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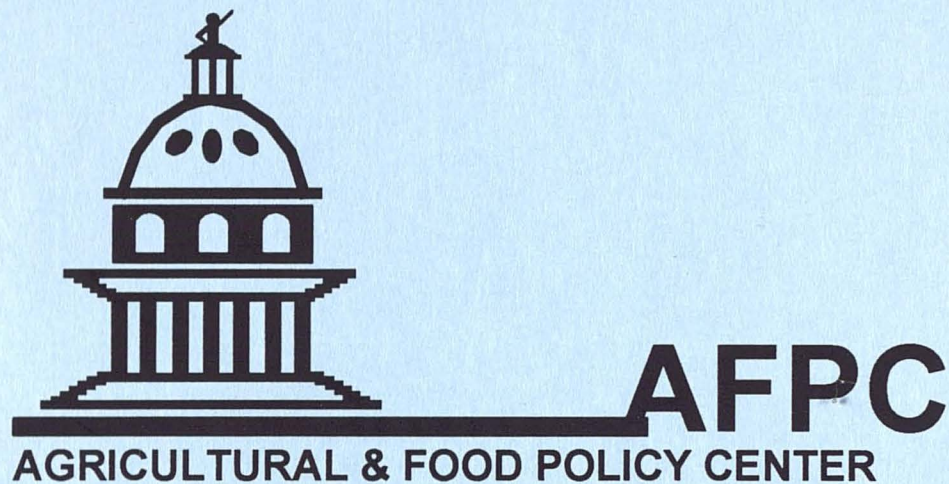
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**INTEREST RATE EFFECTS ON THE UNITED STATES
AGRICULTURAL SECTOR WITH EMPHASIS
AT THE FARM LEVEL**

AFPC Working Paper 97-5

May 1997



Department of Agricultural Economics
Texas Agricultural Experiment Station
Texas Agricultural Extension Service
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EXECUTIVE SUMMARY

AFPC Working Paper 97-5

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INTEREST RATE EFFECTS ON THE U.S. ECONOMY
AGRICULTURAL SECTOR LEVEL IMPACTS
AT THE FARM LEVEL

EXECUTIVE SUMMARY

A sustained 50 and 100 basis point increase in the 90 day Treasury Bill interest translates into mortgage rate hikes of 43 and 87 basis points, respectively, by the year 2002. Agricultural impacts accrue through marginal intermediate run reductions in commodity prices, a reduced rate of inflation, and, of course, higher interest rates.

A majority of the 76 farms and ranches analyzed experience reduced net cash farm income in the range of 1 to 4 percent under the 50 and 100 basis point scenarios. Of course, farms already drawing on cash reserves or refinancing operating debt under the Baseline are more adversely affected by increased interest rates.

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INTEREST RATE EFFECTS ON THE UNITED STATES AGRICULTURAL SECTOR WITH EMPHASIS AT THE FARM LEVEL

Introduction

This report responds to a FAPRI/AFPC request by Senator Harkin to examine the economic impacts of increased interest rates on U.S. agriculture. AFPC estimated the macro economic impacts which were used by the Food and Agricultural Policy Research Institute (FAPRI) to project the agricultural sector level impacts on commodity demand, input price inflation and commodity prices. The changes in input and commodity prices were used in the representative farm analysis. FAPRI's assumptions and analysis are reported under a separate cover titled "Interest Rate Effects on The United States Agricultural Sector - FAPRI Working Paper # 02-97."

This report is organized into three sections. The first section describes the assumptions and macro economic impacts on the general economy from a sustained 50 and 100 basis point increase in 90 day Treasury Bill rate for 1997-2002. The second section provides a discussion of FAPRI's estimated impacts on intermediate and long-term interest rates, inflation, land prices and commodity prices for the baseline and higher interest rate scenarios. The final section summarizes the results of the increased interest rates on 76 representative U.S. crop and livestock farms.

The macro and farm level impacts of the 50 and 100 basis point increase in the 90 day Treasury Bill rate is compared to the FAPRI/AFPC Baseline reported in AFPC Working Paper 97-1 titled "Representative Farms Economic Outlook: FAPRI/AFPC January 1997 Baseline." AFPC Working Paper 97-1 also provides a detailed description of the representative farms used in this report.

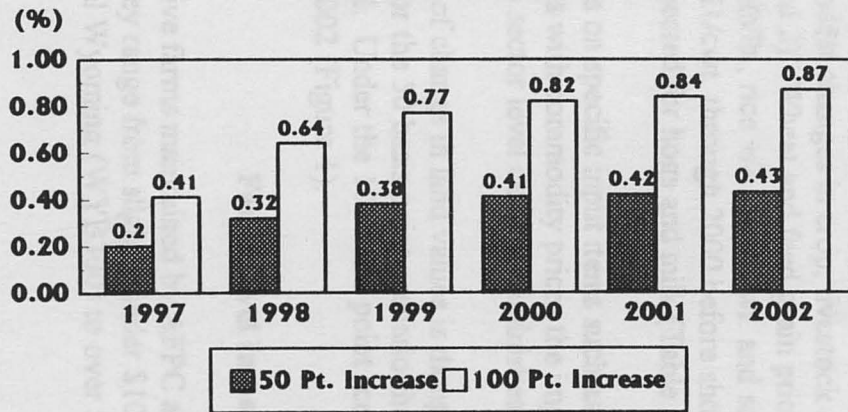
Macro Economic Assumptions and Impacts

The effects of a tighter monetary policy designed to address the prospects of future inflation were simulated by increasing the 90 day Treasury Bill rate over baseline levels. Two monetary policy actions were examined: (1) actions leading to a 50 basis point increase in the 90 day Treasury Bill rate and (2) actions leading to a 100 basis point increase. It was assumed that these actions were initiated at the beginning of 1997 and were maintained through 2002.

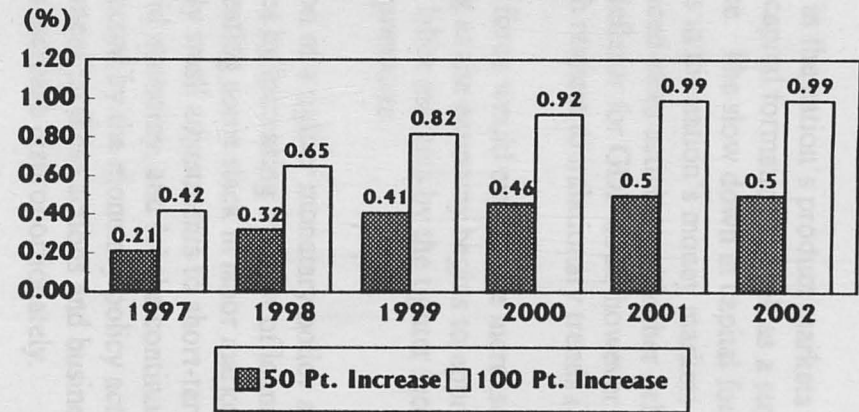
The impact of these actions on the general economy is registered in different markets. In the nation's money markets, we would see an increase in bond yields and mortgage interest rates reflecting both a higher cost of short-term funds and a growth in federal budget deficits over the longer run. The NIPA federal budget deficit would be some \$33 billion higher than baseline levels by 2002 if short-term interest rates were increased by 50 basis points and nearly \$68 billion higher if short-term rates were increased by 100 basis points. Mortgage rates would eventually climb by 43 basis points and 87 basis points above baseline levels by the end of 2002 under these two scenarios, respectively. Corporate bond rates would fully reflect the higher cost of short-term funds by that time (Figure 1).

Figure 1. Macroeconomic Changes From the Baseline with a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate

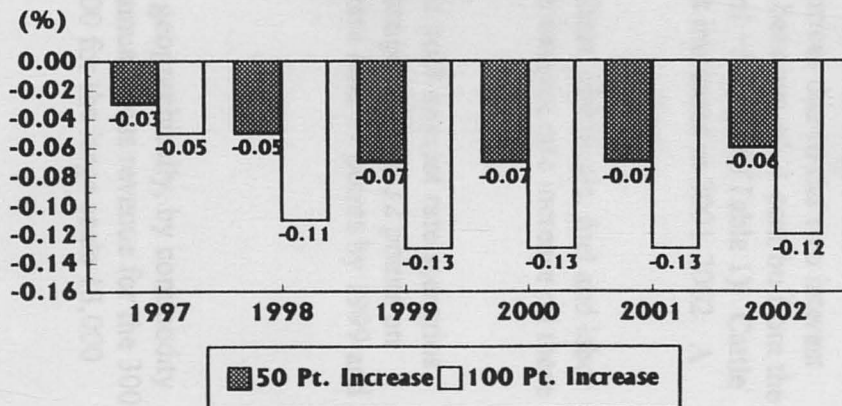
Mortgage Interest Rate
Changes from the Base



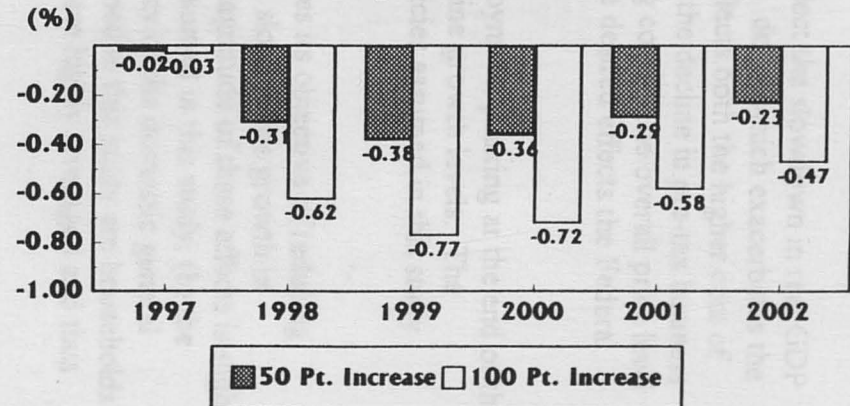
Bond (Intermediate-Term) Interest Rate
Changes from the Base



GDP Price Deflator
Changes From the Base



Rate of Change in Land Values
Changes From the Base



Economic activity in the nation's product markets would reflect the slowdown in real GDP caused by lower levels of capital formation as well as a stronger U.S. dollar which exacerbates the U.S. negative trade balance. The slow down in capital formation reflects both the higher cost of longer-term loanable funds in the nation's money markets as well as the decline in pre-tax business profits resulting from reduced sales activity and higher debt servicing costs. The overall price level as measured by the price deflator for GDP does, however, reflect the desired effects the Federal Reserve is looking for with respect to inflationary trends (Figure 1).

The nation's labor force would experience increased unemployment, peaking at the end of the decade and then improving as the economy begins to approach baseline growth levels. The additional slack created in labor markets by the tighter monetary policies assumed in this study reduces inflationary wage pressures.

Thus, the imposition of a tighter monetary policy accomplishes its objective of reducing future inflationary pressures by increasing the cost of loanable funds, slowing the growth in aggregate demand, and creating some slack in labor markets. The magnitude of these effects is slight in light of: (a) the relatively small adjustments to short-term rates assumed in this study, (b) the stagnant nature of the world economy, and (c) the continued resiliency of the domestic general economy. Those most affected by the monetary policy actions assumed in this study are households who experience unemployment by these actions and businesses who are highly leveraged and thus see their debt service costs increase disproportionately.

FAPRI Sector Level Impacts

FAPRI projects modest changes in crop, livestock and dairy prices due to the two interest rate scenarios (Tables 1 and 2). Wheat and feed grain prices deviate between +/- 1 cent/bu from the Baseline, cotton +/- 2 points/lb., rice +/- 1 cent/cwt. and soybean meal +/- \$1/ton (Table 1). Cattle prices are down less than \$1/cwt. through 2000 before showing slight increases in 2001-2002. A similar price pattern is projected for hogs and milk (Table 2).

Inflationary impacts on specific input items such as seed, fertilizer, chemicals, fuel and labor are reported in Table 3. As with commodity prices the impacts of the interest rate increase on these input items are marginal as sector level demand diminishes.

The projected rate of change in land values is dampened under both interest rate scenarios relative to the Baseline. For the 50 basis point scenario the rate of change is down 32 points on average from 1998 to 2002. Under the 100 basis point scenario the rate falls 77 points by 1999 and is still 47 points lower in 2002 (Figure 1).

Farm Level Impacts

The 76 representative farms maintained by AFPC are diverse geographically, by commodity type and economically. They range from slightly under \$100,000 in annual gross revenue for the 300 cow ranch in North Central Wyoming (WYB300) to over \$35,000,000 for the large scale 13,000

Table 1. Comparison of Crop Prices Under the Baseline and The Alternative Interest Rate Scenarios *

	1996	1997	1998	1999	2000	2001	2002
Corn (\$/bu.)							
Baseline	2.75	2.37	2.36	2.42	2.44	2.55	2.61
50 Point Increase	2.75	2.37	2.35	2.42	2.45	2.55	2.61
100 Point Increase	2.74	2.37	2.35	2.42	2.45	2.55	2.62
Wheat (\$/bu.)							
Baseline	4.3	3.38	3.3	3.63	3.63	3.78	3.78
50 Point Increase	4.3	3.38	3.31	3.63	3.63	3.78	3.79
100 Point Increase	4.3	3.38	3.31	3.63	3.64	3.79	3.8
Cotton (\$/lb.)							
Baseline	0.7133	0.665	0.6458	0.6499	0.6667	0.6803	0.6857
50 Point Increase	0.7133	0.6649	0.6457	0.6498	0.6666	0.6804	0.6858
100 Point Increase	0.7133	0.6649	0.6457	0.6497	0.6665	0.6804	0.686
Sorghum (\$/bu.)							
Baseline	2.33	2.28	2.25	2.32	2.38	2.47	2.52
50 Point Increase	2.33	2.28	2.25	2.32	2.38	2.47	2.52
100 Point Increase	2.33	2.28	2.25	2.32	2.38	2.48	2.53
Soybeans (\$/bu.)							
Baseline	6.85	6.23	5.83	5.8	5.92	5.98	6.08
50 Point Increase	6.85	6.22	5.82	5.8	5.92	5.98	6.09
100 Point Increase	6.85	6.22	5.82	5.79	5.92	5.99	6.09
Barley (\$/bu.)							
Baseline	2.71	2.36	2.25	2.31	2.39	2.44	2.43
50 Point Increase	2.71	2.36	2.25	2.31	2.39	2.45	2.43
100 Point Increase	2.71	2.36	2.26	2.31	2.4	2.45	2.44
Oats (\$/bu.)							
Baseline	1.93	1.52	1.36	1.38	1.39	1.41	1.43
50 Point Increase	1.93	1.52	1.36	1.37	1.39	1.42	1.44
100 Point Increase	1.93	1.52	1.36	1.37	1.39	1.42	1.45
Rice (\$/cwt.)							
Baseline	9.41	8.71	8.64	8.5	8.73	8.81	8.92
50 Point Increase	9.41	8.71	8.65	8.5	8.73	8.81	8.92
100 Point Increase	9.41	8.71	8.65	8.5	8.73	8.81	8.92
Soybean Meal (\$/ton)							
Baseline	218.03	196.8	188.13	190.43	194.87	196.7	195.55
50 Point Increase	217.93	196.5	187.82	190.23	194.84	196.89	195.92
100 Point Increase	217.84	196.2	187.5	190.01	194.81	197.06	196.27
All Hay (\$/ton)							
Baseline	92.43	86.39	83.56	83.17	82.73	80.6	79.15
50 Point Increase	92.43	86.29	83.42	83	82.6	80.53	79.15
100 Point Increase	92.43	86.22	83.26	82.83	82.48	80.47	79.15

*Baseline refers to the projected prices for the January 1997 FAPRI/AFPC Baseline.

50 and 100 Point Increases refer to the projected prices for the 50 and 100 point increase in the the 90 Day Treasury Bill rate.

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

Timothy (Dried)							
Baseline	14.89	13.34	12.8	12.8	12.8	12.8	12.8
50 Point Increase	14.85	13.43	12.8	12.8	12.8	12.8	12.8
100 Point Increase	14.86	13.33	12.8	12.8	12.8	12.8	12.8
Timothy (Green)							
Baseline	15.23	14.15	13.56	13.56	13.56	13.56	13.56
50 Point Increase	15.22	14.15	13.56	13.56	13.56	13.56	13.56
100 Point Increase	15.23	14.17	13.56	13.56	13.56	13.56	13.56
Vernon (Dried)							
Baseline	15.36	14.32	13.7	13.7	13.7	13.7	13.7
50 Point Increase	15.36	14.31	13.7	13.7	13.7	13.7	13.7
100 Point Increase	15.36	14.32	13.7	13.7	13.7	13.7	13.7
Washington (Dried)							
Baseline	14.41	13.32	12.8	12.8	12.8	12.8	12.8
50 Point Increase	14.41	13.31	12.8	12.8	12.8	12.8	12.8
100 Point Increase	14.41	13.31	12.8	12.8	12.8	12.8	12.8
Washington (Green)							
Baseline	14.72	13.65	13.0	13.0	13.0	13.0	13.0
50 Point Increase	14.72	13.65	13.0	13.0	13.0	13.0	13.0
100 Point Increase	14.72	13.65	13.0	13.0	13.0	13.0	13.0

*Baseline refers to the projected prices for the January 1997 FAPRI/AFPC Baseline.

50 and 100 Point Increases refer to the projected prices for the 50 and 100 point increase in the the 90 Day Treasury Bill rate.

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

of Missouri-Columbia and Iowa State University.

Table 2. Comparison of Livestock and Milk Prices Under the Baseline and the Alternative Interest Rate Scenarios *

	1996	1997	1998	1999	2000	2001	2002
Cattle Prices							
Feeder Cattle (\$/cwt.)							
Baseline	61.37	67.87	75.30	83.49	90.22	92.92	85.70
50 Point Increase	61.37	67.82	74.86	83.02	89.97	92.93	85.99
100 Point Increase	61.37	67.43	74.37	82.50	89.64	92.90	86.26
Culled Cows (\$/cwt)							
Baseline	30.29	31.95	38.02	43.26	45.96	47.30	44.20
50 Point Increase	30.29	31.77	37.73	42.95	45.84	47.39	44.50
100 Point Increase	30.29	31.64	37.39	42.63	45.67	47.46	44.79
Hog Prices							
Barrows/Gilts (\$/cwt)							
Baseline	53.36	53.81	46.36	42.04	45.42	49.03	46.08
50 Point Increase	53.36	53.76	46.23	41.96	45.42	49.10	46.16
100 Point Increase	53.36	53.71	46.12	41.87	45.42	49.16	46.24
Culled Sows (\$/cwt)							
Baseline	44.27	44.63	37.45	35.02	36.72	39.58	37.48
50 Point Increase	44.27	44.59	37.32	34.94	36.73	39.68	37.61
100 Point Increase	44.27	44.55	37.21	34.87	36.74	39.77	37.73
Milk Prices -- National and State							
All Milk Price (\$/cwt)							
Baseline	14.75	13.69	13.53	13.39	13.00	12.98	13.01
50 Point Increase	14.75	13.68	13.50	13.37	13.00	13.02	13.09
100 Point Increase	14.75	13.67	13.47	13.34	13.00	13.06	13.16
California (\$/cwt)							
Baseline	13.63	12.51	12.42	12.32	11.93	11.93	11.95
50 Point Increase	13.63	12.50	12.39	12.29	11.93	11.96	12.02
100 Point Increase	13.63	12.49	12.36	12.26	11.93	12.00	12.09
Florida (\$/cwt)							
Baseline	18.00	16.89	16.79	16.68	16.30	16.30	16.32
50 Point Increase	18.00	16.88	16.76	16.66	16.30	16.33	16.39
100 Point Increase	18.00	16.87	16.73	16.63	16.30	16.37	16.46
Georgia (\$/cwt)							
Baseline	16.31	15.21	15.10	14.99	14.61	14.61	14.63
50 Point Increase	16.31	15.21	15.07	14.97	14.61	14.64	14.70
100 Point Increase	16.31	15.20	15.04	14.94	14.61	14.68	14.77
Missouri (\$/cwt)							
Baseline	15.23	14.04	13.88	13.76	13.37	13.36	13.40
50 Point Increase	15.23	14.03	13.85	13.73	13.37	13.40	13.48
100 Point Increase	15.23	14.03	13.82	13.71	13.37	13.44	13.55
New Mexico (\$/cwt)							
Baseline	13.87	12.90	12.68	12.53	12.14	12.14	12.20
50 Point Increase	13.87	12.89	12.65	12.51	12.15	12.19	12.29
100 Point Increase	13.87	12.88	12.62	12.49	12.15	12.23	12.38
New York (\$/cwt)							
Baseline	14.88	13.84	13.68	13.55	13.17	13.17	13.21
50 Point Increase	14.88	13.83	13.65	13.53	13.17	13.21	13.28
100 Point Increase	14.88	13.82	13.62	13.50	13.17	13.24	13.36
Texas (\$/cwt)							
Baseline	15.23	14.18	13.98	13.83	13.42	13.40	13.42
50 Point Increase	15.23	14.18	13.96	13.81	13.42	13.44	13.50
100 Point Increase	15.23	14.17	13.93	13.78	13.43	13.48	13.58
Vermont (\$/cwt)							
Baseline	15.38	14.32	14.17	14.05	13.65	13.65	13.68
50 Point Increase	15.38	14.31	14.14	14.02	13.66	13.69	13.76
100 Point Increase	15.38	14.30	14.11	13.99	13.66	13.73	13.83
Washington (\$/cwt)							
Baseline	14.41	13.52	13.22	13.05	12.65	12.65	12.74
50 Point Increase	14.41	13.51	13.19	13.03	12.66	12.70	12.83
100 Point Increase	14.41	13.51	13.17	13.01	12.67	12.76	12.93
Wisconsin (\$/cwt)							
Baseline	14.72	13.66	13.52	13.40	13.01	13.01	13.05
50 Point Increase	14.72	13.65	13.49	13.37	13.01	13.05	13.12
100 Point Increase	14.72	13.64	13.46	13.35	13.01	13.09	13.19

*Baseline refers to the projected prices for the January 1997 FAPRI/AFPC Baseline.

50 and 100 Point Increases refer to the projected prices for the 50 and 100 point Increase in the the 90 Day Treasury Bill rate.

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

Table 3. Comparison of Rates of Change in Input Costs, Interest Rates, and Land Inflation Rates Under the Baseline and the Alternative Interest Rate Scenarios.

	1997	1998	1999	2000	2001	2002
Annual Rate of Change for Input Prices Paid						
Seed Prices (%)						
Baseline	1.12	-0.08	1.41	2.16	1.99	2.12
50 Point Increase	1.12	-0.09	1.40	2.15	1.98	2.11
100 Point Increase	1.11	-0.10	1.38	2.13	1.96	2.09
Fertilizer Prices (%)						
Baseline	-1.76	-0.63	1.55	1.69	1.75	1.74
50 Point Increase	-1.76	-0.65	1.52	1.66	1.71	1.71
100 Point Increase	-1.77	-0.66	1.49	1.63	1.68	1.68
Chemical Prices (%)						
Baseline	1.45	-0.18	0.68	1.13	2.10	2.29
50 Point Increase	1.43	-0.23	0.61	1.06	2.03	2.22
100 Point Increase	1.42	-0.27	0.55	1.00	1.96	2.15
Machinery Prices (%)						
Baseline	-0.25	-0.11	0.45	0.66	1.02	0.64
50 Point Increase	1.47	-0.16	0.45	0.63	0.99	0.63
100 Point Increase	3.22	-0.21	0.44	0.60	0.97	0.61
Fuel and Lube Prices (%)						
Baseline	-4.23	-1.77	3.25	3.52	3.59	3.52
50 Point Increase	-4.25	-1.81	3.18	3.45	3.52	3.45
100 Point Increase	-4.26	-1.85	3.12	3.38	3.45	3.39
Labor (%)						
Baseline	1.63	1.55	1.62	1.93	2.24	2.02
50 Point Increase	1.59	1.55	1.55	1.88	2.14	1.95
100 Point Increase	1.57	1.51	1.49	1.81	2.08	1.89
Other Input Prices (%)						
Baseline	0.47	1.37	2.20	2.28	2.57	2.58
50 Point Increase	0.46	1.33	2.14	2.21	2.50	2.52
100 Point Increase	0.44	1.29	2.08	2.14	2.44	2.46
Non-Feed Dairy Costs (%)						
Baseline	0.28	2.08	2.23	2.36	2.71	2.42
50 Point Increase	0.19	2.09	2.19	2.23	2.62	2.44
100 Point Increase	0.16	2.05	2.14	2.19	2.58	2.40
Non-Feed Beef Costs (%)						
Baseline	-0.15	0.36	1.02	1.24	1.48	1.30
50 Point Increase	-0.17	0.34	0.99	1.21	1.40	1.22
100 Point Increase	-0.18	0.31	0.94	1.15	1.35	1.17
Non-Feed Hog Costs (%)						
Baseline	-1.86	5.01	7.34	0.99	1.53	2.97
50 Point Increase	-1.87	5.00	7.26	0.88	1.39	2.87
100 Point Increase	-1.88	4.98	7.18	0.77	1.26	2.77
Consumer Price Index						
Baseline	161.06	165.52	170.22	175.01	179.95	184.97
50 Point Increase	161.01	165.37	169.94	174.59	179.36	184.21
100 Point Increase	160.96	165.23	169.68	174.17	178.78	183.46
Annual Interest Rates						
Long-Term (%)						
Baseline	7.14	7.17	7.27	7.16	7.07	7.12
50 Point Increase	7.34	7.49	7.65	7.57	7.49	7.55
100 Point Increase	7.55	7.81	8.04	7.98	7.91	7.99
Intermediate-Term (%)						
Baseline	8.02	7.75	7.75	7.76	7.69	7.46
50 Point Increase	8.23	8.07	8.16	8.22	8.19	7.96
100 Point Increase	8.44	8.40	8.57	8.68	8.68	8.45
Savings Account (%)						
Baseline	4.02	3.75	3.75	3.76	3.69	3.46
50 Point Increase	4.12	3.95	3.95	4.16	4.09	3.96
100 Point Increase	4.22	4.15	4.35	4.46	4.49	4.36
Annual Rate of Change for U.S. Land Prices (%)						
Baseline	5.02	4.90	5.43	3.12	2.42	1.17
50 Point Increase	5.00	4.59	5.05	2.76	2.13	0.94
100 Point Increase	4.99	4.28	4.66	2.40	1.84	0.70

*Baseline refers to the projected prices for the January 1997 FAPRI/AFPC Baseline. 50 and 100 Point Increases refer to the projected prices for the 50 and 100 point increase in the the 90 Day Treasury Bill rate. Source: Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri-Columbia and Iowa State University.

sow hog farm in Eastern North Carolina (NCH13268). The farms are located in the major U.S. production areas as illustrated in Figure 2. A brief description of each operation is included in Appendix A.

All crop farms are assumed to begin 1996 with 20 percent intermediate and long-term debt, based on information provided by ERS-USDA and the representative panel farm members. Beginning debt levels for the hog farms are assumed at 45 percent, the dairy farms at 30 percent and the cattle ranches at 1 percent for land and 5 percent for machinery.

Average net cash farm income is the performance variable chosen for demonstrating the farm level effects of changing the 90 day Treasury Bill rate. Net cash farm income equals gross receipts minus all cash production costs including interest payments. Net cash farm income is used to pay family living expenses, principal payments, income taxes, self employment taxes, and capital replacement costs. The values in Figures 3-6 represent the average percentage change in net cash farm income for the 1997-2002 study period. Individual year results over the 1997-2002 study period are included in Appendix B.

Feed Grain Farms - All 13 feed grain operations experience declines in net cash farm income as interest rates increase. The decline, however, is no more than 3.5 percent for nine of the thirteen farms under the 100 basis point scenario (Figure 3). The remaining four farms include the moderate Northern Missouri operation, the moderate irrigated farm in Nebraska and both irrigated operations in Kansas. Net cash farm incomes on these four farms decline from 5 percent for the large Kansas farm (KSG1652) to over 10 percent for the moderate Kansas operation (KSG728), under the 100 basis point scenario. All four of these farms were either drawing down cash reserves and/or refinancing operating debt under the Baseline. Increasing interest rates compounds the pressure on net cash farm incomes as debts rise.

Wheat Farms - All 10 wheat farms experience declines in net cash farm incomes as interest rates increase. Only the moderate size Kansas farm experiences a decline in excess of 4 percent. Under the 50 basis point scenario the moderate Kansas farm's net cash farm income falls by approximately 5 percent. Under the 100 basis point scenario the decline would be approximately 9 percent. The KSSC1495 farm was the only wheat farm under the January 1997 Baseline to draw down or refinance operating debt throughout the 1997-2002 study period.

Cotton Farm - All 10 cotton farms experience a decline in net cash farm incomes as interest rates increase. Only three farms' net cash farm incomes decline in excess of 4 percent under the 100 basis point scenario (Figure 4). These three farms include the moderate scale operations in the Texas Blacklands (TXBL1200), Texas Coastal Bend (TXCB1700), and Mississippi (MSC1635). All three farms were drawing on cash reserves and/or refinancing operating debt under the January 1997 Baseline.

Rice Farm - All eight rice farms experience a decline in net cash farm income as interest rates are increased. The two Missouri operations appear the most vulnerable (Figure 4). The moderate Missouri farm (MOR1900) has an 11 percent reduction in net cash farm income under the 100 basis point scenario while its large scale counterpart loses 5.5 percent (MOR4000). The

Figure 2. Representative Farms

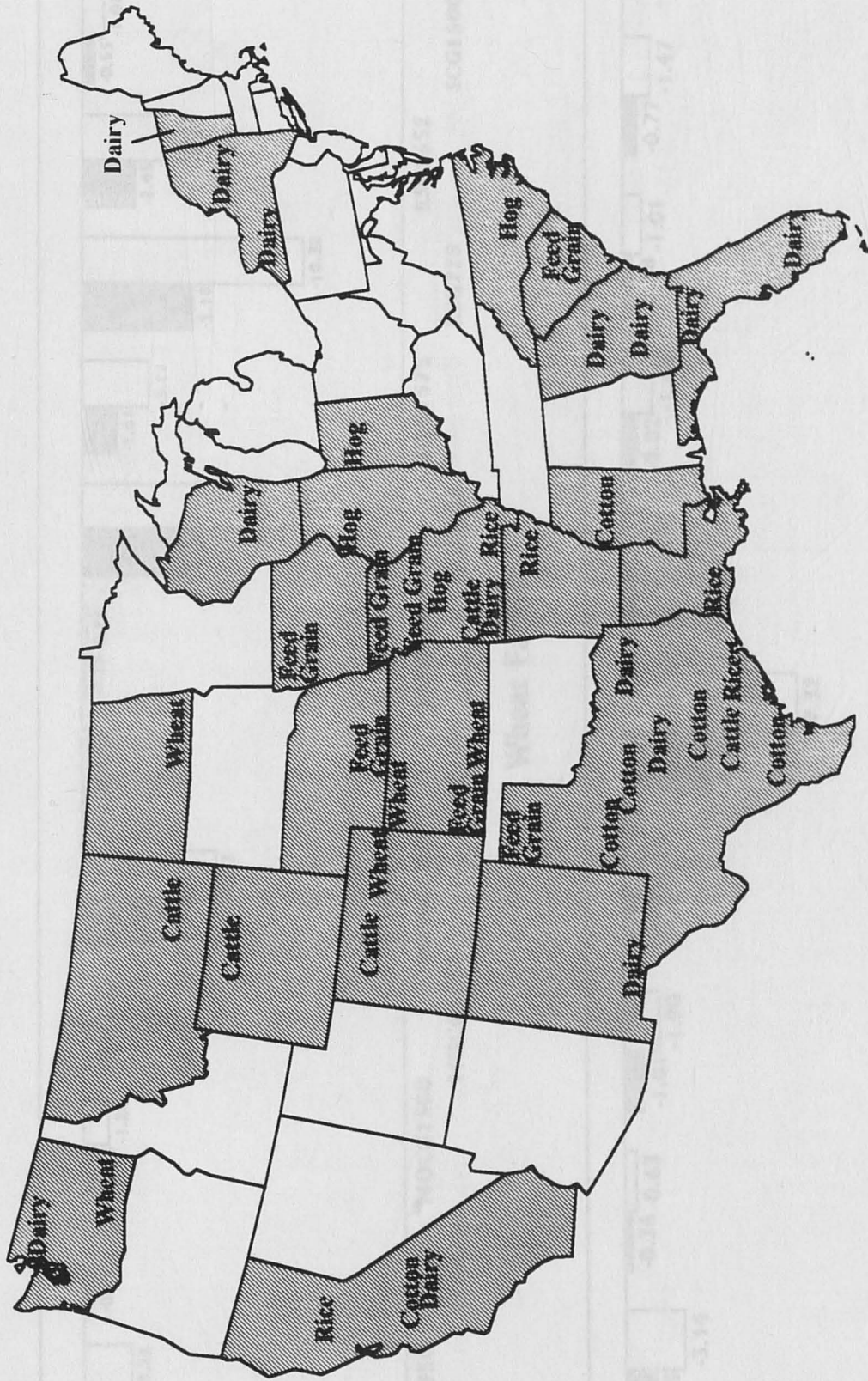


Figure 3. Average Percent Change in Net Cash Farm Income Relative to the Baseline (1997-2002)

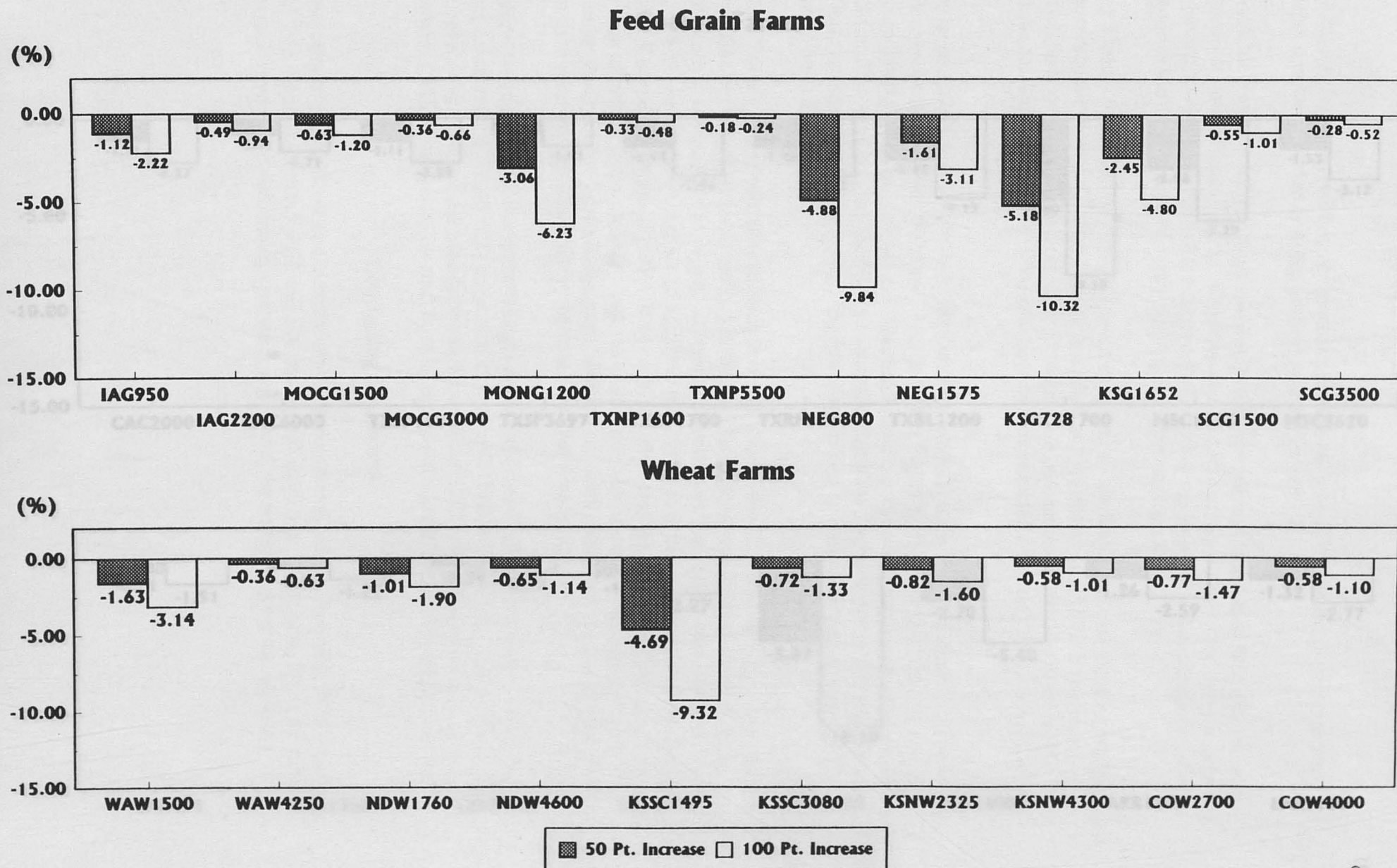
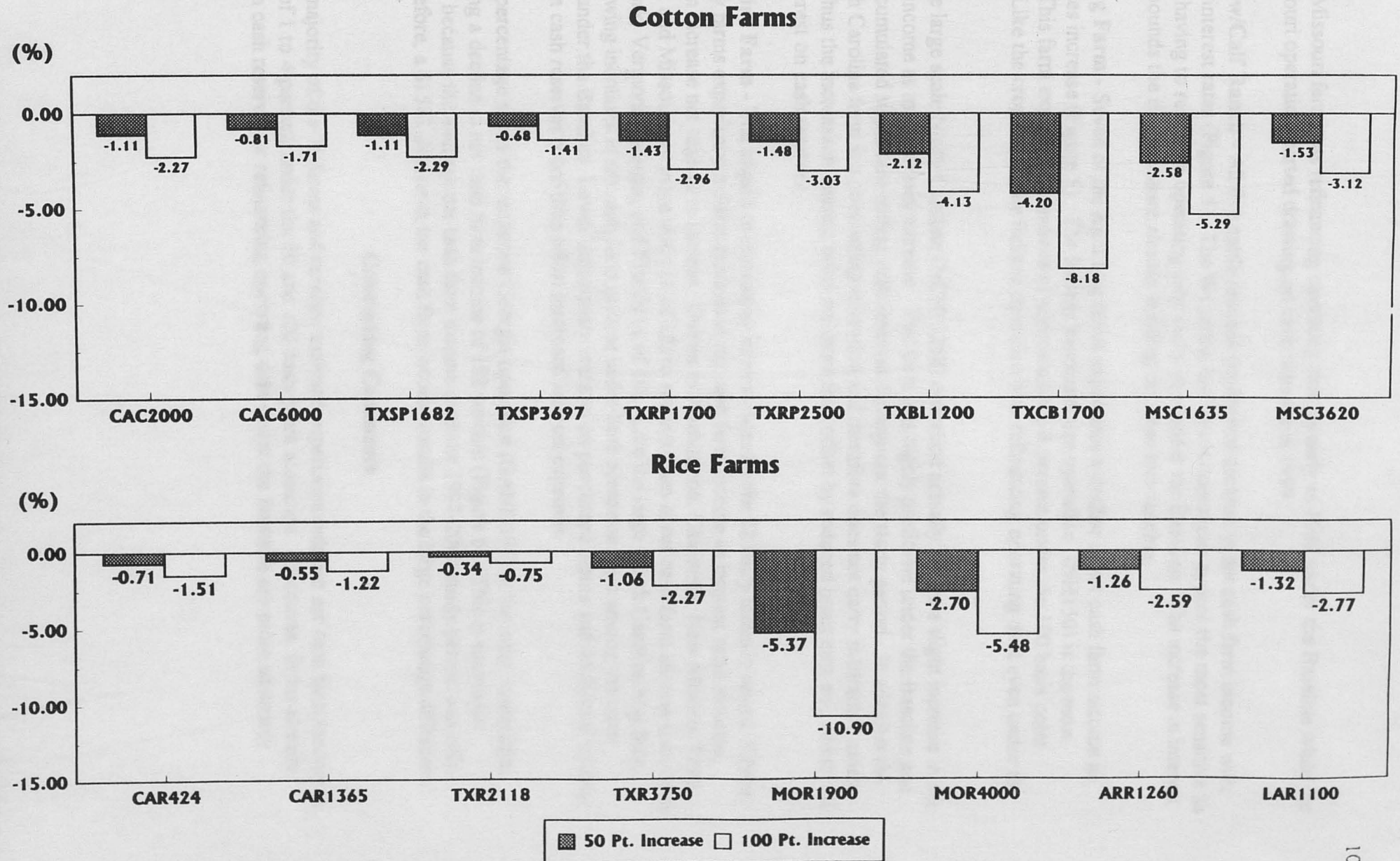


Figure 4. Average Percent Change in Net Cash Farm Income Relative to the Baseline (1997-2002)



moderate Missouri farm was refinancing operating debt as early as 1998 under the Baseline while the large Missouri operation started drawing on cash reserves in 1999.

Cow/Calf Ranch - All five cattle ranches experience declines in net cash farm income with increasing interest rates (Figure 5). The Wyoming and Texas operations appear the most sensitive as both were having to refinance operating debt every year under the Baseline. The increase in interest rates compounds the debt pressure already building on these two ranches.

Hog Farm - Seven of the eight hog farms experience a decline in net cash farm income as interest rates increase (Figure 5). The Indiana moderate size operation (INH150) is the most sensitive. This farm experiences declines of approximately 8 percent under the 100 basis point scenario. Like the crop farms, the Indiana operation was refinancing operating debt even under the Baseline.

The large scale North Carolina (NCH13268) operation actually shows a slight increase in net cash farm income as interest rates increase. This farm was highly profitable under the Baseline and as such accumulated significant ending cash reserves throughout the study period. In addition the large North Carolina farm is a contracting operation and therefore does not carry substantial assets or debt. Thus the increase in interest costs are more than offset by reduced input cost and additional earned interest on cash reserves.

Dairy Farm - The impact of increasing interest rates on the 22 dairy farms is mixed. Fifteen of the dairy farms experience modest declines in net cash farm income as interest rates increase, while seven increase net cash farm income. Dairies in Washington, California, New Mexico, Texas, Wisconsin, and Missouri are more likely (6 of 12) to see increases in net cash farm income than those in New York, Vermont, Georgia, and Florida (1 of 10). Like the large North Carolina hog farm, dairies showing increases in net cash farm income under both scenarios were among the most profitable under the Baseline. Lower inflationary impacts on purchased inputs and additional interest earnings on cash reserves more than offset increased interest expenses.

In percentage terms the moderate Georgia operation (GAND175) is the most vulnerable; experiencing a decline in net cash farm income of 182 percent (Figure 6). This is somewhat misleading because the average net cash farm income over the 1997-2002 study period was only \$870, therefore, a \$1583 decline in net cash farm income results in the large percentage difference.

Concluding Comments

A majority of the 76 farms and ranches analyzed experience reduced net cash farm income in the range of 1 to 4 percent under the 50 and 100 basis point scenarios. Of course, farms already drawing on cash reserves or refinancing operating debt under the Baseline are more adversely affected.

Figure 5. Average Percent Change in Net Cash Farm Income Relative to the Baseline (1997-2002)

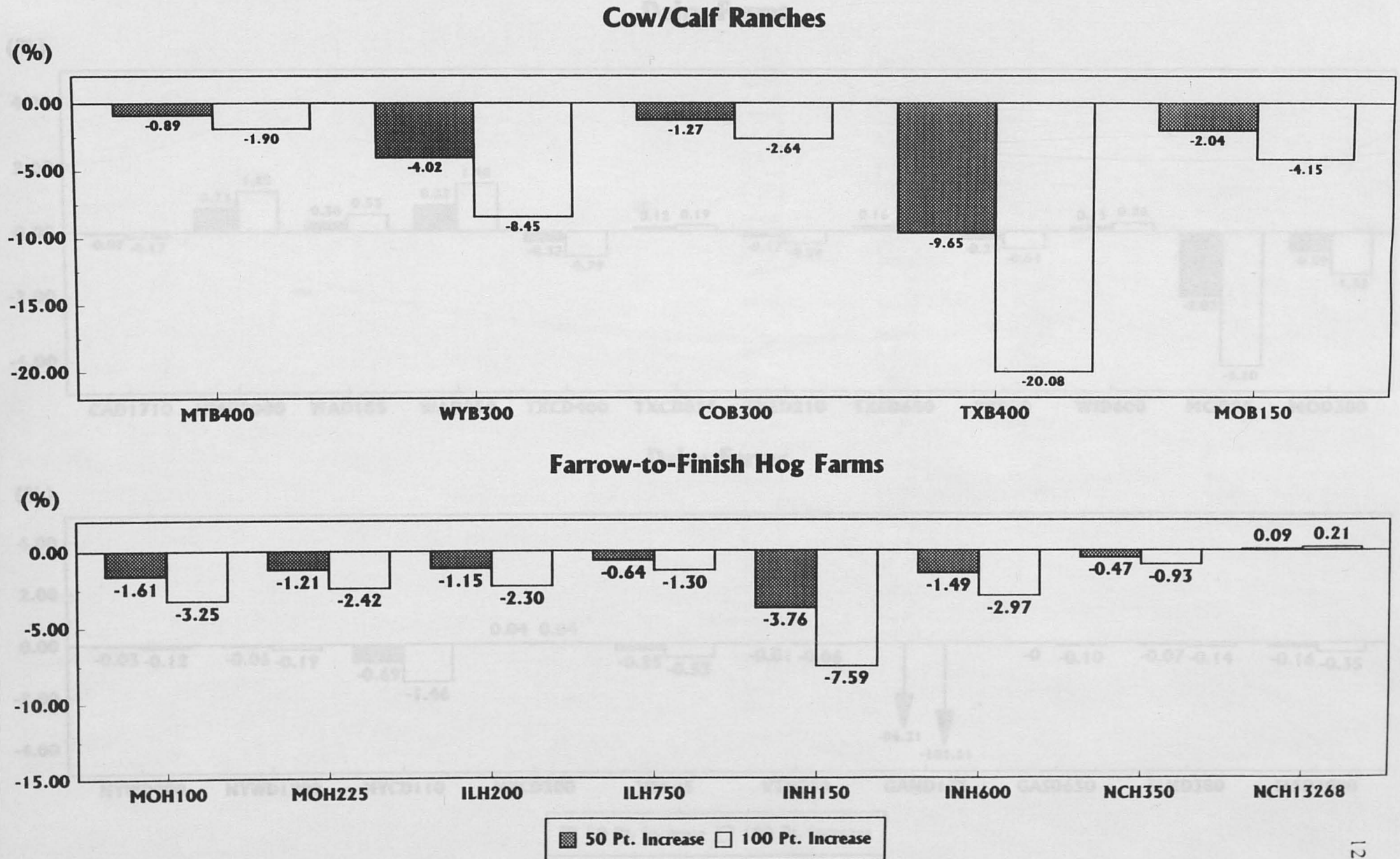
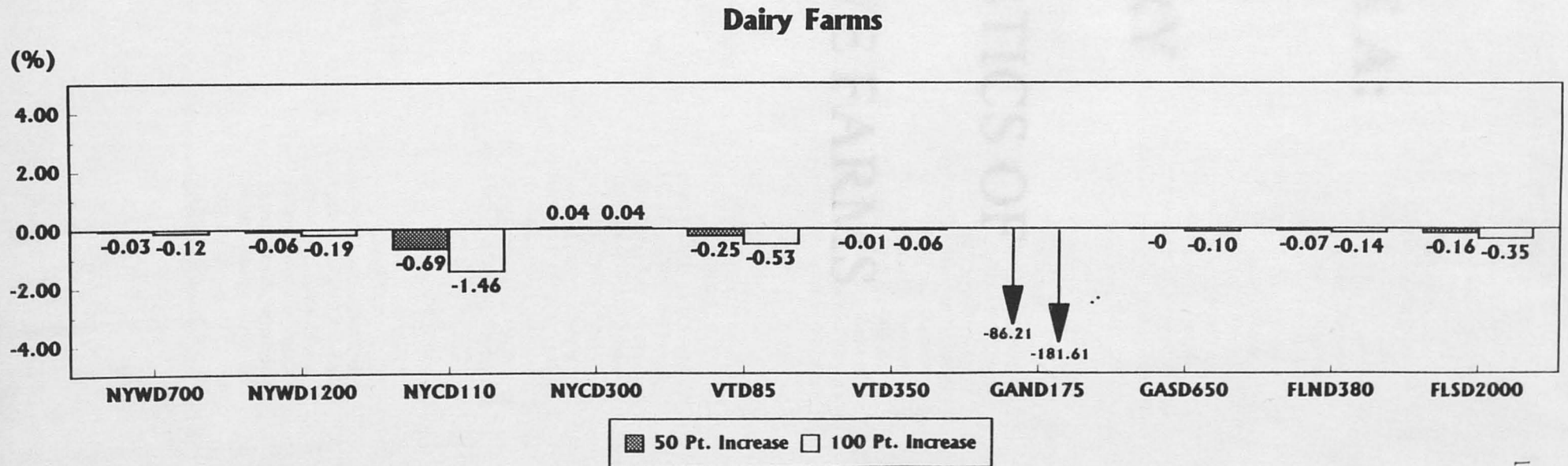
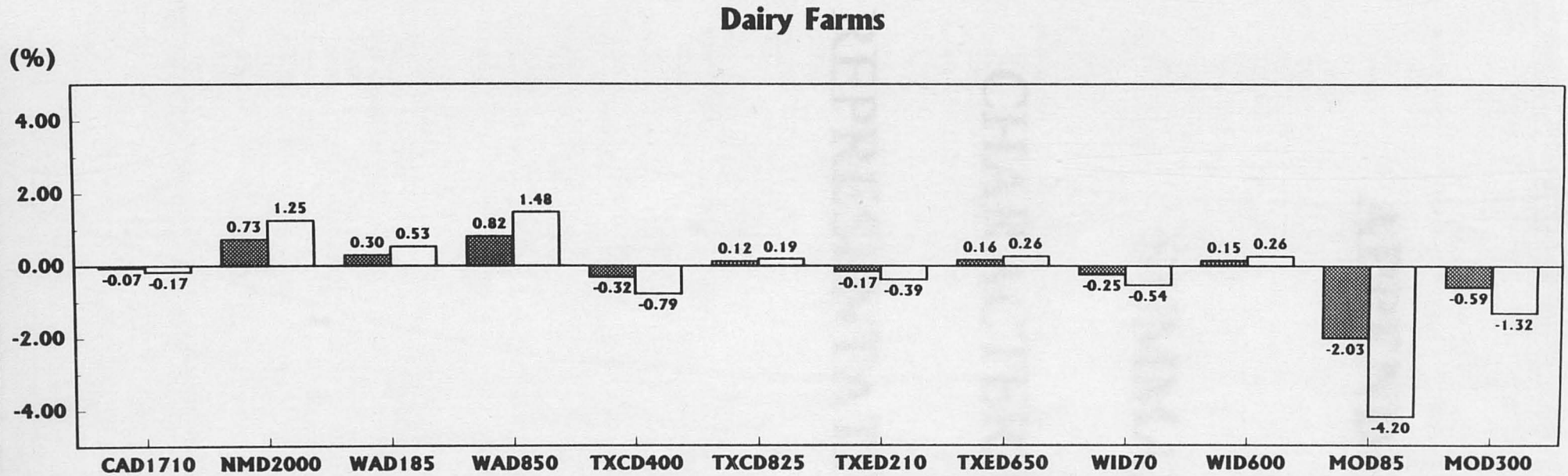


Figure 6. Average Percent Change in Net Cash Farm Income Relative to the Baseline (1997-2002)



FEED GRAINS		Total 1995 Receipts (\$1,000)	Percent of Receipts From Feed Grains	Location
IA0990	950	100.0	100.0%	Webster County, Iowa
IA02300	2300	100.0	100.0%	Webster County, Iowa
MO031800	1500	100.0	100.0%	Carroll County, Missouri
MO033000	3000	100.0	100.0%	Carroll County, Missouri
MO042100	1200	452.3	44.7%	Rodeway County, Missouri
NE0900	800	378.0	47.2%	Phelps County, Nebraska
NE034575	1575	702.0	47.0%	Phelps County, Nebraska
TX0P1600	1600	379.4	27.8%	Moore County, Texas
TX0P5500	5500	1427.7	72.4%	Moore County, Texas
KS03225	725	219.7	31.5%	Finney County, Kansas
KS031500	1500	359.5	23.7%	Finney County, Kansas
SC031500	1500	100.0	100.0%	Clarendon County, South Carolina
SC03800	3500	100.0	100.0%	Clarendon County, South Carolina
WHEAT		Total 1995 Receipts (\$1,000)	Percent of Receipts From Wheat	Location
WA01500	1500	100.0	100.0%	Grant County, Washington
WA014250	1250	100.0	100.0%	Grant County, Washington
ND011750	1750	200.2	11.3%	Barnes County, North Dakota
ND014600	4600	504.5	11.0%	Barnes County, North Dakota
KS0021495	1495	174.6	50.70%	Sumner County, Kansas
KS003080	3080	423.7	41.40%	Sumner County, Kansas
KS012325	2325	319.7	34.3%	Sumner County, Kansas
KS014300	4300	579.7	34.3%	Sumner County, Kansas
CO012750	2750	100.0	100.0%	Washington County, Colorado
CO01400	400	100.0	100.0%	Washington County, Colorado
COTTON		Total 1995 Receipts (\$1,000)	Percent of Receipts From Cotton	Location
CAC000	2000	1905.8	95.20%	Kings County, California
CAC000	5000	5437.0	70.90%	Kings County, California
TX0P1882	1882	305.5	79.23%	Dawson County, Texas
TX0P3697	3697	688.2	92.37%	Dawson County, Texas
TX0P1700	1700	227.4	87.50%	Jones County, Texas
TX0P2500	2500	352.8	89.30%	Jones County, Texas
TX0L1200	1200	249.5	59.00%	Wilbourn County, Texas
TX0B1700	1700	424.5	70.30%	San Patricio County, Texas
WA01435	1435	888.9	67.10%	Washington County, Washington
WA03620	3620	1807.8	62.50%	Washington County, Washington
RICE		Total 1995 Receipts (\$1,000)	Percent of Receipts From Rice	Location
CA0424	424	349.7	84.0%	Butler County, California
CA01365	1365	1087.5	66.2%	Yuba County, California
TX0R2118	2118	489.4	99.5%	Wharton County, Texas
TX0R3750	3750	1339.1	98.0%	Wharton County, Texas
MO01900	1900	644.5	47.1%	Butler County, Missouri
MO04000	4000	1064.8	54.5%	Butler County, Missouri
AR01280	1280	547.0	75.8%	Poinsett County, Arkansas
LA01100	1100	314.2	63.4%	Acadia County, Louisiana

APPENDIX A:

SUMMARY

CHARACTERISTICS OF REPRESENTATIVE FARMS

* Detailed Farm Characteristics, see AFPC Working Paper 97-1

Table A1. Summary Characteristics of Representative Crop Farms*

FEED GRAINS	# of Acres	Total 1996 Receipts (\$1,000)	Percent of Receipts From Feed Grains	Location
IAG950	950	320.0	100.0%	Webster County, Iowa
IAG2200	2200	573.5	100.0%	Webster County, Iowa
MOCG1500	1500	381.5	85.3%	Carroll County, Missouri
MOCG3000	3000	840.9	92.8%	Carroll County, Missouri
MONG1200	1200	452.3	44.7%	Nodaway County, Missouri
NEG800	800	378.0	92.2%	Phelps County, Nebraska
NEG1575	1575	789.6	97.5%	Phelps County, Nebraska
TXNP1600	1600	379.4	67.8%	Moore County, Texas
TXNP5500	5500	1427.7	72.4%	Moore County, Texas
KSG728	728	219.7	91.5%	Finney County, Kansas
KSG1652	1650	358.8	89.2%	Finney County, Kansas
SCG1500	1500	605.2	66.0%	Clarendon County, South Carolina
SCG3500	3500	1599.3	57.7%	Clarendon County, South Carolina

WHEAT	# of Acres	Total 1996 Receipts (\$1,000)	Percent of Receipts From Wheat	Location
WAW1500	1500	399.4	66.80%	Whitman County, Washington
WAW4250	4250	1146.2	85.70%	Whitman County, Washington
NDW1760	1760	285.2	53.30%	Barnes County, North Dakota
NDW4600	4600	864.8	53.00%	Barnes County, North Dakota
KSSC1495	1495	174.6	80.70%	Sumner County, Kansas
KSSC3080	3080	428.7	81.40%	Sumner County, Kansas
KSNW2325	2325	219.7	54.90%	Thomas County, Kansas
KSNW4300	4300	476.7	56.30%	Thomas County, Kansas
COW2700	2700	241.0	69.80%	Washington County, Colorado
COW4000	4000	386.5	81.60%	Washington County, Colorado

COTTON	# of Acres	Total 1996 Receipts (\$1,000)	Percent of Receipts From Cotton	Location
CAC2000	2000	1906.6	65.20%	Kings County, California
CAC6000	6000	5427.0	70.60%	Kings County, California
TXSP1682	1682	306.8	79.20%	Dawson County, Texas
TXSP3697	3697	988.2	92.30%	Dawson County, Texas
TXRP1700	1700	227.4	87.90%	Jones County, Texas
TXRP2500	2500	352.8	88.30%	Jones County, Texas
TXBL1200	1200	248.5	50.00%	Williamson County, Texas
TXCB1700	1700	424.4	70.30%	San Patricio County, Texas
MSC1635	1635	888.9	87.10%	Washington County, Mississippi
MSC3620	3620	1807.8	82.80%	Washington County, Mississippi

RICE	# of Acres	Total 1996 Receipts (\$1,000)	Percent of Receipts From Rice	Location
CAR424	424	349.7	94.8%	Sutter County, California
CAR1365	1365	1087.6	98.2%	Yuba County, California
TXR2118	2118	469.4	98.5%	Wharton County, Texas
TXR3750	3750	1333.1	96.0%	Wharton County, Texas
MOR1900	1900	644.5	47.1%	Butler County, Missouri
MOR4000	4000	1884.6	54.8%	Butler County, Missouri
ARR1260	1260	547.0	76.8%	Poinsett County, Arkansas
LAR1100	1100	314.3	83.4%	Acadia County, Louisiana

*For Detailed Farm Characteristics, see AFPC Working Paper 97-1

Table A2. Summary Characteristics of Representative Livestock Farms*

DAIRY	# of Cows	Total 1996 Receipts (\$1,000)	Percent of Receipts From Milk	Location
CAD1710	1710	5335.6	94.90%	Tulare County, California
WAD185	185	653.8	97.70%	Whatcom County, Washington
WAD850	850	2776.8	97.30%	Whatcom County, Washington
TXCD400	400	1030.7	95.30%	Erath County, Texas
TXCD825	825	2522.9	95.90%	Erath County, Texas
TXED210	210	553.8	89.80%	Hopkins County, Texas
TXED650	650	1759.1	93.00%	Lamar County, Texas
WID70	70	227.3	92.20%	Winnebago County, Wisconsin
WID600	600	1865.2	93.00%	Winnebago County, Wisconsin
MOD85	85	209.0	90.70%	Christian County, Missouri
MOD300	300	780.6	95.30%	Christian County, Missouri
NYWD700	700	2460.5	94.30%	Wyoming County, New York
NYWD1200	1200	3979.0	95.60%	Wyoming County, New York
NYCD110	110	371.7	95.20%	Cayuga County, New York
NYCD300	300	998.6	94.50%	Cayuga County, New York
VTD85	85	308.6	91.20%	Washington County, Vermont
VTD350	350	1187.6	96.10%	Washington County, Vermont
GAND175	175	525.8	96.10%	Putnam County, Georgia
GASD650	650	2063.6	96.10%	Houston County, Georgia
FLND380	380	1240.0	95.10%	Lafayette County, Florida
FLSD2000	2000	6383.0	94.00%	Okeechobee County, Florida
NMD2000	2000	6512.7	94.90%	Dona Ana County, New Mexico

CATTLE	# of Cows	Total 1996 Receipts (\$1,000)	Percent of Receipts From Cattle	Location
MTB400	400	103.4	99.80%	Custer County, Montana
WYB300	300	87.7	99.70%	Washakie County, Wyoming
COB300	300	139.5	88.80%	Routt County, Colorado
TXB400	400	128.1	97.60%	Gonzales County, Texas
MOB150	150	106.8	44.60%	Dade County, Missouri

HOGS	# of Sows	Total 1996 Receipts (\$1,000)	Percent of Receipts From Hogs	Location
MOH100	100	260.3	82.40%	Carroll County, Missouri
MOH225	225	668.5	81.80%	Carroll County, Missouri
ILH200	200	753.5	60.20%	Knox County, Illinois
ILH750	750	2387.9	88.80%	Knox County, Illinois
INH150	150	604.8	57.80%	Carroll County, Indiana
INH600	600	2211.6	74.30%	Carroll County, Indiana
NCH350	350	949.0	100.00%	Wayne County, North Carolina
NCH13268	13268	35067.1	100.00%	Wayne County, North Carolina

*For Detailed Farm Characteristics, see AFPC Working Paper 97-1

Table B1. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Feed Grain Farms

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000 \$)			(\$1,000 \$)		
Central Missouri						
1997	101.22				-0.87%	1.05%
1998	105.80				-1.10%	1.74%
1999	111.82	-1.14%	2.41%	233.61	-0.94%	-1.16%
2000	118.38	-0.72%	-1.94%	244.74	-0.15%	-0.81%
2001	122.75	-1.24%	-2.43%	251.07	-0.52%	-1.08%
2002	122.01	-1.10%	-2.07%	265.81	-0.16%	-0.95%
1997-2002 Average	114.38	-1.12%	-2.22%	237.61	-0.49%	-0.54%
Northern Missouri						
1997	171.75	0.57%	1.17%	351.25	0.15%	0.25%
1998						1.46%
1999						1.13%
2000	212.04					-0.66%
2001	215.08	-0.95%	-1.22%	445.25	0.35%	0.45%
2002	233.70	-0.47%	-0.70%	471.77	-0.02%	0.28%
1997-2002 Average	198.45	-0.63%	-1.20%	423.42	-0.36%	-0.68%
Northern Illinois						
1997	87.07					
1998	88.83					
1999	74.27	-4.35%	-8.44%			
2000	80.82	-5.04%	-6.52%			
2001	87.91	7.15%	-6.48%			
2002	87.87	0.05%	-0.05%			
1997-2002 Average						
Central/Western Texas						
1997	95.40	-0.48%	-1.00%	429.24	-0.20%	-0.60%
1998	106.13	-0.78%	-1.30%	482.52	-0.55%	-1.40%
1999	116.35	-0.44%	-0.93%	483.18	-0.44%	-0.90%
2000	118.55	0.14%	0.98%	600.97	0.26%	0.17%
2001	120.10	-0.47%	-0.90%	520.86	-0.14%	-0.11%
2002	123.38	-0.95%	-0.90%	645.17	0.26%	1.11%
1997-2002 Average	113.60	-0.33%	-0.48%	491.28	-0.18%	-0.24%
Illinois						
1997	81.87	-1.57%	-4.01%	148.29	-1.07%	-2.21%
1998	84.20	-5.72%	-10.06%	148.90	-2.32%	-4.50%
1999	82.44	-4.40%	-9.10%	182.60	-1.70%	-2.66%
2000	88.38	-4.02%	-10.17%	183.10	-0.68%	-2.65%
2001	83.73	-5.78%	-12.05%	195.40	-1.78%	-3.71%
2002	88.73	-7.01%	-12.72%	208.86	-1.93%	-2.90%
1997-2002 Average	86.66	-4.82%	-9.84%	181.62	-1.81%	-3.11%
Southwestern Kansas						
1997	26.82	-1.85%	-3.59%	81.27	-1.19%	-2.50%
1998	28.58	-4.83%	-7.40%	81.43	-2.62%	-4.26%
1999	28.69	-3.94%	-8.08%	66.48	-2.14%	-4.41%
2000	28.19	-4.52%	-12.07%	80.83	-1.38%	-3.58%
2001	23.60	-8.02%	-16.77%	69.54	-3.71%	-7.48%
2002	24.23	-8.67%	-16.31%	81.09	-3.60%	-5.59%
1997-2002 Average	26.86	-5.16%	-10.32%	78.95	-2.43%	-4.30%
North Carolina						
1997	132.88	-0.61%	-1.08%	630.79	-0.40%	-0.81%
1998	149.12	-0.92%	-1.48%	647.40	-0.54%	-1.01%
1999	163.20	-0.62%	-1.37%	688.13	-0.41%	-0.81%
2000	165.57	-0.81%	-1.12%	617.23	-0.22%	-0.48%
2001	174.31	-0.70%	-1.03%	658.75	-0.35%	-0.40%
2002	177.79	-0.11%	-0.12%	678.92	0.17%	-0.37%
1997-2002 Average	161.65	-0.55%	-1.01%	602.30	-0.26%	-0.52%

APPENDIX B:

DETAILED FARM LEVEL

IMPACTS ON

NET CASH FARM INCOME

Table B1. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Feed Grain Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
Iowa						
1997	101.23	-0.90%	-1.68%	209.16	-0.57%	-1.05%
1998	105.80	-1.68%	-2.84%	221.48	-1.10%	-1.74%
1999	111.82	-1.14%	-2.42%	233.61	-0.54%	-1.16%
2000	119.36	-0.72%	-1.94%	244.74	-0.19%	-0.81%
2001	122.75	-1.24%	-2.43%	251.07	-0.52%	-1.00%
2002	127.81	-1.10%	-2.07%	265.61	-0.15%	-0.05%
1997-2002 Average	114.79	-1.12%	-2.22%	237.61	-0.49%	-0.94%
Central Missouri						
1997	171.75	-0.62%	-1.17%	381.35	-0.46%	-0.85%
1998	177.59	-1.10%	-1.84%	395.64	-0.90%	-1.46%
1999	193.31	-0.67%	-1.43%	419.22	-0.53%	-1.13%
2000	202.94	-0.30%	-0.87%	425.62	-0.12%	-0.56%
2001	216.08	-0.69%	-1.33%	446.95	-0.25%	-0.45%
2002	232.70	-0.47%	-0.70%	471.77	0.02%	0.28%
1997-2002 Average	199.06	-0.63%	-1.20%	423.43	-0.36%	-0.66%
Northern Missouri						
1997	97.07	-1.52%	-2.93%			
1998	80.83	-3.50%	-6.68%			
1999	74.27	-4.08%	-8.44%			
2000	89.62	-3.04%	-6.53%			
2001	97.81	-3.16%	-6.46%			
2002	81.47	-3.44%	-7.07%			
1997-2002 Average	86.85	-3.06%	-6.23%			
Northern Plains of Texas						
1997	95.46	-0.48%	-1.00%	426.24	-0.29%	-0.60%
1998	105.13	-0.78%	-1.35%	452.52	-0.88%	-1.40%
1999	118.36	-0.44%	-0.89%	493.18	-0.44%	-0.90%
2000	118.55	0.14%	0.06%	500.57	0.28%	0.17%
2001	120.10	-0.47%	-0.50%	529.86	-0.14%	-0.11%
2002	123.38	-0.05%	0.60%	545.17	0.26%	1.11%
1997-2002 Average	113.50	-0.33%	-0.48%	491.26	-0.18%	-0.24%
Nebraska						
1997	51.87	-1.97%	-4.01%	149.99	-1.07%	-2.21%
1998	54.20	-5.77%	-10.06%	168.90	-2.82%	-4.50%
1999	62.44	-4.45%	-9.10%	182.90	-1.79%	-3.65%
2000	59.38	-4.02%	-10.17%	183.10	-0.68%	-2.65%
2001	63.73	-5.76%	-12.05%	195.40	-1.78%	-3.71%
2002	59.73	-7.01%	-12.72%	208.86	-1.53%	-2.00%
1997-2002 Average	58.56	-4.88%	-9.84%	181.52	-1.61%	-3.11%
Southwestern Kansas						
1997	24.92	-1.85%	-3.89%	51.27	-1.19%	-2.50%
1998	29.58	-4.53%	-7.40%	61.48	-2.62%	-4.26%
1999	29.68	-3.94%	-8.09%	65.46	-2.14%	-4.41%
2000	23.19	-4.53%	-12.07%	60.93	-1.28%	-3.99%
2001	23.56	-8.02%	-16.77%	59.64	-3.71%	-7.46%
2002	24.23	-8.67%	-15.31%	61.09	-3.60%	-5.89%
1997-2002 Average	25.86	-5.18%	-10.32%	59.98	-2.45%	-4.80%
South Carolina						
1997	138.65	-0.61%	-1.09%	530.79	-0.45%	-0.81%
1998	149.12	-0.82%	-1.48%	547.40	-0.54%	-1.01%
1999	162.20	-0.62%	-1.37%	586.13	-0.41%	-0.91%
2000	165.57	-0.51%	-1.12%	617.22	-0.22%	-0.48%
2001	176.31	-0.70%	-1.03%	655.76	-0.35%	-0.48%
2002	177.76	-0.11%	-0.12%	675.92	0.17%	0.37%
1997-2002 Average	161.60	-0.55%	-1.01%	602.20	-0.28%	-0.52%

Table B2. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Wheat Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
Washington						
1997	98.57	-0.78%	-1.59%	394.24	-0.34%	-0.71%
1998	101.01	-0.75%	-1.92%	390.30	-0.20%	-0.83%
1999	116.58	-1.73%	-3.53%	452.91	-0.64%	-1.31%
2000	122.03	-1.85%	-3.00%	458.30	-0.67%	-0.85%
2001	122.01	-2.11%	-3.96%	504.67	-0.40%	-0.47%
2002	117.73	-2.24%	-4.42%	510.84	0.09%	0.21%
1997-2002 Average	112.99	-1.63%	-3.14%	451.88	-0.36%	-0.63%
North Dakota						
1997	83.25	-0.48%	-0.89%	254.06	-0.50%	-0.92%
1998	70.94	-0.90%	-1.83%	229.51	-0.48%	-0.96%
1999	80.26	-1.35%	-2.82%	262.30	-0.88%	-1.86%
2000	80.07	-1.55%	-2.47%	262.36	-1.14%	-1.62%
2001	86.97	-1.13%	-2.07%	286.71	-0.58%	-1.04%
2002	89.25	-0.72%	-1.36%	290.72	-0.32%	-0.50%
1997-2002 Average	81.79	-1.01%	-1.90%	264.28	-0.65%	-1.14%
South Central Kansas						
1997	39.71	-1.31%	-2.62%	125.09	-0.62%	-1.22%
1998	38.97	-1.85%	-4.49%	134.14	-0.42%	-1.36%
1999	39.10	-4.30%	-8.80%	153.17	-1.02%	-2.09%
2000	36.42	-5.68%	-10.85%	156.03	-0.90%	-1.43%
2001	34.68	-7.41%	-13.87%	162.45	-0.86%	-1.16%
2002	31.39	-8.89%	-17.65%	156.49	-0.45%	-0.77%
1997-2002 Average	36.71	-4.69%	-9.32%	147.89	-0.72%	-1.33%
Northwestern Kansas						
1997	79.92	-0.71%	-1.43%	107.42	-0.71%	-1.42%
1998	86.75	-0.89%	-1.96%	119.93	-0.78%	-1.71%
1999	99.21	-0.94%	-1.92%	139.48	-0.75%	-1.53%
2000	103.13	-0.57%	-1.10%	141.55	-0.28%	-0.49%
2001	98.85	-1.23%	-2.23%	139.52	-0.62%	-0.75%
2002	102.43	-0.60%	-1.01%	133.89	-0.37%	-0.34%
1997-2002 Average	95.05	-0.82%	-1.60%	130.30	-0.58%	-1.01%
Colorado						
1997	106.27	-0.63%	-1.23%	139.99	-0.55%	-1.07%
1998	110.64	-0.51%	-1.27%	146.36	-0.29%	-1.00%
1999	117.28	-1.01%	-2.04%	158.84	-0.77%	-1.62%
2000	118.62	-1.06%	-1.96%	163.07	-0.79%	-1.18%
2001	124.28	-0.95%	-1.56%	163.73	-0.89%	-1.36%
2002	128.30	-0.41%	-0.79%	165.32	-0.15%	-0.40%
1997-2002 Average	117.57	-0.77%	-1.47%	156.22	-0.58%	-1.10%

Table B3. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Cotton Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
California						
1997	335.38	-0.98%	-1.93%	1108.87	-0.78%	-1.58%
1998	326.21	-1.34%	-2.80%	1108.02	-1.05%	-2.22%
1999	320.93	-1.46%	-2.99%	1113.25	-1.11%	-2.29%
2000	323.40	-1.18%	-2.33%	1127.10	-0.91%	-1.85%
2001	292.18	-0.95%	-1.91%	1072.92	-0.67%	-1.50%
2002	267.69	-0.69%	-1.51%	1049.36	-0.31%	-0.74%
1997-2002 Average	310.96	-1.11%	-2.27%	1096.59	-0.81%	-1.71%
Southern Plains of Texas						
1997	91.18	-0.53%	-1.06%	279.31	-0.45%	-0.88%
1998	86.73	-0.96%	-1.94%	268.64	-0.80%	-1.61%
1999	85.28	-1.24%	-2.54%	266.02	-0.94%	-1.93%
2000	87.17	-1.18%	-2.42%	276.54	-0.78%	-1.63%
2001	81.99	-1.24%	-2.68%	264.86	-0.74%	-1.59%
2002	79.36	-1.54%	-3.21%	268.91	-0.39%	-0.87%
1997-2002 Average	85.29	-1.11%	-2.29%	270.71	-0.68%	-1.41%
Rolling Plains of Texas						
1997	67.11	-0.58%	-1.13%	84.60	-0.71%	-1.39%
1998	68.19	-1.14%	-2.35%	85.19	-1.42%	-2.93%
1999	67.12	-1.62%	-3.32%	85.42	-1.69%	-3.47%
2000	70.49	-1.74%	-3.55%	91.03	-1.60%	-3.27%
2001	66.64	-1.86%	-3.84%	84.38	-1.64%	-3.39%
2002	70.33	-1.71%	-3.57%	84.43	-1.80%	-3.73%
1997-2002 Average	68.31	-1.43%	-2.96%	85.84	-1.48%	-3.03%
Blacklands of Texas			Coastal Bend of Texas			
1997	46.29	-0.97%	-1.94%	45.95	-1.48%	-2.98%
1998	45.94	-1.87%	-3.48%	53.93	-2.15%	-4.34%
1999	46.22	-1.84%	-3.79%	51.13	-2.88%	-5.91%
2000	44.92	-2.43%	-5.37%	42.01	-5.00%	-10.26%
2001	44.16	-2.92%	-5.59%	32.39	-7.29%	-13.55%
2002	46.90	-2.75%	-4.73%	26.27	-10.51%	-19.60%
1997-2002 Average	45.74	-2.12%	-4.13%	41.95	-4.20%	-8.18%
Mississippi						
1997	116.03	-1.45%	-2.78%	316.99	-0.91%	-1.73%
1998	107.11	-2.20%	-4.34%	285.39	-1.60%	-3.13%
1999	99.95	-2.77%	-5.74%	271.72	-1.88%	-3.92%
2000	105.99	-2.75%	-5.65%	286.22	-1.85%	-3.79%
2001	93.91	-3.27%	-6.71%	272.42	-1.80%	-3.65%
2002	91.74	-3.37%	-7.22%	282.14	-1.21%	-2.73%
1997-2002 Average	102.45	-2.58%	-5.29%	285.82	-1.53%	-3.12%

Table B4. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Rice Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
California						
1997	92.74	-0.43%	-0.89%	183.00	-0.63%	-1.30%
1998	93.44	-0.56%	-1.37%	194.78	-0.48%	-1.35%
1999	88.48	-0.78%	-1.59%	177.18	-0.81%	-1.67%
2000	81.78	-1.03%	-2.10%	164.54	-0.70%	-1.45%
2001	70.15	-0.88%	-1.85%	124.93	-0.46%	-1.04%
2002	66.27	-0.65%	-1.40%	112.77	0.06%	-0.04%
1997-2002 Average	82.14	-0.71%	-1.51%	159.54	-0.55%	-1.22%
Texas						
1997	128.34	-0.46%	-0.94%	251.23	-0.85%	-1.72%
1998	137.21	-0.36%	-0.95%	281.78	-0.77%	-1.88%
1999	132.46	-0.51%	-1.04%	254.65	-1.41%	-2.89%
2000	130.75	-0.39%	-0.81%	252.58	-1.20%	-2.49%
2001	114.51	-0.26%	-0.58%	205.07	-1.24%	-2.61%
2002	111.04	0.03%	-0.04%	181.77	-0.91%	-2.03%
1997-2002 Average	125.72	-0.34%	-0.75%	237.85	-1.06%	-2.27%
Missouri						
1997	74.33	-1.87%	-3.63%	330.70	-1.27%	-2.54%
1998	78.10	-3.11%	-5.70%	334.43	-2.40%	-4.60%
1999	73.91	-3.45%	-7.14%	318.96	-2.93%	-6.01%
2000	59.71	-5.23%	-11.82%	315.27	-2.79%	-6.22%
2001	41.28	-11.12%	-22.65%	297.84	-3.54%	-7.23%
2002	34.82	-15.42%	-30.47%	307.28	-3.43%	-6.62%
1997-2002 Average	60.36	-5.37%	-10.90%	317.42	-2.70%	-5.48%
Arkansas				Louisiana		
1997	123.65	-0.78%	-1.49%	69.52	-0.45%	-0.82%
1998	127.43	-0.75%	-1.72%	70.77	-0.28%	-0.78%
1999	120.91	-1.39%	-2.89%	62.58	-1.07%	-2.25%
2000	122.96	-1.41%	-2.82%	59.11	-1.29%	-2.66%
2001	107.06	-1.65%	-3.25%	42.73	-3.18%	-6.41%
2002	104.29	-1.67%	-3.64%	39.42	-3.17%	-6.82%
1997-2002 Average	117.72	-1.26%	-2.59%	57.36	-1.32%	-2.77%

Table B5. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Cow/Calf Ranches.

	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
Montana				Wyoming		
1997	30.15	-2.02%	-3.65%	5.02	-10.36%	-19.12%
1998	48.11	-2.24%	-4.70%	13.90	-6.98%	-14.53%
1999	60.68	-1.96%	-4.09%	24.67	-5.19%	-10.70%
2000	75.37	-0.90%	-2.03%	32.26	-3.41%	-7.35%
2001	77.80	-0.17%	-0.44%	31.78	-2.80%	-6.04%
2002	65.60	0.76%	1.45%	22.35	-2.10%	-4.83%
1997-2002 Average	59.62	-0.89%	-1.90%	21.66	-4.02%	-8.45%
Colorado				Texas		
1997	28.92	-2.14%	-3.70%	-5.64	-12.94%	-23.76%
1998	43.72	-2.29%	-4.85%	7.33	-20.19%	-42.02%
1999	56.14	-1.89%	-3.99%	18.63	-10.57%	-21.85%
2000	61.29	-1.37%	-2.89%	27.50	-7.05%	-14.91%
2001	66.11	-0.82%	-1.66%	30.45	-5.55%	-11.76%
2002	55.75	0.16%	0.22%	15.56	-7.90%	-17.16%
1997-2002 Average	51.99	-1.27%	-2.64%	15.64	-9.65%	-20.08%
Southern Missouri						
1997	29.19	-1.47%	-2.71%			
1998	34.87	-2.06%	-4.30%			
1999	38.45	-2.78%	-5.77%			
2000	42.83	-2.38%	-4.88%			
2001	45.45	-1.98%	-3.89%			
2002	41.78	-1.48%	-3.14%			
1997-2002 Average	38.76	-2.04%	-4.15%			
North Carolina						
1997						
1998						
1999						
2000						
2001						
2002						
1997-2002 Average						

Table B6. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Farrow-to-Finish Hog Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
Missouri						
1997	75.22	-1.00%	-1.95%	249.43	-0.73%	-1.40%
1998	53.94	-2.28%	-4.52%	184.68	-1.82%	-3.62%
1999	40.28	-2.98%	-6.21%	145.63	-2.20%	-4.64%
2000	52.67	-1.84%	-3.57%	180.47	-1.44%	-2.78%
2001	63.01	-1.05%	-2.06%	212.52	-0.84%	-1.62%
2002	49.41	-1.17%	-2.53%	181.58	-0.63%	-1.42%
1997-2002 Average	55.76	-1.61%	-3.25%	192.38	-1.21%	-2.42%
Illinois						
1997	286.58	-0.76%	-1.50%	1081.24	-0.61%	-1.20%
1998	239.07	-1.66%	-3.12%	885.42	-1.22%	-2.38%
1999	209.49	-1.71%	-3.56%	745.57	-1.26%	-2.65%
2000	240.35	-1.17%	-2.50%	883.32	-0.74%	-1.45%
2001	267.63	-0.96%	-1.91%	1016.43	-0.24%	-0.50%
2002	249.95	-0.83%	-1.64%	915.70	0.03%	-0.02%
1997-2002 Average	248.84	-1.15%	-2.30%	921.28	-0.64%	-1.30%
Indiana						
1997	141.20	-1.38%	-2.78%	618.93	-0.91%	-1.82%
1998	107.41	-3.65%	-6.82%	461.68	-2.27%	-4.28%
1999	82.83	-4.84%	-9.92%	357.11	-2.60%	-5.37%
2000	96.32	-4.12%	-8.87%	444.35	-1.58%	-3.30%
2001	113.43	-4.23%	-8.67%	534.36	-1.09%	-2.21%
2002	95.25	-5.54%	-11.01%	461.92	-0.99%	-1.92%
1997-2002 Average	106.07	-3.76%	-7.59%	479.73	-1.49%	-2.97%
North Carolina						
1997	351.90	-0.43%	-0.74%	12035.82	-0.24%	-0.35%
1998	264.23	-1.10%	-2.16%	8305.66	-0.79%	-1.52%
1999	197.79	-0.99%	-2.29%	5291.11	-0.37%	-1.14%
2000	243.26	-0.59%	-1.09%	6970.23	0.19%	0.51%
2001	293.61	-0.16%	-0.21%	8780.76	0.67%	1.45%
2002	246.68	0.29%	0.50%	6467.49	1.35%	2.57%
1997-2002 Average	266.25	-0.47%	-0.93%	7975.18	0.09%	0.21%

Wisconsin						
1997	82.55	-0.55%	-0.80%	487.85	-0.47%	-0.94%
1998	100.13	-0.99%	-1.87%	619.40	-1.03%	-2.13%
1999	102.30	-0.80%	-1.79%	542.85	-0.87%	-1.77%
2000	88.31	0.30%	-1.02%	511.88	-0.08%	-0.16%
2001	100.88	0.21%	0.38%	578.77	1.10%	2.13%
2002	101.47	0.94%	1.34%	820.04	2.34%	4.43%
1997-2002 Average	98.54	-0.25%	-0.54%	613.81	0.13%	0.28%

Missouri						
1997	28.25	-1.40%	-2.94%	91.50	-1.28%	-2.57%
1998	27.81	-2.81%	-5.35%	114.13	-2.56%	-5.17%
1999	40.08	-3.10%	-6.25%	119.17	-2.42%	-5.03%
2000	38.13	-2.88%	-5.92%	108.87	-1.38%	-2.83%
2001	34.48	-1.80%	-3.42%	88.34	1.02%	1.89%
2002	32.48	-0.08%	-0.37%	83.73	3.95%	7.72%
1997-2002 Average	35.00	-2.03%	-4.20%	103.03	0.59%	-1.32%

Table B7. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Western and Midwestern U.S. Dairy Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
California				New Mexico		
1997	1363.99	-0.70%	-1.36%	471.55	-1.36%	-2.87%
1998	1611.85	-1.16%	-2.40%	689.12	-2.42%	-5.10%
1999	1733.82	-0.97%	-1.96%	783.13	-1.82%	-3.68%
2000	1665.07	-0.25%	-0.58%	650.62	0.25%	0.38%
2001	1727.88	0.72%	1.43%	663.60	3.35%	6.41%
2002	1775.56	1.68%	3.35%	713.78	5.95%	11.53%
1997-2002 Average	1646.36	-0.07%	-0.17%	661.97	0.73%	1.25%
Washington						
1997	91.93	-0.80%	-1.71%	176.29	-1.70%	-3.61%
1998	102.33	-2.02%	-4.09%	221.72	-3.85%	-7.79%
1999	104.09	-1.75%	-3.55%	227.14	-3.32%	-6.74%
2000	87.45	-0.22%	-0.45%	158.13	-0.29%	-0.63%
2001	86.98	2.47%	4.79%	149.31	6.21%	12.00%
2002	90.27	4.81%	9.58%	164.46	11.72%	23.25%
1997-2002 Average	93.84	0.30%	0.53%	182.84	0.82%	1.48%
Central Texas						
1997	88.79	-1.55%	-2.87%	420.47	-0.73%	-1.34%
1998	122.87	-2.66%	-5.53%	507.91	-1.35%	-2.84%
1999	125.61	-2.36%	-5.06%	529.42	-1.10%	-2.37%
2000	102.83	-1.07%	-2.30%	477.36	-0.25%	-0.54%
2001	99.70	1.75%	3.40%	476.59	1.29%	2.57%
2002	92.80	5.30%	10.40%	479.87	3.00%	5.94%
1997-2002 Average	105.43	-0.32%	-0.79%	481.94	0.12%	0.19%
Eastern Texas						
1997	110.27	-0.73%	-1.30%	254.13	-0.83%	-1.44%
1998	124.66	-1.48%	-3.10%	316.01	-1.56%	-3.28%
1999	128.03	-1.34%	-2.87%	324.50	-1.29%	-2.84%
2000	117.67	-0.61%	-1.26%	287.65	-0.34%	-0.71%
2001	117.24	0.83%	1.65%	281.85	1.55%	3.16%
2002	115.73	2.51%	4.95%	269.57	3.92%	7.74%
1997-2002 Average	118.93	-0.17%	-0.39%	288.95	0.16%	0.26%
Wisconsin						
1997	93.54	-0.45%	-0.88%	467.89	-0.47%	-0.94%
1998	100.13	-0.89%	-1.83%	519.46	-1.03%	-2.13%
1999	102.50	-0.88%	-1.78%	542.55	-0.87%	-1.77%
2000	99.01	-0.50%	-1.02%	511.85	-0.08%	-0.18%
2001	100.60	0.21%	0.38%	518.77	1.10%	2.13%
2002	101.47	0.94%	1.84%	520.64	2.24%	4.43%
1997-2002 Average	99.54	-0.25%	-0.54%	513.53	0.15%	0.26%
Missouri						
1997	29.95	-1.40%	-2.94%	91.80	-1.29%	-2.61%
1998	37.91	-2.61%	-5.35%	114.13	-2.58%	-5.27%
1999	40.06	-3.10%	-6.29%	119.17	-2.42%	-5.00%
2000	35.13	-2.88%	-5.92%	100.97	-1.39%	-2.83%
2001	34.48	-1.60%	-3.42%	98.34	1.02%	1.89%
2002	32.46	-0.09%	-0.37%	93.73	3.95%	7.72%
1997-2002 Average	35.00	-2.03%	-4.20%	103.02	-0.59%	-1.32%

Table B8. Percentage Change in Net Cash Farm Income From the Baseline For a 50 and 100 Point Increase in the 90 Day Treasury Bill Rate for Eastern U.S. Dairy Farms.

	Moderate			Large		
	BASELINE	50 PT	100 PT	BASELINE	50 PT	100 PT
	(\$1,000's)			(\$1,000's)		
Western New York						
1997	585.58	-0.57%	-1.14%	840.86	-0.66%	-1.32%
1998	662.27	-1.24%	-2.54%	960.90	-1.41%	-2.90%
1999	669.31	-1.08%	-2.26%	960.87	-1.27%	-2.67%
2000	623.45	-0.34%	-0.73%	883.15	-0.43%	-0.92%
2001	621.84	0.89%	1.74%	874.66	1.01%	1.96%
2002	627.15	2.24%	4.45%	875.73	2.59%	5.15%
1997-2002 Average	631.60	-0.03%	-0.12%	899.36	-0.06%	-0.19%
Central New York						
1997	55.99	-1.14%	-2.39%	324.58	-0.41%	-0.87%
1998	66.51	-2.27%	-4.57%	349.75	-0.96%	-1.93%
1999	66.67	-2.25%	-4.54%	354.36	-0.86%	-1.72%
2000	60.15	-1.25%	-2.61%	340.81	-0.16%	-0.36%
2001	59.09	0.63%	1.03%	342.21	0.83%	1.56%
2002	57.59	2.64%	5.24%	346.40	1.80%	3.59%
1997-2002 Average	61.00	-0.69%	-1.46%	343.02	0.04%	0.04%
Vermont						
1997	121.61	-0.46%	-0.90%	297.18	-0.55%	-1.09%
1998	128.97	-0.93%	-1.90%	319.74	-1.19%	-2.45%
1999	131.17	-0.91%	-1.88%	321.12	-1.10%	-2.25%
2000	127.09	-0.45%	-0.91%	297.06	-0.30%	-0.63%
2001	127.63	0.24%	0.49%	295.76	0.99%	1.94%
2002	127.95	1.01%	1.98%	293.76	2.30%	4.54%
1997-2002 Average	127.40	-0.25%	-0.53%	304.10	-0.01%	-0.06%
Georgia						
1997	-19.38	-2.27%	-4.85%	322.49	-0.77%	-1.58%
1998	11.16	-12.54%	-25.72%	413.68	-1.40%	-2.94%
1999	20.82	-8.02%	-16.14%	437.32	-1.19%	-2.50%
2000	4.18	-27.75%	-57.89%	396.49	-0.27%	-0.69%
2001	-3.26	-10.74%	-26.38%	386.66	1.11%	2.12%
2002	-8.28	-6.04%	-11.47%	387.60	2.63%	5.24%
1997-2002 Average	0.87	-86.21%	-181.61%	390.71	-0.00%	-0.10%
Florida						
1997	152.88	-0.65%	-1.37%	217.73	-2.45%	-5.15%
1998	231.14	-1.06%	-2.15%	633.57	-2.10%	-4.27%
1999	260.65	-0.91%	-1.82%	784.07	-1.71%	-3.40%
2000	234.83	-0.30%	-0.61%	659.65	-0.62%	-1.30%
2001	225.81	0.71%	1.43%	612.45	1.40%	2.78%
2002	224.36	1.80%	3.64%	596.39	3.68%	7.41%
1997-2002 Average	221.61	-0.07%	-0.14%	583.98	-0.16%	-0.35%

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