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AFPC/WP 90-2

POLICY WORKING PAPER

FARM LEVEL IMPACTS OF FLEXIBILITY

AFPC Policy Working Paper 90-2

Department of Agricultural Economics
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FARM LEVEL IMPACTS OF FLEXIBILITY

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The purpose of this working paper is to report on the farm level impacts of farm program proposals that provide greater flexibility for planting crops. The research on which this paper is based is the first utilizing panel farms developed under a joint AFPC-FAPRI project. This project was designed to strengthen the ability to evaluate the aggregate, regional and farm level impacts of farm policy options proposed for the 1990 farm bill and for subsequent program changes.

Panel Farms

The results reported are for the initial set of panel crop farms. The location and priorities for developing these farms were established in consultation with congressional staff (Figure 1).[1] The panel farms have been developed with the assistance of Land Grant representatives and actual farm operators located in major production regions of the states indicated in Appendix Table 1. For most states and regions, two panel farms are developed:

- A medium size operation designed to represent a commercial farm that would be expected to require, under normal economic conditions, a full-time family farm operator. The producer panel which was representative of typical full-time, family farm operations in the region provided data to describe the farm.
- A large farm designed to be two or three times as large as the moderate size farm but certainly not classified as a megafarm. A separate producer panel made up of producers in the large farm size category provided data for the larger farm.

Figures 2-9 provide a summary of some of the major characteristics of the panel farms used for this study. The moderate size farms range from the 645 acre Iowa corn-soybean farm to the 1,600 acre North Dakota wheat-barley-sunflower operation. The Northern Texas Plains wheat-corn-sorghum farm also has 1,600 acres of land but only 1,280 acres are cropped. Generally, a

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[1]Additional farms currently being developed or planned are indicated in Appendix Figures 1 and 2.

majority of the land farmed is leased on the moderate size farms, ranging from 20 percent owned by the Northern Texas Plains farm to 50 percent owned by the Mississippi farm.

The large farms ranged in size from 1,280 acres cropped for the Iowa corn-soybean farm to 4,000 acres cropped for the North Dakota farm. The large Northern Texas Plains farm had 4,500 total acres but only 3,575 acres were cropped. The proportion of land leased ranged from 90 percent for the Iowa farm to 50 percent for the Mississippi farm. It is, therefore, interesting to note that the farmers' net worth did not vary in direct proportion to the size of farm. For example, while the large Iowa farm had twice the acreage of the medium size farm, the net worth of the large Iowa farm was $350,000 while for the moderate size farm it was $318,000 (Figures 3 and 5). The large Iowa operation owned eight acres less than the moderate size farm in the same region.

Flexibility Options

Baseline

The baseline for the analysis was the current farm program with base acres and target prices frozen at the 1990 level for the five year life of the 1990 farm bill (1991-1995). Aggregate analyses by FAPRI indicate that under this assumption, with modest acreage reduction requirements (5-15 percent), prices could be maintained over the next five years at approximately current levels (Figures 10-15).

Limited Flexibility (LFLEX)

The limited flexibility scenario combines an option of planting an alternative crop on up to 25 percent of a farmer's crop base (flex) with a soybean marketing loan. However, a farmer would not receive deficiency payments on flex land nor would there be acreage reduction requirements (ARP) on flex land. The marketing loan rate was assumed to be $5.50 per bushel for soybeans and $8.80/cwt for sunflowers. Target prices are assumed to be frozen as in the baseline, and the acreage reduction requirements are the same as in the baseline.

Under limited flex, FAPRI's aggregate analysis projected some initial strength in feed grain prices (Figures 10-12). However, wheat prices and cotton prices were not materially different

from the baseline (Figures 14 and 15). The soybean marketing loan would lead to some softness in price due to some tendency in the Corn Belt to flex to soybeans (Figure 13).

The panel farms' cropping patterns reflect this relatively modest reaction to the limited flex policies (Figures 16 and 17). Any incentives to change cropping patterns tended to be offset by the disincentive of foregoing the deficiency payment on flex land.

The large North Dakota farm switched 250 acres from barley to wheat because of the relatively high cost of producing barley. This, however, was a marginally profitable decision and could have been reversed if the barley were sold at a premium price. The large Iowa farm switched 84 acres of corn to soybeans to bring beans into a balanced crop rotation pattern. The increased security of the marketing loan aided this switch, although the incentives were not strong. Both Missouri farms switched allowable acres from wheat to corn due to some softening of the wheat price relative to the corn price. The improvement in net cash farm income, however, was minor. The Mississippi farms switched allowable acres from irrigated soybeans to irrigated cotton due to low bean yields and greater profitability in cotton.

Full Flexibility (FFLEX)

The full flexibility option was designed to simulate the Bush administration's farm bill proposal as detailed in the publication titled *1990 Farm Bill: Proposal of the Administration.*

Full flexibility establishes a National Cropland Acreage (NCA) on which farmers have freedom to choose whatever cropping patterns they desire. Deficiency payments are decoupled in the sense that payments are made on the farmer's historical base and yield regardless of current plantings. Farmers are provided an option of planting the idled land required in the ARP program although in doing so, deficiency payments are foregone for every acre of ACR that is planted. As in the baseline, target prices are frozen and ARPs are set at the modest baseline levels.

FAPRI's aggregate analysis under the full flex option indicated strength in corn prices as farmers switched acreage to soybeans, realizing they would now receive corn deficiency payments protection (Figure 10). Sorghum and barley prices increased as the price of corn increased (Figures 11 and 12). Soybean prices fell as much as $0.90 per bushel in response to higher

production (Figure 13). Wheat prices fell marginally while cotton prices dropped as much as 4 cents per pound from the market price which averaged just over 60 cents per pound for the period (Figures 14 and 15).

The results of the panel farm analysis were consistent with the FAPRI aggregate projections under the full flex scenarios. In all areas, the medium and large farms exercised the option of planting their ARPs (Figures 16 and 17). In addition, the large Iowa farm again evened its rotation by moving 84 acres from corn to soybeans. The Texas Northern Plains farms flexed nearly 1,600 acres from wheat to sorghum in response to higher feed grain prices and lower wheat prices. Due to water limitations, it could not flex to irrigated corn. The Mississippi farm flexed from irrigated soybeans to irrigated cotton and also planted its ARP. The medium size Texas Rolling Plains farm flexed 370 acres from wheat to cotton in addition to planting its ARP. The Texas Coastal Bend farm flexed 705 acres from feed grains to cotton and planted its ARP.

In summary, the full flex option attracted substantial cotton and feed grain acreage. In doing so, it placed the panel farms in a full production posture.

Economic Impacts on Panel Farms

Flexibility Impacts

Despite what may have appeared to be substantial switching of cropping patterns under the full flexibility option, the effects on net cash farm income tended to be fairly even across the options (Figures 18-21). However, there were some notable exceptions under the full flexibility option:

- The Missouri farms experienced somewhat lower average net cash farm income under the full flexibility option with lower soybean prices (Figures 18 and 20).
- The Mississippi farms' average net cash farm income likewise was adversely affected by the full flex scenario (Figures 18 and 20).
- The Texas Northern High Plains farm benefitted from full flex due to higher feed grain prices (Figures 18 and 19).
- The Texas Coastal Bend farm realized substantial benefits from full flex as it switched acreage from less profitable sorghum to more profitable cotton (Figures 18 and 20). This

was not surprising because farmers in the Coastal Bend have recently increased cotton acreage by planting outside the program.

Annual changes in gross revenues and net cash income are indicated by farm in Figures 22-47. For those desiring more detail, Appendix Tables 2-6 provide extensive detail on the economic impacts of the options on each panel farm.

Economic Problem Farms

The Mississippi and Texas Rolling Plains farms do not perform well under any of the options. These farms are classified as economic problem farms for which other solutions appear to be required. The analytical results indicate:

- The medium size Mississippi farm realized an average net cash farm income over the period of less than $30,000 which must be used to cover family living expenses, principal payments, and return on capital and management (Figure 18). For the large Mississippi farm, net cash farm income fluctuates around zero, depending on the scenarios (Figure 20). The situation, over time, can be better visualized in Figures 38-41. While averaging positive over the period, by 1995, net cash farm income for the medium size farm turns negative. The large farm experiences a negative net cash farm income as early as 1993 (Figure 41). Annual losses erode the Mississippi farms' equity as indicated in Figures 19 and 21. The medium size farm's equity at the end of the period (1995) was eroded an average of 30 percent (Figure 19). The large farm's equity was eroded an average of nearly 40 percent (Figure 21). In both cases, limited flex provided somewhat more ending net worth.
- The Texas Rolling Plains farms are in the poorest financial condition of any of the farms analyzed under the three options. The average net cash farm incomes of both farms are negative (Figures 18 and 20). The medium size farm experiences losses in every year under the limited flex scenario (Figure 42). It fares best under the full flex policy. The large farm is in a loss situation throughout the period (Figure 45). These losses erode the medium size farm's equity an average of 60 percent (Figure 19) while the large farm's equity averages less than 10 percent of its initial net worth in 1995 (Figure 21).

What is the cause of this persistently poor income performance in these two regions? The negative situation, in part, reflects high costs of chemicals for controlling pests that are particularly prevalent in the more humid southern climates. Chemical costs for irrigated cotton average $162 per acre for the Mississippi farms. The Texas Rolling Plains farm has been monitored as a panel farm for a number of years. The most recent update revealed a substantial increase in chemical costs of roughly $35.00 per acre. These higher costs account for much of this farm's deterioration in its financial condition. While considerably more research is necessary, there are indications of a need for major changes in cropping systems for these two regions designed to bring costs under control. Close cooperation and intensive study by producers and Land Grant university research and extension specialists in each region appears to be warranted.

Conclusions

The following farm level conclusions appear to be warranted from this joint AFPC-FAPRI undertaking:

- Grains and oilseed producing farms can anticipate no substantial change in their income position from the flexibility options. That is, a good grain-oilseed farmer making rational economic decisions will not be much better off nor much worse off under the three alternative policies. This is largely because of the offsetting effects of higher feed grain prices and lower oilseed prices with little change in wheat prices. Also, the soybean marketing loan rate under limited flex is set below the expected market price. Therefore, it is not a major factor in supporting producer returns.
- Flexibility allows greater specialization in cotton. While no monoculture farms were studied, based on these results we would not expect much diversification to occur.
- Environmental tradeoffs from flexibility are evident. Environmental benefits accrue from increased rotation of corn and soybeans. However, increased specialization in cotton and switching from small grains (wheat and barley) to row crops (corn, soybeans and cotton) could be an environmental negative. Other AFPC research on the impacts of chemical use reduction suggest that tradeoffs of this type are prevalent.

- Economic pressures associated with more market-oriented farm policies are very evident in farming regions that have, for one reason or another, experienced substantial cost increases. These pressures can be anticipated to continue to build, particularly in areas outside those having a comparative advantage in producing particular crops.

Figure 1. Panel Crop Farms Studied*

* Additional Panel Farms currently being developed or planned for development are indicated in appendix figures 1 and 2.

FIGURE 2. MODERATE SIZE PANEL FARM CHARACTERISTICS: ACREAGE CULTIVATED

	North Dakota	Iowa	Missouri	Mississippi
Wheat	800		200	
Corn		320	300	
Barley	400			
Soybeans		325	500	560
Cotton				840
Sunflowers	400			
TOTAL	1600	645	1000	1400

FIGURE 3. MODERATE SIZE PANEL FARM CHARACTERISTICS*

	North Dakota	Iowa	Missouri	Mississippi
Total Acreage	1600	680	1100	1470
Owned	400	140	550	735
Leased	1200	540	550	735
Assets ($1,000)	392	385	837	1314
Real Estate	175	254	553	735
Other	217	131	284	579
Net Worth ($1,000)	322	318	708	1124
Cash Receipts ($1,000)	193	143	191	593

* FAPRI March Baseline With 10% Debt on Real Estate and 20% Debt on Other.

FIGURE 4. MODERATE SIZE TEXAS PANEL FARM CHARACTERISTICS: ACREAGE CULTIVATED

	Northern Plains	Rolling Plains	Coastal Bend
Wheat	600	390	
Corn	400		95
Sorghum	280		689
Cotton		606	556
TOTAL	1280	996	1340

FIGURE 5. TEXAS MODERATE SIZE PANEL FARM CHARACTERISTICS*

	Northern Plains	Rolling Plains	Coastal Bend
Total Acreage	1600	1300	1400
Owned	320	325	300
Leased	1280	975	1100
Assets ($1,000)	481	295	478
Real Estate	170	173	324
Other	311	122	154
Net Worth ($1,000)	392	252	415
Cash Receipts ($1,000)	307	108	334

* FAPRI March Baseline With 10% Debt on Real Estate and 20% Debt on Other.

FIGURE 6. LARGE SIZE PANEL FARM CHARACTERISTICS: ACREAGE CULTIVATED

	North Dakota	Iowa	Missouri	Mississippi
Wheat	2200		400	
Corn		704	600	
Barley	1000			
Soybeans		576	1000	1500
Cotton				1500
Sunflowers	800			
TOTAL	4000	1280	2000	3000

FIGURE 7. LARGE SIZE PANEL FARM CHARACTERISTICS*

	North Dakota	Iowa	Missouri	Mississippi
Total Acreage	4000	1320	2100	3300
Owned	1600	132	840	1650
Leased	2400	1188	1260	1650
Assets ($1,000)	1436	449	1244	3011
Real Estate	718	231	900	1815
Other	718	218	344	1196
Net Worth ($1,000)	1212	350	1051	2590
Cash Receipts ($1,000)	491	248	354	1142

* FAPRI March Baseline With 10% Debt on Real Estate and 20% Debt on Other.

FIGURE 8. LARGE SIZE TEXAS PANEL FARM CHARACTERISTICS: ACREAGE CULTIVATED

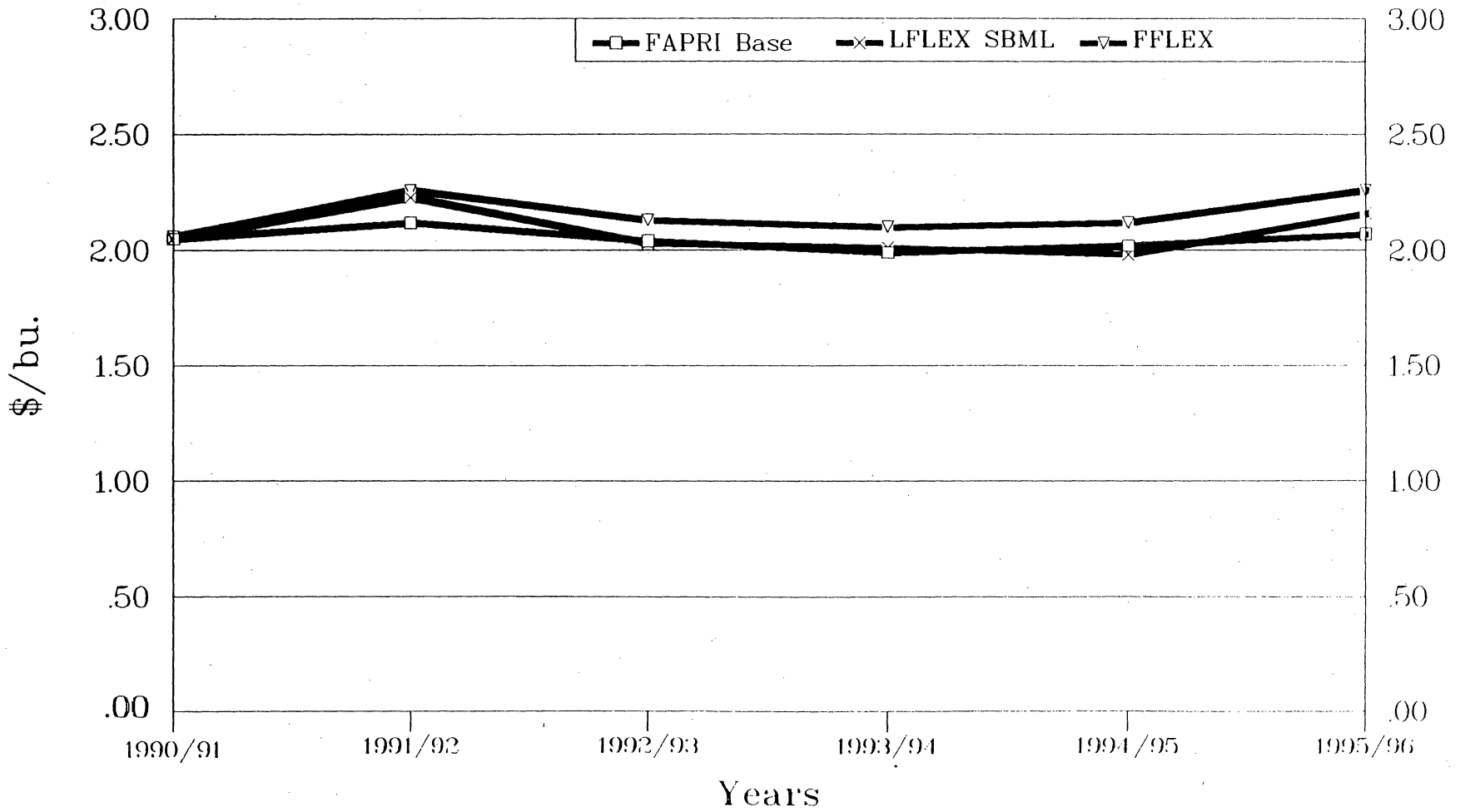
	Northern Plains	Rolling Plains
Wheat	1680	600
Corn	1048	
Sorghum	847	
Cotton		933
TOTAL	3575	1533

FIGURE 9. TEXAS LARGE SIZE PANEL FARM CHARACTERISTICS*

	Northern Plains	Rolling Plains
Total Acreage	4500	2000
Owned	900	400
Leased	3600	1600
Assets ($1,000)	1239	447
Real Estate	495	218
Other	744	229
Net Worth ($1,000)	1005	379
Cash Receipts ($1,000)	834	185

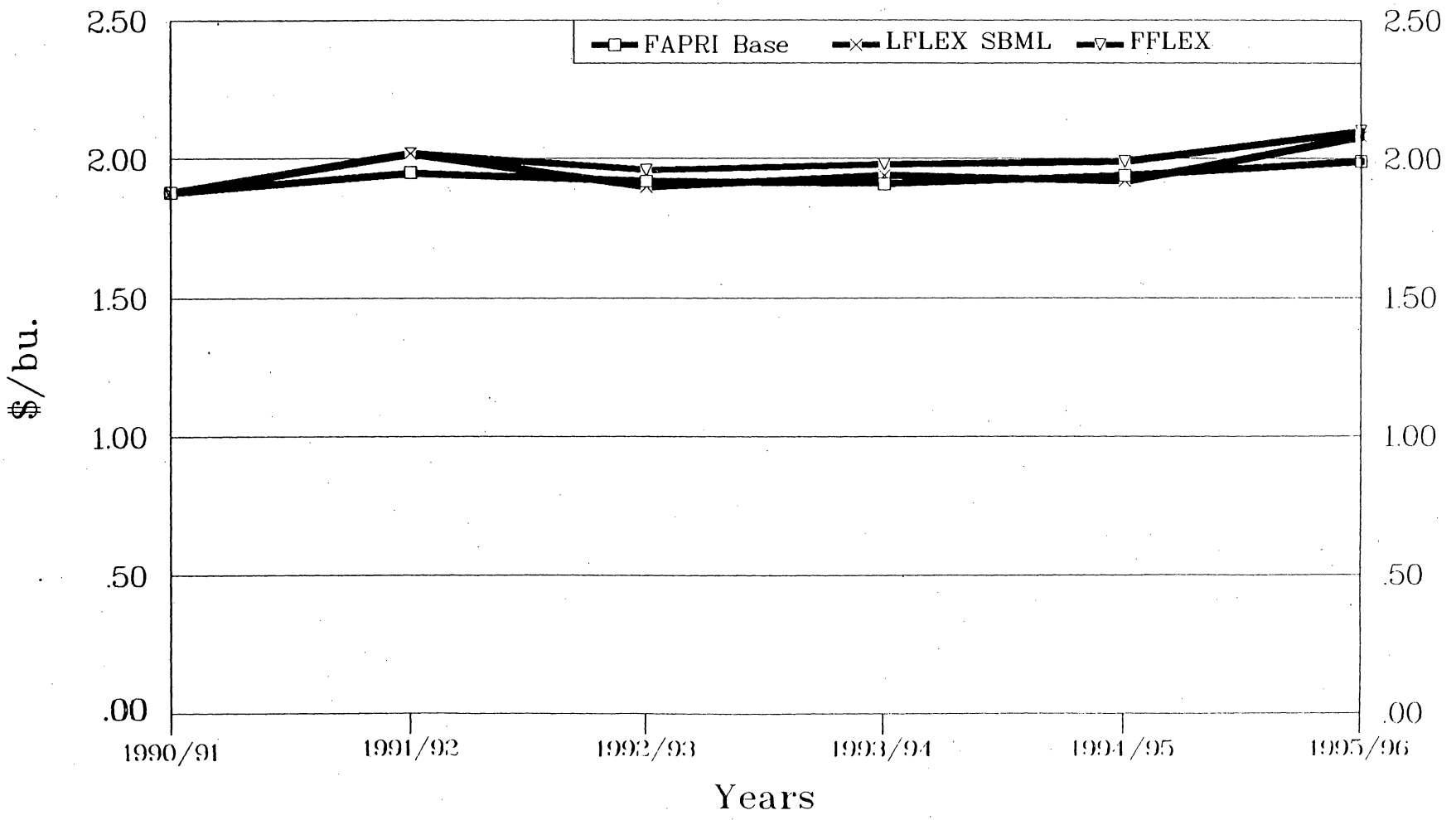
* FAPRI March Baseline With 10% Debt on Real Estate and 20% Debt on Other.

Figure 10. Corn Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



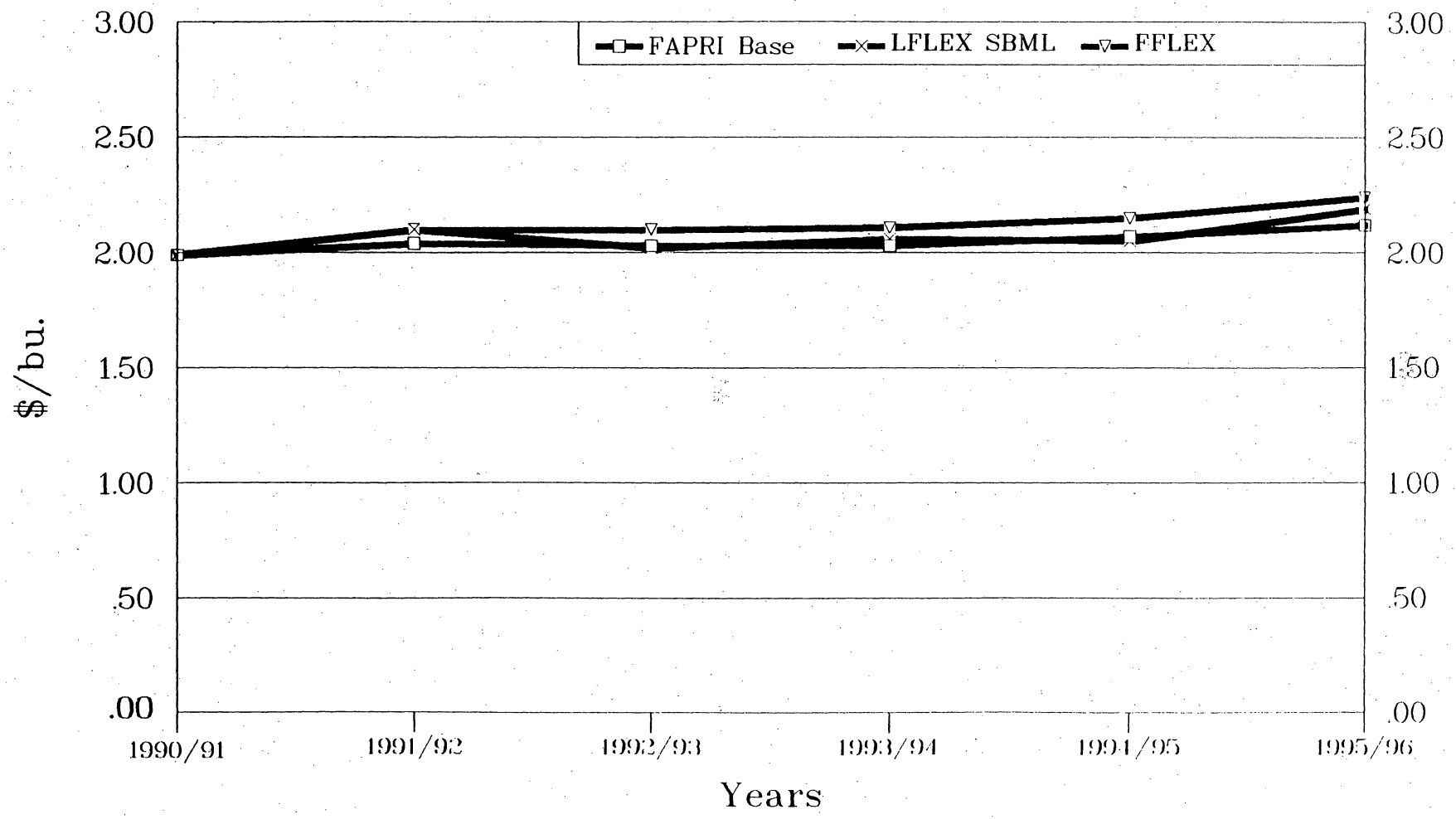
Source: FAPRI

Figure 11. Sorghum Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



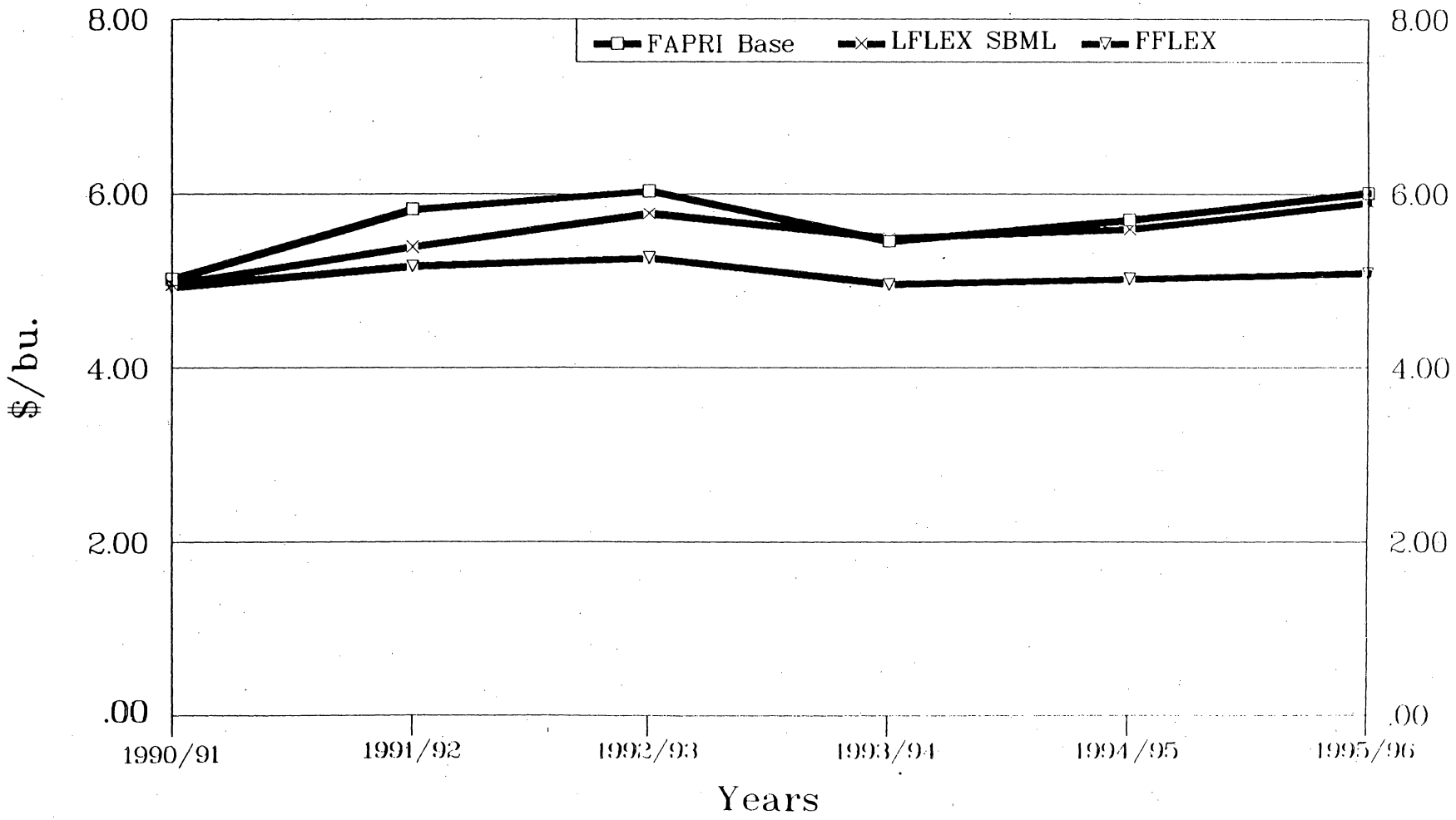
Source: FAPRI

Figure 12. Barley Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



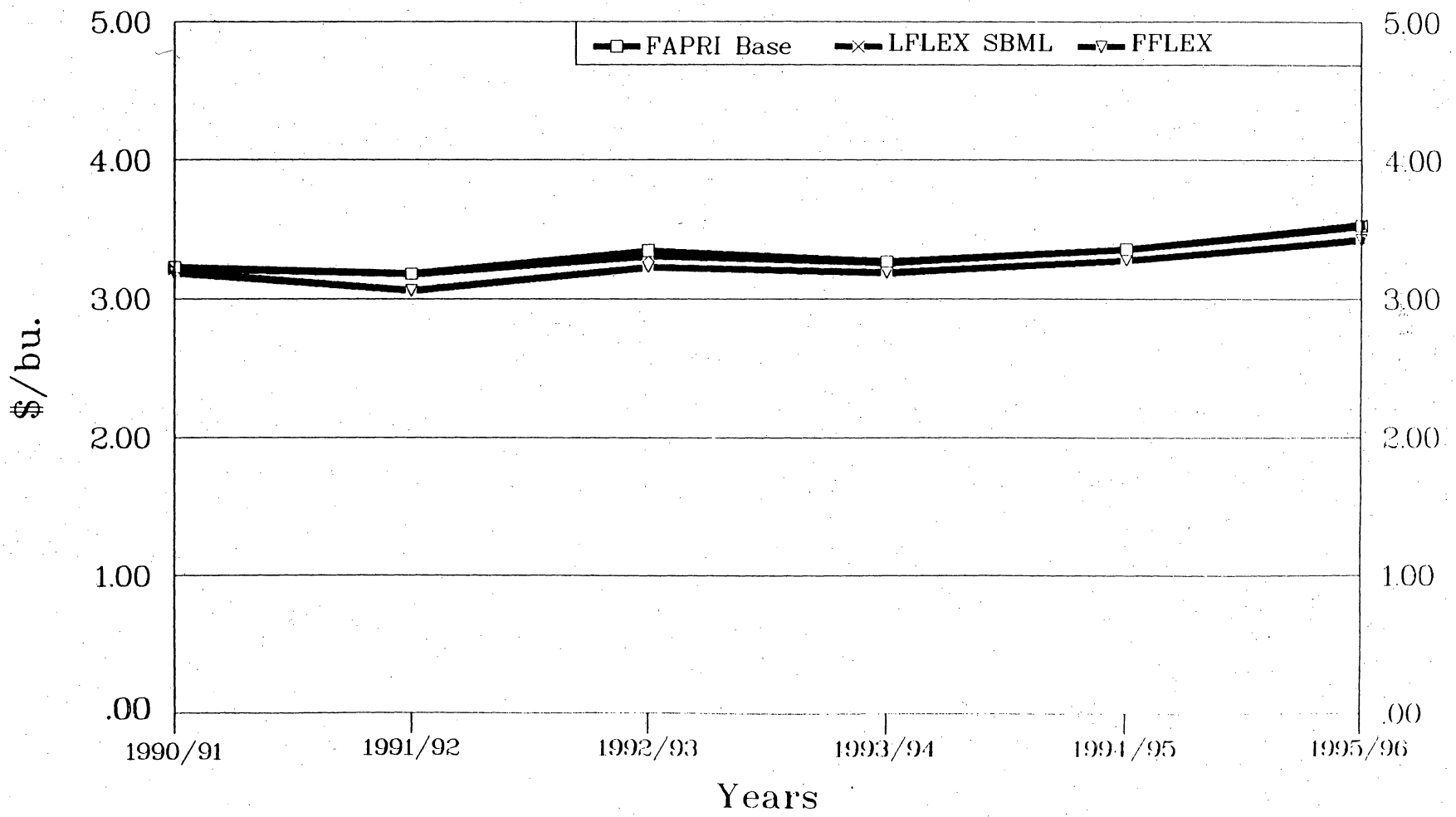
Source: FAPRI

Figure 13. Soybean Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



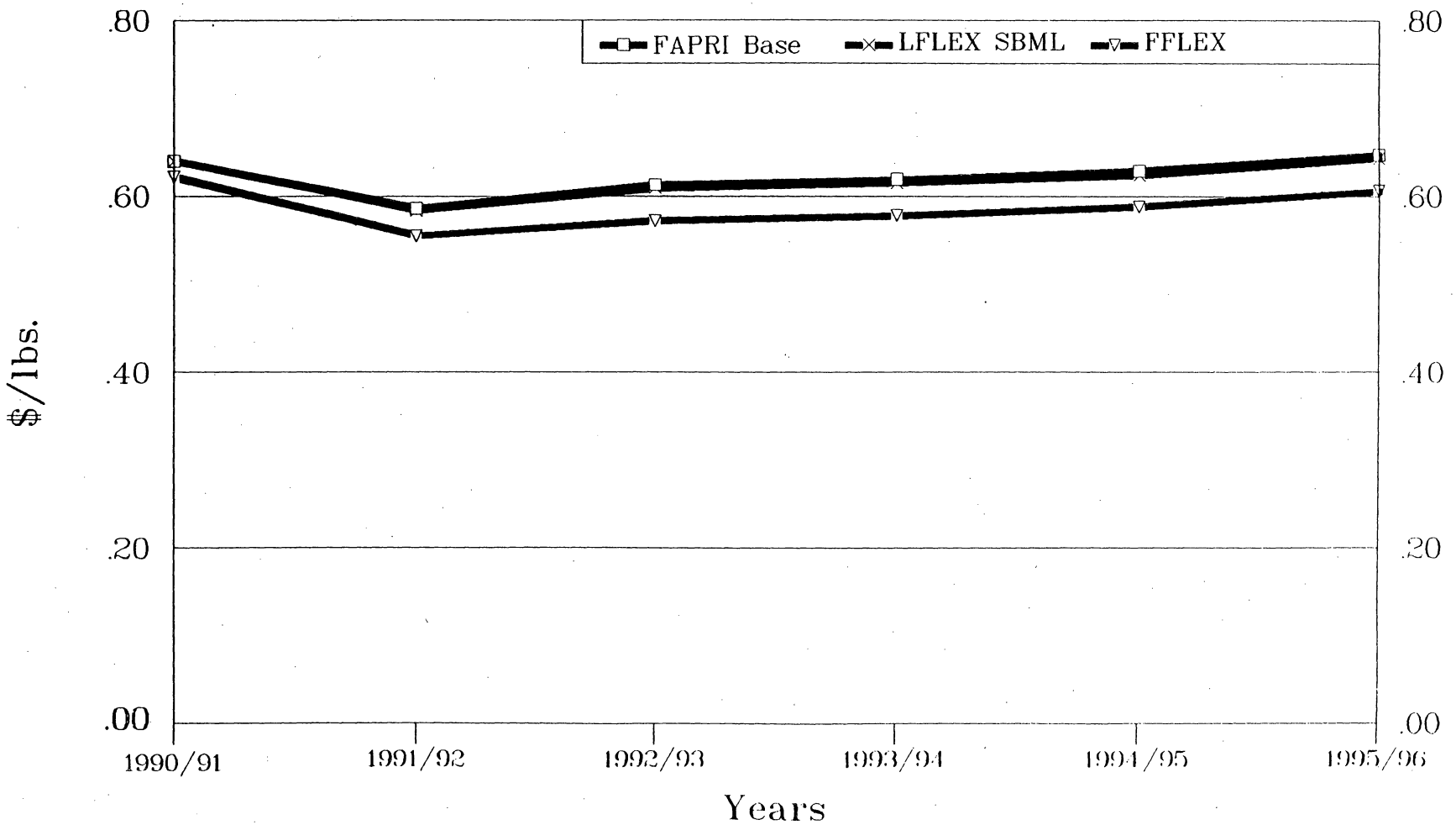
Source: FAPRI

Figure 14. Wheat Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



Source: FAPRI

Figure 15. Cotton Prices Baseline, Limited Flex, and Full Flex Policies -- March 1990



Source: FAPRI

FIGURE 16. PANEL FARM REACTION TO FLEXIBILITY PROPOSALS

	Limited Flex	Full Flex
North Dakota		
Medium	No Change	Plant Wheat & Barley ARP
Large	250 Ac. Barley to Wheat	Plant Wheat & Barley ARP
Iowa		
Medium	No Change	Plant Corn ARP
Large	84 Ac. Corn to Beans	84 Ac. Corn to Beans & Corn ARP
Missouri		
Medium	50 Ac. Wheat to Corn	Plant Wheat & Corn ARP
Large	100 Ac. Wheat to Corn	Plant Wheat & Corn ARP
Texas Northern High Plains		
Medium	No Change	Plant Wheat, Corn, & Sorghum ARP
Large	No Change	1596 Ac. Wheat to

FIGURE 17. PANEL FARM REACTION TO FLEXIBILITY PROPOSALS - Continued

	Limited Flex	Full Flex
Mississippi		
Medium	112 Ac. Irrigated Beans to Cotton	Irr. Beans to Cotton & Plant ARP
Large	375 Ac. Irrigated Beans to Cotton	Irr. Beans to Cotton & Plant ARP
Texas Rolling Plains		
Medium	No Change	370 Ac. Wheat to Cotton & ARP Cotton
Large	No Change	Plant Cotton & Wheat ARP
Texas Coastal Bend		
Medium	No Change	705 Ac. Feed Grains to Cotton & Plant ARP

Figure 18. Average Annual Net Cash Farm Income

Moderate Size Farms

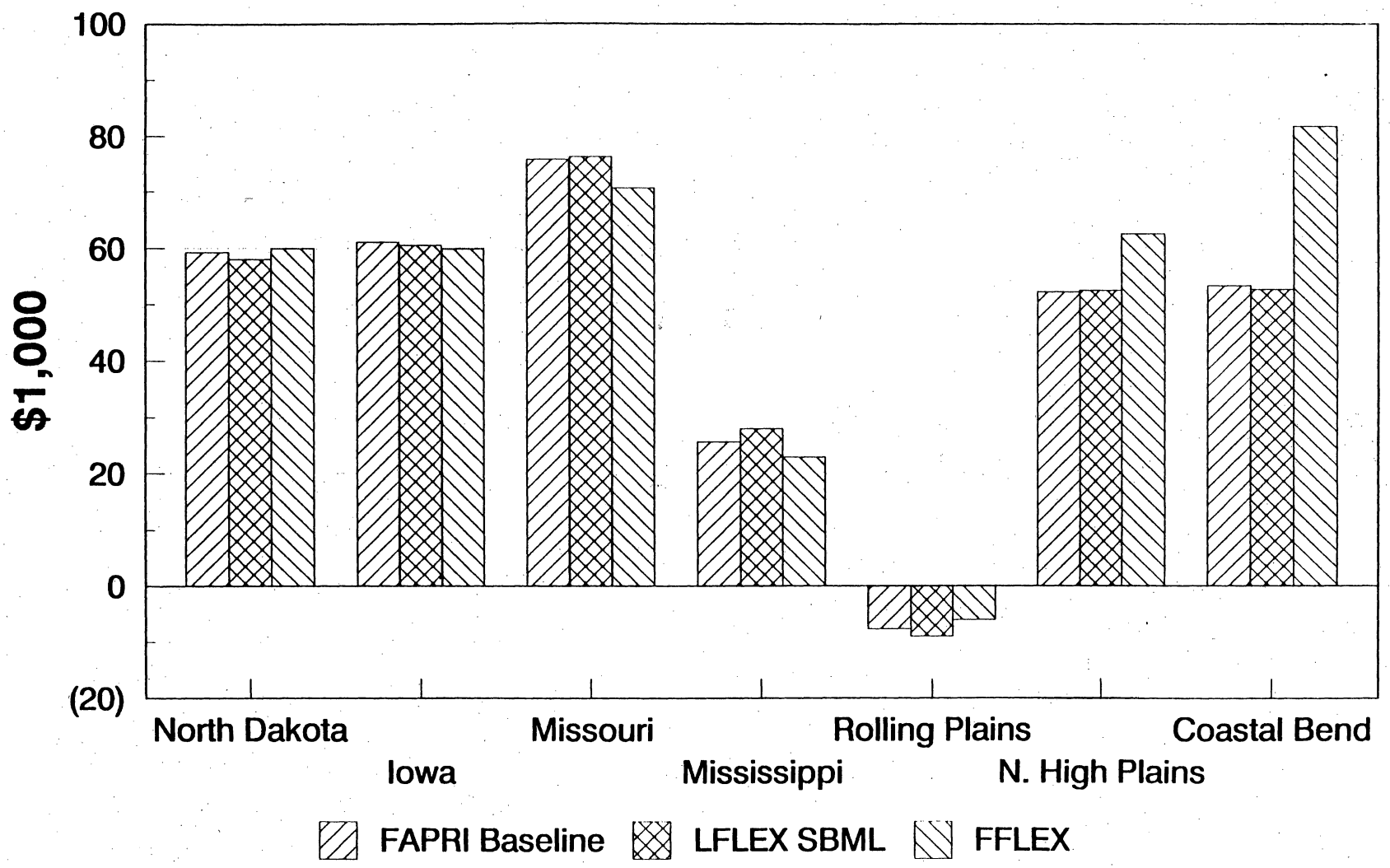


Figure 19. Present Value of 1995 Ending Net Worth as a Percent of Beginning Net Worth Moderate Size Farms

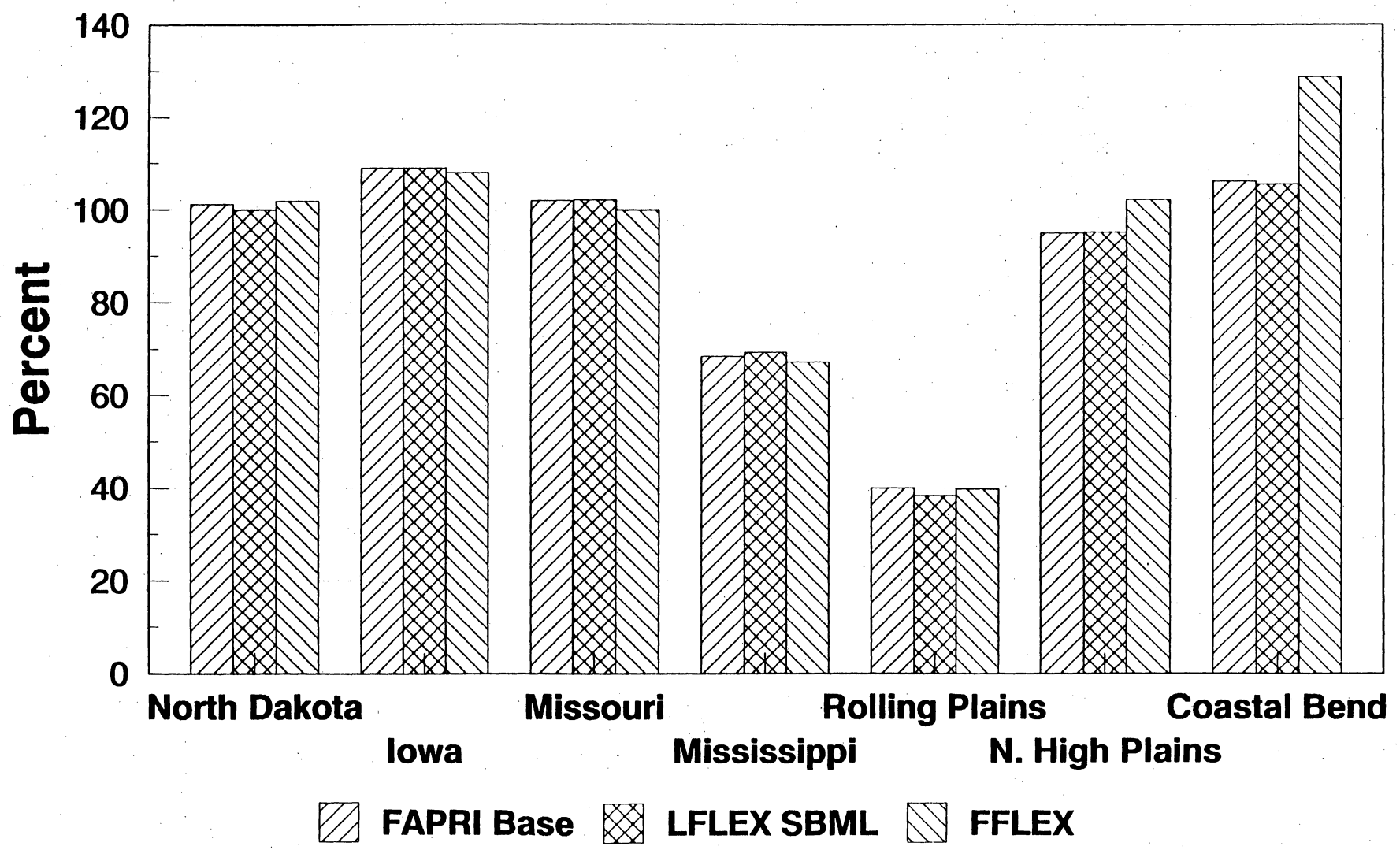


Figure 20. Average Annual Net Cash Farm Income

Large Size Farms

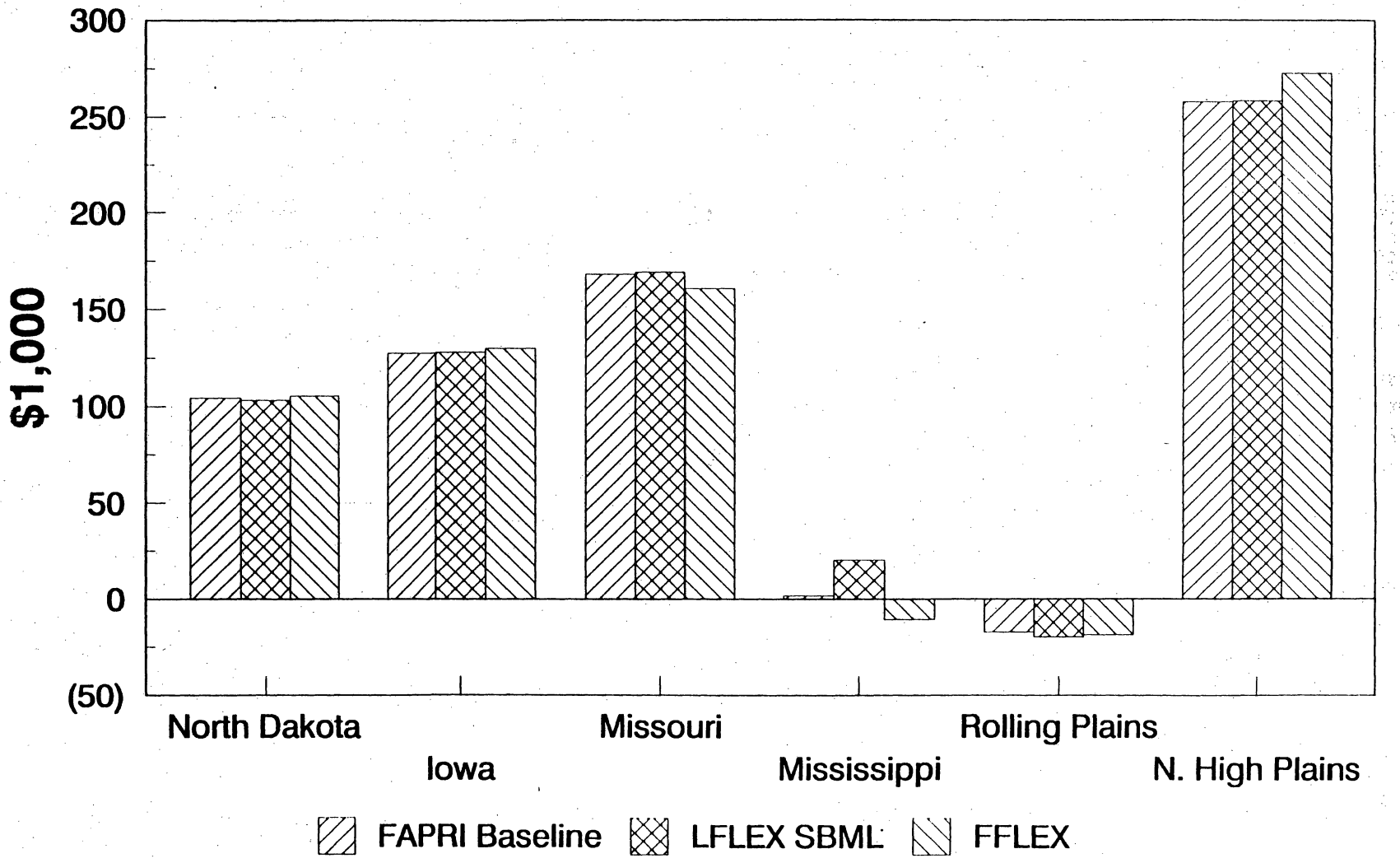


Figure 21. Present Value of 1995 Ending Net Worth as a Percent of Beginning Net Worth Large Size Farms

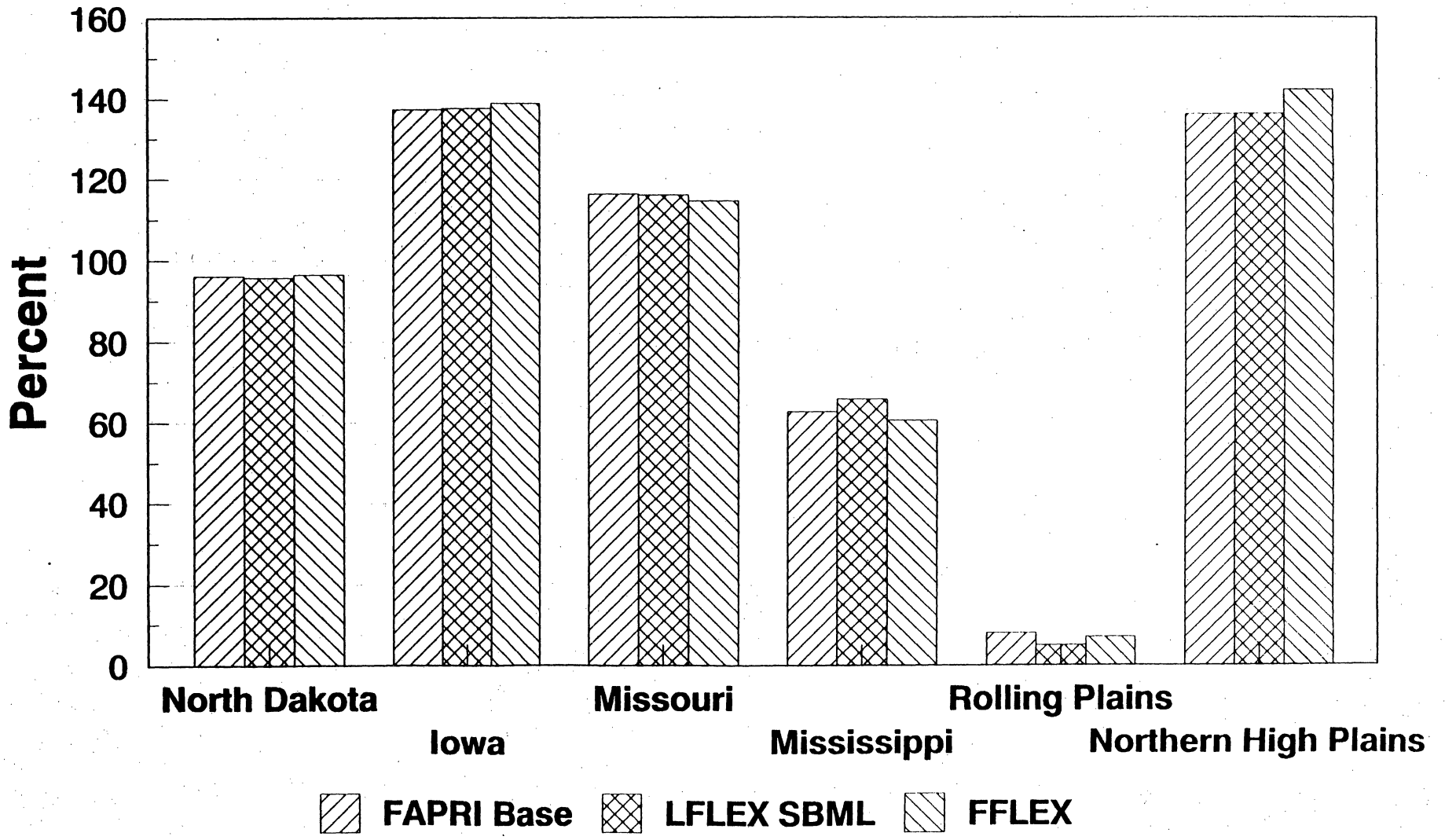
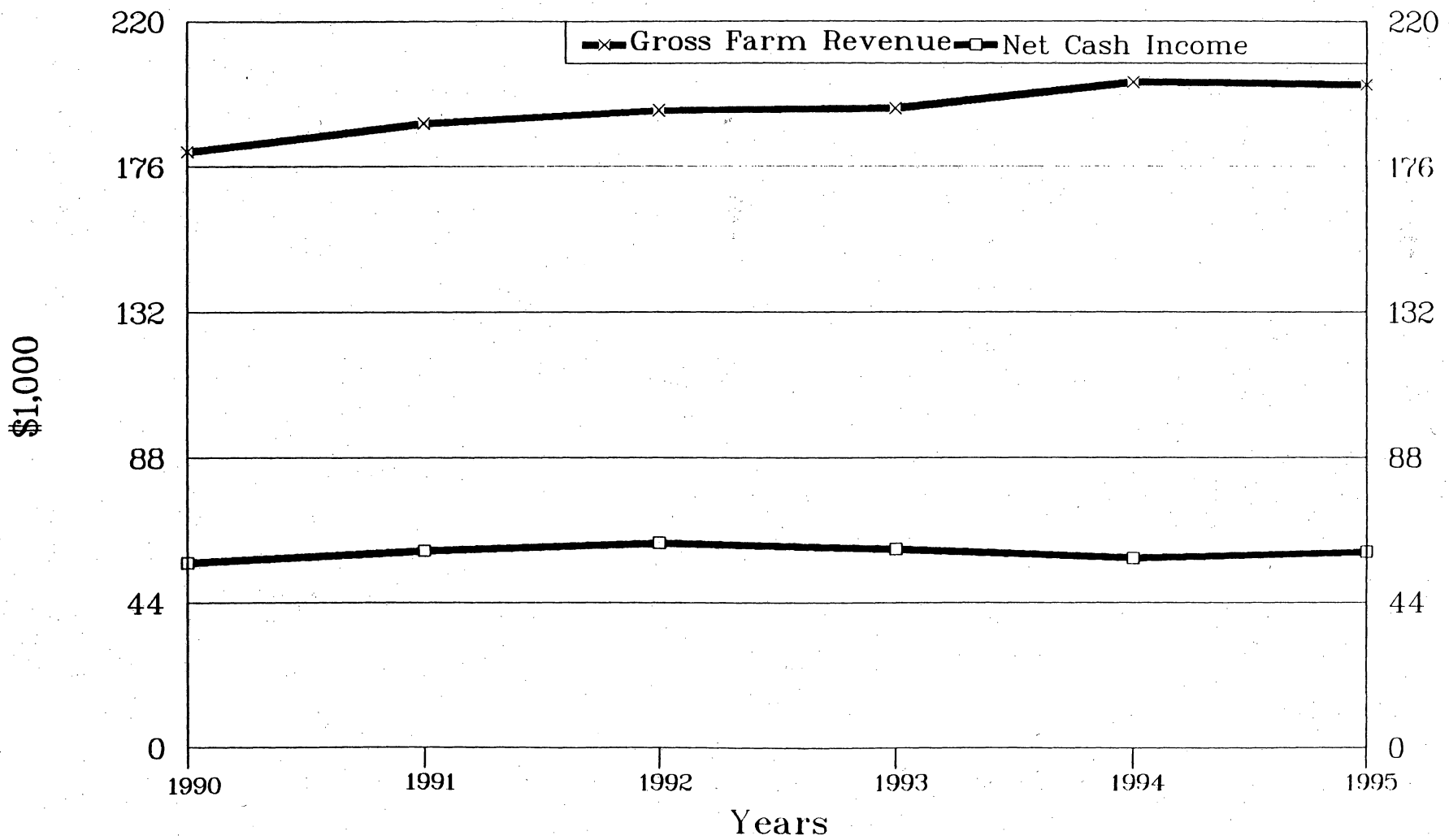
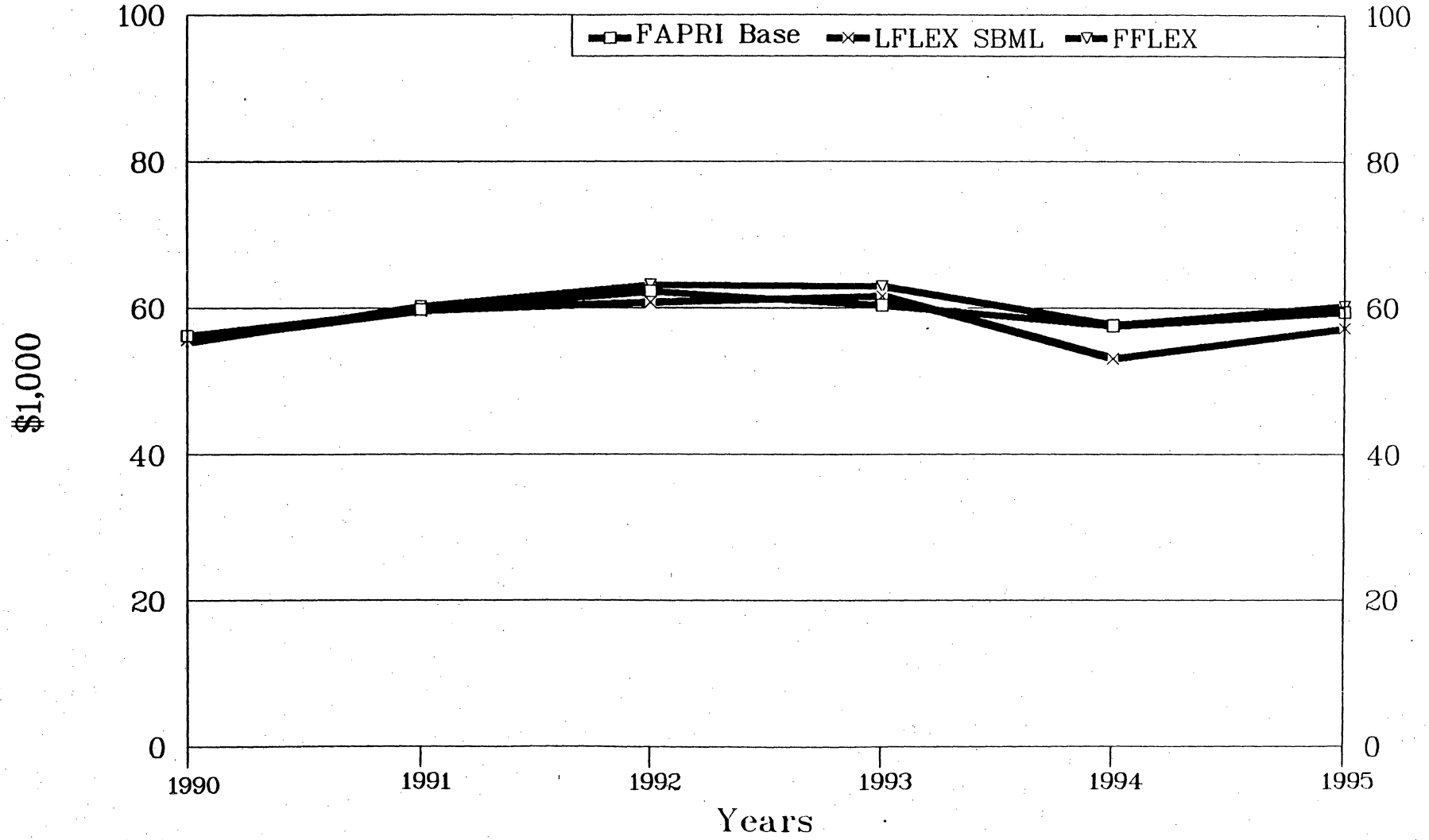


Figure 22. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Moderate Size North Dakota Farm



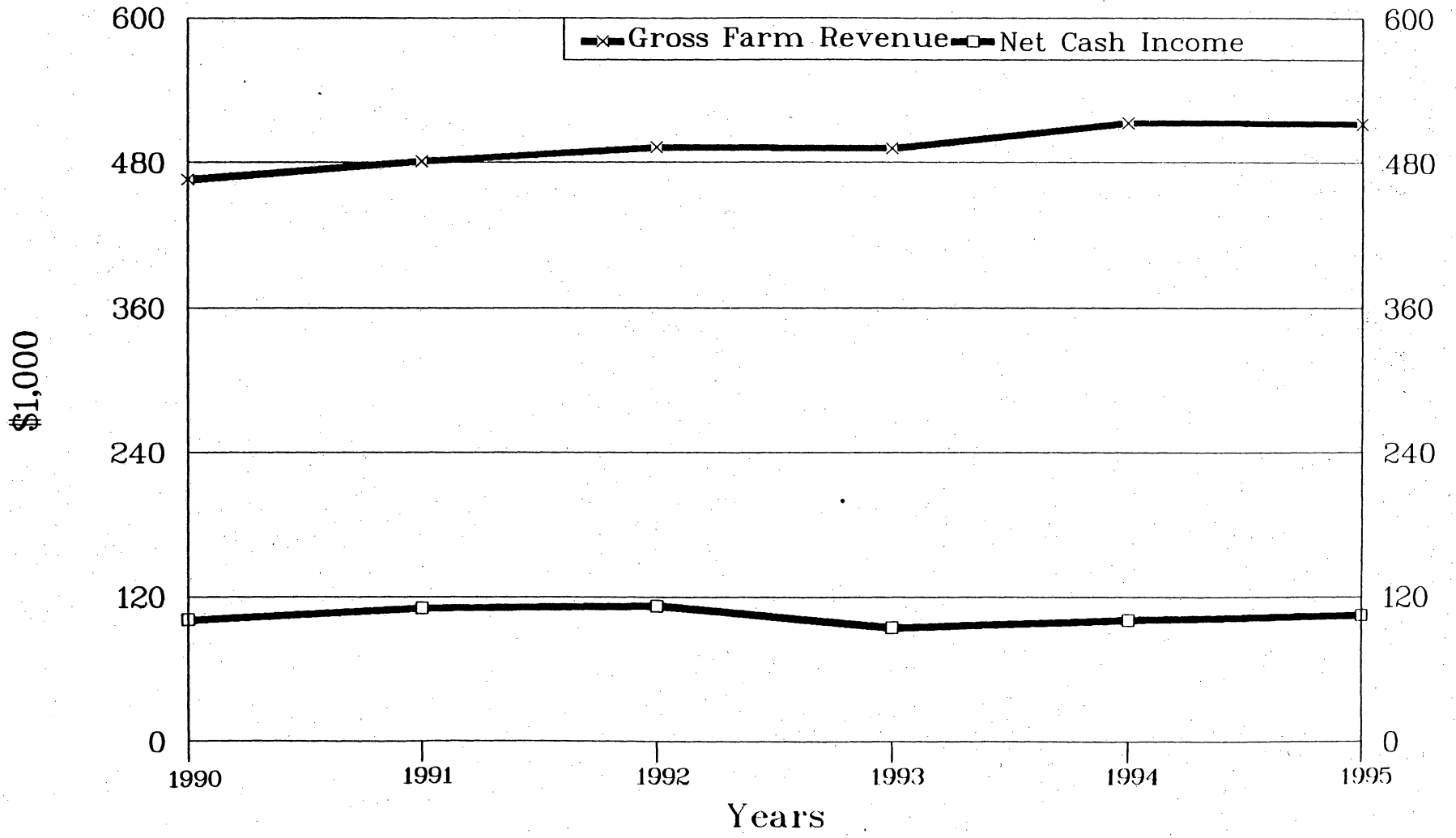
Crops: Wheat, Barley, Sunflowers
5/6/90 AFPC

Figure 23. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size North Dakota Farm



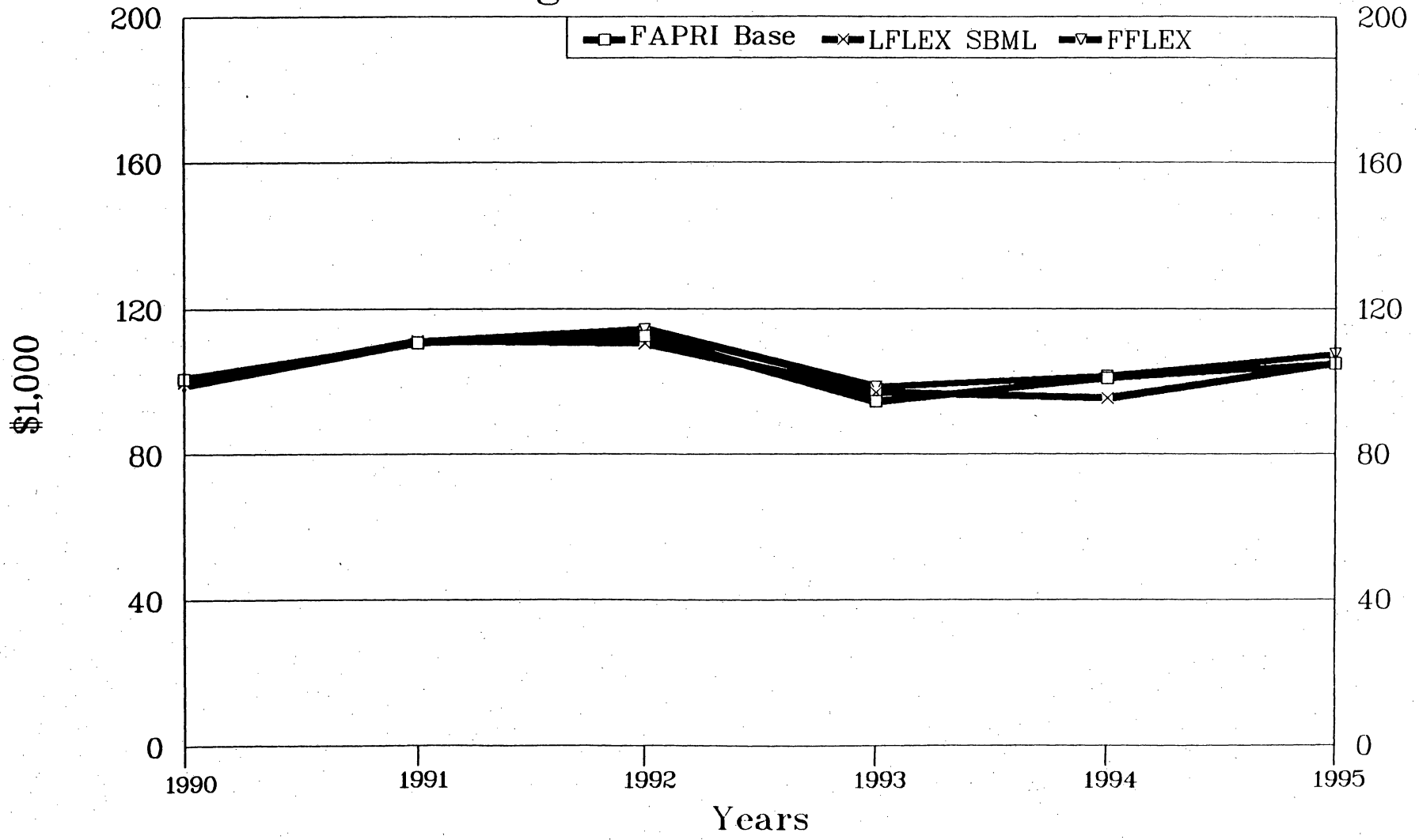
Crops: Wheat, Barley, Sunflowers
5/6/90 AFPC

Figure 24. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Large Size North Dakota



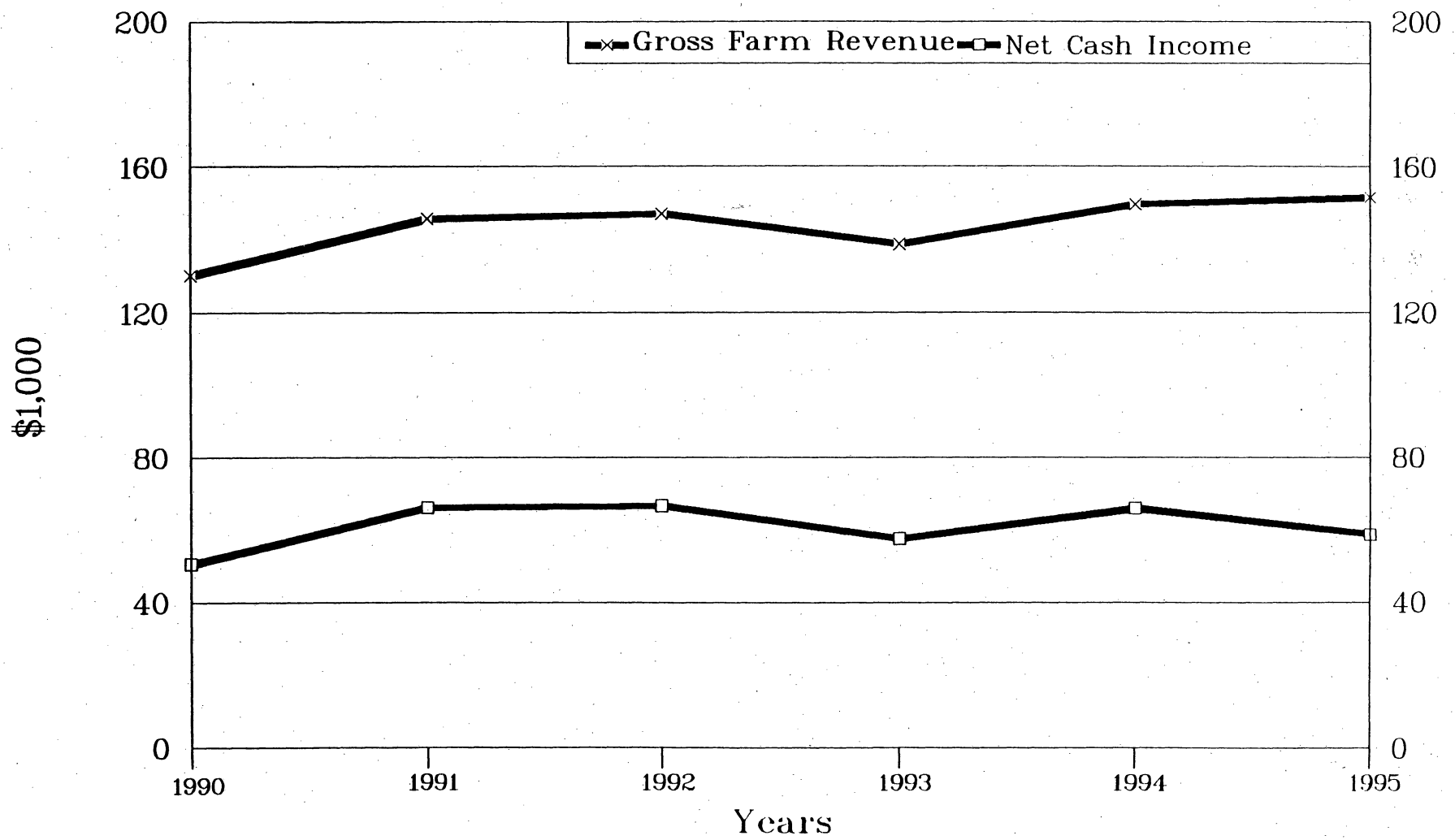
Crops: Wheat, Barley, Sunflowers
5/6/90 AFPC

Figure 25. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size North Dakota



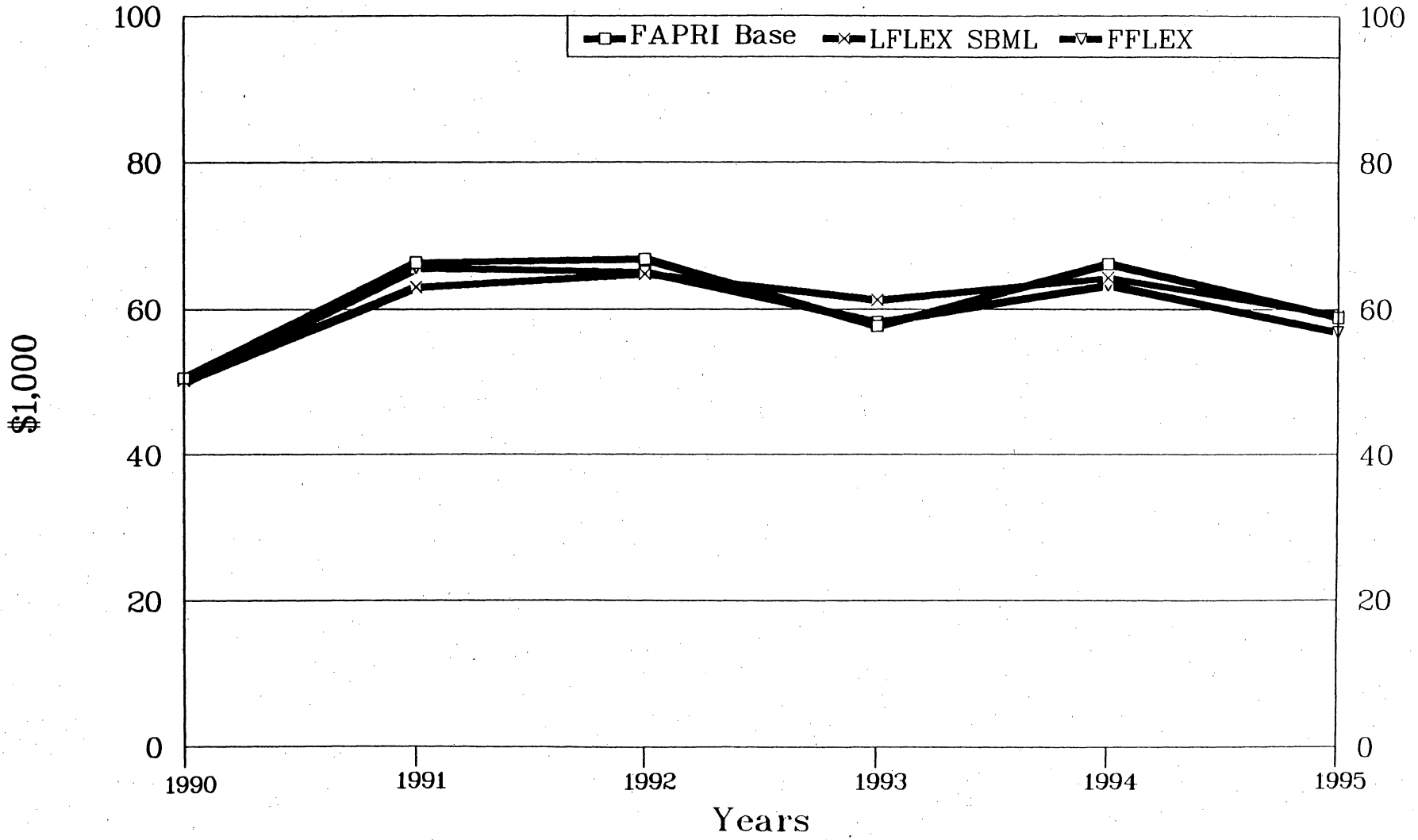
Crops: Wheat, Barley, Sunflowers
5/6/90 AFPC

Figure 26. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Moderate Size Iowa Farm



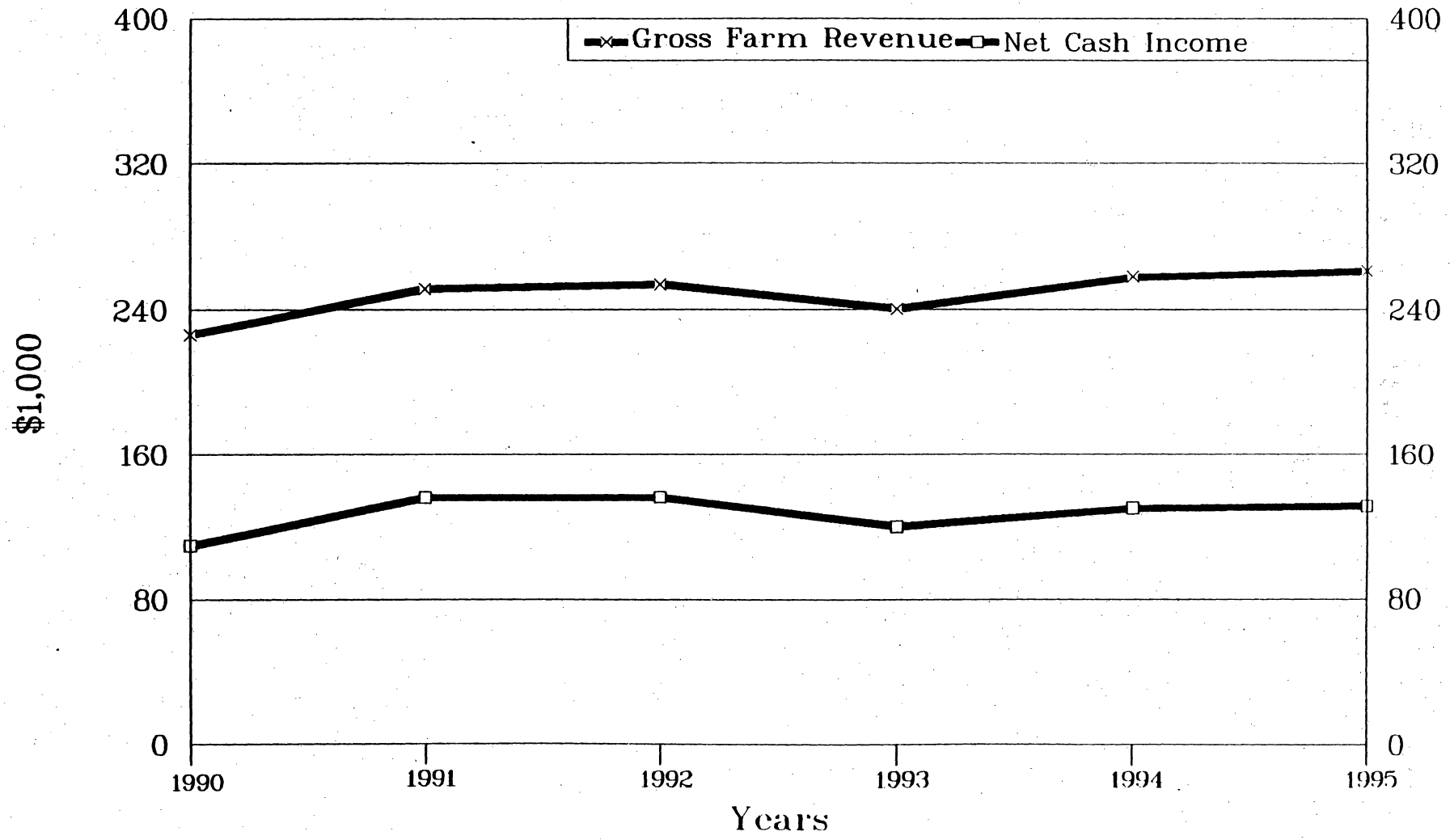
Crops: Corn, Soybeans
5/6/90 AFPC

Figure 27. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Iowa Farm



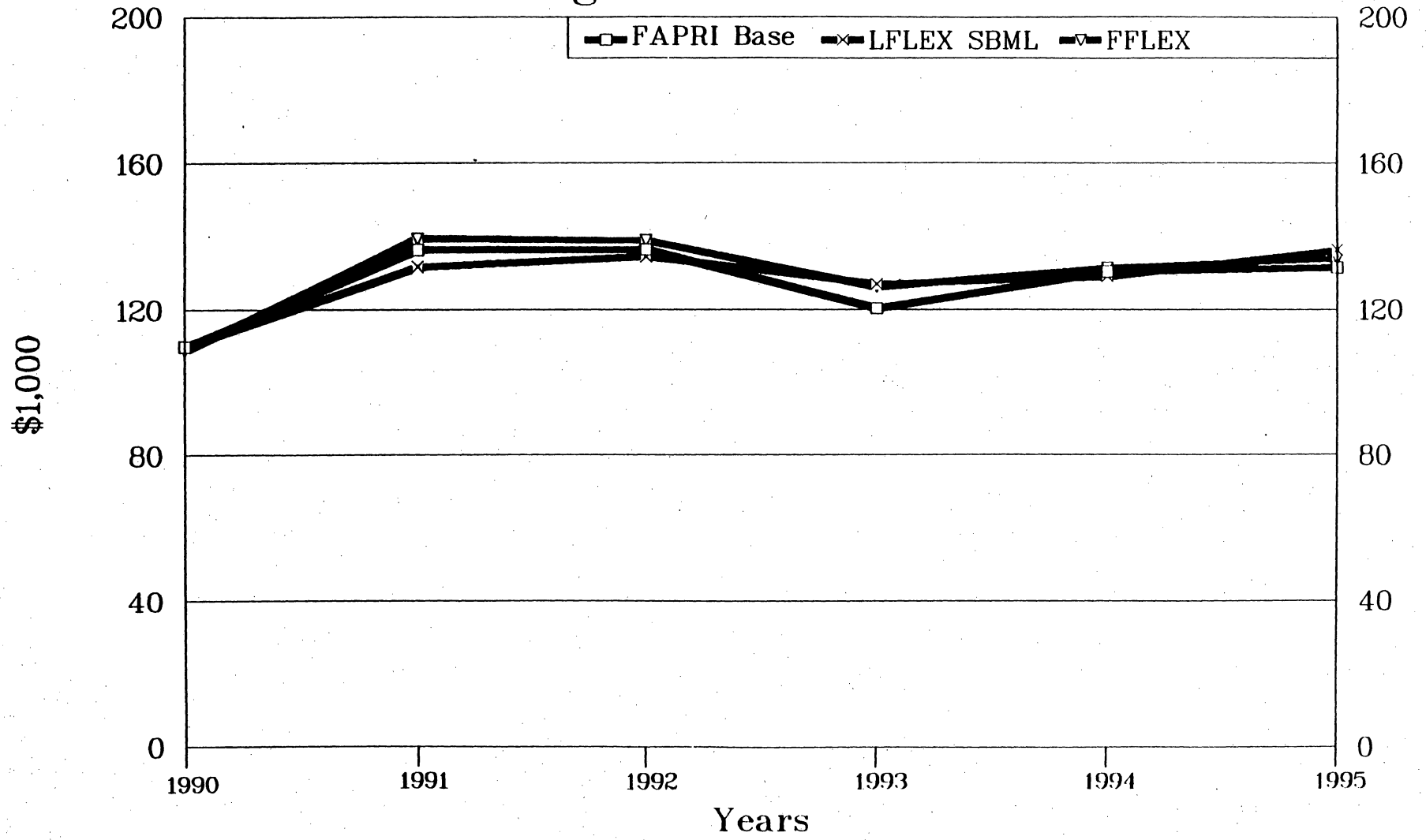
Crops: Corn, Soybeans
5/6/90 AFPC

Figure 28. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Large Size Iowa Farm



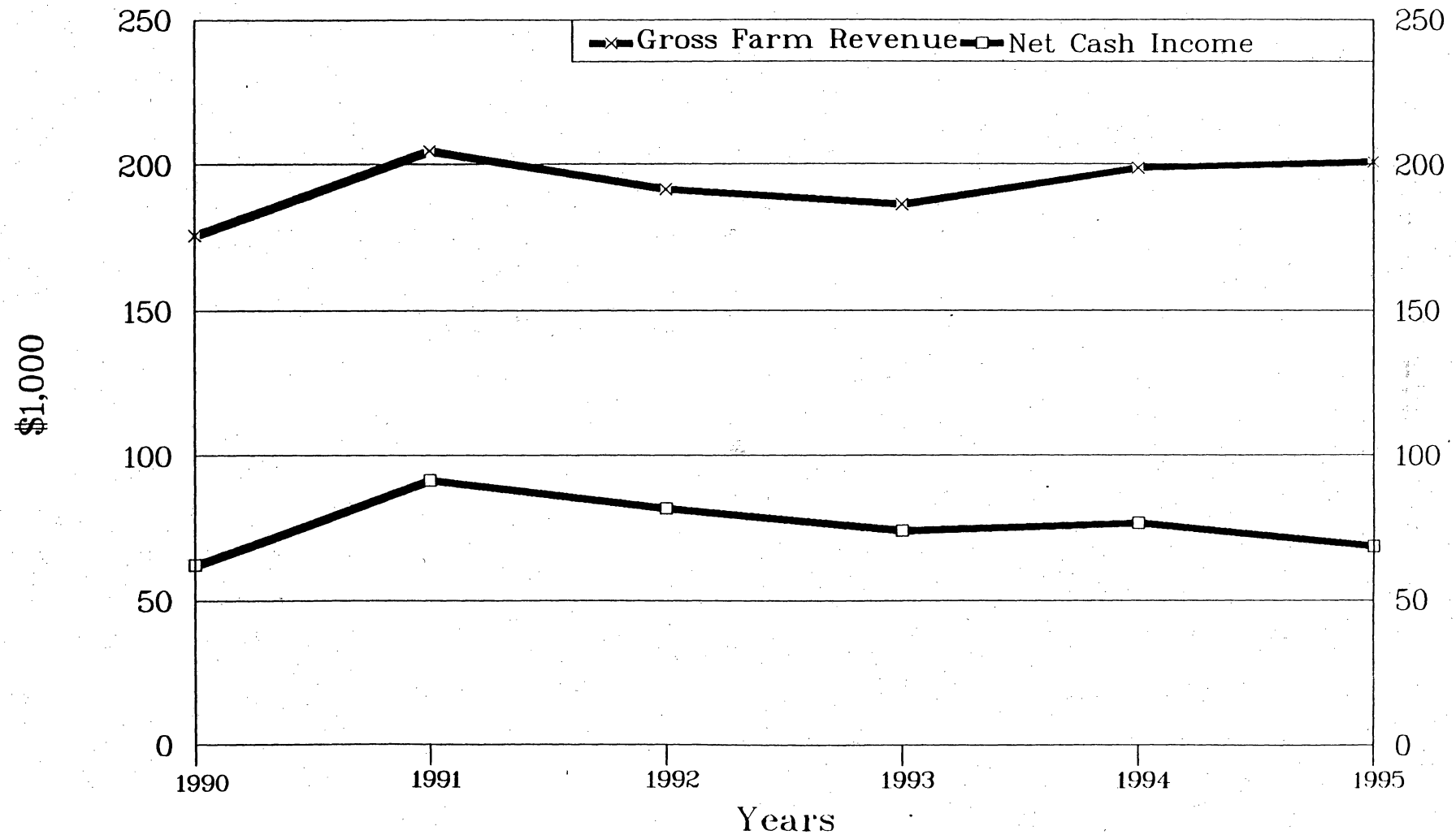
Crops: Corn, Soybeans
5/6/90 AFPC

Figure 29. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size Iowa Farm



Crops: Corn, Soybeans
5/6/90 AFPC

Figure 30. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Moderate Size Missouri Farm

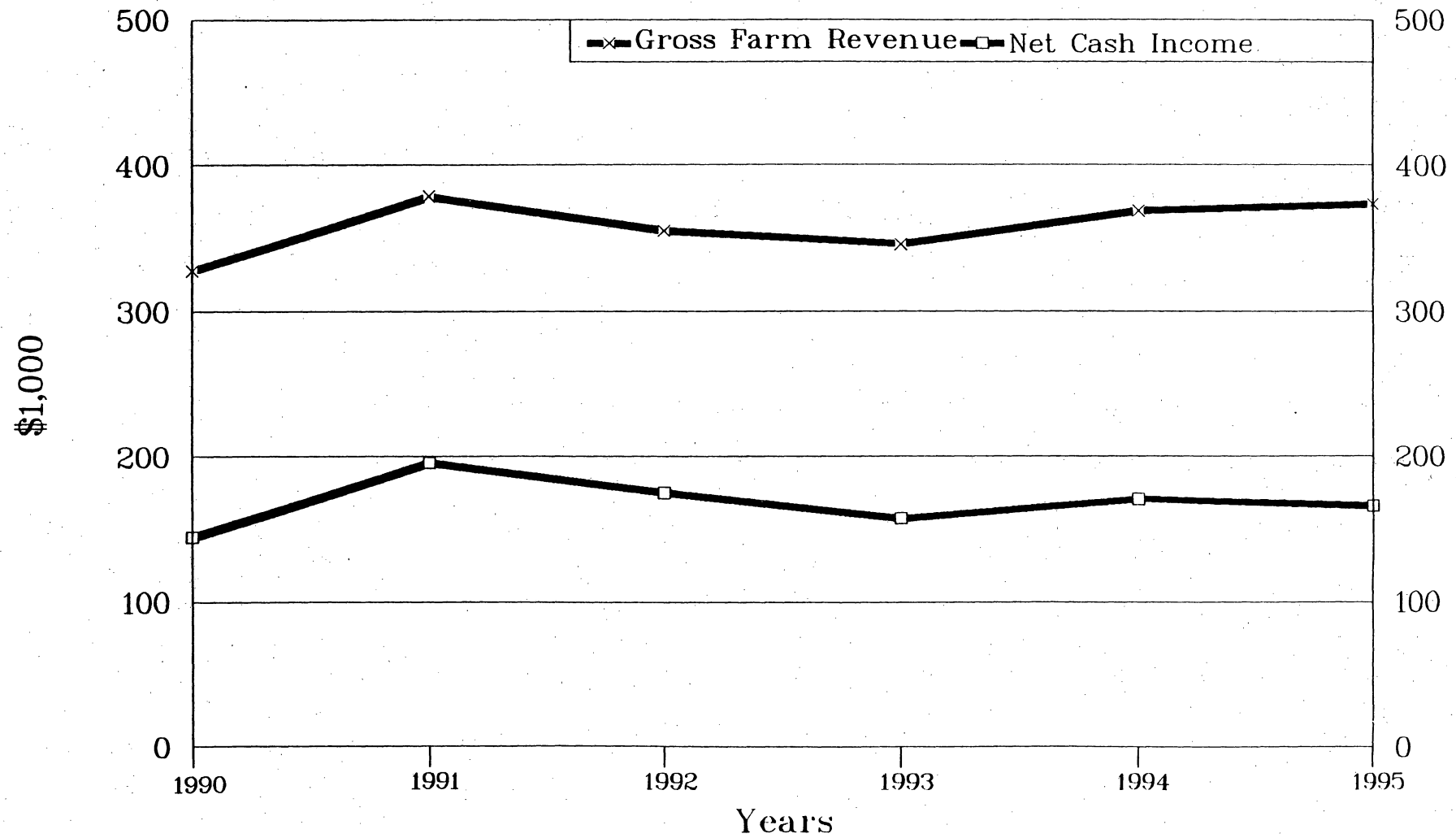


Crops: Corn, Soybeans, Wheat
5/6/90 AFPC

Figure 31. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Missouri Farm

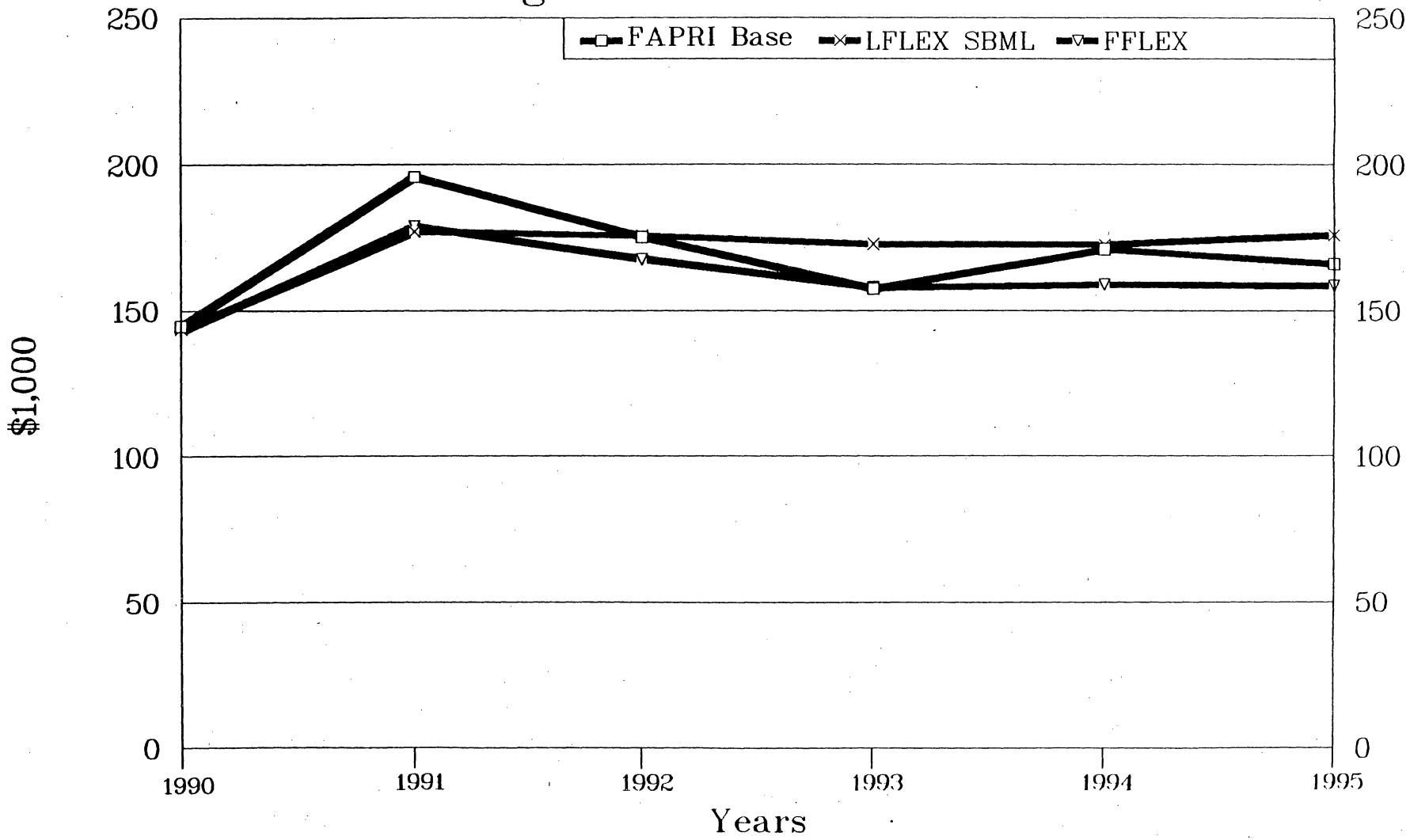
Crops: Corn, Soybeans, Wheat
5/6/90 AFPC

Figure 32. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Large Size Missouri Farm



Crops: Corn, Soybeans, Wheat
5/6/90 AFPC

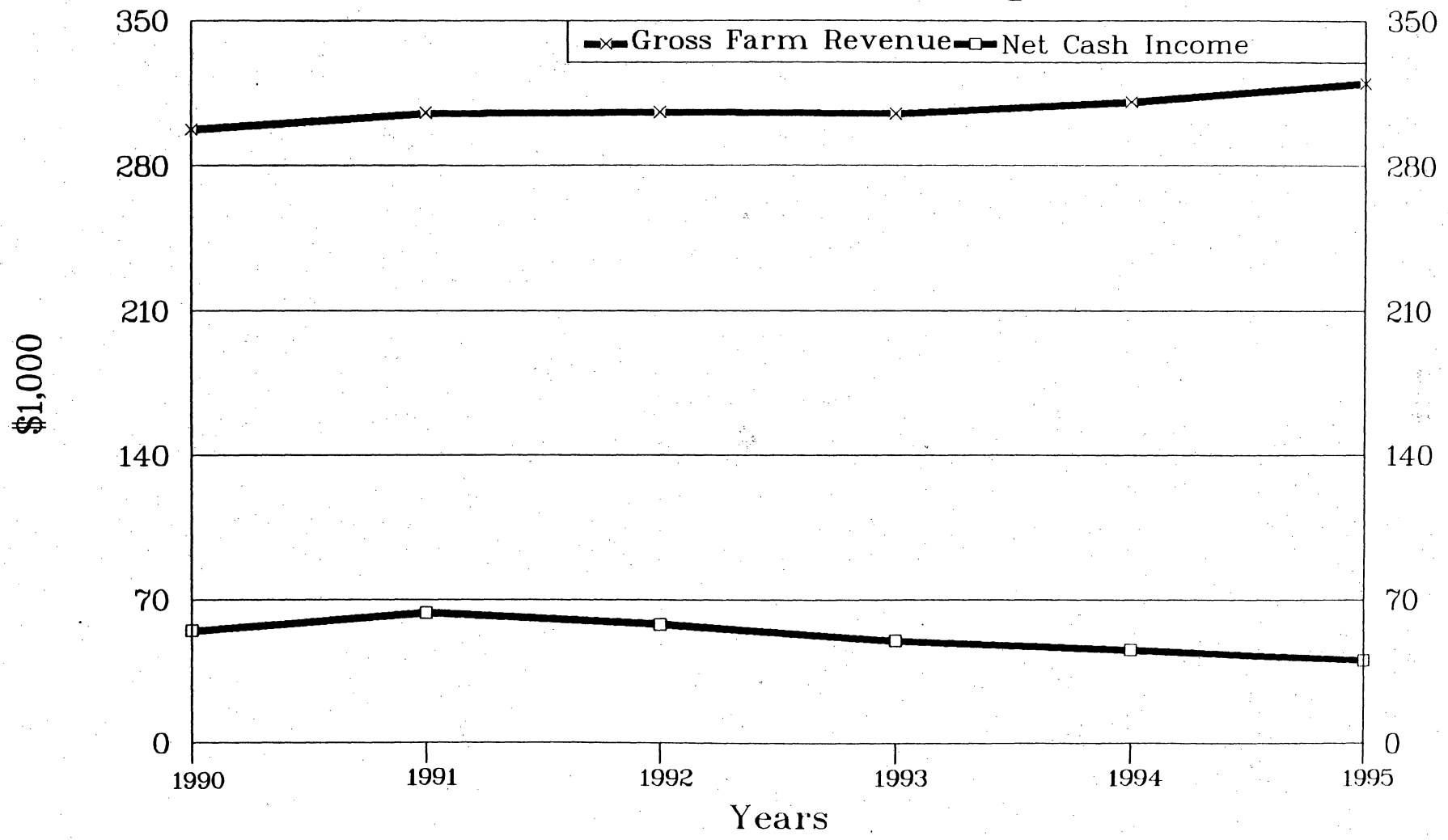
Figure 33. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size Missouri Farm



Crops: Corn, Soybeans, Wheat
5/6/90 AFPC

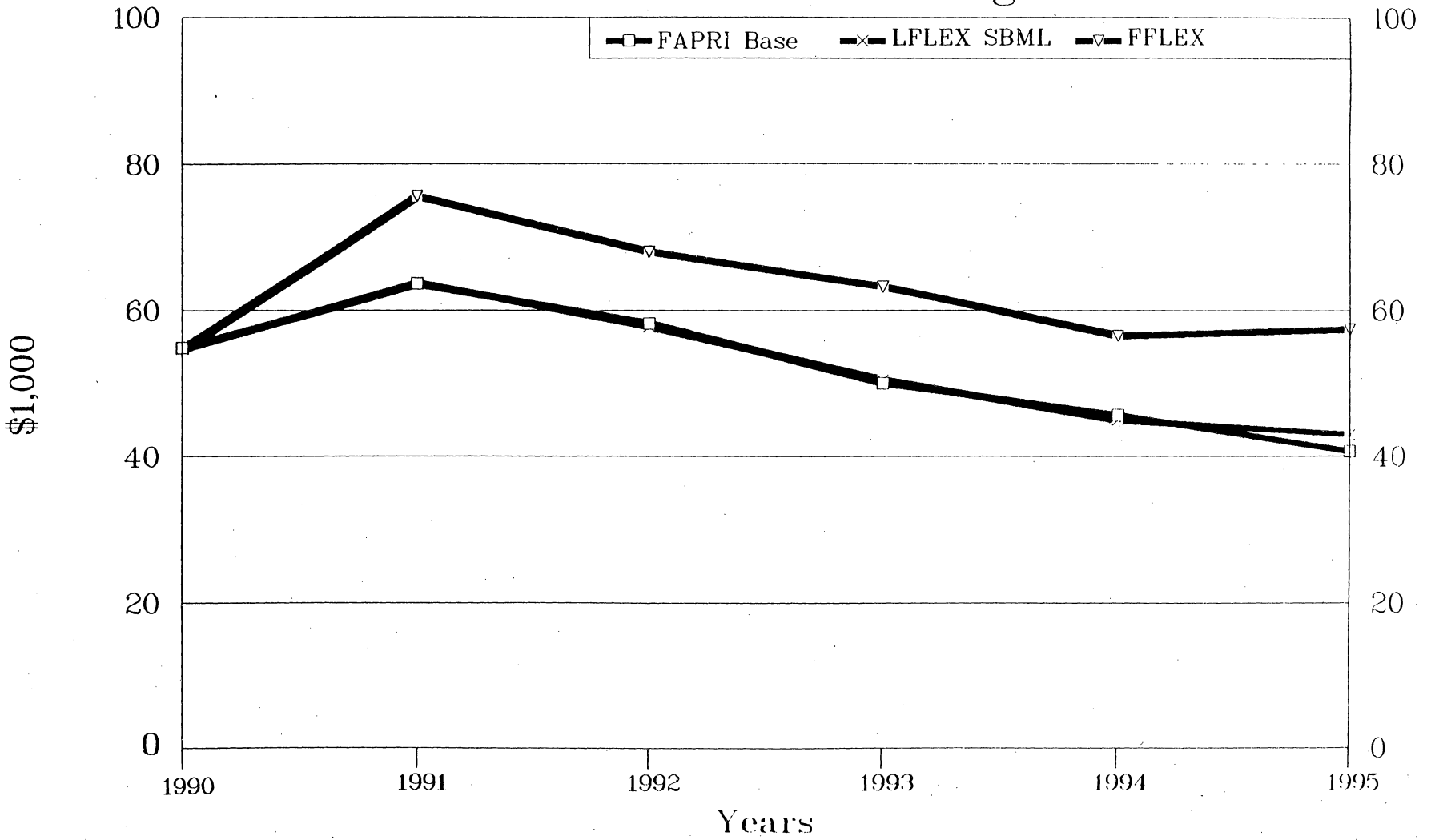
Figure 34. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline

Moderate Size Texas Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
5/6/90 AFPC

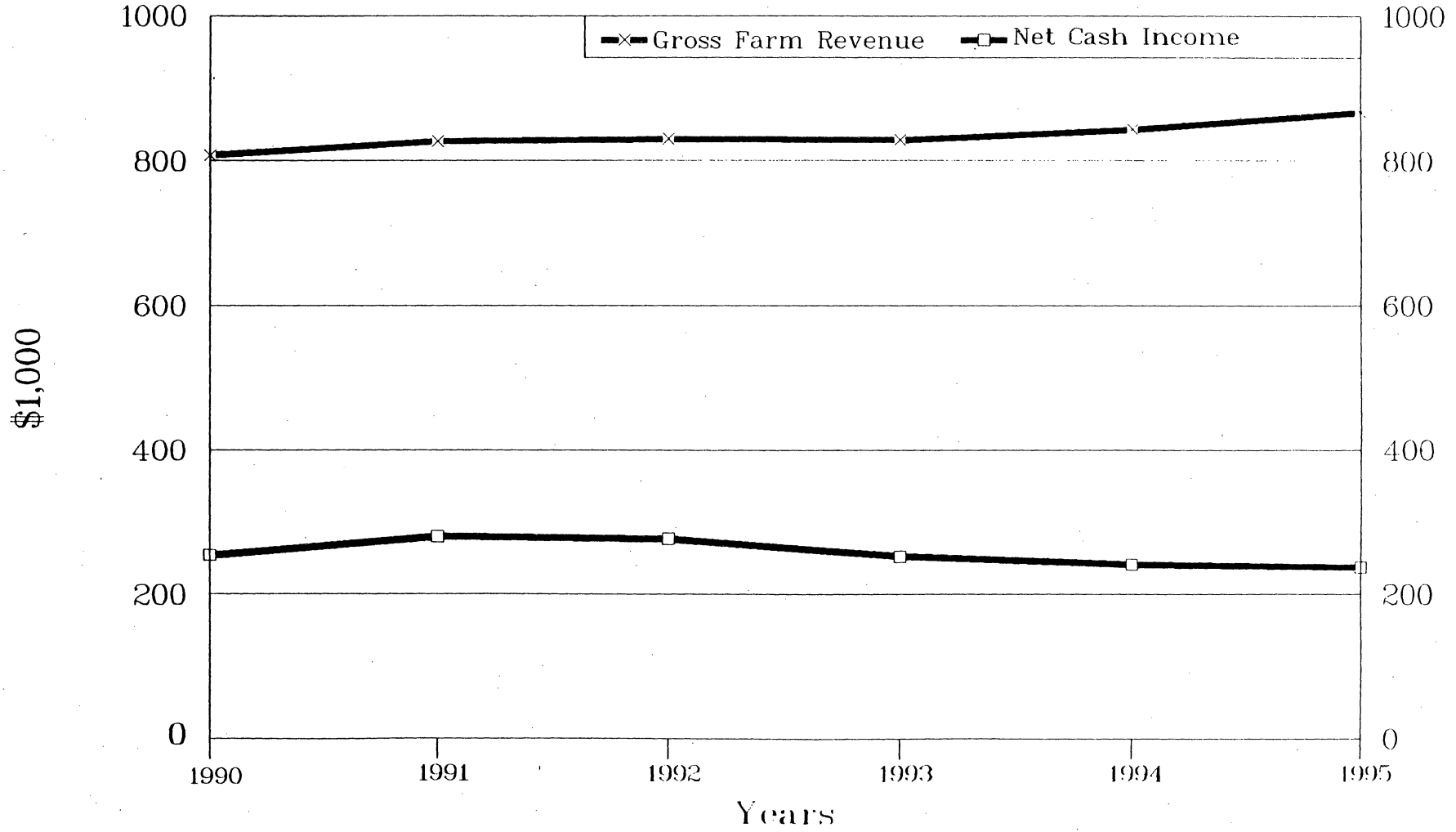
Figure 35. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Texas Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
5/6/90 AFPC

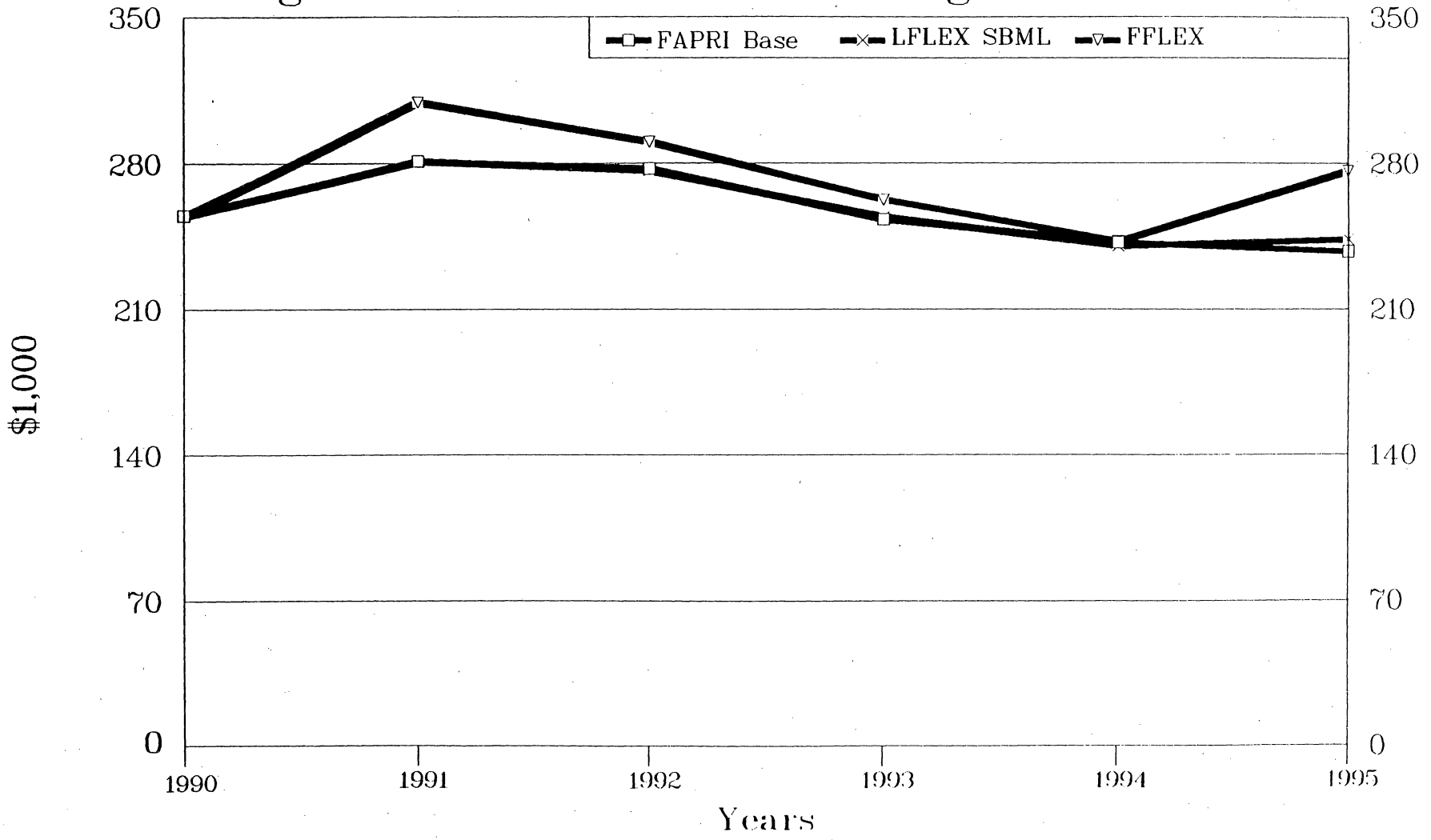
Figure 36. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline

Large Size Texas Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
5/6/90 AFPC

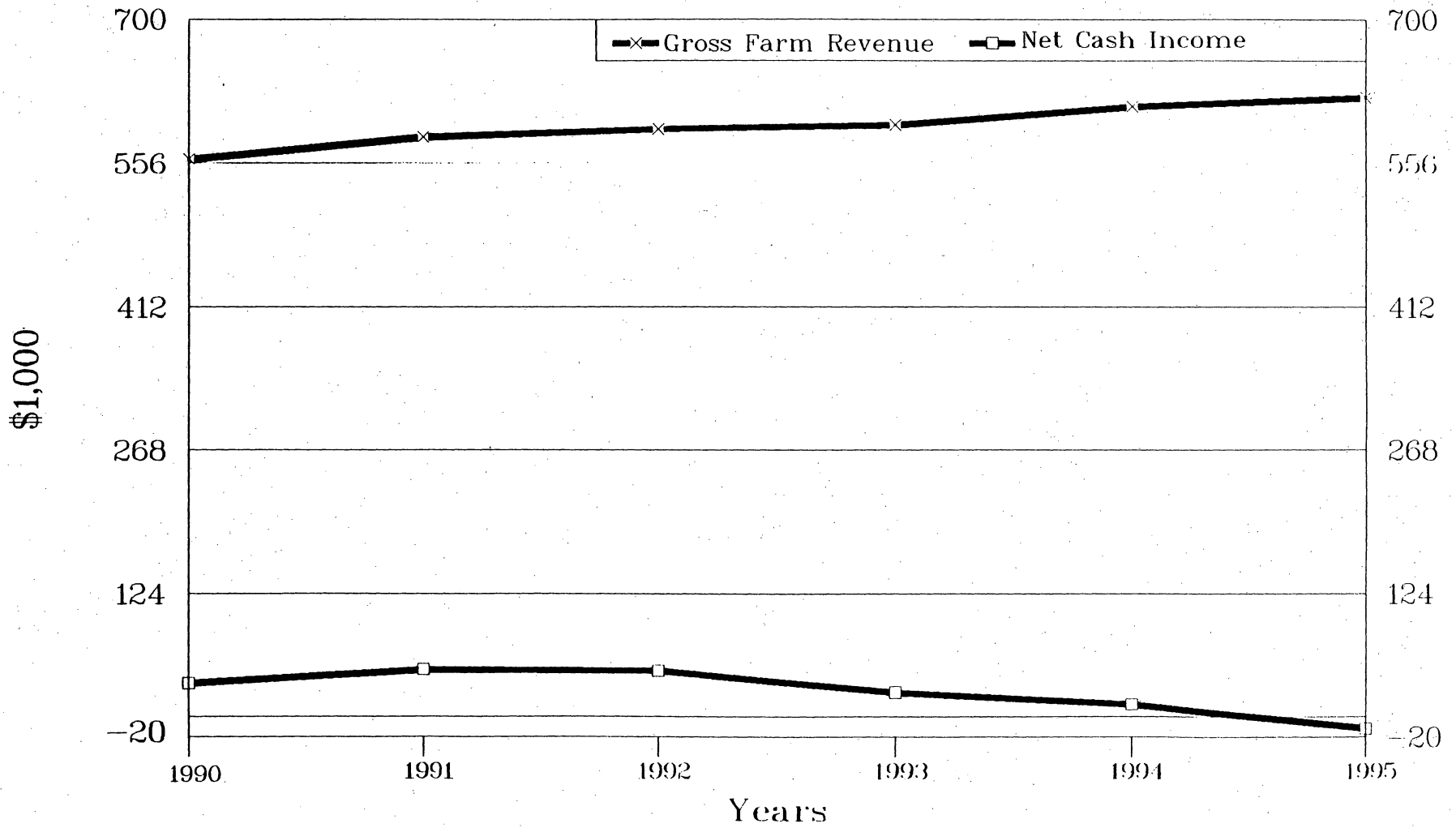
Figure 37. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size Texas Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
5/6/90 AFPC

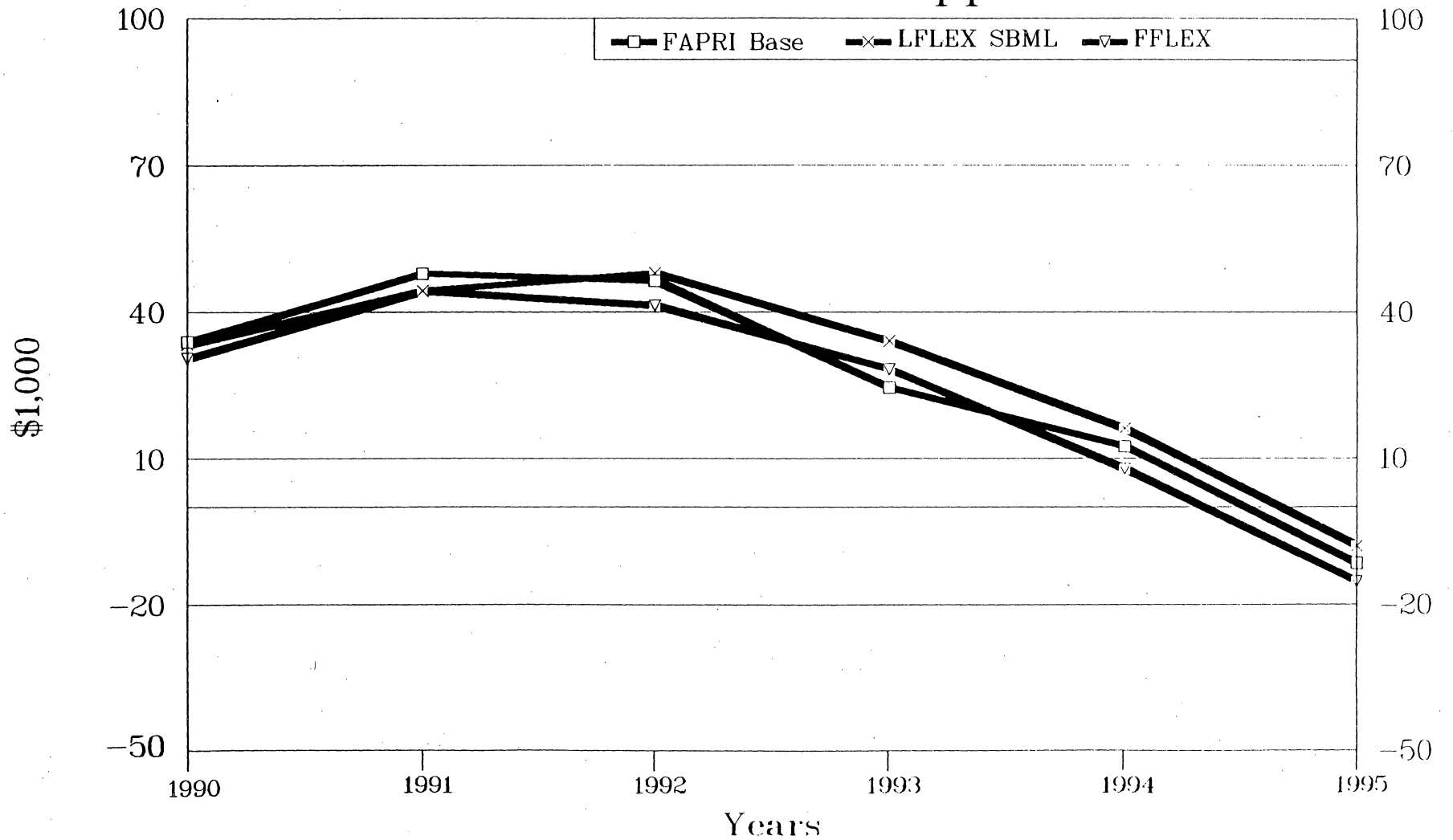
Figure 38. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline

Moderate Size Mississippi Farm



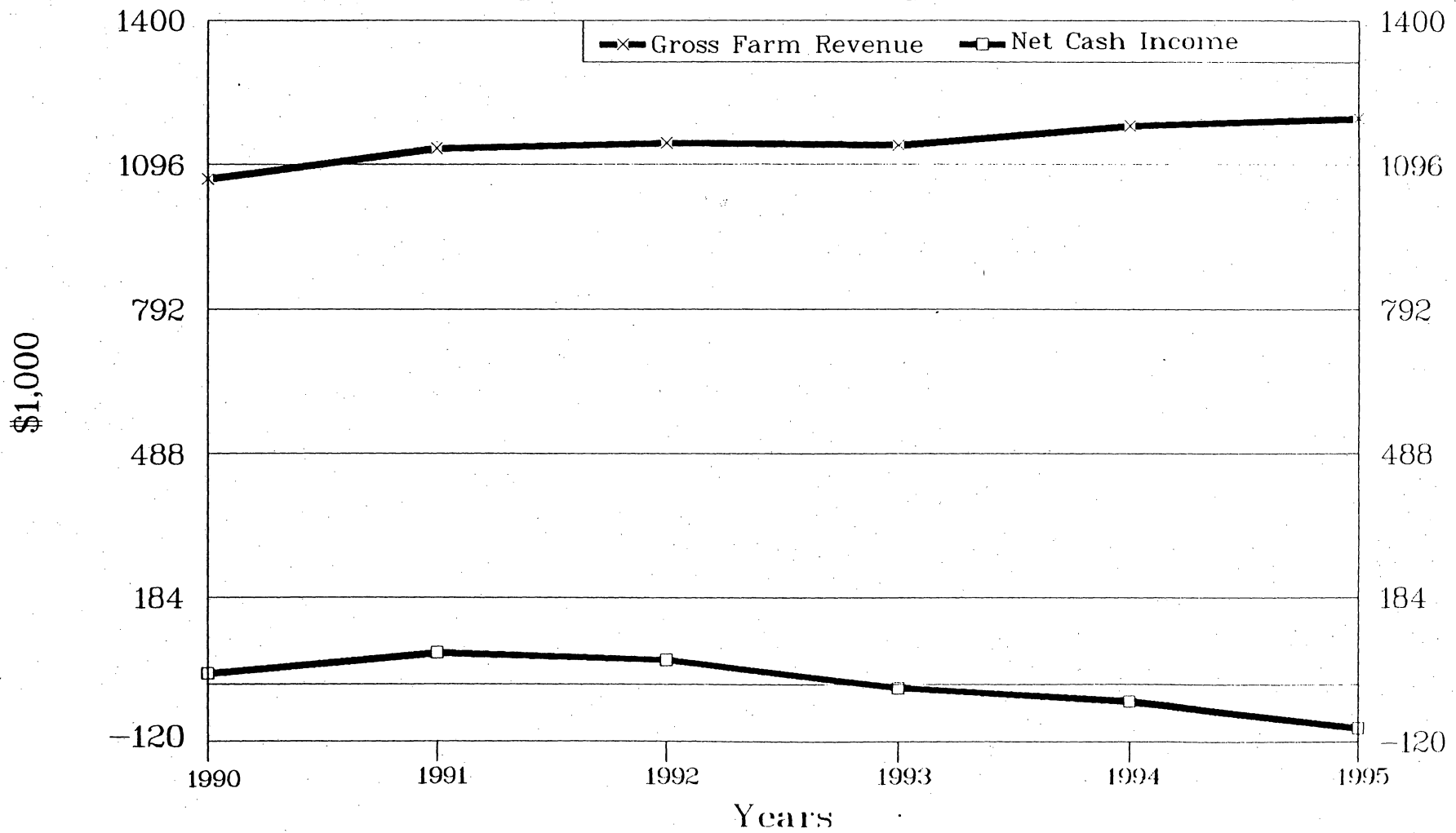
Crops: Cotton, Soybeans
5/6/90 AFPC

Figure 39. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Mississippi Farm



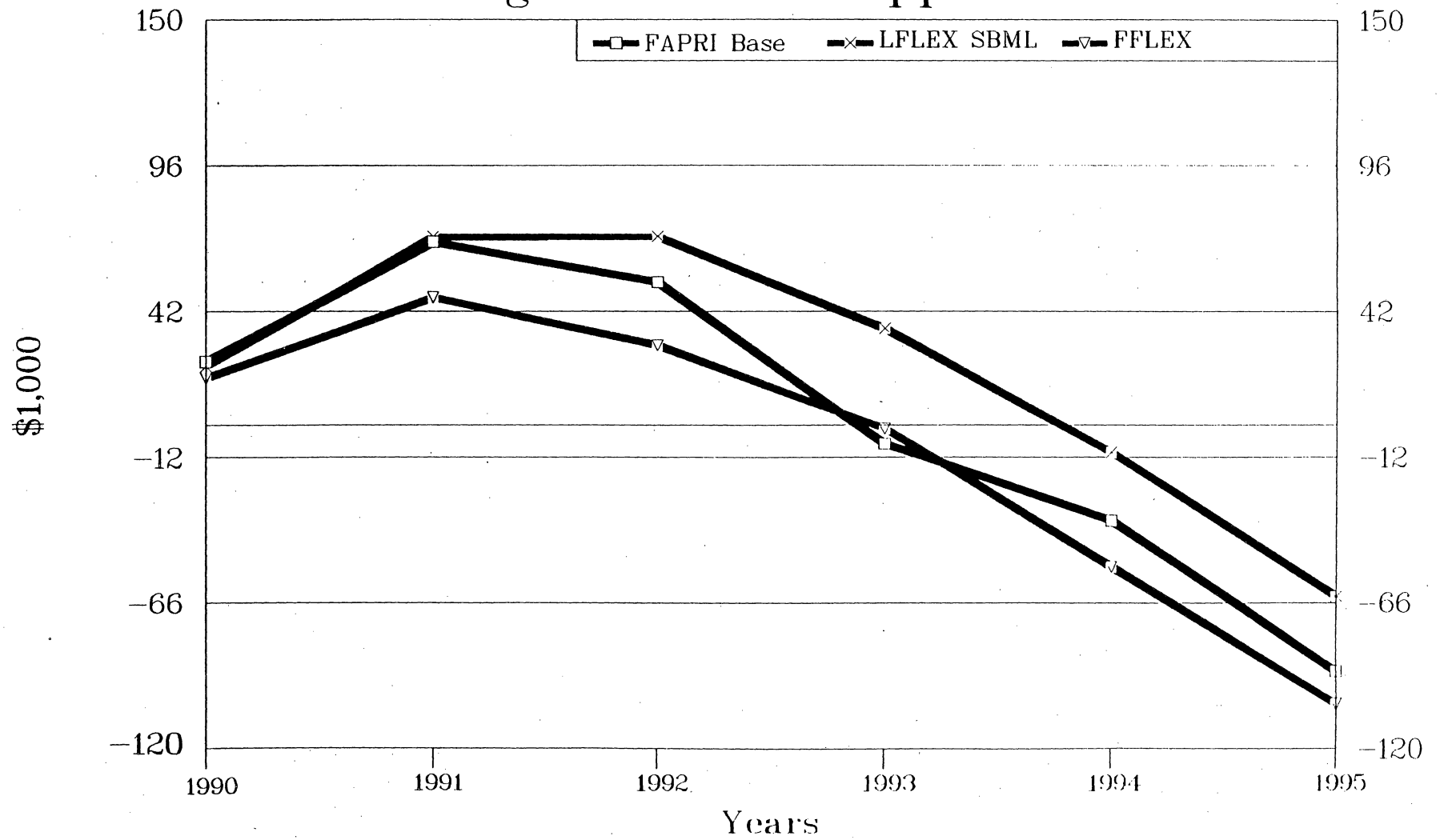
Crops: Cotton, Soybeans
5/6/90 AFPC

Figure 40. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Large Size Mississippi Farm



Crops: Cotton, Soybeans
5/6/90 AFPC

Figure 41. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size Mississippi Farm



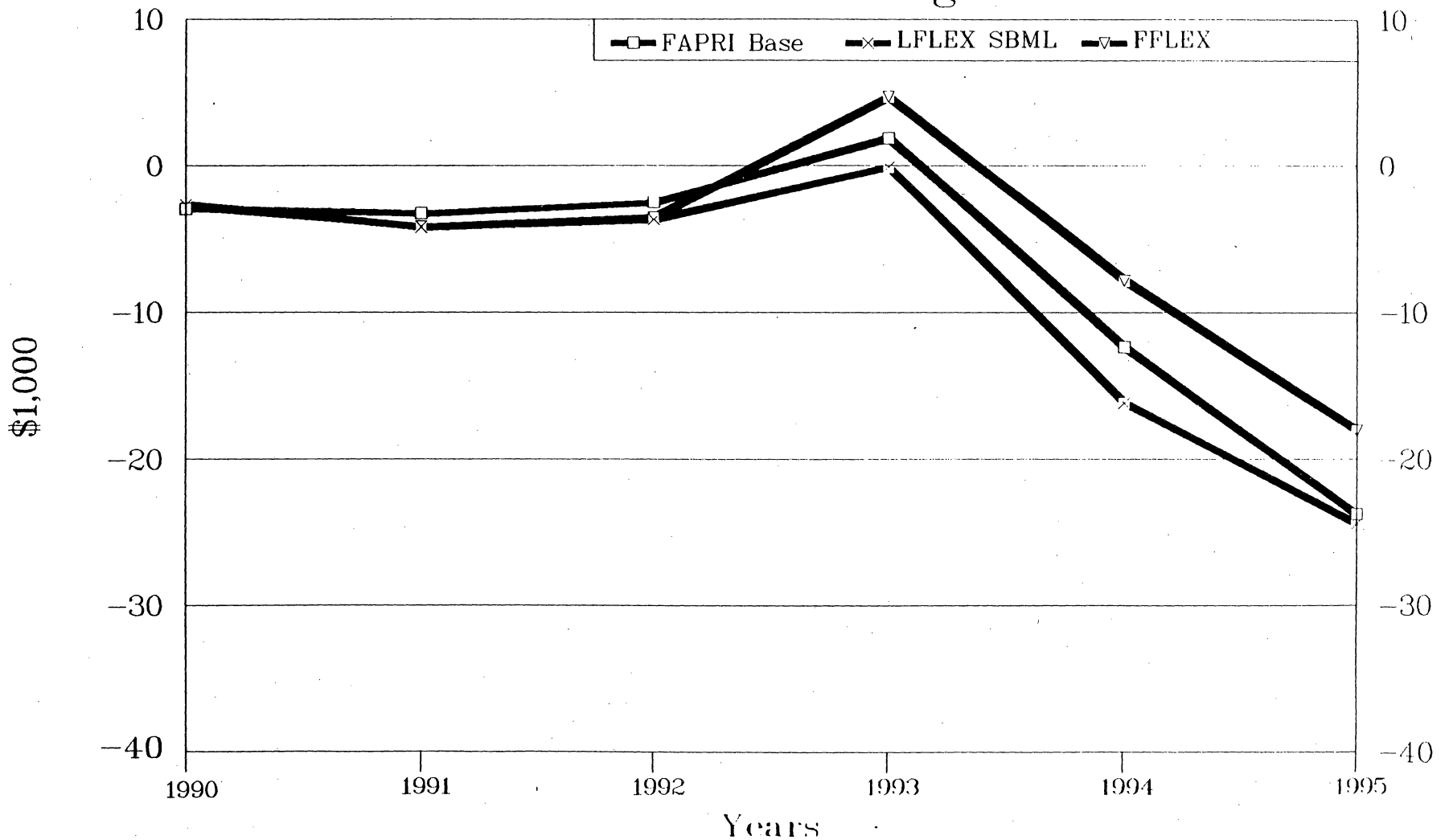
Crops: Cotton, Soybeans
5/6/90 AFPC

Figure 42. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline

Moderate Size Texas Rolling Plains Farm

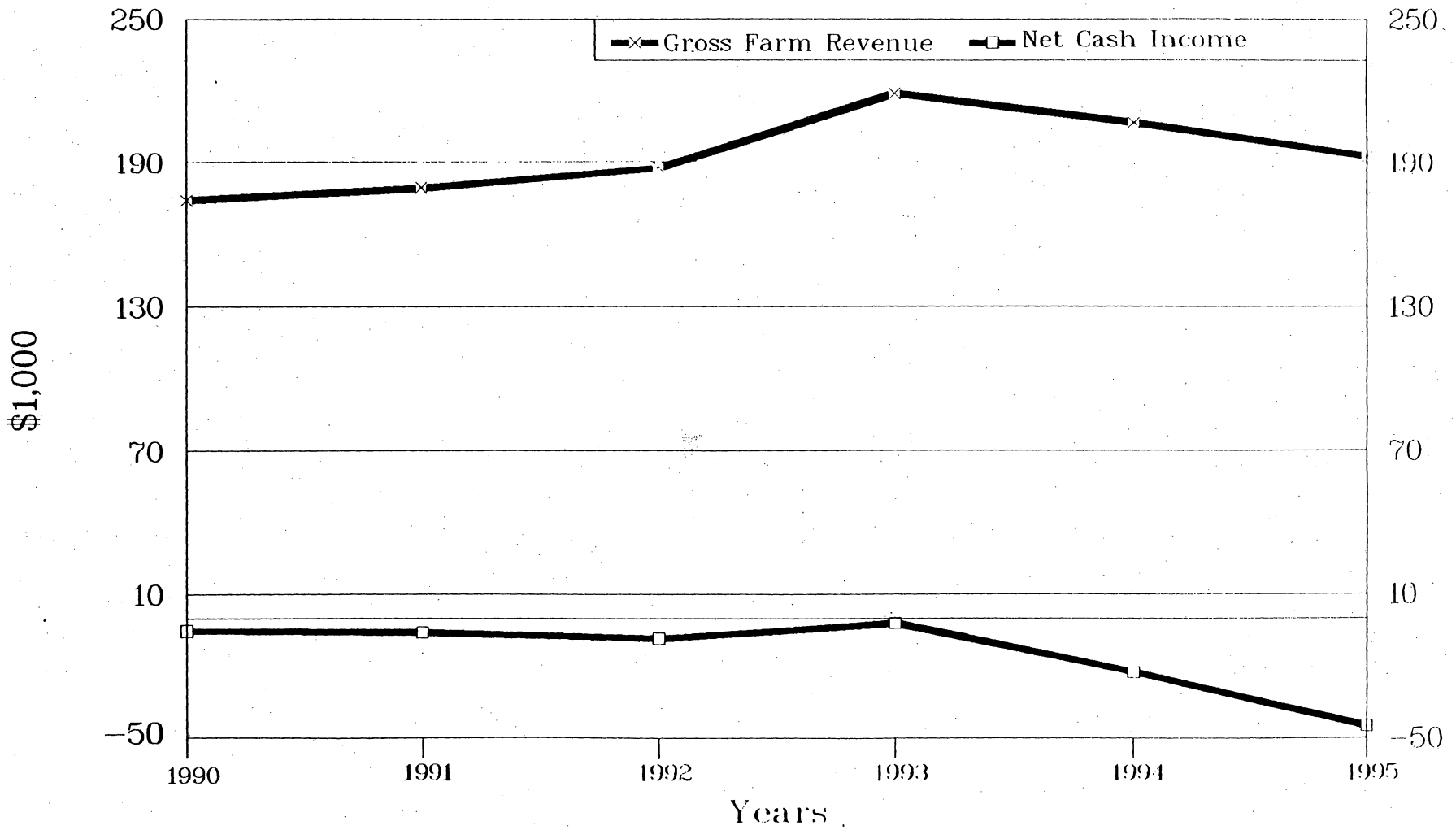
Crops: Wheat, Cotton
5/6/90 AFPC

Figure 43. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Texas Rolling Plains Farm



Crops: Wheat, Cotton
5/6/90 AFPC

Figure 44. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline Large Size Rolling Plains Farm



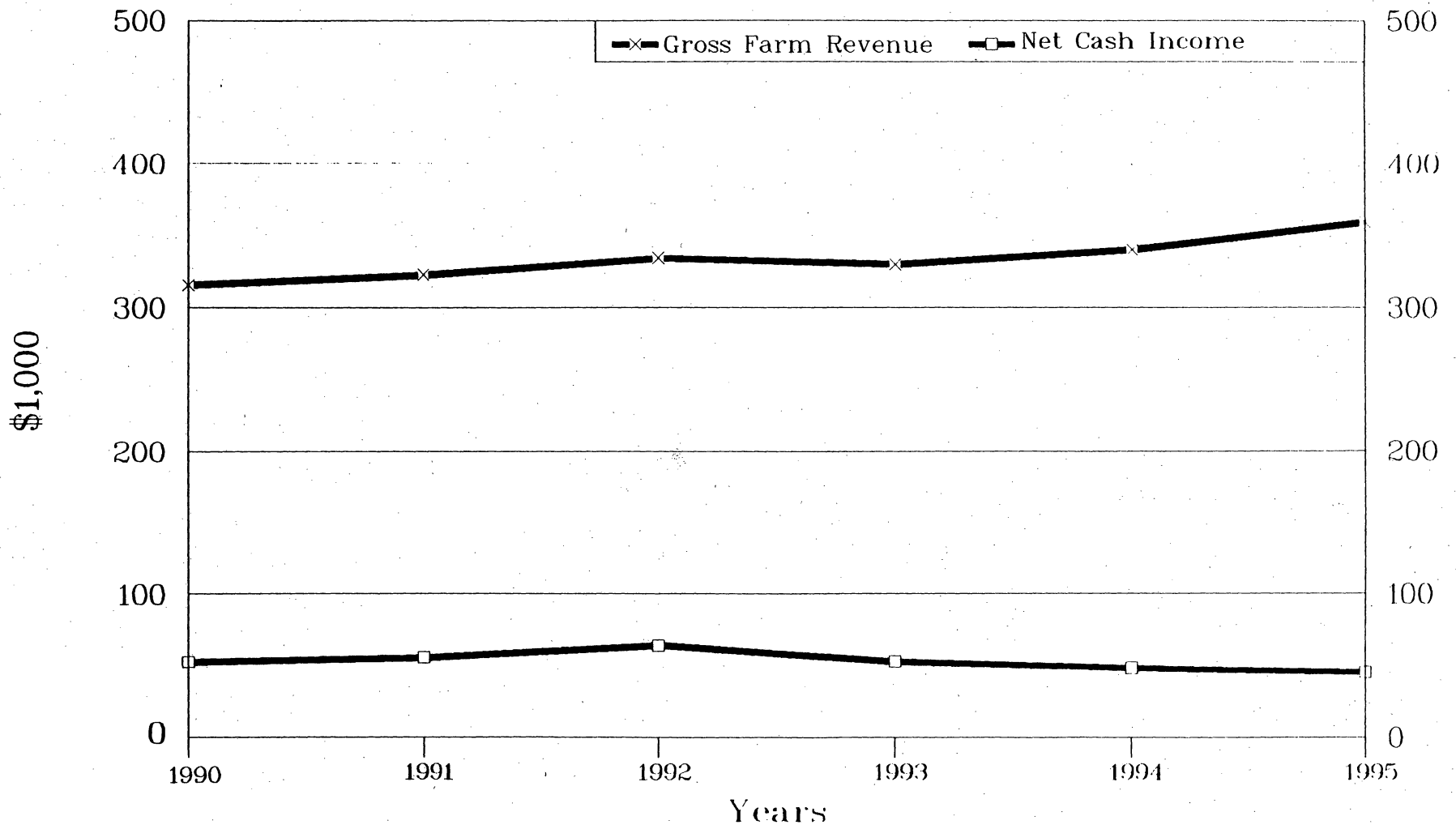
Crops: Wheat, Cotton
5/6/90 AFPC

Figure 45. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Large Size Rolling Plains Farm

Crops: Wheat, Cotton
5/6/90 AFPC

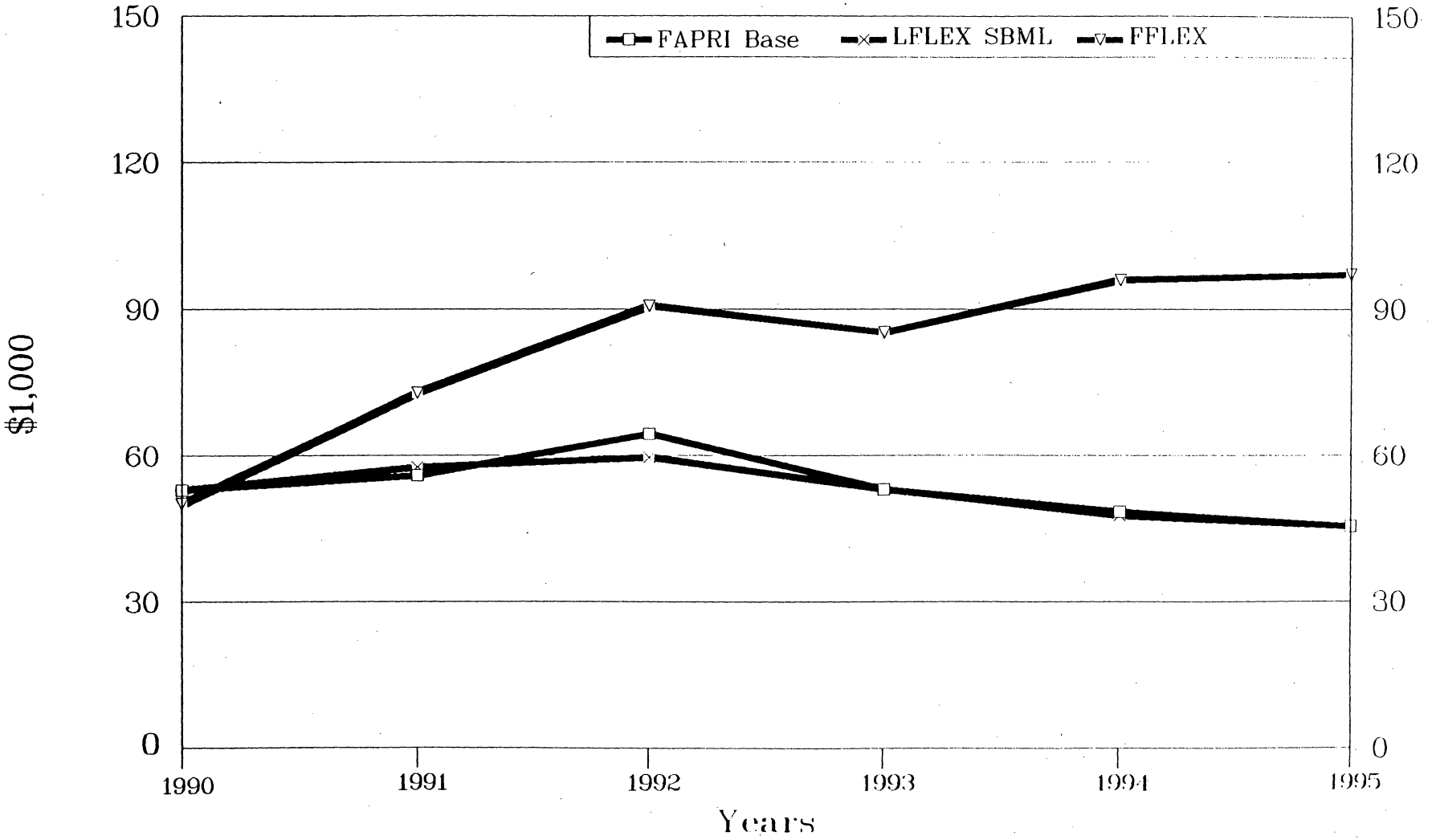
Figure 46. Revenues and Net Cash Farm Income 1990/1995 FAPRI Baseline

Moderate Size Texas Coastal Bend Farm



Crops: Sorghum, Corn, Cotton
5/6/90 AFPC

Figure 47. Net Cash Farm Income Baseline, Limited Flex, and Full Flex Moderate Size Texas Coastal Bend Farm



Crops: Sorghum, Corn, Cotton
5/6/90 AFPC

APPENDIX

- Panel Farms In Process

- Proposed Panel Farms

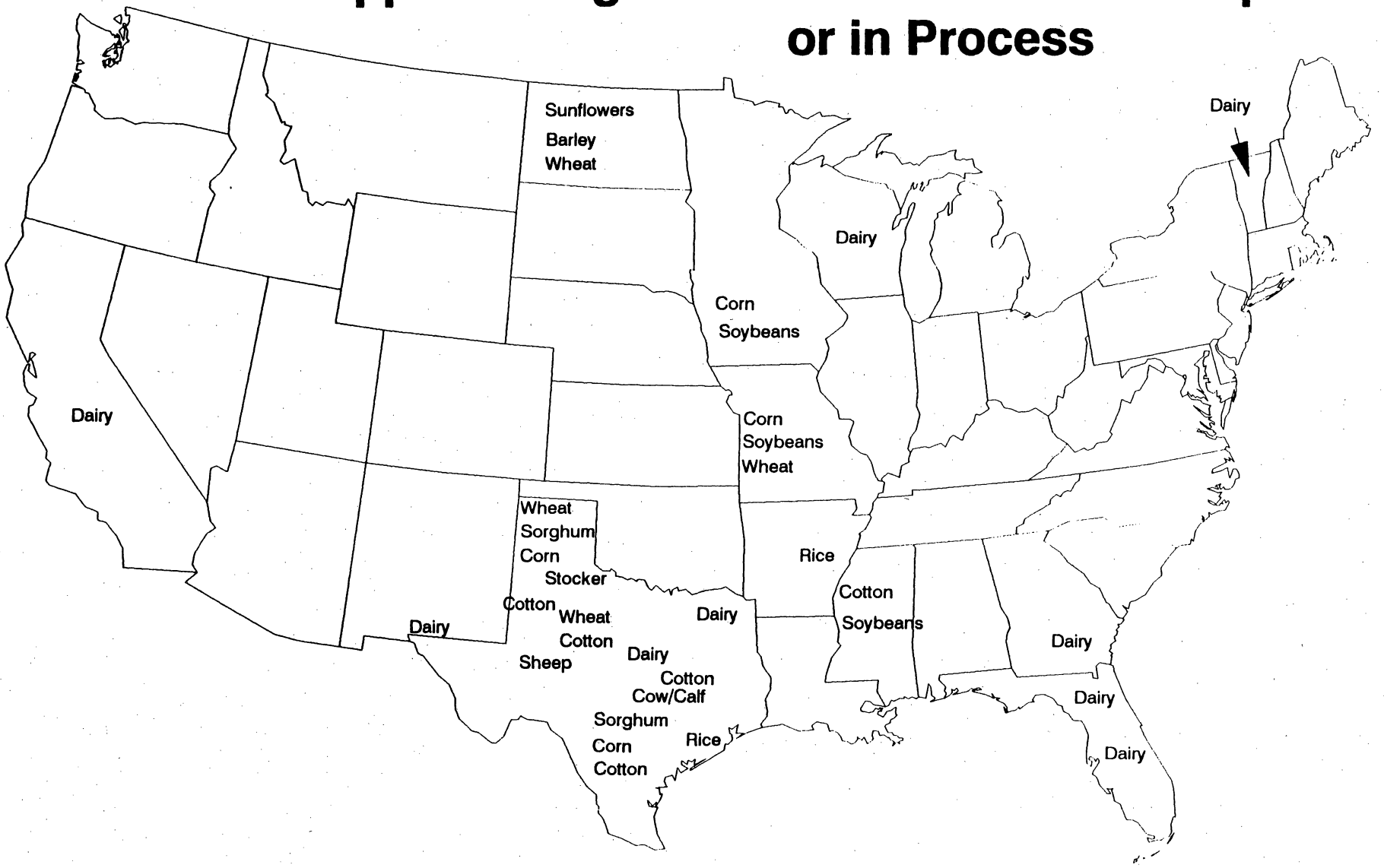
- FAPRI Price Projections (1990-95)
  - Corn
  - Sorghum
  - Barley
  - Soybean
  - Wheat
  - Cotton

- Panel Farm Simulation Results
  - Baseline
    - -- Grain
    - -- Cotton

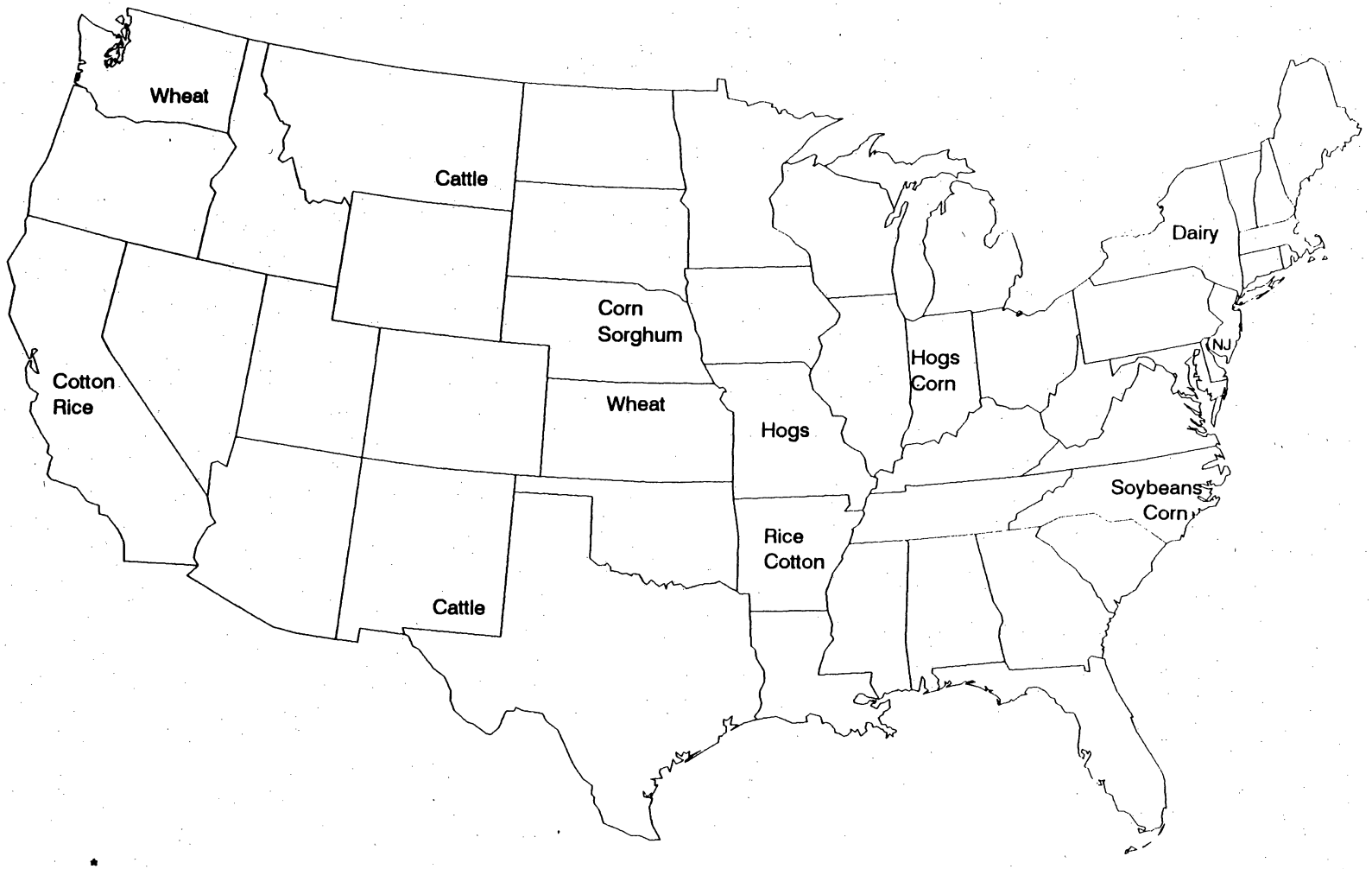
  - LFLEX SBML
    - -- Grain
    - -- Cotton

  - Full Flex
    - -- Grain
    - -- Cotton

Appendix Figure 1. Panel Farms Developed or in Process



Appendix Figure 2. Proposed Panel Farms*



* To be developed in the future if resources permit

Appendix Table 1. Cooperating Facilitators.

North Dakota	
Dwight Aakre	Extension Associate/Farm Management - North Dakota State University
Lester Stuber	County Extension Agent - Barnes County
Iowa	
William Edwards	Extension Economist - Iowa State University
Bill Coeffy	Extension Director - Webster County
Missouri	
Paul Taylor	Area Extension Specialist - Carroll County
Mississippi	
David Laughlin	Associate Professor - Mississippi State University
Fred Cook	Agricultural Economist - Mississippi Agricultural and Forestry Experiment Station/Delta Branch
Texas Northern High Plains	
Steve Amosson	Extension Economist/Management - Texas Agricultural Extension Service
Kenneth Holloway	County Extension Agent - Moore County
Brad Johnson	Assistant Manager Sunray Coop.
Texas Rolling Plains	
Gary Stanford	County Extension Agent - Jones County
Stan Bevers	Extension Economist/Management - Texas Agricultural Extension Service
Texas Coastal Bend	
Darwin Anderson	County Extension Agent - Aransas and San Patricio County

Appendix Table 2. Effects of continuing the 1985 Farm Bill on moderate and large grain farms in North Dakota, Iowa, Missouri, and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficiency payments, 1990-1995.

	North Dakota		Iowa		Missouri		Texas-Northern Plains	
	Moderate	Large	Moderate	Large	Moderate	Large	Moderate	Large
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of > Equity (%)	57.0	41.0	93.0	100.0	59.0	100.0	21.0	100.0
Present Value Ending Net Worth PVENW ($1000)								
Mean	325.91	1164.40	357.45	481.17	721.89	1221.00	409.98	1423.59
PVENW as % of Beginning Net Worth (%)								
Mean	101.10	96.07	108.88	137.39	101.87	116.21	94.90	135.96
Average Annual Cash Receipts ($1000)								
Mean	193.20	492.92	143.84	248.57	192.91	358.32	307.38	834.46
Average Annual Cash Expenses ($1000)								
Mean	133.96	388.78	82.80	121.19	117.12	190.12	255.20	576.98
Average Annual Net Cash Farm Income ($1000)								
Mean	59.23	104.14	61.04	127.37	75.79	168.20	52.18	257.48
Average Annual Government Payments ($1000)								
Mean	26.38	66.83	17.53	31.41	19.21	35.28	51.93	144.11
Total Cash Receipts Year 1 ($1000)								
Mean	180.70	465.96	130.29	226.33	175.68	328.20	297.59	808.25
Total Cash Receipts Year 2 ($1000)								
Mean	189.23	481.40	145.72	251.66	204.66	378.47	305.41	827.80
Total Cash Receipts Year 3 ($1000)								
Mean	193.10	492.80	147.10	253.96	191.34	355.07	305.82	830.62
Total Cash Receipts Year 4 ($1000)								
Mean	193.69	491.91	138.74	240.31	186.13	346.20	305.07	828.86
Total Cash Receipts Year 5 ($1000)								
Mean	201.58	513.03	149.68	257.91	198.79	368.65	310.67	843.63
Total Cash Receipts Year 6 ($1000)								
Mean	200.89	512.42	151.51	261.22	200.87	373.33	319.70	867.61
Net Cash Farm Income Year 1 ($1000)								
Mean	56.19	100.94	50.62	109.73	62.18	144.63	54.86	254.69
Net Cash Farm Income Year 2 ($1000)								
Mean	59.75	110.72	66.30	136.19	91.40	195.64	63.59	280.80
Net Cash Farm Income Year 3 ($1000)								
Mean	62.22	112.50	66.73	136.27	81.76	174.93	58.19	277.36
Net Cash Farm Income Year 4 ($1000)								
Mean	60.33	94.67	57.66	120.28	74.11	157.39	50.06	252.89
Net Cash Farm Income Year 5 ($1000)								
Mean	57.53	101.07	66.06	130.26	76.69	170.79	45.69	241.65
Net Cash Farm Income Year 6 ($1000)								
Mean	59.39	104.97	58.83	131.49	68.58	165.82	40.66	237.49

AFPC 5/ 7/1990

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

Appendix Table 3. Effects of continuing the 1985 Farm Bill on moderate and large cotton farms in Mississippi and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficiency payments, 1990-1995.

	Mississippi		Texas Rolling PLains		Texas Coastal Bend
	Moderate	Large	Moderate	Large	Moderate
Probability of Survival (%)	100.0	100.0	74.0	45.0	100.0
Probability of Success (%)	81.0	42.0	37.0	28.0	96.0
Probability of > Equity (%)	0.0	0.0	2.0	0.0	66.0
Present Value Ending Net Worth PVENW ($1000)					
Mean	768.60	1620.53	111.35	30.09	443.59
PVENW as % of Beginning Net Worth (%)					
Mean	68.36	62.57	39.92	7.90	106.13
Average Annual Cash Receipts ($1000)					
Mean	593.94	1141.62	108.01	185.17	333.66
Average Annual Cash Expenses ($1000)					
Mean	568.36	1139.99	115.64	202.54	280.32
Average Annual Net Cash Farm Income ($1000)					
Mean	25.58	1.63	-7.63	-17.36	53.34
Average Annual Government Payments ($1000)					
Mean	49.67	93.42	19.27	34.09	48.74
Total Cash Receipts Year 1 ($1000)					
Mean	560.47	1065.78	98.59	174.17	315.89
Total Cash Receipts Year 2 ($1000)					
Mean	582.92	1131.06	100.93	179.24	322.85
Total Cash Receipts Year 3 ($1000)					
Mean	590.63	1142.00	105.92	187.61	334.28
Total Cash Receipts Year 4 ($1000)					
Mean	594.52	1137.33	122.77	218.83	329.85
Total Cash Receipts Year 5 ($1000)					
Mean	612.89	1178.55	115.28	206.65	339.99
Total Cash Receipts Year 6 ($1000)					
Mean	622.19	1194.98	112.47	192.48	359.09
Net Cash Farm Income Year 1 ($1000)					
Mean	33.89	23.46	-3.01	-5.27	52.89
Net Cash Farm Income Year 2 ($1000)					
Mean	47.84	67.47	-3.32	-5.86	55.86
Net Cash Farm Income Year 3 ($1000)					
Mean	46.32	52.72	-2.58	-8.41	64.51
Net Cash Farm Income Year 4 ($1000)					
Mean	24.59	-6.94	1.88	-2.06	52.98
Net Cash Farm Income Year 5 ($1000)					
Mean	12.49	-35.53	-12.36	-22.47	48.42
Net Cash Farm Income Year 6 ($1000)					
Mean	-11.65	-91.40	-23.78	-45.03	45.38

AFPC 5/ 7/1990

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

Appendix Table 4. Effects of 0-25 flex with a marketing loan for soybeans on moderate and large grain farms in North Dakota, Iowa, Missouri, and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficiency payments, 1990-1995.

	North Dakota		Iowa		Missouri		Texas-Northern Plains	
	Moderate	Large	Moderate	Large	Moderate	Large	Moderate	Large
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of > Equity (%)	48.0	40.0	99.0	100.0	74.0	100.0	22.0	100.0
Present Value Ending Net Worth (PVENW) ($1000)								
Mean	321.78	1160.38	357.36	482.04	722.67	1219.47	410.94	1425.19
PVENW as % of Beginning Net Worth (%)								
Mean	99.82	95.74	108.85	137.64	101.98	116.06	95.13	136.11
Average Annual Cash Receipts ($1000)								
Mean	191.76	492.32	142.78	244.81	194.97	362.91	307.60	834.95
Average Annual Cash Expenses ($1000)								
Mean	133.78	389.09	82.37	116.82	118.68	193.51	255.13	576.78
Average Annual Net Cash Farm Income ($1000)								
Mean	57.99	103.23	60.41	127.99	76.29	169.40	52.47	258.17
Average Annual Government Payments ($1000)								
Mean	26.37	63.21	17.01	27.42	17.92	32.97	50.77	140.94
Total Cash Receipts Year 1 ($1000)								
Mean	180.18	464.91	129.90	226.22	175.12	327.21	297.51	808.04
Total Cash Receipts Year 2 ($1000)								
Mean	189.14	482.63	141.34	241.63	193.69	360.75	305.10	826.74
Total Cash Receipts Year 3 ($1000)								
Mean	191.43	490.99	144.36	246.84	194.12	360.89	305.45	829.60
Total Cash Receipts Year 4 ($1000)								
Mean	194.85	494.98	141.88	242.36	197.37	366.78	305.49	829.86
Total Cash Receipts Year 5 ($1000)								
Mean	196.44	506.74	146.80	251.02	201.03	373.53	309.97	842.05
Total Cash Receipts Year 6 ($1000)								
Mean	198.55	513.65	152.42	260.76	208.51	388.28	322.07	873.42
Net Cash Farm Income Year 1 ($1000)								
Mean	55.67	99.90	50.23	109.94	61.61	143.64	54.78	254.48
Net Cash Farm Income Year 2 ($1000)								
Mean	59.65	111.21	62.96	131.59	80.26	176.86	63.75	280.91
Net Cash Farm Income Year 3 ($1000)								
Mean	60.77	110.54	64.72	134.42	81.92	175.36	57.81	276.34
Net Cash Farm Income Year 4 ($1000)								
Mean	61.57	97.17	61.21	126.92	82.88	172.55	50.48	253.89
Net Cash Farm Income Year 5 ($1000)								
Mean	53.08	95.54	64.19	129.00	77.61	172.33	45.01	240.08
Net Cash Farm Income Year 6 ($1000)								
Mean	57.17	104.99	59.15	136.06	73.49	175.65	43.00	243.31

AFPC 5/ 7/1990

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

Appendix Table 5. Effects of 0-25 flex with a marketing loan for soybeans on moderate and large cotton farms in Mississippi and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficiency payments, 1990-1995.

	Mississippi		Texas Rolling PLains		Texas Coastal Bend
	Moderate	Large	Moderate	Large	Moderate
Probability of Survival (%)	100.0	100.0	74.0	44.0	100.0
Probability of Success (%)	84.0	58.0	34.0	25.0	96.0
Probability of > Equity (%)	0.0	0.0	1.0	0.0	64.0
Present Value Ending Net Worth (PVENW) ($1000)					
Mean	779.01	1701.73	106.70	18.76	440.99
PVENW as % of Beginning Net Worth (%)					
Mean	69.28	65.71	38.25	4.93	105.50
Average Annual Cash Receipts ($1000)					
Mean	622.85	1250.42	106.37	182.12	332.62
Average Annual Cash Expenses ($1000)					
Mean	594.91	1230.07	115.34	201.81	279.93
Average Annual Net Cash Farm Income ($1000)					
Mean	27.94	20.35	-8.97	-19.70	52.69
Average Annual Government Payments ($1000)					
Mean	51.27	96.40	19.62	34.72	48.31
Total Cash Receipts Year 1 ($1000)					
Mean	559.90	1064.01	98.62	174.21	315.89
Total Cash Receipts Year 2 ($1000)					
Mean	608.97	1235.21	99.19	176.19	323.56
Total Cash Receipts Year 3 ($1000)					
Mean	623.00	1263.90	104.13	184.43	328.06
Total Cash Receipts Year 4 ($1000)					
Mean	636.12	1288.28	120.02	213.79	329.81
Total Cash Receipts Year 5 ($1000)					
Mean	649.07	1314.33	111.45	198.32	339.19
Total Cash Receipts Year 6 ($1000)					
Mean	660.08	1336.79	112.63	192.30	359.20
Net Cash Farm Income Year 1 ($1000)					
Mean	33.32	21.69	-2.71	-4.75	52.89
Net Cash Farm Income Year 2 ($1000)					
Mean	44.34	69.37	-4.24	-7.49	57.63
Net Cash Farm Income Year 3 ($1000)					
Mean	47.90	69.46	-3.75	-10.52	59.58
Net Cash Farm Income Year 4 ($1000)					
Mean	34.02	35.53	-0.11	-5.74	53.03
Net Cash Farm Income Year 5 ($1000)					
Mean	16.13	-10.25	-16.13	-30.35	47.66
Net Cash Farm Income Year 6 ($1000)					
Mean	-8.06	-63.72	-24.43	-46.61	45.37

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

Appendix Table 6. Effects of Administration's proposal on moderate and large grain farms in North Dakota, Iowa, Missouri, and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficier payments, 1990-1995.

	North Dakota		Iowa		Missouri		Texas-Northern Plains	
	Moderate	Large	Moderate	Large	Moderate	Large	Moderate	Large
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of > Equity (%)	57.0	41.0	86.0	100.0	48.0	100.0	62.0	100.0
Present Value Ending Net Worth (PVENW) ($1000)								
Mean	327.90	1169.10	354.05	486.07	707.26	1203.00	441.35	1487.88
PVENW as % of Beginning Net Worth (%)								
Mean	101.72	96.46	107.84	138.79	99.81	114.50	102.16	142.10
Average Annual Cash Receipts ($1000)								
Mean	195.25	500.44	144.53	251.40	190.96	356.38	325.20	891.95
Average Annual Cash Expenses ($1000)								
Mean	135.35	395.06	84.74	121.73	120.35	195.66	262.64	619.59
Average Annual Net Cash Farm Income ($1000)								
Mean	59.90	105.37	59.79	129.66	70.61	160.72	62.56	272.37
Average Annual Government Payments ($1000)								
Mean	26.91	67.10	13.91	24.93	16.27	29.76	45.31	89.31
Total Cash Receipts Year 1 ($1000)								
Mean	179.89	464.11	129.75	225.49	174.81	326.68	297.25	807.28
Total Cash Receipts Year 2 ($1000)								
Mean	191.35	488.98	146.75	254.80	196.00	365.27	326.54	904.81
Total Cash Receipts Year 3 ($1000)								
Mean	195.74	502.19	146.90	255.87	190.19	354.52	325.60	892.39
Total Cash Receipts Year 4 ($1000)								
Mean	198.19	503.83	142.03	247.71	189.71	353.94	326.91	888.34
Total Cash Receipts Year 5 ($1000)								
Mean	203.19	521.16	149.29	259.74	194.46	362.78	330.11	897.02
Total Cash Receipts Year 6 ($1000)								
Mean	203.12	522.35	152.44	264.78	200.61	375.09	344.81	961.88
Net Cash Farm Income Year 1 ($1000)								
Mean	55.38	99.10	50.07	108.89	61.31	143.11	54.69	254.15
Net Cash Farm Income Year 2 ($1000)								
Mean	60.17	111.04	65.50	139.12	80.70	178.65	75.53	309.17
Net Cash Farm Income Year 3 ($1000)								
Mean	63.11	114.32	64.96	138.61	76.66	167.51	67.96	290.15
Net Cash Farm Income Year 4 ($1000)								
Mean	62.89	98.64	58.19	126.18	73.98	157.83	63.21	262.26
Net Cash Farm Income Year 5 ($1000)								
Mean	57.66	101.63	63.19	131.33	68.63	158.82	56.54	242.17
Net Cash Farm Income Year 6 ($1000)								
Mean	60.21	107.50	56.82	133.85	62.39	158.43	57.45	276.31

AFPC 5/ 7/1990

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

Appendix Table 7. Effects of Administration's proposal on moderate and large cotton farms in Mississippi and Texas, assuming low debt (10% real estate and 20% other) and payment limits do not effectively reduce deficiency payments, 1990-1995.

	Mississippi		Texas Rolling PLains		Texas Coastal Bend
	Moderate	Large	Moderate	Large	Moderate
Probability of Survival (%)	100.0	100.0	69.0	41.0	99.0
Probability of Success (%)	76.0	33.0	40.0	25.0	92.0
Probability of > Equity (%)	0.0	0.0	5.0	0.0	74.0
Present Value Ending Net Worth (PVENW) ($1000)					
Mean	755.54	1564.34	110.68	26.46	538.24
PVENW as % of Beginning Net Worth (%)					
Mean	67.20	60.40	39.68	6.95	128.77
Average Annual Cash Receipts ($1000)					
Mean	649.77	1308.91	126.57	195.21	483.20
Average Annual Cash Expenses ($1000)					
Mean	626.97	1319.50	132.61	213.83	401.46
Average Annual Net Cash Farm Income ($1000)					
Mean	22.79	-10.59	-6.04	-18.62	81.74
Average Annual Government Payments ($1000)					
Mean	58.32	109.58	17.19	36.78	30.30
Total Cash Receipts Year 1 ($1000)					
Mean	557.06	1059.78	98.74	174.55	312.78
Total Cash Receipts Year 2 ($1000)					
Mean	644.62	1309.77	117.97	190.32	474.51
Total Cash Receipts Year 3 ($1000)					
Mean	651.85	1322.29	123.92	199.35	497.43
Total Cash Receipts Year 4 ($1000)					
Mean	668.36	1357.11	149.28	233.48	504.78
Total Cash Receipts Year 5 ($1000)					
Mean	680.99	1385.32	141.75	216.34	541.23
Total Cash Receipts Year 6 ($1000)					
Mean	695.71	1419.19	139.92	213.66	571.10
Net Cash Farm Income Year 1 ($1000)					
Mean	30.48	17.46	-2.89	-4.94	50.10
Net Cash Farm Income Year 2 ($1000)					
Mean	44.26	47.02	-4.20	-7.54	72.96
Net Cash Farm Income Year 3 ($1000)					
Mean	41.29	29.40	-3.59	-10.57	90.59
Net Cash Farm Income Year 4 ($1000)					
Mean	28.31	-1.24	4.70	-4.20	85.21
Net Cash Farm Income Year 5 ($1000)					
Mean	7.78	-52.65	-7.86	-26.53	95.95
Net Cash Farm Income Year 6 ($1000)					
Mean	-15.35	-103.53	-18.02	-42.02	97.06

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

Probability of Economic Success - Chance that the farm will earn a return on initial equity greater than 5%.

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

PVENW as Percent of Beginning Net Worth -Ratio of present value of ending net worth and initial net worth (measures real change in equity).

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

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

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