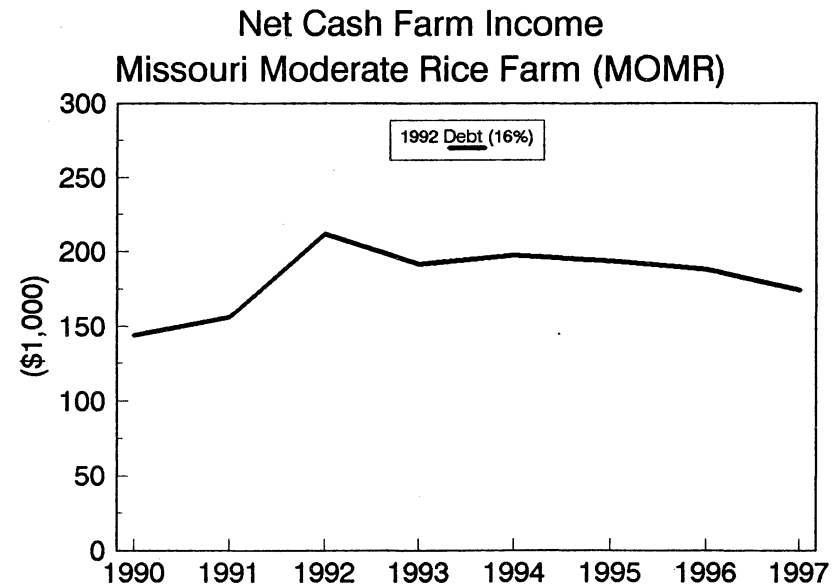
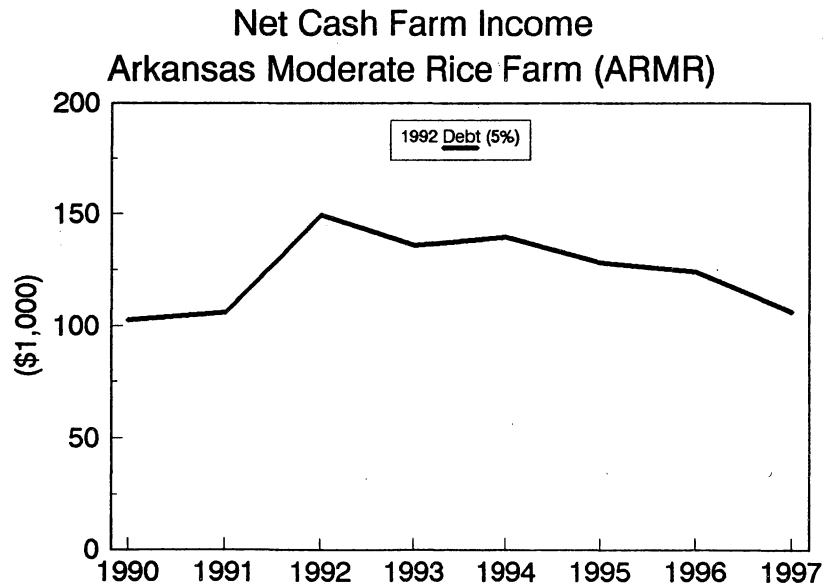
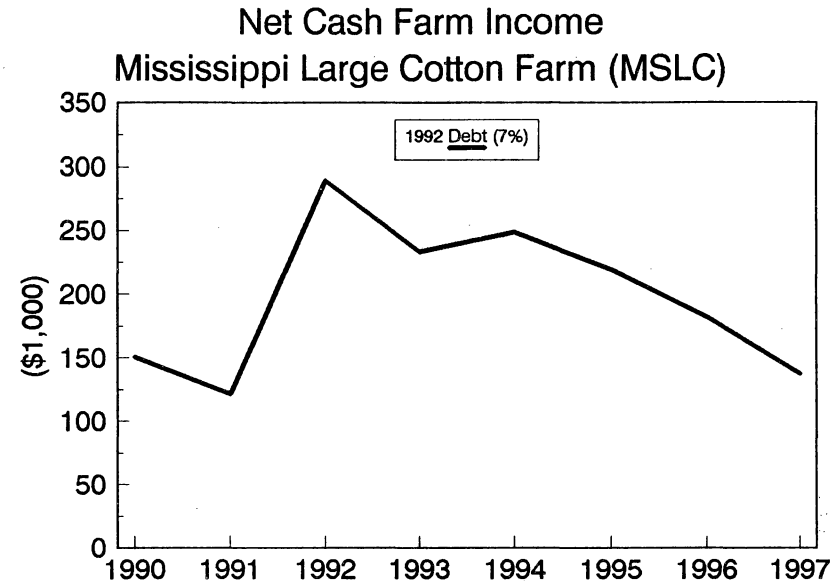
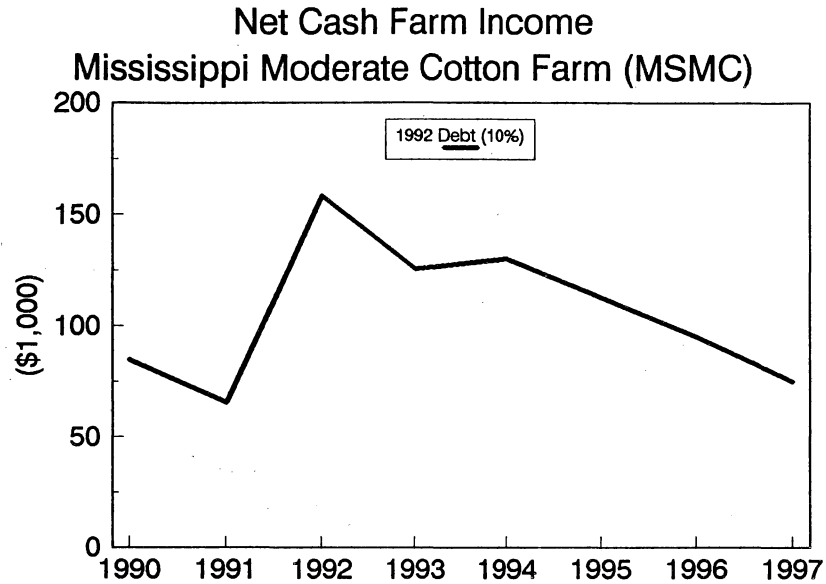


Net Cash Farm Income  
Missouri Moderate Grain Farm (MOMG)

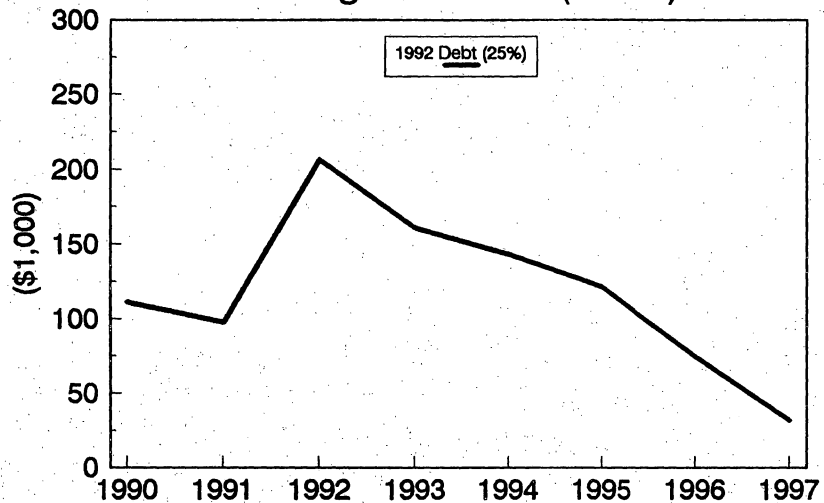


Net Cash Farm Income  
Missouri Large Grain Farm (MOLG)

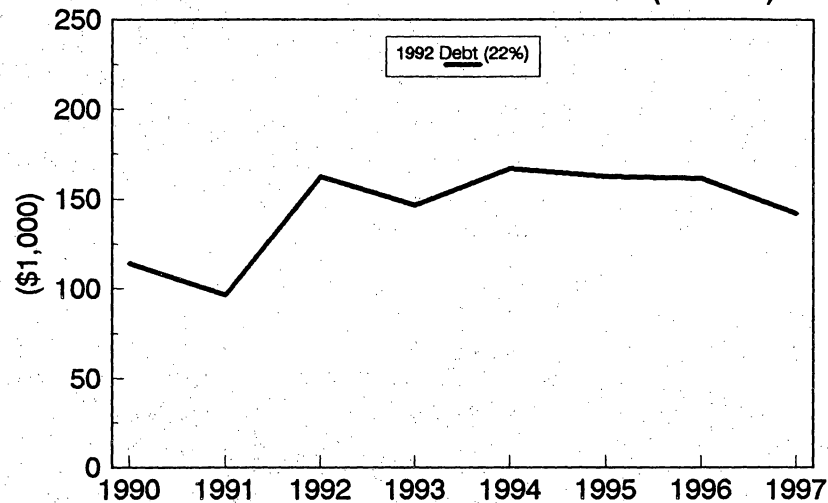




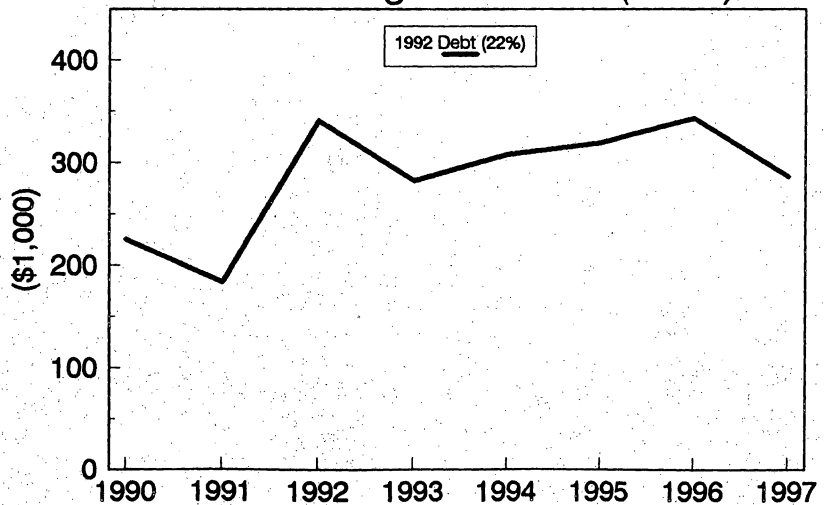
### Net Cash Farm Income Missouri Large Rice Farm (MOLR)



### Net Cash Farm Income South Carolina Moderate Grain Farm (SCMG)

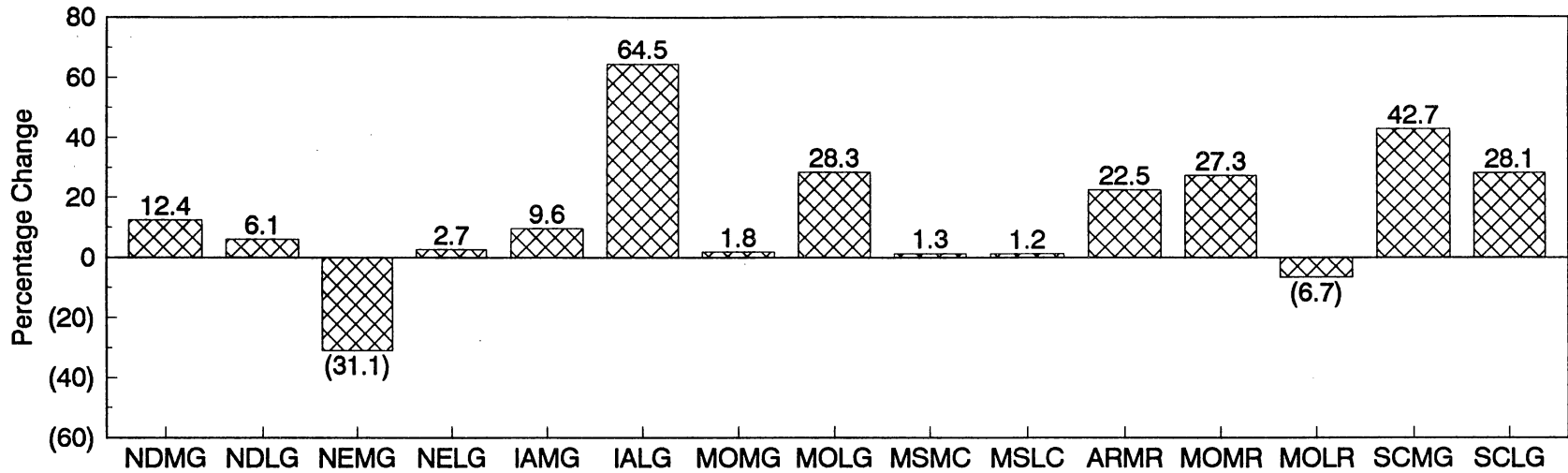


### Net Cash Farm Income South Carolina Large Grain Farm (SCLG)

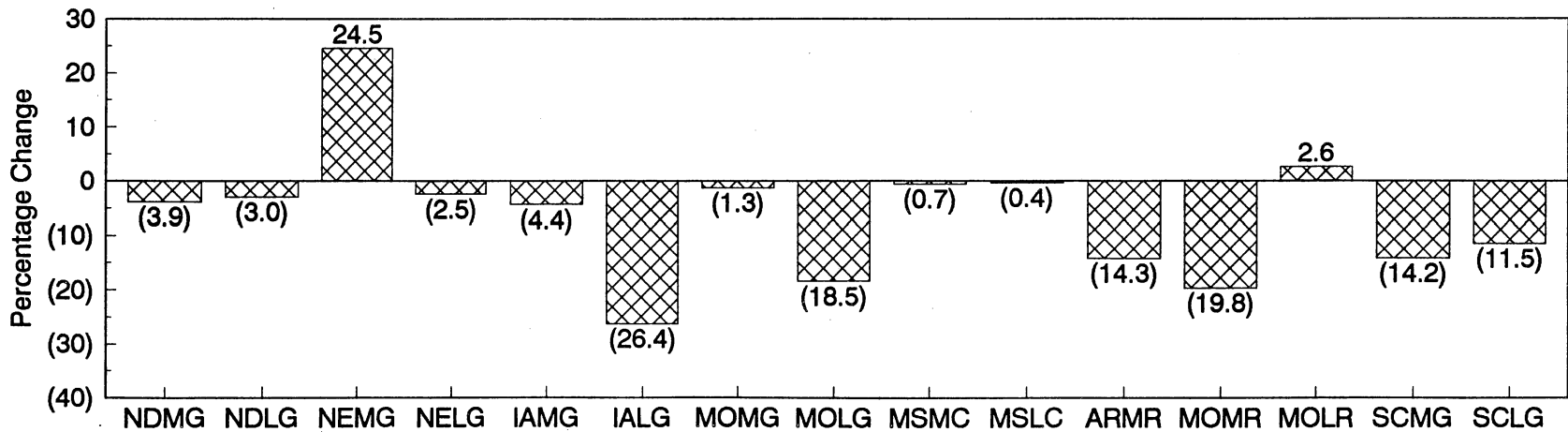




Real Change in Net Worth for All Oilseed Farms,  
1992 to 1997

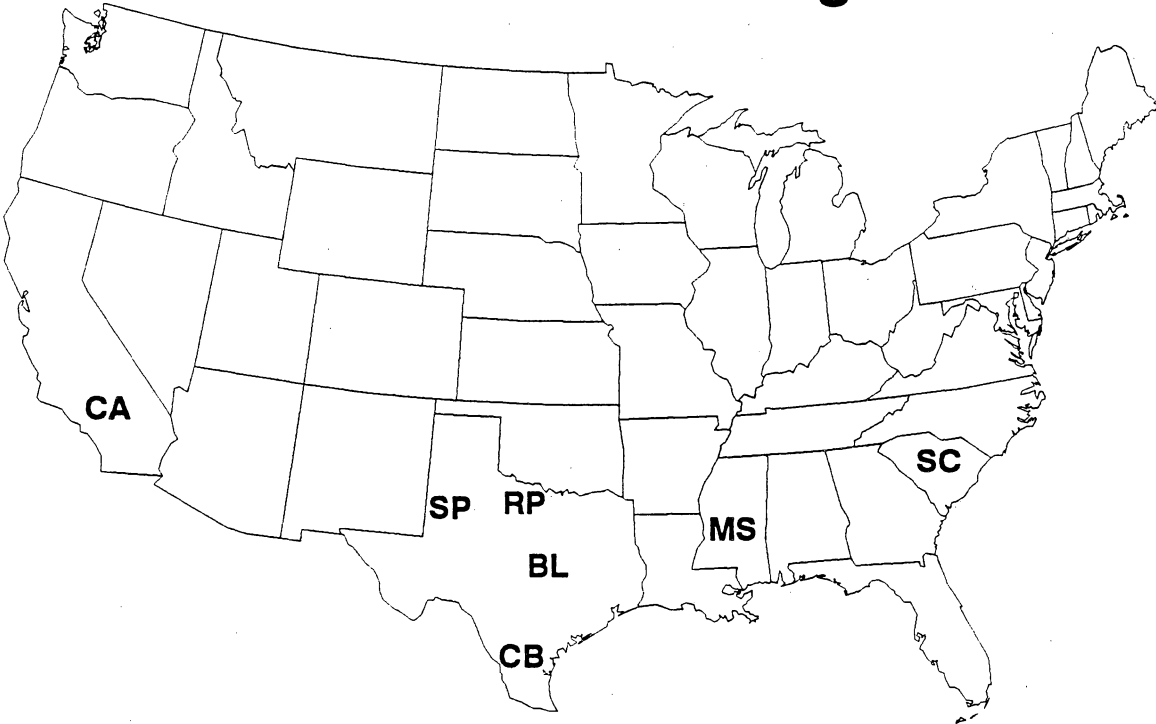


Annual Percentage Change in Receipts Needed  
to Maintain Real Net Worth From 1992 to 1997:  
Oilseed Farms





# Panel Farms Producing Cotton



## CHARACTERISTICS OF PANEL FARMS PRODUCING COTTON

- CAMC** a 735-acre Southern San Joaquin Valley California (Kern County) moderate size cotton farm that grew 450 acres of cotton and 201 acres of alfalfa in 1992. The farm did not flex any crops and generated about 81 percent of its total receipts from cotton.
- CALC** a 3,150-acre Southern San Joaquin Valley California (Kern County) large cotton farm that grew 1,800 acres of cotton and 1,002 acres of alfalfa in 1992. The farm did not flex any crops and generated about 76 percent of its total revenue from cotton.
- SPMC** a 1,360-acre Texas Southern High Plains (Dawson County) moderate size cotton farm that grew 820 acres of cotton in 1992. The farm did not flex any crops and generated all of its receipts from cotton.
- SPLC** a 3,310-acre Texas Southern High Plains (Dawson County) large cotton farm that grew 2,250 acres of cotton in 1992. The farm did not flex any crops and generated all of its revenue from cotton.
- RPMC** a 1,300-acre Rolling Plains of Texas (Jones County) moderate size cotton farm that grew 312 acres of wheat and 604 acres of cotton in 1992. The farm flexed NFA wheat to cotton and generated about 85 percent of its total revenue from cotton.
- RPLC** a 2,000-acre Rolling Plains of Texas (Jones County) large cotton farm that grew 480 acres of wheat and 930 acres of cotton in 1992. The farm flexed NFA wheat acreage to cotton and generated about 86 percent of its revenue from cotton.

Characteristics of Panel Farms Producing Cotton.

	CAMC	CALC	SPMC	SPLC	RPMC	RPLC
Total Cropland	735.	3150.	1360.	3310.	1300.	2000.
Acres Owned	368.	1050.	340.	1100.	325.	400.
Acres Leased	367.	2100.	1020.	2210.	975.	1600.
Assets (\$1000)						
Total	1347.	4259.	326.	1159.	330.	454.
Real Estate	771.	2451.	151.	506.	176.	222.
Machinery	357.	791.	166.	410.	114.	204.
Other	218.	1017.	9.	243.	40.	28.
Debt/Asset Ratios*						
Total	0.15	0.10	0.38	0.20	0.23	0.25
Intermediate	0.14	0.15	0.51	0.25	0.29	0.30
Long Run	0.16	0.07	0.23	0.13	0.18	0.20
1992 Gross Receipts (\$1,000)**						
Total	709.4	3177.1	185.0	531.6	154.4	273.5
Cotton	574.7 81.0%	2420.9 76.2%	185.0 100.0%	531.6 100.0%	131.7 85.3%	235.5 86.1%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	22.7 14.7%	38.0 13.9%
Hay	134.7 19.0%	756.3 23.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***						
Total	651.0	2802.0	819.9	2250.0	915.9	1409.7
Cotton	450.0 69.1%	1800.0 64.2%	819.9 100.0%	2250.0 100.0%	603.9 65.9%	929.7 66.0%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	312.0 34.1%	480.0 34.0%
Hay	201.0 30.9%	1002.0 35.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## **CHARACTERISTICS OF PANEL FARMS PRODUCING COTTON - Continued**

- BLMC** a 1,200-acre Texas Blacklands (Williamson County) moderate size cotton and grain farm with 684 acres of sorghum and 414 acres of cotton in 1992. The farm did not flex sorghum or cotton base acres and generated about 58 percent of its total receipts from cotton.
- CBLC** a 1,400-acre Texas Coastal Bend (San Patricio County) large cotton farm with 765 acres of cotton and 816 acres of sorghum in 1992. The farm flexed NFA and OFA sorghum to cotton and generated about 73 percent of its total revenue from cotton.
- MSMC** a 1,470-acre Mississippi Delta (Washington County) moderate size cotton farm that grew 756 acres of cotton and 560 acres of soybeans in 1992. The farm did not flex any crops and generated about 88 percent of its total receipts from cotton.
- MSLC** a 3,300-acre Mississippi Delta (Washington County) large cotton farm that grew 1,350 acres of cotton and 1,500 acres of soybeans in 1992. The farm did not flex any crops and generated about 82 percent of its revenue from cotton.
- SCLG** a 3,500-acre South Carolina (Clarendon County) large grain farm with 880 acres of wheat, 315 acres of cotton, 1,330 acres of corn, and 1,915 acres of soybeans in 1992. The farm flexed NFA corn and wheat to soybeans. About 18 percent of total receipts for the farm came from cotton.

Characteristics of Panel Farms Producing Cotton.

	BLMC	CBLC	MSMC	MSLC	SCLG
Total Cropland	1200.	1700.	1470.	3300.	3500.
Acres Owned	250.	300.	735.	1650.	1400.
Acres Leased	950.	1400.	735.	1650.	2100.
Assets (\$1000)					
Total	582.	605.	1507.	3327.	2773.
Real Estate	250.	269.	750.	1852.	1846.
Machinery	229.	203.	552.	1047.	590.
Other	103.	133.	206.	429.	337.
Debt/Asset Ratios*					
Total	0.06	0.21	0.10	0.07	0.22
Intermediate	0.07	0.23	0.19	0.16	0.32
Long Run	0.03	0.19	0.00	0.00	0.16
1992 Gross Receipts (\$1,000)**					
Total	258.2	457.8	695.0	1320.3	1107.0
Cotton	150.4 58.2%	333.2 72.8%	614.7 88.4%	1084.4 82.1%	199.8 18.1%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	164.3 14.8%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	384.1 34.7%
Sorghum	107.8 41.8%	124.6 27.2%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	80.3 11.6%	235.9 17.9%	358.7 32.4%
1992 Planted Acres***					
Total	1098.0	1581.0	1316.0	2850.0	4440.0
Cotton	414.0 37.7%	765.0 48.4%	756.0 57.4%	1350.0 47.4%	315.0 7.1%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	880.0 19.8%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	1330.0 30.0%
Sorghum	684.0 62.3%	816.0 51.6%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Soybeans	0.0 0.0%	0.0 0.0%	560.0 42.6%	1500.0 52.6%	1915.0 43.1%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## COTTON IMPACTS

- With the exception of the large South Carolina grain farm (SCLG), all farms analyzed in this section generated a majority of their gross receipts from cotton production.
- In the early months of the 1992-93 marketing year, adjusted world prices fell below the cotton loan rate by, at times, more than \$0.139/lb. Thus, producers were eligible for loan deficiency payments even though the season average domestic price is projected to be \$0.529/lb for 1992-93. Recognizing that producers realize a benefit from the loan deficiency payments, an assumption was made to tie a loan deficiency payment to the season average price for cotton. In 1992-1997, the adjusted world price (AWP) was assumed to be \$0.139/lb below the estimated season average cotton price. Loan deficiency payments thus are calculated based on the relationship of the adjusted world price to the announced loan rate.
- Cotton yields, which were nearly 40 pounds per acre greater in 1992 than 1991, caused net cash incomes to increase for all 11 of the farms growing cotton (see net income graphs). Those farms also growing soybeans, wheat, and feed grains benefitted from yield increases in 1992 for those crops.
- Over the 1992-97 study period, all of the farms producing cotton lost nominal net cash farm income. Real net cash income declined between 1992 and 1997 for all 11 farms, dropping from 24 percent for the BLMC farm to 131 percent for the RPLC farm.
- Eight of the 11 cotton farms realized real growth in equity during the study period. They include both California (CAMC and CALC) farms, the large Texas Southern Plains (SPLC) farm, the Texas Blacklands (BLMC) farm, the Texas Coastal Bend (CBLC) farm, the Mississippi farms (MSMC and MSLC), and the large South Carolina (SCLG) farm.
- With the exceptions of BLMC and RPLC, the farms are similar in production efficiency with cash expenses averaging between \$0.66 and \$0.87 per dollar of revenue. Based on this criteria, the BLMC is the most efficient with cash expenses averaging about \$0.52 for each dollar of revenue.
- The two Texas Rolling Plains (RPMC and RPLC) farms lost about 50 percent of their real equity during the study period. Cash expenses averaged between \$0.87 and \$0.92 per dollar of revenue, resulting in too small a margin to cover family living expenses, principal payments, and machinery replacement costs. The Mississippi farms increased their real equity about 1 percent during the study period. If the Mississippi cotton farms experienced a 1 percent decrease in cash receipts, they would have experienced a loss in real net worth.
- Increasing cash receipts 7.7 percent per year would have prevented the SPMC farm from losing real equity during the 1992-1997 period. The Texas Rolling Plains cotton farms



(RPMC and RPLC) required a 15.8 and 11.5 percent increase in annual cash receipts to maintain real net worth, respectively.

- Cotton producers, like rice producers, would have been significantly impacted by a \$50,000 restrictive payment limit policy. Only the moderate size farm in the Texas Rolling Plains (RPMC) averaged less than \$50,000 annually in government payments. The large Mississippi farm would have needed to incorporate 5 "persons" if it was to maintain the \$250,000 it averaged in government payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Cotton.

	CAMC	CALC	SPMC	SPLC	RPMC	RPLC
Average Change in Real Net Worth (%)	21.58	54.45	-38.62	43.86	-49.27	-53.23
Average Annual Ratio Expense/Receipts (%)	75.48	77.78	84.03	65.98	87.61	92.34
Average Present Value End Net Worth (\$1000)	1288.17	5125.45	115.21	1180.78	126.49	149.62
Average Annual Cash Receipts (\$1000)	715.90	3204.02	181.71	520.95	148.32	260.11
Average Annual Cash Expenses (\$1000)	539.85	2489.79	150.92	340.30	127.12	234.00
Average Annual Net Cash Income (\$1000)	176.05	714.23	30.78	180.65	21.20	26.11
Average Change Real Net Cash Farm Income (%)	-41.76	-46.07	-86.18	-40.37	-113.00	-131.45
Average Annual Govt. Payments (\$1000)	111.07	515.96	51.27	141.25	37.93	67.80
Average Annual Cash Receipts (\$1000)						
1992	709.43	3177.15	185.02	531.57	154.45	273.46
1993	706.24	3164.45	185.89	523.94	147.59	260.75
1994	717.21	3210.59	183.65	523.79	147.29	259.99
1995	717.08	3202.00	187.66	540.47	142.92	252.45
1996	731.35	3271.84	173.04	499.82	160.56	281.30
1997	714.07	3198.07	177.57	506.12	139.87	243.59
Average Annual Net Cash Income (\$1000)						
1992	204.15	856.31	51.54	209.55	40.71	61.68
1993	192.05	810.50	44.61	195.27	32.61	48.07
1994	184.35	759.84	34.85	188.40	26.70	33.28
1995	165.77	647.69	30.26	190.76	16.00	15.01
1996	167.08	656.09	13.25	149.78	16.23	17.08
1997	142.87	554.94	11.32	150.16	-4.42	-15.82

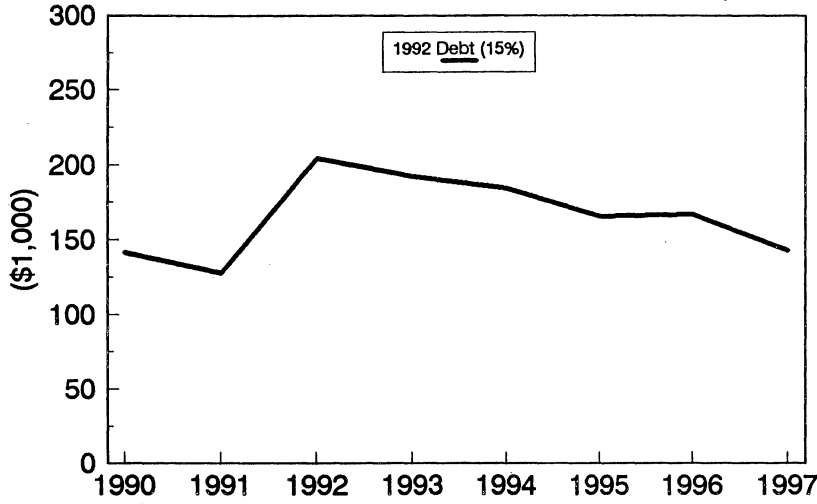
Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
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Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Cotton.

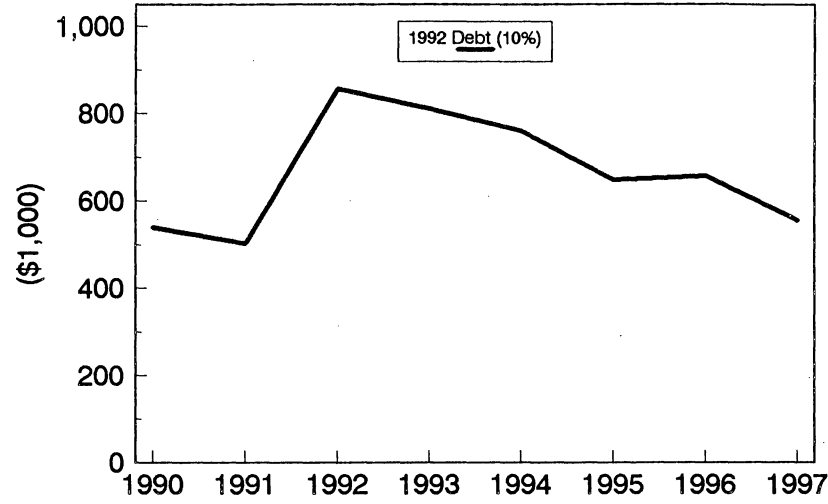
	BLMC	CBLC	MSMC	MSLC	SCLG
Average Change in Real Net Worth (%)	51.69	29.35	1.30	1.24	28.09
Average Annual Ratio Expense/Receipts (%)	51.72	78.08	83.32	83.55	71.97
Average Present Value End Net Worth (\$1000)	730.59	550.80	1308.26	2989.45	2549.84
Average Annual Cash Receipts (\$1000)	254.52	446.78	692.94	1322.02	1104.83
Average Annual Cash Expenses (\$1000)	131.10	346.96	576.90	1103.56	791.94
Average Annual Net Cash Income (\$1000)	123.42	99.81	116.05	218.46	312.90
Average Change Real Net Cash Farm Income (%)	-24.42	-51.11	-60.65	-60.39	-30.13
Average Annual Govt. Payments (\$1000)	55.82	96.98	137.26	248.67	135.50
Average Annual Cash Receipts (\$1000)					
1992	258.22	457.79	694.97	1320.29	1106.95
1993	245.90	452.11	671.58	1276.99	1044.33
1994	253.52	434.13	700.29	1337.85	1090.61
1995	250.32	443.40	701.66	1340.40	1120.48
1996	257.55	442.82	697.71	1337.36	1154.44
1997	261.62	450.40	691.45	1319.24	1112.17
Average Annual Net Cash Income (\$1000)					
1992	132.56	128.38	158.13	289.30	340.44
1993	123.34	120.71	125.53	233.09	282.16
1994	125.47	99.38	130.03	248.88	307.31
1995	117.85	91.14	112.83	219.22	318.81
1996	120.92	83.82	94.99	182.59	342.81
1997	120.39	75.43	74.78	137.69	285.84

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
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 Annual Government Payments - Total deficiency, diversion, and other program payments.

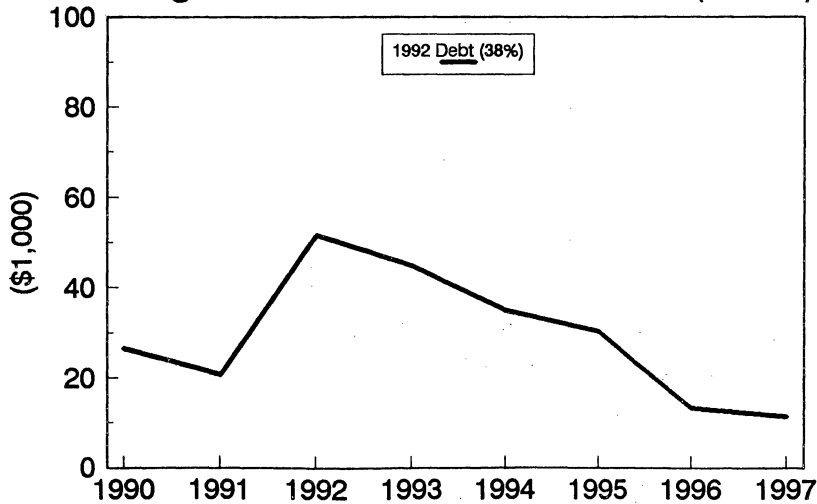
Net Cash Farm Income  
California Moderate Cotton Farm (CAMC)



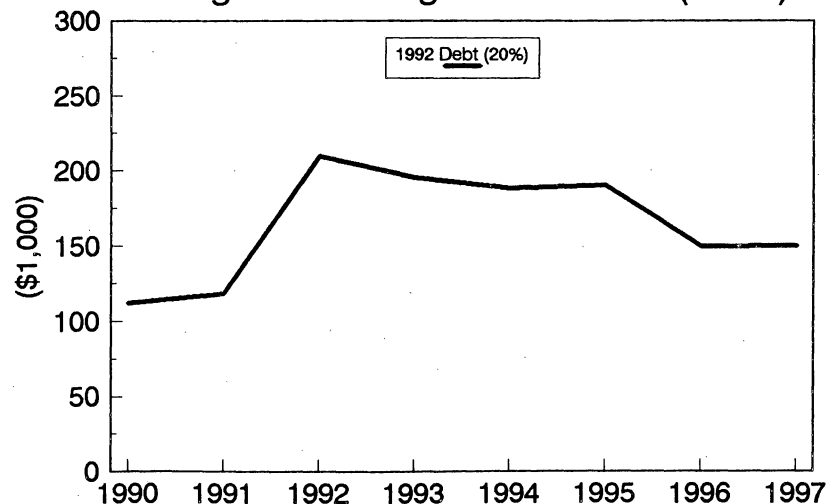
Net Cash Farm Income  
California Large Cotton Farm (CALC)



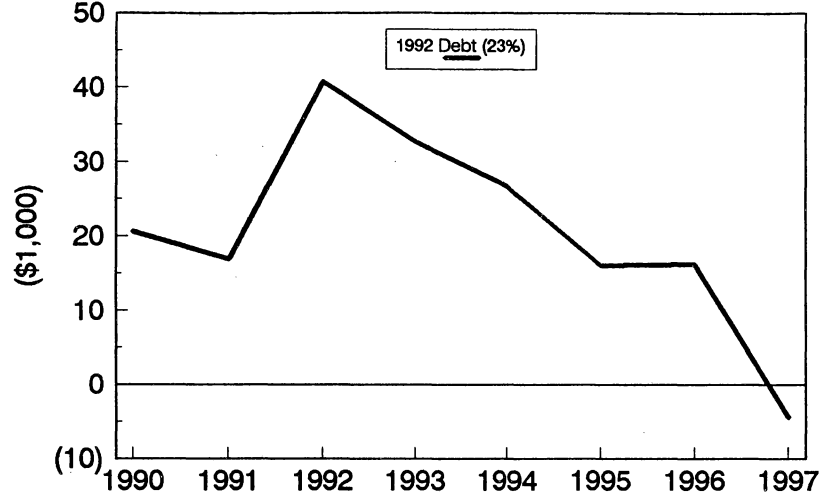
Net Cash Farm Income  
Texas S.High Plains Moderate Cotton Farm (SPMC)



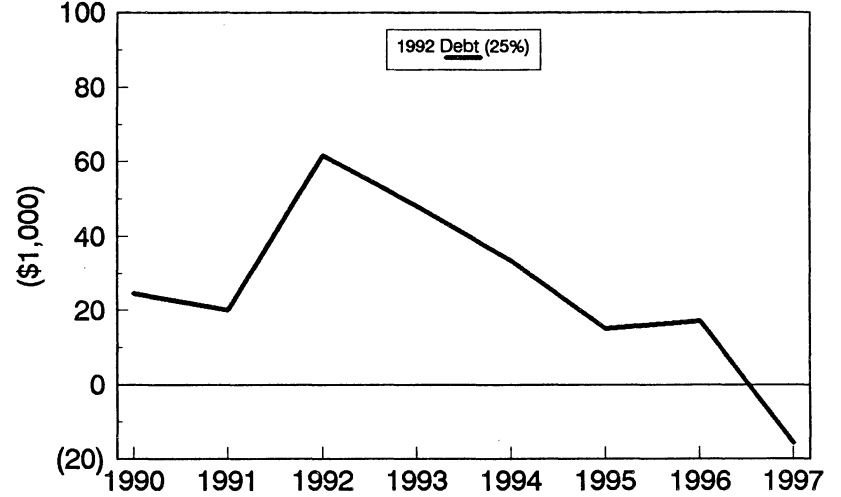
Net Cash Farm Income  
Texas S.High Plains Large Cotton Farm (SPLC)



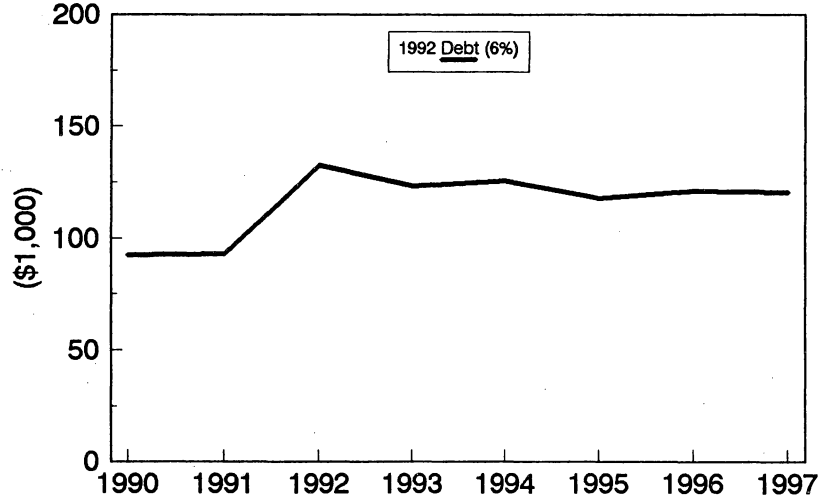
Net Cash Farm Income  
Texas Rolling Plains Moderate Cotton Farm (RPMC)



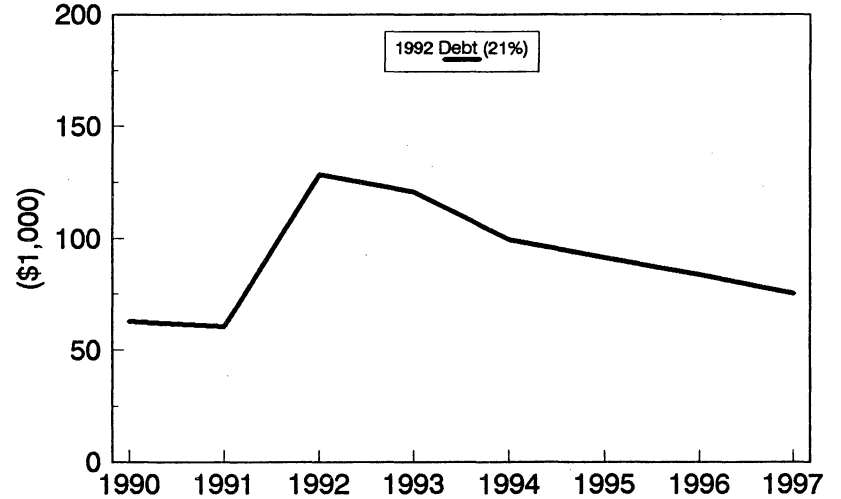
Net Cash Farm Income  
Texas Rolling Plains Large Cotton Farm (RPLC)

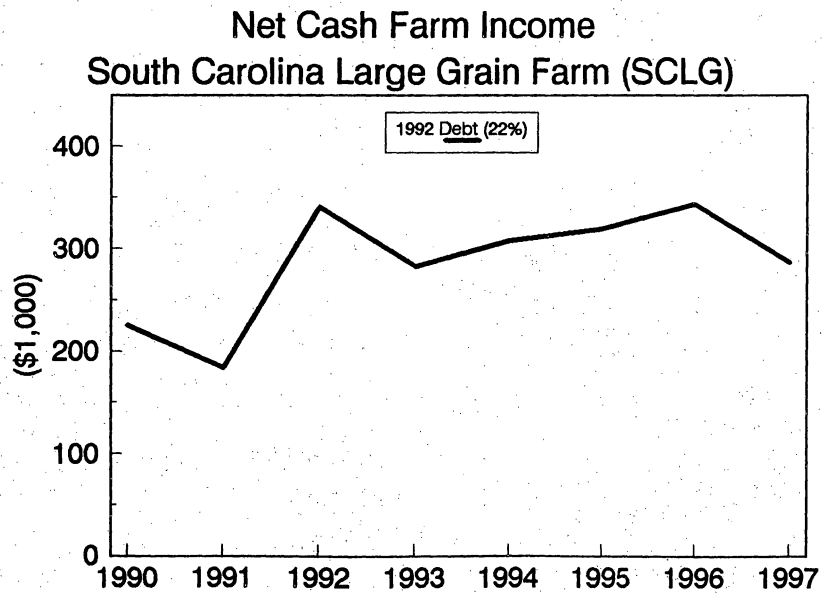
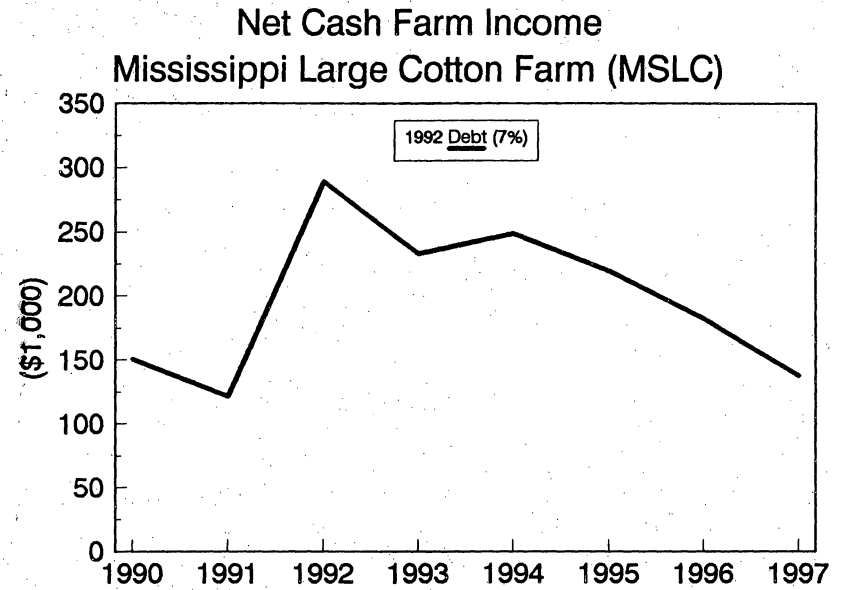
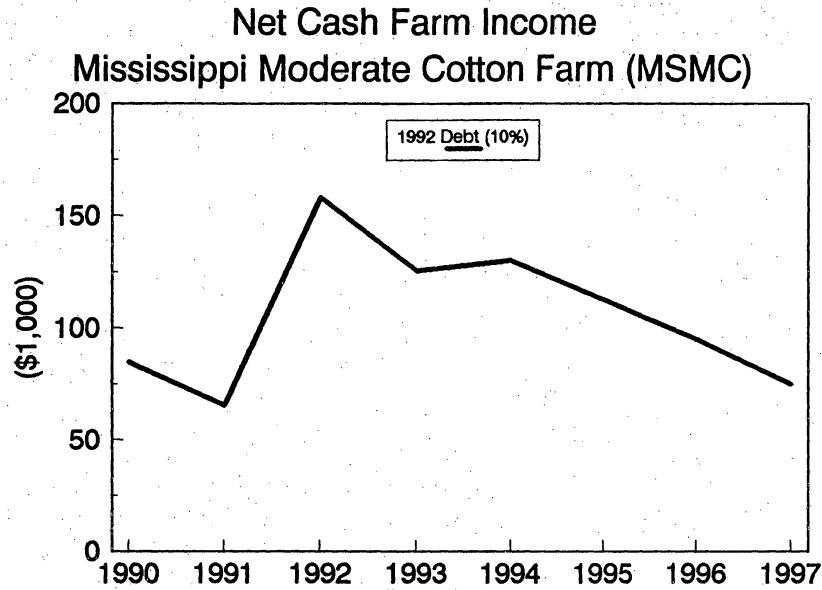


Net Cash Farm Income  
Texas Blacklands Moderate Cotton Farm (BLMC)

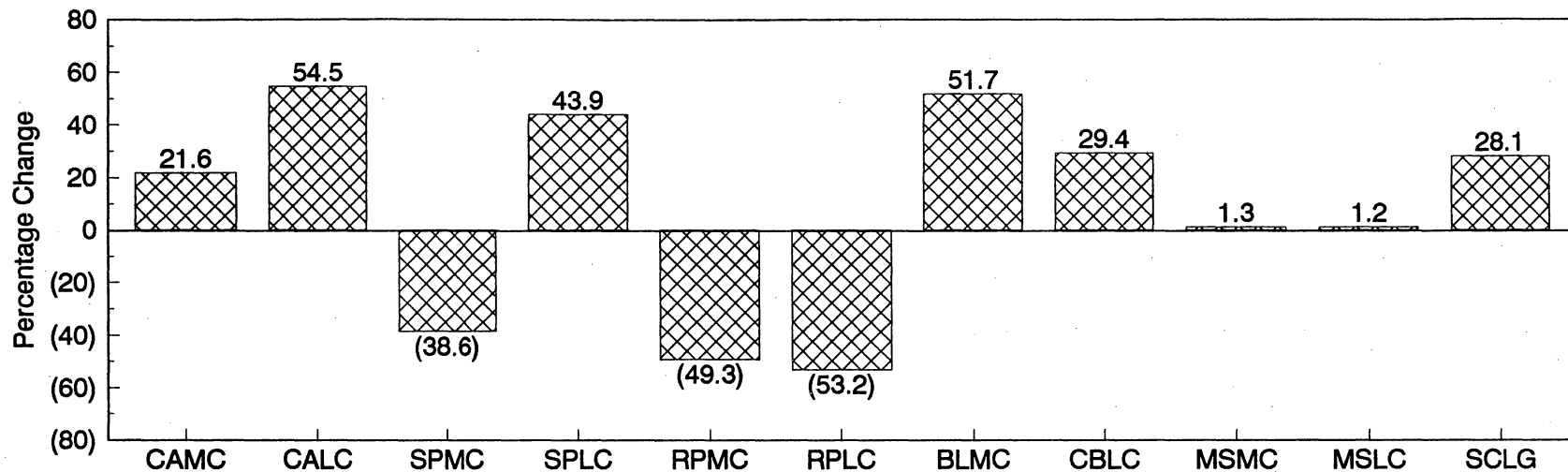


Net Cash Farm Income  
Texas Coastal Bend Large Cotton Farm (CBLC)

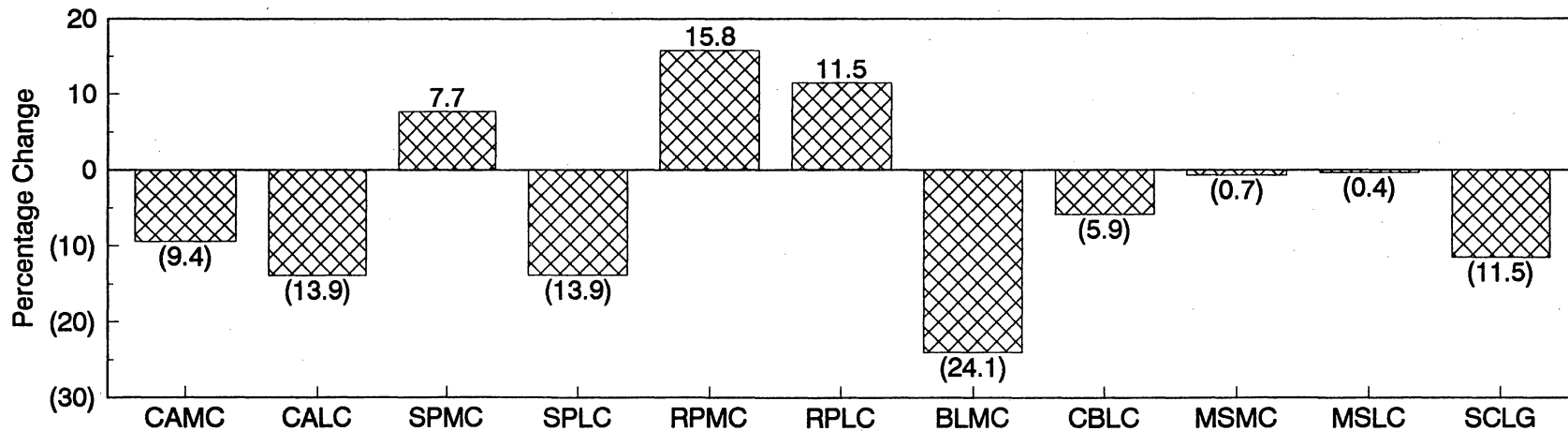




Real Change in Net Worth for All Cotton Farms,  
1992 to 1997



Annual Percentage Change in Receipts Needed to  
Maintain Real Net Worth From 1992 to 1997:  
Cotton Farms







# Panel Farms Producing Rice



## CHARACTERISTICS OF PANEL FARMS PRODUCING RICE

- CAMR** a 424-acre Sacramento Valley California (Sutter and Yuba Counties) moderate size rice farm that grew 400 acres of rice in 1992. The farm did not flex any crops and received all of its revenue from rice.
- CALR** a 1,300-acre Sacramento Valley California (Sutter and Yuba Counties) large rice farm that grew 1,200 acres of rice in 1992. The farm did not flex any crops and generated all of its revenue from rice.
- WHMR** a 1,500-acre West of Houston, Texas (Wharton County) moderate size rice farm that grew 500 acres of rice in 1992. The farm did not flex any crops and received all of its total revenue from rice.
- WHLR** a 3,900-acre West of Houston, Texas (Wharton County) large rice farm that grew 1,300 acres of rice in 1992. The farm did not flex any crops and received all of its total revenue from rice.
- ARMR** a 1,100-acre Arkansas (Poinsett County) moderate size rice farm that grew 425 acres of rice, 100 acres of wheat, and 594 acres of soybeans in 1992. The farm flexed NFA rice and wheat to soybeans and received about 66 percent of its revenue from rice.
- MOMR** a 1,500-acre Southeastern Missouri (Butler County) moderate size rice farm with 600 acres of rice, 190 acres of sorghum, 190 acres of corn, and 500 acres of soybeans planted in 1992. The farm did not flex rice or feed grain base acres and generated about 61 percent of its total revenue from rice.
- MOLR** a 3,150-acre Southeastern Missouri (Butler County) large rice farm with 1,275 acres of rice, 142 acres of sorghum, and 1,725 acres of soybeans planted in 1992. The farm did not flex rice or corn base acres and generated about 71 percent of its gross receipts from rice.

Characteristics of Panel Farms Producing Rice.

	CAMR	CALR	WHMR	WHLR	ARMR	MOMR	MOLR
Total Cropland	424.	1300.	1500.	3900.	1100.	1500.	3150.
Acres Owned	212.	500.	150.	780.	440.	500.	788.
Acres Leased	212.	800.	1350.	3120.	660.	1000.	2362.
Assets (\$1000)							
Total	646.	1602.	402.	1011.	906.	1443.	2683.
Real Estate	453.	1316.	137.	531.	537.	747.	1555.
Machinery	175.	260.	266.	481.	228.	408.	1068.
Other	18.	26.	0.	0.	142.	288.	60.
Debt/Asset Ratios*							
Total	0.32	0.34	0.42	0.54	0.05	0.16	0.25
Intermediate	0.22	0.25	0.43	0.40	0.10	0.14	0.31
Long Run	0.35	0.36	0.39	0.67	0.01	0.18	0.21
1992 Gross Receipts (\$1,000)**							
Total	289.2	876.7	404.8	998.1	385.8	502.0	975.2
Rice	289.2 100.0%	876.7 100.0%	404.8 100.0%	988.1 100.0%	253.5 65.9%	307.6 61.3%	690.3 70.8%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	18.3 4.8%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	60.0 11.9%	0.0 0.0%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	40.6 8.1%	27.4 2.8%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	113.0 29.4%	93.8 18.7%	257.6 26.4%
1992 Planted Acres***							
Total	400.0	1200.0	500.0	1300.0	1118.8	1480.0	3142.5
Rice	400.0 100.0%	1200.0 100.0%	500.0 100.0%	1300.0 100.0%	425.0 38.0%	600.0 40.5%	1275.0 40.6%
Wheat	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	100.0 8.9%	0.0 0.0%	0.0 0.0%
Corn	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	190.0 12.8%	0.0 0.0%
Sorghum	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	190.0 12.8%	142.5 4.5%
Soybeans	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	593.8 53.1%	500.0 33.8%	1725.0 54.9%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the crop.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## RICE IMPACTS

- The California (CAMR and CALR) and Texas (WHMR and WHLR) rice farms produced only rice while the Arkansas (ARMR) and Missouri (MOMR and MOLR) farms generated more than 60 percent of their revenue from rice production.
- It is very difficult to estimate a relationship between the adjusted world price (AWP) for rice and its projected season average price. The fact that significant loan deficiency payments have been paid to rice producers since the inception of the marketing loan program, however, requires that AFPC make an assumption as to the relationship between the AWP and the season average price. Based on market conditions, AFPC assumed a flat \$1.62/cwt wedge between projected season average price and the AWP.
- Net cash farm incomes remained fairly stable for 2 of the 7 farms between 1990 and 1991 as the reduction in payments due to NFA were offset by a 15 percentage point reduction in ARP requirements. Net cash incomes rebounded in 1992 for all 8 farms due to a zero ARP requirement and lower prices that generated larger marketing loan benefits.
- Net cash farm incomes for all 7 farms declined from the peak in 1992 as increased market prices reduced producer loan deficiency benefits from the marketing loan and as the effects of inflation on production costs were incorporated.
- Both Texas farms and the large California farm experienced negative net cash farm incomes by 1995. The Arkansas and moderate Missouri farms were able to sustain net cash farm income at more than \$100,000 per year throughout the period since they were more diversified and able to take advantage of flex opportunities.
- The pattern reflected in the net cash farm income projections was repeated in the analysis of real equity growth. The Texas rice farms were forced to exit farming before 1997 since they lost more than 100 percent of their real equity. The moderate California farm (CAMR) lost about 8 percent of its real equity while the large California farm lost 42 percent. The large Missouri farm showed a moderate decline in real net worth of 7 percent.
- The Arkansas rice farm (ARMR) increased real net worth 22.5 percent while the moderate Missouri rice farm (MOMR) increased real net worth 27.3.
- To maintain real net worth during the study period, the large California rice farm would have had to increase its annual cash receipts by 11 percent. The West of Houston rice farms would have had to increase annual cash receipts by 10.2 to 16.7 percent to maintain real net worth.
- All rice farms would have been significantly impacted if they could not structure their operations to receive maximum government payments. On average, the smallest

government payments were received by the ARMR farm due to its wheat and soybean production. The large rice operations would have required from 4-6 "persons" to avoid leaving government payments on the table.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Rice.

	CAMR	CALR	WHMR	WHLR	ARMR	MOMR	MOLR
Average Change in Real Net Worth (%)	-7.96	-42.50	-103.76	-149.04	22.47	27.26	-6.70
Average Annual Ratio Expense/Receipts (%)	83.07	101.39	99.22	109.82	65.51	60.89	87.24
Average Present Value End Net Worth (\$1000)	381.19	583.85	-8.38	-251.64	977.50	1410.54	1748.40
Average Annual Cash Receipts (\$1000)	267.56	814.02	393.76	972.29	378.10	492.22	957.56
Average Annual Cash Expenses (\$1000)	222.18	825.02	390.29	1067.03	247.55	299.57	834.53
Average Annual Net Cash Income (\$1000)	45.38	-11.00	3.47	-94.74	130.54	192.65	123.03
Average Change Real Net Cash Farm Income (%)	-77.11	-176.34	-175.69	-1054.35	-41.14	-31.44	-87.10
Average Annual Govt. Payments (\$1000)	91.38	268.04	120.88	315.81	89.81	101.37	216.93
Average Annual Cash Receipts (\$1000)							
1992	289.16	876.69	404.78	998.09	385.83	501.97	975.25
1993	269.31	818.08	391.65	963.74	370.28	482.37	942.23
1994	263.29	801.06	390.58	971.84	381.69	492.52	953.68
1995	261.79	797.75	391.67	963.27	379.42	493.49	971.47
1996	260.50	793.72	391.12		381.97	494.56	955.03
1997	261.34	796.82			369.38	488.44	947.68
Average Annual Net Cash Income (\$1000)							
1992	80.55	118.41	46.48	-14.74	149.66	211.49	206.20
1993	59.43	51.27	22.32	-81.40	135.89	191.46	160.86
1994	46.27	2.91	3.93	-126.28	139.67	197.44	143.07
1995	35.74	-47.77	-15.98	-198.06	128.05	193.34	121.40
1996	28.16	-82.20	-40.53		124.13	187.95	74.67
1997	22.16	-108.62			105.86	174.24	31.97

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

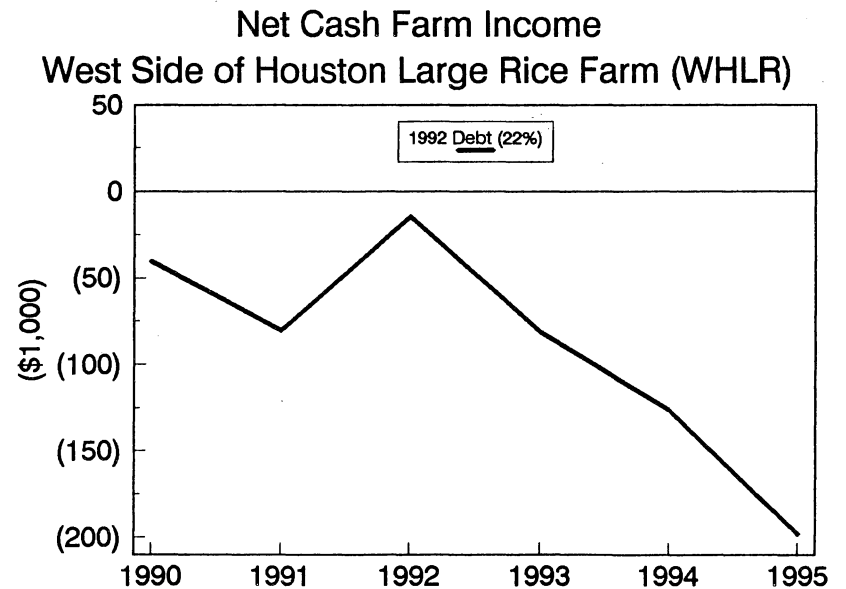
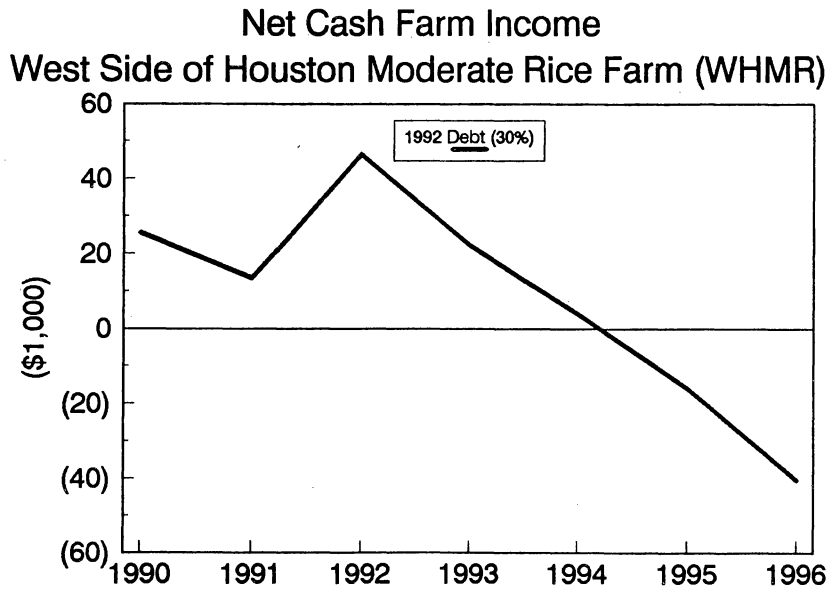
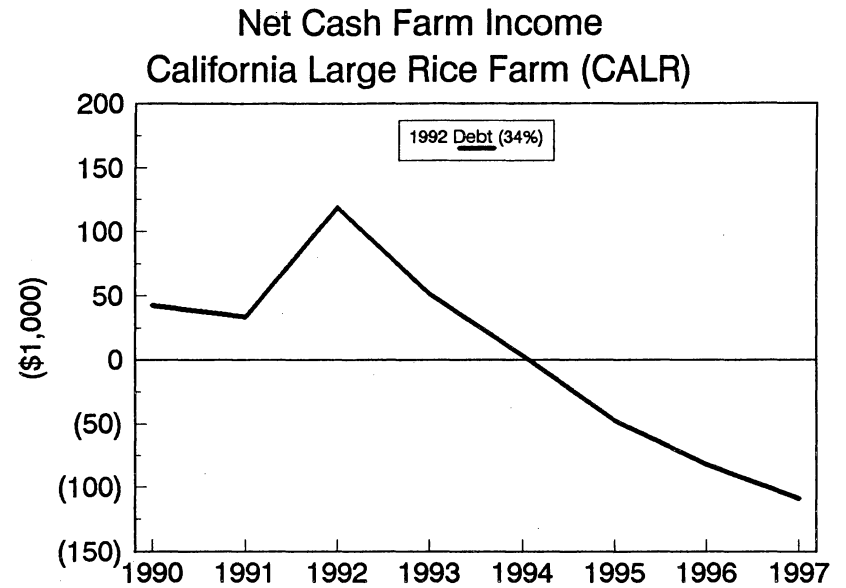
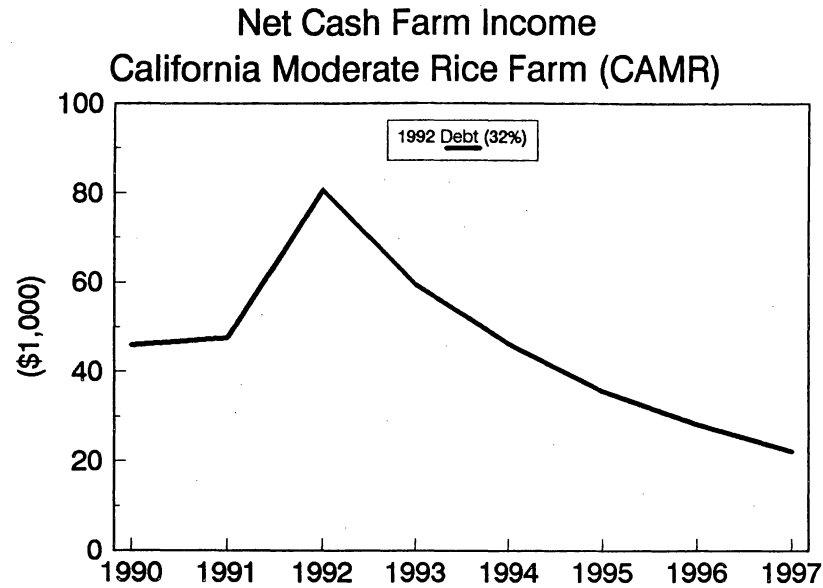
Annual Cash Receipts - Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.

Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

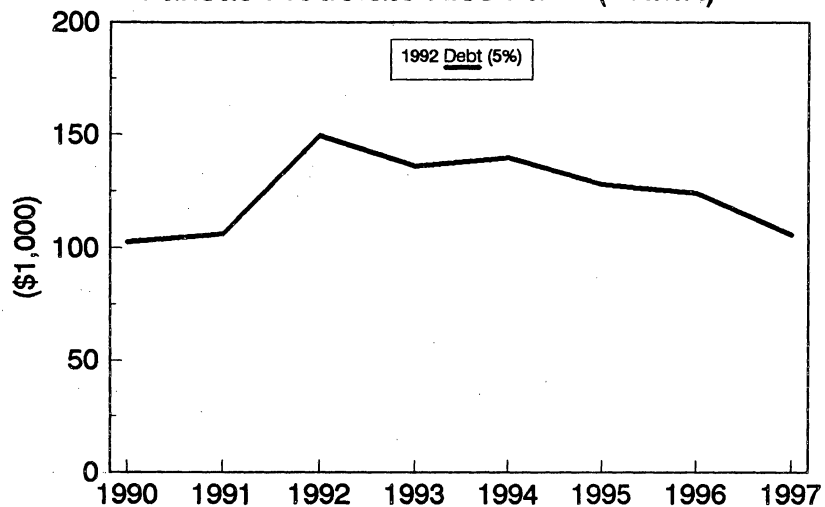
Annual Net Cash Income - Total cash receipts minus total cash expenses; excludes family living expenses, principal payments, and costs to replace capital assets.

Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

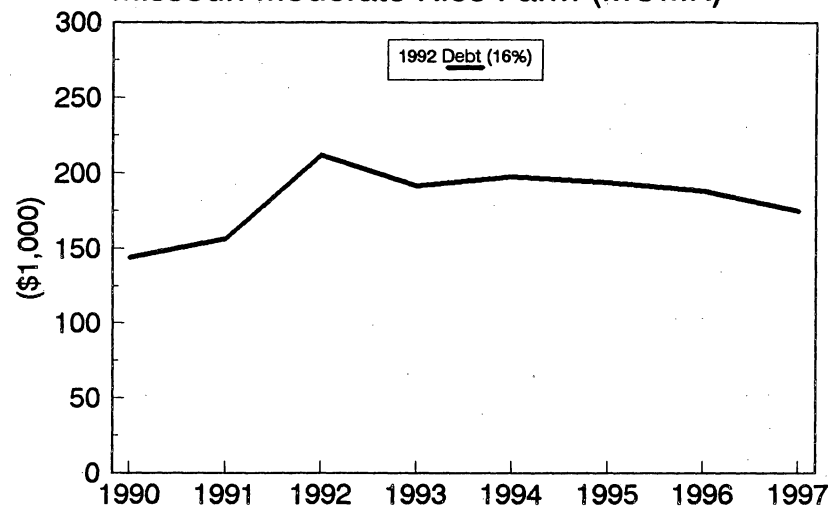
Annual Government Payments - Total deficiency, diversion, and other program payments.



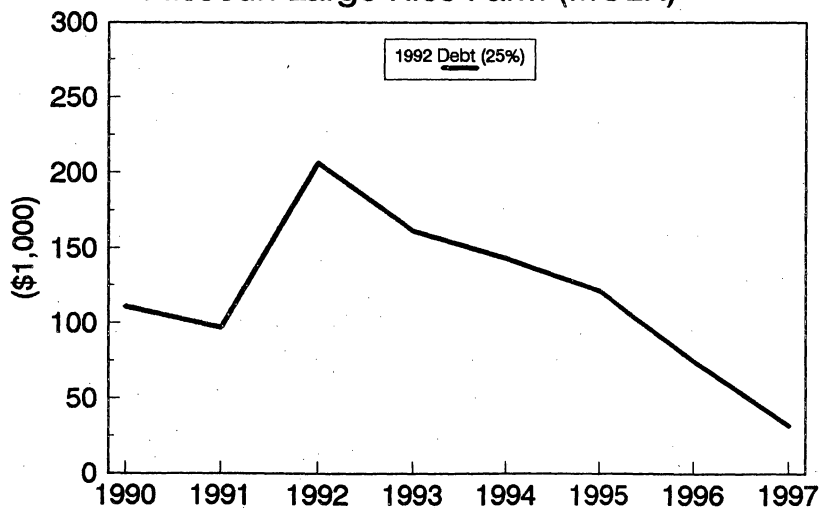
Net Cash Farm Income  
Arkansas Moderate Rice Farm (ARMR)



Net Cash Farm Income  
Missouri Moderate Rice Farm (MOMR)

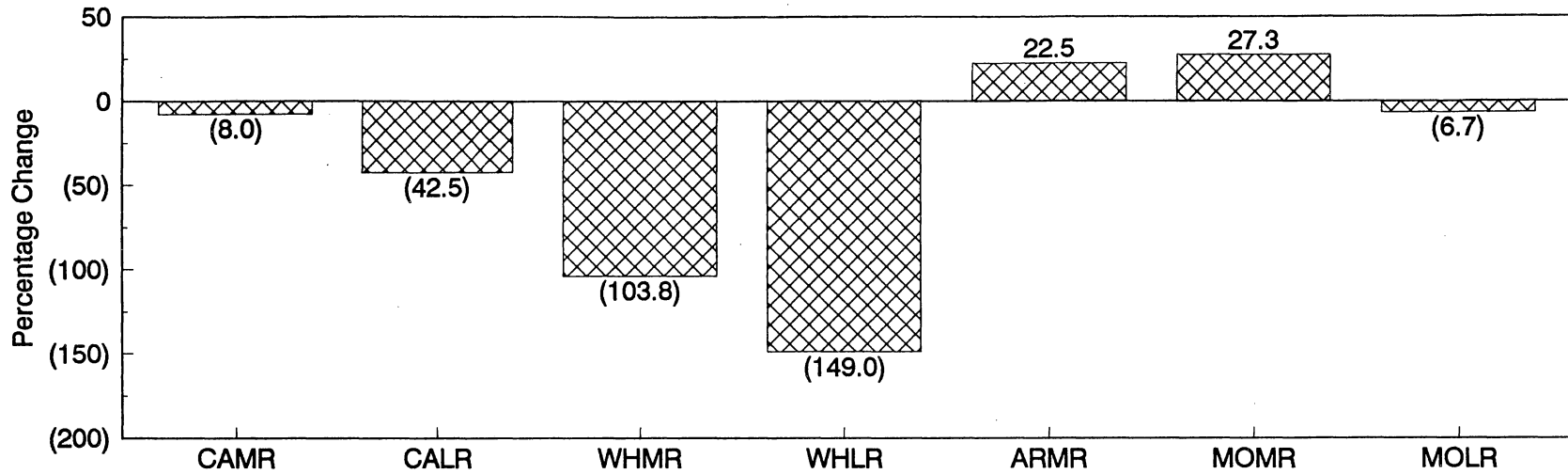


Net Cash Farm Income  
Missouri Large Rice Farm (MOLR)

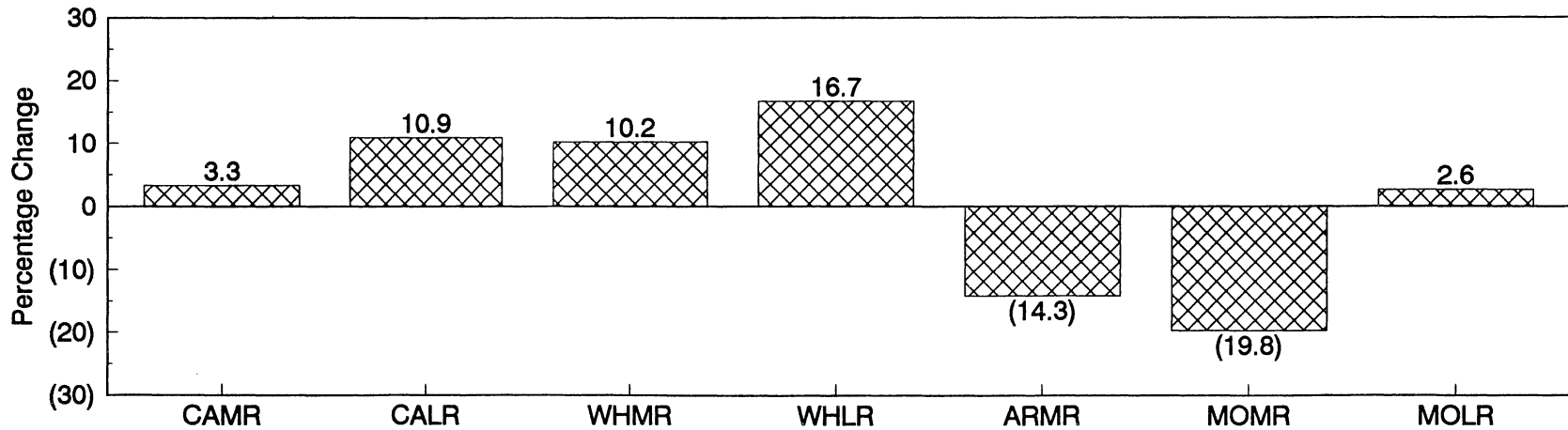




Real Change in Net Worth for All Rice Farms,  
1992 to 1997

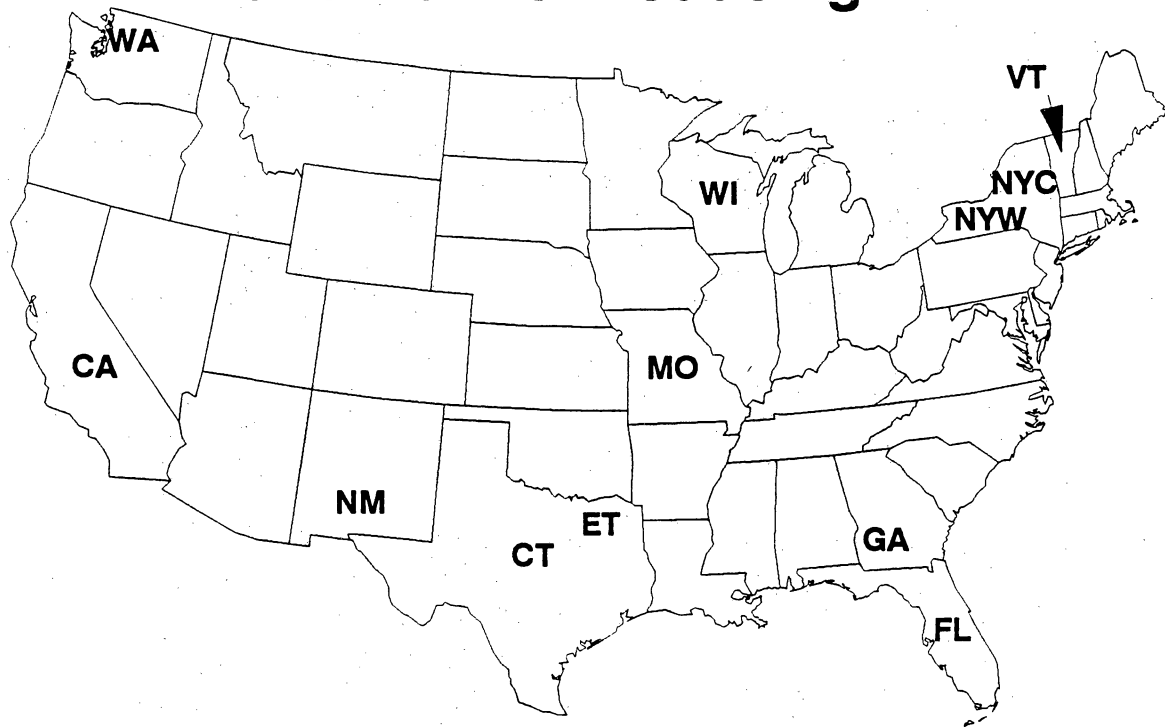


Annual Percentage Change in Receipts Needed to  
Maintain Real Net Worth From 1992 to 1997:  
Rice Farms





# Panel Farms Producing Milk



## CHARACTERISTICS OF PANEL FARMS PRODUCING MILK

- WAMD** a 160-cow Northern Washington (Whatcom County) moderate size dairy farm that had a herd average of 22,200 pounds of milk per cow. The farm grew 114 acres of silage and generated about 93 percent of its revenue from milk sales.
- WALD** an 800-cow Northern Washington (Whatcom County) large dairy farm that had a herd average of 23,200 pounds of milk per cow. The farm grew 385 acres of silage and generated about 92 percent of its revenue from milk sales.
- CALD** a 2,150-cow Central California (Tulare County) large dairy farm that had a herd average of 19,800 pounds of milk per cow. The farm grew no feed and generated about 86 percent of its revenue from milk sales. No additional waste measures were included in the January 1993 update.
- NMLD** a 2,000-cow Southern New Mexico (Dona Anna County) large dairy farm that had a herd average of 19,700 pounds of milk per cow. The farm grew 90 acres of silage and generated about 91 percent of its revenue from milk sales. No additional waste measures were included in the November 1992 update because most dairies of this size were overbuilt in anticipation of stricter regulations.
- TXCM** a 300-cow Central Texas (Erath County) moderate size dairy farm that had a herd average of 14,600 pounds of milk per cow. The farm grew 303 acres of hay and silage, and generated about 89 percent of its revenue from milk sales. To meet compliance with stricter Texas Water Commission regulations, this dairy spent \$40,600 for dirt work and concrete in its lagoons and \$6,000 for additional waste pumping equipment in 1992.
- TXCL** a 720-cow Central Texas (Erath County) large dairy farm that had a herd average of 17,640 pounds of milk per cow. The farm grew 380 acres of silage and produced 89 percent of its receipts from milk sales. This dairy invested \$60,000 to upgrade its lagoons and \$46,000 for additional waste equipment in 1992. Acreage was increased to provide more area for spreading dairy waste.
- TXEM** a 200-cow Eastern Texas (Hopkins County) moderate size dairy farm that had a herd average of 15,100 pounds of milk per cow. By double cropping, the farm grew 450 acres of hay and generated about 85 percent of its receipts from milk sales. This dairy invested \$7,000 to upgrade its lagoons in 1992 and contracted for custom pumping at a cost of \$50,000.
- TXEL** an 812-cow Eastern Texas (Hopkins County) large dairy farm that had a herd average of 16,843 pounds of milk per cow. The farm grew 337 acres of hay, 163 acres of silage, and 290 acres of coastal pasture. The farm generated about 89 percent of its receipts from milk sales. This dairy invested \$35,000 to upgrade its lagoons and \$50,000 for waste equipment in 1992. Acreage was increased to provide more area for spreading dairy waste.

Characteristics of Panel Farms Producing Milk.

	WAMD	WALD	CALD	NMLD	TXCM	TXCL	TXEM	TXEL
Total Cropland	120.	428.	320.	150.	303.	190.	400.	500.
Acres Owned	60.	225.	320.	150.	150.	190.	200.	500.
Acres Leased	60.	203.	0.	0.	153.	0.	200.	0.
Total Pasture	0.	0.	0.	0.	150.	155.	0.	300.
Acres Owned	0.	0.	0.	0.	0.	155.	0.	300.
Acres Leased	0.	0.	0.	0.	150.	0.	0.	0.
Assets (\$1000)								
Total	791.	3555.	7779.	7141.	1122.	2586.	887.	3357.
Real Estate	520.	1913.	3224.	2715.	512.	824.	346.	1469.
Machinery	84.	273.	107.	443.	191.	282.	172.	300.
Livestock	188.	1369.	4448.	3983.	419.	1479.	369.	1589.
Debt/Asset Ratios*								
Total	0.46	0.26	0.07	0.03	0.45	0.13	0.46	0.16
Intermediate	0.33	0.25	0.13	0.05	0.17	0.08	0.20	0.12
Long Run	0.53	0.26	0.00	0.00	0.79	0.26	0.85	0.21
1992 Livestock								
Dairy Cows	160.	800.	2150.	2000.	300.	720.	200.	812.
Cwt Milk/Cow	222.	232.	210.	197.	146.	176.	151.	168.
1992 Gross Receipts (\$1,000)**								
Total	479.1	2525.3	6182.5	5670.8	695.4	2025.4	489.9	2113.6
Milk	444.5 92.8%	2328.1 92.2%	5318.2 86.0%	5149.1 90.8%	621.9 89.4%	1803.4 89.0%	416.7 85.1%	1892.7 89.5%
Dairy Cattle	33.2 6.9%	193.9 7.7%	829.4 13.4%	521.7 9.2%	73.5 10.6%	222.0 11.0%	73.1 14.9%	220.9 10.5%
Crops	1.4 0.3%	3.2 0.1%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***								
Total	114.0	385.0	0.0	90.0	303.0	380.0	450.0	790.0
Hay	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	303.0 100.0%	0.0 0.0%	450.0 100.0%	337.0 42.7%
Silage	114.0 100.0%	385.0 100.0%	0.0 0.0%	90.0 100.0%	0.0 0.0%	380.0 100.0%	0.0 0.0%	163.0 20.6%
Improved Pasture	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	290.0 36.7%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING MILK - Continued

- WIMD** a 50-cow Eastern Wisconsin (Winnebago County) moderate size dairy farm that had a herd average of 15,900 pounds of milk per cow. The farm grew 18 acres of silage, 78 acres of hay, 42 acres of haylage, and 36 acres of corn for grain. The farm operation generated about 82 percent of its total revenue from milk sales.
- WILD** a 175-cow Eastern Wisconsin (Winnebago County) large dairy farm that had a herd average of 19,000 pounds of milk per cow. The farm grew 44 acres of silage, 125 acres of hay, 252 acres of haylage, and 93 acres of corn for grain. The farm generated about 87 percent of its revenue from milk sales.
- NYWM** a 500-cow Western New York (Wyoming County) moderate size dairy farm that had a herd average of 19,000 pounds of milk per cow. The farm grew 432 acres of silage and 347 acres of haylage. About 90 percent of the total revenue on the farm came from milk sales.
- NYWL** a 1,000-cow Western New York (Wyoming County) large dairy farm that had a herd average of 19,000 pounds of milk per cow. The farm grew 640 acres of silage and 660 acres of haylage. The farm generated about 89 percent of its total receipts from milk sales.
- NYCM** a 100-cow Central New York (Cayuga County) moderate size dairy farm that had a herd average of 19,000 pounds of milk per cow. The farm grew 90 acres of hay, 60 acres of silage, 47 acres of haylage and 111 acres of corn for grain. About 87 percent of the farm's gross receipts came from milk sales.
- NYCL** a 175-cow Central New York (Cayuga County) large dairy that had a herd average of 19,000 pounds of milk per cow. The farm grew 99 acres of silage, 99 acres of hay, 128 acres of haylage, and 89 acres of corn for grain. The farm generated about 89 percent of its total receipts from milk sales.
- VTMD** a 70-cow Vermont moderate size dairy farm that had a herd average of 20,000 pounds of milk per cow. The farm grew 138 acres of hay. The farm generated about 88 percent of its revenue from milk sales. This farm was updated in August 1992. No additional waste management costs were added.
- VTLD** a 186-cow Vermont large dairy farm that had a herd average of 18,500 pounds of milk per cow. The farm grew 284 acres of hay. The farm generated about 90 percent of its revenue from milk sales. This farm was updated in August 1992. No additional waste management costs were added.

Characteristics of Panel Farms Producing Milk.

	WIMD	WILD	NYWM	NYWL	NYCM	NYCL	VTMD	VTLD
Total Cropland	190.	550.	800.	1300.	308.	413.	140.	285.
Acres Owned	152.	330.	600.	867.	205.	309.	100.	225.
Acres Leased	38.	220.	200.	433.	103.	104.	40.	60.
Total Pasture	0.	0.	200.	200.	50.	300.	125.	100.
Acres Owned	0.	0.	200.	200.	50.	300.	100.	50.
Acres Leased	0.	0.	0.	0.	0.	0.	25.	50.
Assets (\$1000)								
Total	407.	1078.	2150.	4737.	684.	968.	638.	1172.
Real Estate	221.	542.	1153.	1742.	432.	517.	372.	595.
Machinery	103.	212.	222.	611.	112.	187.	164.	303.
Livestock	83.	324.	774.	2384.	140.	265.	102.	275.
Debt/Asset Ratios*								
Total	0.17	0.12	0.13	0.06	0.14	0.17	0.41	0.21
Intermediate	0.07	0.08	0.19	0.10	0.24	0.26	0.38	0.25
Long Run	0.24	0.16	0.08	0.00	0.09	0.08	0.43	0.17
1992 Livestock								
Dairy Cows	50.	175.	500.	1000.	100.	175.	70.	186.
Cwt Milk/Cow	159.	190.	190.	190.	190.	190.	200.	185.
1992 Gross Receipts (\$1,000)**								
Total	123.4	483.4	1400.7	2822.3	289.5	494.3	214.0	514.3
Milk	100.6 81.5%	422.3 87.4%	1261.8 90.1%	2523.6 89.4%	252.4 87.2%	441.6 89.3%	187.9 87.8%	461.7 89.8%
Dairy Cattle	17.7 14.3%	59.4 12.3%	138.8 9.9%	298.1 10.6%	35.8 12.4%	52.7 10.7%	24.6 11.5%	52.5 10.2%
Crops	5.1 4.2%	1.7 0.3%	0.1 0.0%	0.6 0.0%	1.3 0.5%	0.0 0.0%	0.0 0.0%	0.0 0.0%
1992 Planted Acres***								
Total	174.0	514.0	779.0	1300.0	308.0	415.0	138.0	284.0
Hay	78.0 44.8%	125.0 24.3%	0.0 0.0%	0.0 0.0%	90.0 29.2%	99.0 23.9%	138.0 100.0%	284.0 100.0%
Silage	18.0 10.3%	44.0 8.6%	432.0 55.5%	640.0 49.2%	60.0 19.5%	99.0 23.9%	0.0 0.0%	0.0 0.0%
Haylage	42.0 24.1%	252.0 49.0%	347.0 44.5%	660.0 50.8%	47.0 15.3%	128.0 30.8%	0.0 0.0%	0.0 0.0%
Corn	36.0 20.7%	93.0 18.1%	0.0 0.0%	0.0 0.0%	111.0 36.0%	89.0 21.4%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## CHARACTERISTICS OF PANEL FARMS PRODUCING MILK - Continued

- MOMD** a 65-cow Southeastern Missouri (Christian County) moderate size dairy farm that had a herd average of 18,000 pounds of milk per cow. The farm grew 218 acres of other hay and generated about 84 percent of its revenue from milk sales.
- MOLD** a 200-cow Southeastern Missouri (Christian County) large dairy farm that had a herd average of 19,000 pounds of milk per cow. The farm grew 102 acres of hay, 108 acres of silage, and 40 acres of alfalfa haylage. About 86 percent of the farm's revenue came from milk sales.
- GAMD** a 200-cow Southern Georgia (Spalding County) moderate size dairy farm that had a herd average of 16,900 pounds of milk per cow. The farm grew 107 acres of silage and 116 acres of hay. The farm generated about 90 percent of the total revenue from milk sales.
- FLLD** a 1,000-cow South Central Florida (Okeechobee County) large dairy farm that had a herd average of 15,800 pounds of milk per cow. The farm grew 513 acres of silage and 281 acres of hay. About 91 percent of the farm's total revenue came from milk sales.



Characteristics of Panel Farms Producing Milk.

	MOMD	MOLD	GAMD	FLLD
Total Cropland	113.	250.	266.	540.
Acres Owned	89.	250.	200.	540.
Acres Leased	24.	0.	66.	0.
Total Pasture	137.	350.	150.	800.
Acres Owned	56.	350.	100.	800.
Acres Leased	81.	0.	50.	0.
Assets (\$1000)				
Total	341.	1319.	834.	5070.
Real Estate	137.	765.	479.	3172.
Machinery	100.	234.	120.	230.
Livestock	105.	320.	234.	1668.
Debt/Asset Ratios*				
Total	0.10	0.11	0.50	0.21
Intermediate	0.07	0.08	0.12	0.18
Long Run	0.15	0.14	0.79	0.23
1992 Livestock				
Dairy Cows	65.	200.	200.	1000.
Cwt Milk/Cow	180.	190.	169.	158.
1992 Gross Receipts (\$1,000)**				
Total	183.2	589.2	555.4	2844.7
Milk	154.7 84.4%	504.0 85.5%	496.7 89.4%	2584.8 90.9%
Dairy Cattle	23.5 12.8%	65.1 11.0%	57.7 10.4%	259.0 9.1%
Crops	5.1 2.8%	20.1 3.4%	1.0 0.2%	1.0 0.0%
1992 Planted Acres***				
Total	218.0	250.0	223.0	794.0
Hay	218.0 100.0%	102.0 40.8%	116.0 52.0%	281.0 35.4%
Silage	0.0 0.0%	108.0 43.2%	107.0 48.0%	513.0 64.6%
Haylage	0.0 0.0%	40.0 16.0%	0.0 0.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## DAIRY IMPACTS

- FAPRI projected the all milk price to drop from \$13.11/cwt. in the 1992-93 marketing year to \$12.43/cwt. in 1993-94. The sharp drop was followed by a recovery in 1994-95 (\$13.04/cwt.) and a slight drop to \$12.76/cwt. in marketing year 1995-96. Prices increased in 1996-97 to \$13.06 before falling to \$12.67/cwt. in the final year. Concentrate and hay prices increased annually to 1996-97 before dropping in the final year.
- Assessments remained at \$0.1125/cwt. from 1992-93 to 1997-98.
- The net cash farm income for the 20 representative dairies basically followed this price pattern. Dairy incomes oscillated throughout the period.
- Eight of the twenty dairies in the study received higher nominal net cash farm incomes in 1997 than were generated in 1992. Of these eight dairies, the large Central Texas (TXCL) and East Texas (TXEL) dairies produced nominal net cash farm incomes in 1997 that were more than 10 percent higher than in 1992. The large Washington (WALD), moderate and large Wisconsin (WIMD and WILD), moderate and large Missouri (MOMD and MOLD), and large Florida (FLLD) dairies each realized marginally higher real net cash farm income in 1997-98 than in 1992-93.
- Two of the twenty dairies experienced negative net cash farm incomes during the 1992-97 period. The moderate Central Texas (TXCM) and East Texas (TXEM) dairies were declared insolvent before the end of the 1992-97 period. Costs associated with waste management have been incorporated into all four Texas dairies, reflecting recent Texas Water Commission environmental enforcement activity. The moderate-sized farms were not able to stay in business under the burden of these new costs.
- The moderate Washington (WAMD), moderate and large Vermont (VTMD and VTLD), moderate Central New York (NYCM), and moderate Georgia (GAMD) dairies earn positive net cash farm incomes during the 1992-97 period averaging from \$10,000 to \$60,000. However, these dairies were not able to cover minimum family living expenses and make principal and machinery replacement payments. These dairies lost from 18 to 63 percent of their real equity over the study period.
- Two dairies (WIMD and NYWM) showed small gains in real net worth over the study period of 7 and 8 percent. Only a small (6 percent) drop in receipts would cause both dairies to lose real equity over the period.
- Eight dairies (WALD, TXCL, TXEL, WILD, NYCL, MOMD, MOLD, and FLLD) realized gains in real net worth of 10 to 50 percent over the study period. Three dairies (CALD, NMLD, and NYWL) experienced increased real net worth under the Baseline of

over 50 percent. It would take at least a 23 percent decline in receipts to move the CALD, NMLD, and NYWL dairies into a position of losing real equity over the period.

- The results indicate considerable economies of size advantages to the larger farms in each region. Thus, while the moderate dairies are under economic pressure, most of the larger scale operations are able to grow in real terms. These differential economic impacts will likely pose problems as producers, consumers, agribusinesses, taxpayers, and policymakers attempt to agree on a dairy policy.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline  
on the Economic Viability of Representative Farms That Produce Milk.

	WAMD	WALD	CALD	NMLD	TXCM	TXCL	TXEM	TXEL
Average Change in Real Net Worth (%)	-63.96	41.63	78.35	60.97	-100.35	47.55	-60.52	13.00
Average Annual Ratio Expense/Receipts (%)	94.35	81.44	72.29	78.97	108.58	80.73	109.48	87.87
Average Present Value End Net Worth (\$1000)	156.28	3373.24	10822.86	9645.60	-2.53	3005.28	210.66	3039.61
Average Annual Cash Receipts (\$1000)	486.11	2568.07	6243.62	5759.89	692.61	2052.46	492.09	2159.59
Average Annual Cash Expenses (\$1000)	458.32	2090.40	4512.92	4547.72	751.52	1656.21	538.18	1895.83
Average Annual Net Cash Income (\$1000)	27.79	477.68	1730.69	1212.17	-58.91	396.25	-46.09	263.75
Average Change Real Net Cash Farm Income (%)	-84.04	-9.19	-20.69	-19.21	-300.49	15.08	-108.70	1.54
Average Annual Govt. Payments (\$1000)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Annual Cash Receipts (\$1000)								
1992	479.10	2525.26	6182.53	5670.81	695.43	2025.37	489.85	2113.57
1993	460.60	2426.95	5948.26	5464.83	676.39	1949.21	481.06	2050.99
1994	490.91	2584.14	6288.54	5788.41	706.84	2061.92	500.67	2160.52
1995	487.38	2564.26	6193.54	5750.27	702.05	2050.55	501.91	2168.84
1996	509.23	2675.12	6466.97	5983.22		2118.30		2250.40
1997	500.55	2632.72	6381.87	5901.80		2109.41		2213.20
Average Annual Net Cash Income (\$1000)								
1992	42.42	456.56	1810.72	1245.39	-25.10	310.23	-30.05	226.90
1993	27.89	401.69	1587.19	1164.04	-49.61	376.16	-42.11	228.62
1994	37.48	508.47	1839.53	1295.62	-62.33	452.84	-45.72	287.52
1995	20.07	464.44	1661.88	1135.18	-108.34	386.39	-66.44	262.23
1996	26.49	536.65	1759.15	1223.74		422.87		300.38
1997	15.95	498.25	1725.69	1209.04		429.01		276.87

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Milk.

	WIMD	WILD	NYWM	NYWL	NYCM	NYCL	VTMD	VTLD
Average Change in Real Net Worth (%)	7.14	31.06	8.85	63.16	-8.99	19.56	-52.37	-18.37
Average Annual Ratio Expense/Receipts (%)	51.64	64.38	85.92	68.75	81.27	74.87	89.44	92.34
Average Present Value End Net Worth (\$1000)	346.59	1143.90	1940.88	6331.02	524.83	902.26	180.68	733.55
Average Annual Cash Receipts (\$1000)	125.93	497.60	1436.53	2866.88	296.99	506.83	216.88	522.51
Average Annual Cash Expenses (\$1000)	65.00	320.20	1233.13	1969.34	241.14	379.06	193.85	482.27
Average Annual Net Cash Income (\$1000)	60.93	177.40	203.40	897.55	55.85	127.76	23.03	40.24
Average Change Real Net Cash Farm Income (%)	-11.78	-14.79	-17.60	-20.66	-32.71	-17.16	-78.27	-56.88
Average Annual Govt. Payments (\$1000)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Annual Cash Receipts (\$1000)								
1992	123.44	483.43	1400.72	2822.28	289.47	494.35	214.01	514.29
1993	120.21	474.93	1356.86	2705.37	281.33	480.15	206.38	495.45
1994	126.63	501.40	1445.07	2880.07	298.86	509.80	218.18	525.29
1995	125.48	496.94	1444.16	2872.37	298.35	508.36	216.32	521.43
1996	130.98	519.48	1496.07	2980.40	308.65	527.39	224.18	541.22
1997	128.84	509.43	1476.27	2940.82	305.29	520.91	223.06	537.37
Average Annual Net Cash Income (\$1000)								
1992	59.33	172.42	205.01	938.05	59.81	127.94	35.02	57.28
1993	56.53	162.11	204.94	877.92	50.09	115.47	25.82	36.47
1994	63.60	187.43	230.03	928.83	60.75	134.77	28.98	51.29
1995	60.20	176.01	183.79	850.31	56.71	124.28	20.47	31.46
1996	63.04	189.88	193.58	895.83	59.39	136.75	18.15	35.24
1997	62.89	176.55	203.01	894.34	48.36	127.36	9.66	29.68

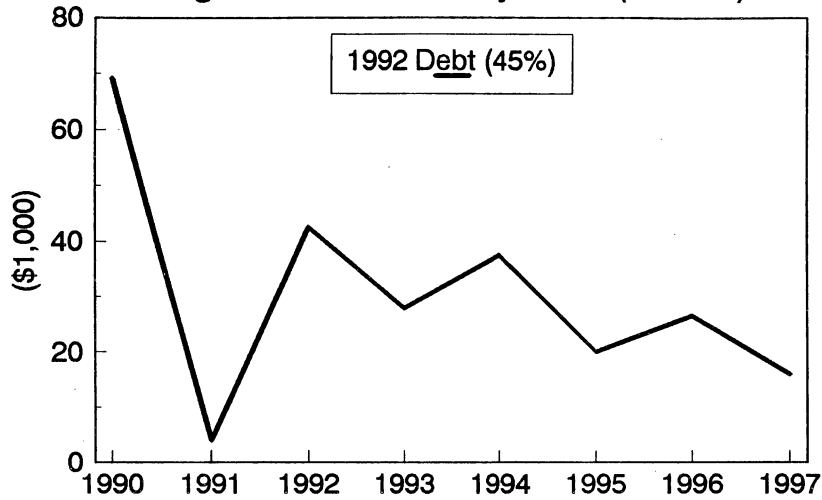
Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.  
Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.  
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Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.  
Annual Government Payments - Total deficiency, diversion, and other program payments.

Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Milk.

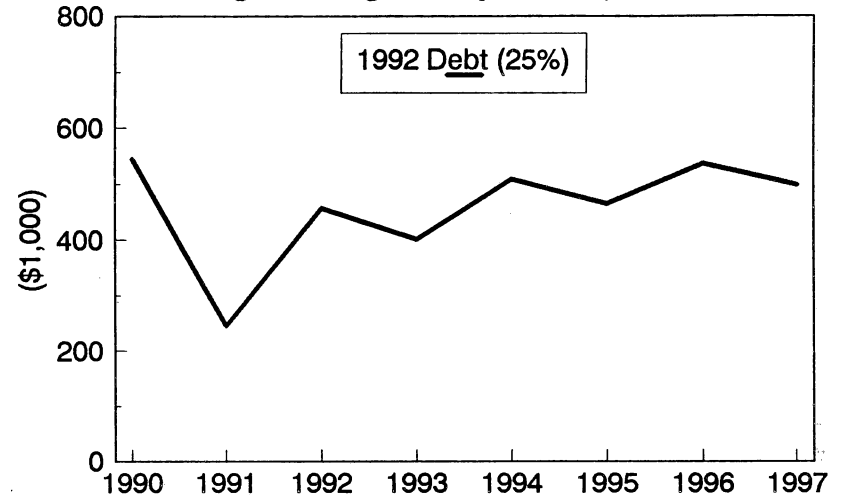
	MOMD	MOLD	GAMD	FLLD
Average Change in Real Net Worth (%)	22.89	24.77	-49.44	15.82
Average Annual Ratio Expense/Receipts (%)	63.42	67.93	94.43	86.49
Average Present Value End Net Worth (\$1000)	349.89	1357.82	209.94	4373.88
Average Annual Cash Receipts (\$1000)	187.62	602.55	566.43	2899.66
Average Annual Cash Expenses (\$1000)	118.95	409.23	534.70	2507.58
Average Annual Net Cash Income (\$1000)	68.67	193.32	31.73	392.08
Average Change Real Net Cash Farm Income (%)	-12.68	-12.23	-66.98	-8.87
Average Annual Govt. Payments (\$1000)	0.00	0.00	0.00	0.00
Average Annual Cash Receipts (\$1000)				
1992	183.25	589.18	555.41	2844.74
1993	179.55	575.92	540.63	2765.22
1994	189.28	607.56	571.33	2907.85
1995	186.87	599.28	565.88	2899.89
1996	194.76	625.80	586.96	2995.03
1997	192.03	617.57	583.80	2985.24
Average Annual Net Cash Income (\$1000)				
1992	65.89	184.54	32.18	382.07
1993	66.12	181.73	39.48	360.91
1994	71.90	208.95	49.27	437.11
1995	66.66	187.48	27.45	344.54
1996	72.31	202.55	27.35	409.44
1997	69.14	194.64	15.24	418.40

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.  
 Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.  
 Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.  
 Annual Cash Receipts - Total cash receipts from crops, dairy, livestock, government payments, and other farm related activities.  
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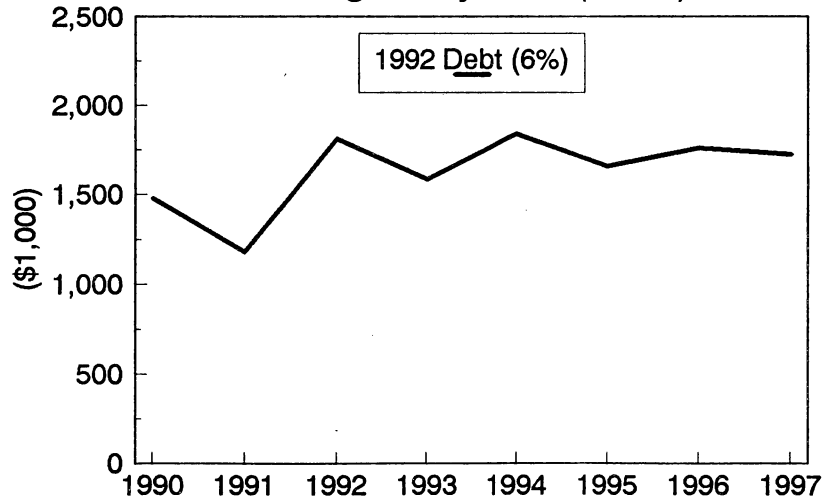
Net Cash Farm Income  
Washington Moderate Dairy Farm (WAMD)



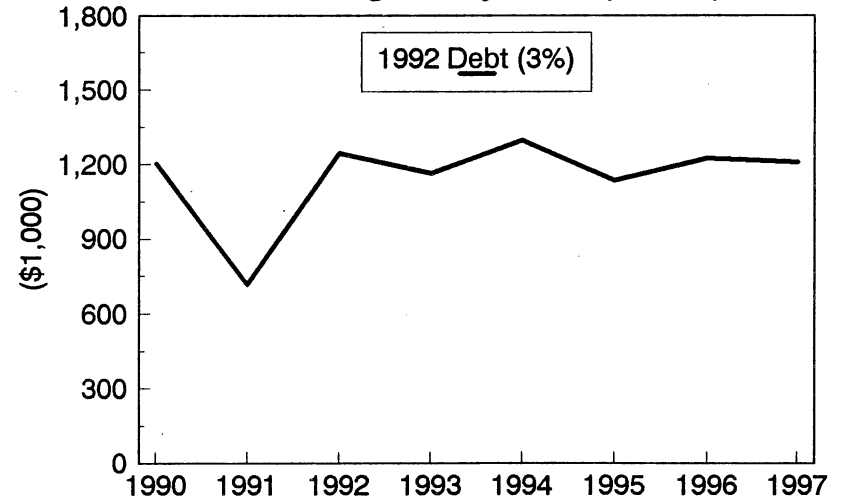
Net Cash Farm Income  
Washington Large Dairy Farm (WALD)

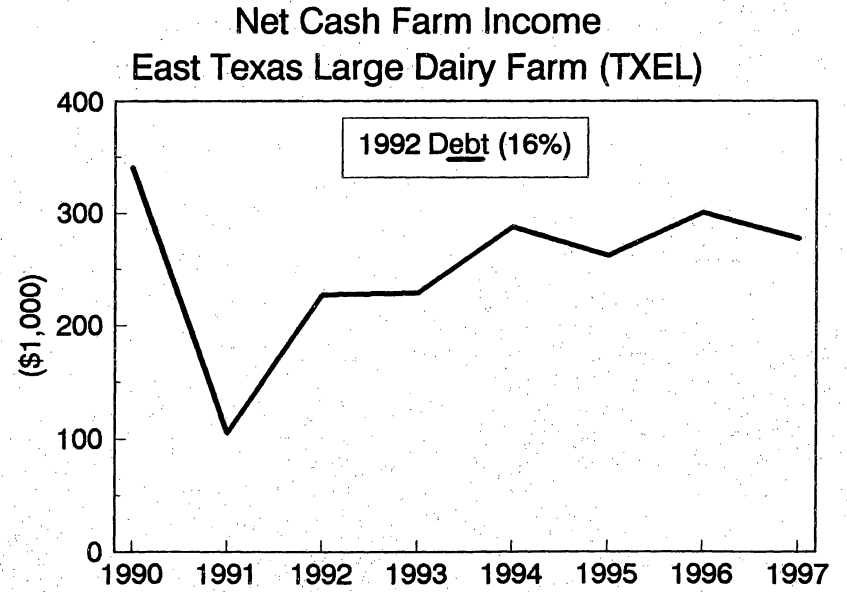
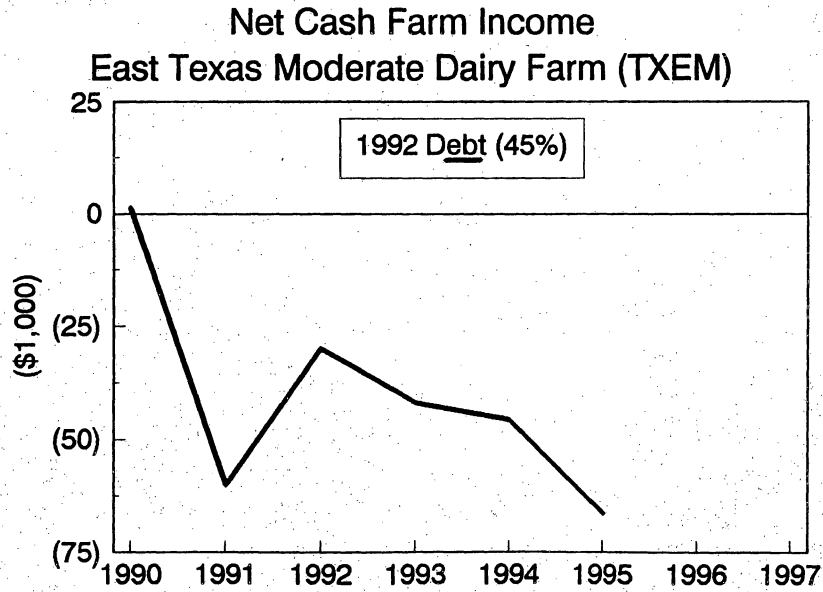
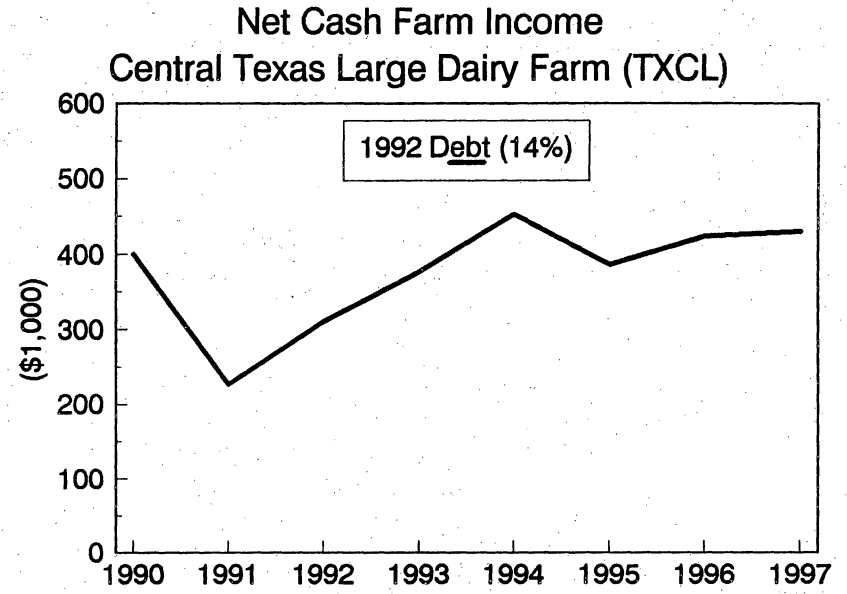
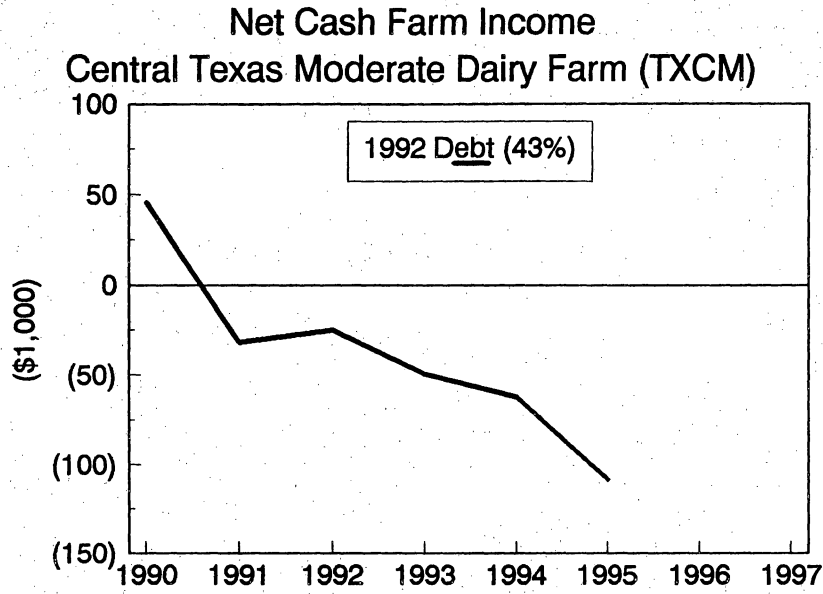


Net Cash Farm Income  
California Large Dairy Farm (CALD)



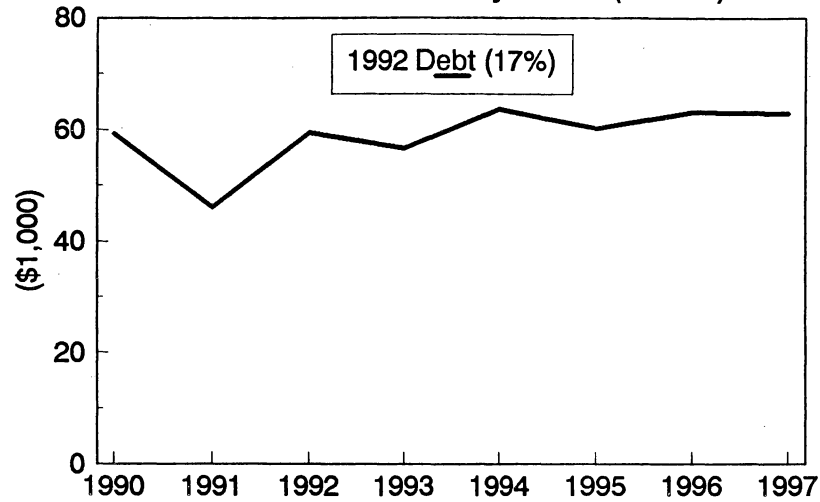
Net Cash Farm Income  
New Mexico Large Dairy Farm (NMLD)



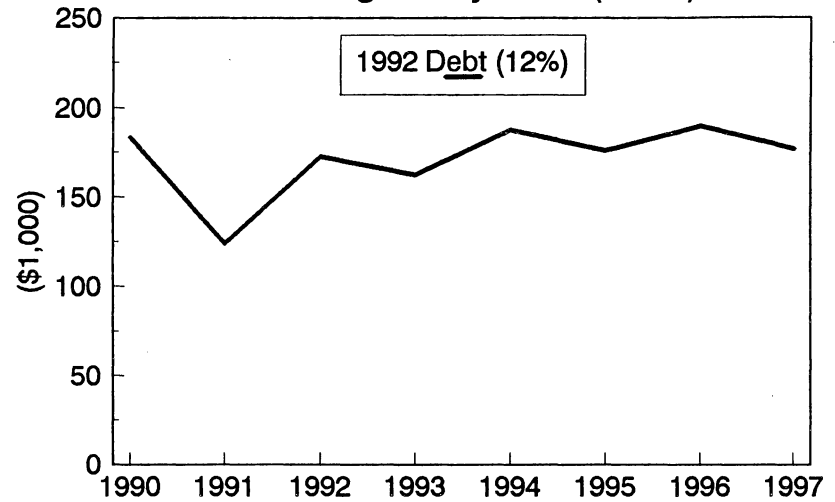




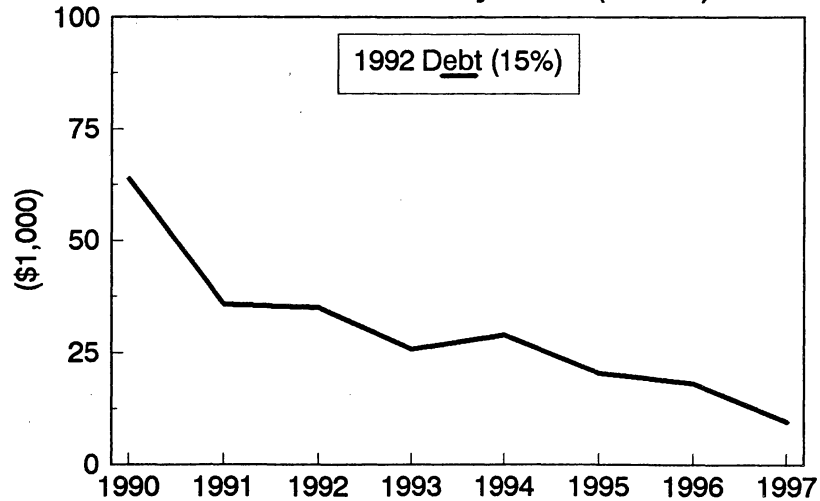
Net Cash Farm Income  
Wisconsin Moderate Dairy Farm (WIMD)



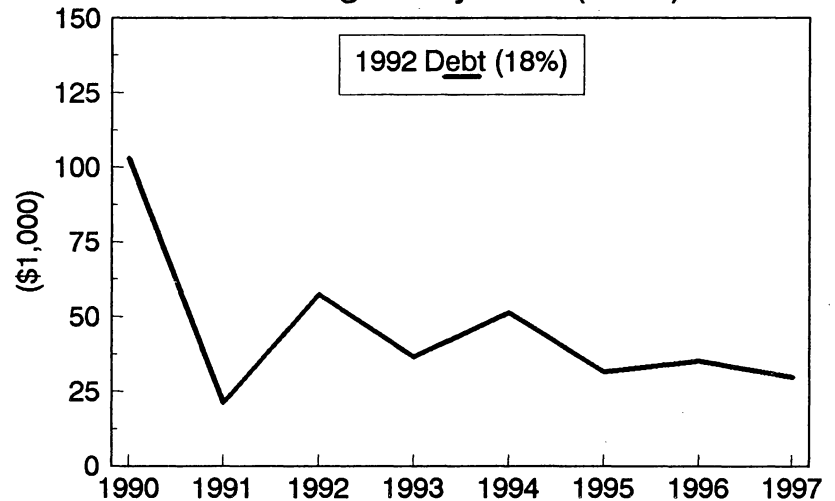
Net Cash Farm Income  
Wisconsin Large Dairy Farm (WILD)



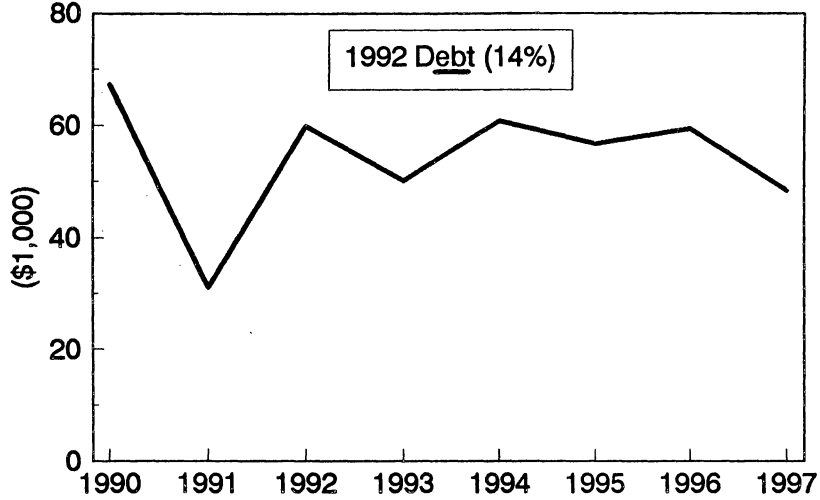
Net Cash Farm Income  
Vermont Moderate Dairy Farm (VTMD)



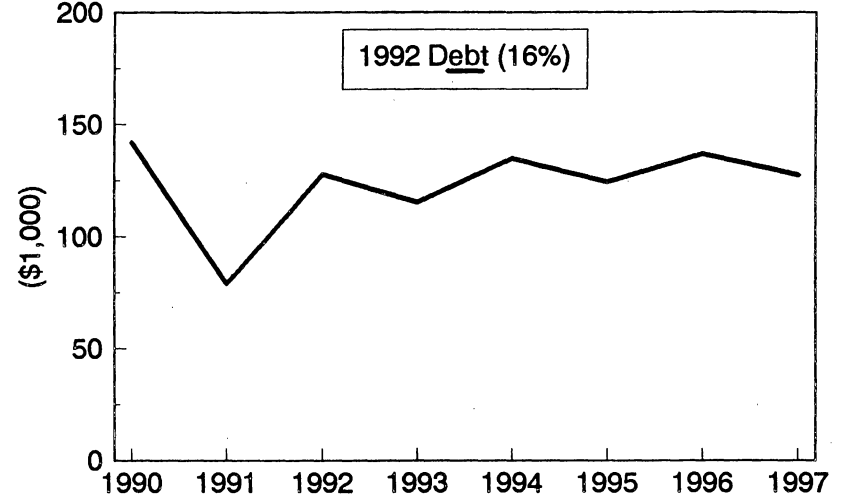
Net Cash Farm Income  
Vermont Large Dairy Farm (VTLD)



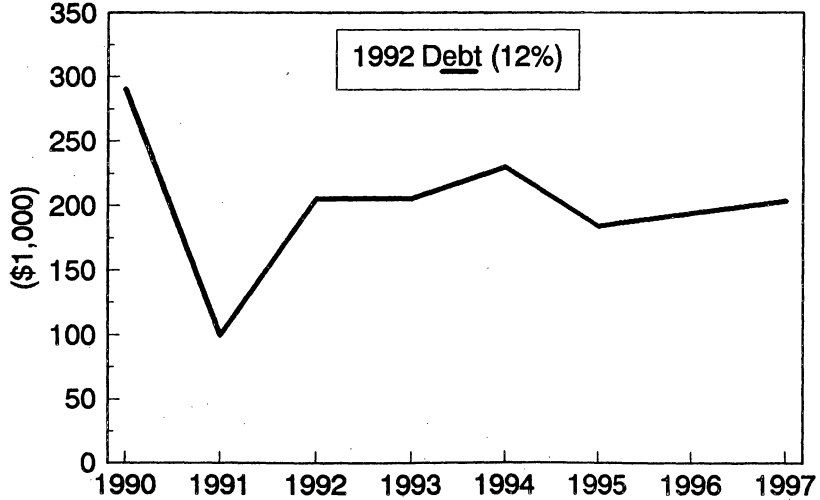
Net Cash Farm Income  
Central New York Moderate Dairy Farm (NYCM)



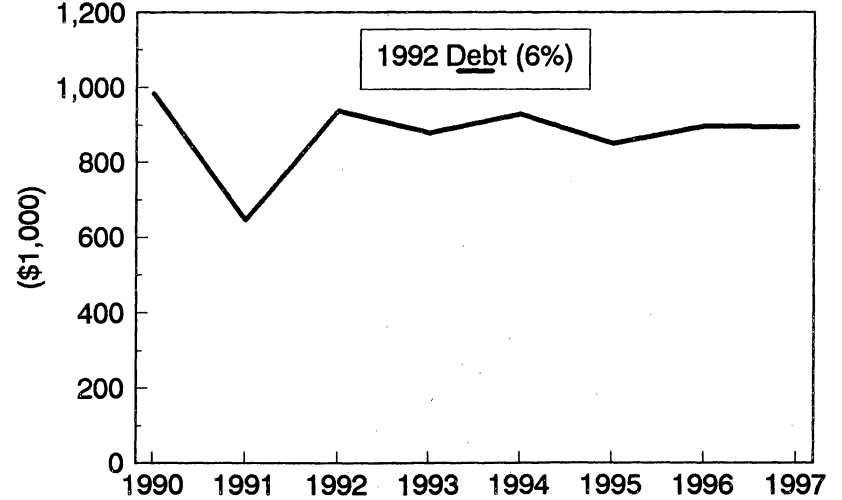
Net Cash Farm Income  
Central New York Large Dairy Farm (NYCL)

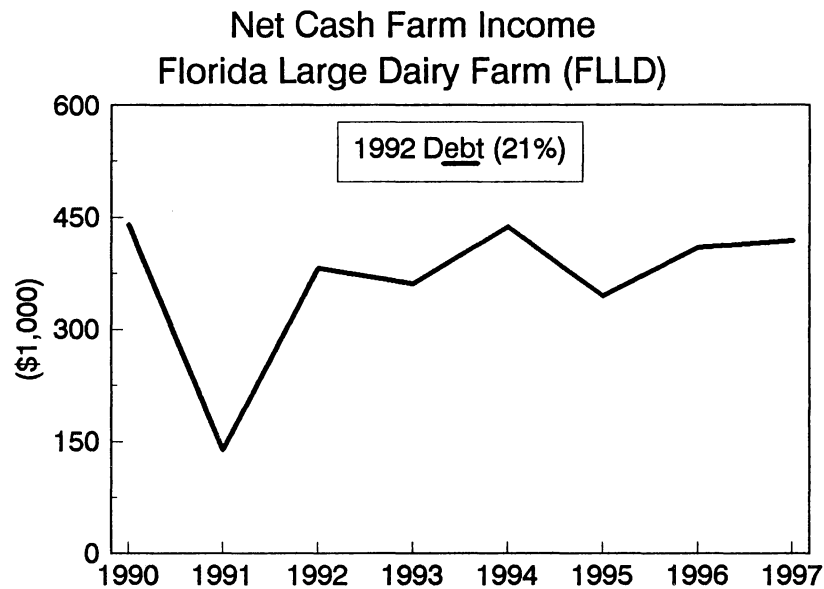
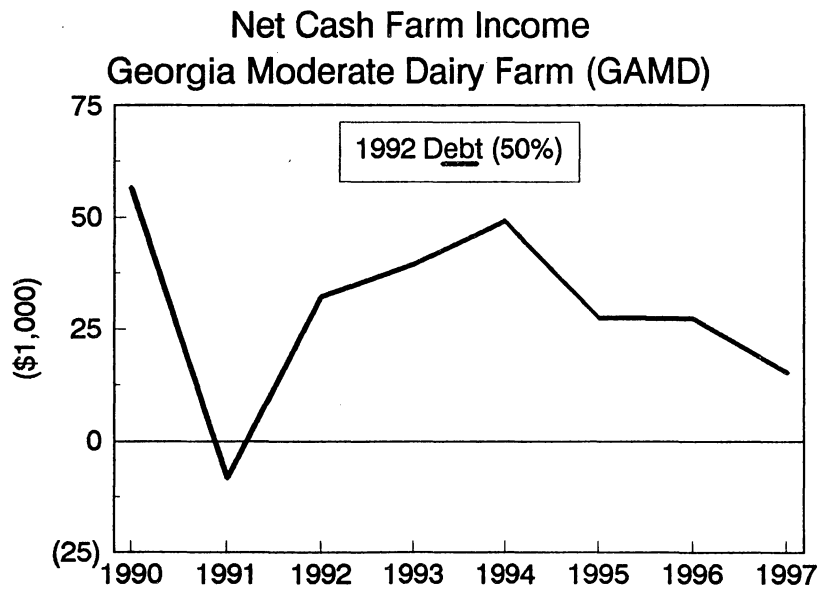
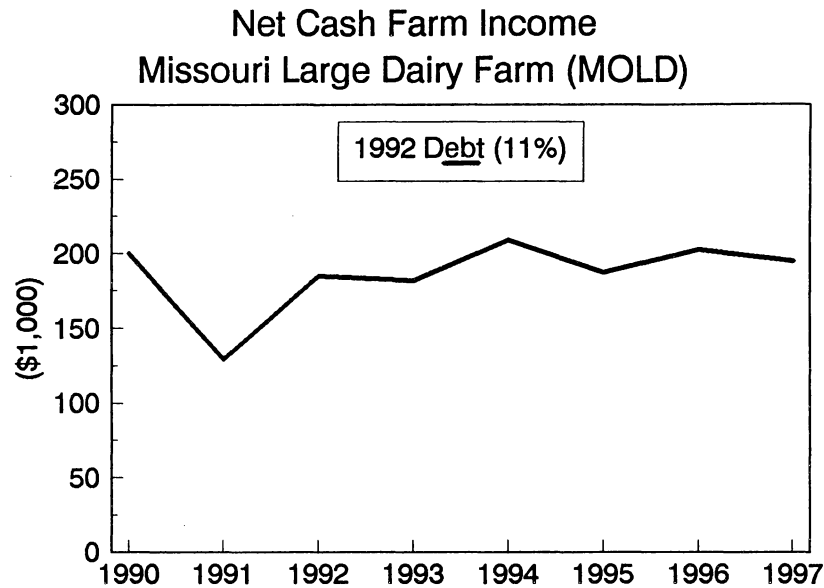
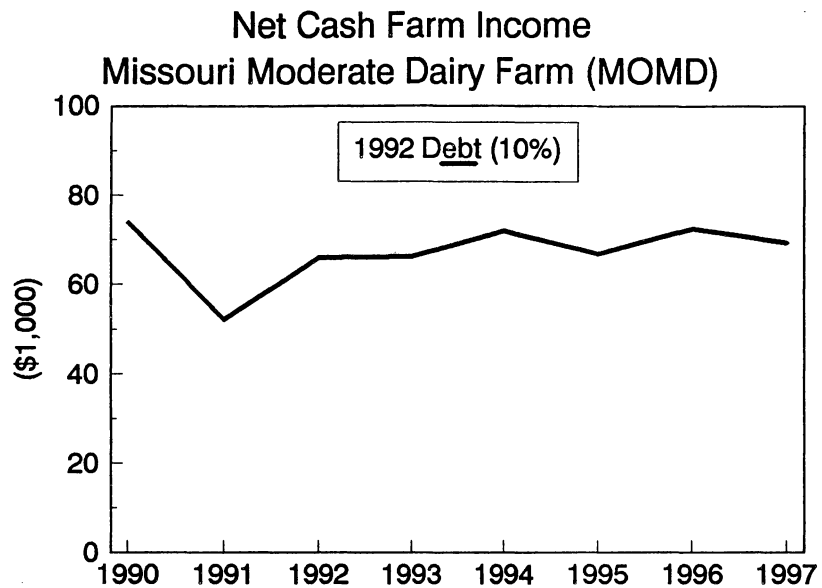


Net Cash Farm Income Western  
New York Moderate Dairy Farm (NYWM)

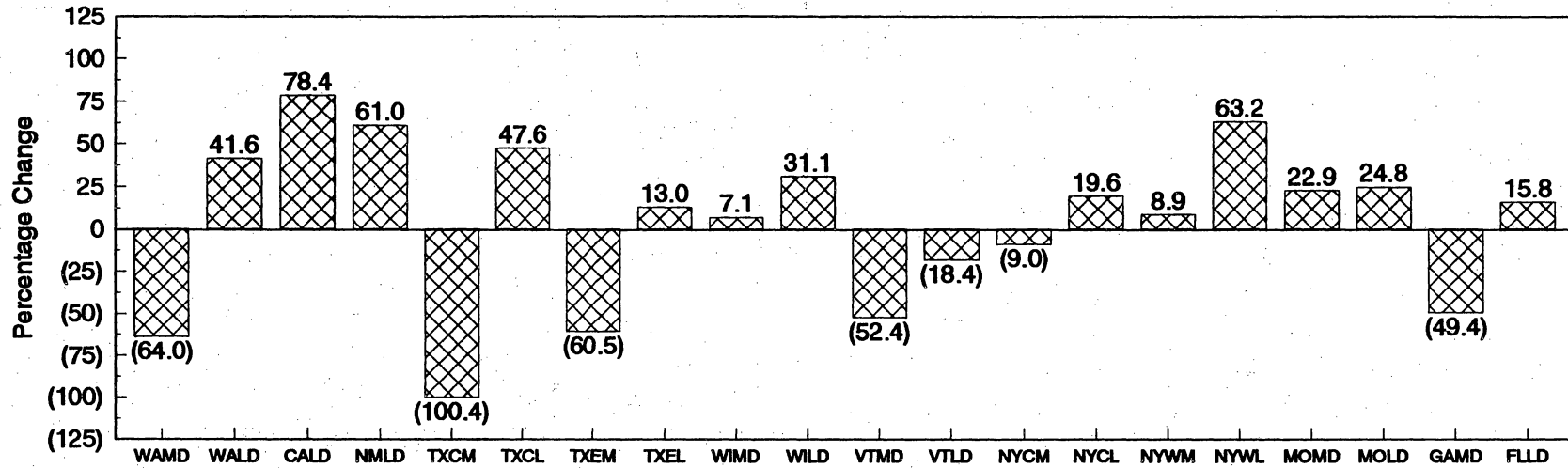


Net Cash Farm Income  
Western New York Large Dairy Farm (NYWL)

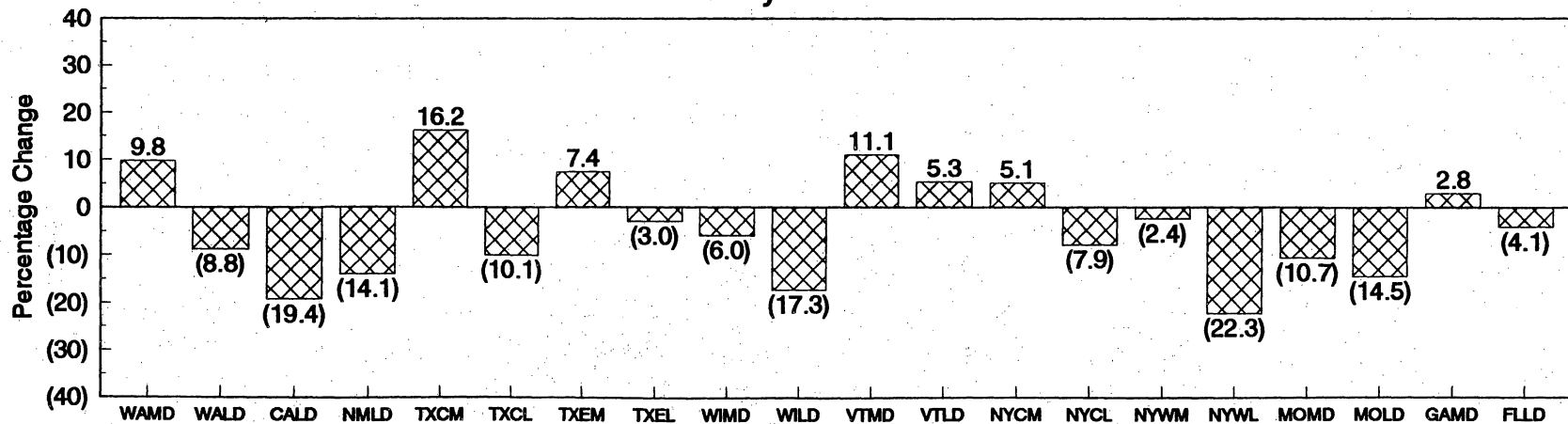




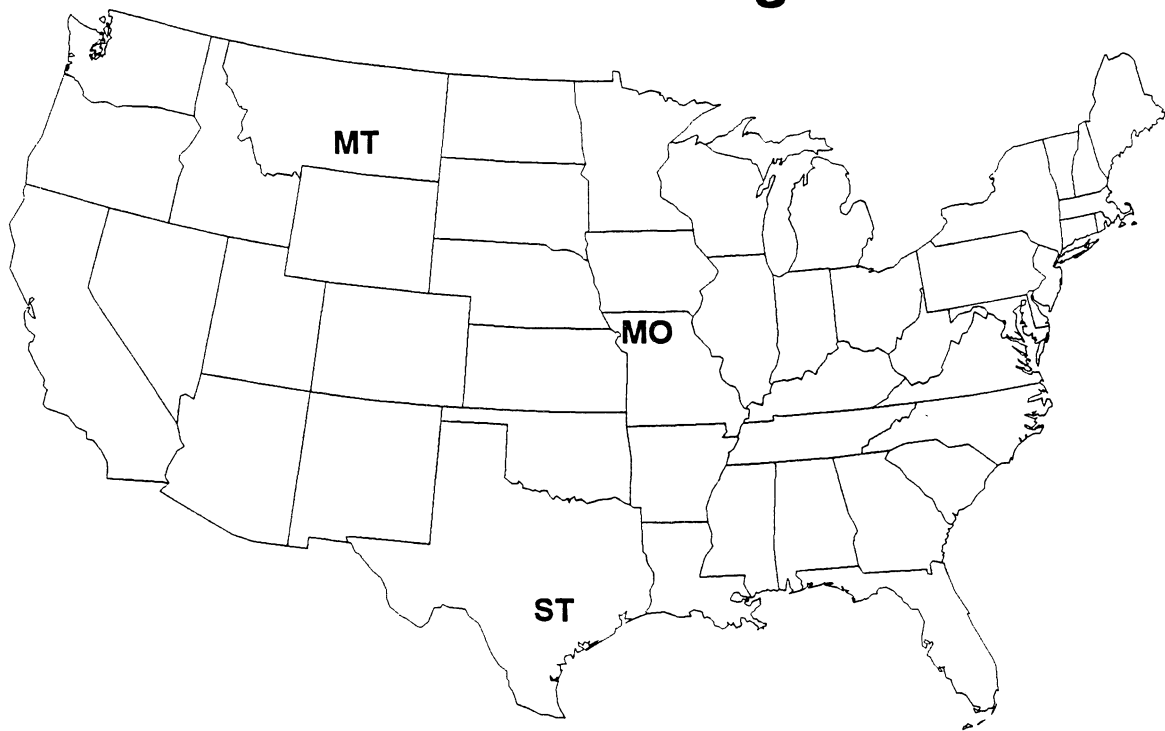
### Real Change in Net Worth for All Dairy Farms, 1992-1997



### Annual Percentage Change in Receipts Needed to Maintain Real Net Worth From 1992 to 1997: Dairy Farms



# Panel Farms Producing Beef Cattle



## CHARACTERISTICS OF PANEL FARMS PRODUCING BEEF CATTLE

- MTLC** a large Southeastern Montana (Custer County) cow/calf ranch with 400 mother cows. The ranch consists of 14,000 acres and the owner leases 6,000 additional acres. All of the receipts came from the cow/calf operation in 1992, and the farm raised 300 acres of hay for cattle on the ranch.
- MOMC** a moderate Missouri (Nodaway County) cow/calf operation with 150 mother cows and 80 sows. In 1992 the farm grew 350 acres of soybeans, 277 acres of corn, 150 acres of alfalfa hay, and 38 acres of wheat. Cattle sales accounted for about 27 percent of gross receipts.
- STLC** a large South Texas (Gonzales County) cow/calf ranch with 400 cows. The operation owns 2,800 acres. In 1992 300 acres were double cropped to hay and oats for grazing. All of the receipts on the ranch were generated by cattle sales.

Characteristics of Panel Farms Producing Beef Cattle.

	MTLC	MOMC	STLC
Total Cropland	0.	900.	300.
Acres Owned	0.	450.	300.
Acres Leased	0.	450.	0.
Total Pasture	20000.	600.	2500.
Acres Owned	14000.	300.	2500.
Acres Leased	6000.	300.	0.
Assets (\$1000)			
Total	1147.	1211.	2446.
Real Estate	714.	768.	2132.
Machinery	79.	240.	49.
Livestock	354.	202.	265.
Debt/Asset Ratios*			
Total	0.11	0.16	0.08
Intermediate	0.04	0.29	0.06
Long Run	0.15	0.09	0.08
1992 Livestock			
Beef Cows	400.	150.	400.
Sows	0.	80.	0.
1992 Gross Receipts (\$1,000)**			
Total	169.1	292.7	153.6
Cattle	169.1 100.0%	78.3 26.7%	153.6 100.0%
Hogs	0.0 0.0%	126.9 43.4%	0.0 0.0%
Crops	0.0 0.0%	87.5 29.9%	0.0 0.0%
1992 Planted Acres***			
Total	300.0	815.5	600.0
Hay	300.0 100.0%	150.0 18.4%	300.0 50.0%
Wheat	0.0 0.0%	38.0 4.7%	0.0 0.0%
Corn	0.0 0.0%	277.5 34.0%	0.0 0.0%
Soybeans	0.0 0.0%	350.0 42.9%	0.0 0.0%
Oats	0.0 0.0%	0.0 0.0%	300.0 50.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## **BEEF CATTLE IMPACTS**

- Both the Montana and South Texas cow/calf operations experienced significant declines in net cash farm incomes during the study period due to a 10.1 percent drop in feeder prices and a 10.5 percent decline in cow prices from 1992-1996. Feeder and cow prices increased 6.4 and 3.9 percent, respectively, in 1997. The ranches lost 15 percent and 34 percent of their real equity during the period.
- Real net cash income declined from 33.3 percent to 244 percent between 1992 and 1997 due to the lower cattle prices associated with the beef cycle.
- The South Texas cow/calf ranch needed to have increased receipts 69 percent to offset the 34 percent loss in equity during the time period. An increase in receipts of 28 percent would have prevented loss of net worth for the Montana cow/calf ranch. The Missouri operation only needed to increase receipts by 1.6 percent to keep real net worth constant during the study period.
- The Missouri operation relied heavily on its hog and crop production to buffer much of the declines apparent in the cattle enterprises. Declining cattle prices were offset by increased market hog prices over the 1994-96 period. Cattle prices increased and hog prices fell in 1997. Nominal net cash farm income remained fairly stable but the farm experienced a 3 percent drop in real equity during the period.



Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Beef Cattle.

	MTLC	MOMC	STLC
Average Change in Real Net Worth (%)	-14.69	-3.15	-34.01
Average Annual Ratio Expense/Receipts (%)	71.58	76.71	103.73
Average Present Value End Net Worth (\$1000)	860.57	935.52	1584.49
Average Annual Cash Receipts (\$1000)	160.34	302.12	184.13
Average Annual Cash Expenses (\$1000)	114.57	231.52	190.55
Average Annual Net Cash Income (\$1000)	45.76	70.60	-6.41
Average Change Real Net Cash Farm Income (%)	-43.58	-33.26	-244.14
Average Annual Govt. Payments (\$1000)	0.00	10.13	0.00
Average Annual Cash Receipts (\$1000)			
1992	169.12	292.68	193.23
1993	167.95	280.37	192.23
1994	161.08	302.69	185.04
1995	153.89	313.77	177.32
1996	149.82	322.61	173.06
1997	160.15	300.60	183.91
Average Annual Net Cash Income (\$1000)			
1992	58.84	74.79	26.98
1993	53.85	59.08	23.94
1994	50.55	71.65	7.17
1995	38.47	76.49	-14.17
1996	32.99	81.63	-35.67
1997	39.89	59.99	-46.73

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

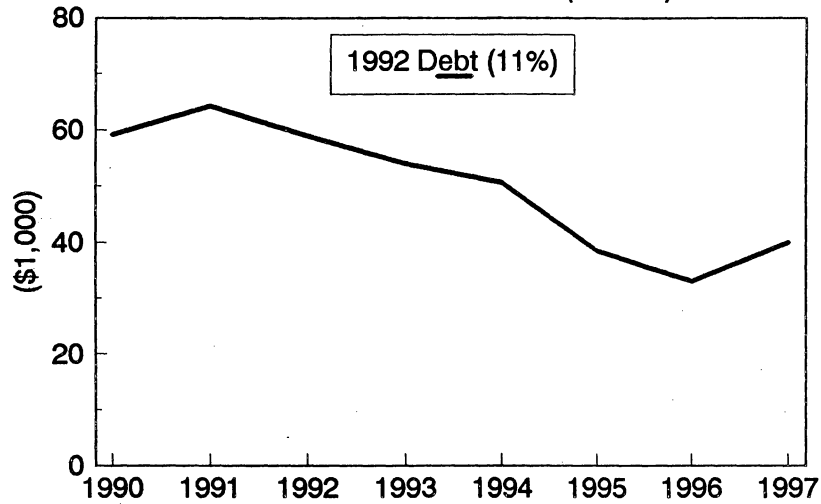
Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

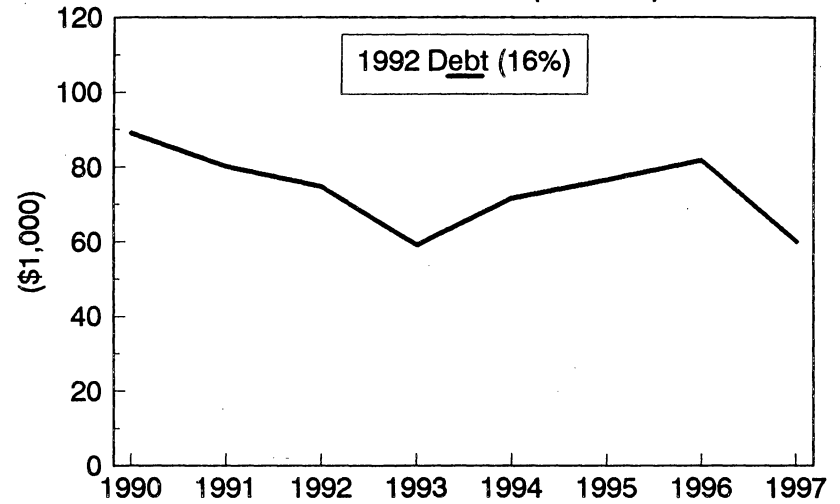
Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

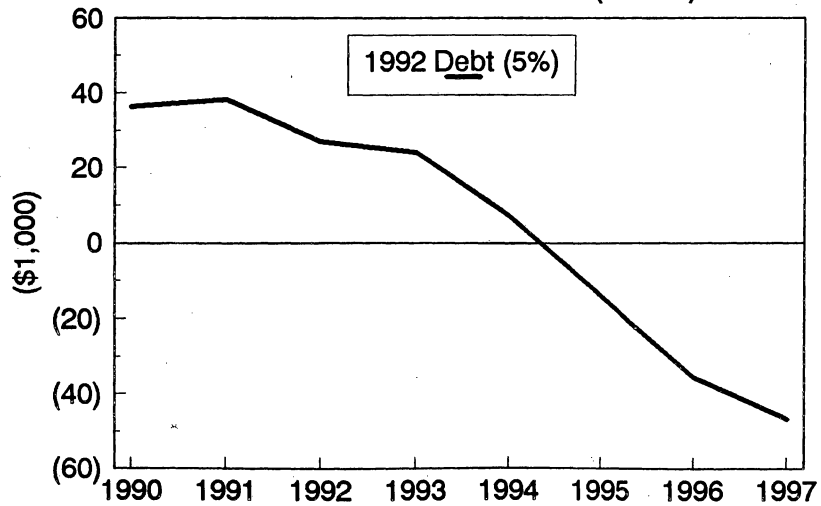
Net Cash Farm Income  
Montana Cow/Calf Ranch (MTLC)



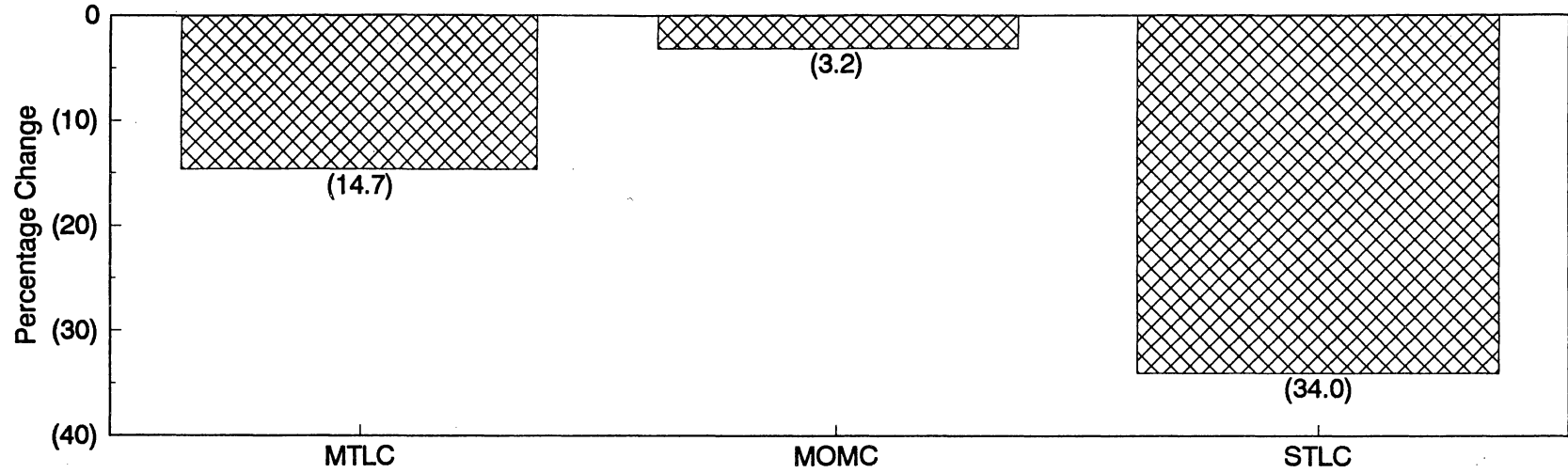
Net Cash Farm Income  
Missouri Cattle Ranch (MOMC)



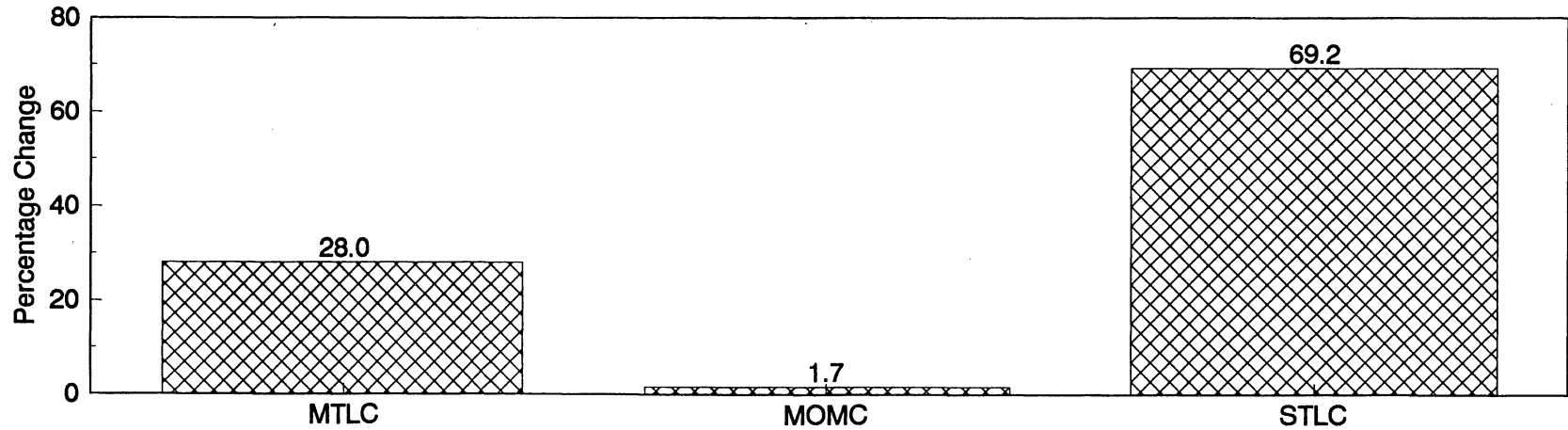
Net Cash Farm Income  
South Texas Cow/Calf Ranch (STLC)



Real Change in Net Worth for All Cattle Ranches,  
1992-1997

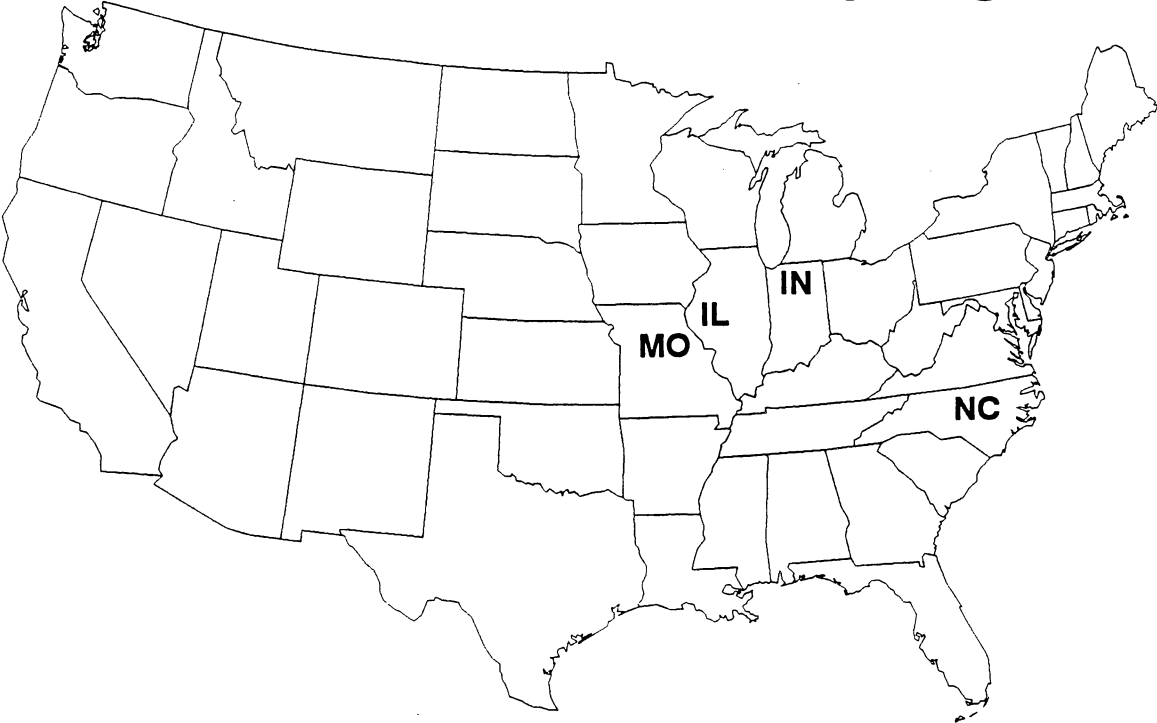


Annual Percentage Change in Receipts Needed to  
Maintain Real Net Worth From 1992 to 1997:  
Cattle Ranches





# Panel Farms Producing Hogs



## CHARACTERISTICS OF PANEL FARMS PRODUCING HOGS

- MOMH** a moderate size North Central Missouri (Carroll County) hog farm with 75 sows. In 1992 the farm grew 164 acres of corn, 80 acres of soybeans, 64 acres of wheat, and 40 acres of hay. The farm also has 25 mother cows. Hogs generated about 73 percent of gross receipts for the farm.
- MOLH** a large North Central Missouri (Carroll County) hog farm with 225 sows. The farm grew 366 acres of corn, 333 acres of soybeans, and 266 acres of wheat in 1992. The farm generated about 75 percent of its total receipts from hogs.
- ILMH** a moderate size Western Illinois (Knox County) hog farm with 200 sows. The farm grew 500 acres of corn, 350 acres of soybeans, 25 acres of wheat, and 25 acres of hay in 1992. About 78 percent of gross receipts for the farm came from hogs.
- ILLH** a large Western Illinois (Knox County) hog farm with 400 sows. The farm grew 740 acres of corn and 600 acres of soybeans in 1992. About 84 percent of cash receipts were generated by the hog enterprise.
- INMH** a moderate size hog farm in North Central Indiana (Carroll County) with 150 sows. In 1992 the farm grew 480 acres of corn, 269 acres of soybeans, and 20 acres of wheat. The farm generated about 59 percent of the gross receipts from hogs.
- INLH** a large hog farm in North Central Indiana (Carroll County) with 600 sows. In 1992 the farm grew 1,800 acres of corn, 400 acres of soybeans, and 50 acres of wheat. Hog sales accounted for about 67 percent of total receipts for the farm.
- NCMH** a moderate size hog farm in Eastern North Carolina (Wayne County) with 350 sows. The farm grew 30 acres of hay to dispose of waste from the farrow-to-finish hog operation. About 99 percent of gross receipts in 1992 came from the sale of hogs.
- NCLH** a large hog farm in Eastern North Carolina (Wayne County) with 10,000 sows. The operation contracts with individual farmers who provide on-site management, labor, and facilities. All receipts were generated from the sale of hogs in 1992.

Characteristics of Panel Farms Producing Hogs.

	MOMH	MOLH	ILMH	ILLH	INMH	INLH	NCMH	NCLH
Total Cropland	330.	1020.	950.	1500.	800.	2250.	50.	0.
Acres Owned	220.	520.	350.	750.	280.	1125.	50.	0.
Acres Leased	110.	500.	600.	750.	520.	1125.	0.	0.
Total Pasture	100.	0.	0.	0.	0.	0.	0.	0.
Acres Owned	100.	0.	0.	0.	0.	0.	0.	0.
Acres Leased	0.	0.	0.	0.	0.	0.	0.	0.
Assets (\$1000)								
Total	436.	1180.	1430.	2575.	1106.	4952.	1047.	13385.
Real Estate	308.	709.	949.	2028.	765.	3035.	727.	1.
Machinery	73.	254.	317.	347.	304.	735.	59.	17.
Livestock	55.	217.	164.	201.	37.	1182.	261.	13367.
Debt/Asset Ratios*								
Total	0.05	0.04	0.03	0.01	0.14	0.04	0.01	0.00
Intermediate	0.13	0.10	0.08	0.03	0.21	0.10	0.04	0.00
Long Run	0.01	0.00	0.00	0.00	0.11	0.00	0.00	0.00
1992 Livestock								
Beef Cows	25.	0.	0.	0.	0.	0.	0.	0.
Sows	75.	225.	200.	400.	150.	600.	350.	10000.
1992 Gross Receipts (\$1,000)**								
Total	166.4	484.8	436.1	896.9	448.5	1722.8	640.3	19181.9
Cattle	10.8 6.5%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%	0.0 0.0%
Hogs	121.8 73.2%	364.5 75.2%	340.3 78.0%	748.6 83.5%	263.0 58.7%	1148.4 66.7%	631.7 98.7%	19181.9 100.0%
Crops	33.8 20.3%	120.2 24.8%	95.8 22.0%	148.3 16.5%	185.4 41.3%	574.5 33.3%	8.6 1.3%	0.0 0.0%
1992 Planted Acres***								
Total	348.0	965.7	899.9	1340.0	768.7	2250.0	30.0	0.0
Corn	164.0 47.1%	366.3 37.9%	500.0 55.6%	740.0 55.2%	480.0 62.4%	1800.0 80.0%	0.0 0.0%	0.0 0.0%
Soybeans	80.0 23.0%	333.0 34.5%	350.0 38.9%	600.0 44.8%	268.7 35.0%	400.0 17.8%	0.0 0.0%	0.0 0.0%
Wheat	64.0 18.4%	266.4 27.6%	25.0 2.8%	0.0 0.0%	20.0 2.6%	50.0 2.2%	0.0 0.0%	0.0 0.0%
Hay	40.0 11.5%	0.0 0.0%	24.9 2.8%	0.0 0.0%	0.0 0.0%	0.0 0.0%	30.0 100.0%	0.0 0.0%

\*Total debt/asset ratio includes accrued income taxes and self-employment taxes that are not reflected in machinery and land debt.

\*\*Receipts for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect price and yield risk so they differ from the average annual cash receipts in subsequent tables. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*\*Acreages for 1992 are included to indicate the relative importance of each enterprise to the farm; these values do not reflect acreage reduction percentages that differ from year to year. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

## HOG IMPACTS

- Net cash incomes on all eight hog farms weathered the drop in hog prices through 1993, experienced a sharp rebound through 1996, and declined again in 1997.
- Seven of the eight hog farms experienced real growth in excess of 22 percent during the study period. The moderate Missouri (MOMH) farm achieved a 14 percent increase in real net worth. The large Indiana (INLH) operation grew by 44 percent, combining a relatively low cash expense to revenue relationship with average receipts of approximately \$1.8 million.
- The large North Carolina (NCLH) farm earned the reported 61 percent increase in real net worth. This return was in addition to the owner's annually drawing cash so ending year reserves equalled 10 percent of net cash farm income. This farm had a ratio of cash expenses to receipts of 0.92, the highest of all eight hog farms.
- Real net worth would have remained constant during 1992-1997 for the large Indiana farm (INLH) if receipts had declined by 27 percent. A decline in receipts of only 8 percent would have caused the large North Carolina farm (NCLH) to lose equity.



Implications of the 1990 Farm Bill and the 1993 FAPRI Baseline on the Economic Viability of Representative Farms That Produce Hogs.

	MOMH	MOLH	ILMH	ILLH	INMH	INLH	NCMH	NCLH
Average Change in Real Net Worth (%)	14.62	38.15	23.63	22.94	24.52	44.34	28.96	61.16
Average Annual Ratio Expense/Receipts (%)	61.40	61.13	58.98	71.79	51.59	59.67	76.86	91.82
Average Present Value End Net Worth (\$1000)	453.38	1437.16	1589.15	2929.84	1109.94	6272.21	1256.23	20379.97
Average Annual Cash Receipts (\$1000)	179.82	523.19	477.07	980.04	462.19	1822.35	705.52	21066.54
Average Annual Cash Expenses (\$1000)	110.31	319.56	280.86	702.79	238.36	1086.72	541.56	19320.34
Average Annual Net Cash Income (\$1000)	69.51	203.64	196.21	277.25	223.83	735.64	163.96	1746.20
Average Change Real Net Cash Farm Income (%)	-17.80	-16.16	-7.54	-12.80	-14.76	-15.40	8.78	38.12
Average Annual Govt. Payments (\$1000)	7.36	17.73	0.00	0.00	25.19	0.00	0.00	0.00
Average Annual Cash Receipts (\$1000)								
1992	166.44	484.76	436.06	896.91	448.47	1722.83	640.31	19181.95
1993	160.38	463.69	420.80	855.88	407.92	1594.25	605.35	18152.22
1994	178.72	516.95	472.20	970.79	456.78	1768.81	692.08	20661.79
1995	190.28	558.06	510.45	1051.66	488.95	1950.49	765.68	22815.37
1996	201.83	592.79	543.66	1120.21	506.95	2074.66	823.31	24530.29
1997	181.27	522.90	479.25	984.79	464.06	1823.08	706.39	21057.58
Average Annual Net Cash Income (\$1000)								
1992	65.93	190.43	169.23	246.22	212.50	676.80	118.92	698.96
1993	53.47	152.70	150.98	166.46	177.56	552.62	79.70	-408.84
1994	69.46	203.85	196.07	284.27	222.19	696.92	167.68	1856.29
1995	78.03	229.99	223.22	328.04	249.11	846.50	209.34	2989.52
1996	85.05	252.99	249.74	380.48	263.96	952.90	252.65	4181.11
1997	65.12	191.86	188.03	258.02	217.66	688.08	155.46	1160.14

Change in Real Net Worth - Percentage change in real net worth over the simulation period, 1992-1997.

Average Annual Ratio of Expenses to Receipts - Ratio of all cash expenses to all farm receipts including government payments.

Present Value Ending Net Worth - Discounted value of net worth in the last year simulated.

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

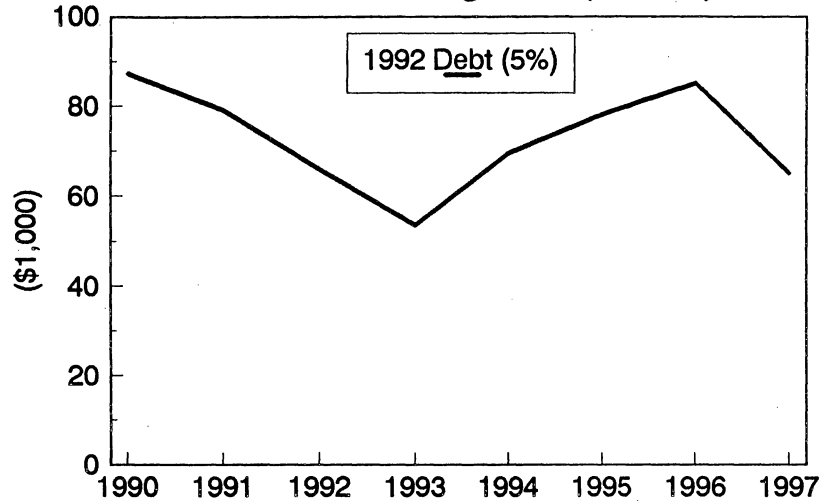
Annual Cash Expenses - Total cash costs for crops, dairy, and livestock production, including interest costs and fixed cash costs; excludes depreciation.

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

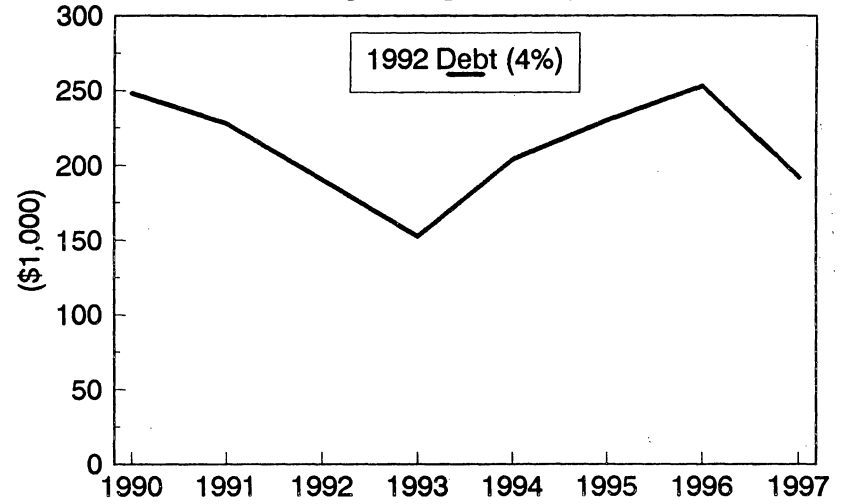
Average Change Real Net Cash Farm Income - Present value of net cash farm income for the last year expressed as a percent of net cash farm income in year one.

Annual Government Payments - Total deficiency, diversion, and other program payments.

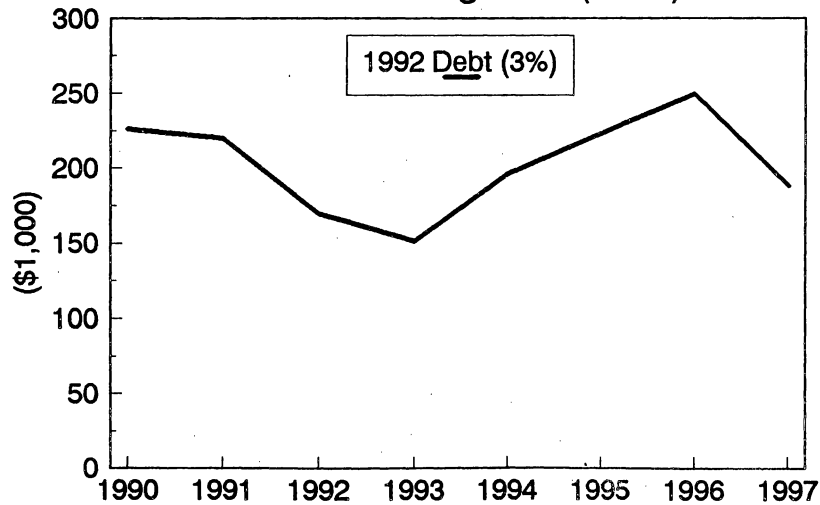
Net Cash Farm Income  
Missouri Moderate Hog Farm (MOMH)



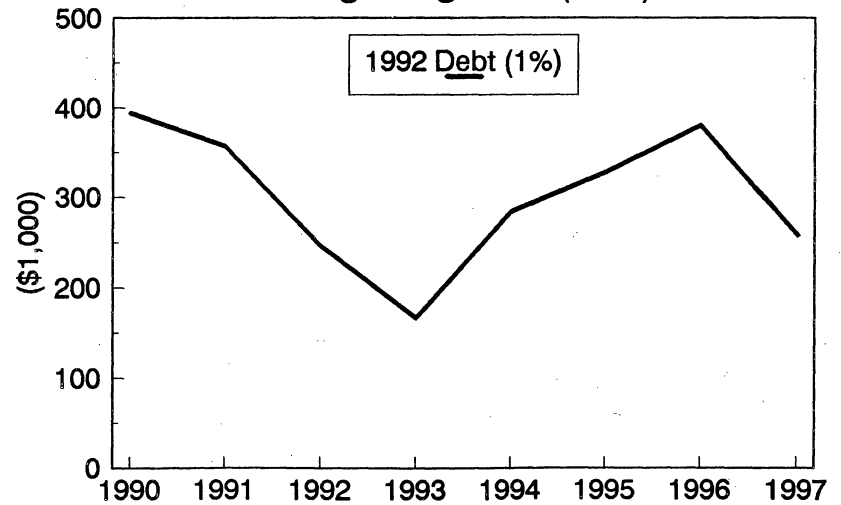
Net Cash Farm Income  
Missouri Large Hog Farm (MOLH)



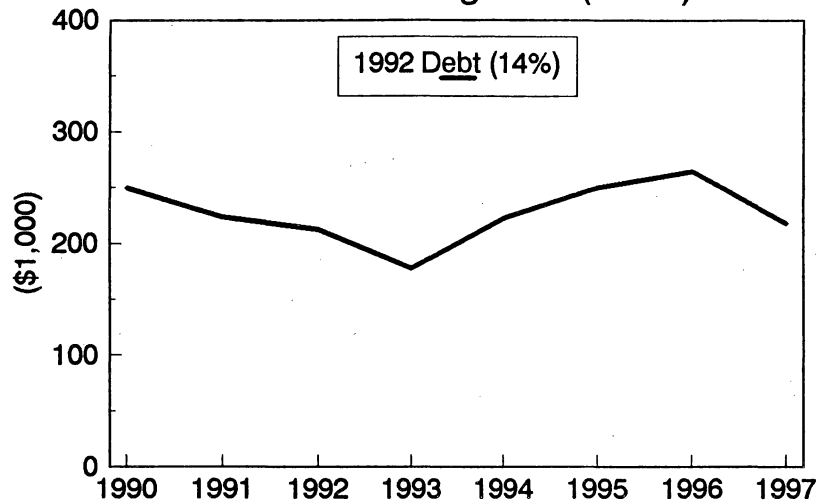
Net Cash Farm Income  
Illinois Moderate Hog Farm (ILMH)



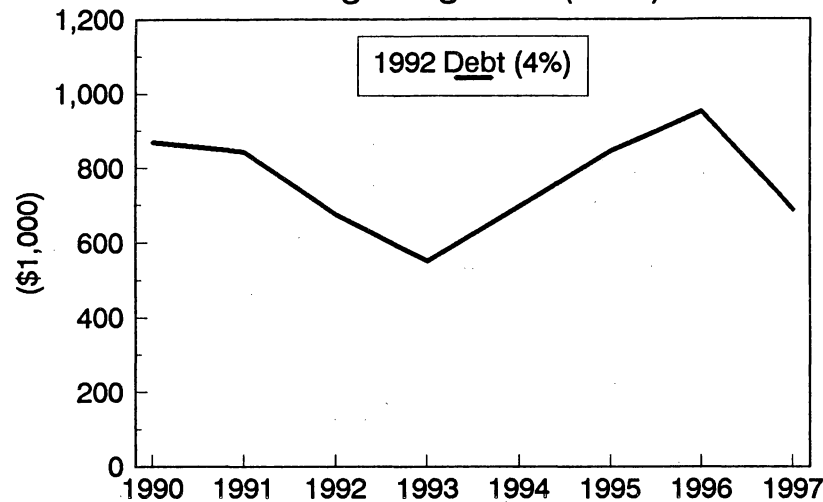
Net Cash Farm Income  
Illinois Large Hog Farm (ILLH)



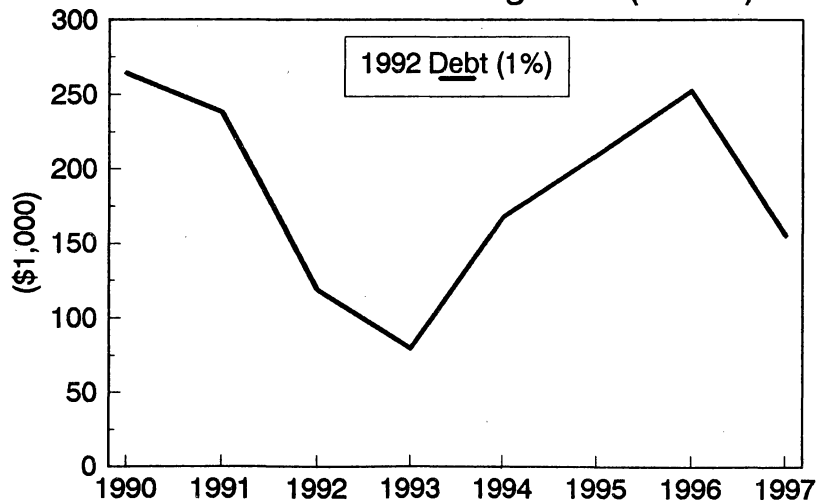
Net Cash Farm Income  
Indiana Moderate Hog Farm (INMH)



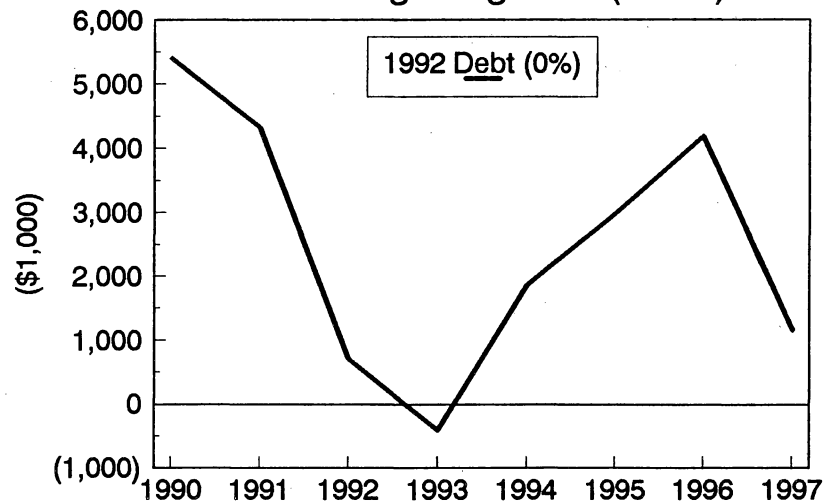
Net Cash Farm Income  
Indiana Large Hog Farm (INLH)



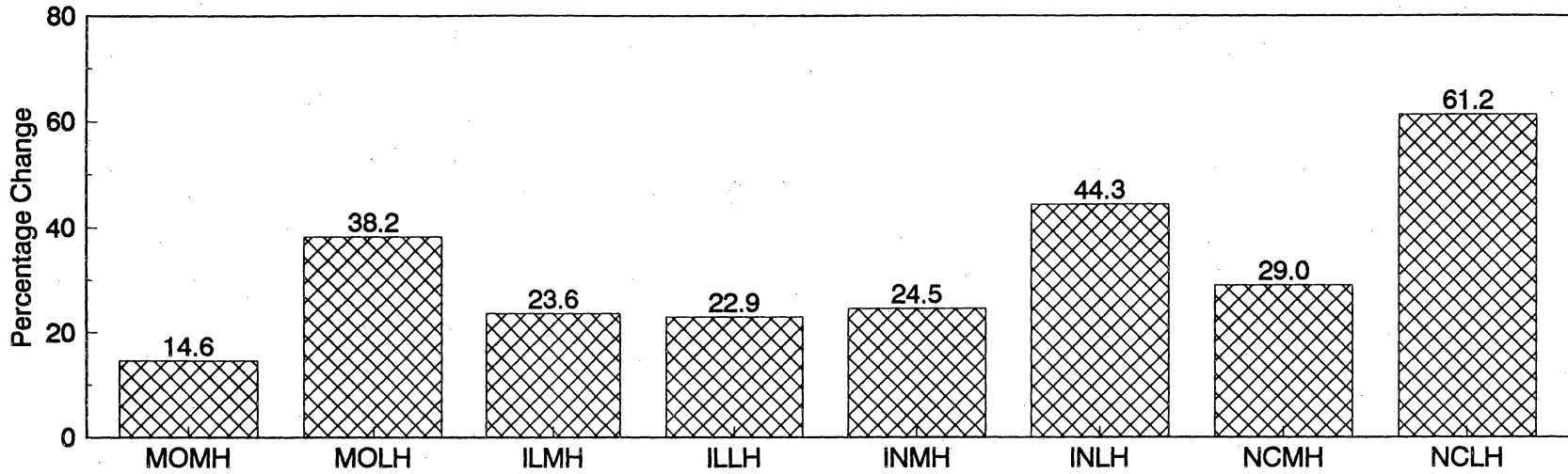
Net Cash Farm Income  
North Carolina Moderate Hog Farm (NCMH)



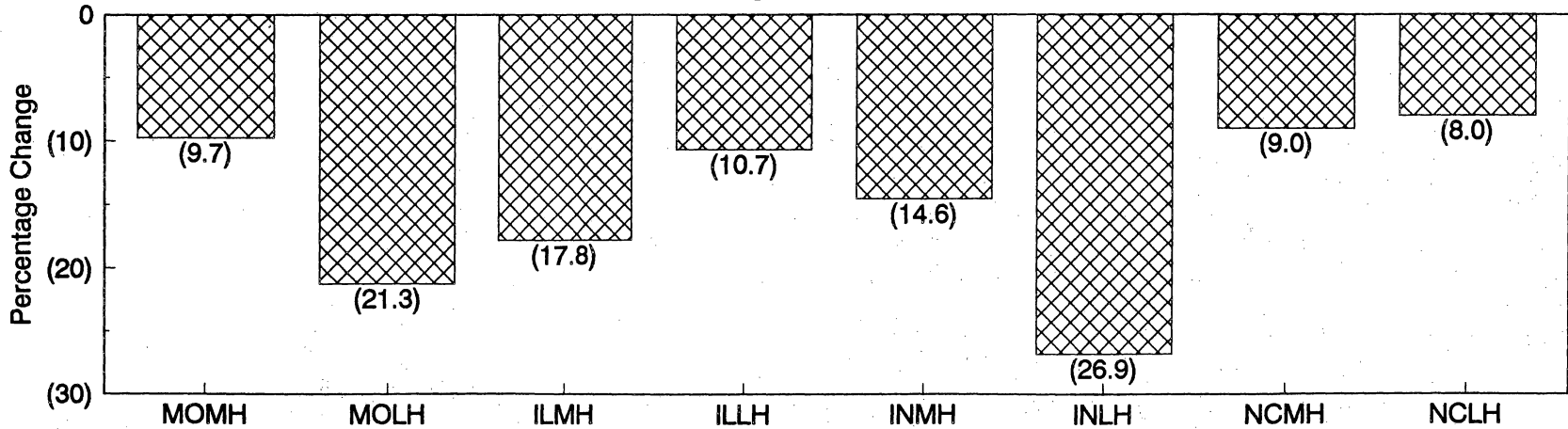
Net Cash Farm Income  
North Carolina Large Hog Farm (NCLH)



Real Change in Net Worth for All Hog Farms,  
1992-1997



Annual Percentage Change in Receipts Needed to  
Maintain Real Net Worth From 1992 to 1997:  
Hog Farms



## APPENDIX A

# COMPARISON OF REPRESENTATIVE FARMS TO USDA FARM COST AND RETURNS SURVEY

**Appendix A:  
Comparison of Representative  
Farms to USDA Farm Cost and  
Returns Survey<sup>2</sup>**

A comparison was made between the AFPC representative farms used for the analysis in this publication and the USDA Farm Cost and Returns Survey (FCRS). The purpose of the comparison was to provide feedback on how the cost and returns for the AFPC representative farms compare to the survey results for similar size farms in the FCRS data. When cost and return structures were similar between these different data collection methods, the FCRS could be used to estimate the proportion of farms or production represented by the AFPC farm.

The FCRS is a personally enumerated survey that has been conducted annually since 1984 by the National Agricultural Statistics Service (NASS) and the Economic Research Service (ERS). The FCRS is designed to underpin the production of mandated estimates and reports as well as a wide variety of other research reports, estimates, and analyses. Mandated uses of the FCRS include calculation of cost and return estimates for selected crop and livestock commodities, determination of input weights used in constructing indices of prices paid by farmers, estimation of farm business net farm income, derivation of estimates of operator household income and wealth by farm and nonfarm source, and an assessment of the economic performance of the farm sector and the economic well-being of farm people. Collecting data needed to complete these required products largely governs design of both the sample and the survey questionnaire.

The target population for the FCRS is "all establishments which sold or normally would have sold at least \$1,000 of agricultural products during the year." This is the same target population used in the majority of USDA surveys and, in particular, is used to establish the official farm population. The Census of Agriculture also employs the same target population. The FCRS is conducted in all states except Alaska and Hawaii.

The FCRS uses an integrated sample to blend multiple versions of a questionnaire into a unified data system. The multiple questionnaire versions incorporate the highly detailed input and production practice data needed to estimate a per acre or per unit cost of production for specific farm commodities and the information about expenses, receipts, assets, and liabilities needed to determine the farm's financial position and returns. The sample design features multiple frame sampling from list and area frames. The list frame consists of known (or suspected) operators stratified by economic size and other attributes, while the area frame consists of land areas (of a known size) stratified by land uses. The list samples are selected in replicates (a group of survey contacts of known number) and designated for use with

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<sup>2</sup>Information reported in this Appendix was developed in collaboration with economists in the Farm Sector Financial Analysis Branch of ERS-USDA. Special assistance by Mitch Morehart made this comparison of datasets possible.

specific versions of the questionnaire. In practice, the list frame tends to provide a sample of larger, more specialized operations. The area frame is used to compensate for incompleteness in the list and to provide coverage for smaller operations. Rigorous screening procedures are used to prevent the inclusion of any one farm in both frames.

The FCRS is a probability survey. Probability surveys are designed on the premise that every unit in the population has a known probability of being selected. Because probabilities of selection associated with the sample units are known, data collected from them can be used to obtain unbiased estimates of current agricultural activities. Expansion factors or "weights" are established for each reporting unit and are generally equal to the inverse of the probability of being selected. In addition, since sampling is performed independently within each list and area spectrum, the random sample from any stratum is representative of all farms in that stratum. The survey expansions for farms within a stratum are unbiased estimates of the true stratum total. The sum of the unbiased stratum expansions provide unbiased estimates of state, regional, and national populations of farms. The AFPC representative farm data are gathered using the panel farm process described in the introduction.

The comparisons between the panel farm data and the FCRS data were made using the 1990 panel farm data and the 1990 FCRS. For each state where a comparison was made, the FCRS data were post-stratified based on acres for crop farms, number of cows for dairy farms, and number of sows for hogs farms to identify the strata of FCRS farm observations which most closely match the size of the panel farm. In the case of crop farms, only the FCRS farm observations that reported growing the primary crop on the panel farm were used for the comparison.

Four crop farms are highlighted in this appendix. These four farms represent moderate size farms in Iowa, North Dakota, Nebraska, and Mississippi. The farms were selected because they demonstrate how cash grain farms in the Midwest, wheat farms in the Great Plains, and cotton farms in the Delta compare. The two hog farms selected for comparison are in Indiana and Missouri. They provide an observation at each end of the spectrum for Corn Belt hog farms. The two dairy farms selected come from Missouri and Wisconsin. They represent the traditional Lake States and Midwest dairy regions. A comparison of crop, hog, and dairy farms in other states was not possible due to small sample size for FCRS farms similar in size to the AFPC representative farms.

### **Crop Farms**

Tables A-1 and A-2 contain a comparison of the four selected AFPC representative farms and the FCRS data for farms of a similar size in those areas (or states). The Iowa representative farm (Table A-1) is 75 acres smaller than the average farm identified from the FCRS average Iowa corn and soybean farm in the proper strata. The majority of the farm land for both the panel farm and the FCRS is leased (80 percent AFPC, 75 percent FCRS). The AFPC farm plants 613 acres in a cropmix of 47 percent corn and 53 percent soybeans.

The average farm identified from the FCRS data indicates 595 acres planted in a cropmix of 53 percent corn and 43 percent soybeans. Non-current assets are larger in the FCRS data due in part to the larger number of owned acres. Equity, gross income, and variable expenses are all greater for the FCRS average farm than for the AFPC representative farm. One of the reasons for the larger gross income is that both corn and soybeans have higher yields in the FCRS data than in the AFPC data (corn 123.1 bu/acre vs. 101.8 bu/acre; and 41.6 bu/acre vs. 30.9 bu/acre for soybeans). Net cash farm incomes (NCFI), however, are very similar. The representative farm's NCFI is only 4.7 percent greater than the average NCFI for the FCRS data.

The strata of FCRS data for North Dakota wheat and barley farms that best fits the AFPC representative farm has 600 more acres, but it plants 337 fewer acres than the representative farm. The big difference in planted acres is that the average farm in the FCRS strata did not plant 400 acres to sunflowers during 1990. The difference between the non-current assets is largely due to the difference in owned acres between the two data sets. Gross cash income and total cash expenses are quite close between the two sources. FCRS average gross cash income is \$13,000 greater than the AFPC gross cash income, while total cash expenses are only \$6,200 greater.<sup>3</sup> The FCRS average wheat and barley farm's NCFI is \$6,800 greater than the representative farm NCFI.

Comparison of the two Nebraska farms (Table A-2) reveals that the average farm in the FCRS strata has 28 percent more total acres than the representative panel farm but it only plants 52 more acres than the AFPC representative farm. The AFPC farm plants 89 percent of its cropland to corn and 11 percent to soybeans. Corn is planted to 85 percent of the acres on the average FCRS farm and soybeans are planted to 15 percent of the acres. The representative farm's gross cash income exceeds FCRS gross cash income by \$12,600 (or 6 percent). Corn and soybean yields for the representative farm are 142.5 bu/acre and 34.5 bu/acre compared to the FCRS data of 159.8 and 33.4 bu/acre, respectively. The representative farm receives \$6,000 more than the FCRS farm in government payments and \$15,000 more in other farm income (custom harvesting). A large part of the difference in variable cash expenses are due to labor costs; \$18,000 for the representative farm vs. \$2,800 for the FCRS farm. The other variable expenses and fixed expenses are comparable in magnitude. The average NCFI for the FCRS data is only \$4,400 greater than the representative farm (\$63,400 vs. \$59,000).

The fourth crop farm compared is a Mississippi cotton farm. The AFPC representative farm has 1,470 acres compared to the average of 1,961 acres indicated by the substrata in the FCRS. Fifty percent of the representative farm is owned and 50 percent is cash leased, while the average FCRS farm owned 12 percent of the acres, cash leased 51 percent, and share leased 37 percent. Approximately the same number of acres are planted for both farms. Total assets are quite different reflecting the higher percentage of owned land for the AFPC

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<sup>3</sup>The FCRS yield for wheat and barley is slightly greater than the yields reported by the AFPC representative farm panel members (34.4 vs. 32.1 for wheat and 53.1 vs. 50.5 for barley).



representative farm. AFPC panel farm members reported higher cotton yields than the FCRS data set (844.7 lbs/acre vs. 690.6 lbs/acre). This difference in yield was caused by using a large number of FCRS cotton farm responses that were outside of the Delta to obtain a minimum number of observations in the strata.

The major difference in the gross cash income between the two farms is explained by the presence of 57 acres of rice on the average FCRS farm. The representative farm's fertilizer and chemical expenses are \$64,500 greater than the average FCRS fertilizer and chemical expenses. This is likely due to the panel farm in the Delta experiencing greater insect problems than the average FCRS farm which included farms in areas outside of the Delta. Higher yields for the representative farms also explain the difference in harvest costs between the two farms. FCRS fixed expenses exceed the representative farm's fixed expenses due to the lease costs associated with a greater proportion of cash-rented land. This combination of lower gross cash income and higher cash expenses for the AFPC representative Mississippi cotton farm led to the \$26,600 difference in NCFI between the two farms.

### **Hog Farms**

Moderate size representative hog farms in Indiana and Missouri were chosen for comparison (Table A-3). The representative Indiana hog farm has 150 sows. The average farm in the FCRS data was estimated to have 100 sows. The AFPC farm had roughly double the number of total acres and planted acres as the average farm. Corn, soybeans, and wheat are produced by both in roughly the same proportions. Total assets are \$143,600 greater for the representative farm because of more owned land and hogs. The representative farm's gross cash income exceeds the FCRS gross cash income by \$61,200. The average FCRS farm's variable cash expenses are about \$2,400 greater than the representative farm's variable cash expenses. The FCRS farm spends about \$20,900 more on feed and veterinarian expenses than the representative farm. As a result of having more acreage, however, the representative farm has crop expenses \$34,400 larger than the FCRS farm. With more cropland and more hogs, the representative farm also has a NCFI that is about \$37,000 greater than the average FCRS farm.

The representative moderate size Missouri hog farm has 75 sows, and the FCRS average farm has approximately 40 sows. The AFPC farm has almost three times the number of planted acres as the average FCRS farm and 100 acres more total cropland. Gross cash income, total cash expenses, and NCFI are all much greater for the AFPC farm than for the FCRS data. Again, sample size considerations limited the extent to which exact strata comparisons could be made for Missouri hog farms.

## Dairy Farms

The average Missouri FCRS dairy farm has 22 fewer cows than the representative Missouri dairy farm. It also owns 100 acres more land than the representative farm. The representative farm plants 218 acres compared to only 16 acres for the average FCRS farm. Total assets are larger for the representative farm than the average FCRS farm because of the machinery required for farming. The AFPC representative farm earns \$95,000 more from livestock and crop product sales than the average FCRS farm. This is due to the farm having more cows, higher milk production per cow, and a higher milk price. The representative farm also spends \$57,700 more on feed and medicine than the average FCRS farm. Consequently, the NCFI is \$51,200 greater for the representative farm than for the FCRS farm. The small sample size in the FCRS for Missouri dairy farms prevented comparison of the representative dairy farm to larger farms that may be more similar.

The representative Wisconsin dairy has 50 cows compared to 60 for the average dairy farm in the FCRS (Table A-4). The FCRS farm is also slightly larger in total acres, 237 vs. 190, and in owned acres, 195 vs. 152. The difference in gross cash income is due primarily to higher milk sales for the representative farm livestock sales (\$110,000 vs. \$90,000). Milk production per cow was not available from the FCRS data but this may be the reason for the difference. Total cash expenses for the average FCRS dairy farm are only \$2,700 greater than for the representative farm. The \$15,000 difference in NCFI for the two farms is largely attributable to the higher gross cash income for the representative farm.

Table A-5 summarizes the percent of farms and the percent of total crops produced by the farms in the FCRS strata that contains the representative farm.<sup>4</sup> For example, the FCRS average cash grain farm in Washington that resembled the characteristics of the AFPC panel farm was estimated to represent 36 percent of farms which identified themselves as primarily producing cash grains in the 1990 FCRS. This group of farms was estimated to account for 45 percent of the wheat produced by cash grain farms in Washington and 79 percent of the barley. Wisconsin dairy farms selected in the FCRS to match the characteristics of the AFPC farm had at least 50 percent of total value of production from the sales of milk and dairy products. They represented 22 percent of dairy farms in Wisconsin and approximately 26 percent of the milk sales of dairy farms in Wisconsin.

In summary, the comparison between the representative farms and the FCRS reveals that in some cases the differences are very small. Larger differences can often be explained with detailed knowledge of the farms or the FCRS data. When differences in net income are large, the FCRS sample size was too small in most cases to provide a strata of farms similar in size to the representative farm.

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<sup>4</sup>This data reveals more information about how representative the farms are, i.e., how much total production farms of the type portrayed produce.

**Table A-1. Comparison of Iowa and North Dakota Representative Farms and 1990 FCRS Data.**

	Iowa Moderate		North Dakota Moderate	
	AFPC	FCRS	AFPC	FCRS
Total Acres	680	755	1,600	2,199
Owned	140	193	400	745
Cash	135	277	400	591
Share	405	285	800	863
Planted Acres	613	574	1,520	1,092
Corn	288	318	0	0
Soybeans	325	256	0	0
Wheat	0	0	760	897
Barley	0	0	360	195
Sunflowers	0	0	400	0
Total Assets	398,100	595,000	444,700	607,200
Current	0	165,600	0	90,700
Non-current	398,100	429,400	444,700	516,600
Equity	275,400	416,500	311,800	440,100
Gross Cash Income	134,800	172,200	182,700	195,700
Cash Expenses	82,000	121,700	123,000	129,200
Variable Cash Expenses	47,500	80,800	71,900	71,500
Seed	7,300	7,500	11,600	9,800
Fert. & Chem.	20,400	24,700	25,300	21,800
Fuel & Lube	3,700	6,500	9,100	11,000
Repair & Maint.	7,800	9,600	13,200	10,400
Harvest & Custom	3,700	1,600	NA	NA
Fixed Expenses	35,500	40,900	51,100	57,700
Net Cash Farm Income	52,900	50,500	59,700	66,500
Depreciation	14,800	17,600	6,800	15,900

**Table A-2. Comparison of Nebraska and Mississippi Representative Farms and 1990 FCRS Data.**

	Nebraska Moderate		Mississippi Moderate	
	AFPC	FCRS	AFPC	FCRS
Total Acres	630	808	1,470	1,961
Owned	315	506	735	229
Cash	100	180	735	1,007
Share	215	122	0	725
Planted Acres	546	598	1,316	1,310
Corn	486	445	0	23
Soybeans	60	78	560	403
Cotton	0	0	756	718
Oats	0	15	0	0
Sorghum	0	41	0	0
Wheat	0	19	0	115
Rice	0	0	0	57
Total Assets	922,500	959,300	1,372,600	615,200
Current	11,600	204,300	0	171,800
Non-current	910,900	755,000	1,372,600	443,500
Equity	843,400	799,800	1,224,300	503,000
Gross Cash Income	218,000	205,400	588,100	639,800
Cash Expenses	159,000	142,000	511,700	458,500
Variable Cash Expenses	120,000	103,000	418,000	338,100
Seed	11,600	13,200	9,400	12,300
Fert. & Chem.	31,700	35,600	180,700	116,200
Fuel & Lube	17,200	17,900	23,300	32,200
Repair & Maint.	24,000	16,000	54,600	55,800
Harvest & Custom	4,400	2,700	58,600	17,800
Fixed Expenses	39,000	39,000	93,800	120,400
Net Cash Farm Income	59,000	63,400	76,400	181,300
Depreciation	18,200	31,500	65,300	20,000

**Table A-3. Comparison of Indiana and Missouri Representative Hog Farms and 1990 FCRS Data.**

	Indiana Moderate		Missouri Moderate	
	AFPC	FCRS	AFPC	FCRS
Total Acres	800	419	330	224
Owned	280	161	220	121
Cash Rent	260	167	0	46
Share Rent	260	91	110	57
Planted Acres	739	356	340	120
Corn	540	238	144	37
Wheat	24	21	76	25
Soybeans	175	97	80	49
Sorghum	0	0	0	9
Hay	0	0	40	0
Sows	150	100	75	40
Total Assets	1,137,800	994,200	426,300	256,300
Current	0	324,500	0	63,100
Non-current	1,137,800	669,600	426,300	193,200
Equity	984,800	848,600	368,500	215,000
Gross Cash Income	481,100	419,900	193,600	70,600
Cash Expenses	237,300	213,200	107,800	56,900
Variable Cash Expenses	176,100	178,500	99,800	49,300
Feed & Vet.	74,500	95,400	45,200	21,400
Crop Expenses	87,800	53,400	44,700	15,500
Fixed Expenses	61,200	34,700	8,000	7,600
Net Cash Farm Income	243,800	206,700	85,900	13,600
Depreciation	30,600	24,400	14,900	4,700

**Table A-4. Comparison of Missouri and Wisconsin Representative Dairy Farms and 1990 FCRS Data.**

	Missouri Moderate		Wisconsin Moderate	
	AFPC	FCRS	AFPC	FCRS
Total Acres	113	269	190	237
Owned	89	189	152	195
Cash Rent	24	78	38	40
Share Rent	0	0	0	2
Number of Milk Cows	65	43	50	60
Total Assets	334,000	276,300	424,400	388,400
Current	0	37,500	0	40,700
Non-current	334,000	238,700	424,400	347,700
Equity	260,800	224,200	383,000	302,400
Gross Cash Income	179,300	84,300	116,200	102,800
Cash Expenses	172,900	80,500	64,200	65,800
Variable Cash Expenses	104,300	62,600	48,900	51,600
Lvstk. Feed & Vet	87,500	35,800	24,200	18,000
Other Expenses	16,800	26,800	24,800	33,500
Fixed Expenses	8,700	6,500	15,300	14,200
Net Cash Farm Income	66,300	15,100	52,000	37,000
Depreciation	21,900	6,500	16,600	11,600

**Table A-5. The Percent of Farms and Percent of Total Crop Production Represented by the FCRS Average Farm.**

Farm	Percent of Farms in the State	Percent of Production by the Farm Group in the State
Washington Grain	36	45 wheat 79 barley
North Dakota Grain	15	25 wheat
Iowa	13	27 corn
Nebraska	9	30 corn
Kansas	6	25 wheat
Arkansas Rice	21	26 rice
Texas West of Houston Moderate	57	13 rice
Texas West of Houston Large	43	87 rice
Wisconsin Dairy	22	26 milk
New York Central Moderate Dairy	18	26 milk
Washington Dairy	100 <sup>1</sup>	100 milk

<sup>1</sup>Complete samples of farms with at least 50 percent of total value of production from the commodity were selected to maintain sample size.





APPENDIX B

DEBT/ASSET RATIOS  
FOR REPRESENTATIVE FARMS

**Appendix B:  
Debt/Asset Ratios  
for Representative Farms**

The FLIPSIM model requires that one specify the debt to asset ratios for long- and intermediate-term assets at the outset of the study period. Producers are reluctant to provide debt information in the panel interviews due to the confidentiality of this information. A general notion of the debt to asset ratio for the AFPC farms can be obtained from the panel members' comments, but debt levels can vary widely due to how long the operator has been in business in contrast to production costs that are not affected by time or operation. Rather than assume a common debt level for all farms, the debt to asset ratios in the FCRS were used.

The FCRS has the advantage of providing debt to asset ratios for different types of farms in each region. The 1990 FCRS for December 31, 1990 was used to calculate the long- and intermediate-term debt to asset ratios for farms similar to the AFPC farms used for this analysis. For each state where an AFPC farm was available, the FCRS was analyzed to determine the debt ratios for farms similar in size to the AFPC farm. It was assumed that the large farm had the same debt to asset ratio as the moderate size farm in the region. The lack of observations for large farms in the FCRS prevented estimation of statistically reliable debt to asset ratios for both farm sizes.

The FCRS debt asset ratios were used to specify their respective farm's initial balance sheet for January 1, 1990 (Table B-1). Simulated debt asset ratios at the end of 1990 were used to initiate the balance sheet at the outset of 1991. This process was then repeated for 1991 through 1997. In this recursive manner, the FLIPSIM model keeps track of the farm's financial position.

Using the debt to asset ratio from the FCRS allows the present analysis to appropriately reflect regional differences in debt positions of farms and differences by types of farm. Alternative means of specifying the starting debt position of the farms (such as producer survey, local lender survey, and assuming 0.20) have been used but they are not as accurate as using the FCRS data. Additionally, the use of a common debt level for all farms does not allow policy analysts to identify regional or commodity-specific hot spots.

**Table B-1. Long- and Intermediate-Term Debt to Asset Ratios for Representative Farms Calculated From the 1990 Farm Cost and Returns Survey.**

State/Area	Long-Term	Intermediate-Term
	(Percent)	
Washington Grain	11	5
North Dakota Grain	28	21
Iowa Grain	46	12
Missouri Grain	31	28
Nebraska Grain	19	3
Kansas Grain	38	4
South Carolina Grain	18	45
Texas Northern High Plains Grain	21	17
Texas Rolling Plains Cotton	14	16
Texas Southern Plains Cotton	14	16
Texas Blacklands Cotton	21	17
Texas Coastal Bend Cotton	21	17
Texas West of Houston Rice	14	16
California Cotton	18	11
California Rice	32	38
Mississippi Cotton	0	0
Arkansas Rice	10	20
Washington Dairy	27	45
California Dairy	25	21
New Mexico Dairy	25	21
Texas Central Dairy	11	37
Texas Eastern Dairy	11	37
Wisconsin Dairy	30	12
Vermont Dairy	9	31
Central New York Dairy	9	31
Western New York Dairy	9	31
Missouri Dairy	33	8
Georgia Dairy	70	13
Florida Dairy	24	38
Missouri Hog	30	10
Illinois Hog	21	5
Indiana Hog	23	10
North Carolina Hog	21	21
Missouri Cattle/Hog	10	30
Montana Cattle	18	3



APPENDIX C  
DESCRIPTION OF FLIPSIM

## Appendix C: Description of FLIPSIM

FLIPSIM was used to simulate the representative farms for 1990-1992 using actual market prices, ag policy values, and macro variables. For 1993-1997 the farms were simulated using FAPRI's 1993 Baseline for these variables. The historical simulations were deterministic, meaning that yield and price variability are zero. The projection period was simulated under stochastic assumptions. In this case, FLIPSIM simulates each farm using stochastic yields and prices based on the historical variability of these variables for each farm. The 1993-1997 planning horizon is run 100 iterations for each farm to develop a probability distribution of values for each output variable of interest, such as cash receipts, expenses, net cash farm income, and present value of ending net worth. The means of the estimated probability distributions are reported for the individual farms in the main body of this report. FLIPSIM is a fortran computer simulation model that uses accounting equations, identities, and probability distributions to simulate the annual economic activities of a farm. An extensive documentation of FLIPSIM is available from the authors. A simplified schematic diagram for the crop version of the model is presented in Figure C-1, and the dairy version in Figure C-2. FLIPSIM is recursive in that the information for asset values, debts, costs, machinery complement, family living, and off-farm income in the previous year (t-1) is used as input data to calculate values for the current year (t). At the end of each year the model updates these lagged values and prepares to repeat the equations for the next year. After the model has simulated the last year in the planning horizon, all variables are reset to their initial values to insure that each iteration begins with the same assumptions about the farm and the exogenous data.

Annual projections for mean prices, farm program variables, interest rates, rates of inflation, and tax and depreciation provisions are exogenous inputs for FLIPSIM and are shown in the far left column of Figures C-1 and C-2. Projections of prices, farm program, and macroeconomic variables come from the FAPRI November 1992 Baseline, which included projected values for macroeconomic variables by WEFA. Information to describe a crop farm for FLIPSIM is represented in Figures C-1 and C-2 as the variables in the second column from the left. The multivariate empirical probability distribution for simulating stochastic yields and prices at the top of Figures C-1 and C-2 is developed for each farm using 10 years of actual yields for a panel member's farm and 10 years of annual prices for the region<sup>5</sup>. When FLIPSIM is simulated in the deterministic mode, constant yields and prices are used and the model is run for one iteration. For a stochastic analysis, yields and prices are selected at random from the multivariate distribution so the historical correlation between yields and prices is maintained and the relative variability for these variables is constant over time.

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<sup>5</sup>Panel members provide 10 years of yield data for their crops. Coefficients of variation (CV) for yields are computed for each farm. Yields for crops on the farm with the most typical yield variability are used to develop the multivariate probability distributions.

Production for each crop (i) in year t is calculated as the product of the stochastic yield for crop i and harvested acres (Figure C-1). Harvested acres are determined either by the producer or the analyst, based on the crop's expected net returns and its base (or program) acres, ARP fraction, and NFA and OFA fractions. Crop receipts from the market place are the greater of the stochastic price for crop i or its loan rate times the owner/operator's share of production. Government payments (deficiency, Findley, and marketing loan) are calculated for each crop based on the relevant formula and projected policy values for that year. For example, deficiency payments in year t are calculated as the product of eligible acres ( $\text{base} \times (1 - \text{ARP} - \text{NFA} - [\text{OFA}, \text{if applicable}])$ ), farm program yields, and deficiency payment rate (target price minus the maximum of stochastic price or loan rate). Government payments are appropriately reduced by the landlord's share of the crop on share-rented cropland and the \$50,000/\$75,000 payment limitation.

Annual variable costs are calculated for each crop as the product of harvested acres and the inflation-updated per acre costs for seed, fertilizer, chemicals, fuel, irrigation, and other production costs (Figure C-1). Harvest costs are computed as the product of harvested acreage, stochastic yield and the inflation-updated harvesting cost per yield unit (e.g., \$/bu). Fixed costs for year t-1 are updated by the inflation rate for prices paid for production items to obtain total fixed costs in year t<sup>6</sup>. Operating interest costs are calculated as the product of the operating interest rate, costs of production, and fraction of the year operating debt is used, adjusted for self-financing of the farm by using cash reserves. Interest costs for land and machinery loans are calculated as the product of their respective interest rates and outstanding debts. Total cash expense is the sum of variable costs for all crops, total fixed costs, and interest costs (Figure C-1).

Net cash farm income equals total receipts less total cash expenses (Figure C-1). Net cash farm income is used to calculate cash inflows and accrued income taxes. Other components to cash inflows are interest earnings (money market interest rate) on ending cash reserves (not used for operating purposes) in t-1 and off-farm income for t-1 updated using the Consumer Price Index. Annual cash outflows are calculated as the sum of family living expenses, principle payments, accrued taxes for year t-1, and down payments for machinery replacements (Figure C-1).

Annual accrued income taxes (federal and state), self-employment taxes, and depreciation are calculated using the 1986 federal income tax provisions and the individual state income tax provisions for 1990 (Prentice-Hall). Annual taxable income is calculated using net cash farm income, depreciation, personal deductions and exemptions, and the current federal and state income tax provisions. Depreciation is calculated for each machinery item (r) in the complement based on the depreciation provisions when the machine was placed into service. At the end of a machine's economic life (year n), it is traded for a replacement. The

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<sup>6</sup>Not depicted in Figures C-1 and C-2 is the calculation for property taxes. Annual real estate taxes are calculated as the product of the market value of real estate in t-1 and a fixed property tax rate expressed as a dollar of tax per dollar of market value.

replacement cost in year n is the machine's inflation adjusted 1990 replacement cost, less its market value in year n. The trade-in value for a machine in year n is its 1990 market value reduced (deflated) for its annual loss in value.

Annual ending cash reserves equal total cash inflows less total cash outflows (Figure C-1). If cash reserves are negative, the deficit is refinanced using equity in intermediate and long-term assets. Ending cash reserves are added to the updated value of land and machinery to calculate total assets at year end. Total liabilities is the sum of accrued income and self-employment taxes, real estate debt, and intermediate and long-term debt. Ending net worth is calculated as total assets less total liabilities (Figure C-1). A test is made at year end to determine whether the farm is solvent, i.e., if the equity to asset ratio exceeds the minimum of 15 percent. If the farm is solvent, FLIPSIM proceeds to the next year; if not, the model declares the farm insolvent, records the values, and moves to the next iteration.

FLIPSIM repeats these annual calculations for each year of the planning horizon. At the end of the planning horizon, the model calculates net present value, present value of ending net worth, and more than 70 other key output variables that summarize the iteration. One hundred iterations of the planning horizon are run when the farm is simulated in the stochastic mode. After completing the last iteration, statistics for the more than 70 empirical probability distributions simulated for the farm are computed. The simulated cumulative distribution of net present value for different scenarios can be compared by using stochastic dominance or by simply comparing the means, minimums, maximums, and standard deviations.

The FLIPSIM schematic in Figure C-1 depicts the activities of the model for a crop farm. To simulate a dairy, hog, or beef cattle farm, the model simply calls into the execution stream additional calculations performed by FLIPSIM when a dairy farm is simulated. (Each livestock enterprise has approximately the same types of variables being calculated as the dairy so separate figures are not presented for each one.) Livestock consume feed raised on the farm and thus reduce cash receipts from crop sales. The livestock enterprises also produce products that are sold using stochastic market prices (e.g., milk, calves, culled cows, culled bulls). Cattle and hog purchases required to maintain the cow and sow herd are cash outlays that also offset the balance sheet through the total value of the herd. Fixed values, based on herd replacement information provided by the producers, determine the herd dynamics (i.e., birth, death, culling).



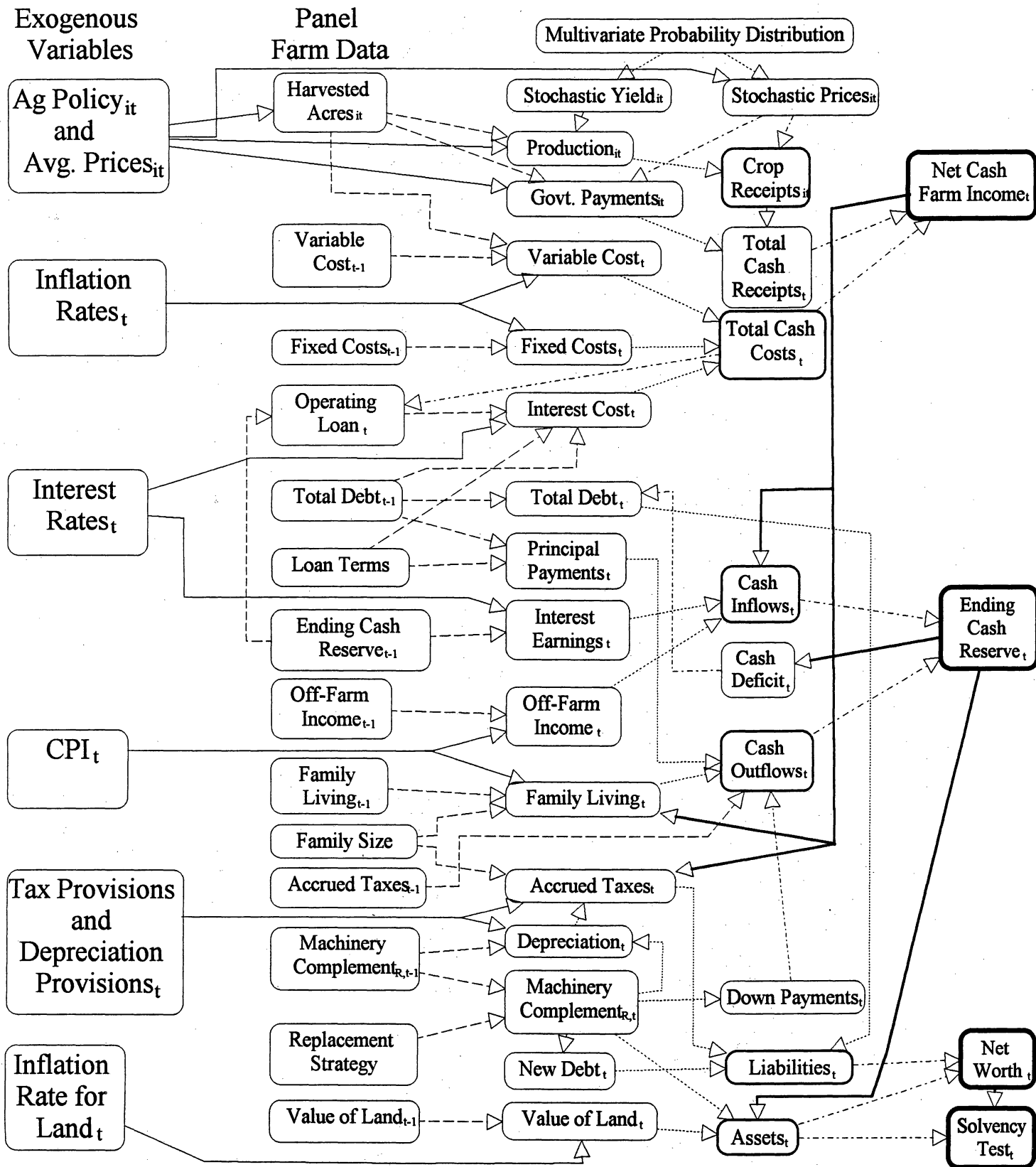


Figure C-1. Simplified Schematic of Annual Calculations for FLIPSIM.

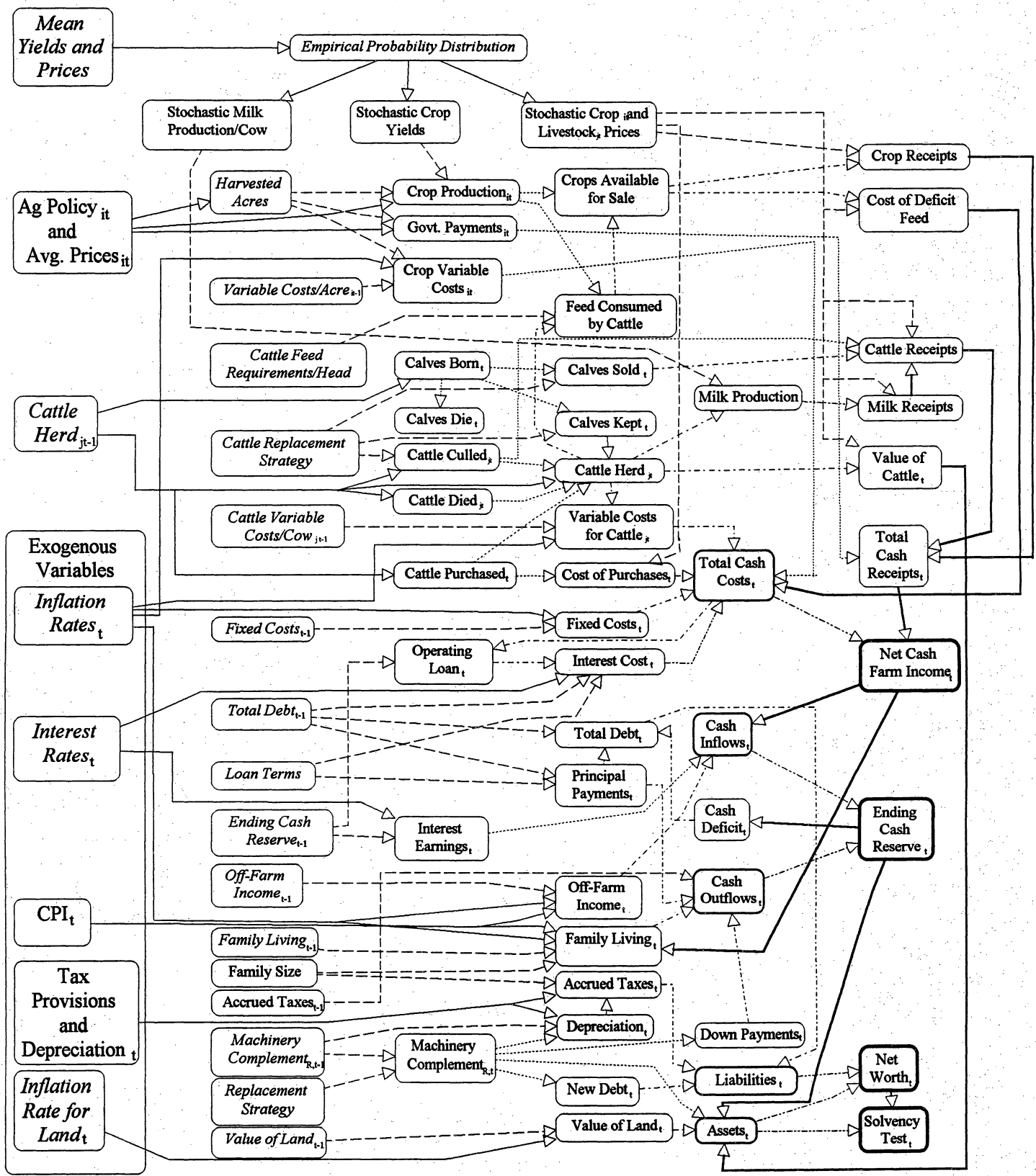


Figure C-2. Simplified Schematic of FLIPSIM Crop and Dairy Subsectors.

APPENDIX D  
PANEL FARM COOPERATORS

**APPENDIX D**  
**PANEL FARM COOPERATORS**

**FEED GRAIN FARMS**

**Washington**

*Facilitators*

Mr. John Burns - Whitman County Agricultural Extension Agent  
Dr. Herb Hinman - Extension Economist, Washington State University

*Panel Participants*

Mr. Richard Largent	Mr. Peter Collins
Mr. John Whitman	Mr. Asa Clark
Mr. Henry Suess	Mr. David Harlow
Mr. Earl Crowe	

**North Dakota**

*Facilitators*

Mr. Dwight Aakre - Extension Associate, Farm Management, North Dakota State University  
Mr. Lester Stuber - Barnes County Agricultural Extension Agent

*Panel Participants*

Mr. Mike Clemens	Mr. Ray Haugen
Mr. Jack Formo	Mr. Arvid Winkler
Mr. Greg Shanenko	Mr. Jon Owen
Mr. Jim Broten	Mr. Greg Mueller
Mr. Lloyd Thilmony	Mr. Wade Burns

**Nebraska**

*Facilitators*

Mr. Roland Cooksley - Phelps County Agricultural Extension Agent  
Dr. Roger Selley - Extension Farm Management Specialist, University of Nebraska

*Panel Participants*

Mr. Frank Hadley	Mr. Tom Schwarz
Mr. Gary Robison	Mr. Scott Davis
Mr. Kerry Blythe	Mr. Johnny Nelson
Mr. Brian Johnson	Mr. Dave High
Mr. Charles Wohlgemuth	

**Iowa**

*Facilitators*

Mr. Bill Coeffy - Webster County Extension Agriculturalist  
Dr. William Edwards - Agricultural Economist, Iowa State University

*Panel Participants*

Mr. Phil Naeve	Mr. Dennis Ammen
Mr. Larry Lynch	Mr. John Ricke

Mr. Don Sandell  
Mr. Bob Anderson  
Mr. Larry Lane

Mr. Britt Shelton  
Mr. Virgil Gordon

### **Missouri-North Central**

#### *Facilitator*

Mr. Paul Taylor - Area Extension Specialist, University of Missouri - Columbia

#### *Panel Participants*

Mr. Larry Davies	Mr. D.J. Tweedie
Mr. Clifford Lyons	Mr. Ron Gibson
Mr. Ron Linneman	Mr. Ron Venable
Mr. Glenn Kaiser	Mr. Charles Reid
Mr. Gerald Kitchen	Mr. Jack Harriman
Mr. John Vogelsmeier	Mr. Tommie Tweedie

### **Missouri-Southeast**

#### *Facilitator*

Mr. Bruce Beck - Farmer's Agronomy Specialist, Popular Bluff, Missouri

Mr. David Reinbott - Farm Management Specialist, Benton, Missouri

#### *Panel Participants*

Mr. David Jackson	Mr. Fred Tanner
Mr. Steve Jackson	Mr. David Wheeler
Mr. Bruce Yarbrow	Mr. Charlie Jennings
Mr. Vance Madison	Mr. Charles Davis
Mr. C.P. Johnson	

### **Texas Northern High Plains**

#### *Facilitators*

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 Blacklands**

#### *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**

*Facilitators*

Dr. Darwin Anderson - San Patricio-Aransas Counties Agricultural Extension Agent

Dr. Larry Falconer - Corpus Christi Experiment Station

*Panel Participants*

Mr. Jess Person

Mr. Darby Salge

Mr. Howard Salge

Mr. Wesley Schmidt

**South Carolina**

*Facilitators*

Mr. Toby Boring - Extension Agricultural Economist, Clemson University

Dr. Johnny Jordan - Dept. of Agricultural Economics, Clemson University

Dr. Mike Hammig - Dept. of Agricultural Economics, Clemson University

*Panel Participants*

Mr. Harry Durant

Mr. Steve Lowder

Mr. John Ducworth

Mr. Billy Davis

Mr. Tom Jackson

Mr. John Spann

Mrs. Vikki Brogdon

## WHEAT FARMS

### Washington

#### *Facilitators*

Mr. John Burns - Whitman County Agricultural Extension Agent  
Dr. Herb Hinman - Extension Economist, Washington State University

#### *Panel Participants*

Mr. Richard Largent	Mr. Peter Collins
Mr. John Whitman	Mr. Asa Clark
Mr. Henry Suess	Mr. David Harlow
Mr. Earl Crowe	

### North Dakota

#### *Facilitators*

Mr. Dwight Aakre - Extension Associate, Farm Management, North Dakota State University  
Mr. Lester Stuber - Barnes County Agricultural Extension Agent

#### *Panel Participants*

Mr. Mike Clemens	Mr. Ray Haugen
Mr. Jack Formo	Mr. Arvid Winkler
Mr. Greg Shanenko	Mr. Jon Owen
Mr. Jim Broten	Mr. Greg Mueller
Mr. Lloyd Thilmony	Mr. Wade Burns

### Kansas

#### *Facilitators*

Mr. Tim Stuckey - Extension Agricultural Economist, Kansas State University  
Mr. Gerald Le Valley - Sumner County Agricultural Extension Agent  
Dr. Fred Delano - Agricultural Economist, Kansas State University

#### *Panel Participants*

Mr. Paul Nye	Mr. Thomas Ostrander
Mr. Leroy Hoopes	Mr. Ronald Frazier
Mr. Jim Mathes	Mr. Nick Steffen
Mr. Lauren Ostrander	Mr. Donald Applegate
Mr. Harold Hainsworth	Mr. David Messenger
Mr. Rae Reuser	Mr. Don Casner

### Missouri - North Central

#### *Facilitator*

Mr. Paul Taylor - Area Extension Specialist, University of Missouri - Columbia

#### *Panel Participants*

Mr. Larry Davies	Mr. D.J. Tweedie
Mr. Clifford Lyons	Mr. Ron Gibson
Mr. Ron Linneman	Mr. Ron Venable

Mr. Glenn Kaiser  
Mr. Gerald Kitchen  
Mr. John Vogelsmeier

Mr. Charles Reid  
Mr. Jack Harriman  
Mr. Tommie Tweedie

### **Texas Northern High Plains**

#### *Facilitators*

Dr. Steve Amosson - Extension Economist-Management, Texas A&M University  
Mr. Brad Johnson - Sunray Coop., Sunray, Texas

#### *Panel Participants*

Mr. Wesley Spurlock  
Mr. Marion Garland  
Mr. Gary Keisling  
Mr. Charles Dooley

Mr. Kenneth Keisling  
Mr. Ronnie Williams  
Mr. Tom Moore

### **Texas Rolling Plains**

#### *Facilitators*

Mr. Gary Stanford - Ellis County Agricultural Extension Agent  
Mr. Stan Bevers - Extension Economist-Management, Texas A&M University

#### *Panel Participants*

Mr. Ed Ekdahl  
Mr. Marvin McDuff  
Mr. Ronnie Richmond  
Mr. Denis Olson

Mr. Mark Lundgren  
Mr. B.C. Spraberry  
Mr. Darrell Richards

### **Arkansas**

#### *Facilitators*

Mr. Randy Smith - Market Analyst, Rice Division, Riceland Foods, Inc.  
Mr. Bob Coats - Extension Specialist, Management, University of Arkansas

#### *Panel Participants*

Mr. Joe Rennie  
Mr. Roger Pohlner

Mr. Jerry Don Clark  
Mr. Gary Sitzer

### **South Carolina**

#### *Facilitators*

Mr. Toby Boring - Extension Agricultural Economist, Clemson University  
Dr. Johnny Jordan - Dept. of Agricultural Economics, Clemson University  
Dr. Mike Hammig - Dept. of Agricultural Economics, Clemson University

#### *Panel Participants*

Mr. Harry Durant  
Mr. John Ducworth  
Mr. Tom Jackson  
Mrs. Vikki Brogdon

Mr. Steve Lowder  
Mr. Billy Davis  
Mr. John Spann



## OILSEED FARMS

### North Dakota

#### *Facilitators*

Mr. Dwight Aakre - Extension Associate, Farm Management, North Dakota State University

Mr. Lester Stuber - Barnes County Agricultural Extension Agent

#### *Panel Participants*

Mr. Mike Clemens

Mr. Ray Haugen

Mr. Jack Formo

Mr. Arvid Winkler

Mr. Greg Shanenko

Mr. Jon Owen

Mr. Jim Broten

Mr. Greg Mueller

Mr. Lloyd Thilmony

Mr. Wade Burns

### Nebraska

#### *Facilitators*

Mr. Roland Cooksley - Phelps County Agricultural Extension Agent

Dr. Roger Selley - Extension Farm Management Specialist, University of Nebraska

#### *Panel Participants*

Mr. Frank Hadley

Mr. Tom Schwarz

Mr. Gary Robison

Mr. Scott Davis

Mr. Kerry Blythe

Mr. Johnny Nelson

Mr. Brian Johnson

Mr. Dave High

Mr. Charles Wohlgenuth

### Iowa

#### *Facilitators*

Mr. Bill Coeffy - Webster County Extension Agriculturalist

Dr. William Edwards - Agricultural Economist, Iowa State University

#### *Panel Participants*

Mr. Phil Naeve

Mr. Dennis Ammen

Mr. Larry Lynch

Mr. John Ricke

Mr. Don Sandell

Mr. Britt Shelton

Mr. Bob Anderson

Mr. Virgil Gordon

Mr. Larry Lane

### Missouri-North Central

#### *Facilitator*

Mr. Paul Taylor - Area Extension Specialist, University of Missouri - Columbia

#### *Panel Participants*

Mr. Larry Davies

Mr. D.J. Tweedie

Mr. Clifford Lyons

Mr. Ron Gibson

Mr. Ron Linneman

Mr. Ron Venable

Mr. Glenn Kaiser

Mr. Charles Reid

Mr. Gerald Kitchen  
Mr. John Vogelsmeier

Mr. Jack Harriman  
Mr. Tommie Tweedie

### **Mississippi**

#### *Facilitators*

Dr. David Laughlin - Agricultural Economist, Mississippi State University  
Mr. Fred Cook - Agricultural Economist, Delta Branch Experiment Station,  
Mississippi State University

#### *Panel Participants*

Mr. Harley Metcalfe	Mr. W.P. Brown
Mr. Ellis Palasini	Mr. Robert Carson
Mr. Robroy Fisher	Mr. Rives Carter
Mr. Kenneth Hood	Mr. Lawrence Long

### **Arkansas**

#### *Facilitators*

Mr. Randy Smith - Market Analyst, Rice Division, Riceland Foods, Inc.  
Mr. Bob Coats - Extension Specialist, Management, University of Arkansas

#### *Panel Participants*

Mr. Joe Rennie	Mr. Jerry Don Clark
Mr. Roger Pohlner	Mr. Gary Sitzer

### **Missouri-Southeast**

#### *Facilitator*

Mr. Bruce Beck - Farmer's Agronomy Specialist, Popular Bluff, Missouri  
Mr. David Reinbott - Farm Management Specialist, Benton, Missouri

#### *Panel Participants*

Mr. David Jackson	Mr. Fred Tanner
Mr. Steve Jackson	Mr. David Wheeler
Mr. Bruce Yarbro	Mr. Charlie Jennings
Mr. Vance Madison	Mr. Charles Davis
Mr. C.P. Johnson	

### **South Carolina**

#### *Facilitators*

Mr. Toby Boring - Extension Agricultural Economist, Clemson University  
Dr. Johnny Jordan - Dept. of Agricultural Economics, Clemson University  
Dr. Mike Hammig - Dept. of Agricultural Economics, Clemson University

#### *Panel Participants*

Mr. Harry Durant	Mr. Steve Lowder
Mr. John Ducworth	Mr. Billy Davis
Mr. Tom Jackson	Mr. John Spann
Mrs. Vikki Brogdon	

## COTTON FARMS

### California

#### *Facilitators*

Dr. R. Tom Kerby - Extension Specialist, University of California Cooperative Extension

Mr. Gene Lundquist - Calcot Limited, Bakersfield, California

#### *Panel Participants*

Mr. Jerry Davis

Mr. Hubert Holterman

Mr. Larry Starrh

Mr. Fred Starrh

Mr. Jim Crettol

Mr. Jim Nickel

Mr. Wayne Waldrip

Mr. Richard Young

Mr. Ken Kirschenman

Mr. Roger Frantz

### Mississippi

#### *Facilitators*

Dr. David Laughlin - Agricultural Economist, Mississippi State University

Mr. Fred Cook - Agricultural Economist, Delta Branch Experiment Station, Mississippi State University

#### *Panel Participants*

Mr. Harley Metcalfe

Mr. W.P. Brown

Mr. Ellis Palasini

Mr. Robert Carson

Mr. Robroy Fisher

Mr. Rives Carter

Mr. Kenneth Hood

Mr. Lawrence Long

### Texas Southern High Plains

#### *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

Mr. Kent Nix

Mr. Dave Nix

### Texas Rolling Plains

#### *Facilitators*

Mr. Gary Stanford - Ellis County Agricultural Extension Agent

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 Blacklands**

*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**

*Facilitators*

Dr. Darwin Anderson - San Patricio-Aransas Counties Agricultural Extension Agent  
Dr. Larry Falconer - Corpus Christi Experiment Station

*Panel Participants*

Mr. Jess Person                          Mr. Darby Salge  
Mr. Howard Salge                        Mr. Wesley Schmidt

**South Carolina**

*Facilitators*

Mr. Toby Boring - Extension Agricultural Economist, Clemson University  
Dr. Johnny Jordan - Dept. of Agricultural Economics, Clemson University  
Dr. Mike Hammig - Dept. of Agricultural Economics, Clemson University

*Panel Participants*

Mr. Harry Durant                        Mr. Steve Lowder  
Mr. John Ducworth                      Mr. Billy Davis  
Mr. Tom Jackson                        Mr. John Spann  
Mrs. Vikki Brogdon

## RICE FARMS

### Texas - West of Houston

#### *Facilitator*

Dr. Ed Rister - Agricultural Economist, Texas A&M University

#### *Panel Participants*

Mr. Steve Balas	Mr. J. D. Woods, Jr.
Mr. Ronald Gertson	Mr. Layton Raun
Mr. Danny Gertson	Mr. Madison Smith
Mr. Bill Krenek	Mr. Rudy Till, III
Mr. Glen Rod	Mr. L. G. Raun, Jr.

### California

#### *Facilitators*

Mr. Jack Williams - Sutter & Yuba Counties, Farm Advisor, University of California  
Cooperative Extension

#### *Panel Participants*

Mr. Bill Baghet	Mr. Jeff Norton
Mr. Alan Catlet	Mr. Frank Rosa
Mr. Jack DeWit	Mr. Brett Scheidel
Mr. Gordon Galloway	Mr. Walt Trevethan
Mr. Bill McLaughlin	Mr. Wayne Vineyard

### Arkansas

#### *Facilitators*

Mr. Randy Smith - Market Analyst, Rice Division, Riceland Foods, Inc.  
Mr. Bob Coats - Extension Specialist, Management, University of Arkansas

#### *Panel Participants*

Mr. Joe Rennie	Mr. Jerry Don Clark
Mr. Roger Pohlner	Mr. Gary Sitzer

### Missouri-Southeast

#### *Facilitator*

Mr. Bruce Beck - Farmer's Agronomy Specialist, Popular Bluff, Missouri  
Mr. David Reinbott - Farm Management Specialist, Benton, Missouri

#### *Panel Participants*

Mr. David Jackson	Mr. Fred Tanner
Mr. Steve Jackson	Mr. David Wheeler
Mr. Bruce Yarbro	Mr. Charlie Jennings
Mr. Vance Madison	Mr. Charles Davis
Mr. C.P. Johnson	

## DAIRY FARMS

### Washington

#### *Facilitator*

Mr. David C. Grusenmeyer - Extension Dairy Agent, Bellingham, Washington

#### *Panel Participants*

Mrs. Star Hovander

Mr. Keith Boon

Mr. Rod DeJong

Mr. Dick Bengen

Mr. Ed Pomeroy

Mr. Greg McKay

Mr. & Mrs. Ron Bronsema

Mr. Dave Buys

Mr. Duane Vander Griend

Mr. Jim Heeringa

Mr. & Mrs. Pete DeJager

Mr. & Mrs. Dale DeVries

### California

#### *Facilitators*

Mr. Jimmie Prince - Dairyman's Cooperative Creamery, Tulare, California

#### *Panel Participants*

Mr. Dave Ribeiro

Mr. Bill Van Beek

Mr. John Zonneveld

Mr. Joe Pires

Mr. Bob Wilbur

### New Mexico

#### *Facilitators*

Mr. Jim Russell - Associated Milk Producers, Inc., El Paso, Texas

Mr. Butch Latture - Western Division Manager, Associated Milk Producers, Inc.,  
El Paso, Texas

#### *Panel Participants*

Mr. Brad Bouma

Mr. Joe Gonzalez

Mr. Steve Bos

Mr. Joe Segura

Mr. Von Hilburn

### Texas Erath County

#### *Facilitators*

Mr. Joe Pope - Texas Agricultural Extension Service, Stephenville, Texas

Mr. Jay Hicks - Associated Milk Producers, Inc., Stephenville, Texas

Mr. Ashley Lovell - Texas Agricultural Experiment Station, Stephenville, Texas

Dr. Robert Schwart - Dairy Economist, Texas Agricultural Extension Service,  
Texas A&M

#### *Panel Participants*

Mr. Lane Jones

Mr. Leonard Moncrief

Mr. Jack Parks

Mr. Owen Sieperda

Mr. Robert Ervin

Mr. Bob Strona

Mr. Jake Van Vliet

## **Texas Hopkins County**

### *Facilitators*

Dr. Robert Schwart - Dairy Economist, Texas Agricultural Extension Service,  
Texas A&M

Mr. Dale Haygood - Zone Manager, Associated Milk Producers, Inc.,  
Sulphur Springs, Texas

### *Panel Participants*

Mr. E.G. Durgin

Mr. Tim Spiva

Mr. Al Minter

Mr. Hershel Kelsoe

Mr. Tommy Potts

Mr. Douwe Plantinga

## **Missouri**

### *Facilitator*

Mr. Ron Young - Christian County Dairy Specialist, Ozark, Missouri

### *Panel Participants*

Mr. John Mallonee

Mr. & Mrs. Doug Owen

Mr. & Mrs. Ray Schooley

Mr. & Mrs. David Hedspeth

Mr. & Mrs. Phil Barnhart

Mr. & Mrs. Freddie Martin

Mr. John Atkinson

Mr. Wayne Whitehead

## **Georgia**

### *Facilitator*

Dr. Dale H. Carley - Professor, Dept. of Agricultural Economics,  
University of Georgia

### *Panel Participants*

Mr. Lamar Anthony

Mr. Bud Wiley

Mr. Everett Williams

Mr. Bud Butcher

## **Florida**

### *Facilitator*

Dr. Dan Webb - Extension Dairy Scientist, University of Florida

Dr. John Holt - Professor, University of Florida

### *Panel Participants*

Mr. Rick Dressel

Mr. John Peachey

Mr. Charles Williams

## **Wisconsin**

### *Facilitators*

Mr. Jeff Key - Winnebago County Agricultural Extension Agent

Dr. Gary Frank - Extension Farm Management Specialist, University of Wisconsin

*Panel Participants*

Mr. John Lenz	Mr. Joe Bonlender
Mr. Larry Engel	Mr. Pete Van Wychen
Mr. Ronald Miller	Mr. Doug Hodorff
Mr. Pete Knigge	Mr. Fred Kasten
Mr. Edwin Davis	Mr. Jerome Schmidt
Mr. Dean Hughes	Mr. Terry Madigan

**Western New York**

*Facilitator*

Dr. Wayne Knoblauch - Professor, Dept. of Agricultural Economics,  
Cornell University

*Panel Participants*

Mr. Gary Van Slyke	Mr. Dick Popp
Mr. Willard DeGolyer	Mr. Bill Fitch
Mr. George Mueller	Mr. Mark Smith
Mr. Dale Van Erden	

**Central New York**

*Facilitator*

Dr. Wayne Knoblauch - Professor, Dept. of Agricultural Economics,  
Cornell University

*Panel Participants*

Mr. Gary Mutchler	Mr. Ron Space, Jr.
Mr. Bill Head	Mr. Mike Learn
Mr. David Shurtleff	Mr. Leonard Kimmich
Mr. & Mrs. Tom Brown	

**Vermont**

*Facilitators*

Dr. Stu Gibson - Extension Dairy Specialist, University of Vermont  
Dr. Chris Woelfel - Dairy Specialist, Texas Agricultural Extension Service,  
Texas A&M University  
Mr. Dennis Kauppila - Caledonia County Extension Agricultural Agent  
Ms. Pat Duffy - Farm Management Association of Vermont and New Hampshire

*Panel Participants*

Mr. Steve Hurd	Mr. David Conant
Mr. Steven Jones	Mr. Dave Tooley
Mr. Richard Hall	Mr. Stanley Scribner
Mr. John Osha	Mr. Albert Neddo
Mr. Tim Bisson	Mr. Paul Gingue
Mr. Ray Bisson	Mr. Paul Miller
Mr. Kim Harvey	



## BEEF PRODUCERS

### Montana

#### *Facilitators*

Mr. Olaf Sherwood - Custer County Agricultural Extension Agent  
Dr. Alan Baquet - Farm Management Specialist, Montana State University

#### *Panel Participants*

Mr. Keith Powell  
Mr. Donald Ochsner  
Mr. Art Drange  
Mr. Dee Murray  
Mr. Jean Robinson

### Texas - South Central

#### *Facilitators*

Mr. L. R. Sprott - Livestock Specialist, Texas Agricultural Extension Service,  
Texas A&M  
Mr. Joe Adams - Gonzales County Agricultural Extension Agent

#### *Panel Participants*

Mr. Joel Egg  
Mr. Ace Fairchild  
Mrs. J. Carter Thomas  
Mr. William Miller  
Mrs. Susan Miller

### Missouri

#### *Facilitators*

Mr. Mike Killingsworth - Agricultural Economist, Maryville, Missouri  
Mr. Joe Trujillo - Program Director - FAPRI, University of Missouri - Columbia

#### *Panel Participants*

Mr. Jack Baldwin  
Mr. Don Mobley  
Mr. Roger Vest  
Mr. Gary Ecker  
Mr. Kevin Rosenbohm

## HOG FARMS

### Illinois

#### *Facilitators*

Mr. Don Teel - Knox County Agent, Galesburg, Illinois  
Dr. Dick Kessler - Agricultural Economist, University of Illinois  
Mr. Joe Trujillo - Program Director - FAPRI, University of Missouri - Columbia

#### *Panel Participants*

Mr. Steve England	Mr. Sterling Saline
Mr. Dale Carlson	Mr. Jim Erickson
Mr. Gary Bowman	Mr. Lance Humphreys
Mr. Mike Hennenfent	Mr. C. Clark Main
Mr. Louis Rogers	Mr. Dale E. McKee
Dr. Donald G. Reeder	

### Indiana

#### *Facilitators*

Mr. Steve Nichols - Carroll County Agricultural Extension Agent  
Dr. Don Pershing - Extension Farm Management Specialist, Purdue University  
Dr. Chris Hurt - Extension Farm Management Specialist, Purdue University

#### *Panel Participants*

Mr. Glenn Brown	Mr. Ernie Wyant
Mr. Larry Trapp	Mr. Brad Burton
Mr. Ed Nelson	Mr. Fred Wise
Mr. Sam Zook	Mr. Bill Pickard

### Missouri

#### *Facilitator*

Mr. Paul Taylor - Area Extension Specialist, University of Missouri - Columbia

#### *Panel Participants*

Mr. William Charles	Mr. R. David Hemme
Mr. Dale Miles	Mr. Gary L. Sanders
Mr. Vernon Thoeni	Mr. Robert S. Mayden
Mr. John Vogelsmeier	Mr. Matt Reichert
Mr. Herbert Kiehl	Mr. Richard Clemens

### North Carolina

#### *Facilitator*

Dr. Kelly Zering - Department of Agricultural and Resource Economics, North Carolina State University

#### *Panel Participants*

Mr. Ben Outlaw	Mr. Brewer Ezzell
Mr. David John Overman	Mr. Mark Rix
Mr. Charlie McClenny	Ms. Mary Ann Martin
Mr. Ronald Parks	Mr. R.H. Mohesky
Mr. David Sanderson	

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