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# Evaluation of Policy Scenarios for the 1990 Farm Bill

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## Recommended Citation

Westhoff, Patrick C.; Stephens, Deborah L.; Helmar, Michael D.; Buhr, Brain; and Meyers, William H., "Evaluation of Policy Scenarios for the 1990 Farm Bill" (1990). *CARD Staff Reports*. 52.  
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# Evaluation of Policy Scenarios for the 1990 Farm Bill

## **Abstract**

Three alternatives for 1990 farm legislation are examined: (1) a continuation of current legislation; (2) small reductions in producer support levels that are phased in after a two-year delay; and (3) more significant policy reforms that include immediate support reductions for grains and cotton, marketing quotas for dairy products and sugar, and an expanded conservation reserve. Analysis indicates that the alternatives to current policies reduce both government outlays on farm programs and net farm income. The effects on the supply, demand, and prices of most crop and livestock commodities are small. Marketing quotas protect sugar and dairy producer income and allow increased imports without significant budgetary effects, but at considerable cost to consumers.

## **Keywords**

Agriculture, Policy

## **Disciplines**

Agricultural and Resource Economics | Agriculture | Economic Policy

# **An Evaluation of Policy Scenarios for the 1990 Farm Bill**

Patrick Westhoff, Deborah Stephens, Michael Helmar,  
Brian Buhr, and William H. Meyers

***Staff Report 90-SR 42***

February 1990

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### Abstract

Three alternatives for 1990 farm legislation are examined: (1) a continuation of current legislation; (2) small reductions in producer support levels that are phased in after a two-year delay; and (3) more significant policy reforms that include immediate support reductions for grains and cotton, marketing quotas for dairy products and sugar, and an expanded conservation reserve.

Analysis indicates that the alternatives to current policies reduce both government outlays on farm programs and net farm income. The effects on the supply, demand, and prices of most crop and livestock commodities are small. Marketing quotas protect sugar and dairy producer income and allow increased imports without significant budgetary effects, but at considerable cost to consumers.

## Introduction

In debate on the 1990 farm bill, policymakers are faced with the task of reconciling a number of competing concerns. Just as in 1985, a major tension exists between the desire to reduce the federal budgetary cost of farm programs and the desire to maintain farm income. Concerns for the environment and food safety are likely to be even more important in the 1990 debate than they were in 1985. The GATT negotiations on agriculture place certain limits on the 1990 debate, and Congress will be aware that a future GATT agreement could restrict its flexibility in setting farm policy.

Budgetary concerns and the GATT negotiations make it unlikely that government support for agriculture will be increased. Whether target prices will be frozen or reduced is less certain, depending in part on perceived progress in the negotiations as well as budgetary constraints and decisions on whether the payment base will be limited. Environmental concerns may be addressed in a variety of ways. Dairy and sugar policies are likely to receive close scrutiny, and policymakers may consider a range of options, from a continuation of current policies to the introduction of marketing quotas.

The purpose of this paper is to compare three alternative policy strategies for the 1990 farm bill. These strategies include the continuation of current policies and two alternative scenarios that were crafted by Washington consultant John Schnittker as a synthesis of the 1990 farm bill task force:

1) A continuation of current agricultural policies, both in the United States and in other major trading countries. Target prices and the sugar loan rate are frozen at 1990 levels, and current formulas determine dairy support prices. This is the baseline prepared by FAPRI in September 1989.

2) A modest reduction in support to agriculture, after a temporary freeze. U.S. target prices and foreign support prices are reduced at a modest rate beginning in 1993 as part of a presumed GATT agreement for minimal support reductions. Sugar loan rates are also reduced, but a scheduled dairy price support decline in 1991 is delayed one year. This is referred to as Scenario 1.

3) A combination of more significant policy reforms. A GATT agreement is assumed to result in immediate and slightly more rapid declines in grain and cotton support prices. Marketing quotas are put in place for sugar and dairy in order to protect producer income while allowing increased imports and minimizing government costs. Part of the reduction in government costs is used to finance a larger conservation reserve and to make payments to farmers taking measures to reduce environmental degradation. This is referred to as Scenario 2.

The next section of the paper defines each of the scenarios in detail. Consequences for U.S. agriculture of the three policy options are provided in the following section. The last section summarizes the analysis, and discusses implications for the 1990 farm bill debate.

### **1990 Farm Bill Strategies**

The FAPRI baseline, which is contingent on a series of assumptions about the general economy, agricultural policies, weather, and



technological change, projects key domestic and foreign economic variables through 1995/96 for crops and through 1996 for livestock. Table 1 compares key program assumptions of the baseline to those used in each of the other policy scenarios.

#### **FAPRI Baseline**

The agricultural outlook prepared by FAPRI as a benchmark for alternative policy analysis assumes a continuation of current agricultural policies for major world trading nations. U.S. target prices are frozen at 1990/91 levels, and current formulas determining loan rates and dairy support prices remain in effect throughout the projection period. The same assumptions hold true at the world level; therefore, support prices in the European Community and Japan are also frozen after 1990.

Domestic import quotas for dairy and sugar remain in effect throughout the projection, and sugar quotas continue to vary in response to changes in the domestic market. Target levels of Farmer-Owned Reserve grain stocks are maintained whenever market prices are less than 140 percent of the loan rate. The marketing loan program is continued for cotton and rice, but not extended to other commodities. Use of the Export Enhancement Program (EEP) is assumed to continue throughout the projection period.

The conservation reserve is assumed to reach its targeted level of 40 million acres by 1991, and no additional acreage is enrolled in later years. Rental payment rates on new enrollment are assumed to increase somewhat to achieve the 40-million-acre target. No additional environmental programs are assumed.

Table 1. Key program assumptions of alternative policy strategies

Policy Instrument	Baseline	Scenario 1	Scenario 2
Target Prices	Constant after 1990	Reduced 2%/year from 93/94 through 95/96	Reduced 3%/year from 91/92 through 95/96
Foreign Support Prices	Constant after 1990	EC and Japanese support prices reduced 2%/year from 93/94 through 95/96	EC and Japanese support prices reduced 3%/year from 91/92 through 95/96
Marketing Loan	Assumed for cotton and rice; not triggered	Eliminated	Eliminated
Stocks	Maintain target FOR stocks for wheat and feed grains when prices are less than 140% of the loan rate	Baseline, except FOR cert redemptions allowed only when price exceeds 120% of three-year moving average price	Baseline, except FOR cert redemptions allowed only when price exceeds 120% of three-year moving average price
EEP	\$600 million/year	\$600 million/year	\$600 million/year
CRP	40 million acres	40 million acres	50 million acres by 95/96
Environmental Payments	None	None	\$1 billion in payments per year from 92-96 to compensate producers for environmental reclamation
Dairy Support Price	Current price triggers based on gov't removals	\$10.10 in 1991, then current triggers restored	Frozen at \$10.10 after 1990
Dairy Import and Marketing Quotas	Current import quotas; no marketing quotas	Current import quotas; no marketing quotas	Milk marketings limited to maintain 3.75 bil. lbs. gov't net removals and allow imports to increase by 1% of dairy product demand per year from 93-96
Sugar Loan Rate	Constant after 1990	Reduced 3%/year from 1993 through 1995	Constant after 1990
Sugar Import and Marketing Quotas	Current import quotas; no marketing quotas	Current import quotas; no marketing quotas	Sugar marketings limited to allow 1.5, 1.75, 2.0, 2.25 mil. tons imports from 92-95

The baseline can be thought of as nothing more than a simple extension of the 1985 Food Security Act. It is not a likely outcome of the 1990 farm bill debate, unless a stalemate makes it impossible to agree on an alternative. However, many features of current legislation are likely to be retained in the new bill.

#### **Scenario 1**

The first alternative policy scenario allows for only modest reductions in domestic farm support, contingent upon similar changes in policy by major trading partners. In the short run, it is assumed that farm income concerns will make it difficult for legislators to agree upon immediate target price reductions and will cause them to delay a scheduled decline in the dairy support price. A limited GATT agreement and budgetary concerns are assumed to force modest reductions in government support beginning in 1993.

Most program provisions in Scenario 1 are the same as in the baseline, and the exceptions reflect only marginal changes. Target prices for feed grains, wheat, cotton, and rice are reduced 2 percent per year beginning 1993/94. Dairy support prices are held at the 1990 level in 1991, even though large government purchases would have triggered a reduction in the support price under current legislation. Current price triggers based on government removals are reinstated in later years. The loan rates for sugar crops are reduced by 3 percent per year, also beginning in 1993.

In addition to reductions in the level of domestic support, this scenario also assumes 2 percent annual reductions in foreign support

prices beginning in 1993/94. In the European Community, intervention and threshold prices are reduced, and in Japan, government procurement prices and resale prices are lowered.

Target FOR stock objectives are maintained in Scenario 1; however, certificate (cert) redemptions are limited to occasions when the commodity price exceeds 120 percent of a moving, three-year average of past prices. This is done to reduce the price-depressing effect of heavy cert usage in a weak market. The marketing loan program is eliminated in Scenario 1, but this has little effect on market results since baseline prices exceed the loan rate.

#### Scenario 2

The second alternative scenario includes a variety of more significant changes in agricultural policy. It is assumed that the GATT negotiations result in slightly greater reductions in agricultural support policies than in the first alternative scenario. U.S. target prices and policy prices in the European Community and Japan are reduced by 3 percent per year beginning in 1991/92. While this scenario does assume some reductions in governmental support for agriculture, it nevertheless reflects smaller policy changes than are implied by the U.S. negotiating position in the GATT talks.

For dairy and sugar, pressures exist to maintain producer income while minimizing government costs and allowing more foreign access to U.S. markets. Scenario 2 assumes that dairy support prices and sugar loan rates are frozen at 1990 levels to help maintain producer income. To answer objections that U.S. policies are inconsistent with international

obligations, import quotas for both dairy products and sugar are progressively increased. To prevent large government expenditures for the acquisition of surplus production, marketing quotas for milk, sugar, and corn sweeteners are established. The milk quotas are set so as to allow 3.75 billion pounds per year of net government removals, a level adequate to meet the demands of domestic and foreign food aid programs.

Finally, two policy changes are included in Scenario 2 to address environmental concern. The conservation reserve is enlarged to 50 million acres by 1995, an increase of 10 million acres above the baseline levels. Also, an environmental payment program is established to encourage farmers to adopt alternative practices that result in less environmental degradation. Beginning in 1992, one billion dollars in environmental payments are made annually to compensate producers for higher per-unit production costs.

### Results

This section summarizes the FAPRI baseline projections and the results of the two alternative policy scenarios. Consequences of each scenario for production, trade, and prices of eight major program crops are considered first. Sugar and dairy products are then examined separately due to the major changes in policies for those commodities. After a brief discussion of effects on the livestock industry, this section concludes by considering the effects of each policy alternative on government costs and net farm income.

For a number of key variables, condensed summary tables comparing the baseline and the two alternative scenarios are presented. For each

variable and scenario, the average value over the duration of the 1985 Food Security Act (FSA 1985) is compared with projected averages over the period covered by the 1990 farm bill. More detailed tables are found in the Appendix.

### **Crop Production**

Land utilization patterns under each of the scenarios are compared in Table 2. Farmers increased area planted to major crops by approximately 15 million acres in 1989 in response to smaller acreage reduction programs and higher market prices resulting from the drought of 1988. In the baseline, a further modest increase in area is projected for 1990. As stocks rebuild, planted acreage is projected to fall in 1991 and 1992, but stronger demand results in modest increases in planted acreage in later years. The average area planted under the 1990 farm bill in the baseline is only slightly larger than the average over the life of the FSA 1985.

In the baseline, the total amount of land idled under government programs averages about 60 million acres during both the FSA 1985 and the 1990 farm bill. The composition of idled acreage changes dramatically, however. The area idled under annual government programs falls by nearly 50 percent, while acreage idled under the conservation reserve nearly doubles. With more acreage enrolled in the long-term program, the ability of farmers to increase acreage quickly in response to a drought or some other tight supply situation in the 1990s will be limited. This may contribute to greater market volatility, which does not appear in a baseline assuming normal yield growth and no other major supply or demand surprises.

Table 2. Estimated U.S. land utilization (million acres)

Variable/Year	FSA 1985 Avg. (86/87-90/91)	1990 Farm Bill Avg. (91/92-95/96)	Percentage Change from Baseline
<b>Area Planted (15 Crops)</b>			
Baseline	262.5	266.4	
Scenario 1		267.3	0.3
Scenario 2		267.7	0.5
<b>ARP &amp; 0-92 Idled Area</b>			
Baseline	41.2	21.0	
Scenario 1		19.7	-6.1
Scenario 2		15.2	-27.7
<b>CRP Area</b>			
Baseline	21.3	40.0	
Scenario 1		40.0	0.0
Scenario 2		45.0	12.5

Yields for all major crops are projected to rebound from the droughts after 1989. In the 1990s, baseline yields increase at moderate rates, reflecting historical trends.

Average total acreage planted to 15 crops only slightly exceeds the baseline value over the period affected by the 1990 farm bill in Scenario 1. As the target prices for feed grains, wheat, cotton, and rice are reduced in the last three years of the projection, participation in government programs falls slightly, and farmers leaving the program are no longer restricted by acreage reduction limitations. The increase in area planted is less than the decline in area idled, as some land cannot be profitably farmed at the lower target prices.

Most of the farmers leaving the programs for grains and cotton continue to plant the same crops outside the program, but some of the land is devoted to production of soybeans and other commodities not receiving target price protection. Also encouraging increased grain production are higher market prices resulting from stronger export demand. Thus, planted acreage increases for all major commodities. The lower target prices reduce input use, resulting in lower yields that nearly offset the growth in planted acres. Production for all commodities is very close to baseline levels.

In Scenario 2, the net effect on total area planted to 15 crops relative to the baseline is also very small. Target price effects are like those in Scenario 1, only larger because of the sharper reduction in target prices. The increased size of the conservation reserve is an important complicating factor, however. For feed grains and wheat, it is assumed that the acreage reduction program (ARP) rates are reduced by 2.5



percent beginning in 1993 to partially offset the effect of a larger conservation reserve on planted acreage. For soybeans, of course, there is no acreage reduction program to adjust.

The acreage idled under annual programs falls in Scenario 2 due both to lower participation rates and the assumed reduction in ARP rates. In fact, the reduction in annual idled acreage is actually larger, on average, than the increase in conservation reserve acreage. This allows a small increase in total planted area, which is further encouraged by higher market prices resulting from increased export demand. Wheat, corn, cotton, and rice planted acreage all increase. Soybean acreage falls because the negative effect of a larger conservation reserve more than offsets the positive effect of lower target prices for competing crops.

As in Scenario 1, lower yields offset acreage increases for the grains, so the net effect on production is relatively small. Soybean, corn, oats, and cotton production all fall slightly, but for no commodity does average production change more than 2 percent from the baseline level.

### **Trade**

The volume of U.S. exports of 10 major commodities fell in 1988/89, and a further decline is projected in the baseline for 1989/90. While the reduced supplies and high market prices caused by the drought reduced export volumes for most commodities in 1988/89, the value of exports actually increased. In the early 1990s, rising export volumes and steady or rising export prices are projected to result in significant increases in the value of U.S. commodity exports.

Export results under the FSA 1985 and under the three alternative scenarios for the 1990 farm bill are shown in Table 3. Average total exports rise by more than 20 million metric tons in the baseline, and total export value increases by almost \$3.5 billion.

The growth in total exports in Scenario 1 over baseline values is due primarily to lower support prices in the European Community and Japan. In the European Community, lower grain prices discourage grain production and encourage domestic grain feeding. This reduces demand for soybean meal, resulting in lower U.S. soybean meal exports.

The rise in export demand and the resulting higher prices for most commodities cause the total export value to increase slightly in the first option. Given only marginal changes in support prices, the effect on export quantities and prices is very small.

In Scenario 2, the net effect of policy changes abroad on U.S. exports is stronger, although average exports under the 1990 farm bill are still less than 2 percent above the baseline. Feed grain and rice exports increase the most, while soybean product exports actually decline. The European Community again accounts for both the increase in U.S. feed grain exports and the reduction in soybean meal exports. U.S. rice exports increase due to larger Japanese imports. With higher market prices for most commodities, the value of exports exceeds the baseline level by 3 percent. Even though Scenario 2 represents slightly greater policy reform, trade effects are relatively small.

### **Prices**

The baseline outlook for market prices varies considerably across commodities. Domestic farm price averages for corn, soybeans, and wheat

Table 3. Estimated annual volume and value of U.S. exports of 10 commodities

Variable/Year	FSA 1985 Avg. (86/87-90/91)	1990 Farm Bill Avg. (91/92-95/96)	Percentage Change from Baseline
<b>Total Exports (mmt)</b>			
Baseline	120.02	140.68	
Scenario 1		141.13	0.3
Scenario 2		142.78	1.5
<b>Export Value (bil. \$)</b>			
Baseline	18.74	22.17	
Scenario 1		22.33	0.7
Scenario 2		22.84	3.0

Note: Commodities are wheat, corn, sorghum, barley, oats, soybeans, soybean meal, soybean oil, cotton, and rice.

are compared by scenario across farm bills in Table 4. On average, all three commodity prices rise only slightly in the 1990 farm bill.

For corn, projected market prices average slightly less than \$2.20 per bushel, with little distinct trend over time due to the assumed program management strategy. Soybean prices fall in 1989/90 and 1990/91 due to rising production and stocks, but increase in later years because of strengthening demand. Tight wheat supplies result in high 1989/90 market prices, but large projected increases in production and stocks result in lower prices in 1990/91 and 1991/92. Wheat prices increase in the mid-1990s as the conservation reserve limits the potential for supplies to respond to increased export demand.

Farm prices in the first scenario exceed baseline prices for most commodities, predominantly because of growth in export demand. Soybean and cotton prices fall slightly, as no positive shift in demand occurs to offset increased production. Price effects are uniformly small; only the corn price changes by more than 1 percent.

In Scenario 2, average prices exceed baseline values for all crops. Increased export demand is the prime cause of higher grain prices, while soybean and cotton prices increase due to cross-commodity effects and reduced production. Feed grain prices actually fall relative to the baseline early in the projection period. In 1990/91 and 1991/92, dairy cow slaughter resulting from milk marketing quotas reduces feed demand, more than offsetting the effects of stronger export demand.

### **Sugar**

As acreage of sugarcane and sugar beets continues to expand slightly after 1988 and yields of both crops begin to recover from the drought in

Table 4. Estimated U.S. farm prices (dollars per bushel)

Variable/Year	FSA 1985 Avg. (86/87-90/91)	1990 Farm Bill Avg. (91/92-95/96)	Percentage Change from Baseline
<b>Corn Farm Price</b>			
Baseline	2.07	2.14	
Scenario 1		2.16	1.2
Scenario 2		2.20	3.0
<b>Soybean Farm Price</b>			
Baseline	5.81	5.99	
Scenario 1		5.97	-0.3
Scenario 2		6.09	1.6
<b>Wheat Farm Price</b>			
Baseline	3.17	3.38	
Scenario 1		3.41	0.8
Scenario 2		3.48	2.8

1989, sugar production is projected to increase throughout the baseline projection (Table 5). The New York spot raw sugar price continues to climb through 1989 due to tighter supplies than previously anticipated, then it falls slightly in 1990. The wholesale price of high-fructose corn syrup (HFCS) follows the same path, remaining considerably below the price of refined sugar.

The FAPRI baseline assumes a continuation of current sugar policy throughout the projection; therefore, sugar import quotas continue to be tightened each year after 1989 in order to maintain high domestic prices. As a result, import levels drop to just over one million tons by 1995.

Production of sugar declines slightly in Scenario 1 relative to the baseline due to lower loan rates for cane and beets. The raw price of sugar is assumed to fall by the same percentage as the loan rates, inducing some substitution of sugar for HFCS. As a result of increased demand, imports increase by 3.5 percent, on average, after 1990.

Scenario 2 utilizes domestic marketing quotas for sugar and HFCS to maintain producer prices while allowing increased sugar imports. Since net imports are small in the baseline, significant increases in imports can be attained by only small reductions in domestic production. Average sugar production is reduced only 3 percent from baseline levels, and HFCS production is cut just 4 percent, but imports increase by an average of 44 percent. Sugar consumption increases 3 percent in response to the reduction in HFCS production.

### **Dairy**

Given the slowed increase in milk production caused by the drought, and the stronger demand for cheese and nonfat dry milk, producer milk

Table 5. Estimated U.S. raw sugar and HFCS

Variable/Year	FSA 1985 Avg. (1986-1990)	1990 Farm Bill Avg. (1991-1995)	Percentage Change from Baseline
Sugar Production (1000 tons)			
Baseline	7,034	7,528	
Scenario 1		7,517	-0.1
Scenario 2		7,309	-2.9
Sugar N.Y. Spot Price (c/lb.)			
Baseline	21.70	21.50	
Scenario 1		20.86	-3.0
Scenario 2		21.50	0.0
Sugar Imports (1000 tons)			
Baseline	1,586	1,233	
Scenario 1		1,276	3.5
Scenario 2		1,771	43.6
HFCS Consumption (mil. tons)			
Baseline	5,986	6,685	
Scenario 1		6,673	-0.2
Scenario 2		6,422	-3.9

prices are currently far above support levels. In the baseline projections, milk production increases rapidly in 1990 and 1991 as feed costs fall and producers respond to high milk prices. The resulting high levels of government removals cause support price reductions in 1990, 1991, and 1992, under the assumption that current policy triggers are maintained. These lower prices result in herd liquidation and a restored balance between supply and commercial demand. Projections of key dairy variables under the FSA 1985 and alternative 1990 farm bill scenarios are presented in Table 6.

In Scenario 1, freezing the milk support price in 1991 results in a larger cow herd and more milk production throughout the projection period. As a result, the average increase over baseline net government removals is about 34 percent. The support price remains higher than the baseline price through 1992, then returns to baseline values for the remainder of the projection.

In Scenario 2, the marketing quotas on milk are set so that net government removals are exactly 3.75 billion pounds in every year after 1991. This is less than the average under the baseline, even though the support price is higher under Scenario 2. Milk cow numbers relative to the baseline projections are reduced immediately as a result of the quotas, and this has spillover effects in other livestock markets. Cow numbers remain slightly below baseline levels even at the end of the projection period because of the assumed increase in dairy product imports.



Table 6. Estimated U.S. dairy

Variable/Year	FSA 1985 Avg. (1986-1990)	1990 Farm Bill Avg. (1991-1996)	Percentage Change from Baseline
<b>Milk Cows (mil.)</b>			
Baseline	10.33	9.75	
Scenario 1		9.84	0.9
Scenario 2		9.57	-1.9
<b>Net Government Removals (bil. lbs. milk equiv.)</b>			
Baseline	9.32	4.99	
Scenario 1		6.69	34.0
Scenario 2		4.46	-10.7
<b>Support Price (\$/cwt.)</b>			
Baseline	10.86	9.43	
Scenario 1		9.60	1.8
Scenario 2		10.10	7.1

## Livestock

The baseline outlook for livestock in the 1990s is dominated by underlying long-term trends of the markets--poultry consumption is projected to increase, albeit at a more modest pace than in recent years, while projected beef and pork consumption is generally stable or declining.

A relatively slow expansion of beef production is projected for the 1992-95 period. Even in 1995, however, projected per capita beef consumption is below the 1989 level. Hog breeding herd liquidation, caused by high feed costs and reduced hog prices in 1988 and 1989, results in a small decline in projected 1990 pork production. Reduced feed costs and improved hog prices result in moderate expansion in 1991-92, but negative producer returns result in another contraction in 1993-94.

The effects of Scenario 1 on the livestock industry are minimal. The higher feed grain prices, which dominate the lower cost of soybean meal, result in marginal reductions in livestock production. As a result, livestock prices slightly exceed baseline levels throughout the projection in Scenario 1. Average price and quantity effects are all less than 1 percent.

The milk marketing quotas imposed in Scenario 2 have effects on the livestock industry as early as 1991. As liquidation of cow herds occurs, short-run beef production increases and prices fall. For the next three years, production is below the baseline as herds are rebuilt, and prices rise to above-baseline values. By 1995, the effects have stabilized, and markets return to very near the baseline scenario. While effects on the

livestock industry are larger in Scenario 2 than in Scenario 1, average price changes relative to the baseline are still less than two percent.

#### Government Costs

In the base line projections, net Commodity Credit Corporation (CCC) outlays on farm programs fall sharply in fiscal 1990, primarily due to the aftereffects of the drought. Net CCC outlays are projected to rebound to about \$11 billion in fiscal 1991 as a result of lower market prices and stock rebuilding. Higher market prices and stable or falling government stocks result in reduced government costs in later years, assuming a continuation of current programs. Average annual CCC outlays and government costs including CRP expenditures for the baseline are four to five billion dollars lower than during the FSA85 period (Table 7).

In Scenario 1, average net CCC outlays on government programs are \$902 million lower than the projected baseline average. The reduction in target prices, combined with slightly higher market prices, results in lower participation in government programs and lower deficiency payments rates. Partially offsetting the decline in crop deficiency payments is an increase in dairy program costs, resulting from higher support prices in 1991 and 1992 and higher net removals throughout the projection period.

The decline in government costs under Scenario 2 is more dramatic. The target price reductions result in total average savings for the grains and cotton programs of approximately \$2.8 billion per year. In spite of higher support prices, the milk marketing quotas reduce dairy program expenditures in fiscal 1991 and 1992, and average expenditures from fiscal 1992-1996 are approximately the same as in the baseline. Even with one billion dollars in annual environmental payments and increased

Table 7. Estimated U.S. total government cost (million dollars)

Variable/Year	FSA 1985 Avg. (FY87-FY91)	1990 Farm Bill Avg. (FY92-FY96)	Change from Baseline	
			mil. \$	percent
<b>Net CCC Outlays</b>				
Baseline	12,959	7,714		
Scenario 1		6,812	-902	-11.7
Scenario 2		5,434	-2,280	-29.6
<b>Total Government Cost<sup>a</sup></b>				
Baseline	14,137	9,741		
Scenario 1		8,839	-902	-9.3
Scenario 2		7,760	-1,981	-20.3

<sup>a</sup>Includes Conservation Reserve Program costs.

conservation reserve program rental payments, total government costs average two billion dollars less in Scenario 2 than under the baseline.

### **Net Farm Income**

Estimated net farm income is projected in the baseline to fall from \$49 billion in 1989 to \$35 billion in 1995. Although this is a sharp decline, especially in real terms, it would leave nominal net farm income higher in 1995 than in any year prior to 1986. Livestock receipts are projected to be relatively flat during the projection period, while increasing crop receipts are more than offset by declining government payments and rising production costs. A separate measure shows relatively little change over time in net returns from the production of eight program crops, implying that most of the decline occurs in the livestock industry (Table 8).

In both alternative scenarios, the absolute decline in net farm income is less than the decline in government program costs. Previous analysis has shown that a one-dollar reduction in deficiency payments, all else equal, results in approximately a one-dollar reduction in net farm income. If deficiency payments fall strictly because target prices are reduced, the effect on net farm income is clear. Even when deficiency payments fall due to higher market prices, however, the effect on net farm income is still close to dollar-for-dollar. Higher corn prices, for example, increase market receipts but reduce deficiency payments by a similar amount, and result in higher feed costs to the livestock sector.

Under both alternative scenarios, the decline in government costs is approximately equal to the decline in producer net returns for the eight

Table 8. Estimated U.S. net farm income (billion dollars)

Variable/Year	FSA 1985 Avg. (1987-1991)	1990 Farm Bill Avg. (1992-1996)	Change from Baseline	
			bil. \$	percent
<b>Crop Receipts</b>				
Baseline	73.30	89.04		
Scenario 1		89.36	0.32	0.4
Scenario 2		90.15	1.11	1.2
<b>Livestock Receipts</b>				
Baseline	79.86	80.01		
Scenario 1		80.61	0.60	0.7
Scenario 2		81.34	1.33	1.7
<b>Government Payments</b>				
Baseline	12.01	7.43		
Scenario 1		6.31	-1.12	-15.1
Scenario 2		5.73	-1.70	-22.9
<b>Production Expenses</b>				
Baseline	135.05	157.29		
Scenario 1		157.78	0.49	0.3
Scenario 2		159.01	1.72	1.1
<b>Net Farm Income</b>				
Baseline	46.71	37.59		
Scenario 1		36.93	-0.66	-1.8
Scenario 2		36.74	-0.85	-2.3
<b>Total Net Returns (8-crop)</b>				
Baseline	26.71	25.30		
Scenario 1		24.57	-0.73	-2.9
Scenario 2		23.18	-2.12	-8.4

major program crops. This implies that net livestock sector income must be higher. Under both alternative scenarios, higher dairy receipts more than offset increased production costs due to higher feed prices. The effect is particularly important in Scenario 2, where the dairy marketing quotas allow higher levels of dairy producer income without increasing government costs.

### **Summary and Conclusions**

In this analysis, three scenarios representing possible outcomes of the 1990 farm bill debate have been compared. Each of the scenarios represents a different approach to reconciling the competing concerns that dominate the debate. The FAPRI baseline represents a continuation of current policies, and thus it stands as both a benchmark and a possible outcome if the debate reaches a stalemate. The first alternative scenario incorporates only minor policy changes, and most of those only take effect in a phased manner after a delay of two years. The second alternative incorporates more significant and immediate policy changes, especially for dairy and sugar.

Crop producers generally fare best under the baseline, which maintains current levels of income support. On the other hand, the baseline is the least favorable scenario for milk producers, since it allows prices to adjust downward to bring supply and commercial demand back into equilibrium. The baseline also offers nothing new to people concerned about the environment and food safety. Although government costs in the baseline are low relative to recent experience, it may not be reasonable to expect that farmers will escape future budget cuts.

The first alternative scenario is neither the most nor the least favorable to important interest groups. Delayed reductions in target prices may be a realistic compromise that would continue to put pressure on other countries in the GATT negotiations while addressing both income and budgetary concerns. Crop producer income and government costs are both slightly reduced from the baseline, and dairy producer income is slightly increased. The only significant losers relative to both of the other scenarios are sugar producers, who must deal with lower levels of support.

The second alternative scenario involves significant departures from current policies. Sharper reductions in target prices result in larger declines in both government costs and producer returns even though the cuts are multilateral. Marketing quotas protect sugar and dairy producer income and allow increased imports without significant budgetary effects, but at considerable cost to consumers. Enlarging the conservation reserve and making payments to farmers to encourage more environmentally sensitive practices helps satisfy environmental concerns without reducing farm income.

By no means do these scenarios exhaust possible outcomes of the debate on the 1990 farm bill. For example, producer flexibility is an important concern not addressed in any of these scenarios. If the U.S. position in the GATT negotiations were to prevail, even more significant policy changes here and in other countries would be necessary. The shape of environmental provisions in the new bill is very unclear. In the months to come, FAPRI will be investigating a variety of policy options. It is hoped that this report and others in this series will provide



assistance to policymakers and others involved in the farm bill debate as they weigh the various alternatives.

**Appendix**

Table A.1. Domestic policy assumptions

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 Average	Change from Base		
								Absolute	Percent	
(Dollars per bushel)										
Corn Target Price										
Baseline	2.75	2.75	2.75	2.75	2.75	2.75	*	2.75		
Scenario 1	2.75	2.75	2.75	2.70	2.64	2.59	*	2.68	-0.07	-2.4%
Scenario 2	2.75	2.67	2.59	2.51	2.43	2.36	*	2.51	-0.24	-8.6%
Sorghum Target Price										
Baseline	2.60	2.60	2.60	2.60	2.60	2.60	*	2.60		
Scenario 1	2.60	2.60	2.60	2.55	2.50	2.45	*	2.54	-0.06	-2.4%
Scenario 2	2.60	2.52	2.45	2.37	2.30	2.23	*	2.38	-0.22	-8.6%
Barley Target Price										
Baseline	2.35	2.35	2.35	2.35	2.35	2.35	*	2.35		
Scenario 1	2.35	2.35	2.35	2.30	2.26	2.21	*	2.29	-0.06	-2.4%
Scenario 2	2.35	2.28	2.21	2.14	2.08	2.02	*	2.15	-0.20	-8.6%
Oats Target Price										
Baseline	1.44	1.44	1.44	1.44	1.44	1.44	*	1.44		
Scenario 1	1.44	1.44	1.44	1.41	1.38	1.36	*	1.41	-0.03	-2.4%
Scenario 2	1.44	1.40	1.35	1.31	1.27	1.24	*	1.32	-0.12	-8.6%
Wheat Target Price										
Baseline	4.00	4.00	4.00	4.00	4.00	4.00	*	4.00		
Scenario 1	4.00	4.00	4.00	3.92	3.84	3.76	*	3.91	-0.09	-2.4%
Scenario 2	4.00	3.88	3.76	3.65	3.54	3.43	*	3.65	-0.35	-8.6%
Rice Target Price (Dollars per hundredweight)										
Baseline	10.71	10.71	10.71	10.71	10.71	10.71	*	10.71		
Scenario 1	10.71	10.71	10.71	10.50	10.29	10.08	*	10.46	-0.25	-2.4%
Scenario 2	10.71	10.39	10.08	9.77	9.48	9.20	*	9.78	-0.93	-8.6%
Cotton Target Price (Cents per pound)										
Baseline	72.90	72.90	72.90	72.90	72.90	72.90	*	72.90		
Scenario 1	72.90	72.90	72.90	71.44	70.01	68.61	*	71.17	-1.73	-2.4%
Scenario 2	72.90	70.71	68.59	66.53	64.54	62.60	*	66.60	-6.30	-8.6%

Table A.1. continued

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92-	Change from Base		
							Average	Absolute	Percent	
(Percent)										
Corn, Sorghum, Barley ARP										
Baseline	10.0	10.0	12.5	12.5	10.0	10.0	*	11.0		
Scenario 1	10.0	10.0	12.5	12.5	10.0	10.0	*	11.0	0.0	0.0%
Scenario 2	10.0	10.0	12.5	10.0	7.5	7.5	*	9.5	-1.5	-13.6%
Oats ARP										
Baseline	5.0	5.0	5.0	5.0	5.0	5.0	*	5.0		
Scenario 1	5.0	5.0	5.0	5.0	5.0	5.0	*	5.0	0.0	0.0%
Scenario 2	5.0	5.0	5.0	5.0	5.0	5.0	*	5.0	0.0	0.0%
Wheat ARP										
Baseline	5.0	5.0	10.0	10.0	5.0	5.0	*	7.0		
Scenario 1	5.0	5.0	10.0	10.0	5.0	5.0	*	7.0	0.0	0.0%
Scenario 2	5.0	5.0	10.0	7.5	2.5	2.5	*	5.5	-1.5	-21.4%
Rice ARP										
Baseline	15.0	20.0	20.0	20.0	20.0	20.0	*	20.0		
Scenario 1	15.0	20.0	20.0	20.0	20.0	20.0	*	20.0	0.0	0.0%
Scenario 2	15.0	20.0	20.0	20.0	20.0	20.0	*	20.0	0.0	0.0%
Cotton ARP										
Baseline	10.0	15.0	20.0	20.0	20.0	20.0	*	19.0		
Scenario 1	10.0	15.0	20.0	20.0	20.0	20.0	*	19.0	0.0	0.0%
Scenario 2	10.0	15.0	20.0	20.0	20.0	15.0	*	18.0	-1.0	-5.3%
(Million acres)										
CRP Area										
Baseline	35.0	40.0	40.0	40.0	40.0	40.0	*	40.0		
Scenario 1	35.0	40.0	40.0	40.0	40.0	40.0	*	40.0	0.0	0.0%
Scenario 2	35.0	40.0	42.5	45.0	47.5	50.0	*	45.0	5.0	12.5%
(Million dollars)										
EEP Expenditures										
Baseline	600	600	600	600	600	600	*	600		
Scenario 1	600	600	600	600	600	600	*	600	0	0.0%
Scenario 2	600	600	600	600	600	600	*	600	0	0.0%

Table A.2. Foreign policy assumptions

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 <u>Change from Base</u>		
							Average	Absolute	Percent
European Community (ECUs per Metric Ton)									
Wheat Intervention Price									
Baseline	179	179	179	179	179	179 *	179		
Scenario 1	179	179	179	175	172	168 *	175	-4	-2.4%
Scenario 2	179	174	168	163	158	154 *	164	-15	-8.6%
Barley Intervention Price									
Baseline	170	170	170	170	170	170 *	170		
Scenario 1	170	170	170	167	163	160 *	166	-4	-2.4%
Scenario 2	170	165	160	155	150	146 *	155	-15	-8.6%
Rapeseed Intervention Price									
Baseline	408	408	408	408	408	408 *	408		
Scenario 1	408	408	408	400	392	384 *	398	-10	-2.4%
Scenario 2	408	396	384	372	361	350 *	373	-35	-8.6%
Japan (Yen per Metric Ton)									
Rice Gov't Purchase Price									
Baseline	292,617	292,617	292,617	292,617	292,617	292,617 *	292,617		
Scenario 1	292,617	292,617	292,617	286,765	281,029	275,409 *	285,687	-6,930	-2.4%
Scenario 2	292,617	283,838	275,323	267,064	259,052	251,280 *	267,311	-25,306	-8.6%
Wheat Gov't Purchase Price									
Baseline	180,417	180,417	180,417	180,417	180,417	180,417 *	180,417		
Scenario 1	180,417	180,417	180,417	176,809	173,272	169,807 *	176,144	-4,273	-2.4%
Scenario 2	180,417	175,004	169,754	164,662	159,722	154,930 *	164,815	-15,602	-8.6%
Barley Gov't Purchase Price									
Baseline	162,500	162,500	162,500	162,500	162,500	162,500 *	162,500		
Scenario 1	162,500	162,500	162,500	159,250	156,065	152,944 *	158,652	-3,848	-2.4%
Scenario 2	162,500	157,625	152,896	148,309	143,860	139,544 *	148,447	-14,053	-8.6%

Table A.3. U.S. participation rates

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92-95/96			
							Average	Change from Base Absolute	Percent	
(Percent)										
Corn										
Baseline	82.8	81.1	79.7	74.3	71.4	71.4	*	75.6		
Scenario 1	82.8	81.1	79.5	73.0	68.9	68.0	*	74.1	-1.5	-2.0%
Scenario 2	82.8	80.0	76.8	69.5	65.3	63.5	*	71.0	-4.6	-6.0%
Sorghum										
Baseline	73.8	69.7	70.6	66.5	64.8	63.7	*	67.1		
Scenario 1	73.8	69.7	70.5	65.6	63.2	61.4	*	66.1	-1.0	-1.5%
Scenario 2	73.8	68.8	68.2	63.2	60.9	58.0	*	63.8	-3.2	-4.8%
Barley										
Baseline	59.2	67.1	74.9	67.2	65.9	64.5	*	67.9		
Scenario 1	59.2	67.1	74.7	65.0	62.2	59.2	*	65.6	-2.3	-3.4%
Scenario 2	59.2	65.0	69.8	60.2	57.4	54.4	*	61.4	-6.6	-9.7%
Oats										
Baseline	26.6	26.1	26.4	26.6	26.7	26.9	*	26.5		
Scenario 1	26.6	26.1	26.4	26.6	26.7	26.9	*	26.5	0.0	0.0%
Scenario 2	26.6	26.1	26.4	26.6	26.6	26.7	*	26.5	-0.1	-0.2%
Wheat										
Baseline	93.6	77.8	79.4	70.8	70.6	69.3	*	73.6		
Scenario 1	93.6	77.8	79.3	68.0	66.7	62.2	*	70.8	-2.8	-3.8%
Scenario 2	93.6	75.1	73.6	62.9	60.0	58.9	*	66.1	-7.5	-10.2%
Rice										
Baseline	85.3	91.0	92.0	90.0	87.7	88.7	*	89.9		
Scenario 1	85.3	91.0	91.8	89.2	85.9	85.7	*	88.7	-1.2	-1.3%
Scenario 2	85.3	89.8	89.1	85.8	82.2	81.8	*	85.7	-4.1	-4.6%
Cotton										
Baseline	75.7	80.2	78.7	75.8	73.0	69.1	*	75.4		
Scenario 1	75.7	80.2	78.7	73.6	68.9	63.3	*	72.9	-2.4	-3.2%
Scenario 2	75.7	76.6	72.1	66.2	60.8	57.6	*	66.7	-8.7	-11.5%

Table A.4. U.S. land utilization

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 <u>Change from Base</u>			
							Average	Absolute	Percent	
(Million Acres)										
Area Planted (15 Crops)										
Baseline	270.9	265.9	260.4	264.9	270.3	270.5	*	266.4		
Scenario 1	270.9	265.9	260.6	265.9	271.5	272.6	*	267.3	0.9	0.3%
Scenario 2	270.9	266.4	260.9	267.6	271.8	271.7	*	267.7	1.3	0.5%
ARP & 0-92 Idled Area										
Baseline	16.8	18.7	27.8	23.2	17.5	17.7	*	21.0		
Scenario 1	16.8	18.7	27.6	22.0	15.6	14.7	*	19.7	-1.3	-6.1%
Scenario 2	16.8	17.9	24.6	15.6	9.6	8.2	*	15.2	-5.8	-27.7%
CRP Area										
Baseline	35.0	40.0	40.0	40.0	40.0	40.0	*	40.0		
Scenario 1	35.0	40.0	40.0	40.0	40.0	40.0	*	40.0	0.0	0.0%
Scenario 2	35.0	40.0	42.5	45.0	47.5	50.0	*	45.0	5.0	12.5%
Corn Planted Area										
Baseline	74.5	73.9	71.4	72.4	73.9	73.6	*	73.0		
Scenario 1	74.5	73.9	71.5	72.7	74.4	74.3	*	73.4	0.3	0.4%
Scenario 2	74.5	73.9	71.7	73.9	75.0	75.0	*	73.9	0.9	1.2%
Other Feed Grain Area										
Baseline	32.0	33.7	33.2	33.7	33.7	33.4	*	33.5		
Scenario 1	32.0	33.7	33.3	33.8	33.9	33.7	*	33.7	0.1	0.4%
Scenario 2	32.0	33.8	33.3	33.7	33.5	33.3	*	33.5	-0.0	-0.1%
Soybean Planted Area										
Baseline	57.6	56.5	58.4	59.6	60.0	60.6	*	59.0		
Scenario 1	57.6	56.5	58.4	59.8	60.1	60.7	*	59.1	0.1	0.2%
Scenario 2	57.6	56.6	58.1	59.4	60.1	60.3	*	58.9	-0.1	-0.1%
Wheat Planted Area										
Baseline	82.0	77.9	73.9	75.7	79.0	79.1	*	77.1		
Scenario 1	82.0	77.9	73.9	76.1	79.3	79.9	*	77.4	0.3	0.4%
Scenario 2	82.0	78.1	74.1	76.9	79.4	79.1	*	77.5	0.5	0.6%
Rice Planted Area										
Baseline	3.2	3.0	2.9	2.9	2.9	2.9	*	2.9		
Scenario 1	3.2	3.0	2.9	2.9	2.9	2.9	*	2.9	0.0	0.4%
Scenario 2	3.2	3.0	2.9	2.9	3.0	3.0	*	3.0	0.1	2.0%
Cotton Planted Acres										
Baseline	12.6	11.9	11.6	11.6	11.7	11.9	*	11.7		
Scenario 1	12.6	11.9	11.6	11.6	11.8	12.0	*	11.8	0.0	0.3%
Scenario 2	12.6	11.9	11.7	11.6	11.7	12.1	*	11.8	0.1	0.5%

Table A.5. Crop production

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96			
							Average	Change from Base Absolute Percent		
(Million Bushels)										
Corn Production										
Baseline	7,973	8,028	7,903	8,114	8,369	8,438	*	8,170		
Scenario 1	7,973	8,028	7,911	8,116	8,378	8,457	*	8,178	8	0.1%
Scenario 2	7,973	8,001	7,872	8,170	8,361	8,442	*	8,169	-1	-0.0%
Sorghum Production										
Baseline	653	734	702	744	765	754	*	740		
Scenario 1	653	734	704	749	775	771	*	747	7	0.9%
Scenario 2	653	734	708	760	772	777	*	750	10	1.4%
Barley Production										
Baseline	505	535	522	544	555	559	*	543		
Scenario 1	505	535	523	547	560	566	*	546	3	0.6%
Scenario 2	505	536	526	553	558	561	*	547	4	0.7%
Oats Production										
Baseline	324	347	365	353	357	361	*	356		
Scenario 1	324	347	364	352	358	361	*	356	-0	-0.1%
Scenario 2	324	348	363	345	350	353	*	352	-5	-1.3%
Soybean Production										
Baseline	1,913	1,899	1,978	2,038	2,072	2,113	*	2,020		
Scenario 1	1,913	1,899	1,979	2,044	2,076	2,117	*	2,023	3	0.1%
Scenario 2	1,913	1,903	1,970	2,033	2,078	2,105	*	2,018	-2	-0.1%
Wheat Production										
Baseline	2,648	2,538	2,438	2,527	2,663	2,696	*	2,573		
Scenario 1	2,648	2,538	2,439	2,540	2,670	2,718	*	2,581	9	0.3%
Scenario 2	2,648	2,542	2,442	2,562	2,671	2,692	*	2,582	9	0.4%
(Hundredweight)										
Rice Production										
Baseline	172	166	162	164	168	167	*	165		
Scenario 1	172	166	163	164	168	169	*	166	1	0.3%
Scenario 2	172	166	164	167	171	172	*	168	3	1.7%
(Bales)										
Cotton Production										
Baseline	16	16	15	16	16	17	*	16		
Scenario 1	16	16	15	16	16	17	*	16	0	0.1%
Scenario 2	16	16	15	16	16	17	*	16	-0	-0.3%



Table A.6. U.S. crop total domestic use

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 Average	Change from Base		
								Absolute	Percent	
(Million Bushels)										
Corn Use										
Baseline	5,848	5,934	5,923	5,932	5,934	5,934	* 5,933			
Scenario 1	5,848	5,938	5,931	5,933	5,937	5,922	* 5,932	-1	-0.0%	
Scenario 2	5,823	5,898	5,886	5,903	5,873	5,827	* 5,878	-56	-0.9%	
Sorghum Use										
Baseline	443	462	467	479	483	473	* 473			
Scenario 1	443	462	468	480	488	481	* 476	3	0.7%	
Scenario 2	443	462	471	486	488	482	* 478	5	1.1%	
Barley Use										
Baseline	393	417	433	445	453	460	* 441			
Scenario 1	393	417	433	445	454	461	* 442	0	0.1%	
Scenario 2	393	418	433	446	454	460	* 442	1	0.2%	
Oats Use										
Baseline	395	393	402	402	402	406	* 401			
Scenario 1	395	394	402	400	402	406	* 401	-0	-0.0%	
Scenario 2	395	395	402	398	397	399	* 398	-3	-0.7%	
Soybean Use										
Baseline	1,264	1,295	1,330	1,368	1,396	1,421	* 1,362			
Scenario 1	1,264	1,296	1,331	1,370	1,397	1,421	* 1,363	1	0.1%	
Scenario 2	1,262	1,294	1,327	1,362	1,390	1,410	* 1,357	-5	-0.4%	
Wheat Use										
Baseline	1,004	1,014	1,024	1,048	1,062	1,065	* 1,043			
Scenario 1	1,005	1,014	1,024	1,049	1,062	1,065	* 1,043	0	0.0%	
Scenario 2	1,004	1,012	1,024	1,048	1,058	1,057	* 1,040	-3	-0.2%	
Rice Use (Hundredweight)										
Baseline	86	86	88	89	90	91	* 89			
Scenario 1	86	86	88	89	90	91	* 89	0	0.0%	
Scenario 2	85	86	88	89	90	92	* 89	0	0.2%	
Cotton Use (Million Bales)										
Baseline	7.84	8.04	7.92	8.03	8.07	8.14	* 8.04			
Scenario 1	7.84	8.04	7.92	8.03	8.07	8.14	* 8.04	0.00	0.0%	
Scenario 2	7.84	8.05	7.91	8.03	8.07	8.13	* 8.04	-0.00	-0.0%	
Sugar Disappearance (Thousand Tons, Raw Value)										
Baseline	8,328	8,331	8,370	8,405	8,427	8,454	* 8,397			
Scenario 1	8,328	8,332	8,371	8,423	8,471	8,522	* 8,424	26	0.3%	
Scenario 2	8,323	8,330	8,466	8,657	8,855	9,051	* 8,672	274	3.3%	

Table A.7. U.S. exports

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 Average	Change from Base		
								Absolute	Percent	
(Million Metric Tons)										
Total Exports										
Baseline	122.15	128.59	133.01	140.35	147.35	154.10	*	140.68		
Scenario 1	122.15	128.53	132.84	140.81	148.05	155.43	*	141.13	0.45	0.3%
Scenario 2	122.34	129.44	134.40	142.85	150.11	157.09	*	142.78	2.10	1.5%
Corn Exports										
Baseline	50.10	51.59	53.65	56.97	60.39	64.18	*	57.36		
Scenario 1	50.10	51.54	53.63	57.10	60.87	64.99	*	57.63	0.27	0.5%
Scenario 2	50.29	52.22	54.54	58.59	62.62	66.88	*	58.97	1.61	2.8%
Other Feed Grain Exports										
Baseline	7.68	8.82	8.76	9.37	9.64	9.97	*	9.31		
Scenario 1	7.68	8.84	8.77	9.48	9.80	10.22	*	9.42	0.11	1.2%
Scenario 2	7.64	8.83	8.93	9.62	9.85	10.26	*	9.50	0.19	2.0%
Soybean Exports										
Baseline	16.28	16.90	17.26	17.68	18.20	18.74	*	17.76		
Scenario 1	16.28	16.91	17.26	17.72	18.27	18.86	*	17.80	0.05	0.3%
Scenario 2	16.26	16.95	17.36	17.79	18.32	18.91	*	17.87	0.11	0.6%
Soybean Meal Exports										
Baseline	5.35	6.11	6.82	7.48	8.10	8.62	*	7.43		
Scenario 1	5.35	6.10	6.80	7.45	8.07	8.58	*	7.40	-0.03	-0.4%
Scenario 2	5.41	6.15	6.77	7.35	7.95	8.42	*	7.33	-0.10	-1.4%
Soy Oil Exports										
Baseline	0.71	0.83	0.90	1.00	1.06	1.11	*	0.98		
Scenario 1	0.71	0.83	0.90	1.00	1.06	1.11	*	0.98	0.00	0.2%
Scenario 2	0.71	0.83	0.90	0.98	1.04	1.07	*	0.96	-0.02	-1.6%
Wheat Exports										
Baseline	36.56	38.80	40.28	42.52	44.52	45.97	*	42.42		
Scenario 1	36.56	38.82	40.13	42.73	44.51	46.09	*	42.45	0.04	0.1%
Scenario 2	36.56	38.96	40.51	43.10	44.75	45.84	*	42.63	0.21	0.5%
Rice Exports										
Baseline	3.82	3.89	3.67	3.63	3.67	3.68	*	3.71		
Scenario 1	3.82	3.85	3.67	3.64	3.70	3.74	*	3.72	0.01	0.3%
Scenario 2	3.83	3.87	3.73	3.74	3.83	3.89	*	3.81	0.10	2.8%
Cotton Exports										
Baseline	1.62	1.63	1.67	1.69	1.76	1.84	*	1.72		
Scenario 1	1.62	1.63	1.67	1.69	1.77	1.85	*	1.72	0.00	0.2%
Scenario 2	1.63	1.63	1.66	1.67	1.75	1.82	*	1.71	-0.01	-0.7%

Table A.8. U.S. value of exports

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92-			
							95/96	Change from Base		
							Average	Absolute	Percent	
(Billion Dollars)										
Total Exports										
Baseline	18.42	18.87	20.75	22.28	23.57	25.35	*	22.17		
Scenario 1	18.42	18.92	20.84	22.40	23.83	25.66	*	22.33	0.16	0.7%
Scenario 2	18.27	18.87	21.23	22.95	24.57	26.56	*	22.84	0.67	3.0%
Corn Exports										
Baseline	4.95	4.70	5.20	5.70	5.96	6.39	*	5.59		
Scenario 1	4.95	4.71	5.23	5.78	6.11	6.58	*	5.68	0.09	1.7%
Scenario 2	4.90	4.75	5.43	5.96	6.45	7.00	*	5.92	0.33	5.9%
Other Feed Grain Exports										
Baseline	0.79	0.84	0.89	0.97	0.99	1.05	*	0.95		
Scenario 1	0.79	0.84	0.89	0.99	1.02	1.07	*	0.96	0.01	1.5%
Scenario 2	0.78	0.84	0.92	1.00	1.04	1.11	*	0.98	0.03	3.6%
Soybean Exports										
Baseline	3.42	3.87	4.09	4.12	4.35	4.70	*	4.23		
Scenario 1	3.42	3.89	4.11	4.11	4.32	4.69	*	4.22	-0.00	-0.1%
Scenario 2	3.37	3.81	4.18	4.31	4.45	4.84	*	4.32	0.09	2.2%
Soybean Meal Exports										
Baseline	0.97	1.22	1.44	1.60	1.78	1.99	*	1.61		
Scenario 1	0.97	1.23	1.45	1.60	1.76	1.96	*	1.60	-0.01	-0.5%
Scenario 2	0.96	1.19	1.44	1.61	1.74	1.93	*	1.58	-0.03	-1.7%
Soy Oil Exports										
Baseline	0.28	0.33	0.37	0.39	0.43	0.46	*	0.40		
Scenario 1	0.28	0.33	0.37	0.39	0.42	0.46	*	0.39	-0.00	-0.6%
Scenario 2	0.29	0.34	0.38	0.41	0.44	0.48	*	0.41	0.01	2.8%
Wheat Exports										
Baseline	5.33	5.27	5.99	6.60	6.99	7.47	*	6.46		
Scenario 1	5.33	5.28	6.02	6.63	7.10	7.57	*	6.52	0.06	0.9%
Scenario 2	5.30	5.29	6.11	6.77	7.35	7.87	*	6.68	0.21	3.3%
Rice Exports										
Baseline	0.57	0.56	0.57	0.61	0.60	0.63	*	0.59		
Scenario 1	0.57	0.56	0.57	0.61	0.62	0.65	*	0.60	0.01	1.3%
Scenario 2	0.57	0.57	0.59	0.64	0.65	0.68	*	0.63	0.03	5.5%
Cotton Exports										
Baseline	2.11	2.08	2.20	2.28	2.47	2.65	*	2.34		
Scenario 1	2.11	2.08	2.20	2.28	2.48	2.67	*	2.34	0.00	0.2%
Scenario 2	2.11	2.08	2.19	2.26	2.45	2.64	*	2.33	-0.01	-0.5%

Table A.9. Farm prices

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96		Change from Base	
							Average	Absolute	Percent	
(Dollars per Bushel)										
Corn Farm Price										
Baseline	2.17	1.99	2.13	2.20	2.17	2.19	*	2.14		
Scenario 1	2.17	2.00	2.14	2.23	2.21	2.23	*	2.16	0.03	1.2%
Scenario 2	2.14	1.99	2.19	2.24	2.27	2.31	*	2.20	0.06	3.0%
Sorghum Farm Price										
Baseline	2.09	1.92	2.07	2.12	2.10	2.14	*	2.07		
Scenario 1	2.09	1.93	2.08	2.13	2.11	2.14	*	2.08	0.01	0.3%
Scenario 2	2.07	1.92	2.10	2.12	2.16	2.19	*	2.10	0.03	1.4%
Barley Farm Price										
Baseline	2.10	1.85	1.99	2.03	2.03	2.07	*	1.99		
Scenario 1	2.10	1.85	2.00	2.04	2.04	2.08	*	2.00	0.01	0.4%
Scenario 2	2.08	1.85	2.01	2.03	2.09	2.16	*	2.03	0.03	1.7%
Oats Farm Price										
Baseline	1.68	1.68	1.69	1.75	1.78	1.80	*	1.74		
Scenario 1	1.68	1.68	1.69	1.77	1.79	1.81	*	1.75	0.01	0.4%
Scenario 2	1.67	1.67	1.70	1.79	1.84	1.88	*	1.78	0.03	2.0%
Soybean Farm Price										
Baseline	5.26	5.76	5.97	5.87	6.02	6.34	*	5.99		
Scenario 1	5.26	5.78	6.00	5.84	5.96	6.28	*	5.97	-0.02	-0.3%
Scenario 2	5.19	5.65	6.07	6.11	6.12	6.48	*	6.09	0.09	1.6%
Wheat Farm Price										
Baseline	3.24	3.01	3.31	3.46	3.50	3.63	*	3.38		
Scenario 1	3.24	3.02	3.34	3.46	3.56	3.67	*	3.41	0.03	0.8%
Scenario 2	3.22	3.01	3.36	3.50	3.67	3.84	*	3.48	0.09	2.8%
(Dollars per Hundredweight)										
Rice Farm Price										
Baseline	6.74	6.57	7.03	7.58	7.46	7.71	*	7.27		
Scenario 1	6.74	6.61	7.03	7.63	7.57	7.85	*	7.34	0.07	0.9%
Scenario 2	6.74	6.68	7.17	7.75	7.69	7.98	*	7.45	0.18	2.5%
(Dollars per Pound)										
Cotton Farm Price										
Baseline	0.59	0.58	0.60	0.61	0.64	0.66	*	0.62		
Scenario 1	0.59	0.58	0.60	0.61	0.64	0.65	*	0.62	-0.00	-0.1%
Scenario 2	0.59	0.58	0.60	0.61	0.64	0.66	*	0.62	0.00	0.2%

Table A.10. U.S. sugar

Variable/Year	1990	1991	1992	1993	1994	1995	1991-			
							1995	Average	Change from Base Absolute	Percent
(1,000 Tons)										
Sugar Production										
Baseline	7,232	7,329	7,420	7,522	7,632	7,739	*	7,528		
Scenario 1	7,232	7,329	7,419	7,520	7,613	7,703	*	7,517	-11	-0.2%
Scenario 2	7,232	7,335	7,370	7,332	7,281	7,227	*	7,309	-220	-2.9%
HFCS Production										
Baseline	6,142	6,299	6,422	6,542	6,671	6,791	*	6,545		
Scenario 1	6,142	6,298	6,420	6,533	6,652	6,763	*	6,533	-12	-0.2%
Scenario 2	6,146	6,300	6,332	6,302	6,261	6,216	*	6,282	-263	-4.0%
Sugar Use										
Baseline	8,683	8,686	8,725	8,760	8,782	8,809	*	8,752		
Scenario 1	8,683	8,687	8,726	8,778	8,826	8,877	*	8,779	26	0.3%
Scenario 2	8,678	8,685	8,821	9,012	9,210	9,406	*	9,027	274	3.1%
HFCS Use										
Baseline	6,312	6,469	6,592	6,712	6,841	6,961	*	6,715		
Scenario 1	6,312	6,468	6,590	6,703	6,822	6,933	*	6,703	-12	-0.2%
Scenario 2	6,316	6,470	6,502	6,472	6,431	6,386	*	6,452	-263	-3.9%
Sugar Imports										
Baseline	1,299	1,358	1,318	1,250	1,158	1,080	*	1,233		
Scenario 1	1,299	1,360	1,321	1,277	1,230	1,192	*	1,276	43	3.5%
Scenario 2	1,293	1,353	1,500	1,750	2,000	2,250	*	1,771	538	43.6%
(Cents/Pound)										
Raw Sugar N.Y. Spot Price										
Baseline	21.50	21.50	21.50	21.50	21.50	21.50	*	21.50		
Scenario 1	21.50	21.50	21.50	20.96	20.44	19.93	*	20.86	-0.64	-3.0%
Scenario 2	21.50	21.50	21.50	21.50	21.50	21.50	*	21.50	0.00	0.0%
HFCS Chicago West Wholesale										
Baseline	16.68	16.72	16.96	17.2	17.46	17.73	*	17.21		
Scenario 1	16.68	16.72	16.96	16.92	16.75	16.61	*	16.79	-0.42	-2.5%
Scenario 2	16.68	16.72	17.01	17.35	17.71	18.07	*	17.37	0.16	0.9%

Table A.11. U.S. dairy

Variable/Year	1991	1992	1993	1994	1995	1996	1992-	Change from Base	
							1996	Average	Absolute
(Millions)									
Milk Cows									
Baseline	10.22	10.10	9.84	9.58	9.43	9.34 *	9.66		
Scenario 1	10.27	10.22	9.97	9.68	9.49	9.39 *	9.75	0.09	1.0%
Scenario 2	9.95	9.64	9.58	9.50	9.40	9.32 *	9.49	-0.17	-1.8%
(1,000 Pounds)									
Dairy Production									
Baseline	155.19	155.46	153.64	152.35	152.92	154.55 *	153.78		
Scenario 1	156.13	157.80	155.89	153.80	153.88	155.22 *	155.32	1.53	1.0%
Scenario 2	151.21	148.89	150.02	151.13	152.18	153.19 *	151.08	-2.70	-1.8%
(Billion Pounds Milk Equivalent)									
Fluid Consumption									
Baseline	57.20	58.15	58.85	59.47	59.96	60.46 *	59.38		
Scenario 1	56.98	57.94	58.85	59.47	59.96	60.46 *	59.34	-0.04	-0.1%
Scenario 2	56.98	57.69	58.41	59.11	59.81	60.50 *	59.10	-0.27	-0.5%
Manufacturing Use									
Baseline	79.69	81.51	82.72	83.73	84.45	85.19 *	83.52		
Scenario 1	79.16	80.99	82.72	83.73	84.45	85.19 *	83.42	-0.10	-0.1%
Scenario 2	79.16	80.37	81.61	82.85	84.07	85.29 *	82.84	-0.68	-0.8%
Net Gov't Removals									
Baseline	11.18	8.62	4.89	2.00	1.40	1.83 *	3.75		
Scenario 1	12.91	11.73	7.15	3.45	2.36	2.50 *	5.44	1.69	45.1%
Scenario 2	8.00	3.75	3.75	3.75	3.75	3.75 *	3.75	0.00	0.1%
(Dollars/Cwt)									
Farm Price									
Baseline	11.00	10.40	10.40	10.60	11.10	11.60 *	10.82		
Scenario 1	11.50	10.90	10.40	10.60	11.10	11.60 *	10.92	0.10	0.9%
Scenario 2	11.50	11.50	11.50	11.50	11.50	11.50 *	11.50	0.68	6.3%
Support Price									
Baseline	9.60	9.10	9.10	9.10	9.60	10.10 *	9.40		
Scenario 1	10.10	9.60	9.10	9.10	9.60	10.10 *	9.50	0.10	1.1%
Scenario 2	10.10	10.10	10.10	10.10	10.10	10.10 *	10.10	0.70	7.4%

Table A.12. U.S. livestock

Variable/Year	1991	1992	1993	1994	1995	1996	1992-1996			
							Average	Change from Base Absolute	Percent	
(Million Pounds)										
Beef Production										
Baseline	22,387	22,636	22,927	23,299	23,878	23,249	*	23,198		
Scenario 1	22,389	22,637	22,926	23,295	23,883	23,262	*	23,201	3	0.0%
Scenario 2	22,427	22,501	22,755	23,226	23,937	23,366	*	23,157	-41	-0.2%
Pork Production										
Baseline	15,932	16,188	15,638	15,513	15,726	15,730	*	15,759		
Scenario 1	15,932	16,181	15,603	15,492	15,724	15,725	*	15,745	-14	-0.1%
Scenario 2	15,899	16,213	15,784	15,598	15,725	15,594	*	15,783	24	0.2%
Broiler Production										
Baseline	18,574	18,836	19,033	19,454	19,705	20,128	*	19,431		
Scenario 1	18,574	18,835	19,031	19,453	19,705	20,128	*	19,430	-1	-0.0%
Scenario 2	18,576	18,849	19,037	19,450	19,696	20,118	*	19,430	-1	-0.0%
Turkey Production										
Baseline	4,456	4,544	4,605	4,671	4,720	4,694	*	4,647		
Scenario 1	4,456	4,542	4,600	4,666	4,715	4,690	*	4,643	-4	-0.1%
Scenario 2	4,460	4,557	4,612	4,668	4,709	4,676	*	4,644	-2	-0.1%
(Dollars/Cwt)										
Omaha Steer Price										
Baseline	77.76	75.61	74.20	70.51	69.19	72.46	*	72.39		
Scenario 1	77.73	75.63	74.57	71.16	69.73	72.98	*	72.81	0.42	0.6%
Scenario 2	76.90	77.29	76.58	72.04	69.23	72.32	*	73.49	1.10	1.5%
Barrow/Gilt Price										
Baseline	43.12	40.13	44.84	45.50	44.38	44.17	*	43.80		
Scenario 1	43.11	40.20	45.29	45.99	44.70	44.53	*	44.14	0.34	0.8%
Scenario 2	42.94	40.68	45.03	45.84	44.53	45.21	*	44.26	0.45	1.0%
(Cents/Pound)										
12-City Broiler Price										
Baseline	59.56	56.69	59.01	57.27	57.10	59.47	*	57.91		
Scenario 1	59.56	56.72	59.18	57.45	57.21	59.61	*	58.03	0.13	0.2%
Scenario 2	59.50	57.01	59.12	57.35	57.07	59.81	*	58.07	0.16	0.3%
Turkey Farm Price										
Baseline	40.99	39.13	41.27	40.13	40.85	41.09	*	40.49		
Scenario 1	40.99	39.16	41.46	40.40	41.08	41.32	*	40.68	0.19	0.5%
Scenario 2	40.77	39.27	41.49	40.44	41.07	41.54	*	40.76	0.27	0.7%

Table A.13. U.S. total government costs

Program/Fiscal Year	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 92-FY 96		Change from Base	
							Average	Absolute	Percent	
(Dollars per Acre)										
Feed Grains										
Baseline	5,094	5,324	4,006	3,418	3,733	3,079	*	3,912		
Scenario 1	5,081	5,264	3,847	2,858	2,700	1,855	*	3,305	-607	-15.5%
Scenario 2	5,137	4,479	2,410	1,616	1,086	595	*	2,037	-1,875	-47.9%
Wheat										
Baseline	1,805	1,741	1,062	783	778	554	*	984		
Scenario 1	1,801	1,735	1,004	607	399	197	*	788	-195	-19.8%
Scenario 2	1,770	1,450	589	186	68	108	*	480	-503	-51.2%
Cotton										
Baseline	754	712	536	389	347	233	*	443		
Scenario 1	754	712	519	297	176	64	*	354	-90	-20.3%
Scenario 2	727	534	276	28	-34	-4	*	160	-283	-63.9%
Rice										
Baseline	542	558	439	327	370	338	*	406		
Scenario 1	541	558	435	293	289	239	*	363	-44	-10.7%
Scenario 2	530	481	320	191	175	111	*	256	-151	-37.1%
Dairy										
Baseline	1,144	907	556	303	168	179	*	423		
Scenario 1	1,306	1,230	801	418	261	256	*	803	381	90.1%
Scenario 2	951	517	393	393	393	393	*	418	-5	-1.1%
Environmental										
Baseline	0	0	0	0	0	0	*	0		
Scenario 1	0	0	0	0	0	0	*	0	0	—
Scenario 2	0	1,000	1,000	1,000	1,000	1,000	*	1,000	1,000	—
Net CCC Outlays										
Baseline	11,373	11,113	8,184	6,732	6,830	5,713	*	7,714		
Scenario 1	11,522	11,373	8,165	5,840	5,008	3,674	*	6,812	-902	-11.7%
Scenario 2	11,143	10,070	6,081	4,373	3,553	3,094	*	5,434	-2,280	-29.6%
Conservation Reserve										
Baseline	1,928	2,103	2,008	2,008	2,008	2,008	*	2,027		
Scenario 1	1,928	2,103	2,008	2,008	2,008	2,008	*	2,027	0	0.0%
Scenario 2	1,928	2,151	2,237	2,277	2,413	2,550	*	2,326	299	14.7%
Total Gov't. Cost <sup>a</sup>										
Baseline	13,301	13,216	10,192	8,740	8,838	7,721	*	9,741		
Scenario 1	13,450	13,476	10,173	7,848	7,016	5,682	*	8,839	-902	-9.3%
Scenario 2	13,071	12,221	8,318	6,650	5,966	5,644	*	7,760	-1,982	-20.3%

<sup>a</sup>Net CCC + CRP expenditures.



Table A.14. U.S. net returns

Variable/Year	90/91	91/92	92/93	93/94	94/95	95/96	91/92- 95/96 Average	Change from Base	
								Absolute	Percent
(Billion Dollars)									
Total Net Returns									
Baseline	26.00	25.49	25.98	25.21	24.92	24.88 *	25.30		
Scenario 1	26.00	25.57	26.09	24.55	23.66	23.01 *	24.57	-0.72	-2.9%
Scenario 2	25.77	24.09	24.11	23.06	22.30	22.34 *	23.18	-2.12	-8.4%
Corn Net Returns									
Baseline	9.99	9.46	9.41	9.05	8.63	8.24 *	8.96		
Scenario 1	9.99	9.48	9.43	8.76	8.02	7.30 *	8.60	-0.36	-4.0%
Scenario 2	9.93	8.84	8.38	7.68	7.00	6.27 *	7.63	-1.32	-14.8%
Sorghum Net Returns									
Baseline	0.82	0.75	0.77	0.73	0.69	0.64 *	0.72		
Scenario 1	0.82	0.75	0.77	0.71	0.63	0.56 *	0.69	-0.03	-4.5%
Scenario 2	0.81	0.70	0.68	0.61	0.55	0.47 *	0.60	-0.11	-16.0%
Barley Net Returns									
Baseline	0.52	0.48	0.52	0.49	0.47	0.45 *	0.48		
Scenario 1	0.52	0.48	0.52	0.48	0.44	0.40 *	0.46	-0.02	-4.1%
Scenario 2	0.52	0.45	0.46	0.42	0.39	0.40 *	0.42	-0.06	-12.2%
Oats Net Returns									
Baseline	0.21	0.21	0.22	0.21	0.21	0.20 *	0.21		
Scenario 1	0.21	0.21	0.22	0.22	0.21	0.20 *	0.21	0.00	1.2%
Scenario 2	0.21	0.21	0.22	0.22	0.23	0.22 *	0.22	0.01	4.6%
Soybean Net Returns									
Baseline	5.77	6.62	7.18	7.01	7.23	7.81 *	7.17		
Scenario 1	5.77	6.66	7.24	6.96	7.12	7.70 *	7.13	-0.03	-0.5%
Scenario 2	5.63	6.42	7.35	7.48	7.45	8.08 *	7.36	0.19	2.6%
Wheat Net Returns									
Baseline	6.29	5.71	5.72	5.67	5.80	5.77 *	5.73		
Scenario 1	6.29	5.71	5.76	5.51	5.57	5.40 *	5.59	-0.15	-2.5%
Scenario 2	6.28	5.41	5.24	5.14	5.42	5.72 *	5.39	-0.35	-6.1%
Rice Net Returns									
Baseline	0.66	0.63	0.63	0.59	0.52	0.48 *	0.57		
Scenario 1	0.66	0.64	0.63	0.56	0.46	0.39 *	0.53	-0.04	-6.6%
Scenario 2	0.66	0.58	0.53	0.45	0.34	0.26 *	0.43	-0.14	-24.1%
Cotton Net Returns									
Baseline	1.74	1.63	1.53	1.45	1.37	1.29 *	1.45		
Scenario 1	1.74	1.63	1.53	1.35	1.20	1.06 *	1.36	-0.10	-6.8%
Scenario 2	1.74	1.47	1.24	1.06	0.92	0.92 *	1.12	-0.33	-22.9%

Table A.15. U.S. net farm income

Variable/Year	1991	1992	1993	1994	1995	1996	1992-1996		
							Average	Change from Base Absolute	Percent
(Billion Dollars)									
<b>Crop Receipts</b>									
Baseline	78.83	81.26	85.19	88.81	92.47	97.47 *	89.04		
Scenario 1	78.89	81.45	85.42	89.19	92.92	97.81 *	89.36	0.32	0.4%
Scenario 2	78.54	81.48	86.10	90.22	94.15	98.79 *	90.15	1.11	1.2%
<b>Livestock Receipts</b>									
Baseline	81.30	79.42	79.24	79.05	79.39	82.94 *	80.01		
Scenario 1	82.18	80.47	79.74	79.62	79.84	83.36 *	80.61	0.60	0.7%
Scenario 2	81.17	81.20	81.63	81.11	79.97	82.78 *	81.34	1.33	1.7%
<b>Government Payments</b>									
Baseline	9.91	9.37	7.83	7.28	6.91	5.75 *	7.43		
Scenario 1	9.87	9.24	7.36	5.99	5.08	3.87 *	6.31	-1.12	-15.1%
Scenario 2	9.39	8.63	6.39	5.19	4.52	3.90 *	5.73	-1.70	-22.9%
<b>Production Expenses</b>									
Baseline	142.29	145.44	151.47	156.98	162.19	170.39 *	157.29		
Scenario 1	142.39	145.68	151.85	157.53	162.84	170.99 *	157.78	0.48	0.3%
Scenario 2	141.83	146.74	153.66	159.11	164.22	171.31 *	159.01	1.71	1.1%
<b>Net Farm Income</b>									
Baseline	44.14	42.53	37.91	36.61	34.89	36.02 *	37.59		
Scenario 1	44.99	43.54	37.88	35.73	33.25	34.26 *	36.93	-0.66	-1.8%
Scenario 2	43.69	42.74	37.70	36.06	32.72	34.47 *	36.74	-0.85	-2.3%