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# Policy Alternatives for Modifying the 1985 Farm Bill



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# **POLICY ALTERNATIVES FOR MODIFYING THE 1985 FARM BILL**

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## Foreword

Hardly before the ink was dry on the 1985 farm bill proposals began to develop for its modification. Interest in modifying the bill intensified throughout the 1986 crop year as market prices declined and government costs approached \$30 billion.

In this report policy analysts analyze the consequences for continuing the provisions of the 1985 farm bill under two macroeconomic policy alternatives. Several alternatives for modifying the 1985 farm bill are described and their consequences presented. Although longer-run implications for sectors such as livestock and poultry are discussed, emphasis is placed on direct consequences for the commodities involved over the period 1986-90. These longer-run considerations may be as important as the short-run direct effects of the policy alternatives.

The Agricultural and Food Policy Center is charged with evaluating economic impacts of policy alternatives—not recommending or advocating particular policies. The Center's orientation is toward Texas agriculture—evaluating policy impacts on its farmers and ranchers. Farm prices and income, however, are determined in world markets that are influenced by national economic policy and farm programs. Texas impacts, therefore, must be evaluated in a much broader national and international market and policy context.

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## Chapter 1

### Need for Study of 1985 Farm Bill Alternatives

The 1985 farm bill was enacted into the law less than 1 year ago. Yet, with less than a full year's experience, considerable controversy surrounds the current farm program. This is the case for a number of reasons:

- Economic conditions in agriculture have not materially improved. Many would argue that conditions have continued to deteriorate. The U.S. Department of Agriculture (USDA) acknowledged, in a recent report on financial conditions in agriculture as of January 1986, that there was no end in sight for financial stress in agriculture.
- With the exception of cotton and rice where a marketing loan exists, commodity stocks remain very high. Excessive stocks continue to place downward pressure on farm prices for grains. For obvious reasons, farmers are very sensitive about the level of market prices. They see little hope for improvement.
- Surplus conditions are not limited to the United States. Commodities are being dumped on world markets at prices which are often less than cost of production. No obvious end is in sight for these world surplus conditions.
- Farm programs have become very costly to the government. The cost of the 1985 farm bill is now approaching \$30 billion annually. That amounts to over \$60,000 per commercial farmer—where a commercial farmer is defined as having over \$100,000 in sales.

### Study Objectives

Given the current agricultural price, income, and government cost situation, the objectives of this study were:

- to identify and define policy alternatives for modifying the 1985 farm bill;
- to evaluate the impacts of the 1985 farm bill on U.S. and Texas agriculture; and
- to evaluate the impact of each alternative on U.S. and Texas agriculture.

### Procedures

The study objectives were accomplished in the following steps:

- Discussions were held with selected congressmen, senators, and their staff concerning the policy and program alternatives that are most likely to receive serious consideration in the 1987 farm bill debate. In addition to the 1985 farm bill, specific options analyzed include a lowering of target prices, the Harkin bill, mandatory production controls, limiting target price support to domestic use, and a proposal to establish a target price for milk. Provisions for each of these options were defined in sufficiently specific terms to determine price and income support levels, export subsidies, and production control provisions.
- The impacts of the 1985 farm bill were evaluated utilizing the macroeconomic simulation model COMGEM developed by Penson, Hughes, and Romain. The COMGEM results for the 1985 farm bill under a high deficit, fast money growth macroeconomic policy served as the baseline for comparing the alternative proposals to the 1985 farm bill.
- Each of the policy alternatives was analyzed separately to determine its aggregate impacts on production, product use, market prices, government costs, and producer income. Specific commodities analyzed included wheat, cotton, corn, sorghum, soybeans, and milk.
- The farm level impacts of the 1985 farm bill and each policy alternative were evaluated. FLIPSIM, a farm level policy simulation model developed by Richardson and Nixon, was used to analyze these effects. The typical farms included in the FLIPSIM model were developed specifically for this study utilizing survey data from actual Texas farm operations.

- The aggregate impacts were evaluated for their potential effects on livestock industries including beef cattle, hogs, and poultry. These secondary impacts have become particularly important since the enactment of the dairy buyout program in the 1985 farm bill.

### Organization of This Report

This report is organized in essentially the same sequence as the procedures outlined above.

- Chapter 2 includes the results of the analyses of the aggregate impacts of the 1985 farm bill under two macroeconomic policy scenarios.
- Chapter 3 explains the results of the commodity impacts for each policy alternative and the 1985 farm bill.
- Chapter 4 presents the results of analyzing the three dairy policy alternatives. Also included are the impacts of the crop and dairy policies on the livestock and poultry industries. These secondary impacts are evaluated in less detail than the direct impacts of each of the policies on the commodities.
- Chapter 5 summarizes the overall results of the impact assessments including a discussion of the implications for agribusiness and consumers.

## Chapter 2

### Economic Setting for Farm Policy Decisions

The purpose of this chapter is to evaluate the aggregate impacts of the 1985 farm bill upon the economic performance of crop and livestock producers and the financial position of the farm sector, if implemented in conjunction with two alternative monetary and fiscal policy scenarios. It is assumed for purposes of this analysis that the 1985 farm bill will continue in its present form through the end of 1990. The two macroeconomic policy scenarios analyzed include:

- the combination of expansionary monetary and fiscal policy, and
- the combination of a more restrictive fiscal policy coupled with a moderately expansionary monetary policy.

#### Macroeconomic Policy Options and Provisions

Future macroeconomic policies are in a state of considerable uncertainty. Attempts to control government spending have not been successful. Reducing the federal deficit still appears to be on the Congressional agenda but may also be unsuccessful. As a result, two options are analyzed in evaluating future economic conditions and establishing the baseline for this study.

##### High Deficit-Fast Money Growth

The first macroeconomic scenario is characterized by continued high annual federal budget deficits coupled with a rapid expansion of the nation's monetary base. Even with the Gramm-Rudman deficit reduction provisions in effect, the annual federal budget deficit is expected to reach between \$220 and \$225 billion in 1986 as compared to \$197 billion in 1985. Furthermore, the nation's monetary base grew at a 7.9 percent rate between October 1985 and October 1986. The high deficit-fast money growth (HD-FM) scenario assumes a continuation of these expansionary policies through 1990.

##### Low Deficit-Moderate Money Growth

The second macroeconomic scenario is characterized by lower annual budget deficits and a more moderate growth in the monetary base. It is assumed that government spending will grow no faster than the rate of inflation (i.e., a zero real rate of growth) and that tax rates would be increased by 2 percent (not 2 percentage points). The low deficit-moderate money growth (LD-MM) scenario also assumes the nation's monetary base would grow at 3.75 percent annually over the 1987-90 period.

#### Impacts of Macroeconomic Policy Options on General Economy

##### High Deficit-Fast Money Impacts

Continued strong monetary and fiscal policy stimuli, as called for under the HD-FM scenario, would lead to accelerated growth in both real gross national product (GNP) and inflation (Figures 2.1 and 2.2). Real GNP would be expanding between 5 and 6 percent per year by the end of the decade, while the rate of inflation as measured by the GNP price deflator would reach about 6 to 7 percent. The real prime interest rate would approach the 8 percent level as interest rates rise to clear financial markets serving large government and private demands for funds (Figure 2.3).

# PERCENT CHANGES IN REAL GROSS NATIONAL PRODUCT

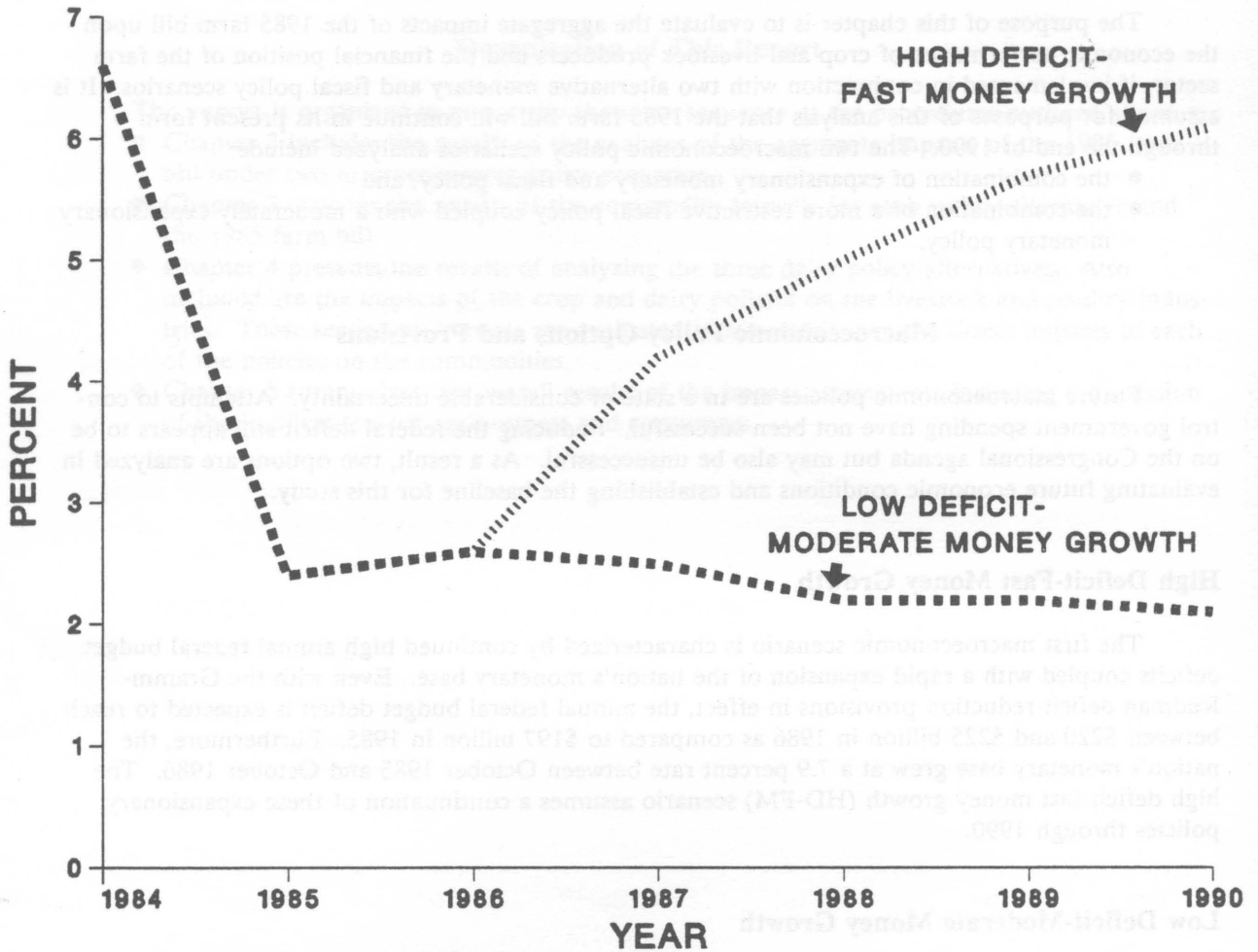


Figure 2.1. Projected Percentage Changes in Real Gross National Products Under Two Macroeconomic Scenarios

# PERCENT CHANGE IN GROSS NATIONAL PRODUCT PRICE DEFLATOR

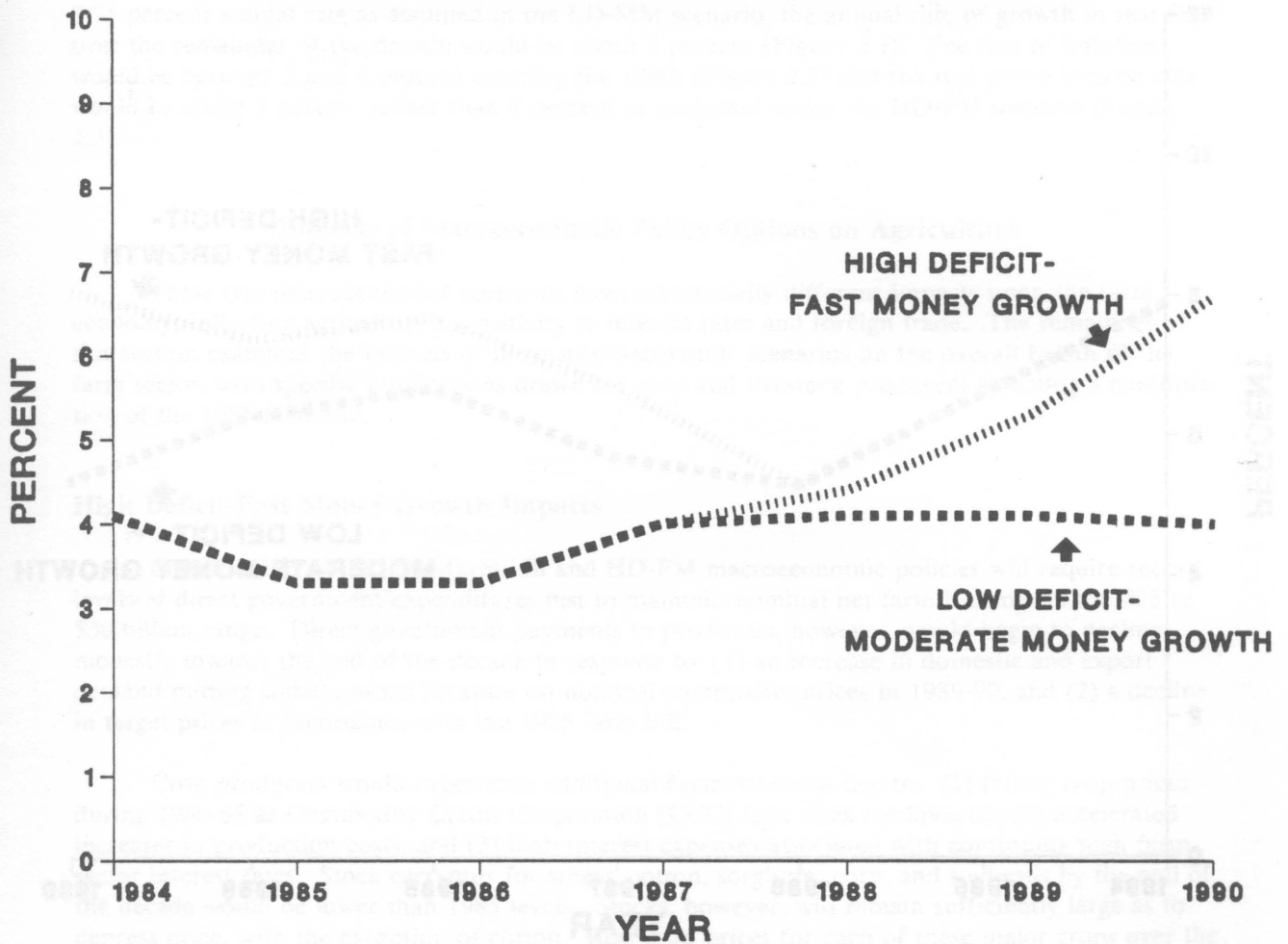


Figure 2.2. Projected Changes in Gross National Product Price Deflator Under Two Macroeconomic Scenarios

Because the crop sector benefits only marginally from an expanding economy and is sensitive to interest and exchange rates, net farm incomes would decline in both scenarios (Figure 2.2). Production incentives would be higher in inflation and interest rate rise while input revenues would decline due to (1) exchange rate increases which depress export demand prospects through lower commodity prices, and (2) larger price reductions scheduled under the 1985 farm bill. Net farm water values would also continue to slide over the remainder of the decade, although at a slower rate than in recent years (Figure 2.3).

## Low Deficit-Moderate Money Growth Impacts

Adoption of more restrictive fiscal and monetary policies combined in the 1980s macroeconomic scenario would lead to lower farm interest rates and expanded farm export sales under the 1985 program. Direct government payments to producers would be slightly lower than they were under the 1980-PM scenario due to higher nominal crop prices.

# EX-POST REAL PRIME INTEREST RATE

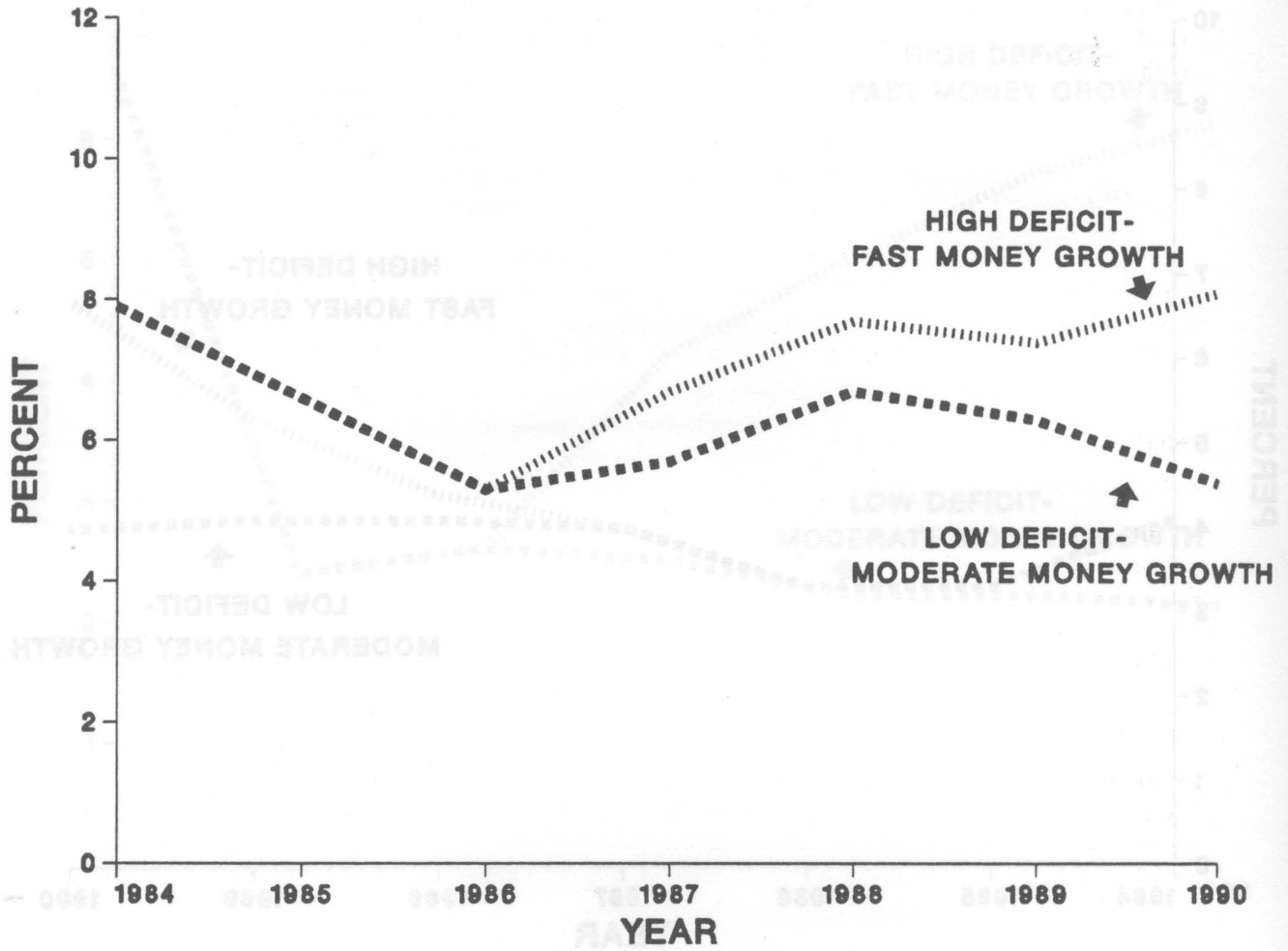


Figure 2.3. Projected Prime Interest Rate Under Two Macroeconomic Scenarios



## Low Deficit-Moderate Money Impacts

When fiscal and monetary stimuli are reduced, growth in real GNP and inflation declines. If government spending is held constant in real terms and the monetary base is allowed to expand at a 3.75 percent annual rate as assumed in the LD-MM scenario, the annual rate of growth in real GNP over the remainder of the decade would be about 2 percent (Figure 2.1). The rate of inflation would be between 3 and 4 percent entering the 1990s (Figure 2.2) and the real prime interest rate would be about 5 percent rather than 8 percent as projected under the HD-FM scenario (Figure 2.3).

## Impacts of Macroeconomic Policy Options on Agriculture

These two macroeconomic scenarios have substantially different impacts upon the farm economy, reflecting agriculture's sensitivity to interest rates and foreign trade. The remainder of this section examines the impacts of these macroeconomic scenarios on the overall health of the farm sector, with specific implications drawn for crop and livestock producers assuming a continuation of the 1985 farm bill.

## High Deficit-Fast Money Growth Impacts

Continuation of the 1985 farm bill and HD-FM macroeconomic policies will require record levels of direct government expenditures just to maintain nominal net farm incomes in the \$25 to \$30 billion range. Direct government payments to producers, however, would begin to decline modestly towards the end of the decade in response to: (1) an increase in domestic and export demand putting some upward pressure on nominal commodity prices in 1989-90, and (2) a decline in target prices in accordance with the 1985 farm bill.

Crop producers would experience additional financial stress due to: (1) falling crop prices during 1986-88 as Commodity Credit Corporation (CCC) loan rates are lowered, (2) accelerated increases in production costs, and (3) high interest expenses associated with continuing high farm sector interest rates. Stock carryouts for wheat, cotton, sorghum, corn, and soybeans by the end of the decade would be lower than 1985 levels. Stocks, however, will remain sufficiently large as to depress price, with the exception of cotton. Real crop prices for each of these major crops over the 1987-90 period would be substantially below 1985 levels. Livestock producers would fair relatively well over the 1987-90 period under this scenario due to the declines in real grain prices and a rapidly expanding general economy.

Because the crop sector benefits only moderately from an expanding domestic economy and is so sensitive to interest and exchange rates, real net farm incomes would continue to fall under this scenario (Figure 2.4). Production expenses would be higher as inflation and interest rates rise while farm revenues would decline due to: (1) exchange rate increases which depress export demand prospects despite lower commodity prices, and (2) target price reductions scheduled under the 1985 farm bill. Real farm asset values would also continue to slide over the remainder of the decade, although at a slower rate than in recent years (Figure 2.5).

## Low Deficit-Moderate Money Growth Impacts

Adoption of more restrictive fiscal and monetary policies assumed in the LD-MM macroeconomic scenario would lead to lower farm interest rates and expanded farm export sales under the 1985 farm bill. Direct government payments to producers would be slightly lower than they were under the HD-FM scenario due to higher nominal crop prices.

# PROJECTED REAL NET FARM INCOME

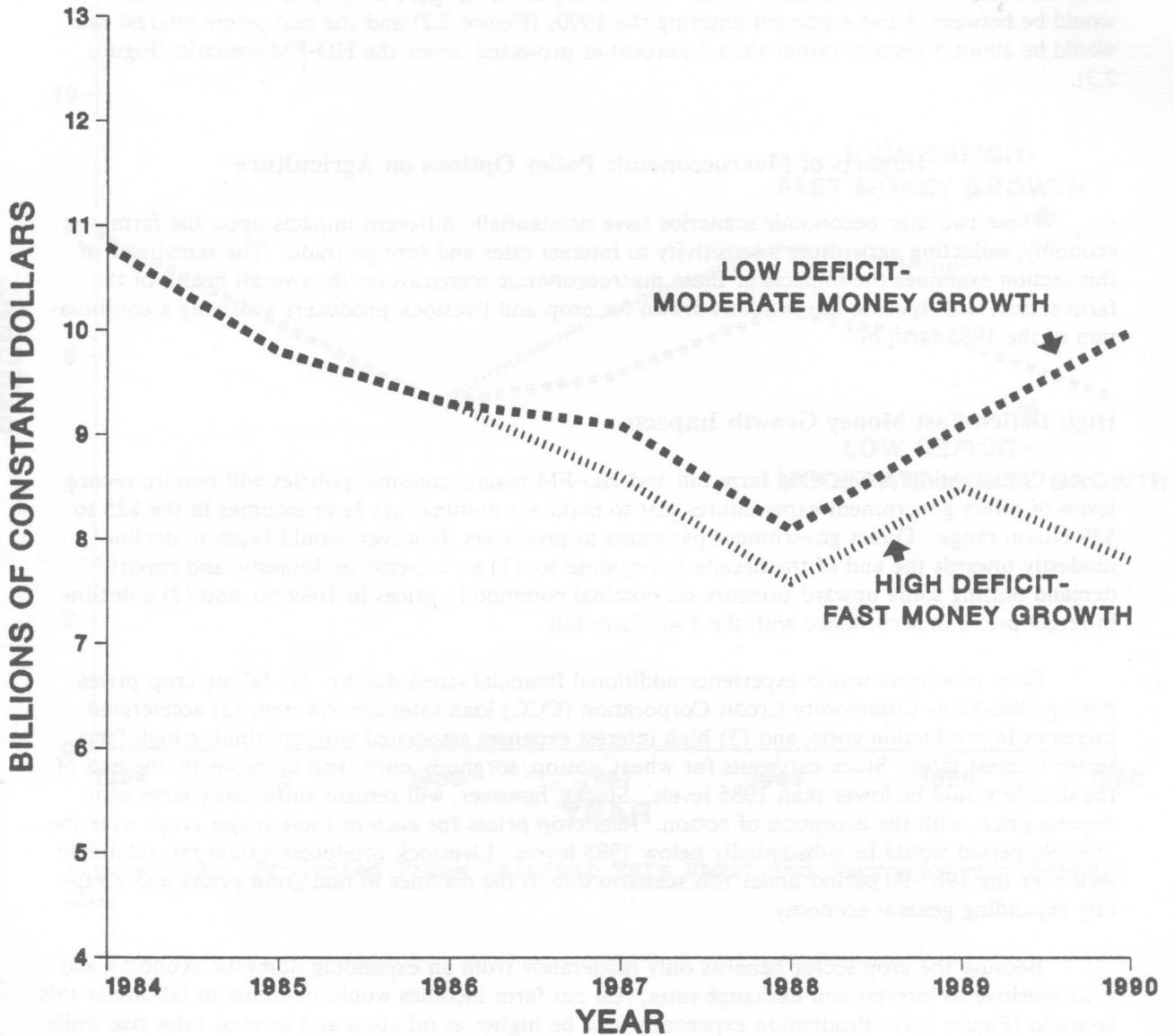


Figure 2.4. Projected Real Net Farm Income Under Two Macroeconomic Scenarios

# PROJECTED REAL FARM ASSET VALUES

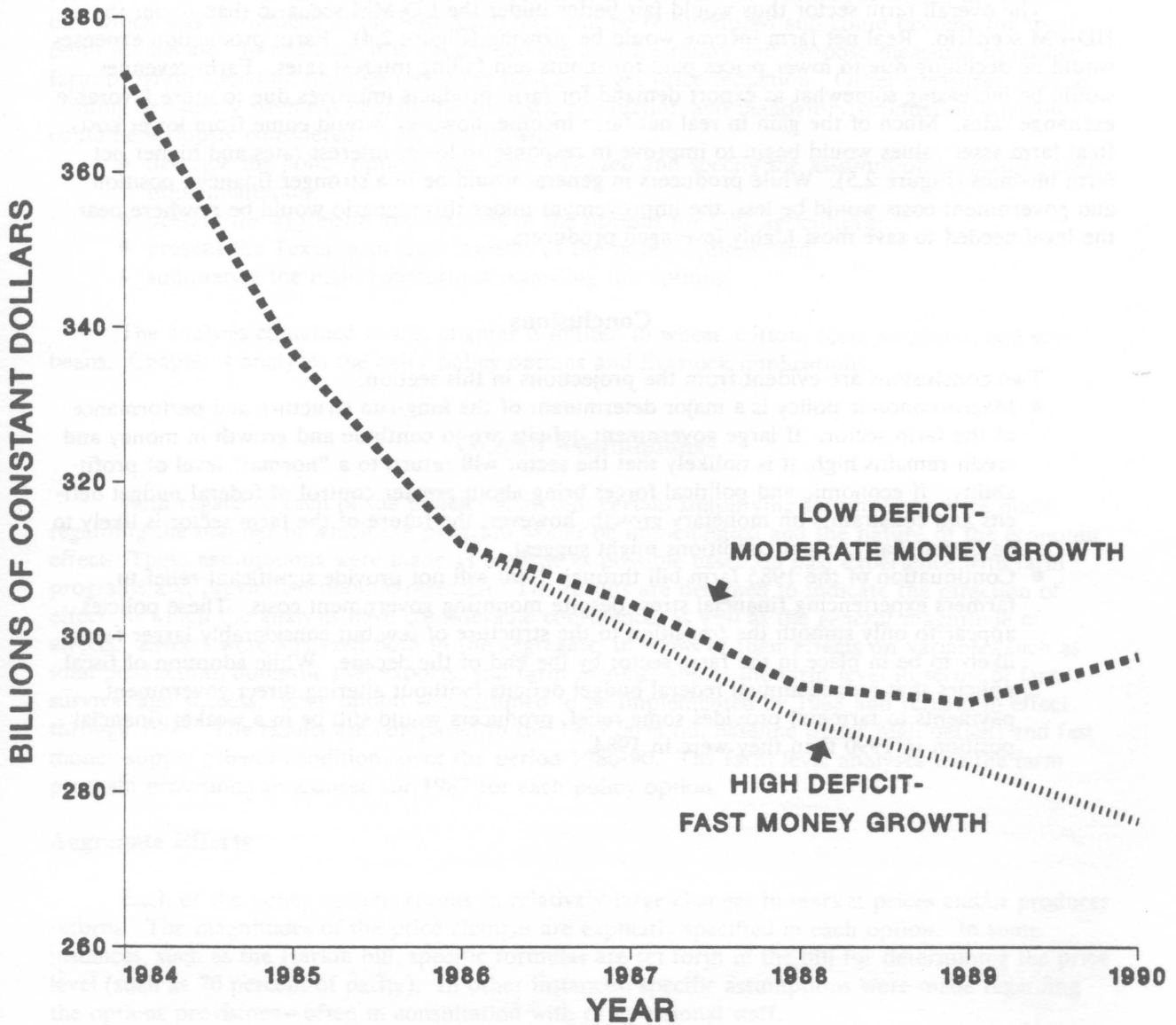


Figure 2.5. Projected Real Farm Asset Values Under Two Macroeconomic Scenarios

Crop producers would fair better under this scenario than under the HD-FM scenario. Stock carryouts for wheat, cotton, corn, sorghum, and soybeans would be appreciably lower under the LD-MM scenario while real crop prices would be higher. Livestock producers would be worse off, however, as they feel the effects of a sharply lower aggregate demand and higher real grain prices than projected under the HD-FM scenario.

The overall farm sector thus would fair better under the LD-MM scenario than under the HD-FM scenario. Real net farm income would be growing (Figure 2.4). Farm production expenses would be declining due to lower prices paid for inputs and falling interest rates. Farm revenues would be increasing somewhat as export demand for farm products improves due to more favorable exchange rates. Much of the gain in real net farm income, however, would come from lower costs. Real farm asset values would begin to improve in response to lower interest rates and higher net farm incomes (Figure 2.5). While producers in general would be in a stronger financial position and government costs would be less, the improvement under this scenario would be nowhere near the level needed to save most highly leveraged producers.

### Conclusions

Two conclusions are evident from the projections in this section:

- Macroeconomic policy is a major determinant of the long-run structure and performance of the farm sector. If large government deficits are to continue and growth in money and credit remains high, it is unlikely that the sector will return to a "normal" level of profitability. If economic and political forces bring about greater control of federal budget deficits and constraints on monetary growth, however, the future of the farm sector is likely to be better than current conditions might suggest.
- Continuation of the 1985 farm bill through 1990 will not provide significant relief to farmers experiencing financial stress despite mounting government costs. These policies appear to only smooth the transition to the structure of few but considerably larger farms likely to be in place in the farm sector by the end of the decade. While adoption of fiscal policies that reduce annual federal budget deficits (without altering direct government payments to farmers) provides some relief, producers would still be in a weaker financial position in 1990 than they were in 1984.

## Chapter 3

### Impacts of Farm Bill Policy Options on Crops

There will be numerous proposals for modifying the 1985 farm bill, some of which have surfaced since this study was initiated and others yet to be defined. It is anticipated that the Harkin bill, which was introduced in the 99th Congress, will be reintroduced and could become the focal point for debate. In addition, it is anticipated the administration will propose measures to reduce farm program spending through measures such as target price reduction. Other measures, such as limiting deficiency payment benefits to domestic production and mandatory production controls could be seriously considered. This section will:

- describe the policy options that were analyzed and specify the assumptions regarding their implementation;
- present the aggregate implications of the options for U.S. agriculture;
- present the Texas farm level impacts of the policy options; and
- summarize the main conclusions regarding the options.

The analysis contained in this chapter is limited to wheat, cotton, corn, sorghum, and soybeans. Chapter 4 analyzes the dairy policy options and livestock implications.

#### Overall Assumptions

With regard to each of the policies analyzed, certain simplifying assumptions were made regarding the manner in which the program would be implemented and the nature of the economic effect. These assumptions were made as realistic as possible based on past experience with farm programs and previous economic research. The results are designed to indicate the direction of effect, in which the analysts have considerable confidence, as well as the *general* magnitude of effects. Effects were analyzed both in the aggregate, in terms of their effects on variables such as total production, domestic use, exports, and farm income, and at the farm level in terms of farm survival and success. Each option was assumed to be implemented by 1988 and remain in effect through 1990. The results are compared to the 1985 farm bill baseline under high deficits and fast money supply growth conditions over the period 1986-90. The farm level analyses use the farm program provisions announced for 1987 for each policy option.

#### Aggregate Effects

Each of the policy options results in relatively large changes in market prices and/or producer returns. The magnitudes of the price changes are explicitly specified in each option. In some instances, such as the Harkin bill, specific formulas are set forth in the bill for determining the price level (such as 70 percent of parity). In other instances, specific assumptions were made regarding the options provisions—often in consultation with congressional staff.

The responsiveness of the quantity supplied and demanded to changes in prices and/or producer returns (elasticities) is crucial to the aggregate analyses. Except in the case of lowering the target price, the elasticities did not take into account the impact of a change in the price of a commodity on either the supply or demand for another commodity (cross effects). In evaluating the direct effects of price changes, the range of demand and supply responsiveness estimates was evaluated and a consensus set of elasticities was chosen.

The analyses made no attempt to deal with the current problem of high government stocks. If this policy dimension was added to the analysis, more stringent policy actions, such as even higher levels of production controls, lower market prices, and/or higher government costs, would have been indicated.

## Firm Level Effects

Six representative Texas crop farms were developed for simulation under the farm policy options to quantify their effects on economic success. The Farm Level Policy Simulation Model, FLIPSIM V, was used to simulate the representative farms for the 1987-90 planning horizon.

The FLIPSIM V model simulates all of the annual functions of a crop farm over a multiple year planning horizon for alternative farm policies. The annual functions of a farm explicitly included in the model are: crop mix determination; production and harvesting; calculation of variable and fixed costs; machinery depreciation, replacement, and financing; marketing of crops and livestock; farm program participation; asset valuation; income and self-employment tax calculation; debt repayment; family cash withdrawals; and determination of solvency. Provisions of the 1986 Tax Reform Act were programmed into the model and used for the analyses presented in this report. A detailed description of the model and its data requirements is available from the authors. Information to describe the initial farm in terms of its financial position, acreage owned and leased, yield, crop mix, machinery complement, costs of production, and past farm program participation is required by the model to analyze a representative farm.

Representative crop farms in four regions of Texas were developed using information provided by local producers. The regions selected for the analyses were: Southern High Plains, Northern High Plains, Rolling Plains, and Coastal Bend. During the summer and fall of 1986, 10 to 15 producers in each of the four regions were asked to participate in a survey/workshop to develop a representative farm for their area. Producers invited to participate were identified by the county agent and were thought to be typical of commercial farming operations in the county.

Participating producers were asked to fill out a survey describing their farm in return for a 4-year simulation analysis of their specific operation. The individual surveys served as the basis for the development of a representative farm for each region. In two regions (Southern and Northern High Plains) a second farm was developed which represented a larger than commercial crop farm in the region.

Participating producers provided information about their financial position (assets and liabilities), costs of production, crop mix, machinery complement, labor requirements, tenure arrangements, yield variability, and farm program participation. Additional information about farm program participation was obtained for each farm from the county Agricultural Stabilization and Conservation Service (ASCS). Information pertaining to current land and machinery values in the area was obtained from local bankers, equipment dealers, and auctioneers.

Key characteristics of the representative farms are summarized in Table 3.1. The same data for the two large farms are presented in Table 3.2. The representative Southern High Plains farm has 1,360 acres of cropland of which 340 acres are owned and 1,020 acres are leased on a crop share basis. The representative size farms in the other three regions were closer to 2,000 acres and all involved substantial leasing of cropland on a share basis. Asset values were based on producer information and current market values. All farms were assumed to have an initial debt to asset ratio of 30 percent. Based on information provided by banks in the different regions, farms having less than 10 percent equity were declared financially insolvent during the analysis.

Costs of production for the individual crops were taken from the producer surveys, where possible. Enterprise budgets developed by the Texas Agricultural Extension Service provided cost information not obtained from the producers.

The producers' distributions for crop yields were used to incorporate yield variability, due to weather and other uncontrollable forces, into the analysis. Variability in crop prices was incorpo-

Table 3.1. Characteristics of Representative Crop Farms in the Southern, Northern, and Rolling Plains, and the Coastal Bend of Texas

Characteristics	Southern High Plains	Northern High Plains	Rolling Plains	Coastal Bend
Total Cropland (A) <sup>1</sup>	1,360	2,240	1,750	2,000
Owned (A)	340	1,120	480	500
Leased (A)	1,020	1,120	1,270	1,500
Pastureland (A)	0	100	0	0
Total Assets <sup>2</sup> (\$)	277,450	514,800	503,800	973,700
Land & Buildings (\$)	116,800	382,500	312,000	630,000
Machinery (\$)	130,650	84,300	151,800	313,700
Other (\$)	30,000	48,000	40,000	30,000
Total Liabilities (\$)	76,230	140,040	139,140	289,610
Long-term (\$)	35,040	114,750	93,600	189,000
Intermediate-term (\$)	39,200	24,200	44,000	94,110
Other (\$)	1,990	1,090	1,540	2,500
Net Worth (\$)	201,220	374,760	364,660	684,090
Off-Farm Income (\$)	12,000	15,000	10,000	12,000
Family Consumption				
Minimum (\$)	15,000	15,000	15,000	15,000
Maximum (\$)	40,000	40,000	40,000	40,000
Crops & Acreage <sup>3</sup>	I.cotton (450)	I.wheat (560)	D.sorghum (228)	D.sorghum (1,326)
	D.cotton (910)	D.wheat (1,120)	D.wheat (474)	D.cotton (663)
		I.sorghum (560)	D.cotton (1,048)	

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>For Tables 3.1-4.3: A refers to acres, \$ refers to dollars, bu. refers to bushels, cwt. refers to hundredweights, lbs. refers to pounds, mil.

<sup>2</sup>refers to millions, bil. refers to billions, and % refers to percentage.

<sup>3</sup>All assets are valued at 1986 market values for cropland, pastureland, and machinery. All machinery was assigned a value based on recent prices for good used equipment.

<sup>3</sup>I refers to irrigated and D refers to dryland (or non-irrigated).

Table 3.2. Characteristics of Very Large Crop Farms in the Southern and Northern High Plains of Texas

Characteristics	Southern High Plains	Northern High Plains
Total Cropland (A)	3,300	4,000
Owned (A)	825	2,000
Leased (A)	2,475	2,000
Pastureland (A)	0	179
Total Assets <sup>1</sup> (\$)	688,160	914,900
Land & Buildings (\$)	283,410	683,030
Machinery (\$)	331,950	146,160
Other (\$)	72,800	85,710
Total Liabilities (\$)	184,600	248,760
Long-term (\$)	85,000	204,910
Intermediate-term (\$)	95,600	40,850
Other (\$)	4,000	3,000
Net Worth (\$)	303,560	666,140
Off-Farm Income (\$)	10,000	10,000
Family Consumption		
Minimum (\$)	15,000	15,000
Maximum (\$)	40,000	40,000
Crops & Acreage <sup>2</sup>	I.cotton (1,088)	I.wheat (1,000)
	D.cotton (2,212)	D.wheat (2,000)
		I.sorghum (1,000)

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>All assets are valued at 1986 market values for cropland, pastureland, and machinery. All machinery was assigned a value based on recent prices for good used equipment.

<sup>2</sup>I refers to irrigated and D refers to dryland (or non-irrigated).



rated into the analysis by using actual 1976-85 crop prices for the four regions.<sup>1</sup> The FLIPSIM V model simulated the 1987-90 planning horizon 50 times for each farm policy option using different combinations of possible crop yields and prices, based on subjective and historical yield and price variability and on season average prices for the particular farm program.<sup>2</sup>

## Description of Policy Options and Their Aggregate Impacts

In this section each of the policy options analyzed are described and their aggregate impacts in terms of production levels, export and domestic use, stocks, farm prices, government costs, and net cash income are evaluated. The specific policies analyzed in order of presentation include:

- 1985 farm bill baseline,
- reduced target prices,
- Harkin bill,
- mandatory production controls, and
- income supports limited to domestic consumption.

Following this aggregate analysis, the farm level effects are presented.

### 1985 Farm Bill Baseline

The 1985 farm bill has only been in operation for the 1986 crop. In fact, experience in terms of export and domestic use during the first full marketing year has not yet been realized. While the 1987 program has been announced, sign-up is currently underway and participation levels are unknown. The 1985 farm bill baseline was developed using the COMGEM model as explained in Chapter 2. To the extent possible, actual 1986 data and announced 1987 farm program provisions were utilized.

#### *1985 Farm Bill Baseline Provisions*

The target prices and loan rates utilized in the 1985 farm bill baseline are presented in Table 3.3. Loan rates are set on the assumption that the Secretary of Agriculture would exercise maximum discretion in assuring that U.S. farm products are competitive in export markets. Set-aside levels are maintained at or near the 1987 level depending on stock levels. In regard to corn and sorghum it was assumed the paid diversion program would not attract significant participation. This assumption is consistent with program participation analyses completed by Agricultural and Food Policy Center staff using program decision guides developed for 1987 (Smith, et al.).

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<sup>1</sup>A weekly price for the third week in the primary marketing month of each crop was used to obtain a price for each year, 1976-85. The resulting marketing-month crop prices were taken from the nearest reported market and were used to estimate the variability in prices producers might expect in the future.

<sup>2</sup>Yields and prices were drawn at random from a multivariate, empirical probability distribution developed from producers' yield distributions and marketing month crop prices. Correlation coefficients between yields and prices were developed using county average yields and marketing-month prices.

Table 3.3. Target Prices and Loan Rates Under 1985 Farm Bill Baseline, 1986-90

Commodity	1986	1987	1988	1989	1990
<b>Wheat (\$/bu.)</b>					
Target Price	4.38	4.38	4.29	4.16	4.00
Loan Rate	2.40	2.28	2.17	2.06	1.95
<b>Cotton (\$/lb.)</b>					
Target Price	0.81	0.794	0.770	0.745	0.729
Loan Rate	0.55	0.525	0.500	0.500	0.500
<b>Corn (\$/bu.)</b>					
Target Price	3.03	3.03	2.97	2.88	2.75
Loan Rate	1.92	1.82	1.74	1.64	1.56
<b>Grain Sorghum (\$/bu.)</b>					
Target Price	2.88	2.88	2.82	2.74	2.61
Loan Rate	1.82	1.74	1.65	1.56	1.48
<b>Soybeans (\$/bu.)</b>					
Loan Rate	4.77	4.77	4.50	4.50	4.50
<b>Dairy (\$/cwt.)</b>					
Support Price	11.10	11.10	10.60	10.60	10.60

Source: Glaser.

## *Impacts of 1985 Farm Bill*

The target price provisions of the 1985 farm bill hold the potential for maintaining producer returns significantly above market levels. The results, therefore, include strong incentives for farmers to continue to produce in the face of low market prices and high government costs.

*Wheat:* At the end of the 1986 marketing year, stocks of wheat are expected to equal the equivalent of nearly a year's consumption, including exports (Table 3.4). Extensive use of payment in kind (PIK) has forced market prices below the loan rate. Given the same target price, these conditions are expected to be duplicated in 1987. Direct farm program costs in 1986 and 1987 are expected to approach or exceed \$4 billion.

In 1988, the combination of an even higher set-aside (30 percent) and a lower target price is expected to reverse the trend in stock accumulation. The combination of reduced production and increased export demand and domestic use brings stocks down 13 percent. This trend continues through 1989 and 1990. Note, however, that it is not until 1990 that stocks are reduced sufficiently to result in a farm price higher than the CCC loan rate. Government costs, therefore, hover around \$4 billion until 1990.

Farmers' income is determined by the combination of reduced target prices and rising production expenses. Net cash income, therefore, falls from a peak of \$2.04 billion in 1987 to \$0.70 billion in 1990, despite large government payments (Table 3.4).<sup>3</sup>

*Cotton:* Benefitting from the marketing loan program, cotton exports and domestic mill use have increased significantly in 1986 and are expected to push total use to the 14 million bale level (Table 3.5). The result of this expanded demand and a crop failure in the Texas Southern High Plains is a sharp reduction in ending stocks. With no effective floor on market prices, this trend is expected to continue in 1987 and carry over into subsequent years. Despite declining target prices, producers are expected to respond to more robust market conditions, fostered by lower stocks, with increased production, particularly in 1989 and 1990. Cotton production, therefore, is expected to increase from its 1986 level of nearly 10 million bales to 13 million bales by the end of the decade.

The marketing loan creates relatively high farm program costs of about \$2 billion in 1986 and 1987. Thereafter, the combination of reduced target prices and higher market prices results in a steady decline in government costs. Lower target prices and inflation enhanced production expenses, of course, mean reduced farmer receipts and lower net cash income. Net cash income for cotton drops from \$1.12 billion in 1987 to \$0.17 billion in 1990 (Table 3.5).

*Corn:* The center of the surplus stocks and government cost problem in the 1985 farm bill lies in corn. Announced set-aside levels for 1987 are not sufficient to reduce production and the optional diversion program is not likely to attract significant participation. Thus, with relatively high target prices, stocks are expected to continue building despite target price reductions beginning in 1988 (Table 3.6). Export demand is expected to increase through 1990 with nearly comparable gains in domestic use. On the strength of this increased demand and reduced production, market prices begin to exceed loan rates by 1989 as stocks reverse their growth trend.

From 1986 through 1989, government costs for corn can be expected to total \$7 to \$8 billion annually. Some of these high costs may be offset with lower priced PIK commodities. However,

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<sup>3</sup>Net cash income is total receipts from the marketplace and the government minus all cash costs of production. It excludes returns to land and management as well as capital depreciation. No charge was incorporated for maintenance of idled cropland.

Table 3.4. Aggregate Impacts of 1985 Farm Bill on Wheat, 1986-90

	1985 Farm Bill				
	1986	1987	1988	1989	1990
Acres Planted (mil.)	71.8	70.2	66.0	67.8	68.0
Acres Harvested (mil.)	60.5	59.6	56.1	57.6	57.8
Yield/A (bu.)	34.3	37.0	37.2	37.4	37.6
Beginning Stocks (bil.bu.)	1.91	1.83	1.83	1.590	1.34
Production (bil.bu.)	2.08	2.21	2.09	2.15	2.18
Total Supply (bil.bu.)	3.99	4.04	3.92	3.74	3.52
Exports (bil.bu.)	1.03	1.11	1.20	1.24	1.20
Domestic Use (bil.bu.)	1.13	1.10	1.13	1.16	1.18
Total Use (bil.bu.)	2.16	2.21	2.33	2.40	2.38
Ending Stocks (bil.bu.)	1.83	1.83	1.59	1.34	1.14
Target Price (\$)	4.38	4.38	4.29	4.16	4.00
Loan Rate (\$)	2.40	2.28	2.17	2.06	1.95
Set-Aside (%)	27	27.5	30	30	30
Farm Price (\$)	2.29	2.10	2.10	2.03	2.35
Subsidy Cost (\$ bil.)	3.59	3.94	3.84	3.81	2.99
Storage Cost (\$ bil.)	0.35	0.35	0.30	0.27	0.23
Total Cost (\$ bil.)	3.94	4.29	4.14	4.08	3.22
Net Cash Income (\$ bil.)	1.93	2.04	1.82	1.24	0.70

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.5. Aggregate Impacts of 1985 Farm Bill on Cotton, 1986-90

	1985 Farm Bill				
	1986	1987	1988	1989	1990
Acres Planted (mil.)	9.6	9.9	10.0	10.6	11.1
Acres Harvested (mil.)	8.7	9.3	9.4	10.0	10.4
Yield/A (lbs.)	546	576	583	589	594
Beginning Stocks (mil.bales)	9.40	5.47	4.03	2.73	2.53
Production (mil.bales)	9.87	11.16	11.40	12.20	12.90
Total Supply (mil.bales)	19.27	16.63	15.43	14.93	15.43
Exports (mil.bales)	6.80	6.10	6.30	6.20	6.00
Domestic Use (mil.bales)	7.00	6.50	6.40	6.20	5.80
Total Use (mil.bales)	13.80	12.60	12.70	12.40	11.80
Ending Stocks (mil.bales)	5.47	4.03	2.73	2.53	3.63
Target Price (\$)	0.81	0.794	0.770	0.745	0.729
Loan Rate (\$)	0.55	0.525	0.500	0.500	0.500
Set-Aside (%)	25	25	25	25	25
Farm Price (\$)	0.461	0.439	0.487	0.489	0.559
Subsidy Cost (\$ bil.)	1.81	1.89	1.50	1.35	0.90
Storage Cost (\$ bil.)	0.17	0.12	0.07	0.06	0.11
Total Cost (\$ bil.)	1.98	2.01	1.57	1.41	1.01
Net Cash Income (\$ bil.)	1.04	1.12	0.81	0.46	0.17

Source: Agricultural and Food Policy Center, Texas A&M University System.

#### Target Price Reduction Provisions

The assumed target prices for the years 1986-90 are indicated in Table 3.5. Their values represent 25 percent reductions from the 1985 farm bill values in Table 3.3. Loan rates are held at 1985 farm bill levels except in the case of softwheat where, in the absence of a target price, the loan rate was reduced 25 percent. Subsidy provisions for the 1985 farm bill analysis were assumed for the policy being studied and no policy action was undertaken to reduce stocks.

#### Impacts of Target Price Reduction

From an economic perspective, the target price supports farmers' incomes and, therefore, encourages higher levels of production than would otherwise exist. The effect of the higher production is to reduce the market price—unless the market price is already at or near an effective loan

Table 3.6. Aggregate Impacts of 1985 Farm Bill on Corn, 1986-90

	1985 Farm Bill				
	1986	1987	1988	1989	1990
Acres Planted (mil.)	76.6	72.2	70.0	69.1	67.6
Acres Harvested (mil.)	69.0	65.0	63.0	62.2	60.8
Yield/A (bu.)	119.3	115.0	116.1	117.3	118.5
Beginning Stocks (bil.bu.)	4.04	5.61	6.12	6.16	5.82
Production (bil.bu.)	8.22	7.48	7.32	7.29	7.21
Total Supply (bil.bu.)	12.26	13.09	13.44	13.45	13.03
Exports (bil.bu.)	1.30	1.57	1.74	1.90	2.04
Domestic Use (bil.bu.)	5.35	5.40	5.54	5.73	5.98
Total Use (bil.bu.)	6.65	6.97	7.28	7.63	8.02
Ending Stocks (bil.bu.)	5.61	6.12	6.16	5.82	5.01
Target Price (\$)	3.03	3.03	2.97	2.88	2.75
Loan Rate (\$)	1.92	1.82	1.74	1.64	1.56
Set-Aside (%)	20	20	20	20	20
Farm Price (\$)	1.55	1.56	1.72	1.81	1.98
Subsidy Cost (\$ bil.)	6.28	7.25	7.37	6.41	4.62
Storage Cost (\$ bil.)	0.73	0.80	0.81	0.79	0.71
Total Cost (\$ bil.)	7.01	8.05	8.18	7.20	5.33
Net Cash Income (\$ bil.)	3.31	3.55	4.68	3.40	1.96

Source: Agricultural and Food Policy Center, Texas A&M University System.

with the expected high turnover, the value of these CCC assets will need to be replaced almost annually. No matter how they are figured, corn program costs will be very high. Net cash income from corn increases from \$3.31 billion in 1986 to \$4.68 billion in 1988 and then falls to \$1.96 billion in 1990 (Table 3.6).

*Sorghum:* The stocks problems presented by sorghum are not as insurmountable as corn. However, because sorghum is a close substitute for corn, it too experiences price pressure. Favorable target prices can be expected to foster increased acreage in 1987 (Table 3.7). When yields are expected to return to more normal levels, a production decline is indicated. Increased export and domestic use should bring about a stock decline by marketing-year end 1987 and lead to progressively lower stocks thereafter.

Government costs on sorghum would total about \$0.80 billion annually through 1989, despite a lower target price. When market prices rise significantly above the loan rate in 1990, program costs begin to fall. Annual net cash income from sorghum is about \$0.4 billion under the 1985 farm bill until 1990 when it falls to \$0.24 billion.

*Soybeans:* With no target price and a relatively low loan rate, soybeans maintain a general growth posture in export and domestic use that fosters slight increases in production (Table 3.8). As a result, stocks reach a peak in 1987 and then fall in the absence of any significant stimulus for increased production.

Without the target price and deficiency payments, government costs reflect only minimal costs for storage. Net cash income declines from approximately \$2.7 billion in 1986 to \$1.2 billion in 1990 reflecting the impact of inflation on production costs.

## **Reduced Target Prices**

A 25 percent reduction in the 1985 farm bill target prices for 1988-90 was analyzed. This option was selected for the following reasons:

- Program cost to the government is a major concern. A reduction in target prices leads to significant reductions in program expenditures.
- Smaller target price cuts could have been analyzed such as 5 or 10 percent. The resulting small cut in expenditures, however, was viewed as not being sufficiently large to reduce government expenditures to an acceptable range.

### ***Target Price Reduction Provisions***

The assumed target prices for the years 1988-90 are indicated in Table 3.9. These values represent 25 percent reductions from the 1985 farm bill values in Table 3.3. Loan rates are kept at 1985 farm bill levels except in the case of soybeans where, in the absence of a target price, the loan rate was reduced 25 percent. Set-aside levels used for the 1985 farm bill analysis were assumed for this policy option, and no policy action was undertaken to reduce stocks.

### ***Impacts of Target Price Reduction***

From an economic perspective, the target price supports farmers' incomes and, therefore, encourages higher levels of production than would otherwise exist. The effect of this higher production is to reduce the market price—unless the market price is already at or near an effective loan

Table 3.7. Aggregate Impacts of 1985 Farm Bill on Sorghum, 1986-90

	1985 Farm Bill				
	1986	1987	1988	1989	1990
Acres Planted (mil.)	15.0	15.4	15.2	15.3	15.6
Acres Harvested (mil.)	13.5	13.9	13.7	13.8	14.0
Yield/A (bu.)	66.7	63.4	64.0	65.3	65.3
Beginning Stocks (bil.bu.)	0.55	0.64	0.58	0.51	0.45
Production (bil.bu.)	0.90	0.88	0.88	0.90	0.91
Total Supply (bil.bu.)	1.45	1.52	1.46	1.41	1.36
Exports (bil.bu.)	0.20	0.25	0.25	0.25	0.26
Domestic Use (bil.bu.)	0.61	0.69	0.70	0.71	0.70
Total Use (bil.bu.)	0.81	0.94	0.95	0.96	0.96
Ending Stocks (bil.bu.)	0.64	0.58	0.51	0.45	0.40
Target Price (\$)	2.88	2.88	2.82	2.74	2.61
Loan Rate (\$)	1.82	1.74	1.65	1.56	1.48
Set-Aside (%)	20	20	20	20	20
Farm Price (\$)	1.40	1.40	1.52	1.59	1.72
Subsidy Cost (\$ bil.)	0.64	0.72	0.74	0.73	0.56
Storage Cost (\$ bil.)	0.08	0.08	0.07	0.06	0.06
Total Cost (\$ bil.)	0.72	0.80	0.81	0.79	0.62
Net Cash Income (\$ bil.)	0.42	0.36	0.44	0.42	0.24

Source: Agricultural and Food Policy Center, Texas A&M University System.



Table 3.8. Aggregate Impacts of 1985 Farm Bill on Soybeans, 1986-90

	1985 Farm Bill				
	1986	1987	1988	1989	1990
Acres Planted (mil.)	61.8	61.0	61.4	61.7	61.9
Acres Harvested (mil.)	59.5	59.5	59.9	60.2	60.4
Yield/A (bu.)	33.8	31.7	32.2	32.8	33.4
Beginning Stocks (bil.bu.)	0.54	0.62	0.55	0.51	0.48
Production (bil.bu.)	2.01	1.89	1.93	1.97	2.02
Total Supply (bil.bu.)	2.55	2.51	2.48	2.48	2.50
Exports (bil.bu.)	0.79	0.80	0.81	0.82	0.83
Domestic Use (bil.bu.)	1.14	1.16	1.16	1.18	1.19
Total Use (bil.bu.)	1.93	1.96	1.97	2.00	2.02
Ending Stocks (bil.bu.)	0.62	0.55	0.51	0.48	0.48
Loan Rate (\$)	4.77	4.77	4.50	4.50	4.50
Target Price (\$)	—	—	—	—	—
Set-Aside (%)	—	—	—	—	—
Farm Price (\$)	4.70	4.59	4.54	4.63	4.72
Subsidy Cost (\$ bil.)	—	—	—	—	—
Storage Cost (\$ bil.)	0.08	0.07	0.07	0.07	0.07
Total Cost (\$ bil.)	0.08	0.07	0.07	0.07	0.07
Net Cash Income (\$ bil.)	2.66	1.74	1.47	1.38	1.21

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.9. Target Prices and Loan Rates With 25 Percent Reduction in Target Prices From 1985 Farm Bill Levels, 1988-90

Commodity	1988	1989	1990
Wheat (\$/bu.)			
Target Price	3.22	3.12	3.00
Loan Rate	2.17	2.06	1.95
Cotton (\$/lb.)			
Target Price	0.578	0.559	0.547
Loan Rate	0.50	0.50	0.50
Corn (\$/bu.)			
Target Price	2.23	2.16	2.06
Loan Rate	1.73	1.64	1.56
Grain Sorghum (\$/bu.)			
Target Price	2.12	2.05	1.96
Loan Rate	1.64	1.56	1.48
Soybeans (\$/bu.)			
Loan Rate	3.38	3.38	3.38
Dairy (\$/cwt.)			
Support Price	7.95	7.58	7.20

Source: Agricultural and Food Policy Center, Texas A&M University System.

rate, in which case, government stocks accumulate. Reducing target prices would be expected to cause production to decline and market prices to rise. How much market prices rise, however, depends upon the magnitude of producer supply response, the stock situation, and the loan level. In any event, the rise in market prices, given the current stock situation, is not expected to be sufficient to offset the decline in target prices, resulting in a decline in net cash income.

*Wheat:* The 25 percent target price reduction causes wheat production to drop to about 2 billion bushels in 1988 (Table 3.10). With high beginning stocks, the total supply remains near 4 billion bushels in 1988. Exports continue to grow in response to the low valued dollar, low market prices, and expanding population. This level, however, is relatively low compared to the early 1980s.

Reflecting lower production and increased exports and domestic use, stocks are expected to fall from 1.8 to 1.1 billion bushels by the end of the 1990-91 marketing year. At that point, farm prices increase above the effective loan rate floor to \$2.37 per bushel—\$0.63 below the lowered target price.

Lower target prices are the most direct means of reducing government spending. Because the 25 percent reduction was in the target price and not the payment rate, subsidies on wheat fall substantially from approximately \$4.3 billion in 1987 to \$2.2 billion in 1988 when the target price reduction was implemented. Net cash income falls even more sharply from \$2.0 billion under the 1985 farm bill to -\$0.06 with reduced target prices in 1988, and then declines to -\$1.08 billion in 1990.

*Cotton:* The materially improved stock and market price situation brought about by the marketing loan and a crop failure in the Southern High Plains of Texas results in a substantially different response to the 25 percent target price reduction in cotton than in wheat. Cotton acreage initially falls from 9.9 to 9.4 million acres and then subsequently expands in reaction to a more favorable supply/demand balance in the marketplace (Table 3.11). Production, therefore, expands from 11.2 million bales in 1987 to 12.3 million in 1990. With lower production and generally favorable exports expected to continue through 1990, stocks are held down until 1990. Because of low stocks relative to use, market prices exceed the announced loan rate for the period 1988-90.

Government costs for cotton fall abruptly as the market price rises above the loan rate and target prices are reduced. In 1990 only storage costs are incurred by the government as the farm price exceeds the target price. Despite the higher market prices, however, cotton farmers experience a net cash loss in all 3 years.

*Corn:* Corn resumes the same general pattern of response to the target price reduction as wheat. That is, corn acreage declines by 4.2 million acres in 1988 (Table 3.12). Production remains just over 7 billion bushels throughout the period 1988-90. Yet, with unusually burdensome stocks, total supplies remain in the 12 to 13 billion bushel range.

Increases in domestic and export use marginally exceed production and by the end of marketing year 1990 stocks decline to 4.4 billion bushels. This improved stock situation provides some buoyancy to farm prices. Subsidies to corn farms nearly vanish by 1990, however, storage costs remain relatively high. Net cash income falls to \$0.61 billion in 1988 and continues to decline to the point where corn farmers lose \$2.10 billion by 1990.

*Sorghum:* The sorghum response to the target price cut is similar to corn (Table 3.13). That is, reduced production improves the stock situation when combined with rising export and domestic use. Sorghum prices move up with corn prices but do not exceed their target price. As a result, program costs fall more than 50 percent when compared to the 1985 farm bill. Sorghum farmers' net cash income falls correspondingly and in 1990 turns negative.

Table 3.10. Aggregate Impacts of 25 Percent Target Price Reduction on Wheat, 1988-90

	1985 Farm Bill		Target Price Reduction		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	71.8	70.2	64.6	66.3	66.9
Acres Harvested (mil.)	60.5	59.6	54.9	56.4	56.9
Yield/A (bu.)	34.3	37.0	37.2	37.4	37.6
Beginning Stocks (bil.bu.)	1.91	1.83	1.85	1.57	1.30
Production (bil.bu.)	2.08	2.21	2.04	2.11	2.14
Total Supply (bil.bu.)	3.99	4.04	3.90	3.70	3.44
Exports (bil.bu.)	1.03	1.11	1.20	1.24	1.20
Domestic Use (bil.bu.)	1.13	1.10	1.13	1.16	1.18
Total Use (bil.bu.)	2.16	2.21	2.33	2.40	2.38
Ending Stocks (bil.bu.)	1.83	1.83	1.57	1.30	1.06
Target Price (\$)	4.38	4.38	3.22	3.12	3.00
Loan Rate (\$)	2.40	2.28	2.17	2.06	1.95
Set-Aside (%)	27	27.5	30	30	30
Farm Price (\$)	2.29	2.10	2.11	2.07	2.37
Subsidy Cost (\$ bil.)	3.59	3.94	1.90	1.90	1.14
Storage Cost (\$ bil.)	0.35	0.35	0.30	0.26	0.22
Total Cost (\$ bil.)	3.94	4.29	2.20	2.16	1.36
Net Cash Income (\$ bil.)	1.93	2.04	(0.06)	(0.51)	(1.08)

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.11. Aggregate Impacts of 25 Percent Target Price Reduction on Cotton, 1988-90

	1985 Farm Bill		Target Price Reduction		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	9.6	9.9	9.4	10.0	10.5
Acres Harvested (mil.)	8.7	9.3	8.8	9.4	9.9
Yield/A (lbs.)	546	576	590	595	597
Beginning Stocks (mil.bales)	9.40	5.47	4.30	3.00	2.90
Production (mil.bales)	9.87	11.16	10.8	11.6	12.3
Total Supply (mil.bales)	19.27	16.63	15.1	14.6	15.2
Exports (mil.bales)	6.80	6.10	5.9	5.7	6.0
Domestic Use (mil.bales)	7.00	6.50	6.2	6.0	5.8
Total Use (mil.bales)	13.80	12.60	12.1	11.7	11.8
Ending Stocks (mil.bales)	5.47	4.03	3.0	2.9	3.4
Target Price (\$)	0.810	0.794	0.558	0.559	0.548
Loan Rate (\$)	0.55	0.525	0.50	0.50	0.50
Set-Aside (%)	25	25	25	25	25
Farm Price (\$)	0.461	0.439	0.530	0.550	0.562
Subsidy Cost (\$ bil.)	1.81	1.89	0.15	0.05	0
Storage Cost (\$ bil.)	0.17	0.12	0.16	0.15	0.22
Total Cost (\$ bil.)	1.98	2.01	0.31	0.20	0.22
Net Cash Income (\$ bil.)	1.04	1.12	(0.26)	(0.43)	(0.68)

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.12. Aggregate Impacts of 25 Percent Target Price Reduction on Corn, 1988-90

	1985 Farm Bill		Target Price Reduction		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	76.6	72.2	68.0	66.8	66.1
Acres Harvested (mil.)	69.0	65.0	61.2	60.1	59.5
Yield/A (bu.)	119.3	115.0	116.1	117.3	118.5
Beginning Stocks (bil.bu.)	4.04	5.61	5.98	5.84	5.33
Production (bil.bu.)	8.22	7.48	7.11	7.05	7.05
Total Supply (bil.bu.)	12.26	13.09	13.09	12.89	12.38
Exports (bil.bu.)	1.30	1.57	1.74	1.90	2.04
Domestic Use (bil.bu.)	5.35	5.40	5.51	5.66	5.92
Total Use (bil.bu.)	6.65	6.97	7.25	7.56	7.96
Ending Stocks (bil.bu.)	5.61	6.12	5.84	5.33	4.42
Target Price (\$)	3.03	3.03	2.23	2.16	2.06
Loan Rate (\$)	1.92	1.82	1.74	1.64	1.56
Set-Aside (%)	20	20	20	20	20
Farm Price (\$)	1.55	1.56	1.75	1.84	2.01
Subsidy Cost (\$ bil.)	6.28	7.25	2.88	1.92	0.30
Storage Cost (\$ bil.)	0.73	0.80	0.76	0.72	0.64
Total Cost (\$ bil.)	7.01	8.05	3.64	2.64	0.94
Net Cash Income (\$ bil.)	3.31	3.55	0.61	(0.04)	(2.10)

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.13. Aggregate Impacts of 25 Percent Target Price Production on Sorghum, 1988-90

	1985 Farm Bill		Target Price Reduction		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	15.0	15.4	14.6	14.7	14.7
Acres Harvested (mil.)	13.5	13.9	13.1	13.2	13.2
Yield/A (bu.)	66.7	63.4	64.0	65.3	65.3
Beginning Stocks (bil.bu.)	0.55	0.64	0.48	0.37	0.28
Production (bil.bu.)	0.90	0.88	0.84	0.86	0.86
Total Supply (bil.bu.)	1.45	1.52	1.32	1.23	1.14
Exports (bil.bu.)	0.20	0.25	0.25	0.25	0.26
Domestic Use (bil.bu.)	0.61	0.69	0.70	0.70	0.68
Total Use (bil.bu.)	0.81	0.94	0.95	0.95	0.94
Ending Stocks (bil.bu.)	0.64	0.58	0.37	0.28	0.20
Target Price (\$)	2.88	2.88	2.12	2.05	1.96
Loan Rate (\$)	1.82	1.74	1.64	1.56	1.48
Set-Aside (%)	20	20	20	20	20
Farm Price (\$)	1.40	1.40	1.54	1.66	1.81
Subsidy Cost (\$ bil.)	0.64	0.72	0.30	0.25	0.10
Storage Cost (\$ bil.)	0.08	0.08	0.05	0.05	0.04
Total Cost (\$ bil.)	0.72	0.80	0.35	0.30	0.14
Net Cash Income (\$ bil.)	0.42	0.36	0.02	0.01	(0.11)

Source: Agricultural and Food Policy Center, Texas A&M University System.

*Soybeans:* In soybeans, the loan rate was dropped 25 percent for this policy option because there is no target price. Market prices dropped but not to the new support level of \$3.38 per bushel (Table 3.14). Producers responded to a lower expected market price by reducing production to 59.1 million acres, down from approximately 61.4 million acres under the 1985 farm bill. With lower production, stocks reach relatively low levels by 1990 and prices increase marginally from 1988 through 1990.

Government costs for soybeans are limited to storage. Net cash income for soybean producers declines sharply, relative to the 1985 farm bill. By 1990 a net cash loss of \$0.18 billion would be experienced if loan rates were reduced by 25 percent.

## Harkin Bill

The centerpiece for debate in 1987 could revolve around the "Save the Family Farm Act" introduced by Senator Harkin (Iowa). While touted as a mandatory production control bill, the provisions can be more accurately characterized as including:

- high price supports to protect income;
- export PIK to protect export market shares;
- mandatory set-asides to control production; and
- targeted benefits to protect family farms.

The bill's provisions are strongly biased in the direction of moderate size crop/livestock farms typical of the Midwest. This orientation could have adverse implications for the large specialized farm segments of Texas agriculture. For example, the high support prices for feedgrains would be an economic concern to Texas feedlots.

### Harkin Bill Provisions

The bill's provisions are broad, covering price supports, supply controls, dairy policy, international trade, disaster, food assistance, and farm finance. Only those provisions relating directly to the supply, demand, and prices of crops were analyzed. In a separate chapter where the dairy features of Harkin are discussed, some general comments will be made concerning the overall impact of the Harkin bill on livestock producers. As introduced in the 99th Congress, the Harkin bill provided for a 1-year transition program. It is assumed in this analysis the provisions would become fully operational in 1988 at the initial 70 percent of parity support levels. The 1987 farm program provisions, as announced by Secretary Lyng, are assumed to remain in effect.

*Price Supports:* The minimum price supports (loan rates) are set at 70 percent of parity in 1988 with annual increases of 1 percent of parity through year 2000. In other words, the price support level would be 71 percent of parity in 1989, 72 percent in 1990, and so forth. Based on this provision the projected price support levels through 1990 are presented in Table 3.15. These price support levels are generally 15 to 25 percent above the 1988 *target price* levels in the 1985 farm program. Thus the Harkin proposal provides a substantial increase in income supports and a much larger increase in price supports. The resulting increase in prices would be expected to provide the incentives for higher levels of production than currently exist. No target prices are included in the Harkin bill, so deficiency payments are not a part of the program costs.

*Mandatory Set-Aside:* Production incentives provided by higher levels of price and income support are curbed under the Harkin bill by mandatory set-aside, acreage allotments, marketing quotas, and marketing certificates. Supply controls are imposed after 50 percent producer approval in commodity specific referenda. This is lower than the historical two-thirds majority required for implementation of production control programs. Over half of the producers who voted in the 1986



Table 3.14. Aggregate Impacts of 25 Percent Support Price Reduction on Soybeans, 1988-90

	1985 Farm Bill		Target Price Reduction		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	61.8	61.0	59.1	59.1	59.6
Acres Harvested (mil.)	59.5	59.5	57.6	57.6	58.1
Yield/A (bu.)	33.8	31.7	32.2	32.8	33.4
Beginning Stocks (bil.bu.)	0.54	0.62	0.53	0.40	0.29
Production (bil.bu.)	2.01	1.89	1.85	1.89	1.94
Total Supply (bil.bu.)	2.55	2.51	2.38	2.29	2.23
Exports (bil.bu.)	0.79	0.80	0.81	0.82	0.83
Domestic Use (bil.bu.)	1.14	1.16	1.17	1.18	1.19
Total Use (bil.bu.)	1.93	1.96	1.98	2.00	2.02
Ending Stocks (bil.bu.)	0.62	0.55	0.40	0.29	0.21
Loan Rate (\$)	4.77	4.77	3.38	3.38	3.38
Target Price (\$)	—	—	—	—	—
Set-Aside (%)	—	—	—	—	—
Farm Price (\$)	4.70	4.59	3.60	3.77	4.04
World Price (\$)					
Subsidy Cost (\$ bil.)	0.00	0.00	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.08	0.07	0.05	0.04	0.03
Total Cost (\$ bil.)	0.08	0.07	0.05	0.04	0.03
Net Cash Income (\$ bil.)	2.66	1.74	0.36	0.29	(0.18)

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.15. Projected Price Support Levels and Historical World Market Share Under the Harkin Bill by Commodity, 1988-90

Commodity	1988	1989	1990	World Market Share
		(\$)		(%)
Wheat (bu.)	4.95	5.30	5.74	39
Cotton (lb.)	0.907	0.971	1.053	30
Corn (bu.)	3.61	3.87	4.19	65
Grain Sorghum (bu.)	3.43	3.67	3.98	52
Soybeans (bu.)	8.93	9.55	10.36	75
Dairy (\$/cwt.)	15.02	16.07	16.88	N/A

Source: Agricultural and Food Policy Center, Texas A&M University System.

wheat poll favored mandatory controls. In the proposed referendum, wheat and corn producers would vote together. If the referendum was not approved, the 1985 farm bill provisions would still apply.

The mandatory supply control provisions provided in the Harkin bill are less restrictive than might be anticipated. The maximum set-aside is 35 percent. In addition, a national marketing quota is set based upon domestic and export demand, food aid, carryover, and reserve requirements. Acreage allotments are also provided based upon the projected national yield, although the need for allotments as a program feature is unclear.

Producers can only market commodities for which they have marketing certificates based on permitted acres (nonset-aside) and farm program yield (or county yield if higher). Perhaps the largest loophole in the production control provisions is that unlimited on-farm use is allowed. That is, farmer-feeders are allowed to feed their over-certificate production. A farmer's marketing certificates *may* be adjusted downward to reflect on-farm use. All producers (including farmer-feeders), however, are assumed to be required to set-aside up to 35 percent of their land when stocks are in excess. Production above certificated levels may also be stored or sold to CCC at a maximum of 50 percent of the support level (in many instances not significantly lower than 1985 farm bill price support levels).

The 35 percent acreage set-aside implies substantial slippage. In addition, the on-farm use provision suggests that farms having livestock or poultry production opportunities may farm their land more intensively and produce in excess of their marketing certificates. The on-farm use provisions make analyzing the Harkin bill impacts difficult. The only feasible analytical option was to only consider the 35 percent set-aside ignoring on-farm use. However, the issue will be discussed further when the implications for the livestock industry are evaluated. Excess production was assumed sold to CCC at half the support level.

*Targeting Benefits:* Acreage set-aside is to be distributed on a progressive basis so larger farms will be required to retire a larger share of their land, up to a maximum of 35 percent. The minimum level of set-aside targeting would involve 10 farm sizes (as specified by the Secretary of Agriculture) with a 1 percent set-aside difference between each size. Realizing that 20 percent of the farms produce 80 percent of the production, it was assumed that 80 percent of the farm acreage would be subject to the maximum 35 percent set-aside with 20 percent subject to 25 percent set-aside requirements. The average set-aside, therefore, was assumed to be 33 percent.

The ability to utilize excess of certificate grain on the farm is also a targeting feature of the Harkin bill. It favors the farmer-feeders, which characterizes the hog and beef industry of the Upper Midwest. Texas livestock and poultry producers cannot afford to ignore this feature, since most feedlots, egg, broiler, and turkey operations would be required to pay the specified support price for feed grains.

*Export PIK:* The high price supports provided in the Harkin bill would substantially reduce exports. To offset this effect, broad authority is provided for the use of export PIK to maintain export market shares when there are excess stocks. Historical market shares indicated in Table 3.15 were used in this analysis. The Harkin bill, therefore, is in essence a two-price plan.

The Harkin bill specified that stocks would not be reduced by more than 20 percent in any year. However, it will be seen that production is generally sufficient under the maximum set-aside, provided for by Harkin, so stocks do not fall materially. To insulate the domestic market from lower world prices, provisions are included to reduce the potential for importation of commodities on which PIK subsidies are paid. The ability of the government to effectively prevent reimport of commodities through processed products such as textiles is subject to question. Clearly, provisions such as Section 22 would need to be more stringently enforced. In this analysis it was assumed that

strict effective enforcement would be pursued.

### *Impacts of the Harkin Bill*

Analyzing the impacts of the Harkin bill is dependent on three crucial aspects of the program:

- effectiveness and commitment of the Secretary of Agriculture to utilize export PIK to maintain the historical export market share;
- ability of the government to prevent exported commodities from being reimported; and
- effectiveness of the mandatory set-aside in reducing production sufficient to offset the decline in domestic use due to the higher domestic prices.

It has been assumed the Secretary of Agriculture is committed to making these crucial provisions of the Harkin bill work as intended.

*Wheat:* The average 33 percent mandatory set-aside under the Harkin bill would reduce planted acreage by over 10 million acres (Table 3.16). With the normal upward progression of wheat yields, production would drop by about 14 percent to 1.9 billion bushels in 1988.

The domestic food demand for wheat is not very responsive to increases in the price of wheat. However, feed use demand is highly responsive to price increases. This is the main source of the 32 percent reduction in domestic use.

Under the 1985 farm bill, exports were below normal in 1986 and 1987 due to a glut of wheat on the world market and the general lack of U.S. competitiveness (Table 3.4). The historical market share for wheat was assumed to be 39 percent (Table 3.15). Applying this historical market share to projected world trade, results in exports of 1.34 billion bushels in 1988—up 20 percent from 1987. Wheat exports grow gradually through 1990 under an aggressive export PIK program. Based on these estimates, stocks would decline at a consistent rate, but still remain high relative to total use.

With U.S. prices for wheat over two and a half times world price there would be need to:

- vigorously use export PIK at a level of approximately 1 to 2 PIK bushel(s) for every bushel purchased at the support price; and
- vigorously enforce Section 22 reimport provisions.

The result of extensive use of export PIK is government costs averaging about \$3.48 billion in 1988-90. This compares with about \$4 billion in 1987 under the 1985 farm bill. Net cash income for wheat increases by 99 percent under Harkin in 1988 (relative to 1987 levels) and climbs to over \$5 billion in 1990.

*Cotton:* Because of very high levels of cotton producer participation in the current program, cotton acreage would not be expected to decline significantly under the Harkin bill (Table 3.17). In fact, to satisfy the historical export demand for cotton, less than the maximum average 33 percent mandatory set-aside would need to be imposed.

High levels of exports that existed under the marketing loan in 1986 and 1987 are assumed to continue and expand to over 7 million bales if the Secretary of Agriculture is committed to maintaining the export market share at the historic 30 percent level. Domestic cotton use declines with prices to domestic mills more than doubling to almost 91 cents per pound. Some may argue that domestic use would decline further as the synthetic market would have free access to whatever share they wanted to assume. In any event, however, the combination of production restraint and increased export demand (resulting from aggressive use of export PIK) leads to a decline in stocks.

Table 3.16. Aggregate Impacts of Harkin Bill on Wheat, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	71.8	70.2	59.5	59.5	59.5
Acres Harvested (mil.)	60.5	59.6	50.6	50.6	50.6
Yield/A (bu.)	34.3	37.0	37.5	37.8	38.1
Beginning Stocks (bil.bu.)	1.91	1.83	1.83	1.64	1.43
Production (bil.bu.)	2.08	2.21	1.90	1.91	1.93
Total Supply (bil.bu.)	3.99	4.04	3.73	3.55	3.36
Exports (bil.bu.)	1.03	1.11	1.34	1.36	1.39
Domestic Use (bil.bu.)	1.13	1.10	0.75	0.76	0.76
Total Use (bil.bu.)	2.16	2.21	2.09	2.12	2.15
Ending Stocks (bil.bu.)	1.83	1.83	1.64	1.43	1.21
Target Price (\$)	4.38	4.38	—	—	—
Loan Rate (\$)	2.40	2.28	4.95	5.30	5.74
Set-Aside (%)	27	27.5	33	33	33
Farm Price (\$)	2.29	2.10	4.95	5.30	5.74
World Price (\$)	—	—	1.86	1.83	1.98
Subsidy Cost (\$ bil.)	3.59	3.94	2.76	3.12	3.35
Storage Cost (\$ bil.)	0.35	0.35	0.45	0.41	0.36
Total Cost (\$ bil.)	3.94	4.29	3.21	3.53	3.71
Net Cash Income (\$ bil.)	1.93	2.04	4.07	4.55	5.20

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.17. Aggregate Impacts of Harkin Bill on Cotton, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	9.6	9.9	9.7	9.2	9.7
Acres Harvested (mil.)	8.7	9.3	9.1	8.7	9.1
Yield/A (lbs.)	546	576	590	612	624
Beginning Stocks (mil.bales)	9.40	5.47	4.03	3.22	2.58
Production (mil.bales)	9.87	11.16	11.18	11.04	11.86
Total Supply (mil.bales)	19.27	16.63	15.21	14.26	14.44
Exports (mil.bales)	6.80	6.10	6.98	7.19	7.41
Domestic Use (mil.bales)	7.00	6.50	5.01	4.49	4.53
Total Use (mil.bales)	13.80	12.60	11.99	11.68	11.94
Ending Stocks (mil.bales)	5.47	4.03	3.22	2.58	2.50
Target Price (\$)	0.810	0.794	0	0	0
Loan Rate (\$)	0.55	0.525	0.907	0.971	1.053
Set-Aside (%)	25	25	28.2	31.8	28.4
Farm Price (\$)	0.461	0.439	0.907	0.971	1.053
World Price (\$)	—	—	0.453	0.438	0.474
Subsidy Cost (\$ bil.)	1.81	1.89	1.08	1.42	1.80
Storage Cost (\$ bil.)	0.17	0.12	0.08	0.10	0.11
Total Cost (\$ bil.)	1.98	2.01	1.16	1.52	1.91
Net Cash Income (\$ bil.)	1.04	1.12	1.69	2.01	2.54

Source: Agricultural and Food Policy Center, Texas A&M University System.

To achieve these objectives, export PIK would have to be used in approximately a 1:1 ratio (1 pound PIK for 1 commercial pound purchased at the support price). This would result in a government cost of approximately \$1.16 billion in 1988—increasing to \$1.91 billion in 1990. Harkin bill costs to the government are about half of 1985 farm bill costs in 1988, but begin to approach the \$2.0 billion level by 1990 due to the increased use of export PIK. Net cash income to cotton increases from \$1.12 billion in 1987 under the 1985 farm bill to \$1.69 under Harkin in 1988.

*Corn:* The full 33 percent maximum set-aside is necessary to apply the provisions of the Harkin bill to corn (Table 3.18). Because corn producers typically have been less inclined to participate in the farm program, corn acreage drops sharply from about 74 million acres under the 1985 farm bill to 54 million acres under Harkin. Production, therefore, declines 22 percent from 7.5 billion bushels in 1987 to less than 6 billion bushels in 1988.

Despite this sharp decline in production, carryover stocks do not decline from the high 1987 level. This is the case because domestic feed use under Harkin declines to about 4.2 billion bushels. This 21 percent decline in feed use was in response to the more than doubling of corn prices.

Maintaining exports at 65 percent of the world market (1.6 billion bushels) would require an export PIK in about a 1:1 ratio. Because corn exports represent only 25 to 30 percent of total corn utilization, the government subsidy costs would be less than \$2 billion. However, burdensome stocks cost about \$1.7 billion to store. Accordingly, annual government costs total over \$3 billion. This cost, however, is about 60 percent less than the level experienced under the current farm program. Net cash income from corn more than doubles to over \$10 billion in 1988.

*Sorghum:* Sorghum responds to the Harkin bill in much the same manner as corn. Acreage planted declines from 15.4 million acres in 1987 to 11.9 million acres in 1988-90 (Table 3.19). Therefore, the sharp decline in feed use is made up for by an equally sharp decline in production. Thus, while stocks are not quite as troublesome as in corn, they are still very large relative to use.

As with corn, it would appear that a 1:1 export PIK would be necessary to maintain sorghum's share of world trade at 52 percent. Government costs for sorghum in 1988 total only \$0.43 billion, of which \$0.26 is in the form of direct export subsidies. Net cash income to sorghum more than doubles from the 1985 farm bill.

*Soybeans:* Soybeans have neither a target price nor a set-aside requirement under the 1985 farm bill. Therefore, the impact of the Harkin bill on soybeans is of considerable interest. Not surprisingly, soybeans react much the same as corn. After all, soybeans are a substitute crop for corn in many production regions. In addition, soybean meal is a protein complement to corn in livestock and poultry production.

The absence of a set-aside for soybeans under the 1985 farm bill results in a one-third drop in soybean acreage (Table 3.20). The yield per acre is assumed to increase to 36 bushels as farmers set-aside their poorest acres. Production, therefore, declines by only 24 percent to about 1.43 billion bushels in 1988.

Domestic use of soybeans plummets as the price paid by livestock and poultry producers doubles. As a result, soybean stocks progressively increase to what might be considered to be intolerably high levels of nearly 900 million bushels in 1990.

Once again an export PIK in a ratio of about 1:1 would be required to maintain the historical market share of exports. The result is projected government costs that exceed the other commodities—over \$5 billion in 1990. Net cash income from soybeans increases from \$1.74 billion in 1987 to \$8.64 billion in 1988.

Table 3.18. Aggregate Impacts of Harkin Bill on Corn, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	76.6	72.2	54.3	54.3	54.3
Acres Harvested (mil.)	69.0	65.0	48.9	48.9	48.9
Yield/A (bu.)	119.3	115.0	119.0	120.2	121.4
Beginning Stocks (bil.bu.)	4.04	5.61	6.12	6.11	6.08
Production (bil.bu.)	8.22	7.48	5.82	5.88	5.94
Total Supply (bil.bu.)	12.26	13.09	11.94	11.99	12.02
Exports (bil.bu.)	1.30	1.57	1.59	1.63	1.67
Domestic Use (bil.bu.)	5.35	5.40	4.24	4.28	4.31
Total Use (bil.bu.)	6.65	6.97	5.83	5.91	5.98
Ending Stocks (bil.bu.)	5.61	6.12	6.11	6.08	6.04
Target Price (\$)	3.03	3.03	0	0	0
Loan Rate (\$)	1.92	1.82	3.61	3.87	4.19
Set-Aside (%)	20	20	33	33	33
Farm Price (\$)	1.55	1.56	3.61	3.87	4.19
World Price (\$)	—	—	1.89	2.11	2.43
Subsidy Cost (\$ bil.)	6.28	7.25	1.54	1.39	1.19
Storage Cost (\$ bil.)	0.73	0.80	1.62	1.73	1.72
Total Cost (\$ bil.)	7.01	8.05	3.16	3.12	2.91
Net Cash Income (\$ bil.)	3.31	3.55	10.09	12.71	12.88

Source: Agricultural and Food Policy Center, Texas A&M University System.



Table 3.19. Aggregate Impacts of Harkin Bill on Sorghum, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	15.0	15.4	11.9	11.9	11.9
Acres Harvested (mil.)	13.5	13.9	10.7	10.7	10.7
Yield/A (bu.)	66.7	63.4	65.0	65.7	66.4
Beginning Stocks (bil.bu.)	0.55	0.64	0.58	0.60	0.61
Production (bil.bu.)	0.90	0.88	0.70	0.70	0.71
Total Supply (bil.bu.)	1.45	1.52	1.28	1.30	1.32
Exports (bil.bu.)	0.20	0.25	0.22	0.22	0.23
Domestic Use (bil.bu.)	0.61	0.69	0.46	0.47	0.47
Total Use (bil.bu.)	0.81	0.94	0.68	0.69	0.70
Ending Stocks (bil.bu.)	0.64	0.58	0.60	0.61	0.62
Target Price (\$)	2.88	2.88	0	0	0
Loan Rate (\$)	1.82	1.74	3.43	3.67	3.98
Set-Aside (%)	20	20	33	33	33
Farm Price (\$)	1.40	1.40	3.43	3.67	3.98
World Price (\$)	—	—	1.73	1.81	1.95
Subsidy Cost (\$ bil.)	0.64	0.72	0.26	0.24	0.27
Storage Cost (\$ bil.)	0.08	0.08	0.17	0.17	0.18
Total Cost (\$ bil.)	0.72	0.80	0.43	0.41	0.45
Net Cash Income (\$ bil.)	0.42	0.36	1.31	1.45	1.63

Source: Agricultural and Food Policy Center, Texas A&M University System.

*Impact of Mandatory Production Control*

Mandatory production control would have the major impact of reducing the total supply of sorghum available for export. The total supply of sorghum available for export would be reduced from 1.45 billion bushels under the 1985 farm bill to 1.28 billion bushels under the Harkin Bill. As a result, the total supply of sorghum available for export would be reduced by 12 percent.

When the total supply of sorghum available for export is reduced, the price of sorghum in the world market would be expected to rise. The world price for sorghum would be expected to rise from \$1.73 per bushel in 1988 to \$1.95 per bushel in 1990. This increase in price would be expected to result in a 20 percent increase in the value of sorghum exports. The increase in exports is a result of a general rise in the price of sorghum in the world market, and the 100 percent increase in the price of sorghum would be expected to result in a 20 percent increase in the value of sorghum exports. Although exports would be expected to increase slightly, the mandatory production control program would be expected to reduce the total value of sorghum exports.

The total value of sorghum exports would be expected to increase from \$2.5 billion in 1988 to \$2.5 billion in 1990. The total value of sorghum exports would be expected to increase from \$2.5 billion in 1988 to \$2.5 billion in 1990. The total value of sorghum exports would be expected to increase from \$2.5 billion in 1988 to \$2.5 billion in 1990.

Table 3.20. Aggregate Impacts of Harkin Bill on Soybeans, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	61.8	61.0	40.7	40.7	40.7
Acres Harvested (mil.)	59.5	59.5	39.7	39.7	39.7
Yield/A (bu.)	33.8	31.7	36.0	36.4	36.7
Beginning Stocks (bil.bu.)	0.54	0.62	0.55	0.67	0.79
Production (bil.bu.)	2.01	1.89	1.43	1.44	1.46
Total Supply (bil.bu.)	2.55	2.51	1.98	2.11	2.25
Exports (bil.bu.)	0.79	0.80	0.80	0.82	0.84
Domestic Use (bil.bu.)	1.14	1.16	0.50	0.50	0.51
Total Use (bil.bu.)	1.93	1.96	1.30	1.32	1.35
Ending Stocks (bil.bu.)	0.62	0.55	0.67	0.79	0.89
Loan Rate (\$)	4.77	4.77	8.93	9.55	10.36
Target Price (\$)	—	—	—	—	—
Set-Aside (%)	—	—	33	33	33
Farm Price (\$)	4.70	4.59	8.93	9.55	10.36
World Price (\$)	—	—	4.56	4.50	4.45
Subsidy Cost (\$ bil.)	0.00	0.00	3.93	4.45	5.10
Storage Cost (\$ bil.)	0.08	0.07	0.18	0.23	0.26
Total Cost (\$ bil.)	0.08	0.07	4.11	4.68	5.36
Net Cash Income (\$ bil.)	2.66	1.74	8.64	9.58	10.62

Source: Agricultural and Food Policy Center, Texas A&M University System.

## Mandatory Production Controls

While the Harkin bill has a mandatory set-aside feature, it is not the typical mandatory supply control program normally discussed by either economists or supply control advocates. Effective mandatory controls involve marketing quotas designed to achieve a specified price. This price determines demand levels in both the domestic and export markets with no export subsidies. The result is a lower cost farm program, and a scaled down agriculture as both domestic and export markets shrink significantly. Farmers get their full price "from the market." In the process, however, they give up considerable freedom.

### *Mandatory Production Control Provisions*

In this option, it was assumed a mandatory production control program has the objective of restricting production sufficiently to raise the market price to the level of the 1985 farm bill *target price*. It can be argued that a target price objective is not high enough because:

- farmers are already in financial trouble, and their incomes are currently based on these target prices; and
- in the long run when the effects of capitalization of earnings into asset values are considered, mandatory controls have the potential for increasing farmers' unit production costs.

However, the target price objective can be interpreted as a minimum, and the resulting effects, therefore, are minimum consequences. Using this assumption, Table 3.21 presents the price objectives established for the mandatory control option for the years 1988-90.

Under the mandatory production control option, marketing quotas would be issued only to the extent required to fulfill expected domestic and export demand at the prices specified in Table 3.21. Total demand at these price levels was used to estimate the necessary harvested acreage by applying the estimated yield per acre for each commodity. Stocks on hand at the end of 1987 were assumed to be held in government storage throughout the period of analysis. No policy action was taken to reduce the level of stocks as this would have further reduced production.

### *Impacts of Mandatory Production Controls*

Mandatory production controls have the major impact of reducing both domestic and export demand due to higher prices. As a result, fewer acres need to be farmed.

*Wheat:* The most dramatic effects of mandatory controls are for wheat due to the large proportion of wheat exported. The export market for U.S. wheat would be expected to fall by 75 percent in 1988 from 1.1 billion bushels under the 1985 farm bill to about 260 million bushels under mandatory controls (Table 3.22). As prices rise from the 1987 farm bill price of \$2.10 per bushel to the mandatory control support level of \$4.29 per bushel in 1988, exports plummet. The reduction in exports is a result of a general glut of wheat on world markets, and the 100 percent increase in price. Domestic use would be expected to decline marginally as feed demand dries up in response to higher prices. Through 1990, exports would be expected to recover slightly as the mandatory controls' price objective declines.

The resulting 1.2 billion bushels of total wheat use could be produced on 48 percent less acreage than was planted in 1987 when a 27.5 percent set-aside program was in effect. As a result, the strict mandatory production control program would likely produce or cause a reduction of about 59 percent from the wheat acreage base when compared to current levels.

Table 3.21. Price Objective to be Achieved by Mandatory Controls Program, 1988-90

Commodity	1988	1989	1990
Wheat (\$/bu.)	4.29	4.16	4.00
Cotton (\$/lb.)	0.77	0.745	0.729
Corn (\$/bu.)	2.97	2.88	2.75
Grain Sorghum (\$/bu.)	2.82	2.74	2.61
Soybeans (\$/bu.)	6.71	6.51	6.21

Source: Agricultural and Food Policy Center, Texas A&M University System.

Impact of Mandatory Production Controls

Mandatory production controls have the major impact of reducing both domestic and export demand for wheat. As a result, wheat prices are expected to fall. The most dramatic effects of mandatory controls are for wheat due to the large portion of wheat exported. The export market for U.S. wheat would be expected to fall by 15 percent in 1988 from 1.1 billion bushels under the 1987 farm bill to about 950 million bushels under mandatory controls (Table 3.21). As prices rise from the 1987 farm bill price of \$2.10 per bushel to the mandatory control support level of \$4.29 per bushel in 1988, export earnings are expected to rise by a result of a general rise in world market, and the 100 percent increase in price. Domestic use would be expected to decline marginally as feed demand rises up to recover its higher level. Through 1990, export would be expected to recover slightly as the mandatory control price objective declines.

The resulting 1.2 billion bushels of total wheat are could be produced on 48 percent less acreage than was planted in 1987 when a 17.3 percent acreage program was in effect. As a result, the first mandatory production control program would likely produce or cause a reduction of about 29 percent from the wheat acreage base when compared to current levels.

Table 3.22. Aggregate Impacts of Mandatory Production Controls on Wheat, 1988-90

	1985 Farm Bill		Mandatory Production Controls		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	71.8	70.2	36.1	37.0	48.9
Acres Harvested (mil.)	60.5	59.6	31.0	31.5	41.6
Yield/A (bu.)	34.3	37.0	37.7	38.0	38.3
Beginning Stocks (bil.bu.)	1.91	1.83	1.84	1.84	1.84
Production (bil.bu.)	2.08	2.21	1.17	1.20	1.60
Total Supply (bil.bu.)	3.99	4.04	3.01	3.04	3.44
Exports (bil.bu.)	1.03	1.11	0.26	0.27	0.57
Domestic Use (bil.bu.)	1.13	1.10	0.91	0.93	1.03
Total Use (bil.bu.)	2.16	2.21	1.17	1.20	1.60
Ending Stocks (bil.bu.)	1.83	1.83	1.84	1.84	1.84
Target Price (\$)	4.38	4.38	—	—	—
Loan Rate (\$)	2.40	2.28	—	—	—
Set-Aside (%)	27	27.5	—	—	—
Farm Price (\$)	2.29	2.10	4.29	4.16	4.00
Subsidy Cost (\$ bil.)	3.59	3.94	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.35	0.35	0.35	0.36	0.38
Total Cost (\$ bil.)	3.94	4.29	0.35	0.36	0.38
Net Cash Income (\$ bil.)	1.93	2.04	1.48	1.20	1.07

Source: Agricultural and Food Policy Center, Texas A&M University System.

The government costs of mandatory controls are limited to administrative and storage costs which would probably not exceed \$0.5 billion for wheat. Net cash income under mandatory controls would be \$1.48 billion in 1988, less than the 1985 farm bill baseline because receipts are being received on about half the normal production.

*Cotton:* The implications of higher prices supported by mandatory production controls for cotton differ from wheat due to a more elastic domestic demand for cotton. Therefore, the 75 percent increase in the price of cotton is expected to lead to a decline of around 20 percent in domestic cotton use and a 40 percent reduction in exports (Table 3.23). As a result of the decline in total use, the required acreage would be 25 percent less than the area planted in 1987 under the 1985 farm bill.

With nominal government costs, net cash income to cotton producers would total \$0.81 billion in 1988. This is slightly less than the level obtained under the 1985 farm bill. In 1989 and 1990, net cash income for cotton producers exceeds the levels experienced in those years under the 1985 farm bill.

*Corn:* A 29 percent decline in exports would be anticipated as a result of the 73 percent price increase associated with mandatory controls (Table 3.24). Domestic demand would fall by around 12 percent. The resulting reduction in the quantity demanded in 1988 would cause about a 24 percent decline in corn acreage from the 1985 farm bill baseline. Therefore, about 32 percent of normal corn acreage (in the absence of a set-aside) would be expected to go out of production under the mandatory production control option in the first year.

Government costs for corn under mandatory controls would total about \$0.8 billion, covering only storage. Net cash income under mandatory controls would total \$5.07 billion in 1988 compared with \$4.68 billion in 1988 under the 1985 farm bill.

*Sorghum:* The expected impact of mandatory controls on sorghum demand is of the same magnitude as corn. The decline in sorghum acreage required to service the anticipated quantity demanded would be about 24 percent less than 1987 planted acreage (Table 3.25). Net cash income to sorghum producers in 1988 would total \$0.66 billion compared to \$0.44 billion in 1988 under the 1985 farm bill.

*Soybeans:* Under the 1985 farm bill, soybeans have no target price. For this analysis, the price objective was assumed to be 2.26 times the price objective for corn (2.26 is an average corn to soybean price ratio). The results for soybean are influenced by the fact that the gap between the 1985 farm bill price and the new price objective is less than that for the other commodities, only 48 percent. Therefore, it is anticipated that the imposition of the strict mandatory production control program for soybeans would result in a decrease in acreage of 44 percent from 1987 planted acreage levels (Table 3.26).

Net cash income for soybean producers would be increased significantly under the mandatory supply control program. Net cash income in 1988 would be \$4.04 billion, compared to \$1.47 billion in 1988 under the 1985 farm bill. A reduction in planted acreage and an increase in price are responsible for this increase in net cash income.

## **Domestic Support Program**

At one point during the 1985 farm bill debate it was proposed that the deficiency payment be provided only on domestic consumption. The implication was that those who desired to produce for the world market would have to fend for themselves and take whatever price they could get.

Table 3.23. Aggregate Impacts of Mandatory Production Controls on Cotton, 1988-90

	1985 Farm Bill		Mandatory Production Controls		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	9.6	9.9	7.4	7.7	8.2
Acres Harvested (mil.)	8.7	9.3	7.0	7.2	7.7
Yield/A (lbs.)	546	576	606	618	630
Beginning Stocks (mil.bales)	9.40	5.47	4.03	4.03	4.03
Production (mil.bales)	9.87	11.16	8.90	9.30	10.10
Total Supply (mil.bales)	19.27	16.63	12.93	13.33	14.13
Exports (mil.bales)	6.80	6.10	3.70	4.10	4.80
Domestic Use (mil.bales)	7.00	6.50	5.20	5.20	5.30
Total Use (mil.bales)	13.80	12.60	8.90	9.30	10.10
Ending Stocks (mil.bales)	5.47	4.03	4.03	4.03	4.03
Target Price (\$)	0.810	0.794	—	—	—
Loan Rate (\$)	0.55	0.525	—	—	—
Set-Aside (%)	25	25	—	—	—
Farm Price (\$)	0.461	0.439	0.770	0.745	0.729
Subsidy Cost (\$ bil.)	1.81	1.89	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.17	0.12	0.12	0.12	0.13
Total Cost (\$ bil.)	1.98	2.01	0.12	0.12	0.13
Net Cash Income (\$ bil.)	1.04	1.12	0.81	0.60	0.43

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.24. Aggregate Impacts of Mandatory Production Controls on Corn, 1988-90

	1985 Farm Bill		Mandatory Production Controls		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	76.6	72.2	55.2	60.2	68.6
Acres Harvested (mil.)	69.0	65.0	49.7	54.2	60.4
Yield/A (bu.)	119.3	115.0	117.5	118.0	118.5
Beginning Stocks (bil.bu.)	4.04	5.61	6.12	6.12	6.12
Production (bil.bu.)	8.22	7.48	5.84	6.39	7.16
Total Supply (bil.bu.)	12.26	13.09	11.96	12.51	13.28
Exports (bil.bu.)	1.30	1.57	1.11	1.34	1.64
Domestic Use (bil.bu.)	5.35	5.40	4.73	5.05	5.52
Total Use (bil.bu.)	6.65	6.97	5.84	6.39	7.16
Ending Stocks (bil.bu.)	5.61	6.12	6.12	6.12	6.12
Target Price (\$)	3.03	3.03	—	—	—
Loan Rate (\$)	1.92	1.82	—	—	—
Set-Aside (%)	20	20	—	—	—
Farm Price (\$)	1.55	1.56	2.97	2.88	2.75
Subsidy Cost (\$ bil.)	6.28	7.25	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.73	0.80	0.80	0.83	0.86
Total Cost (\$ bil.)	7.01	8.05	0.80	0.83	0.86
Net Cash Income (\$ bil.)	3.31	3.55	5.07	4.29	2.51

Source: Agricultural and Food Policy Center, Texas A&M University System.



Table 3.25. Aggregate Impacts of Mandatory Production Controls on Sorghum, 1988-90

	1985 Farm Bill		Mandatory Production Controls		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	15.0	15.4	11.7	13.1	13.9
Acres Harvested (mil.)	13.5	13.9	10.5	11.8	12.5
Yield/A (bu.)	66.7	63.4	65.0	65.5	65.5
Beginning Stocks (bil.bu.)	0.55	0.64	0.58	0.58	0.58
Production (bil.bu.)	0.90	0.88	0.68	0.77	0.82
Total Supply (bil.bu.)	1.45	1.52	1.26	1.35	1.40
Exports (bil.bu.)	0.20	0.25	0.12	0.16	0.19
Domestic Use (bil.bu.)	0.61	0.69	0.56	0.61	0.63
Total Use (bil.bu.)	0.81	0.94	0.68	0.77	0.82
Ending Stocks (bil.bu.)	0.64	0.58	0.58	0.58	0.58
Target Price (\$)	2.88	2.88	—	—	—
Loan Rate (\$)	1.82	1.74	—	—	—
Set-Aside (%)	20	20	—	—	—
Farm Price (\$)	1.40	1.40	2.82	2.74	2.61
Subsidy Cost (\$ bil.)	0.64	0.72	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.08	0.08	0.08	0.08	0.08
Total Cost (\$ bil.)	0.72	0.80	0.08	0.08	0.08
Net Cash Income (\$ bil.)	0.42	0.36	0.66	0.63	0.46

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.26. Aggregate Impacts of Mandatory Production Controls on Soybeans, 1988-90

	1985 Farm Bill		Mandatory Production Controls		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	61.8	61.0	34.3	37.8	41.9
Acres Harvested (mil.)	59.5	59.5	33.4	36.9	40.9
Yield/A (bu.)	33.8	31.7	36.2	36.6	36.9
Beginning Stocks (bil.bu.)	0.54	0.62	0.55	0.55	0.55
Production (bil.bu.)	2.01	1.89	1.21	1.35	1.51
Total Supply (bil.bu.)	2.55	2.51	1.76	1.90	2.06
Exports (bil.bu.)	0.79	0.80	0.42	0.49	0.57
Domestic Use (bil.bu.)	1.14	1.16	0.79	0.86	0.94
Total Use (bil.bu.)	1.93	1.96	1.21	1.35	1.51
Ending Stocks (bil.bu.)	0.62	0.55	0.55	0.55	0.55
Loan Rate (\$)	4.77	4.77	—	—	—
Target Price (\$)	—	—	—	—	—
Set-Aside (%)	—	—	0	0	0
Farm Price (\$)	4.70	4.59	6.71	6.51	6.21
Subsidy Cost (\$ bil.)	0.00	0.00	0.00	0.00	0.00
Storage Cost (\$ bil.)	0.08	0.07	0.07	0.07	0.07
Total Cost (\$ bil.)	0.08	0.07	0.07	0.07	0.07
Net Cash Income (\$ bil.)	2.66	1.74	4.04	4.04	3.74

Source: Agricultural and Food Policy Center, Texas A&M University System.

## *Domestic Support Program Provisions*

For a domestic support program to work, the loan rate would have to be sufficiently low so that U.S. commodities were competitive on the world market. In the short run, market prices would be bid up to the out-of-pocket cost of production in the major production region. Effective loan rates under the 1985 farm bill were determined to be at or below the out-of-pocket cost of production in the major production regions through 1990, and, therefore, would not interfere with exports (Table 3.27).

In this study, target prices were set at current levels, although they could be set higher. Under such a program, farmers would have an incentive to produce up to the limits of the domestic market. They would produce for the export market only if their variable or out-of-pocket costs were covered, so some contribution was being made to fixed expenses.

An equity problem arises with this program option because each commodity has its unique domestic market share. In wheat 47 percent is typically consumed domestically. For the other crops, the domestic shares are: corn 76 percent, sorghum 70 percent, cotton 50 percent, and soybeans 61 percent. Because the support would be paid on domestic use, considerably higher subsidies would be paid on feedgrains than on either wheat or cotton, and thus may be politically unacceptable. This problem was ignored in this analysis. Two ideas that might reduce the inequities, however, are either to raise the level of target price for commodities having a low share of domestic use or to utilize an average share of domestic use for all commodities.

### *Impacts of Domestic Support Program*

In a sense, supporting only the domestic consumption portion of production would be expected to have similar impacts to lowering the target price. However, since the target price is only received on the share of production utilized in the domestic market, the producers' incentive to expand production to obtain deficiency payments should be effectively curbed.

*Wheat:* Under the domestic support option, wheat producers would receive the target price on approximately 47 percent of their production. After that, they would receive the farm price of \$2.10 per bushel in 1988 (Table 3.28). As a result, production would drop to under 2 billion bushels in 1988. Acres planted would decline from 71 million acres under the 1985 farm bill to 63 million acres under domestic support. Exports and domestic use decline marginally in 1989 and 1990 because higher market prices result from tighter stocks that develop in 1989. Prices would rise substantially above loan rates in 1990.

With income support limited to production designated for domestic consumption, government costs decline sharply from over \$4.14 billion under the 1985 farm bill in 1988 to less than \$2.7 billion. By 1990, government costs would fall to approximately \$2 billion. Net cash income in 1988 plummets from \$1.82 billion under the 1985 farm bill to less than \$0.50 billion under the domestic support program.

*Cotton:* Limitation of the target price on the production used domestically (50 percent) results in a decline in production to 11 million bales (Table 3.29). As a result, the acres devoted to cotton in 1988 drop to 9.7 million acres—down from 9.9 under the 1985 farm bill. The net result of the decline in production and relatively smaller reduction in consumption is a sharp fall in stocks in 1988 and 1989.

Government costs on cotton drop from \$2.01 billion in 1987 under the 1985 farm bill to \$0.85 billion under domestic support in 1988 and subsequently fall to \$0.56 billion by 1990. Net

Table 3.27. Target Prices, Loan Rates, and Domestic Market Share for Domestic Support Program, 1988-90

Commodity and Program Provision	1988	1989	1990
<b>Wheat (\$/bu.)</b>			
Target Price	4.29	4.16	4.00
Loan Rate	2.17	2.06	1.95
Domestic Share (%)	48.00	50.00	50.00
<b>Cotton (\$/lb.)</b>			
Target Price	0.77	0.745	0.729
Loan Rate	0.50	0.50	0.50
Domestic Share (%)	51.00	51.00	49.00
<b>Corn (\$/bu.)</b>			
Target Price	2.97	2.88	2.75
Loan Rate	1.74	1.64	1.56
Domestic Share (%)	76.00	75.00	75.00
<b>Grain Sorghum (\$/bu.)</b>			
Target Price	2.82	2.74	2.61
Loan Rate	1.65	1.56	1.48
Domestic Share (%)	74.00	74.00	73.00
<b>Soybeans (\$/bu.)</b>			
Target Price	6.22	6.03	5.76
Loan Rate	4.50	4.50	4.50
Domestic Share (%)	59.00	59.00	59.00

-- Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.28. Aggregate Impacts of Domestic Support Program on Wheat, 1988-90

	1985 Farm Bill		Domestic Support Program		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	71.8	70.2	62.5	63.8	65.3
Acres Harvested (mil.)	60.5	59.6	53.1	54.2	55.5
Yield/A (bu.)	34.3	37.0	37.3	37.5	37.7
Beginning Stocks (bil.bu.)	1.91	1.83	1.83	1.48	1.19
Production (bil.bu.)	2.08	2.21	1.98	2.03	2.09
Total Supply (bil.bu.)	3.99	4.04	3.81	3.51	3.28
Exports (bil.bu.)	1.03	1.11	1.20	1.17	1.15
Domestic Use (bil.bu.)	1.13	1.10	1.13	1.15	1.17
Total Use (bil.bu.)	2.16	2.21	2.33	2.32	2.32
Ending Stocks (bil.bu.)	1.83	1.83	1.48	1.19	0.96
Target Price (\$)	4.38	4.38	4.29	4.16	4.00
Loan Rate (\$)	2.40	2.28	2.17	2.06	1.95
Set-Aside (%)	27	27.5	0	0	0
Farm Price (\$)	2.29	2.10	2.10	2.15	2.44
Subsidy Cost (\$ bil.)	3.59	3.94	2.40	2.31	1.82
Storage Cost (\$ bil.)	0.35	0.35	0.28	0.24	0.20
Total Cost (\$ bil.)	3.94	4.29	2.68	2.55	2.02
Net Cash Income (\$ bil.)	1.93	2.04	0.49	0.15	(0.19)

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.29. Aggregate Impacts of Domestic Support Program on Cotton, 1988-90

	1985 Farm Bill		Domestic Support Program		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	9.6	9.9	9.7	10.2	10.9
Acres Harvested (mil.)	8.7	9.3	9.1	9.6	10.2
Yield/A (lbs.)	546	576	586	591	594
Beginning Stocks (mil.bales)	9.40	5.47	4.03	2.65	2.69
Production (mil.bales)	9.87	11.16	11.05	11.89	12.64
Total Supply (mil.bales)	19.27	16.63	15.08	14.54	15.33
Exports (mil.bales)	6.80	6.10	6.12	5.82	5.92
Domestic Use (mil.bales)	7.00	6.50	6.31	6.03	5.73
Total Use (mil.bales)	13.80	12.60	12.43	11.85	11.65
Ending Stocks (mil.bales)	5.47	4.03	2.65	2.69	3.68
Target Price (\$)	0.810	0.794	0.770	0.745	0.729
Loan Rate (\$)	0.55	0.525	0.50	0.50	0.50
Set-Aside (%)	25	25	0	0	0
Farm Price (\$)	0.461	0.439	0.508	0.535	0.570
Subsidy Cost (\$ bil.)	1.81	1.89	0.79	0.61	0.44
Storage Cost (\$ bil.)	0.17	0.12	0.06	0.06	0.12
Total Cost (\$ bil.)	1.98	2.01	0.85	0.66	0.56
Net Cash Income (\$ bil.)	1.04	1.12	0.22	0.04	(0.22)

Source: Agricultural and Food Policy Center, Texas A&M University System.

cash income to cotton farmers rapidly deteriorates to near zero in 1989 and falls below zero (-\$0.22 billion) in 1990.

*Corn:* Since domestic consumption accounts for 76 percent of total corn use, production falls by only 4.6 percent under the domestic support option (Table 3.30). Likewise, neither exports nor domestic use are materially affected; because, due to high stocks, market prices are initially resting on the loan rate. With income supports applying only to domestic production, government costs decline by about 6 percent. Net cash income rises about 10 percent in 1988 and subsequently declines to near \$2.0 billion by 1990.

*Sorghum:* Domestic use accounts for 70 percent of sorghum production. As a result, dropping the target price protection for the export portion of production has only a small effect on that production (Table 3.31). While stocks decline to only 0.34 billion bushels in 1990, sorghum prices remain low due to excess stocks of corn.

Government costs increase slightly from \$0.80 billion in 1987 under the 1985 farm bill to about \$0.88 billion in 1988 under the domestic support provisions. Compared to the 1985 farm bill, net cash income increases 18 percent in 1988.

*Soybeans:* For soybeans, domestic use is 61 percent of production. Because of the establishment of the target price for soybeans, production actually increases. With farm prices remaining at the loan rate, exports and domestic use remain on their normal growth pattern (Table 3.32).

Deficiency payments which apply to only domestic use result in government costs totaling over \$2 billion in 1988. In contrast with the other commodities, net cash income rises by \$2 billion over the 1985 farm bill to average about \$3 billion over the 1988-90 period.

### Farm Level Impacts of Policy Options

Each of the six Texas crop farms described in Tables 3.1 and 3.2 were simulated under seven alternative farm policies for the 1987-90 period. The farm program provisions announced for 1987 were used for all scenarios analyzed. This assumption is consistent with the analyses in the previous section of this chapter. The policies analyzed were the following:

- BASE was a continuation of the 1985 farm bill. It was assumed the present macroeconomic policy (HD-FM) would be continued through 1990.
- BASELOW was the same as the BASE but the federal budget deficit was assumed to be reduced and the growth in money supply was much slower (LD-MM).
- LOWTP was a continuation of the 1985 farm bill and HD-FM macroeconomic policy with target prices reduced 25 percent after 1987.
- HARKIN used the same macroeconomic assumptions as the BASE but imposed the provisions of the Harkin bill after 1987.
- MANDATORY used the same macroeconomic assumptions as the BASE but imposed a mandatory supply control program after 1987.
- DSP used the same macroeconomic assumptions as the BASE but imposed a domestic support program (DSP) after 1987.
- LIMIT used the same provisions as the BASE but assumed the \$50,000 and \$200,000 per producer payment limit was strictly enforced and the farm was eligible only as 1 individual under the payment limit rules.

Annual loan rates, target prices, set-aside levels, and prices for each of the policy scenarios as specified earlier in this chapter were used for the farm level analyses. National average crop prices were regionalized based on historical price differentials. It was assumed the representative farming operations participated in the farm programs but did not participate in the 50/92 provision or the

Table 3.30. Aggregate Impacts of Domestic Support Program on Corn, 1988-90

	1985 Farm Bill		Domestic Support Program		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	76.6	72.2	68.9	67.8	66.7
Acres Harvested (mil.)	69.0	65.0	62.0	61.0	60.0
Yield/A (bu.)	119.3	115.0	116.1	117.3	118.5
Beginning Stocks (bil.bu.)	4.04	5.61	6.12	6.05	5.58
Production (bil.bu.)	8.22	7.48	7.21	7.16	7.11
Total Supply (bil.bu.)	12.26	13.09	13.33	13.21	12.69
Exports (bil.bu.)	1.30	1.57	1.74	1.90	2.04
Domestic Use (bil.bu.)	5.35	5.40	5.54	5.73	5.98
Total Use (bil.bu.)	6.65	6.97	7.28	7.63	8.02
Ending Stocks (bil.bu.)	5.61	6.12	6.05	5.58	4.67
Target Price (\$)	3.03	3.03	2.97	2.88	2.75
Loan Rate (\$)	1.92	1.82	1.74	1.64	1.56
Set-Aside (%)	20	20	0	0	0
Farm Price (\$)	1.55	1.56	1.72	1.81	1.98
Subsidy Cost (\$ bil.)	6.28	7.25	6.81	6.13	4.60
Storage Cost (\$ bil.)	0.73	0.80	0.76	0.66	1.72
Total Cost (\$ bil.)	7.01	8.05	7.60	6.89	5.26
Net Cash Income (\$ bil.)	3.31	3.55	3.90	3.19	1.97

Source: Agricultural and Food Policy Center, Texas A&M University System.



Table 3.31. Aggregate Impacts of Domestic Support Program on Sorghum, 1988-90

	1985 Farm Bill		Domestic Support Program		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	15.0	15.4	14.9	15.3	15.1
Acres Harvested (mil.)	13.5	13.9	13.4	13.8	13.6
Yield/A (bu.)	66.7	63.4	64.0	64.0	65.3
Beginning Stocks (bil.bu.)	0.55	0.64	0.58	0.49	0.41
Production (bil.bu.)	0.90	0.88	0.86	0.88	0.89
Total Supply (bil.bu.)	1.45	1.52	1.44	1.37	1.30
Exports (bil.bu.)	0.20	0.25	0.25	0.25	0.26
Domestic Use (bil.bu.)	0.61	0.69	0.70	0.71	0.70
Total Use (bil.bu.)	0.81	0.94	0.95	0.96	0.96
Ending Stocks (bil.bu.)	0.64	0.58	0.49	0.41	0.34
Target Price (\$)	2.88	2.88	2.82	2.74	2.61
Loan Rate (\$)	1.82	1.74	1.65	1.56	1.48
Set-Aside (%)	20	20	0	0	0
Farm Price (\$)	1.40	1.40	1.52	1.59	1.72
Subsidy Cost (\$ bil.)	0.64	0.72	0.82	0.82	0.62
Storage Cost (\$ bil.)	0.08	0.08	0.06	0.05	0.05
Total Cost (\$ bil.)	0.72	0.80	0.88	0.87	0.67
Net Cash Income (\$ bil.)	0.42	0.36	0.52	0.48	0.32

Source: Agricultural and Food Policy Center, Texas A&M University System.

Table 3.32. Aggregate Impacts of Domestic Support Program on Soybeans, 1988-90

	1985 Farm Bill		Domestic Support Program		
	1986	1987	1988	1989	1990
Acres Planted (mil.)	61.8	61.0	61.7	63.8	63.5
Acres Harvested (mil.)	59.5	59.5	60.2	62.2	61.9
Yield/A (bu.)	33.8	31.7	32.2	32.8	33.4
Beginning Stocks (bil.bu.)	0.54	0.62	0.55	0.58	0.60
Production (bil.bu.)	2.01	1.89	2.01	2.04	2.07
Total Supply (bil.bu.)	2.55	2.51	2.56	2.62	2.67
Exports (bil.bu.)	0.79	0.80	0.81	0.83	0.85
Domestic Use (bil.bu.)	1.14	1.16	1.17	1.19	1.20
Total Use (bil.bu.)	1.93	1.96	1.98	2.02	2.05
Ending Stocks (bil.bu.)	0.62	0.55	0.58	0.60	0.62
Loan Rate (\$)	4.77	4.77	4.50	4.50	4.50
Target Price (\$)	—	—	6.22	6.03	5.76
Set-Aside (%)	—	—	—	—	—
Farm Price (\$)	4.70	4.59	4.50	4.50	4.50
Subsidy Cost (\$ bil.)	0.00	0.00	2.01	1.82	1.51
Storage Cost (\$ bil.)	0.08	0.07	0.08	0.08	0.09
Total Cost (\$ bil.)	0.08	0.07	2.09	1.90	1.60
Net Cash Income (\$ bil.)	2.66	1.74	3.72	2.99	2.29

Source: Agricultural and Food Policy Center, Texas A&M University System.

optional diversion for feed grains in 1987.

In all scenarios except the \$50,000/\$200,000 payment limit scenario, the farm operation was assumed to be organized so as to completely avoid payment limitations. Gramm-Rudman reductions in government payments and CCC loans were not used as this provision was not in the macroeconomic assumptions.

Under the HARKIN and MANDATORY scenarios, crop price variability was reduced to zero after 1987. These programs established price supports so far above the world price it was highly unlikely that crop prices would exceed these support prices.

### **High Deficit - 1985 Farm Bill (BASE)**

The results of simulating six Texas crop farms under the BASE policy scenario are summarized in Table 3.33. The means, minimums, and maximums for each of seven variables are presented in the results table in addition to the probabilities of survival and success.<sup>4</sup>

The representative Southern High Plains cotton farm has a 94 percent chance of surviving for 4 years and only a 4 percent chance of being an economic success under the BASE scenario (Table 3.33). Probability of surviving through 1990 for the other farms is 100 percent. Probability of success for the farms in other regions ranges from 44 percent for the representative Northern High Plains farm to 94 percent for the Coastal Bend farm.

Net present value<sup>5</sup> for the representative Southern High Plains farm averages -\$67,010 and ranges between -\$301,680 and \$42,400. For the very large Southern High Plains cotton farm, net present value averages \$144,640.

Present value of ending net worth<sup>6</sup> for the representative Southern High Plains farm averages \$111,820 under the BASE scenario. Comparing this value to the initial net worth in Table 3.1 indicates that, on average, the farm would lose \$89,400 in real net worth over the next 4 years. Three of the six farms would, on average, experience real increases in net worth. The farms losing net worth, in real terms, are the representative Southern and Northern High Plains farms and the Rolling Plains farm.

Average annual cash receipts (market receipts plus government payments and proceeds from the sale of PIK commodities) and average annual net cash farm incomes are also provided in Table 3.33. Net cash farm income is defined as total receipts minus total costs of production and interest costs. This value does not include the benefits of off-farm income or the cash outflows associated with family living expenses, income taxes, principal payments, and equipment replacement. The

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<sup>4</sup>Probability of survival is the chance (or probability) of the farm maintaining an equity ratio of 10 percent or greater through 1990, i.e., remaining technically solvent based on local lending practices. Probability of success is the probability (or chance) of the farming operation generating a 5 percent or greater return on the initial net worth (investment).

<sup>5</sup>Net present value is the present value of the annual 1987-90 net returns to the farming operation plus the present value of the change in net worth for the farm over the planning horizon. A 5 percent discount rate was used to compute present value.

<sup>6</sup>Present value of ending net worth is the farm's net worth at the end of 1990 discounted to the present period using a 5 percent discount rate.

Table 3.33. Effects of Continuation of the 1985 Farm Bill through 1990 on Representative and Very Large Farming Operations in Four Regions of Texas

	<u>Southern High Plains</u>		<u>Northern High Plains</u>		<u>Rolling</u>	<u>Coastal</u>
	Represent.	Very Large	Represent.	Very Large	Plains	Bend
Probability of Survival (%)	94.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	4.0	90.0	44.0	88.0	72.0	94.0
Net Present Value (\$1,000)						
Mean	-67.01	144.64	3.30	78.59	17.43	74.26
Minimum	-301.68	-231.12	-67.08	-48.22	-40.83	-31.03
Maximum	42.40	411.05	141.30	324.64	65.66	221.95
Present Value Ending Net Worth (\$1,000)						
Mean	111.82	547.38	349.96	694.73	338.25	702.14
Minimum	-114.33	234.48	290.23	590.38	291.37	616.53
Maximum	201.91	736.55	429.77	849.91	374.12	777.00
Total Ending Debt (\$1,000)						
Mean	229.75	53.00	116.07	148.20	83.00	120.60
Minimum	126.76	11.96	19.90	28.83	34.03	26.59
Maximum	389.71	391.97	190.12	272.49	142.55	231.73
Ending Equity Ratio (fraction)						
Mean	0.36	0.91	0.78	0.84	0.82	0.87
Minimum	-0.55	0.42	0.64	0.72	0.71	0.76
Maximum	0.66	0.98	0.94	0.95	0.91	0.94
Average Annual Cash Receipts (\$1,000)						
Mean	196.49	477.26	257.87	460.49	154.56	359.11
Minimum	140.62	338.57	235.80	421.07	132.69	304.76
Maximum	237.12	578.24	298.93	533.81	175.72	415.51
Average Annual Net Cash Income (\$1,000)						
Mean	-7.33	66.36	9.44	33.73	19.00	57.78
Minimum	-49.55	-44.42	-11.73	-3.99	1.02	23.89
Maximum	23.46	137.53	50.06	104.65	32.54	100.93
Average Annual Government Payments (\$1,000)						
Mean	67.27	157.04	99.30	177.32	49.91	122.14
Minimum	54.42	125.31	86.52	154.51	41.46	102.63
Maximum	78.62	187.26	107.99	192.85	61.20	137.02

Source: Agricultural and Food Policy Center, Texas A&M University System.

representative Rolling Plains farm operation, therefore, must pay taxes, family living expenses, and principal payments, as well as replace equipment with the \$19,000 of average annual net cash income plus \$10,000 of annual off-farm income. Average annual net cash income is negative (-\$7,330) for the representative Southern High Plains farm.

For all six farms, average annual government payments exceed average annual net cash farm income under the BASE scenario. This implies that eliminating government payments would cause average net cash farm income to fall below zero or incur even larger losses. The largest annual government payments are received by the very large Southern and Northern High Plains farms (\$157,040 and \$177,320, respectively).

The results for the other six policy scenarios are presented in Tables 3.34-3.39 for the six farms. The first column of each table presents the results for the BASE scenario in actual units. Subsequent columns present the results for the other policy scenarios as a percentage change from the BASE. This allows for each policy scenario to be compared to the BASE in terms of whether or not it was an improvement.

### **Low Deficit - 1985 Farm Bill (BASELOW)**

Probability of survival under the lower federal budget deficit scenario improves for the representative Southern High Plains farm (Table 3.34). Probability of success improves for all of the representative farms.

Average net present value and average ending net worth for all six farms improved as a result of reducing the federal budget deficit. Average ending net worth increased from 11 to 42 percent for the six farms. The greatest increase was for the representative Southern High Plains (41.87 percent) and the smallest increase was for the Coastal Bend farm (11.68 percent).

Reducing the federal budget deficit would increase total cash receipts slightly for all of the farms (less than 1 percent) although average annual government payments would fall 3 to 14 percent for the different farms. Deficiency payments generally would decline relative to the BASE because of increases in crop prices.

Average annual net cash farm income improves substantially for all six farms under the BASELOW scenario. The greatest percentage increases occur for the farms having the lowest net incomes under the BASE scenario. The other farms would experience increases in net cash income of 20 to 54 percent.

### **Target Price (LOWTP)**

Reducing target prices in the BASE scenario by 25 percent substantially reduced the probability of survival for the representative Southern High Plains farm. The probability of success fell to near zero for all six farms. Average ending net worth declined 33 to 183 percent as a result of moving from the BASE to the LOWTP scenario.

Average annual government payments fell 45 to 55 percent for the six farms resulting in a 13 to 18 percent decline in average annual cash receipts. Every farm experienced more than a 100 percent decline in average annual net cash farm income as a result of reducing target prices by 25 percent. The farms experiencing the greatest percentage declines in net cash income were representative Northern and Southern High Plains operations.

Table 3.34. Effects of Alternative Farm Programs on a Representative Southern High Plains Cotton Farm<sup>1</sup>

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	94.0	96.0	2.0	98.0	68.0	46.0	76.0
Probability of Success (%)	4.0	40.0	0.0	94.0	2.0	0.0	0.0
-----Percentage Change From the BASE <sup>2</sup> Scenario -----							
Net Present Value							
Mean	-67.01	73.94	-308.78	222.06	-84.32	-152.45	-89.03
Minimum	-301.68	15.40	-24.76	39.58	2.83	2.73	12.83
Maximum	42.40	139.12	-335.53	385.66	-31.49	-143.91	-123.84
Present Value Ending Net Worth							
Mean	111.82	41.87	-183.63	108.25	-50.98	-92.64	-46.99
Minimum	-114.33	40.24	-65.30	104.44	9.66	7.22	34.67
Maximum	201.91	22.93	-68.92	49.05	-7.59	-32.51	-18.58
Total Ending Debt							
Mean	229.75	-16.51	50.63	-66.23	17.95	30.91	20.05
Minimum	126.76	-30.91	118.64	-96.11	15.41	62.94	35.97
Maximum	389.71	-4.09	4.83	-19.84	-6.39	-7.17	-11.92
Ending Equity Ratio							
Mean	0.36	37.63	-241.24	111.36	-57.14	-106.74	-49.60
Minimum	-0.55	48.60	-80.42	103.49	9.06	-8.23	33.64
Maximum	0.66	17.29	-67.27	42.45	-7.81	-32.51	-18.58
Average Annual Cash Receipts							
Mean	196.49	0.83	-17.38	18.58	-16.18	-6.09	-5.97
Minimum	140.62	-3.34	-20.68	10.18	-27.16	-11.36	-9.24
Maximum	237.12	2.39	-14.02	18.34	-11.80	-3.36	-5.21
Average Annual Net Cash Income							
Mean	-7.33	141.00	-451.34	631.48	-147.79	-251.47	-191.77
Minimum	-49.55	8.60	-32.38	38.96	-17.72	-6.82	-0.47
Maximum	23.46	58.72	-162.40	227.97	-17.16	-79.04	-65.71
Average Annual Government Payments							
Mean	67.27	-13.79	-53.82	-67.61	-66.96	-43.81	-16.43
Minimum	54.42	-20.10	-57.84	-72.71	-72.77	-47.72	-17.77
Maximum	78.62	-8.08	-45.61	-69.18	-59.19	-44.16	-15.71

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>BASE is continuation of 1985 farm bill through 1990, high federal budget deficits. BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits. LOWTP is 25% reduction in 1985 farm bills target prices after 1987. HARKIN is the Harkin proposal after 1987. MANDATORY is a mandatory supply control/high price support program after 1987. DSP is a domestic support program after 1987. LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup>Values in column one are in \$1,000, except for ending equity ratios which are in fractions.

Table 3.35. Effects of Alternative Farm Programs on a Large Southern High Plains Cotton Farm

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	100.0	100.0	94.0	100.0	98.0	98.0	90.0
Probability of Success (%)	90.0	96.0	8.0	98.0	60.0	52.0	2.0
-----Percentage Change From the BASE <sup>2</sup> Scenario -----							
<b>Net Present Value</b>							
Mean	144.64	54.53	-206.74	240.38	-65.72	-92.04	-258.97
Minimum	-231.12	19.68	-209.78	78.78	-148.30	-125.64	-167.68
Maximum	411.05	25.43	-67.54	97.78	-6.64	-26.30	-90.17
<b>Present Value Ending Net Worth</b>							
Mean	547.38	12.21	-46.71	50.29	-14.10	-18.73	-54.95
Minimum	234.48	18.72	-209.01	76.63	-146.17	-123.49	-157.11
Maximum	736.55	12.03	-28.95	44.79	-2.11	-10.06	-35.08
<b>Total Ending Debt</b>							
Mean	53.00	-13.63	410.60	-70.33	142.43	173.78	587.70
Minimum	11.96	81.90	4.85	0.00	0.00	0.00	855.40
Maximum	391.97	-4.12	74.73	-55.72	54.59	39.60	64.25
<b>Ending Equity Ratio</b>							
Mean	0.91	0.49	-40.15	1.35	-12.27	-14.71	-51.94
Minimum	0.42	11.92	-297.29	76.63	-165.87	-133.11	-180.36
Maximum	0.98	-1.38	-0.36	0.28	-0.02	-0.09	-15.13
<b>Average Annual Cash Receipts</b>							
Mean	477.26	0.89	-14.55	20.77	-14.65	-4.90	-18.73
Minimum	338.57	-2.79	-18.80	12.94	-23.53	-7.48	-24.20
Maximum	578.24	2.44	-12.36	20.12	-10.57	-2.84	-16.66
<b>Average Annual Net Cash Income</b>							
Mean	66.36	24.87	-113.41	169.15	-41.89	-58.81	-161.73
Minimum	-44.42	10.27	-163.43	123.66	-120.29	-88.04	-165.66
Maximum	137.53	19.03	-51.19	93.86	-7.49	-24.97	-73.23
<b>Average Annual Government Payments</b>							
Mean	157.04	-14.78	-54.14	-67.25	-67.22	-45.23	-56.68
Minimum	125.31	-22.33	-59.99	-72.86	-72.80	-50.05	-59.45
Maximum	187.26	-9.22	-45.11	-69.41	-69.40	-45.94	-49.97

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>BASE is continuation of 1985 farm bill through 1990, high federal budget deficits.  
 BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits.  
 LOWTP is 25% reduction in 1985 farm bills target prices after 1987.  
 HARKIN is the Harkin proposal after 1987.  
 MANDATORY is a mandatory supply control/high price support program after 1987.  
 DSP is a domestic support program after 1987.  
 LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup>Values in column one are in \$1,000, except for ending equity ratios which are in fractions.

Table 3.36. Effects of Alternative Farm Programs on a Representative Northern High Plains Grain Farm<sup>1</sup>

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	44.0	100.0	0.0	100.0	4.0	4.0	4.0
-----Percentage Change From the BASE <sup>2</sup> Scenario -----							
Net Present Value							
Mean	3.30	2,335.60	-6,385.13	4,871.80	-2,220.23	-2,867.25	-3,033.22
Minimum	-67.08	108.52	-324.58	189.28	-141.44	-146.00	-158.11
Maximum	141.30	52.20	-140.51	112.89	-53.16	-42.39	-65.31
Present Value Ending Net Worth							
Mean	349.96	19.59	-56.56	28.47	-18.07	-24.58	-22.86
Minimum	290.23	24.16	-73.46	34.36	-27.94	-36.49	-30.31
Maximum	429.77	13.91	-32.22	22.47	-8.58	-9.38	-10.02
Total Ending Debt							
Mean	116.07	-27.72	155.86	-83.15	67.17	91.37	84.67
Minimum	19.90	47.57	541.50	-18.87	186.52	274.90	261.03
Maximum	190.12	-17.21	104.15	-67.26	51.84	67.72	56.24
Ending Equity Ratio							
Mean	0.78	7.51	-50.65	17.79	-17.99	-24.54	-22.79
Minimum	0.64	11.96	-69.88	34.36	-27.94	-36.49	-30.31
Maximum	0.94	-2.64	-22.05	-0.75	-7.38	-9.38	-8.83
Average Annual Cash Receipts							
Mean	257.87	0.44	-16.47	13.66	-23.49	-11.63	-9.73
Minimum	235.80	0.14	-18.25	9.44	-26.87	-12.48	-11.04
Maximum	298.93	1.08	-14.19	13.79	-21.20	-8.02	-8.64
Average Annual Net Cash Income							
Mean	9.44	115.10	-513.66	563.17	-235.83	-304.91	-317.05
Minimum	-11.73	74.06	-430.68	344.38	-241.36	-252.69	-269.93
Maximum	50.06	21.22	-87.82	106.36	-43.33	-36.38	-53.40
Average Annual Government Payments							
Mean	99.30	-3.04	-45.04	-72.89	-72.86	-31.33	-25.27
Minimum	86.52	-6.21	-51.20	-72.12	-72.12	-34.48	-25.34
Maximum	107.99	-1.21	-40.53	-74.74	-74.70	-31.08	-24.11

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup> BASE is continuation of 1985 farm bill through 1990, high federal budget deficits. BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits. LOWTP is 25% reduction in 1985 farm bills target prices after 1987. HARKIN is the Harkin proposal after 1987. MANDATORY is a mandatory supply control/high price support program after 1987. DSP is a domestic support program after 1987. LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup> Values in column one are in \$1,000, except for ending equity ratios which are in fractions.



Table 3.37. Effects of Alternative Farm Programs on a Large Northern High Plains Grain Farm<sup>1</sup>

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	88.0	100.0	0.0	100.0	20.0	10.0	2.0
-----Percentage Change From the BASE <sup>2</sup> Scenario -----							
Net Present Value							
Mean	78.59	173.26	-483.03	359.36	-190.16	-220.41	-447.39
Minimum	-48.22	266.55	-823.77	465.16	-414.89	-371.86	-767.27
Maximum	324.64	41.09	-107.48	87.93	-45.27	-32.65	-97.76
Present Value Ending Net Worth							
Mean	694.73	17.80	-52.14	28.05	-19.34	-23.02	-46.21
Minimum	590.38	20.12	-66.12	31.04	-32.40	-33.48	-61.18
Maximum	849.91	13.72	-29.61	25.56	-9.70	-8.07	-23.89
Total Ending Debt							
Mean	148.20	-33.54	219.30	-80.21	106.08	128.10	261.72
Minimum	28.83	81.90	461.50	0.00	94.85	68.13	642.77
Maximum	272.49	-16.47	133.63	-84.35	85.69	86.59	161.48
Ending Equity Ratio							
Mean	0.84	5.32	-45.28	10.39	-18.58	-22.42	-45.88
Minimum	0.72	7.81	-61.52	26.49	-32.58	-33.29	-61.28
Maximum	0.95	-2.13	-14.28	0.72	-2.72	-0.96	-18.19
Average Annual Cash Receipts							
Mean	460.49	0.44	-16.47	13.66	-23.49	-11.63	-18.26
Minimum	421.07	0.14	-18.25	9.44	-26.87	-12.48	-20.37
Maximum	533.81	1.08	-14.19	13.79	-21.21	-8.02	-15.99
Average Annual Net Cash Income							
Mean	33.73	53.64	-255.53	271.12	-130.69	-153.15	-304.69
Minimum	-3.99	373.52	-2,254.07	1,765.95	-1,425.76	-1,334.57	-2,708.21
Maximum	104.65	17.67	-71.75	89.47	-40.87	-31.75	-88.71
Average Annual Government Payments							
Mean	177.32	-3.04	-45.04	-72.89	-72.86	-31.33	-47.42
Minimum	154.51	-6.21	-51.20	-72.12	-72.12	-34.48	-50.77
Maximum	192.85	-1.21	-40.53	-74.74	-74.70	-31.08	-44.48

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>BASE is continuation of 1985 farm bill through 1990, high federal budget deficits.  
BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits.  
LOWTP is 25% reduction in 1985 farm bills target prices after 1987.  
HARKIN is the Harkin proposal after 1987.  
MANDATORY is a mandatory supply control/high price support program after 1987.  
DSP is a domestic support program after 1987.  
LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup>Values in column one are in \$1,000, except for ending equity ratios which are in fractions.

Table 3.38. Effects of Alternative Farm Programs on a Representative Rolling Plains Grain-Cotton Farm<sup>1</sup>

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	72.0	100.0	0.0	100.0	26.0	24.0	70.0
-----Percentage Change From the BASE <sup>2</sup> Scenario-----							
Net Present Value							
Mean	17.43	296.92	-667.58	610.76	-267.28	-252.35	-5.33
Minimum	-40.83	114.49	-304.21	185.53	-156.09	-144.42	-1.80
Maximum	65.66	90.10	-155.75	207.59	-12.29	-39.43	-2.21
Present Value Ending Net Worth							
Mean	338.25	13.73	-33.07	19.34	-12.71	-11.74	-0.18
Minimum	291.37	15.79	-42.31	21.34	-21.84	-20.26	-0.17
Maximum	374.12	10.87	-23.06	18.62	-5.16	-4.80	-0.13
Total Ending Debt							
Mean	83.00	-22.46	108.90	-79.38	65.30	60.61	0.91
Minimum	34.03	-28.58	183.36	-63.04	72.40	68.10	1.48
Maximum	142.55	-15.01	71.46	-56.08	54.26	50.34	0.41
Ending Equity Ratio							
Mean	0.82	4.10	-25.62	12.46	-12.70	-11.71	-0.19
Minimum	0.71	6.07	-35.91	21.34	-21.84	-20.26	-0.17
Maximum	0.91	1.28	-14.55	6.13	-5.18	-4.83	-0.09
Average Annual Cash Receipts							
Mean	154.56	0.45	-13.55	19.88	-16.67	-6.47	-0.14
Minimum	132.69	-0.81	-16.96	14.53	-20.61	-9.01	-0.26
Maximum	175.72	1.30	-10.09	22.12	-11.08	-2.40	-0.20
Average Annual Net Cash Income							
Mean	19.00	32.68	-124.94	185.91	-76.27	-72.39	-1.42
Minimum	1.02	591.94	-2,498.82	2,632.78	-1,887.25	-1,746.55	-21.18
Maximum	32.54	23.62	-55.22	134.89	-7.98	-23.60	-1.24
Average Annual Government Payments							
Mean	49.91	-11.79	-48.06	-69.17	-69.14	-42.50	-0.42
Minimum	41.46	-14.34	-56.25	-74.48	-74.47	-45.36	-0.39
Maximum	61.20	-8.28	-41.72	-72.56	-72.52	-46.53	-0.58

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>BASE is continuation of 1985 farm bill through 1990, high federal budget deficits.  
BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits.  
LOWTP is 25% reduction in 1985 farm bills target prices after 1987.  
HARKIN is the Harkin proposal after 1987.  
MANDATORY is a mandatory supply control/high price support program after 1987.  
DSP is a domestic support program after 1987.  
LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup>Values in column one are in \$1,000, except for ending equity ratios which are in fractions.

Table 3.39. Effects of Alternative Farm Programs on a Representative Coastal Bend Grain-Cotton Farm<sup>1</sup>

	BASE	BASELOW	LOWTP	HARKIN	MANDATORY	DSP	LIMIT
Probability of Survival (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Probability of Success (%)	94.0	100.0	0.0	100.0	42.0	34.0	6.0
-----Percentage Change From the BASE <sup>2</sup> Scenario -----							
<b>Net Present Value</b>							
Mean	74.26	130.57	-383.05	190.00	-124.20	-128.27	-237.75
Minimum	-31.03	286.34	-977.11	263.79	-459.33	-386.95	-605.50
Maximum	221.95	43.99	-120.50	65.15	-36.81	-53.31	-80.94
<b>Present Value Ending Net Worth</b>							
Mean	702.14	11.68	-37.34	12.81	-11.23	-11.09	-20.21
Minimum	616.53	13.62	-47.18	12.55	-21.12	-17.66	-27.34
Maximum	777.00	11.29	-25.77	12.66	-4.65	-7.99	-12.16
<b>Total Ending Debt</b>							
Mean	120.60	-22.84	199.42	-68.96	82.77	82.53	149.13
Minimum	26.59	81.90	631.31	0.00	211.06	286.67	396.23
Maximum	231.73	-13.02	115.63	-43.11	68.16	56.97	89.08
<b>Ending Equity Ratio</b>							
Mean	0.87	2.53	-31.07	5.99	-11.09	-10.85	-20.04
Minimum	0.76	4.98	-42.05	11.24	-21.09	-17.63	-27.45
Maximum	0.94	-1.11	-17.13	-0.28	-3.87	-6.93	-10.59
<b>Average Annual Cash Receipts</b>							
Mean	359.11	0.61	-16.21	9.82	-17.56	-7.02	-12.52
Minimum	304.76	-0.27	-19.72	6.25	-22.46	-9.84	-14.85
Maximum	415.51	1.23	-13.58	9.21	-14.50	-4.58	-11.03
<b>Average Annual Net Cash Income</b>							
Mean	57.78	22.36	-115.47	88.99	-50.20	-52.50	-95.63
Minimum	23.89	37.29	-292.28	133.97	-178.32	-150.15	-238.18
Maximum	100.93	16.37	-60.50	47.67	-24.34	-32.72	-52.25
<b>Average Annual Government Payments</b>							
Mean	122.14	-8.04	-54.06	-81.06	-70.68	-30.43	-36.81
Minimum	102.63	-11.25	-60.12	-80.95	-71.42	-24.32	-35.68
Maximum	137.02	-5.64	-49.10	-81.81	-72.48	-34.67	-36.72

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>BASE is continuation of 1985 farm bill through 1990, high federal budget deficits.  
BASELOW is continuation of 1985 farm bill through 1990, low federal budget deficits.  
LOWTP is 25% reduction in 1985 farm bills target prices after 1987.  
HARKIN is the Harkin proposal after 1987.  
MANDATORY is a mandatory supply control/high price support program after 1987.  
DSP is a domestic support program after 1987.  
LIMIT is continuation of the 1985 farm bill but with an effective \$50,000/\$200,000 payment limit.

<sup>2</sup>Values in column one are in \$1,000, except for ending equity ratios which are in fractions.

## **Harkin Bill (HARKIN)**

Imposing the provisions of the Harkin bill after 1987 would improve the probability of survival and success over the BASE for all of the representative farms. The higher market prices and reduced price variability after 1987 more than compensates for the loss of all government payments from 1988 through 1990 and the increase in acreage reductions. As indicated in Tables 3.34-3.39, average annual government payments fall 67 to 81 percent from the BASE because there are no deficiency payments paid from 1988 through 1990. Despite the loss of government payments in 1988-90, average annual cash receipts increased 10 to 20 percent for the representative farms.

With the reduced production costs due to set-asides and the increased cash receipts, the average annual net cash farm incomes for all six farming operations increased significantly. For example, the representative Southern Plains cotton farm would see an increase in net cash farm income of 631 percent over the BASE. The smallest percentage increase in net cash farm income, 89 percent, was observed for the Coastal Bend farm.

Average net present value for all farms was increased by the HARKIN scenario. The representative Southern High Plains farm would experience more than a 200 percent increase in net present value over the BASE.

## **Production Controls (MANDATORY)**

The mandatory supply control program resulted in market prices at the same level as the 1985 farm bill target price and imposed higher set-asides for the individual crops. Under the MANDATORY program, average annual government payments dropped 67 to 73 percent for the representative farms as government payments in 1988-90 fell to zero. The result was a 14 to 24 percent decline in average annual cash receipts and a 50 percent or greater decline in net cash farm income.

Probability of survival for the two Southern High Plains cotton farms declines as a result of switching to the MANDATORY program after 1987. The probability of success declines for all six farms.

## **Domestic Support Program (DSP)**

Implementing the domestic support program after 1987 would reduce the probability of survival for the representative Southern High Plains farm from 94 percent under the BASE to 46 percent (Table 3.34). The probability of success would fall substantially for all of the farms. The probability of success on the larger Northern High Plains farm would fall from 88 percent under the BASE to only 10 percent under the DSP scenario. The large Southern High Plains farm has a much smaller reduction in the probability of success, declining from 90 percent under the BASE to 52 percent. The probability of success for the Rolling Plains farm would be cut by two-thirds, falling from 72 percent to only 24 percent.

Because deficiency payments are paid on only the domestic use share of production, average annual government payments for the six farms would fall 30 to 46 percent from the BASE. As a result, net cash farm income declines more than 50 percent for all farms. Percentage declines in net cash income are greater for the representative Southern and Northern High Plains farms than those in the other regions.

Due to the reduction in net cash income, ending net worth for the representative farms would be reduced by implementing the domestic support program. Ending net worth would fall 11

to 93 percent for these farms over the next 4 years if the program was put in place in 1988.

### Payment Limitation (LIMIT)

Enforcing the \$50,000/\$200,000 limits on government payments reduces the probability of survival for the two Southern High Plains farms. Probability of success falls to near zero for all farms except in the Rolling Plains. Under the payment limit scenario, average annual government payments decline about 50 percent from the BASE for the two very large farms. The decline in payments is less than 1 percent for the Rolling Plains farm because its initial value under the Base was only \$49,910. Declines in government payments for the other farms were 16 to 30 percent.

All farms were made worse off, however, the Rolling Plains farms did not suffer as much as the other five. Average annual net cash incomes for the two very large farms decreased more than 160 percent, resulting in negative net cash incomes. This result substantiates the economic incentive behind the move by farms across America to circumvent the payment limit.

## Chapter 4

### Impact of Farm Bill Options on Dairy and Livestock

Milk has traditionally had its own unique set of price and income support programs including the milk price support program and the federal milk marketing order program. The milk price support program operates with the government standing ready to purchase manufactured dairy products (butter, nonfat dry milk, and cheese) at the price support level. Federal milk marketing orders set higher classified prices for milk used for fluid purposes. Producers of Grade A milk, therefore, are paid a weighted average or blend price, which is higher than the support price.

Over the past 10 years, price support levels have been set sufficiently high that excess milk supplies have been generated. Annual government costs have averaged \$2.1 billion over the past 5 years. Efforts to reduce the price support level as well as enactment of voluntary diversion and buyout programs have failed to correct the supply/demand imbalance. One study suggests that a supply/demand balance would be achieved only at a support level of approximately \$8.00 per hundredweight (Economic Perspectives).

Two alternative dairy policy proposals were introduced during the 99th Congress—a mandatory control program and a target price program. Both are likely to be extensively debated by the 100th Congress. This analysis of the dairy sector considered three scenarios:

- continuation of the provisions of the 1985 farm bill,
- the Gunderson bill providing for a target price and recourse loan, and
- the Harkin bill with tight mandatory supply controls.

Under all three dairy scenarios, it is assumed that stocks of dairy products currently held by the CCC will be depleted during the years 1988-90 for U.S. government food aid programs, and, therefore, these stocks and disbursements are not included in this analysis. This assumption is critical to the results of the analyses presented in this section.

### 1985 Farm Bill

#### Dairy Provisions

The 1985 farm bill included price support provisions as well as a dairy termination or buyout program designed to remove productive capacity from the industry.

#### *Price Supports*

The effect of the assessments and small decreases in the price support level specified in the 1985 farm bill was to lower the price support level at the farm to \$11.10 per hundredweight for 1986-87. The farm bill specified that annual adjustments in the price support after 1987 would be triggered by anticipated levels of net government CCC removals. The price drops \$0.50 on January 1, if expected removals for the coming year exceed 5 billion pounds. The price rises \$0.50 if removals are expected to fall below 2.5 billion pounds. Table 3.3 provides estimated price support levels for 1988-90 under this scenario.

## *Buyout*

Dairy producers were asked to bid an amount per hundredweight of base milk production required to take their operation out of the milk business. All bids under \$22.50 per hundredweight were accepted by the USDA. Participating producers were required to sell their herd, either for export or for slaughter. If a bid was accepted, neither the producer, his money, nor his land and buildings could be involved in producing milk for a period of 5 years. Accompanying the buyout was a producer assessment on all milk marketed to partially offset the cost of buyout payments. Assessment revenue is expected to cover about one-third of total buyout cost.

The 1985 farm bill gives the Secretary of Agriculture discretionary authority to implement either a milk diversion or buyout program after 1987. Given the fact that neither program in the past was as successful as promised, this analysis assumes neither will be implemented for 1988-90.

## **Impacts of the 1985 Farm Bill on Dairy**

Under the 1985 farm bill, a \$0.50 per hundredweight drop in the price support level is triggered in 1988 to keep net CCC removals down. No adjustment is triggered in 1989 or 1990, due to the combination of lower price supports initiated over the past 3 years and the buyout program. Consumption increases in 1988 (Table 4.1), in response to lower prices and advertising program expansion, but the increases in 1989-90 are expected to be due to population growth only.

Government costs fall by more than 70 percent from 1986 to 1990 as net CCC removals approach the 5 billion pound level. Net cash farm income falls drastically—a reduction of over 60 percent by 1990.

## **Gunderson Bill**

### **Provisions**

The Gunderson bill would put milk in the same general target price-deficiency payment framework as program crops. Another particularly important provision in the Gunderson bill is the recourse loan provision. This provision has implications for the extent to which price support levels set a price floor and for the handling of inventories within the milk industry.

### *Recourse Loan*

The current government purchase program for milk would be replaced by a *recourse* loan program. Under a recourse loan, the government would *not purchase* any commodity due to loan default. Instead it would provide a loan to processors on manufactured products in storage for a limited period of up to 270 days. The recourse feature means that, in contrast to crops, there would be *no forfeiture* of commodities under loan to the government at the end of the storage period. The established loan rate of \$10.10 per hundredweight would, therefore, *not be a price floor*. Interest would be charged at a 12 percent annual rate. If the commercial interest rate were lower, there would be no incentive for processors to utilize the loan. Under these conditions, a futures market for additional dairy products may be feasible.

There are no production control provisions in the Gunderson bill. Production adjustments would be made on the basis of market forces given the \$12.10 per hundredweight target price.

Table 4.1. Aggregate Impacts of 1985 Farm Bill on Dairy, 1986-90

	1986	1987	1988	1989	1990
Milk Cows (1,000 head)	10,800	10,500	10,300	10,100	9,900
Yield/Cow (cwt.)	135.3	138.7	142.1	145.7	149.3
Milk Production (bil.lbs.)	145.7	144.0	146.0	147.2	147.8
Imports (bil.lbs.)	2.5	2.5	2.5	2.5	2.5
Total Supply (bil.lbs.)	148.2	146.5	148.5	149.7	150.3
On-Farm Use (bil.lbs.)	2.5	2.5	2.5	2.5	2.5
Commercial Disappearance (bil.lbs.)	135.3	136.7	140.3	141.7	143.1
Net CCC Removals (bil.lbs.)	10.4	7.3	5.7	5.5	4.7
All Milk Price at Farm (\$/cwt.)	12.28	12.28	11.79	11.77	11.75
Net Price Support <sup>1</sup> Level (\$/cwt.) <sup>1</sup>	11.10	11.10	10.60	10.60	10.60
Cow Slaughter Above Normal Culling (1,000 head)	630 <sup>2</sup>	300 <sup>2</sup>	0	200	200
CCC Purchases (\$ bil.)	1.31	0.92	0.66	0.64	0.55
Deficiency Payments (\$ bil.)	—	—	—	—	—
Net Buyout Payments (\$ bil.)	.81	.39	—	—	—
Total Government Cost (\$ bil.)	2.12	1.31	0.66	0.64	0.55
Farm Receipts (\$ bil.)	20.2 <sup>3</sup>	19.4 <sup>3</sup>	18.4	18.5	18.5
Cash Farm Expenses (\$ bil.)	13.7	13.5	14.0	14.5	16.0
Net Cash Farm Income (\$ bil.)	6.5 <sup>3</sup>	5.9 <sup>3</sup>	4.4	4.0	2.5

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>Net of assessments.

<sup>2</sup>Result of buyout.

<sup>3</sup>Includes buyout payments.



### **Target Price**

The bill sets the target price for milk at a fixed level of \$12.10 per hundredweight. This level would be unchanged throughout the life of the bill—presumably through 1990. The deficiency payment rate would be the difference between the target price and the Minnesota-Wisconsin price, with a \$2.00 per hundredweight maximum payment rate equal to the difference between the target price and the loan rate.

### **Targeted Benefits**

Deficiency payments are limited to \$20,000 per producer each year, compared to \$50,000 per person in crops. The \$20,000 limit would be reached with about 75 cows at the 1986 national average output per cow of 13,200 pounds, and the maximum per unit deficiency payment. However, this analysis assumes the limit does not effectively curb payments to farm units.

### **Impacts of the Gunderson Bill**

Results of the Gunderson bill are indicated in Table 4.2. Farm receipts per hundredweight for milk in 1988-90 are higher than for 1987 due to the \$2 per hundredweight deficiency payment. However, the market price paid by plants (which is the same as the farm price for the other dairy policy options) falls drastically. It is assumed that most of this price drop would be experienced by milk used for manufacturing purposes, where substitutes are the most prevalent. The result is to boost consumption to the point where a supply-demand balance occurs, as it must since the recourse loan results in no net CCC removals.

Under this proposal, increases in consumption are not equal across all dairy products. Due to a more elastic demand for manufactured products (butter, cheese, non-fat dry milk) relative to fluid products, most of the dramatic increase in consumption is for manufactured dairy products. Indeed, under the federal milk marketing order structure, the value of price differentials and premiums paid in the fluid product market must increase for a supply-demand balance to be reached in both markets.

Total government costs increase in 1988-90, despite elimination of CCC removals, due to deficiency payments. As in the 1985 farm bill, net cash farm income falls over the period, albeit at a slower pace. Net cash farm income is greater than under the 1985 farm bill due largely to deficiency payments.

### **Harkin Bill**

#### **Dairy Provisions**

The dairy provisions of the Harkin bill have much the same underlying philosophy as for crops, except that the production control provisions for milk are considerably tighter. Import controls are the same as those stated in the 1985 farm bill.

Table 4.2. Aggregate Impacts of Gunderson Target Price Bill on Dairy, 1988-90

	1985 Farm Bill		Gunderson Bill		
	1986	1987	1988	1989	1990
Milk Cows (1,000 head)	10,800	10,500	10,300	10,300	10,200
Yield/Cow (cwt.)	135.3	138.7	142.3	145.9	149.5
Milk Production (bil.lbs.)	145.7	144.0	146.6	150.0	152.1
Imports (bil.lbs.)	2.5	2.5	2.5	2.5	2.5
Total Supply (bil.lbs.)	148.2	146.5	149.1	152.5	154.6
On-Farm Use (bil.lbs.)	2.5	2.5	2.7	2.7	2.7
Commercial					
Disappearance (bil.lbs.)	135.3	136.7	146.4	149.8	151.9
Net CCC					
Removals (bil.lbs.)	10.4	7.3	0	0	0
Milk Price Received					
by Farmers (\$/cwt.)	12.28	12.28	12.60	12.30	12.10
Net Price Support <sup>1</sup>					
Level (\$/cwt.) <sup>1</sup>	11.10	11.10	—	—	—
Milk Price Paid by					
Consumers (\$/cwt.)	12.28	12.28	10.75	10.45	10.35
Cow Slaughter Above Normal					
Culling (1,000 head)	630 <sup>2</sup>	300 <sup>2</sup>	0	0	100
CCC Purchases (\$ bil.)	1.31	.92	—	—	—
Deficiency Payments (\$ bil.)	—	—	2.8	2.9	3.0
Net Buyout Payments (\$ bil.)	.81	.39	—	—	—
Total Government					
Cost (\$ bil.)	2.12	1.31	2.8	2.9	3.0
Farm Receipts (\$ bil.)	20.2 <sup>3</sup>	19.4 <sup>3</sup>	19.6	19.6	19.6
Cash Farm Expenses (\$ bil.)	13.7	13.5	14.0	14.8	16.3
Net Cash Farm Income					
(\$ bil.)	6.5 <sup>3</sup>	5.9 <sup>3</sup>	5.6	4.8	3.3

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>Net of assessments.

<sup>2</sup>Result of buyout.

<sup>3</sup>Includes buyout payments.

## *Price Supports*

As with program crops, the price support level for milk is initially set at 70 percent of parity in 1988. Each subsequent year, the price support level increases by 1 percent—71 percent in 1989, 72 percent in 1990, and so forth up to a maximum of 80 percent of parity in 1997. Table 3.15 provides the estimated dairy support levels for 1988-90. The \$15.02 per hundredweight support price in 1988 represents a 35 percent increase over the January 1987 price support level. Without effective production controls, such a price increase would substantially increase milk production.

## *Production Controls*

The Harkin bill employs stringent controls on milk production. It allocates marketing quotas based on producers' average production during the period 1981-85, dropping the high and low production years. Adjustments are allowed for diversion program participants. Marketings are limited to an individual producer's base multiplied by the ratio of the expected demand to the expected quantity of milk produced (total quota). Marketing of overbase milk is severely penalized at the rate of 75 percent of the support price. These production controls would be imposed if at least half of the producers voting in a referendum favor the program.

## *Targeting Benefits*

The bill contains extensive limitations on the transfer of base. Base is not freely transferable—it is tied to the dairy farm itself. Priority for allocation of either new base or existing base (from producers desiring to exit dairying) would generally be given to beginning farmers and farmers for whom expansion is necessary to earn the average net income of milk producers in the state (presumably smaller dairy farms). No base exceeding 1.5 million pounds (approximately 114 cows at 1986 average output of 13,200 pounds) can be allocated to non-family units or to any nonfarm corporations or investors. The effects of these targeting provisions were not evaluated.

## **Impacts of the Harkin Bill on Dairy**

Farm prices increase over 33 percent in 1988 as the price support level is tied to parity (Table 4.3). Consumption of dairy products falls by nearly 14 percent from 1987 to 1990, due to the 33 percent rise in milk prices. To meet the proposal's goal of reaching a supply/demand balance, 1988 milk production must be cut by over 16 percent from the 1987 level. Dairy producers initially will have their quota set at 89 percent of base marketings, falling to 87 percent by 1990.

While government costs fall to zero, net cash farm income rises by over 50 percent in 1988. Over time, this windfall rise will be incorporated into the cost of capital expenditures (primarily dairy farms) and, therefore, into the cost of producing milk.

## **Impacts of Policy Options on Livestock**

Traditionally, livestock and poultry producers have taken relatively little direct interest in policies relating to other commodities. For beef cattle producers, this neutrality ended with the dairy buyout program. Now concern is being expressed about the impacts of options such as the Harkin bill on the price of feed and the future of larger scale, more highly integrated, farm operations. These concerns are particularly important in Texas since about half of the state's farm

Table 4.3. Aggregate Impacts of Harkin Bill on Dairy, 1988-90

	1985 Farm Bill		Harkin Bill		
	1986	1987	1988	1989	1990
Milk Cows (1,000 head)	10,800	10,500	8,500	8,200	7,900
Yield/Cow (cwt.)	135.3	138.7	143.0	146.6	150.3
Milk Production (bil.lbs.)	145.7	144.0	120.6	118.8	117.8
Imports (bil.lbs.)	2.5	2.5	2.1	2.1	2.0
Total Supply (bil.lbs.)	148.2	146.5	122.7	120.9	119.8
On Farm Use (bil.lbs.)	2.5	2.5	2.1	2.1	2.0
Commercial					
Disappearance (bil.lbs.)	135.3	136.7	120.6	118.8	117.8
Net CCC					
Removals (bil.lbs.)	10.4	7.3	0	0	0
All Milk Price					
at Farm (\$/cwt.)	12.28	12.28	16.35	17.43	18.26
Net Price Support					
Level at Farm (\$/cwt.) <sup>1</sup>	11.10	11.10	15.02	16.07	16.88
Cow Slaughter Above Normal					
Culling (1,000 head)	630 <sup>2</sup>	300 <sup>2</sup>	2000	300	300
CCC Purchases (\$ bil.)	1.31	.92	—	—	—
Deficiency Payments (\$ bil.)	—	—	—	—	—
Net Buyout Payments (\$ bil.)	.81	.39	—	—	—
Total Government					
Cost (\$ bil.)	2.12	1.31	0	0	0
Farm Receipts (\$ bil.)	20.2 <sup>3</sup>	19.4 <sup>3</sup>	20.6	21.5	22.3
Cash Farm Expenses (\$ bil.)	13.7	13.5	11.6	12.1	12.8
Net Cash Farm Income					
(\$ bil.)	6.5 <sup>3</sup>	5.9 <sup>3</sup>	9.0	9.4	9.5
Marketing Quota as a % of					
Base (135.5 bil.lbs.)	—	—	89.0	87.7	86.9

Source: Agricultural and Food Policy Center, Texas A&M University System.

<sup>1</sup>Net of assessment.

<sup>2</sup>Result of buyout.

<sup>3</sup>Includes buyout payments.

income comes from beef, hogs, and poultry.

### **Dairy Policy Impacts on Beef Cattle**

As indicated previously, the Harkin bill results in a sharp drop in milk production from about 144 billion pounds in 1987 to 120 billion pounds in 1988. This decline in production would be accomplished by culling a large number of milk cows to achieve the 120 billion pound quota. At the national average output per cow, 2 million dairy cows would need to be culled *above the normal level*. Most of these cows would be slaughtered. This is more than twice the number of cows slaughtered in the buyout program. Because the Harkin bill contains no provisions for gradual implementation, most of these cows would be slaughtered over a short time period.

Approximately 37 million head of cattle are slaughtered each year. Recent studies indicate that a 10 percent increase in supply of beef results in a 22 percent reduction in the price of beef (Wohlgenant). If 2 million additional cull cows are slaughtered over a 12-month period, it would reduce the price of beef cattle by about 12 percent. Over a 6-month period, 2 million additional cows slaughtered would reduce beef cattle prices by 23 percent, while over 3 months the price reduction would be nearly 50 percent.

### **Crop Policy Impacts on Livestock**

Crop policies impact feed costs which, in turn, affect profits earned from feeding livestock and poultry. Secondary effects exist on the prices paid for feeder cattle and pigs.

Not all government farm programs increase feed prices. In fact, programs which have target prices that exceed the market price actually reduce feed costs because the guaranteed level of farmer receipts induce higher levels of farm production. This, in turn, lowers market prices for feed grains. Therefore, the higher the target price, the lower the price of feed (assuming normal weather and/or export demand). Recognizing these realities, the following rank ordering of the three target price policy alternatives is possible in terms of the degree of feed price *reduction*:

- 1985 farm bill;
- 25 percent target price reduction; and
- domestic support program.

At the same time, these effects on feed prices are small relative to the much more direct impact of a price support change.

### **Harkin and Mandatory Controls Impacts on Livestock**

The impact of the Harkin bill on the price of feed is direct. Harkin raises the price of corn by 110 percent. An increase in the price of feed reduces profits from cattle feeding. As a result, cattle feeders are willing to pay less for feeder cattle. The price of feeder cattle, therefore, declines. The result, in the short run, is a sell-off of feeder cattle for slaughter and heavier culling to reduce the size of the beef herd. Beef supplies, therefore, increase in the short run, which depresses beef prices even further. In the long run, however, higher feed prices mean higher meat prices—albeit after a substantial period of adjustment.

This type of response occurs in hogs and poultry as well as beef. In fact, the speed of adjustment is much more rapid and pronounced in hogs and poultry than in cattle. For example, a 10 percent increase in feed costs can be expected to result in a:

- 3.5 percent decline in poultry supplies;
- 2.5 percent decline in pork supplies; and

- 0.7 percent decline in beef supplies (Ray and Richardson).

Another feature of the Harkin bill has a potential impact on beef, hog, and poultry producers that cannot readily be analyzed because it is very dependent on administrative interpretation. This feature is the farmer-feeder exemption. While crop farmers who also produce livestock and poultry are apparently required to set-aside the required acreage, they are allowed to feed over-quota (marketing certificate) production. This exemption is probably essential because there may be no means of preventing farmer feeding in any event. Yet some very significant structural effects could occur with particularly important implications for larger scale feeding and integrated hog or poultry operations. Farmer feeders could increase their share of total marketings to the detriment of the remainder of the industry.

## Chapter 5

### Summary and Implications for Texas Agriculture

The 1985 farm bill, signed into law less than a year ago, is being criticized by many as a failure. The farm program's aim is to restore U.S. agriculture's competitive position in the world marketplace while protecting farm incomes. Some argue that this objective is being achieved in cotton and rice. However, the cost of the program and the price depressing effect of near record ending stocks of wheat and feed grains dampen optimism for a quick turn around. Yet one year's experience is not sufficient to evaluate any farm bill.

In any event, the debate on amending the 1985 farm bill will begin to heat up when the 100th Congress convenes in January 1987. By then analysts will have a better picture of agriculture's health under the 1985 farm bill and its alternatives. It is too early to project major changes in farm legislation, yet it is certain that many proposals for change will be presented to Congress.

This study was conducted with the following objectives:

- to identify and define alternatives for modifying the 1985 farm bill;
- to evaluate the impacts of the 1985 farm bill on U.S. and Texas agriculture; and
- to evaluate the impact of each alternative proposal on U.S. and Texas agriculture.

Texas congressmen, senators and their staff helped identify the alternatives to be analyzed. The 1985 farm bill was analyzed under two macroeconomic environments: one characterized by continued high federal deficits and fast money growth and the other by low deficits and moderate money growth. The 1985 farm bill analysis for 1986-90 under the high deficit-fast money growth economic scenario served as the baseline for comparing alternative proposals.

Alternative policy options were analyzed in terms of their impact on U.S. production, consumption, market prices, government cost, and net cash income. The specific options analyzed included:

- a 25 percent reduction in target prices;
- the Harkin bill;
- mandatory production controls;
- income support only on domestic consumption, and
- the Gunderson dairy bill.

Crops analyzed included wheat, cotton, corn, sorghum, and soybeans. Dairy impacts were analyzed under both the Harkin bill and the Gunderson target price proposal. While the focus of the analysis centered primarily on the crops and dairy, implications for the livestock sectors are discussed.

Farm level impacts for the 1985 farm bill and its alternatives were analyzed for the following major crop producing regions in Texas:

- Northern High Plains,
- Southern High Plains,
- Rolling Plains, and
- Coastal Bend.

Although the scope of this study was limited to the impacts on production agriculture, implications can be drawn for all agriculture sectors including agribusiness, rural communities, and consumers. Each sector will need to be considered in making the tough agricultural policy choices ahead.

## Macroeconomic Policy Options on General Economy

Continuation of the 1985 farm bill provisions under a high deficit-fast money growth macroeconomic policy for 1986-90 resulted in:

- record levels of direct government spending to maintain normal farm income over the 1986-90 period;
- continued financial stress in the crop sector due to falling commodity prices and inflation enhanced production cost;
- improved livestock sector conditions due to lower grain prices and a rapidly expanding general economy; and
- continued declining real farm asset values, although at a slower rate than in the early 1980s.

The 1985 farm bill provisions under the low deficit-moderate money growth macroeconomic policy lead to lower farm interest rates and expanded exports. Other results include:

- slightly reduced government expenditures of about \$1 billion per calendar year;
- increased crop prices as expanded demand coupled with maximum set-aside levels reduces the pressure from price depressing stock levels;
- livestock producers are worse off due to slower growth in the general economy and higher feed grain prices;
- the overall farm sector is better off with growth in real net farm income primarily as a result of reduced production and interest expense; and
- although producers in general are better off, the improvement is not enough to save highly leveraged producers.

### Alternative Policy Impacts on U.S. and Texas Agriculture: Crop

The remainder of the analysis assumed a high deficit-fast money growth scenario similar to the current economic environment for the crop years 1986-90. The 1985 farm bill provision will serve as the baseline. Comments on the results derived from analyzing each alternative proposal will be as they relate to the 1985 farm bill baseline.

#### 1985 Farm Bill

A continuation of the 1985 farm bill, characterized by declining target prices and loan rates and maximum set-aside requirements, results in the following:

- Wheat, feedgrains, and soybean acreage and production remain fairly stable as relatively high target prices continue to encourage maximum allowable production. Cotton acreage and production increase due to a tightening stock position and upward price pressure.
- All crops, with the exception of cotton, experience marginal increases in total use as the market reacts to lower prices and an improved export environment. Cotton use shows modest declines as the market responds to increased farm price.
- Carryover stocks are reduced by the end of the 1990 marketing year for all crops. Stocks for the grains and soybeans remain sufficiently high relative to use to keep farm prices near loan levels.
- Farm prices for grains and soybeans hover around their reduced loan rates through 1989, with some price improvement relative to the loan rate in 1990. Cotton prices are maintained at approximately the \$0.50 per pound level for 1988-90.
- Deficiency payments (cash and PIK) and storage expenditures for the crops total \$38.57 billion dollars for 1988-90. Program costs for corn represent over half of all government payments.
- Net cash income for each crop declines throughout the period as a cost-price squeeze



develops due to lowered support rates and inflation enhanced production cost. Total net cash income from program crops for 1988-90 totals \$20.40 billion—approximately 53 percent of the direct cost of the program.

- Representative farms in the Southern High Plains have only a 4 percent chance of earning at least a 5 percent return on initial equity (probability of success). Farms in the Northern High Plains show a 44 percent success rate, while Rolling Plains and Coastal Bend farms experience rates of 72 and 94 percent, respectively.
- Agribusiness firms in Texas will likely continue to suffer economic hardships as declining farm incomes and current set-aside levels prohibit expansion.
- Rural communities will likely feel the adverse impacts of a depressed farm economy due to reduced economic activity and a declining tax base.
- Consumers will benefit from relatively low and stable farm level food cost.
- Consumers pay farmers through their taxes rather than the market price.

### **Reduced Target Price**

A 25 percent reduction in the target price of wheat, cotton, corn, and sorghum and a 25 percent cut in the loan rate for soybeans were assumed effective for 1988-90. The analysis results indicate:

- Planted acres are reduced by 5 to 10 percent as producers adjust to lower income support levels.
- Farm prices increase marginally in response to reduced stocks. Prices, however, remain below reduced target price levels, with the exception of cotton in 1990.
- Government expenditures for 1988-90 are reduced approximately 62 percent.
- Net cash income from program crops falls by over 100 percent resulting in a net loss of \$4.16 billion for 1988-90.
- The probability of success on the representative Texas crop farms falls to zero as average net cash income falls.
- Agribusiness firms and rural communities in Texas would face even tougher times as farm incomes plummet and producers are not able to pay their debts. Wholesale foreclosures would likely result in collapsing local economies and the tax base.
- Price increases for food and livestock feed would be negligible.

### **Harkin Bill**

The implementation of the Harkin provision in 1988-90 substantially alters the economic picture for crop producers. It contains many tradeoffs with livestock producers, consumers, and taxpayers. In addition, it contains questions regarding the feasibility of implementation as it is designed. The bill's provisions are characterized by high price supports, protected export market shares, and mandatory set-aside levels. Assuming these provisions are effectively implemented with minimum reimport slippage, the Harkin bill analyses indicate:

- Acres planted to the program crops would be reduced approximately 48 million acres when compared to 1987 planting levels. Corn and soybean acreage would account for 36 million of the idled acres. Cotton acreage would be least affected.
- Farm prices for program crops would be double those expected under the 1985 farm bill.
- Domestic use declines significantly as domestic consumers are forced to pay the higher prices. Total declines are less than is sometimes indicated because the government is required to subsidize exports via PIK to maintain historical market shares. Feed grains and soybeans, with the majority of their product utilized domestically, experience a 20 to 35 percent reduction in total use. Cotton and wheat, historically more dependent on the protected export market, only experience a 6 and 11 percent decline in total use, respectively.

- The maximum 35 percent set-aside requirement results in increased stock levels by marketing year 1990 as demand is curtailed more than production, except for cotton. Cotton, because of its initial favorable supply/demand balance, was the only crop that did not warrant the full set-aside levels each year.
- Government cost for the program crops increases about 3 percent compared to the 1985 farm bill. Despite the absence of support payments on the domestic proportion of production, government costs increase. This increase is due to the use of export subsidies, especially as they relate to soybeans.
- Net cash income for program crop producers more than triples.
- Representative Texas crop farms' probability of success exceeds 94 percent in all regions.
- Net cash farm income on the typical Texas farms increase by as little as 90 percent in the Coastal Bend to as great as 631 percent in the Southern High Plains.
- Agribusiness firms which supply variable inputs such as seed, fertilizer, fuel, etc., will likely be hurt by the additional sharp declines in planted acres. Rural credit institutions would benefit from farmers' increased ability to make payments on loans. Firms supplying intermediate term capital items, however, could benefit even with the reduced acres, as producers replace depreciated tractors and equipment.
- Rural communities in crop producing regions are likely to come out net winners as increased incomes spur economic activity in consumer purchases. Real estate values should stabilize and potentially increase thus relieving the tax revenue crunch currently experienced in most agri-rural areas.
- The farmer-feeder provisions of the bill would likely shift specialized crop producers to a more diversified crop/livestock mix. The net result for this shift would depend on the benefits gained from diversification versus the cost of losing efficiencies accruing to specialization.
- The livestock and poultry sector would be adversely impacted by the doubling of purchased feed prices. The farmer/feeder provisions would also add pressure to today's integrated commercial feeding operations.
- Consumers are the ultimate loser under this bill as higher domestic farm prices work their way through the retail market. The Harkin bill shifts some of the cost of the program from taxpayers to consumers.
- These results are heavily dependent on diligent administration efforts to carry out the provisions of the Harkin bill. Increases in slippage due to factors such as a lack of stringent use of import controls or lax set-aside administration would reduce the effectiveness of the Harkin bill.

## **Mandatory Controls**

This alternative assumes an effective mandatory control program is implemented in 1988 with the objective of increasing farm prices to the target price levels currently in the 1985 farm bill. The support price for soybeans was arbitrarily assigned based on historical price relationships with corn. Commodity stocks on hand at the end of the 1987 marketing year were assumed to be isolated in government storage. Subsidies are not utilized to protect either the domestic or export market. The results indicate:

- An additional 84 million acres would have to be idled in 1988 if crop prices for program crops were to be supported at current target price levels and existing stocks were withheld from the market.
- Higher price levels in 1988 would result in a 22 percent decline in feed grain usage, 39 percent in soybeans, 30 percent in cotton, and 50 percent in wheat when compared to 1988 consumption under the baseline.
- Government cost of \$4.4 billion dollars in 1988-90 due to the storage of surplus stocks is 90 percent less than the cost under the baseline.
- Net cash income for the program crops analyzed totals about \$31 billion in 1988-90, up 50

percent from the baseline.

- The probability of an economic success declines significantly for typical Texas crop farms. The probability of success is less than 5 percent for farms in the Northern and Southern High Plains. Rolling Plains and Coastal Bend farms experience a 26 and 42 percent chance of success, respectively.
- Net cash farm income on the typical farm declines by as much as 235 percent for the Northern High Plains to as little as 50 percent in the Coastal Bend.
- Agribusiness supplies of both short- and intermediate-term inputs would likely be adversely impacted by this program as the acreage required to be idled would warrant a significant downsizing of the industry.
- Rural communities would likely be adversely affected due to downsizing of the industry and lower net cash farm incomes for crop producers. The value of real estate would depend heavily on the returns from idled acres. If left totally idle it is unlikely that land prices on acreage would increase.
- Livestock and poultry sectors would be adversely affected by an increase in feed prices.
- Consumers would pay higher food prices as the increase in farm prices is passed through to the retail level. A large share of program costs would be transferred from taxpayers to consumers.

### Domestic Support Program

In this option, price and income supports are only applied to the portion of farm production normally used domestically, based on historical levels. Production in excess of domestic use can be sold in the export market at the going market price. This scenario is similar to the lowered target price option in terms of its impacts on crop agriculture. The results show:

- Planted acres in 1988 are reduced by 5 to 11 percent as producers adjust production to lower effective support levels. Soybean producers actually increased planted acres with the assignment of a target price based on the soybean loan/corn loan relationship in 1985.
- The reduction in production is not enough to significantly change the supply/demand imbalance that exists for all commodities. Farm price, therefore, remains the same or is slightly higher than in the base scenario. It follows that total usage is also unchanged.
- Government expenditures for 1988-90 are reduced approximately 4 percent from the 1985 farm bill. Further reductions would have occurred if the new deficiency payments for soybean, \$5.5 billion, had not been implemented.
- Net cash income for the program crops analyzed is about the same as under the baseline for the 1988-90 period. In the absence of the newly created deficiency payment for soybeans, net cash income for the program crops analyzed would have fallen 30 percent.
- Net cash farm income for the representative crop farms drops as little as 52 percent in the Coastal Bend and as much as 305 percent in the Northern High Plains.
- Agribusiness firms will be adversely affected due to reduced production and falling net cash farm incomes. This would especially be true in areas where the crop was at a competitive disadvantage to other regions in the export market.
- Rural communities would be adversely affected by reduced production, especially in non-competitive regions, as well as by reduced farm income.
- Livestock and poultry would be only slightly worse off due to the marginal increases in feed grain cost.
- Consumers, likewise, would experience small economic impacts from this type of program.

## Alternative Policy Impacts on U.S. Dairy and Livestock

### 1985 Farm Bill

Provisions of the 1985 farm bill are assumed to be in effect through 1990 in this option.

Impacts on dairy and livestock include:

- Milk production expansion would slow as the lagged response to price declines in 1985-88 become apparent.
- Commercial disappearance would continue to climb. After 1988 this decline is due to population growth rather than price declines as seen in 1984-87.
- Net CCC purchases of manufactured dairy products fall to around 5 billion pounds. This results in reducing government expenditures to \$0.6 billion.
- Net cash farm income declines throughout the period as a result of the end of dairy buy-out payments in 1987 and higher cash farm expenses.
- As dairy net cash farm income declines, increased dairy culling has a small, price depressing effect on the beef market in 1989-90.
- Agribusiness firms and rural communities suffer as the effects of lower net cash farm income extend to input suppliers and rural communities.

### Gunderson Bill

This option calls for a target price of \$12.10 per hundredweight for dairy producers, and changes the current CCC dairy product purchase program to a recourse loan. The results indicate:

- Milk production expands more rapidly than under the 1985 farm bill option due to a higher price (market price and deficiency payment) received by farmers.
- Commercial disappearance jumps in 1988, as the price processors pay for milk falls. This consumption increase is largely accounted for by manufactured dairy products.
- A recourse loan results in no forfeiture of stored commodities to the government. Under the terms and interest rate provisions of the bill, the loan feature is not expected to be utilized by dairy processors who have access to more competitive capital sources. The recourse loan rate will not be a price floor. The result may be development of a futures market for more dairy products.
- Net cash farm income declines at a slower rate than under the 1985 farm bill option. However, by 1990 net cash farm income equals government deficiency payments to dairy producers.
- Government costs rise to \$3 billion due to deficiency payments.
- No impact on the livestock and poultry sector is expected under this bill through 1990.
- Agribusiness and rural communities will not feel any impact until 1990 and beyond, when lower net cash farm income will be a factor.
- Consumers would benefit from lower manufactured dairy product prices associated with the target price subsidy.

### Harkin Bill

This option contains tight, mandatory supply controls and sets the dairy price support level based on parity. This results in:

- Milk production falls 16 percent in 1988 as producers' marketing quotas are set at 89 percent of their 1981-85 base marketings.
- Commercial disappearance falls as consumers respond to a 33 percent higher price for milk.
- Government costs fall to zero as the marketing quota feature forces milk marketings to

equal demand.

- Declines in demand are felt most heavily by small, manufactured dairy product processing facilities in the Upper Midwest. Many would be forced out of business.
- Net cash farm income rises by over 50 percent in 1 year (1988).
- Agribusiness would be hurt by the sudden decrease in demand for inputs due to the sharp drop in milk production. They would benefit from increased purchasing power of farmers.
- Rural communities would benefit from the boost in net cash farm income, but would be hurt by the loss of input suppliers, small dairy processing plants, and higher consumer prices.
- Current dairy producers benefit greatly, both from the increase in net cash farm income and from the increase in net worth. Net worth is increased by the capitalization of the program benefits into the value of the quota.
- Consumers would pay a substantially higher price for milk products. For example, in 1988 fluid milk would cost \$0.38 more per gallon under the Harkin bill than under the 1985 farm bill.

### Concluding Remarks

This analysis reconfirms the many conflicts and tradeoffs inherent in farm program decisions. It also confirms that U.S. agriculture has become tremendously dependent on government programs for its prices and income levels. Major adjustments in number and size of farms would occur if program benefits were to be materially reduced. The impacts of these adjustments extend to agribusiness firms and rural communities.

Farm programs probably cannot reverse the inevitability of the economic adjustment process. It can only affect the rapidity of adjustment and the degree to which the costs of adjustment are borne by farmers, ranchers, farm laborers, agribusiness firms, rural community residents, taxpayers, and consumers. The complexity of these impacts and tradeoffs make policy decisions extremely difficult and controversial.



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