POLICY WORKING PAPER

1990 FARM BILL ISSUES: FARM LEVEL EFFECTS OF FROZEN TARGET PRICES, FLEXIBILITY AND MILK PRICE SUPPORTS

AFPC Policy Working Paper 90-3

Department of Agricultural Economics
Texas Agricultural Experiment Station
Texas Agricultural Extension Service
Texas A&M University

AFPC

AGRICULTURAL & FOOD POLICY CENTER

A policy working paper is designed to provide economic research on a timely basis. It is an interim product of a larger AFPC research project which will eventually be published as a policy research report. These results are published at this time because they are believed to contain relevant information to the resolution of current policy issues. AFPC welcomes comments and discussions of these results and their implications. Address such comments to the author(s) at:

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This working paper was prepared at the request of the National Governors Association. It is designed to summarize the results of farm level research related to major issues involved in the 1990 farm bill debate including frozen target prices, flexibility, and milk price supports. The options discussed do not relate directly to the provisions of any particular bill and/or proposal, although some have definite similarities to proposals currently before the Congress.

The results included do not represent new research but are a compilation of research previously published in individual AFPC working papers on flexibility and dairy policy. Sector level commodity impacts of the frozen target price and flexibility analyses are based on the results of research published by FAPRI. The dairy analyses are based on price estimates provided by ASCS/USDA.

In each case, farm level impacts are evaluated utilizing the FLIPSIM farm level simulation model developed by Richardson and Nixon. The farms utilized in the analyses were developed by a panel of farmers located in major production regions of the United States (Figure 1). These panel farms are designed to be representative of moderate and/or large commercial farming operations located in their respective production areas. The moderate size farm is specified as a family operation which, under normal economic circumstances, would require the operator to be employed full-time on the farm. The large farm is two or three times the size of the moderate farm and is designed to capture a larger share of the economies of size and volume of production that are typical of commercial agriculture in the region.

Frozen Target Prices

For many observers of the economic environment within which the 1990 farm bill is being developed, a most likely policy scenario involves the freezing of target prices. This action would

follow five successive years of approximately 2 percent annual reductions in target prices for the major program crops, as well as substantially lower loan rates under the 1985 farm bill. These reductions in price and income support levels have created substantial interest in the regional impacts of frozen target prices. The results in the summary are presented for the North Dakota, Iowa, Missouri, Mississippi, and three Texas panel farms. A brief description of the physical and financial characteristics for the moderate and large panel farms are contained in Tables 1 and 2, respectively.

Figures 2-14 trace the net cash income experience in nominal and real terms for each of these farms over the period 1990-95.[1] The moderate size North Dakota, Iowa, and Missouri farms each experience a relatively small rise in nominal net cash income over the life of the bill although their net cash farm income in 1990 dollars (real income) declines by 10-15 percent over the period. Farms in the Texas Southern and Northern High Plains, as well as the Texas Coastal Bend farm, experience a more substantial real income decline. The Mississippi farm experiences a nominal net cash farm income loss by 1995. The financial performance of the Mississippi farm in particular and the Southern farms in general may partially reflect the higher chemical costs for controlling weeds, insects, and other pests.

Figure 15 provides an indication of the ability of each of the seven farms to accumulate wealth over the life of the 1990 farm bill. The North Dakota, Iowa, and Missouri grain farms are able to increase real net worth by 5-10 percent over the period. The Texas Northern and Southern High Plains farms experience a modest 2-4 percent decline in real net worth while the Mississippi cotton/soybean operation loses 30 percent of its equity by 1995. The Texas Coastal Bend cotton/feed grains farm experiences a 9 percent increase in real net worth over the 1990-1995 period.

On the average, large farms do better than moderate size farms in accumulating real net worth (Figure 15). However, both the large North Dakota and Mississippi farms lag in wealth accumulation relative to their smaller counterparts.

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[1]Net cash farm income equals total revenue, including government payments, minus total cash expenses. Producers must pay family living expenses, principal payments, and replace equipment with net cash farm income.

Based on the farms analyzed, frozen target prices will allow full-time crop farms with low to moderate debt to maintain their current status in terms of net worth. All farms, however, are likely to experience cash flow problems as real net cash farm income declines significantly. This cash flow decline will place added pressure on those farms carrying moderate to heavy debt. Larger farms that are currently making a profit will continue to grow, barring a tightening of payment limit provisions and/or enforcement policies. No relief would exist for farms that are currently experiencing loss conditions.

Flexibility

The base acreage under which farmers receive payments has effectively been frozen for the majority of the 1980s. While farmers technically could plant outside the program and thus build base, the loss of program benefits has made this option economically infeasible for most farms. Therefore, production patterns are said to be essentially frozen and dictated by historical base allocations. Flexibility would allow farmers to adjust their crop plantings based on economic considerations without being punished by loss of base for future program determinations. The Bush administration proposed full flexibility while others, including the House markup bill, opted for limitations on flexibility in the range of 20-25 percent. Utilizing the panel crop farms, two flexibility options were analyzed.

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.

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 an oilseed 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 oilseed marketing loan rate was assumed to be $5.50 per bushel for soybeans and $8.80/cwt for sunflowers. Target prices were assumed to be frozen as in the baseline, and the acreage reduction requirements were the same as in the baseline.

Under limited flex, FAPRI's aggregate analysis projected some initial strength in feed grain prices. However, wheat prices and cotton prices were not materially different from the baseline. The soybean marketing loan would lead to some softness in price due to a tendency in the Corn Belt to flex to soybeans.

The panel farms' cropping patterns reflect this relatively modest reaction to the limited flex policies. 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 oilseed 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 approximate the Bush administration's farm bill proposal as detailed in the publication titled *1990 Farm Bill: Proposal of the Administration.* Target prices, however, were frozen at 1990 levels and ARP requirements were maintained as in the baseline.

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 feed grain prices as farmers switched acreage to soybeans, realizing they would receive feed grain deficiency payment protection. Soybean prices fell as much as $0.90 per bushel in response to higher production. Wheat prices fell marginally while cotton prices dropped as much as 4 cents per pound from the baseline.

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. 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 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. Flexibility increases income only in situations with profitable alternatives. As indicated in Figures 16 and 17, for example, the Iowa corn-soybean farms do not benefit appreciably from flexibility. The reason is that these farms are already producing those crops having the greatest income earning potential in approximately the "right" combination. (Crop combinations that are out of line with accepted cultural practices for long-term profitability were not considered.) On the other hand, the Texas Northern High Plains and Coastal Bend farms benefit from flexibility as they adjust their crop mix to the highest income alternatives. The Northern High Plains farm produces more feed grains while the Coastal Bend farm produces more cotton.

Based on the farms analyzed, the existence of profitable alternative crops (or less unprofitable alternatives) is essential to the success of flexibility in increasing farm income,

given accepted cultural practices. Monoculture regions obviously gain nothing from flexibility. Likewise, farms that are already producing the most profitable combination of crops have little to gain from flexibility. Based on FAPRI results, wheat, cotton and soybeans appear to gain the most acreage under the flexibility option and, therefore, experience the largest price decline with a flexibility policy.

Dairy Policy

Since 1983, the milk price support level has been reduced from $13.10 per cwt to the current level of $10.10. Contemporary proposals would set the minimum support price at $10.10 per cwt with flexibility for upward adjustments if purchases fall below specified levels and for production controls if CCC purchases rise above specified levels. The following analysis is based upon 1991-1995 price projections made by ASCS/USDA (Figure 18). The large price decline from 1990 to 1991 is a result of favorable market conditions not projected to carry over into 1991. The farms analyzed include a 175-cow Wisconsin farm, 300- and 720-cow Erath County Texas farms, and a 1,600-cow New Mexico farm as described in Table 3.

After the adjustment in milk price in 1991, incomes leveled out at a significantly lower level (Figures 19-22). Real net cash farm income declined more in Wisconsin (Figure 19) than in the other regions. Marked differences are indicated in the extent to which the farms accumulate wealth (Figure 23). For the large Texas and New Mexico farms, the real net worth rose more than 35 percent over the 1990-1995 period. On the other hand, the Wisconsin farm barely maintained its real net worth while the net worth on the 300-cow Erath County dairy farm fell by more than 20 percent.

The results of this analysis are symptomatic of the contemporary regional and efficiency conditions associated with different sizes and types of farms in the dairy industry. These differences are more likely to be addressed by the national federal milk marketing order hearing announced by the Secretary of Agriculture than by farm bill deliberations.

Implications

With federal budget constraints looming as a major factor affecting the provisions of the 1990 farm bill, the predominant expectation is for frozen target and support prices at their 1990 levels. This policy scenario would have the effect of perpetuating current competitive forces operating in agriculture. That is, farms that are currently operating at a profit would tend to experience some erosion in their earnings consistent with prevailing inflationary pressures. Those farms already experiencing financial stress would not find relief in a bill with frozen target prices. However, a farm that finds itself constrained from switching to more profitable alternative crops due to current base restrictions could benefit from flexibility provisions.

Such generalizations must be tempered by the reality that agriculture is highly diverse regionally in terms of debt levels and economies of size. While many full-time farms with modest debt could likely maintain their equity under frozen target and support prices, this study and related analyses indicate that regional farm financial problems will likely be exacerbated on higher debt farms. Even with modest debt, financial problems are apparent for dairy farms located in higher cost regions such as the Southeast, in the soybean and cotton growing regions of the Delta, in the rice growing regions of the Texas Upper Gulf Coast, and in the Texas Rolling Plains. However, with a relatively limited number of panel farms, all of the potential regional problem areas cannot be identified.

Table 1. Moderate Size Panel Crop Farm Characteristics.*

	North Dakota	Iowa	Missouri	Mississippi	Southern High Plains	Northern High Plains	Coastal Bend
Acres Cultivated							
Wheat	800		200			600	
Corn		320	300			400	95
Barley	400						
Soybeans		325	500	560			
Cotton				840	911		556
Sunflowers	400						
Sorghum						280	689
Total Acreage	1600	680	1100	1470	1360	1600	1400
Owned	400	140	550	735	340	320	300
Leased	1200	540	550	735	1020	1280	1100
Assets ($1,000)	392	385	837	1314	274	481	478
Real Estate	175	254	553	735	151	170	324
Other	217	131	284	579	123	311	154
Net Worth ($1,000)	322	318	708	1124	233	392	415
Cash Receipts ($1,000)	193	143	191	593	157	307	334

* FAPRI March Baseline for 1990 crop prices with 10 percent debt on real estate and 20 percent debt on other debt.

Table 2. Large Size Panel Crop Farm Characteristics.*

	North Dakota	Iowa	Missouri	Mississippi	Southern High Plains	Northern High Plains
Acres Cultivated						
Wheat	2200		400			1680
Corn		704	600			1048
Barley	1000					
Soybeans		576	1000	1500		
Cotton				1500	2210	
Sunflowers	800					
Sorghum						847
Total Acreage	4000	1320	2100	3300	3310	4500
Owned	1600	132	840	1650	827.5	900
Leased	2400	1188	1260	1650	2482.5	3600
Assets ($1,000)	1436	449	1244	3011	670	1239
Real Estate	718	231	900	1815	378	495
Other	718	218	344	1196	292	744
Net Worth ($1,000)	1212	350	1051	2590	574	1005
Cash Receipts ($1,000)	491	248	354	1142	370	834

* FAPRI March Baseline for 1990 crop prices with 10 percent debt on real estate and 20 percent debt on other debt.

Table 3. Panel Dairy Farm Characteristics, January 1, 1990.*

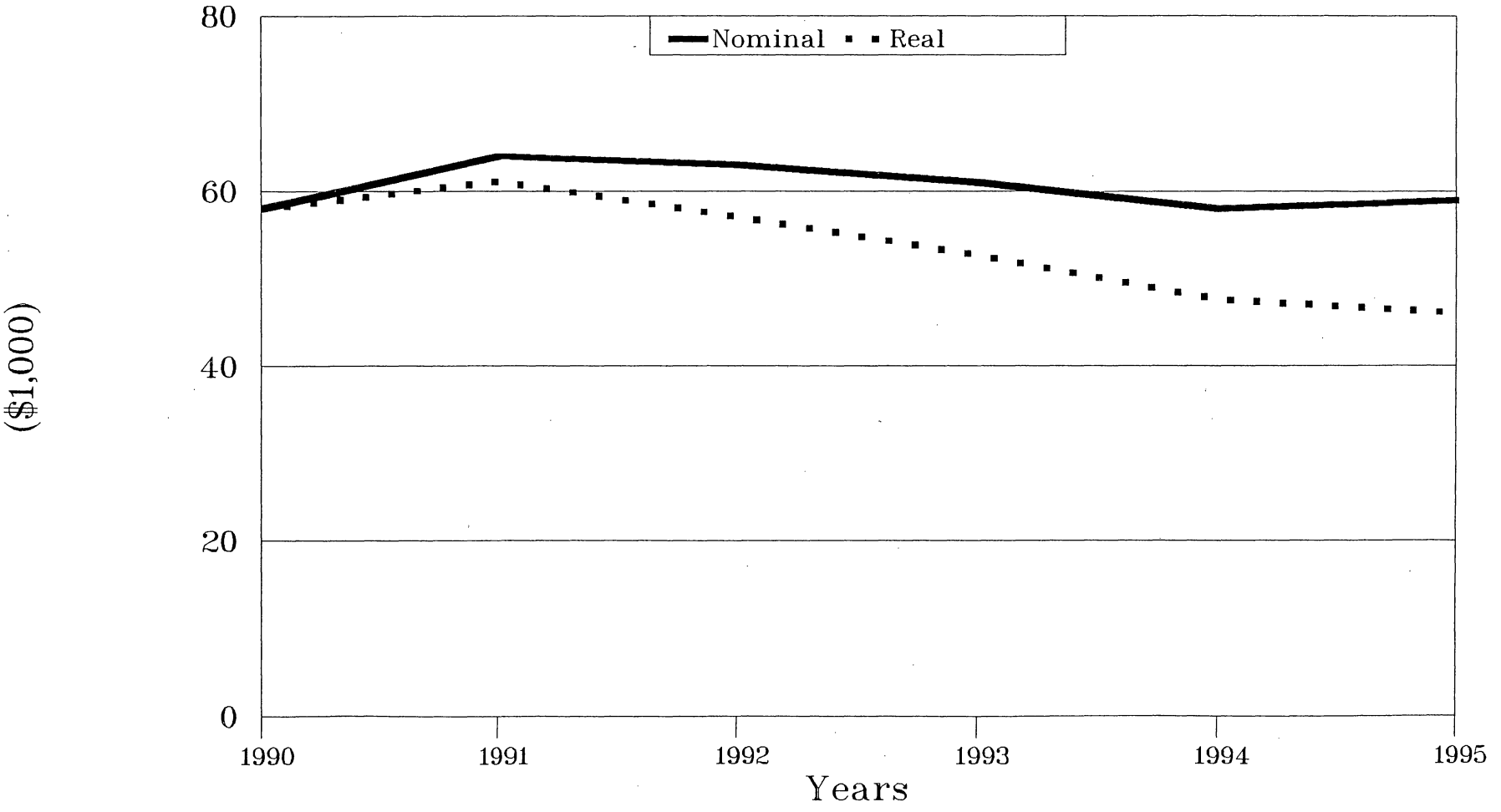
	Wisconsin Large	New Mexico Large	Texas Erath Co. Moderate	Texas Erath Co. Large
Total Cows	175	1600	300	720
Lactating	149	1300	250	600
Dry	26	300	50	120
Bulls	1	50	12	20
Number of Cows Culled Per Year	70	480	60	216
Milk Production/Cow	180.00	183.90	136.90	167.30
Raise Portion of Feed	Yes	Yes	Yes	No
Raise Replacements	Yes	Yes	No	No
No. Full-time Employees	2.5	20	4	7
Off-farm Income	$13,000	$0	$6,000	$0
Minimum Family Living Expenses	$40,000	$36,000	$24,000	$36,000
Total Acreage	550	150	606	160
Owned	330	150	303	160
Leased	220	0	303	0
Assets ($1,000)	1,070	5,029	1,026	1,359
Real Estate	531	2,025	419	510
Livestock	310	2,772	465	687
Machinery	229	232	142	162
Net Worth ($1,000)	879	4,226	862	1,138
Cash Receipts ($1,000)	458	4,635	674	1,854

* FAPRI March Baseline for 1990 crop prices with 10 percent debt on real estate and 20 percent debt on other debt.

Figure 1. Panel Crop and Dairy Farms

Figure 2. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

Moderate Size North Dakota Farm



Crops: Wheat, Barley, Sunflowers
6/7/90 AFPC

Figure 3. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

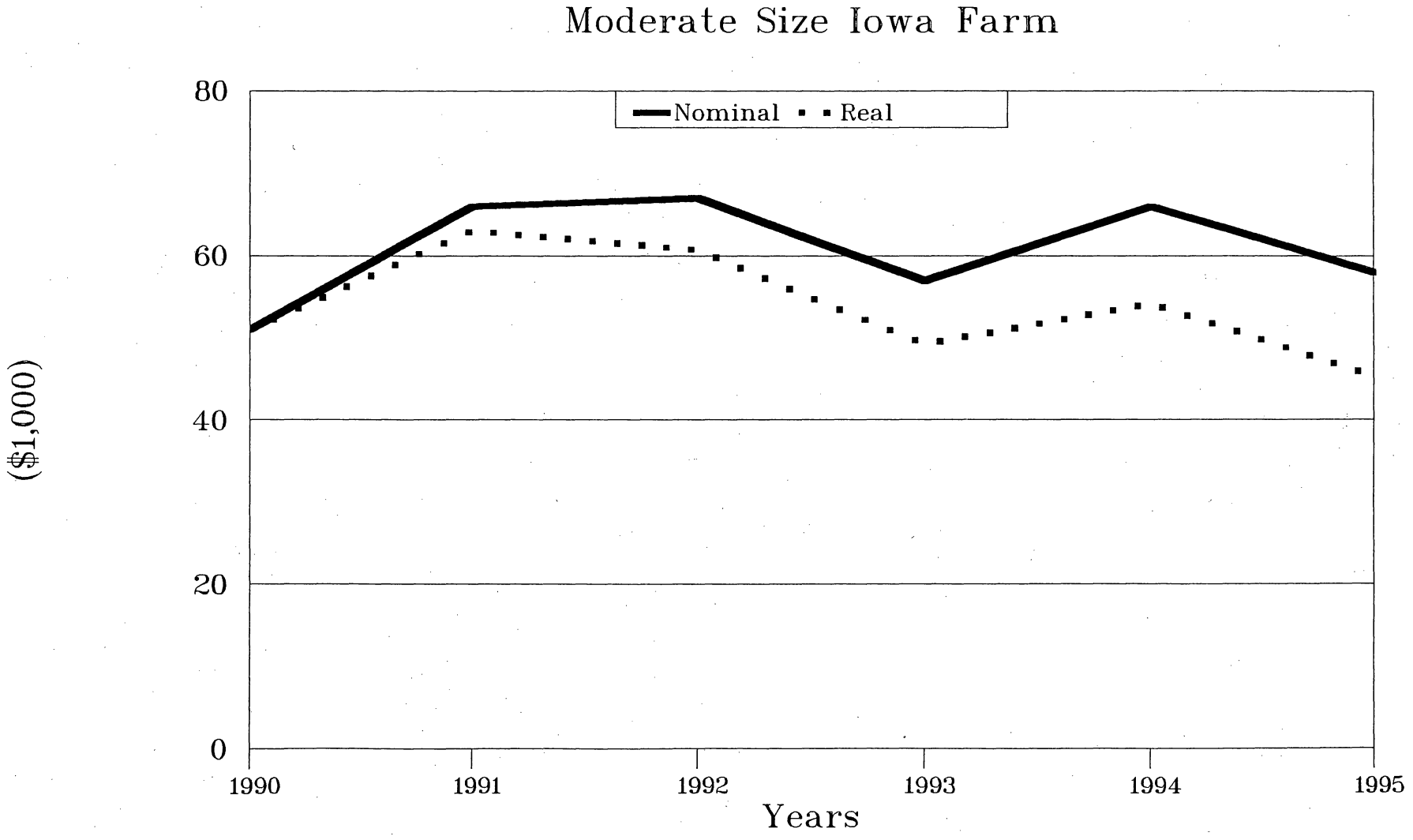


Figure 4. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

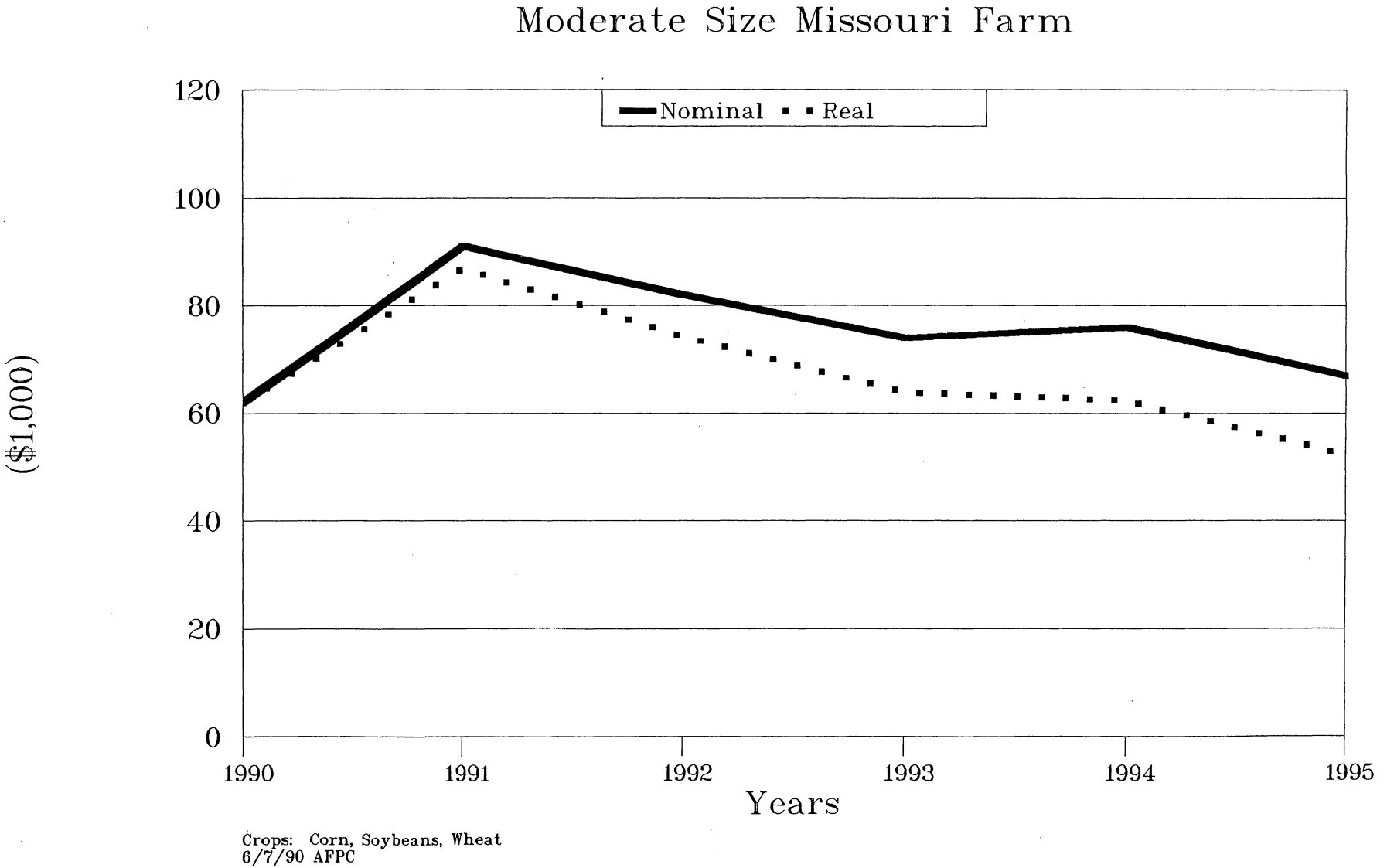
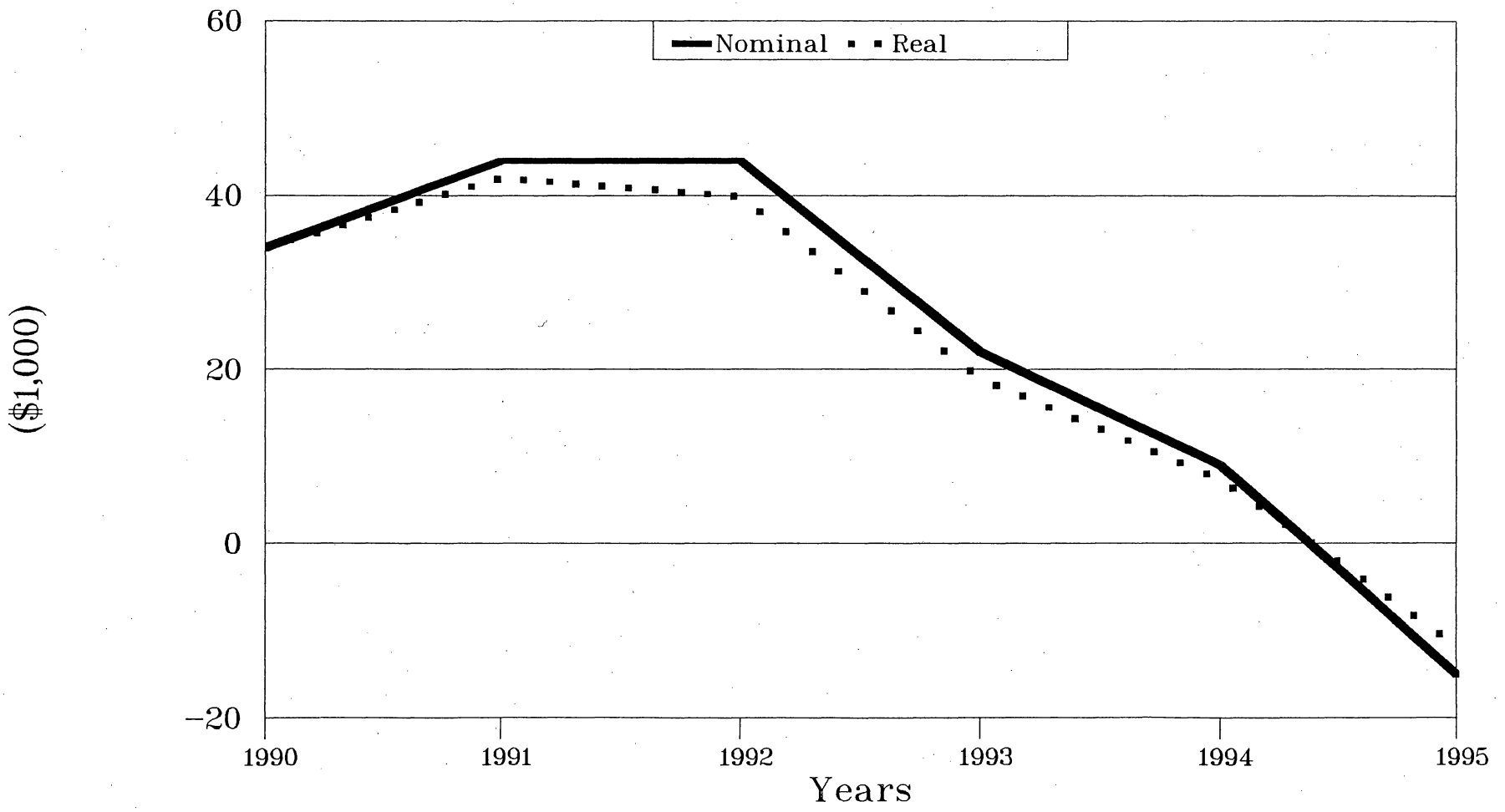


Figure 5. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

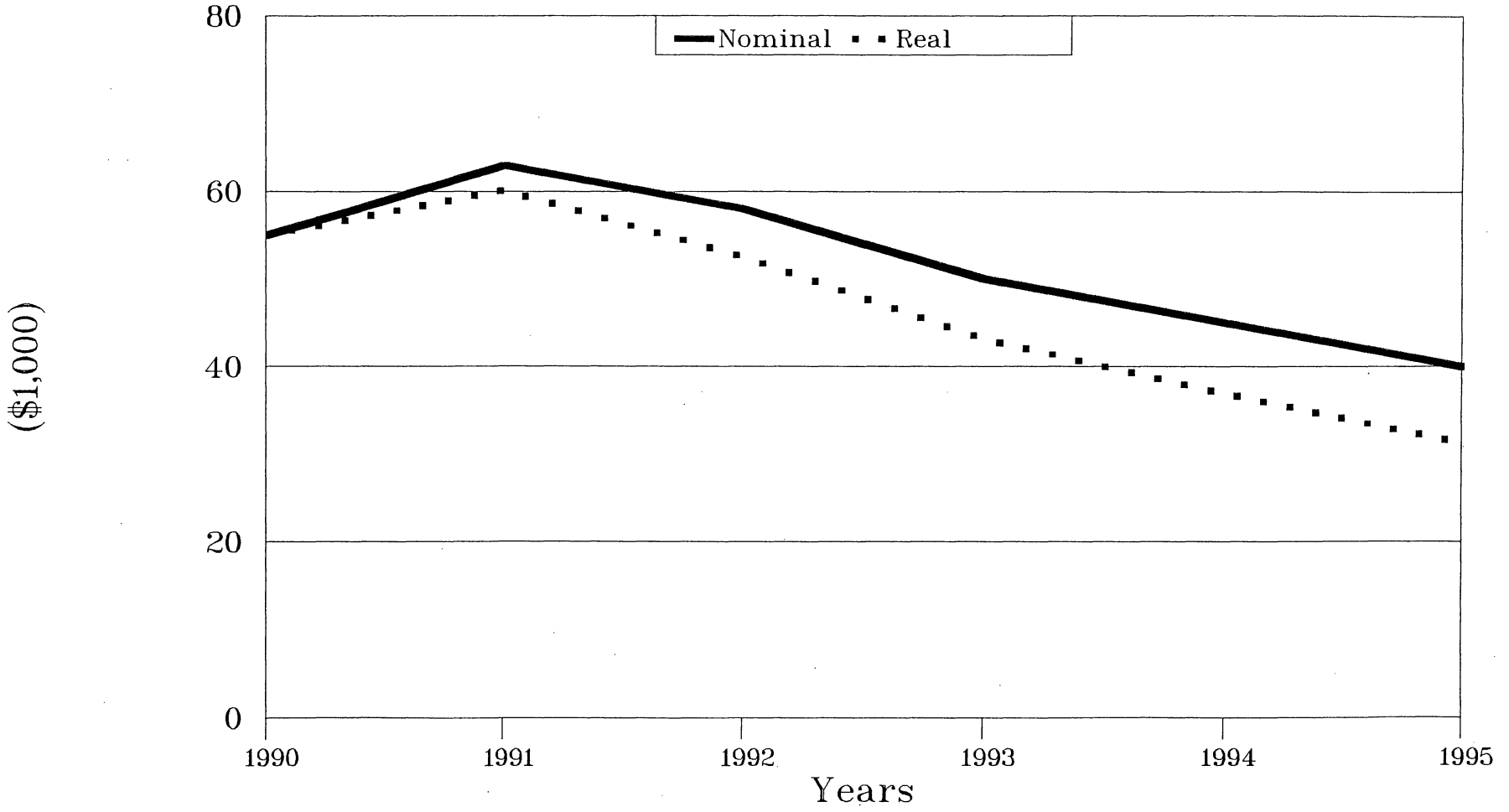
Moderate Size Mississippi Farm



Crops: Cotton, Soybeans
6/7/90 AFPC

Figure 6. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

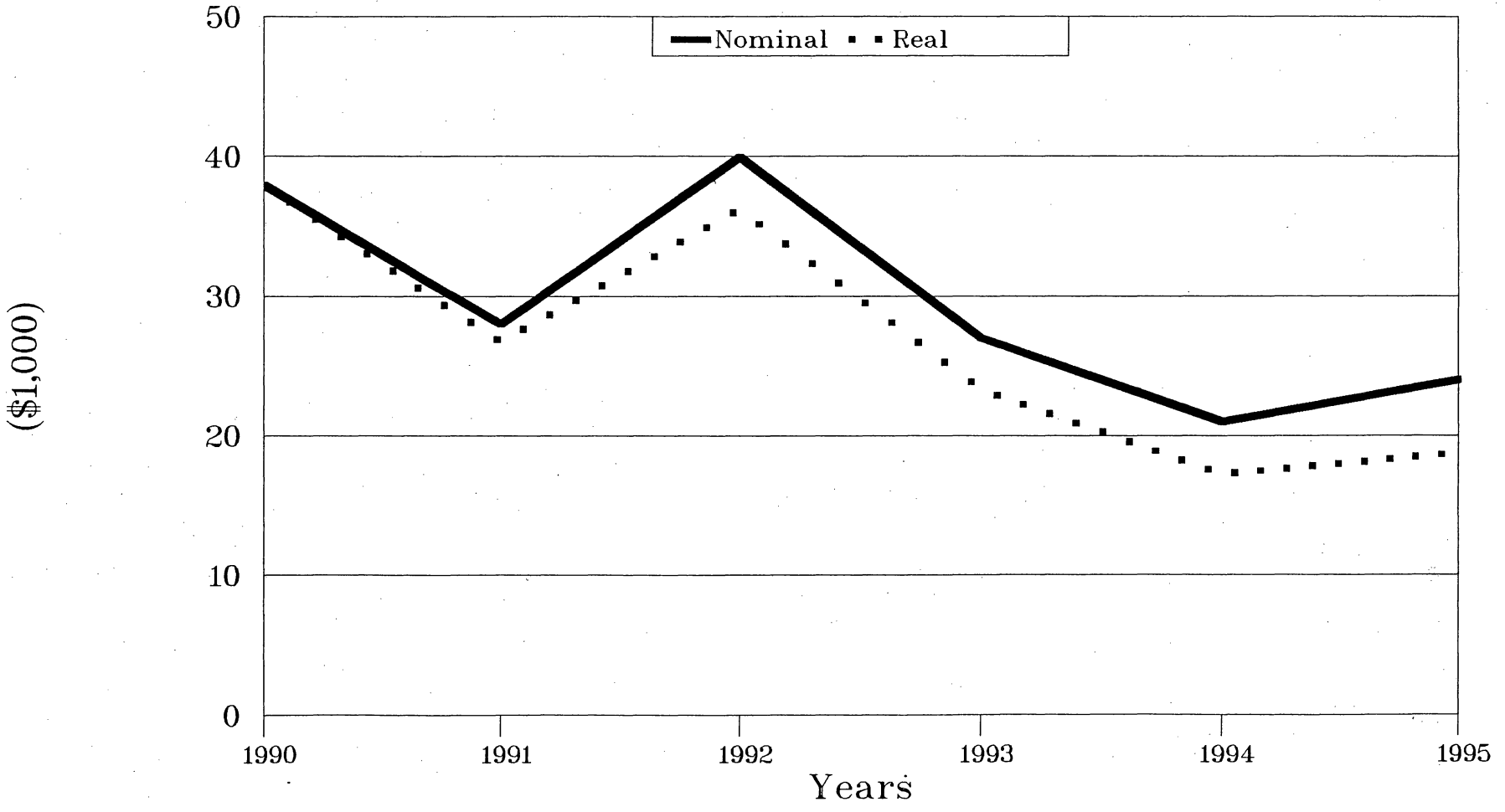
Moderate Size Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
6/7/90 AFPC

Figure 7. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

Moderate Size Southern High Plains Farm



Crops: Cotton
6/7/90 AFPC

Figure 8. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

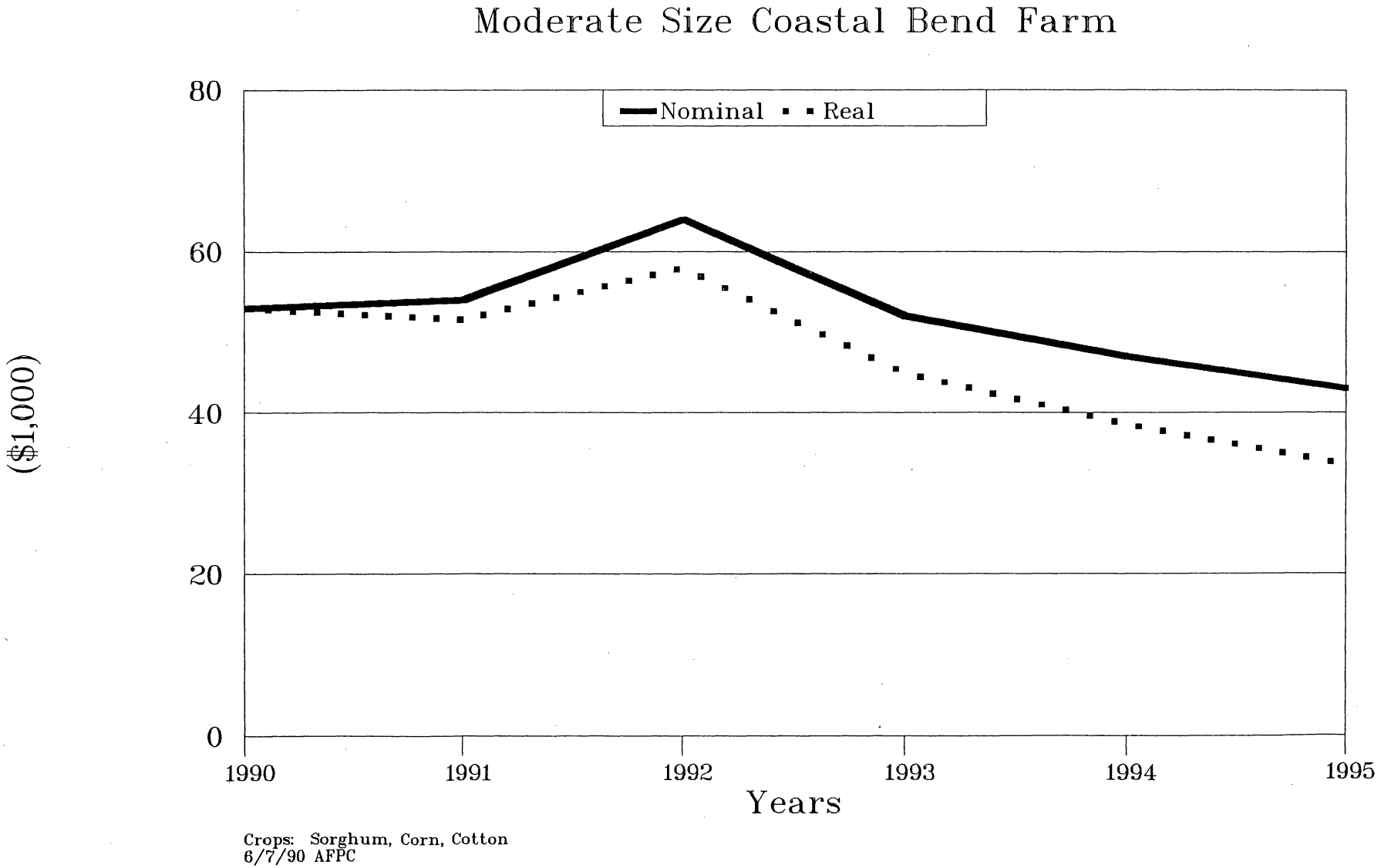
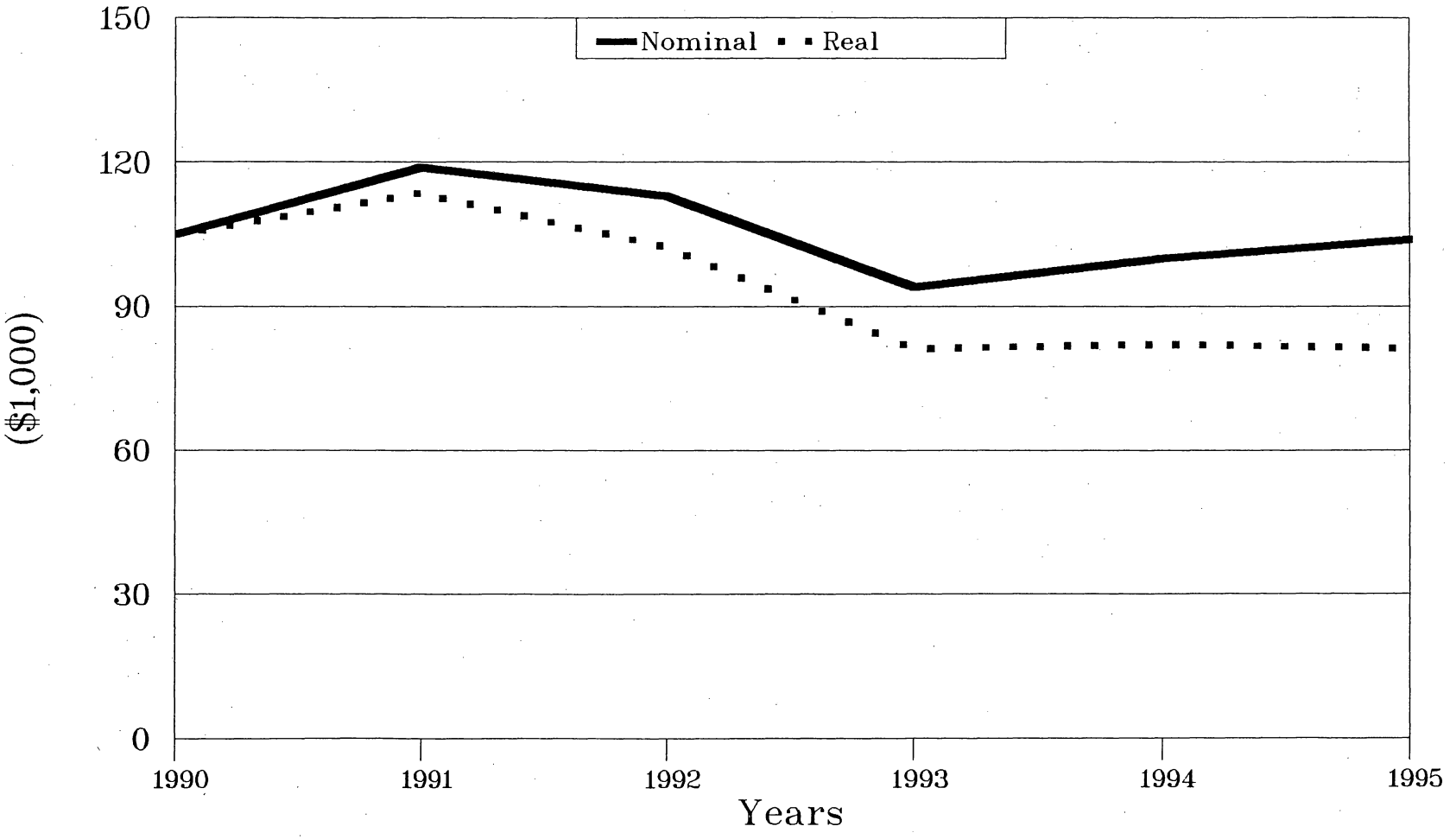


Figure 9. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

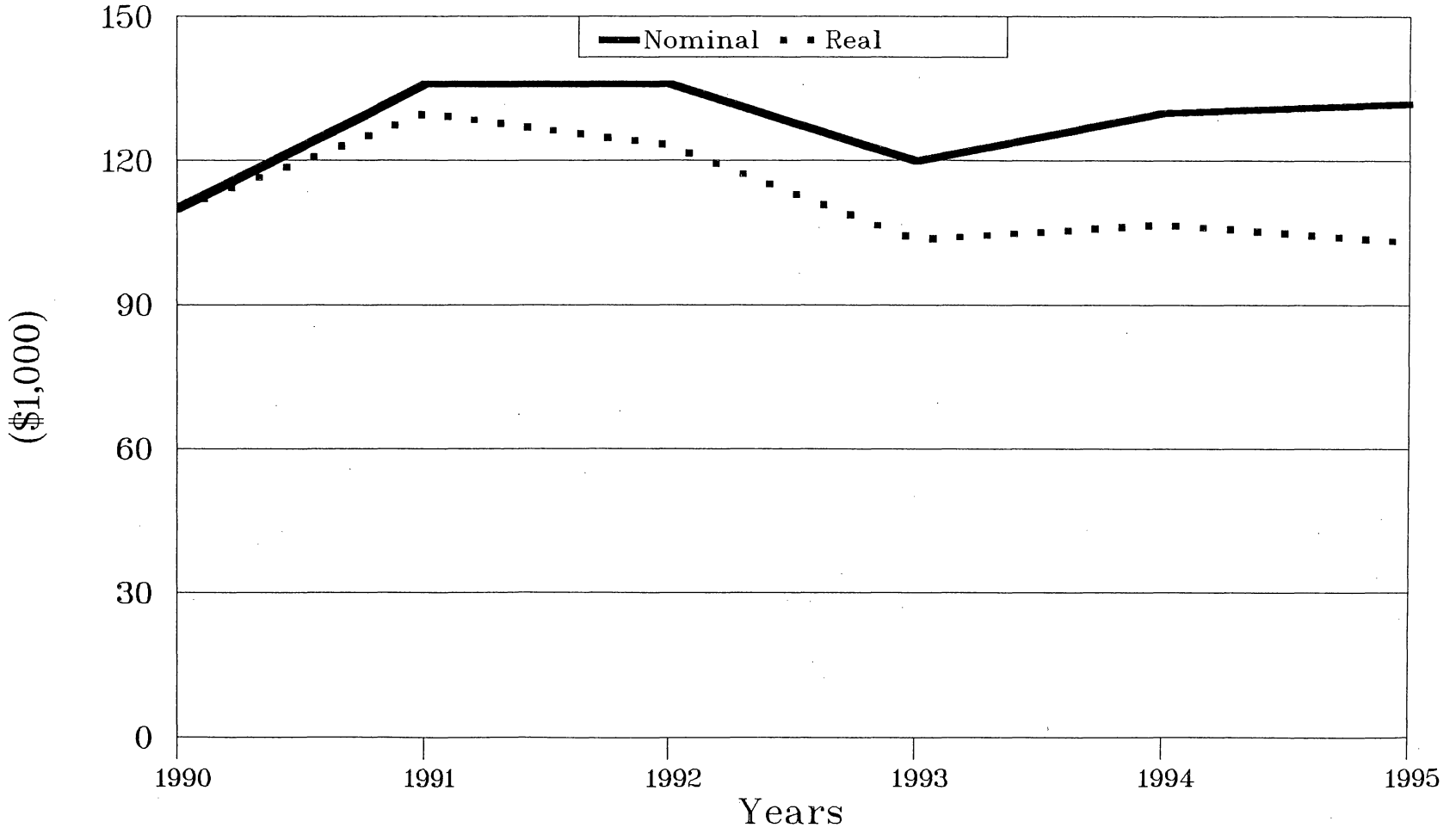
Large Size North Dakota Farm



Crops: Wheat, Barley, Sunflowers
6/7/90 AFPC

Figure 10. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

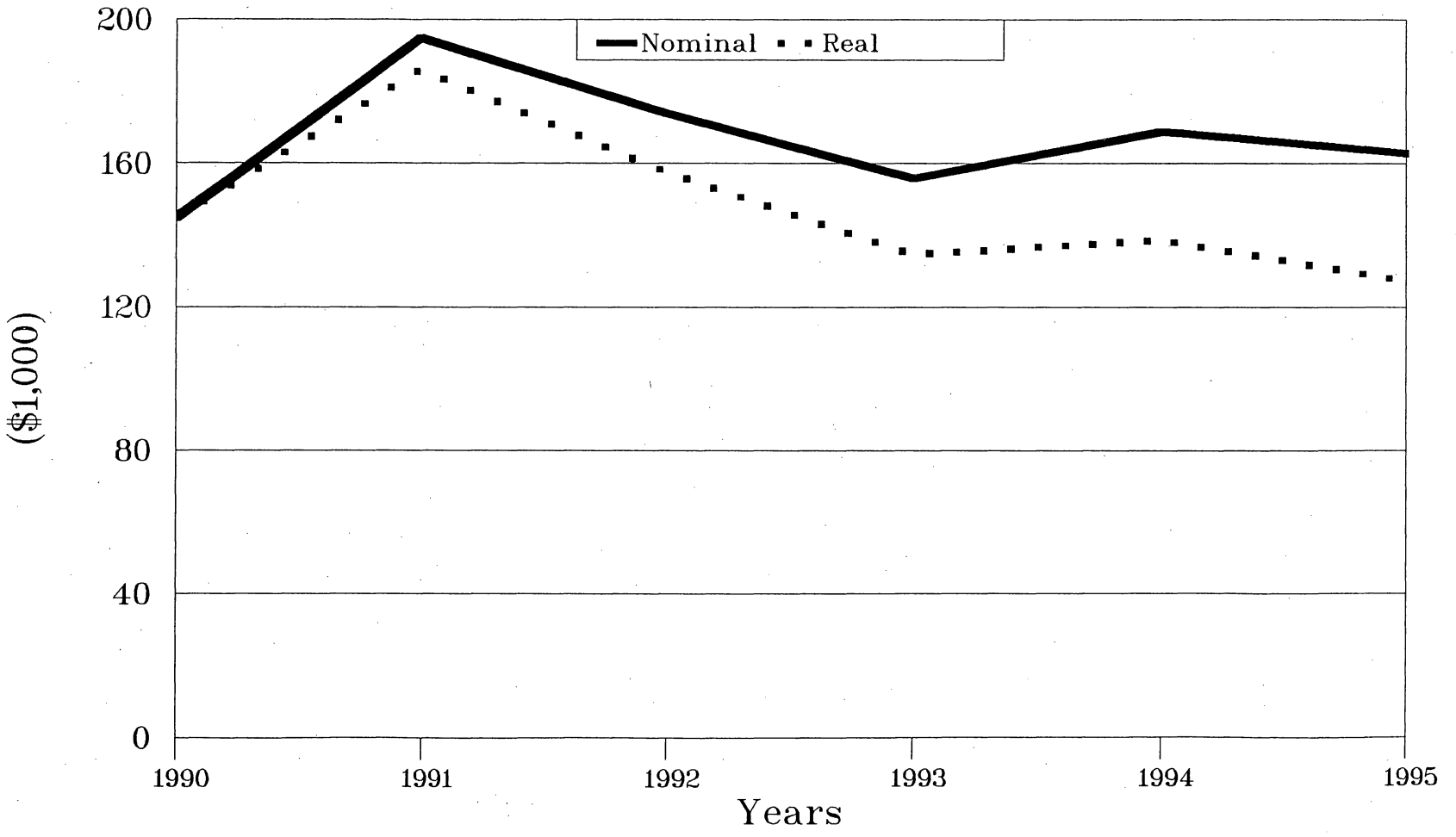
Large Size Iowa Farm



Crops: Corn, Soybeans
6/7/90 AFPC

Figure 11. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

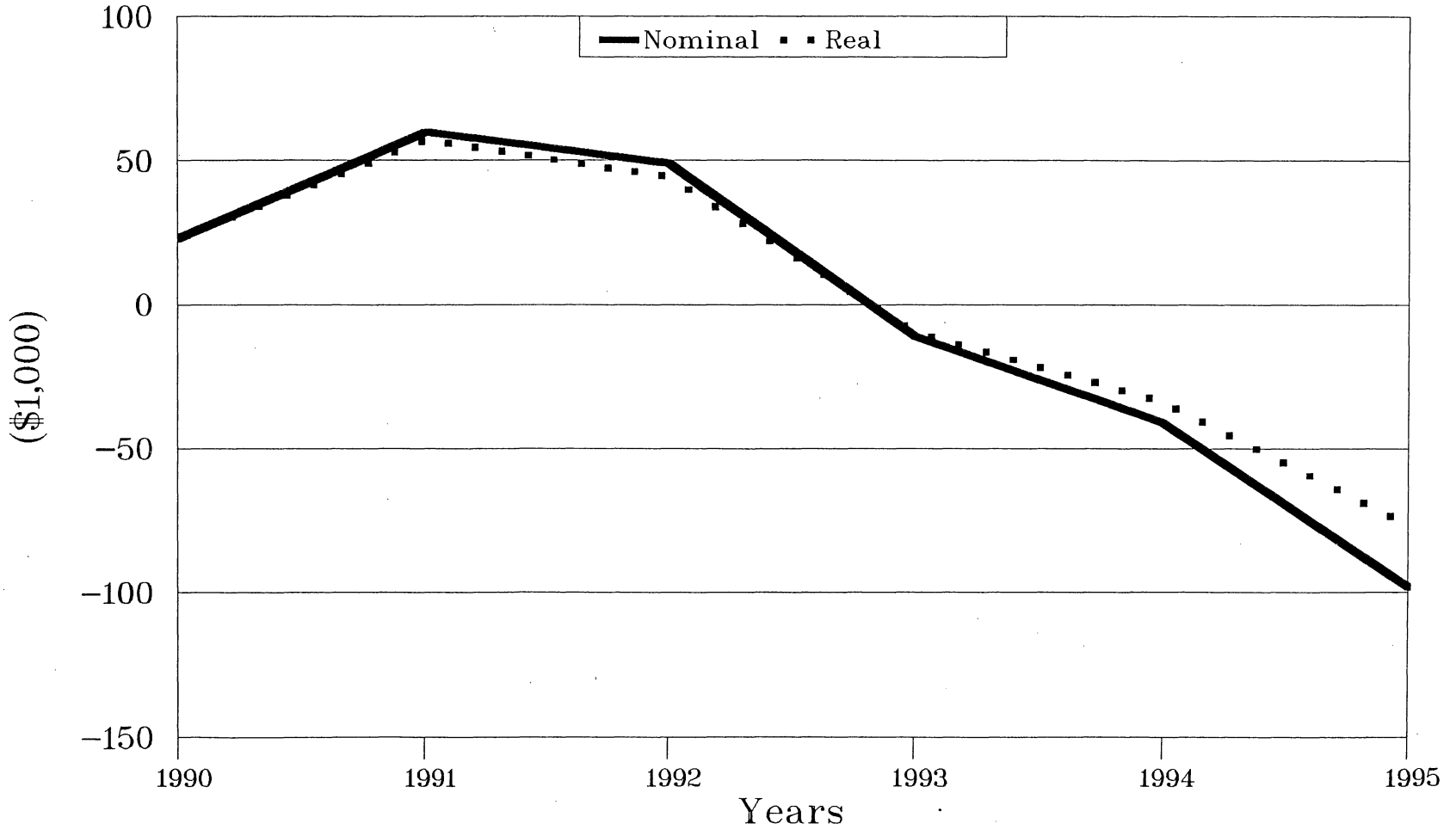
Large Size Missouri Farm



Crops: Corn, Soybeans, Wheat
6/7/90 AFPC

Figure 12. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

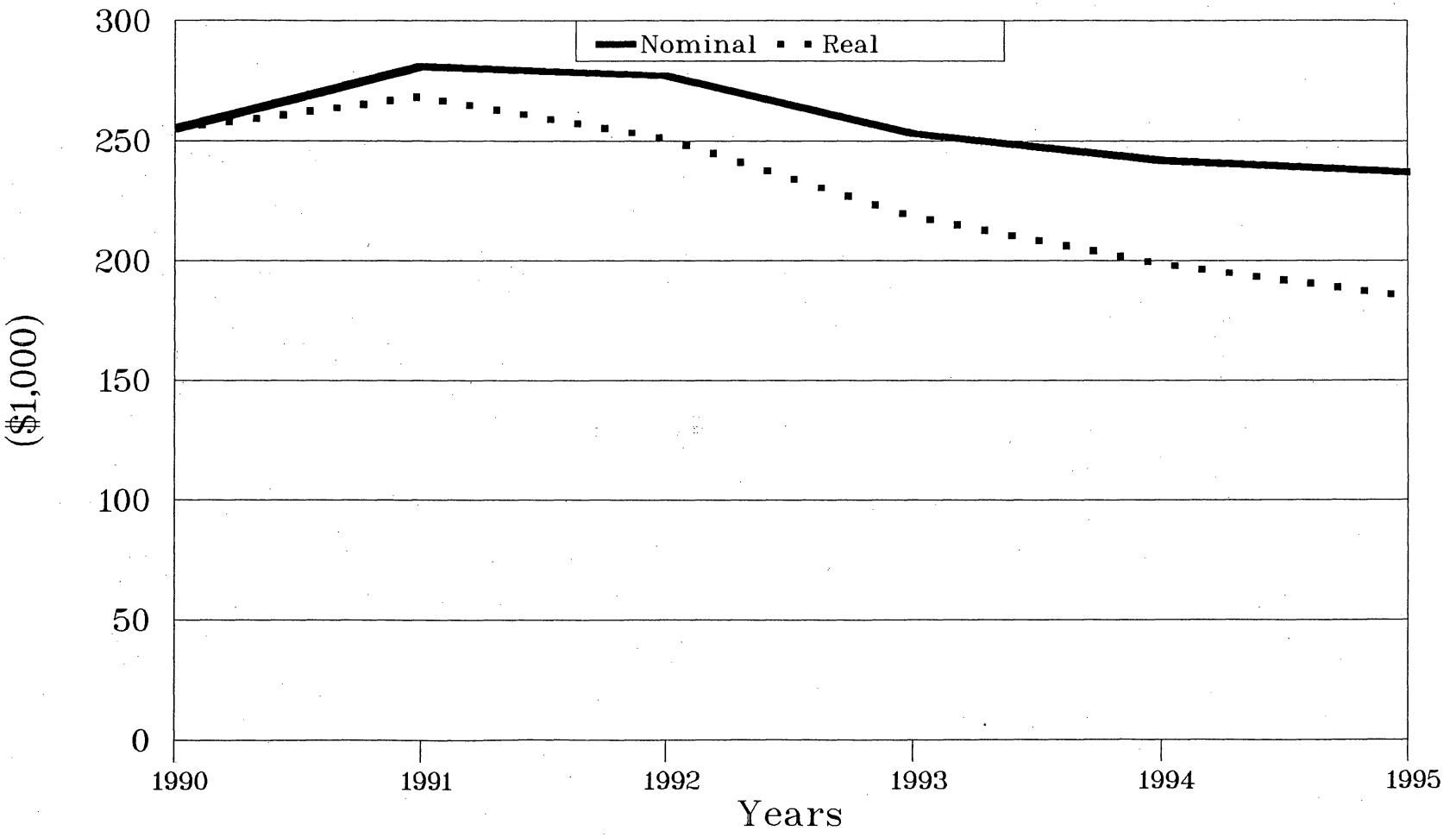
Large Size Mississippi Farm



Crops: Cotton, Soybeans
6/7/90

Figure 13. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

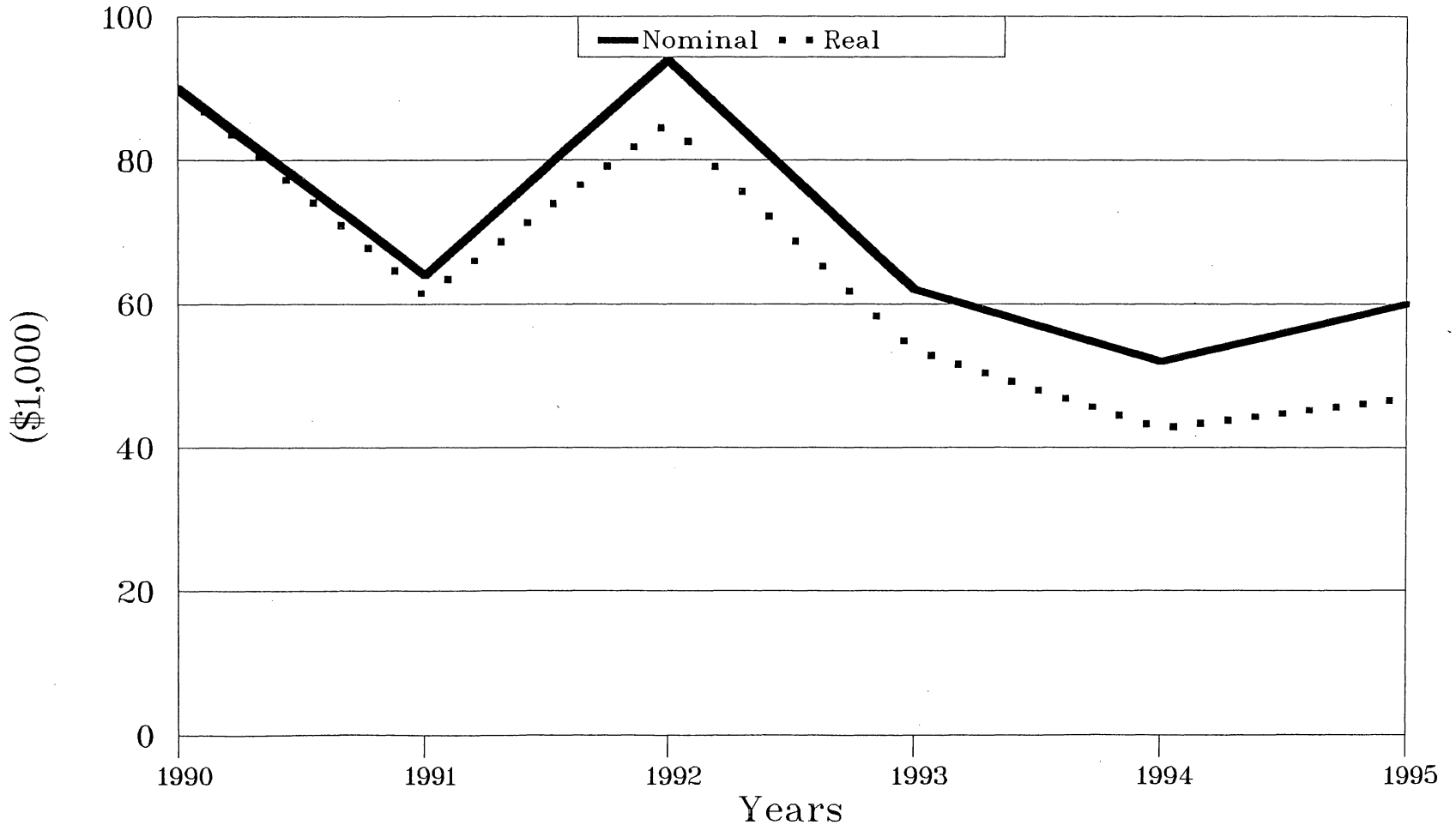
Large Size Northern High Plains Farm



Crops: Wheat, Sorghum, Corn
6/7/90

Figure 14. Nominal and Real Net Cash Farm Income Under Frozen Target Prices

Large Size Southern High Plains Farm



Crops: Cotton
6/7/90 AFPC

Figure 15. Present Value of '95 Ending Net Worth as a Percent of Beginning Net Worth Under Frozen Target Prices

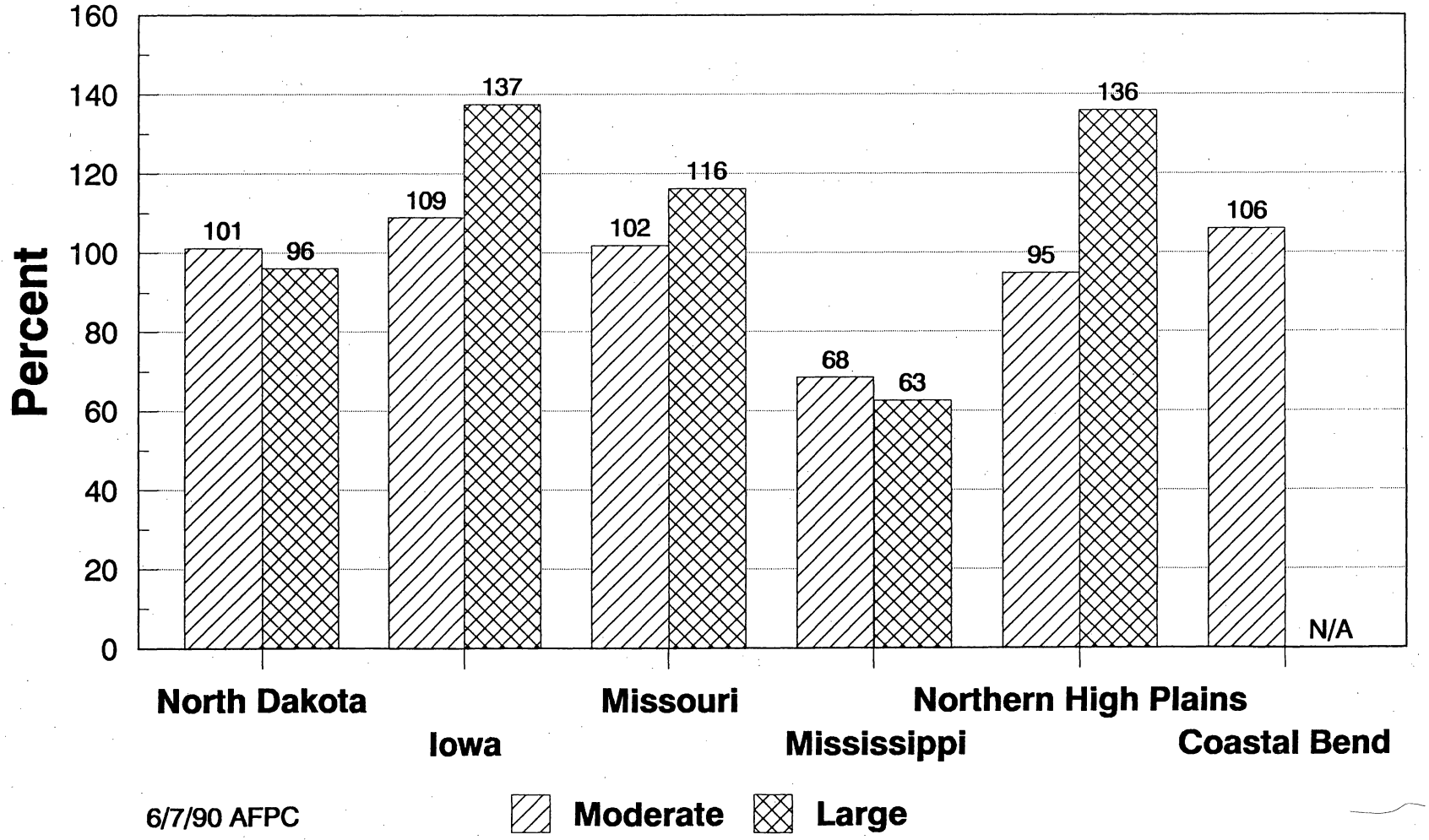


Figure 16. Present Value of '95 Ending Net Worth as a Percent of Beginning Net Worth Moderate Size Farms

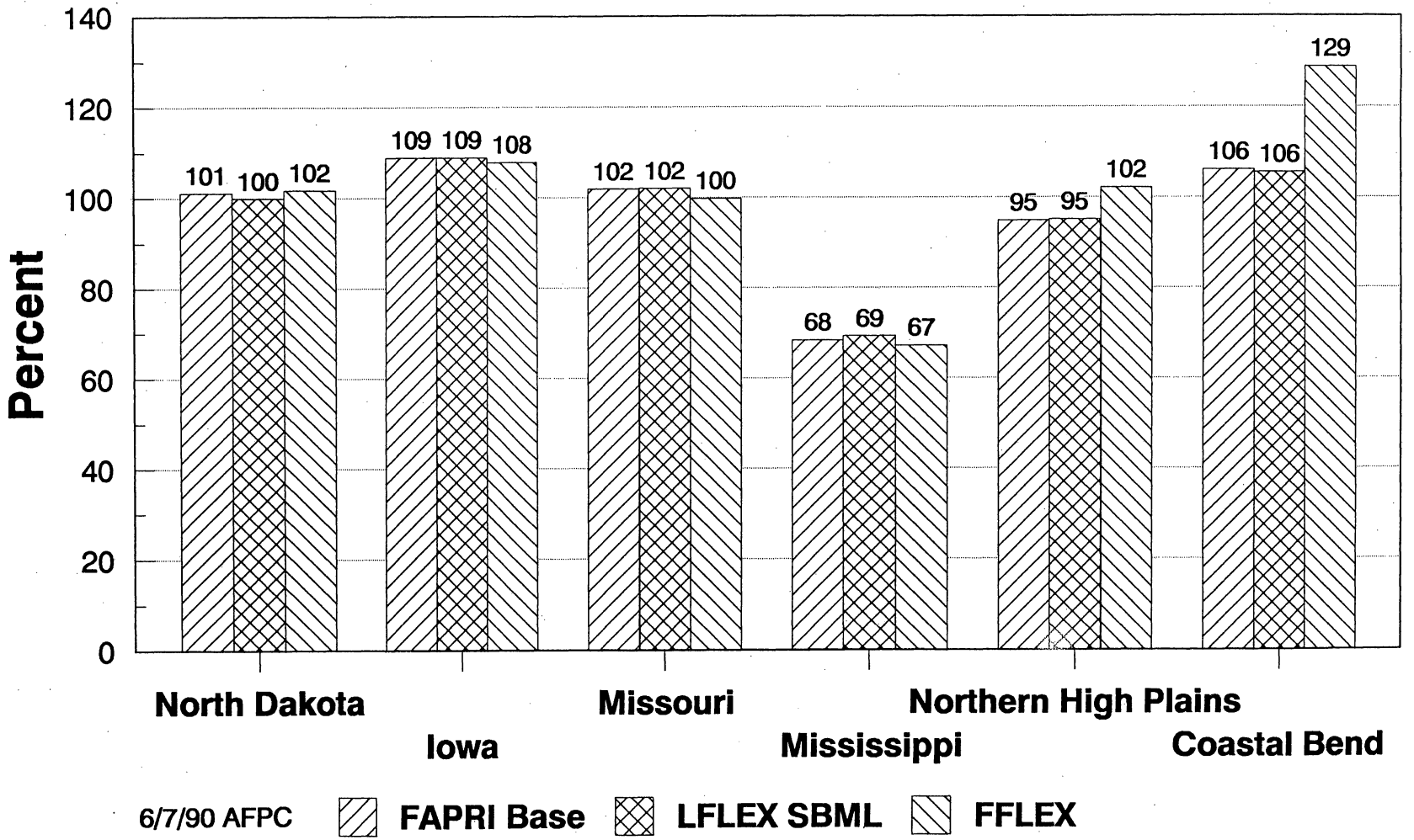


Figure 17. Present Value of '95 Ending Net Worth as a Percent of Beginning Net Worth Large Size Farms

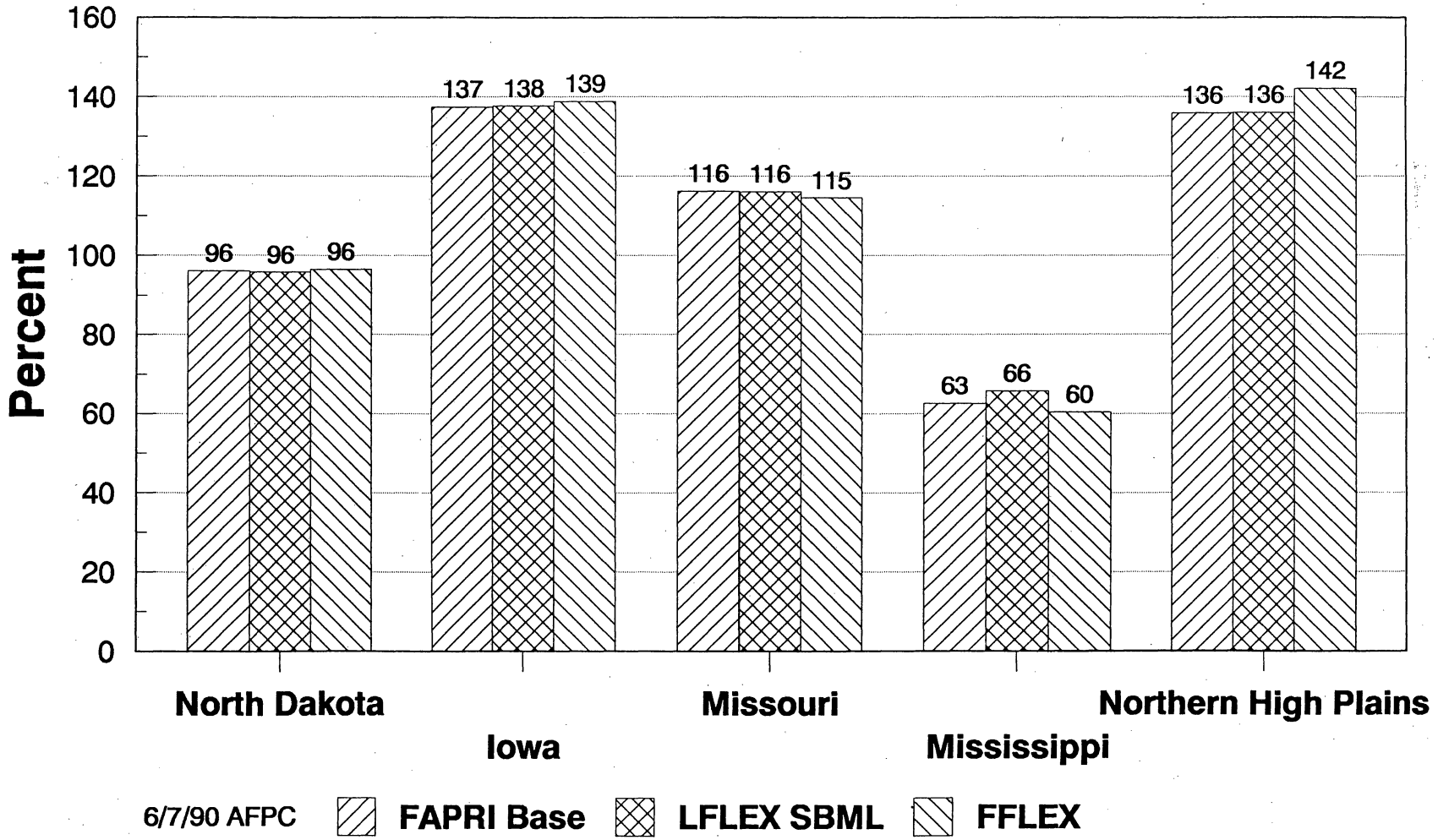
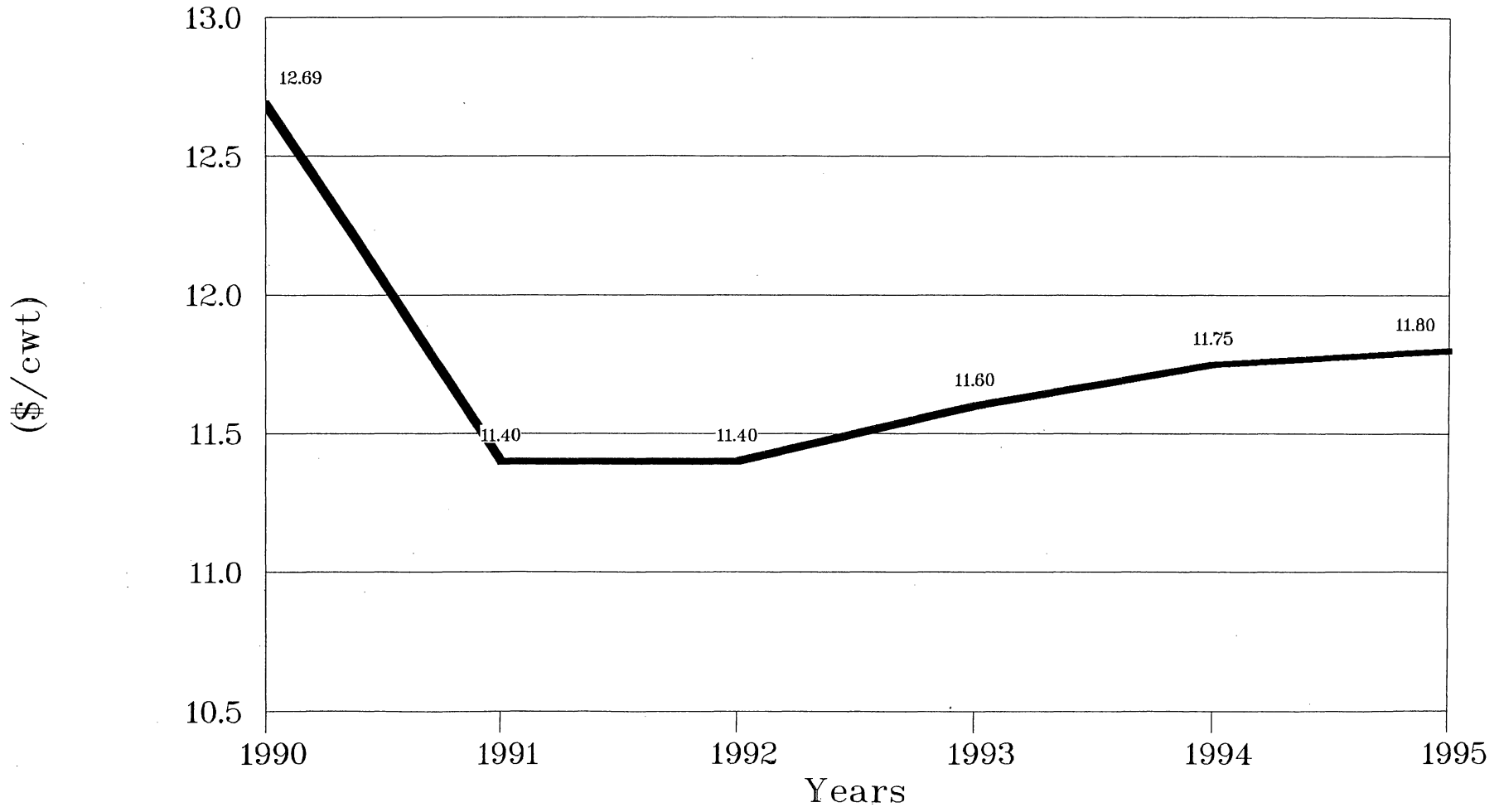


Figure 18. Effective Milk Farm Prices with $10.10 Support Price and No Assessment



Source: ASCS\CAD\D&SG

Figure 19. Nominal and Real Dairy Net Cash Farm Income Under $10.10 per cwt Milk Support Price

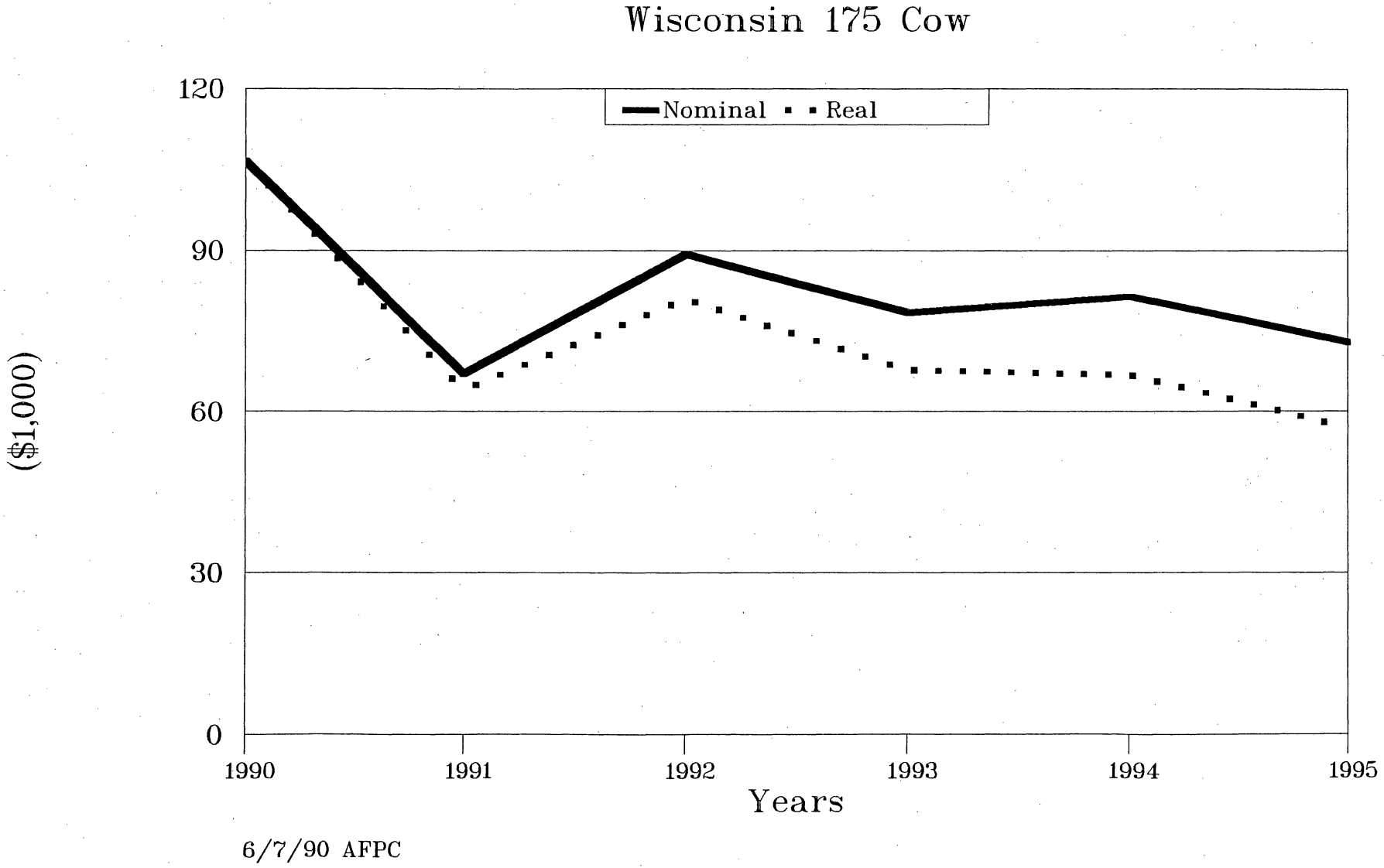


Figure 20. Nominal and Real Dairy Net Cash Farm Income Under $10.10 per cwt Milk Support Price

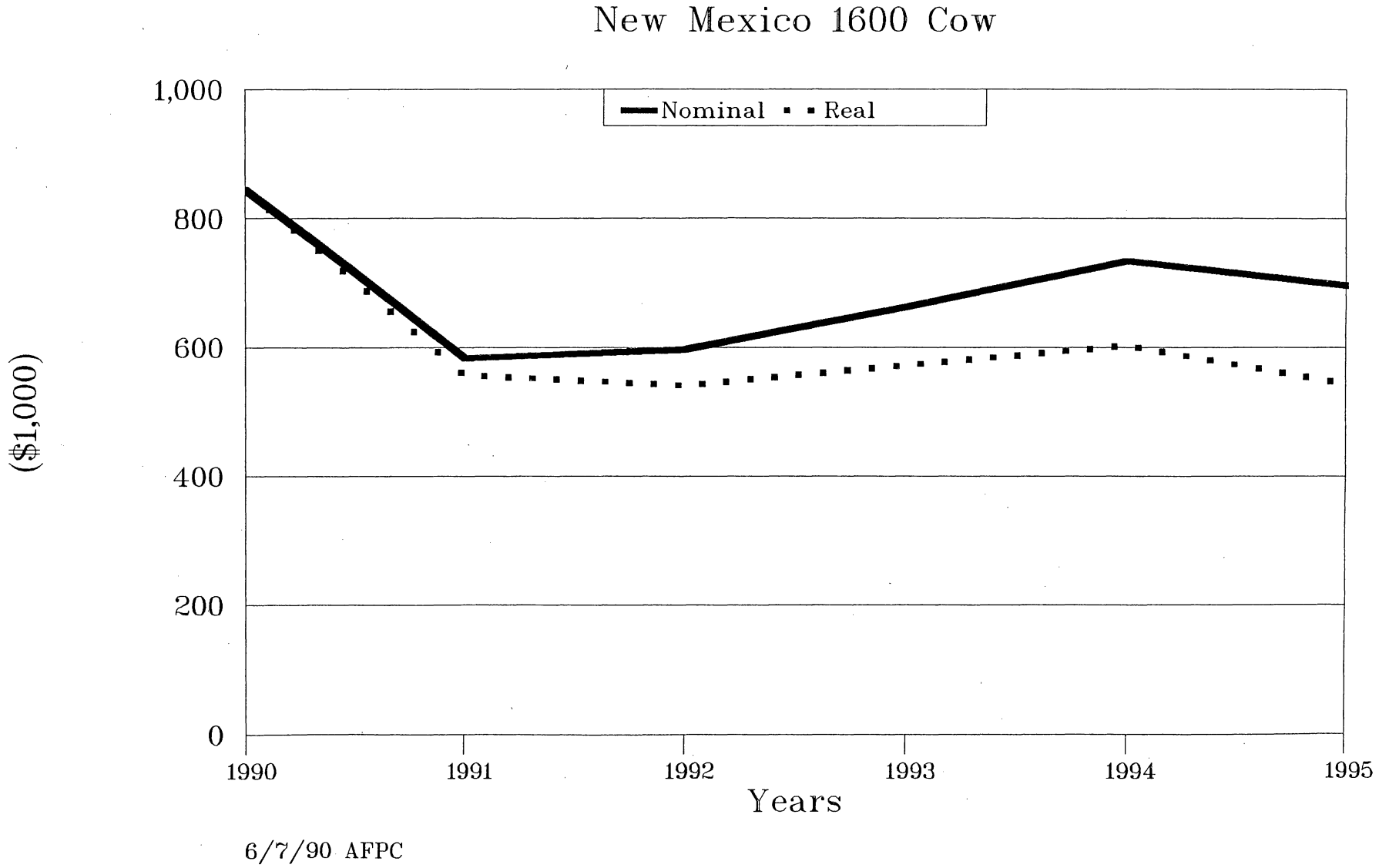


Figure 21. Nominal and Real Dairy Net Cash Farm Income Under $10.10 per cwt Milk Support Price

Erath County 300 Cow

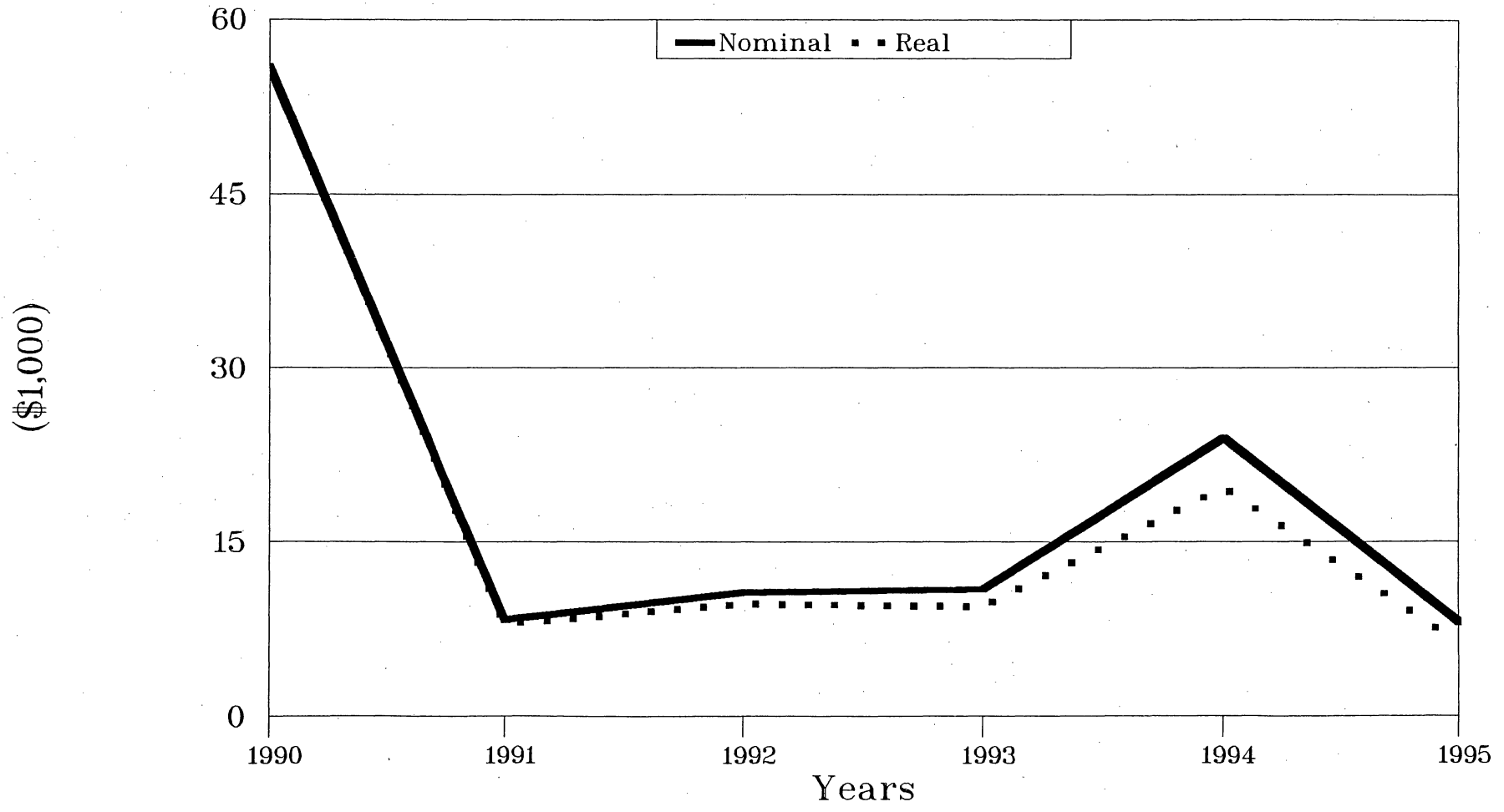


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Figure 22. Nominal and Real Dairy Net Cash Farm Income Under $10.10 per cwt Milk Support Price

Erath County 720 Cow

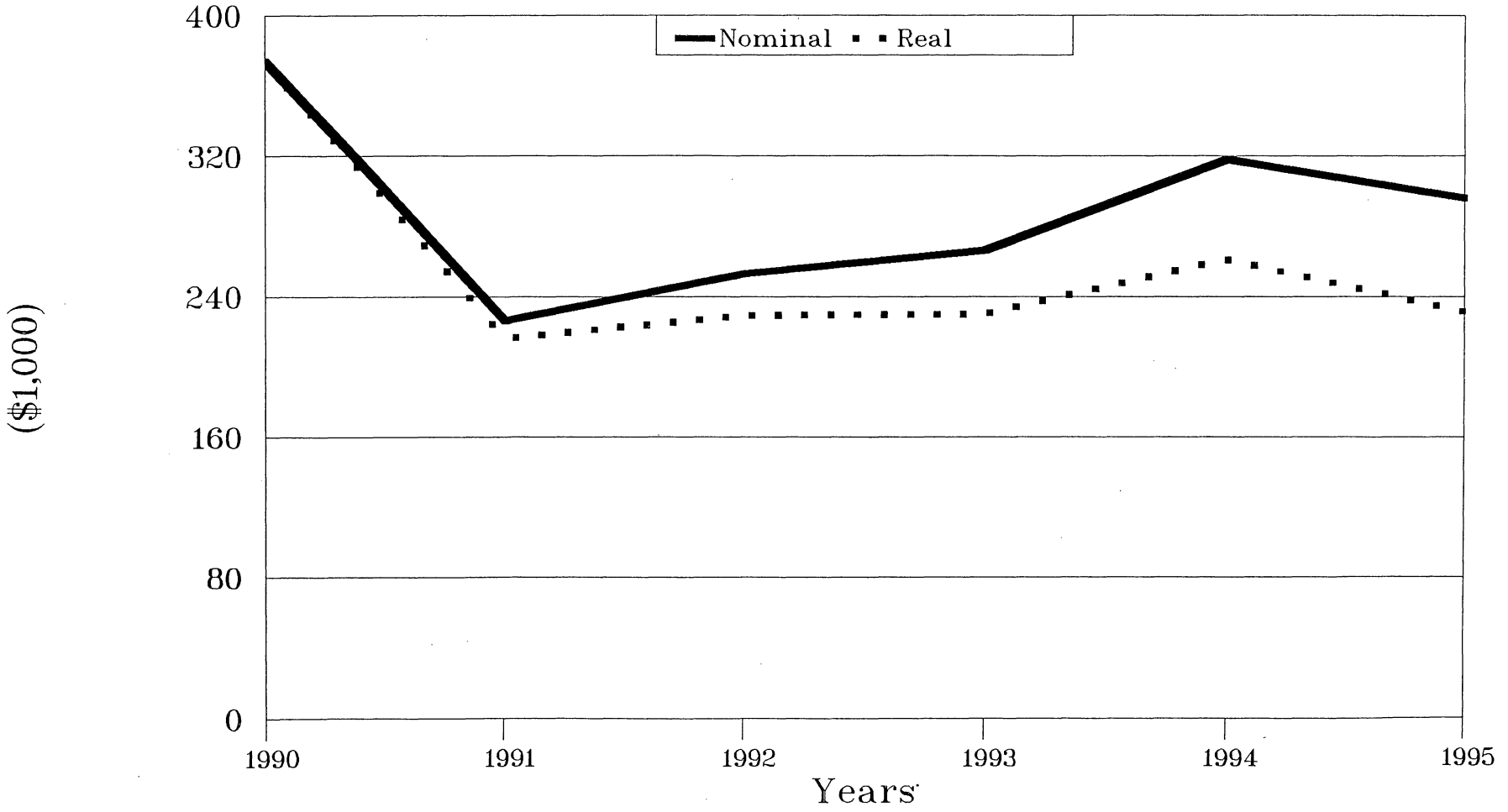

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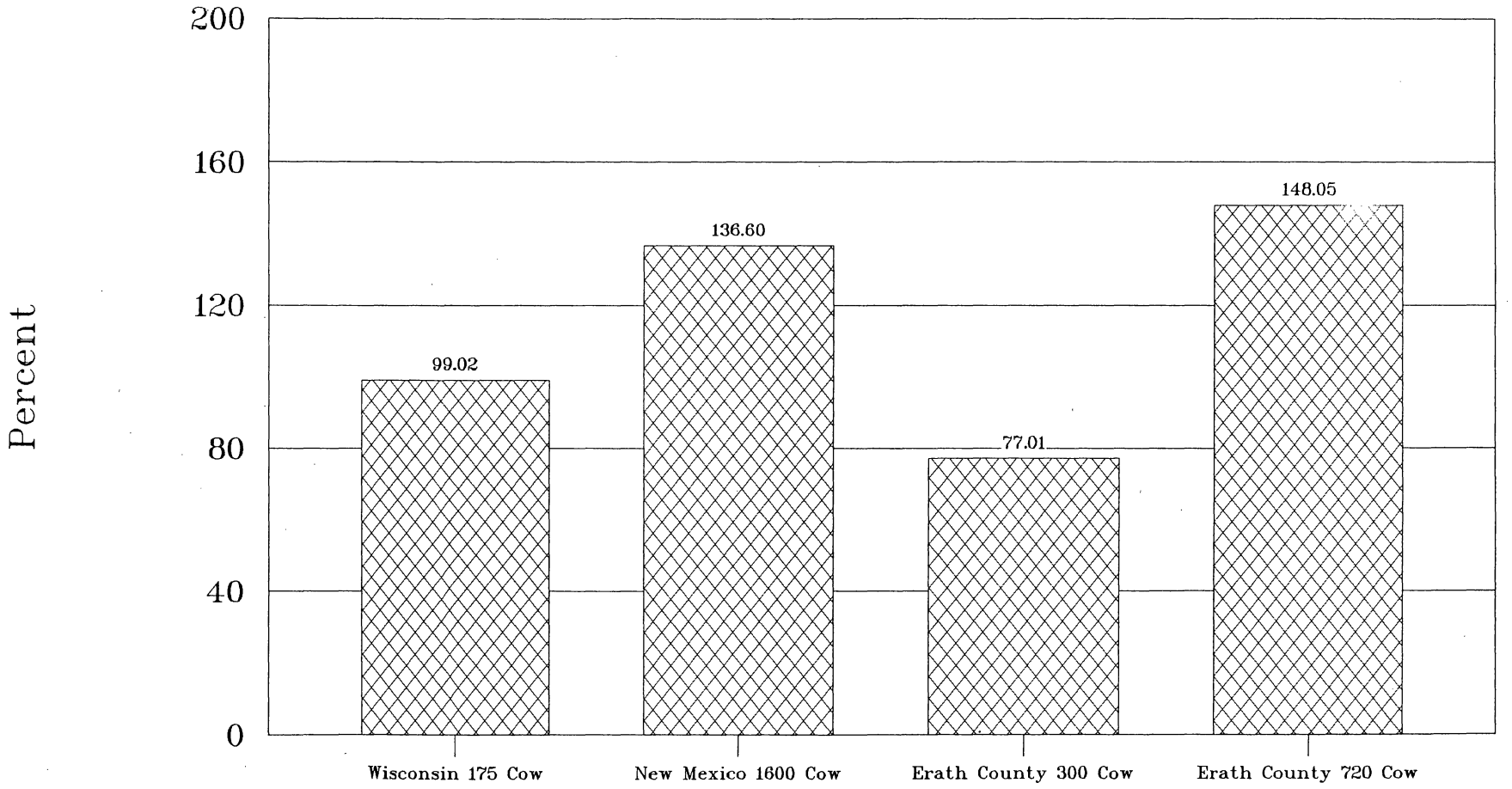
Figure 23. Present Value of 1985 Ending Net Worth as a Percent of Beginning Net Worth Under $10.10 per cwt Milk Support Price



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Appendix Table 1. Cooperating Land Grant Facilitators for Representative Panel Farms.

Iowa	
William Edwards	Extension Economist - Iowa State University
Bill Coeffy	Extension Director - Webster County
Mississippi	
David Laughlin	Associate Professor - Mississippi State University
Fred Cook	Agricultural Economist - Mississippi Agricultural and Forestry Experiment Station/Delta Branch
Missouri	
Paul Taylor	Area Extension Specialist - Carroll County
New Mexico	
Robert Schwart	Extension Economist Dairy Marketing - Texas A&M University
North Dakota	
Dwight Aakre	Extension Economist/Farm Management - North Dakota State University
Lester Stuber	County Extension Agent - Barnes County
Texas Coastal Bend	
Darwin Anderson	County Extension Agent - Aransas and San Patricio County
Texas - Erath County	
Ashley Lovell	Extension Economist/Management - Texas Agricultural Extension Service
Joe Pope	Erath County Extension Agent
Robert Schwart	Extension Economist Dairy Marketing - Texas A&M University
Texas Northern High Plains	
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Gary Frank	Farm Management Specialist - Cooperative Extension Service - University of Wisconsin