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THE FOOD SECURITY ACT OF 1985:
IMPLICATIONS FOR MINNESOTA'S FARM ECONOMY

Kenneth W. Bailey, Vincent P. Byron,
and James P. Houck



Department of Agricultural and Applied Economics

University of Minnesota
Institute of Agriculture, Forestry and Home Economics
St. Paul, Minnesota 55108

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Department of Agricultural and Applied Economics
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Kenneth W. Bailey and Vincent P. Byron are research assistants, and James P. Houck is a Professor in the Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minnesota.

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SUMMARY

The Food Security Act of 1985 (FSA85) marks a significant departure from previous legislation as loan rates are given greater downward flexibility in an attempt to make U.S. commodities more competitive overseas. The lower loan rates combined with frozen target prices will result in greater deficiency payments which are expected to help producers adjust during the current transition to an environment of lower crop prices. This producer income protection will not come without a significant cost to the federal government, as the larger deficiency payments combined with greater participation in the farm programs will result in significantly greater budgetary exposure.

Major conclusions from the analysis of the Minnesota Agricultural Model (MNAG) are:

- 1) Minnesota crop farm prices are projected to fall significantly in the coming crop year and will remain at low levels for the duration of the projection period. Estimates for Minnesota season average farm prices in the 1986 crop year for corn, soybeans, and wheat are \$1.87, \$4.80, and \$2.63 per bushel, respectively.
- 2) Acreage planted to corn and wheat in Minnesota is expected to fall in the 1986 crop year in response to increased set-asides and participation in the farm programs. Acreage planted to soybeans is expected to remain fairly stable over the projection period at current levels.
- 3) Estimates indicate that cattle prices will rise to \$48.74/cwt in 1986, pork prices will fall to \$41.14 in 1986, and milk prices will continue to be determined by support and price differential levels.
- 4) Lower farm prices combined with increased set-asides and normal yields will result in a 2.2 percent reduction in Minnesota's realized net farm income from 1985 to 1986. This reduction can be attributed in part to a \$339 million reduction in Minnesota farm marketing receipts in 1986 which is moderated by a \$176 million increase in direct government payments to Minnesota farmers. The MNAG analysis suggests that the Food Security Act of 1985 will not fully support income in Minnesota's crop sector at 1985 levels, but will only moderate any reductions in farm marketing receipts.
- 5) Analysis of farm program options available to Minnesota producers under the 1985 Farm Bill indicate a higher level of participation in 1986 than in previous years. This would be expected due to the lower projected market prices for wheat and the feed grains. The resulting deficiency payments make non participation in the farm program a more risky decision than before as forecasted returns are significantly lower than returns for the participating producer.

To conclude, the FSA85 will not provide sufficient income protection to maintain Minnesota's farm income in 1986 at the previous year's level. Farm prices will fall in the 1986 crop year but will begin to rebound in 1988 as foreign countries adjust to lower U.S. prices and the demand for U.S. exports increase. All of these projections are based importantly on the continuation of existing trends in the broader national and world economy. Abrupt changes in any of these underlying forces or other non-economic factors may override and obscure the projections and analyses of this report.

INTRODUCTION

President Reagan signed into law the Food Security Act of 1985 (FSA85) on December 23, 1985. This farm legislation comes at a time when Minnesota's agricultural economy is experiencing major adjustments in the value of capital assets and export demand. Declining exports have led to a rapid buildup of carryover stocks which has in turn further depressed farm prices. Financial stress is widespread as interest rates have remained high and land values have continued to fall. Many individuals are hoping that the FSA85 will help the Minnesota farm economy through the painful adjustments in the years ahead.

The objective of this paper is to analyze the economic impact of the FSA85 on Minnesota's agricultural economy. Much uncertainty surrounds the current legislation since it represents a significant departure from prior legislation, especially with regard to target price and loan rate objectives.

The first section will briefly describe some major provisions of the FSA85, as well as the announced 1986 wheat, feedgrain and soybean farm program. Next, the Minnesota Agricultural Model and its linkage to the FAPRI policy model will be described briefly. Finally, specific projections will be presented for the Minnesota farm economy as it might respond to the FSA85. Possible implications of the Gramm-Rudman-Hollings legislation are not reflected in the FAPRI projections and program parameters, and are therefore not reflected in the projections enclosed in this report.

THE FOOD SECURITY ACT OF 1985

The Food Security Act of 1985 (FSA85) marks a significant departure from previous farm legislation, yet maintains many key elements such as loan rates, target price protection, acreage set-asides, etc. The objective of this section is to briefly review the major provisions of the FSA85 and to review the 1986 farm program as announced by the Agricultural Stabilization and Conservation Service (ASCS).

Wheat, Feedgrain, and Soybean Programs

Loan Rates

The 1985 Farm Bill maintains the current system of offering crop farmers non-recourse loans, with farmers having the option of either paying off the loan plus interest, or forfeiting their grain to the Commodity Credit Corporation (CCC). 1986 loans for wheat and feed grains are to be set at a level of not less than \$3.00 per bushel for wheat and \$2.40 per bushel for corn. For the 1987 through 1990 crop years, the loan rate is to be set at a rate between 75 and 85 percent of a 5-year moving average farm price (dropping the high and low values), although the basic loan rate may not be reduced from the previous year by more than 5 percent.

The loan rate for soybeans is fixed at \$5.02 per bushel for the 1986 and 1987 crop years. The loan rate for 1988-90 would then be set equal to 75 percent of a five year moving average farm price (dropping the high and low values), provided the loan rate would not be dropped by more than 5 percent from the previous year's rate, or be set at less than \$4.50 per bushel.

These formulas for the wheat, feedgrain and soybean loan rates define the

"base" loan rate. The base loan rate is that rate from which further reductions can be made, as will be seen in the next section.

Findley Amendment

The FSA85 provides the Secretary with discretion, or freedom to act according to his judgement, to lower the loan rate from the required level. If the Secretary determines that a) the previous year's season average farm price for wheat and/or feedgrains was **not** more than 10 percent greater than that year's loan rate, or b) the loan rate for wheat and/or feedgrains, computed by the five year moving-average formula, would discourage exports and cause excessive build up of U.S. stocks, then he is required to reduce loan rates 10 percent in 1986, and has the authority to reduce loan rates up to 20 percent in any one year through 1990. For soybeans, the Secretary has discretion in reducing the loan rate by not more than 5 percent from the previous year or to below \$4.50 per bushel in any year, if he determines that the loan rate, as computed via the five year moving-average formula, would discourage the exportation of soybeans and cause an excessive build up of U.S. stocks.

It should be noted that any such reduction as described above, including any in 1986, may not be considered in determining the base loan rate in subsequent years. For example, suppose the Secretary drops the loan rate for corn by 20 percent in 1986 from the required level of \$2.40 per bushel to \$1.92 per bushel. Then the **base** loan rate in 1987, calculated via the five year moving average formula, cannot be reduced by more 5 percent from the base loan rate in 1986, which is \$2.40 per bushel, not the announced rate of \$1.92 per bushel.

Marketing Loan

The FSA85 requires farmers who have loans on wheat, feedgrains and soybeans, to repay such loans in full, or forfeit their grain to the Commodity

Credit Corporation. However, the Secretary is given discretion in allowing a producer to repay a wheat and/or feedgrain loan at a level that is the lesser of a) the announced loan level, or b) the higher of i) 70 percent of the base loan level as calculated via the five year moving-average formula, or ii) the prevailing world market price. For soybeans, the Secretary is authorized to permit a producer to repay a soybean loan at the lesser of a) the announced loan rate, or b) the prevailing world market price for soybeans.

Target Prices

The FSA85 freezes wheat and corn target prices at \$4.38 and \$3.03 per bushel, respectively, for the 1986 and 1987 crop years. Target prices for wheat and feedgrains over the 1988 thru 1990 crop years will be set at a declining percentage of the 1986-87 level as follows: 98 percent in 1988; 95 percent in 1989; and 90 percent in 1990, although target prices could not be reduced below \$4.00 per bushel for wheat and \$2.75 per bushel for corn in that year.

Therefore, using the above formula, corn and wheat target prices should be as follows:

<u>Year</u>	<u>Wheat Target Price</u>	<u>Corn Target Price</u>
	-- Dollars per Bushel --	
1986	4.38	3.03
1987	4.38	3.03
1988	4.29	2.97
1989	4.16	2.88
1990	4.00	2.75

Deficiency Payment Rate

The FSA85 defines the deficiency payment rate to be equal to the difference between the target price and the higher of a) the national average farm price

during the first 5 months of the marketing year, and b) the loan rate as calculated by the 5 year moving-average formula. The FSA85 also provides that if the base loan rate is lowered because of low market prices or the world market and supply situation, the Secretary must provide emergency compensation in the form of an increase in the deficiency payment rate. Deficiency payments would be limited to \$50,000 to individual producers, except that payments resulting from the emergency compensation discussed above or any gains realized by repaying a loan at a level below the announced loan rate, would be exempt from the ceiling.

Total Deficiency Payment

A farmers total deficiency payment for wheat and feedgrains is determined by multiplying the payment rate times the program yield, times the permitted base acreage (the base eligible for planting after reducing the base by the required acreage limitation or set-aside). This is the payment for the farmer who decides to plant his whole allowed base acreage in wheat or feedgrains; the bill also provides an option for those producers who decide to underplant as well. If a farmer decides to plant 50 percent or more of the permitted base to wheat or feedgrains or a nonprogram crop, and devotes the rest of the permitted base to conserving uses or nonprogram crops, then the whole permitted base acreage would be eligible for deficiency payments. However, the farmer who underplants would be eligible for only 92 percent of the deficiency payment rate.

For example, let's assume we have a farmer in southern Minnesota who has a 100 acre wheat base. The farmer is required to devote 25 percent of his base to conserving uses, therefore his permitted base acreage for that year is reduced to 75 acres. Now, in order to ensure that our farmer will be eligible for deficiency payments, he must plant at least 50 percent of his permitted base to

wheat, or 37.5 percent of the total 100 acre base. So, our farmer plants 37.5 acres to wheat, devotes 37.5 acres to a nonprogram crop or conserving uses, and idles the required 25 acres strictly to conserving uses. He is eligible for 92 percent of the wheat program deficiency payments on 75 acres of his 100 acre base.

The FSA85 also provides that up to 5 percent of the total deficiency payment may be made in commodities at the discretion of the Secretary. Hence, part of the deficiency payment may be required to be Payment-In-Kind grain, but the Secretary has a choice in deciding what grain is to be paid in-kind, and whether that grain comes from CCC excess stocks or not.

Set-asides and Paid Land Diversions

The FSA85 authorizes the Secretary to establish acreage reduction and paid land diversion programs. An acreage reduction program for wheat will be put into effect in any year between 1986 and 1990 if projected beginning stocks exceeding 1 billion bushels of wheat. In 1986/87, if an acreage reduction program (ARP) is triggered for wheat, farmers must divert between 17.5 and 22.5 percent of their base to conserving uses in order to be eligible for program benefits. Farmers will also be eligible for a 2.5 percent paid land diversion (PLD) which will be paid in-kind. Also, wheat producers who planted wheat prior to the 1986/87 final program announcement will be offered a 10 percent PLD at \$2.00 per bushel. The total acres diverted (the ARP plus the PLD) under the 1986/87 program cannot be greater than 25 percent of the base (excluding the 10 percent PLD option). If an acreage limitation program is triggered in 1987/88, wheat farmers will have a required 20 to 27.5 percent ARP. If an acreage limitation program is triggered in any of the 1989-90 crop years, wheat farmers will face a required ARP of between 20 and 30 percent. In the event that projected beginning stocks do not reach 1 billion bushels in any crop year

between 1986 and 1990, total acres diverted cannot exceed 15 percent in 1986 and 20 percent in 1987 through 1990.

A similar program will be implemented for corn if projected beginning stocks in any crop year between 1986 and 1990 are to exceed 2 billion bushels of corn. If an acreage limitation program is triggered for corn in crop year 1986, farmers will have an ARP between 15 and 17.5 percent, with a PLD of 2.5 percent paid in-kind. If an acreage limitation program is triggered over the 1987-90 crop years, corn farmers will have an ARP between 12.5 and 20 percent. In the event that projected corn beginning stocks do not exceed 2 billion bushels, acreage limitation programs may not be greater than 12.5 percent for any one year.

Voluntary PLD programs for wheat and feedgrains will be offered over the 1986-90 crop years, but only at the discretion of the Secretary and at such levels as he determines.

Dairy Program

The FSA85 maintains the current system of government purchases of surplus milk products in order to support the producer price of milk at fixed levels. The milk price support is set at \$11.60 per hundredweight for 1986, and can be reduced by the Secretary 25 cents to \$11.35 on January 1, 1987, and another 25 cents to \$11.10 on October 1, 1987. On January 1 of each calendar year 1988 through 1990, the Secretary will be required to reduce the milk price support then in effect by 50 cents per hundredweight if government purchases for that year are projected to exceed 5 billion pounds, milk equivalent. However, if government purchases for that year are projected to be less than 2.5 billion pounds, milk support prices then in effect will have to be raised 50 cents per

hundredweight.

The FSA85 also provides for a whole-herd buyout provision that would require the Secretary to accept bids for a period of 18 months from producers willing to take entire herds of dairy cows out of production. Qualifying farmers would have to sell their herds, including bulls and calves, either for slaughter or export and agree to stay out of dairy farming for a period of three to five years. The objective of the whole-herd buyout program is to achieve a reduction in milk production of 12 billion pounds during the period of operation. The dairy program also requires the Secretary to increase government purchases of red meat by 400 million pounds during the 18-month buyout program. An orderly marketing of dairy cattle culled in the buyout program is required in order to encourage a higher rate of dairy cattle to be slaughtered during months when slaughtering of beef cattle slackens. This is an attempt on the part of Congress to cushion the impact of the whole-herd buyout program on the livestock industry. The Secretary is also required to assess all milk producers 40 cents per cwt of milk produced from April 1 to December 31, 1986, and assessed 25 cents per cwt from January 1 to September 30, 1987, to cover the cost of the whole-herd buyout plan.

The dairy program also requires the Secretary to increase payment differentials in 33 out of 45 regional marketing-order districts set up to guarantee locally produced supplies of milk. However, these differentials were designed mainly to benefit Southeastern producers.

Conservation

The FSA85 provides for a "sodbuster" program to deny federal farm program benefits to farmers who plant on highly erodible land, as well as a

"swampbuster" program that would deny such benefits to producers who convert designated wetlands to crop use.

The FSA85 also provides for a 40-45 million acre long-term conservation reserve program for fragile land already in use. The Secretary is required to offer farmers cash contracts on a competitive bid basis to take erosion-prone land out of production for a period of 10-15 years. The program requires that no more than 5 million acres could go into the reserve in the 1986 crop year, no less than 10 million acres could go into the reserve in each crop year between 1987 through 1999, and no less than 5 million acres could enter the reserve in 1990. However, the Secretary would have authority to reduce the minimum amounts by 25 percent a year if it would make the program less expensive in the following year. In addition to receiving a cash contract for joining the conservation reserve program, the Secretary would also provide the landowner aid in covering up to 50 percent of the cost of installing approved cover crops, although there would be a \$50,000 limit on total annual payments.

The 1986 Wheat, Feedgrain and Soybean Programs

The major elements of the 1986 farm program were announced by Secretary Block in early January. The Secretary maintained target prices at current levels as required by the FSA85, but used his discretionary powers to lower loan rates and divert acreage to their maximum limits. Under the wheat program, the target price is \$4.38 per bushel, the loan rate is \$2.40 per bushel, and the estimated deficiency payment is \$1.83 per bushel. Wheat producers are required to divert 22.5% of their base to conserving uses, and may divert an additional 2.5% for which they will receive generic payment-in-kind (PIK) grain from the CCC. Additionally, those wheat producers who have planted their wheat prior to

the signup date (March 3, 1986) will be eligible to idle a further 10% from their base and receive payments of \$2.00 per bushel.

Under the feedgrains program, the target price for corn is maintained at \$3.03 per bushel, the loan rate is \$1.92 per bushel, and the estimated deficiency payment rate is \$1.03 per bushel. Corn producers are required to idle 17.5% of their base, and may idle an additional 2.5% for which they will receive generic PIK grain.

The soybean loan rate for the 1986 crop year is set at \$4.77 per bushel.

ECONOMIC ANALYSIS OF POLICY ALTERNATIVES
FOR MINNESOTA

A statistical analysis of the effects of the FSA85 on Minnesota agriculture was conducted, for this paper, by means of the Minnesota Agricultural Model, which is a linked system of equations that tie the behavior of Minnesota's farm economy to factors affecting the national farm sector.

The foundation of these calculations is a large, comprehensive national model of the U.S. farm economy, which is maintained and managed by the Food and Agricultural Policy Research Institute (FAPRI) located at the University of Missouri and Iowa State University. This model is capable of providing commodity-by-commodity estimates of the major price and quantity elements in the national farm sector under a variety of possible farm policies. As an adjunct to this national model, we have developed an additional series of equations that link the behavior of this national model specifically to Minnesota's agricultural sector. Hence, we can trace and project the effects of various policies upon the national farm economy and then follow those effects into Minnesota.

The FAPRI Policy Model

The FAPRI annual agricultural policy model has components for each of the major commodities. These include the crops component (wheat, feedgrains, soybeans, cotton, and rice) and the livestock component (beef, pork, and poultry). Each of the commodity components consists of behavioral equations for production, stocks, exports, imports, final consumption and, if appropriate, consumption of the commodities as intermediate products (i.e. corn as feed).

These behavioral equations are mathematical relations reflecting the use of economics, statistics, and past data to describe the behavior of producers and consumers in the agricultural sector.

For more details on the FAPRI policy model, see Minnesota Agricultural Experiment Station Staff Paper P85-32 and FAPRI Staff Report #1-85.

Minnesota Agricultural Model

The Minnesota Agricultural Model (MNAG model) consists of crop and livestock components that reflect the major markets in Minnesota's farm economy. The crops component consists of corn, soybeans, and wheat; the livestock component consists of beef, hogs, and dairy.

For each major crop, there are four equations that provide the Minnesota link to the FAPRI model. These involve acreage planted, acreage harvested, per-acre yield, and season average farm price. For each livestock product, there are two equations providing the link. These involve marketings and average farm prices for beef and hogs, and production and wholesale farm prices for milk.

Since these six commodities account for about 85 percent of Minnesota's farm marketing cash receipts, it was relatively easy to construct a state net farm income component in the MNAG model. This part of the model estimates Minnesota's farm income via linkages to Minnesota's commodity markets, U.S. direct government payments, and U.S. farm production expenses. The Minnesota farm income component produces estimates of Minnesota's cash receipts from farm marketings, direct government payments, other and non-money farm income, farm production expenses, and the resulting realized gross and net farm income. In these computations, Minnesota's realized net farm income does not include the

value of net inventory changes. The latter income measure is usually called total net farm income.

Figure 1 illustrates the components of the MNAG model and how it is linked to the larger FAPRI model. Figure 1 also indicates that the components of the MNAG model provide a means for estimating Minnesota farm income using information about the U.S. and Minnesota's agricultural market behavior. For more information on the MNAG model, see Minnesota Agricultural Experiment Station Staff Papers P85-25 and P85-32.

FAPRI MODEL

MINNESOTA AGRICULTURAL MODEL

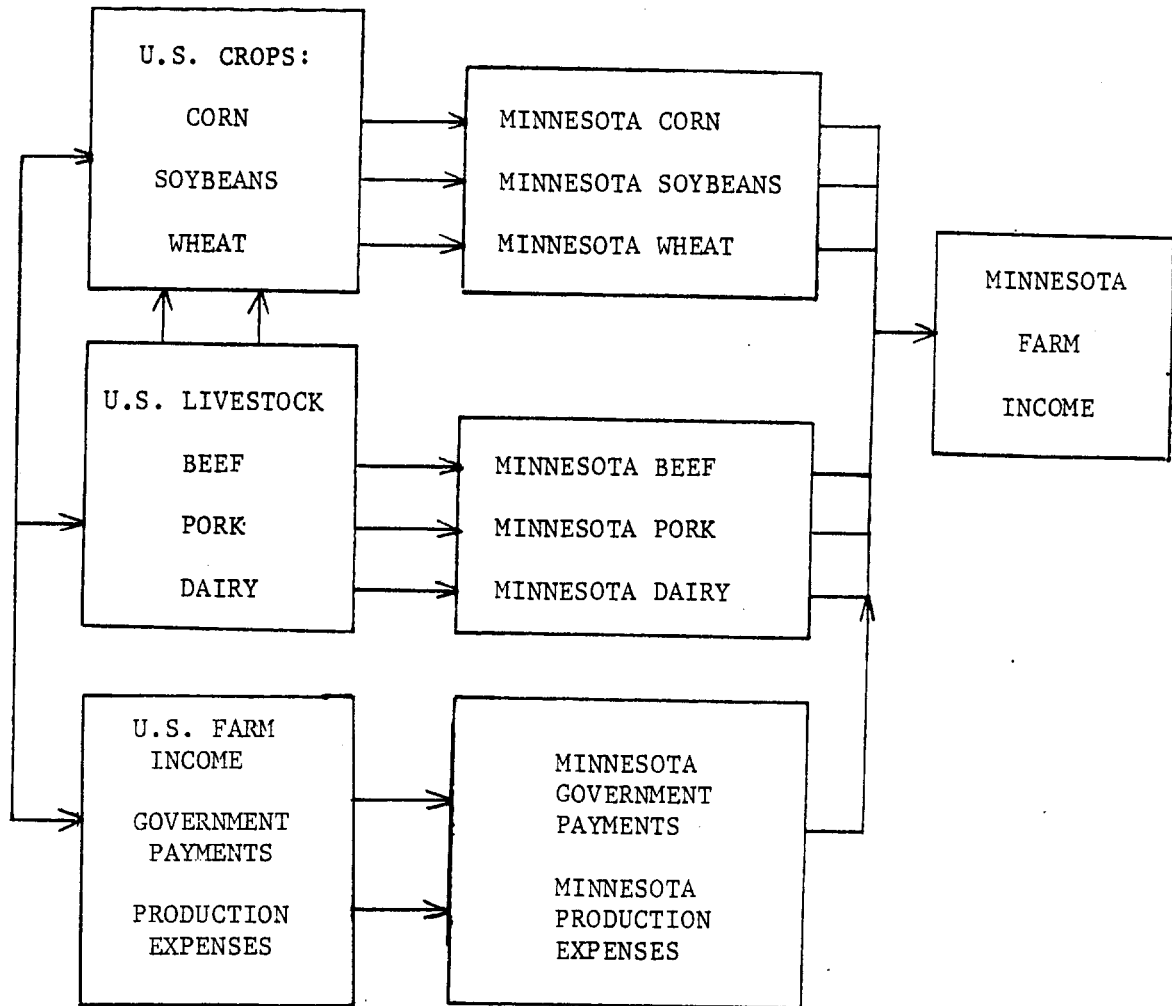


Figure 1. The Minnesota Agricultural Model and Linkages to the FAPRI Policy Model

THE IMPACT OF THE FOOD SECURITY ACT
OF 1985 ON MINNESOTA AGRICULTURE

The possible economic impact of the FSA85 on Minnesota's farm economy is presented in this section. This policy regime was first incorporated into the FAPRI model, which projected national supply, demand, farm prices, and income for major agricultural commodities into the future (see FAPRI Staff Report #1-86, "An Analysis of the Food Security Act of 1985"). These projections were then entered into the MNAG model, which in turn provided a detailed projection of Minnesota's farm economy under the FSA85.

Summary of Estimated U.S. Impacts

In this section a brief overview of FAPRI's evaluation of the impact of the FSA85 on the national farm economy is provided. Direct government payments are projected to increase from about \$8.0 billion in 1985 to around \$15.0 billion by 1988 (Table 1). These higher program costs reflect increased participation in the farm program's and higher deficiency payments due to falling loan rates. Total farm cash receipts are projected to fall from \$149.6 billion in 1985 to about \$146 billion in 1986. Total farm cash receipts are then expected to bottom out at \$136.7 billion in 1988 and rise to \$137.5 billion in 1989. Net farm income is expected to drop \$2.2 billion from \$25.7 billion in 1985 to \$23.5 billion in 1986. Net farm income is then expected to fall to a low of \$19.4 billion by 1988 and then rise to \$20.1 billion in 1989.

Table 1. FAPRI Policy Projections of Farm Income and Government Payments Under the Food Security Act of 1985

Variable/Year	1984	1985	1986	1987	1988	1989
<hr/>						
- - Billions of Dollars - -						
Cash Receipts From Marketings						
Crops	69.5	69.9	63.6	55.1	54.4	54.7
Livestock	72.7	68.7	68.6	65.6	64.3	65.3
Direct Government Payments and Subsidies	8.0	8.0	10.7	14.2	15.0	14.4
Total Farm Cash Receipts	153.2	149.6	145.9	138.0	136.7	137.5
Net Farm Income	34.5	25.7	23.5	22.4	19.4	20.1

Summary of Estimated Impacts on Minnesota

Projections of Minnesota crops, livestock, and farm income under the FSA85 are presented and discussed in this section. These projections were made via the Minnesota Agricultural model, which links various components of the state's agricultural economy to the large-scale FAPRI policy model.

Corn

A 17.5 percent acreage reduction program (ARP) and a 2.5 percent paid land diversion was used in 1986/87, followed by a 20 percent ARP in 1987/88 and 1988/89. FAPRI estimated program participation to range between 75 and 82 percent over the forecast period. Corn acreage planted in Minnesota is estimated to decline approximately 13 percent over the projection period from 7.3 million acres in 1985/86 to 6.3 million acres by 1988/89 (table 2 and figures 2-5). Minnesota corn production is expected to decline from 724 million bushels in 1985/86 to 639 million bushels in 1986/87, as record level yields in the previous year are projected to return to normal levels in 1986/87. Production is then expected to rise to 647 million bushels by 1988/89. Minnesota corn farm prices are estimated to drop substantially from \$2.33 per bushel in 1985/86 to \$1.83 per bushel by 1987/88, and then rise to \$1.84 in 1988/89.

Soybeans

Minnesota soybean acreage planted is expected to stabilize at current levels, ranging between 5.1 and 5.2 million acres over the projection period (table 3 and figures 6-9). This stability in soybean acreage is the result of two projected countervailing forces. On the one hand, increased participation in the corn program in Minnesota will result in a reduction in slippage (the difference between total acres planted in and out of the program plus set-aside acreage, minus the base) as enrolled base acreage approaches the states' ASCS

Table 2. MNAG Projections for Minnesota Corn under the Food Security Act of 1985

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89
Acreage Planted (1,000 acres)	5,100	7,250	7,300	6,544	6,445	6,347
Acreage Harvested (1,000 acres)	4,370	6,440	6,300	5,851	5,790	5,728
Yield (bushels)	84.00	107.00	115.00	109.14	111.08	113.01
Production (million bu.)	367.08	689.08	724.50	638.62	643.10	647.34
Farm Price (dollars per bu.)	3.05	2.45	2.33	1.87	1.83	1.84

Figure 2. *MINNESOTA CORN ACREAGE PLANTED*

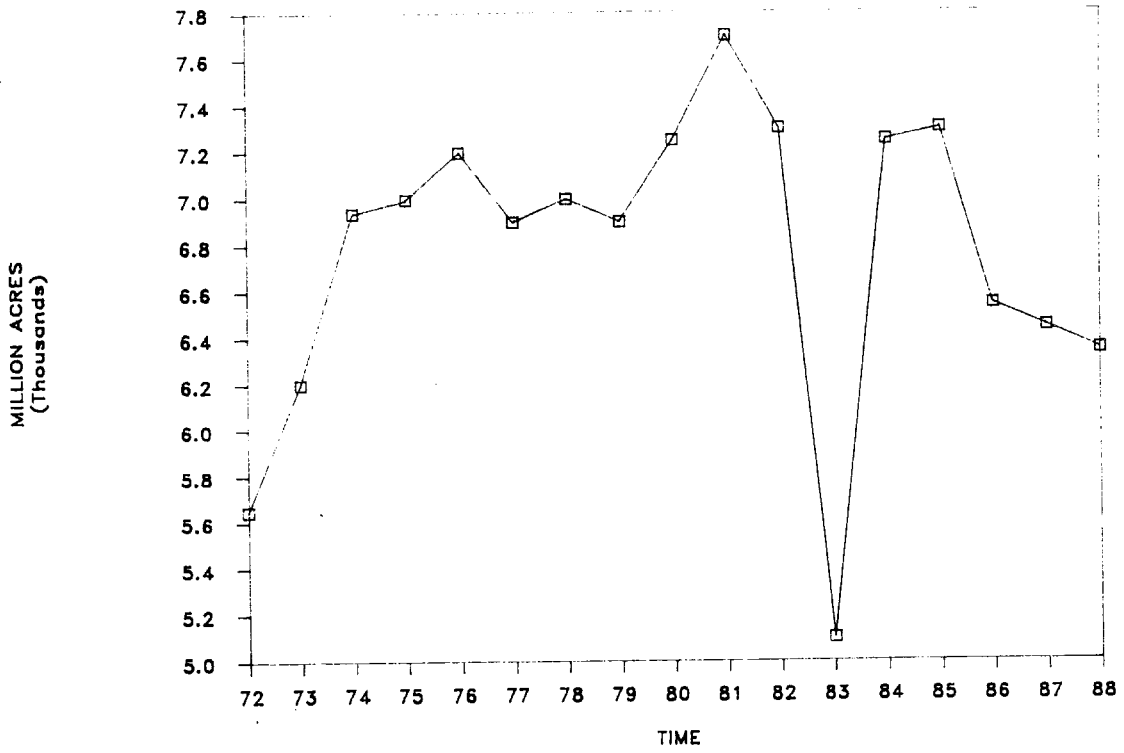


Figure 3. *MINNESOTA CORN YIELD*

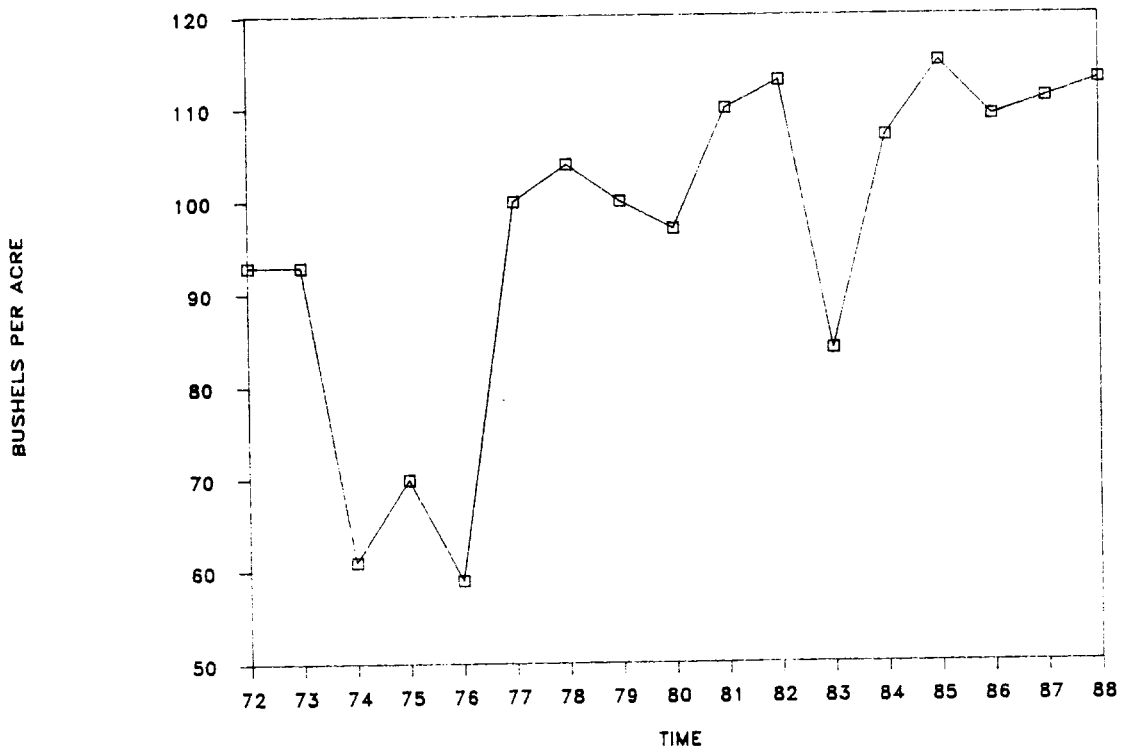


Figure 4. *MINNESOTA CORN PRODUCTION*

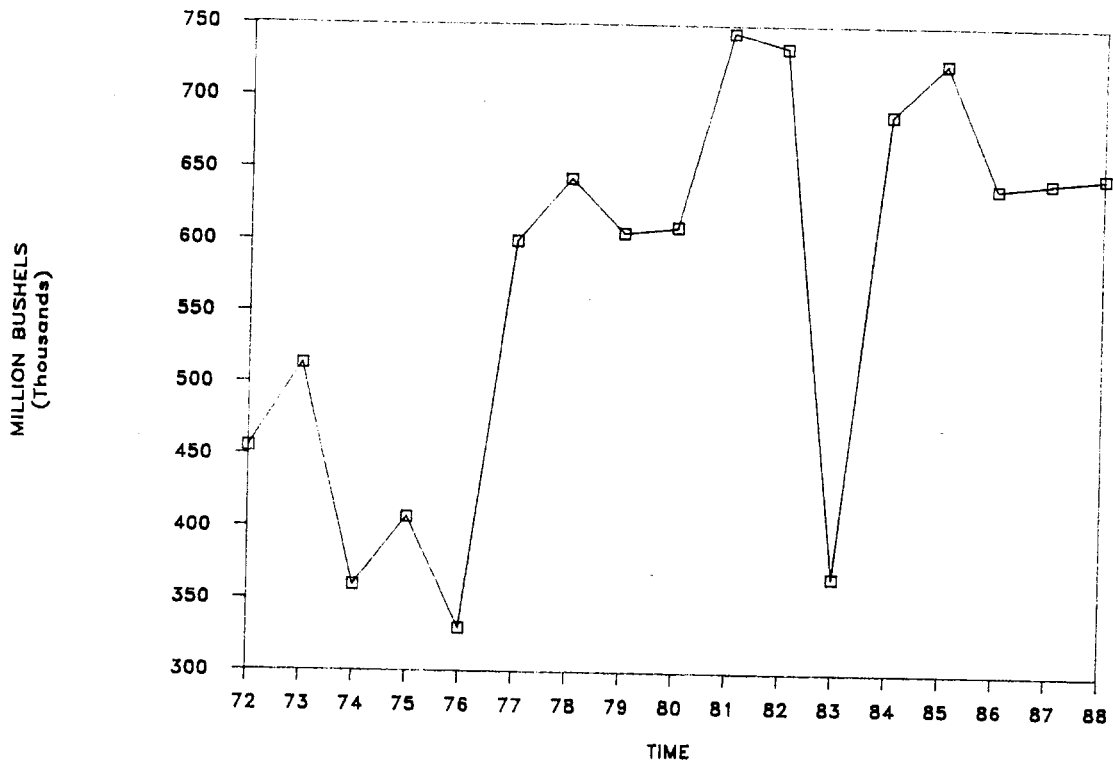


Figure 5. *MINNESOTA CORN FARM PRICE*

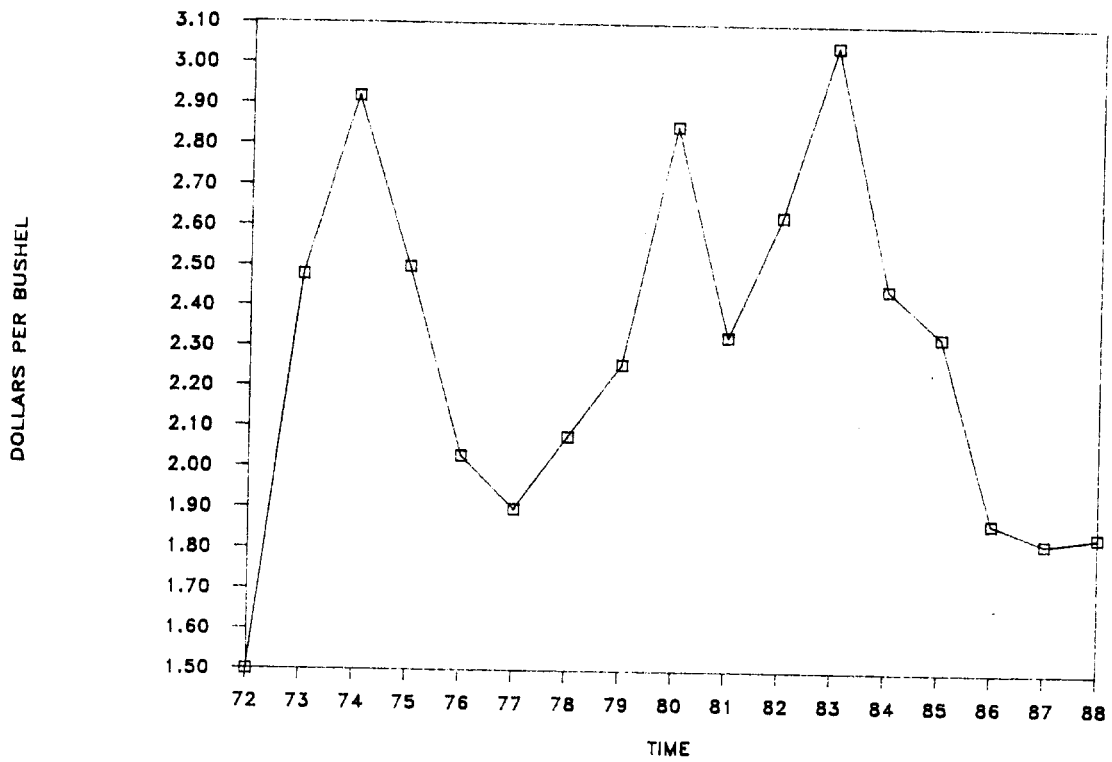


Table 3. MNAG Projections for Minnesota Soybeans under the Food Security Act of 1985

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89
Acres Planted (1,000 acres)	4,650	5,300	5,100	5,201	5,152	5,231
Acres Harvested (1,000 acres)	4,600	5,240	5,000	5,104	5,056	5,132
Yield (bushels)	33.00	33.00	32.00	35.30	35.94	36.59
Production (million bu.)	151.80	172.92	160.00	180.16	181.73	187.79
Farm Price (dollars per bu.)	7.64	5.43	5.13	4.80	4.93	4.99

Figure 6. *MINNESOTA SOYBEAN ACREAGE PLANTED*

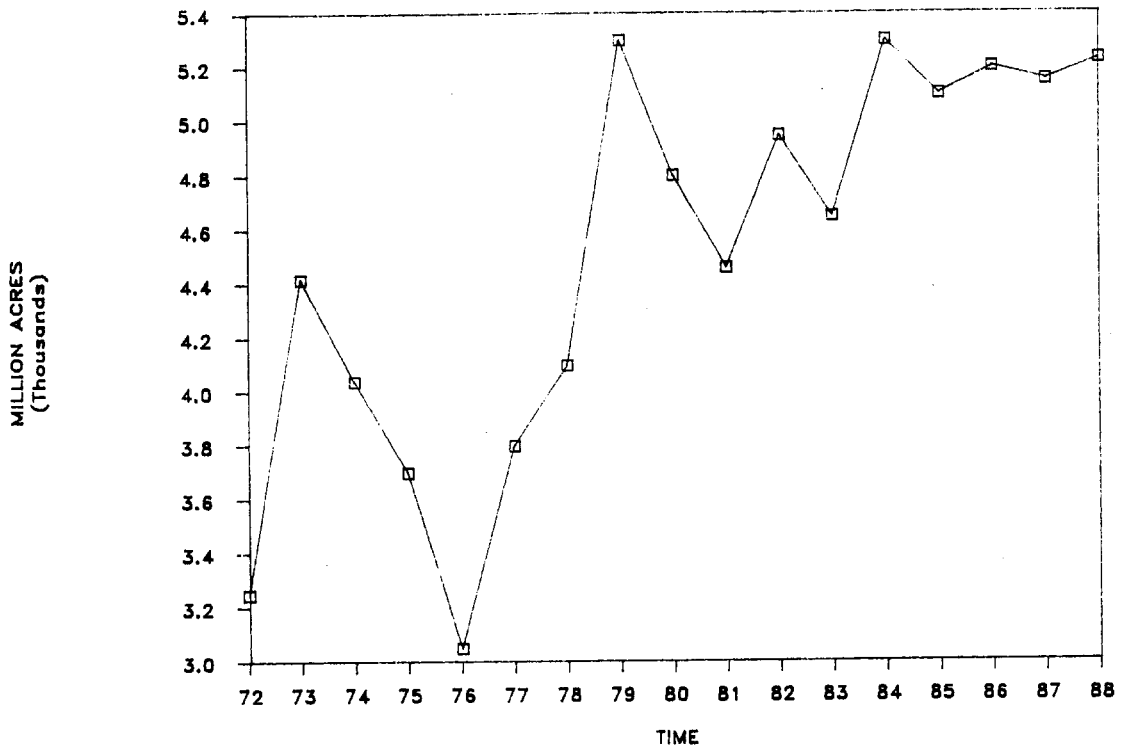


Figure 7. *MINNESOTA SOYBEAN YIELD*

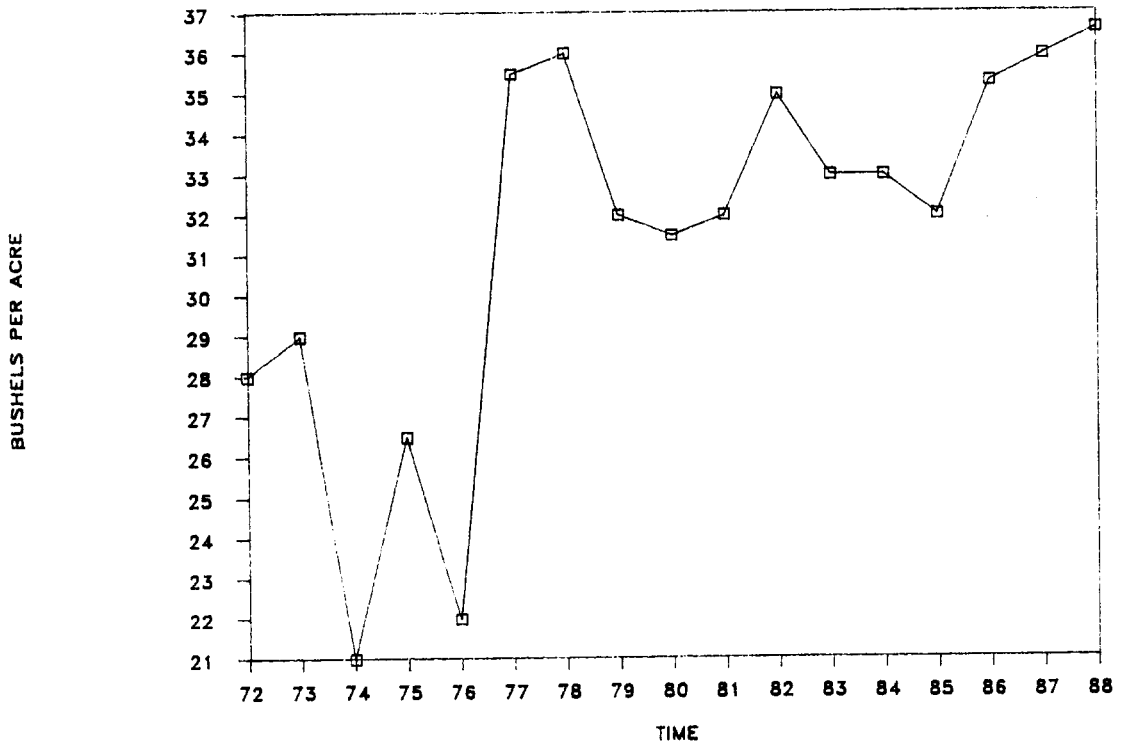


Figure 8. *MINNESOTA SOYBEAN PRODUCTION*

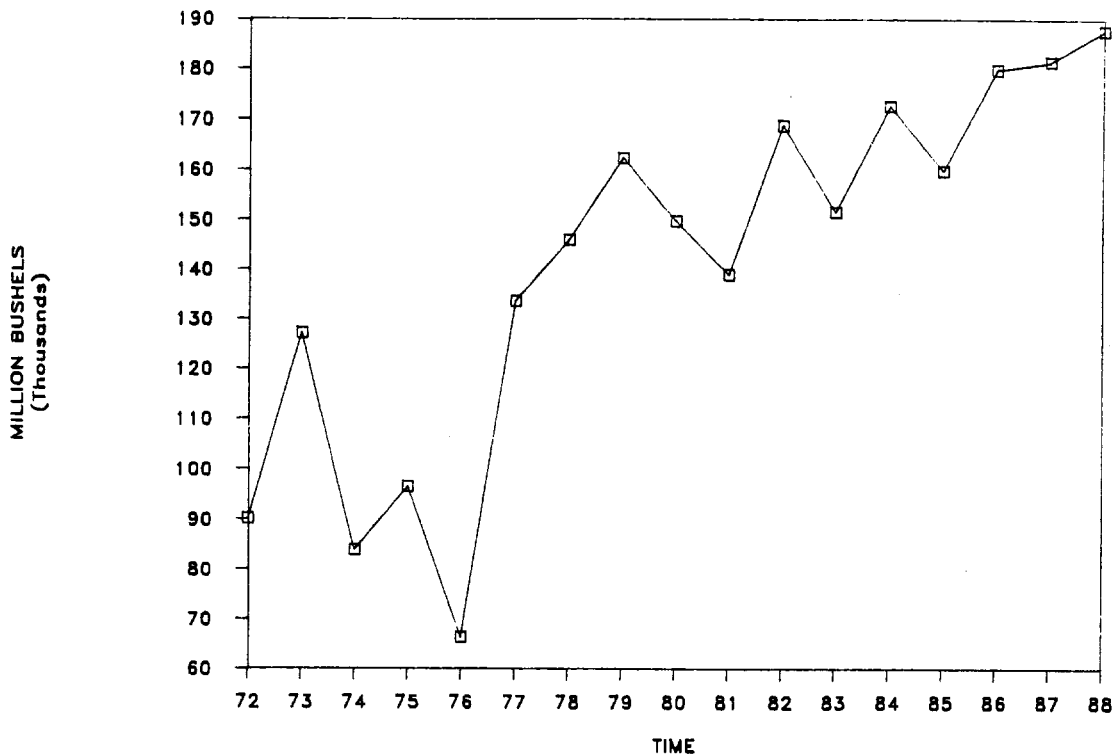
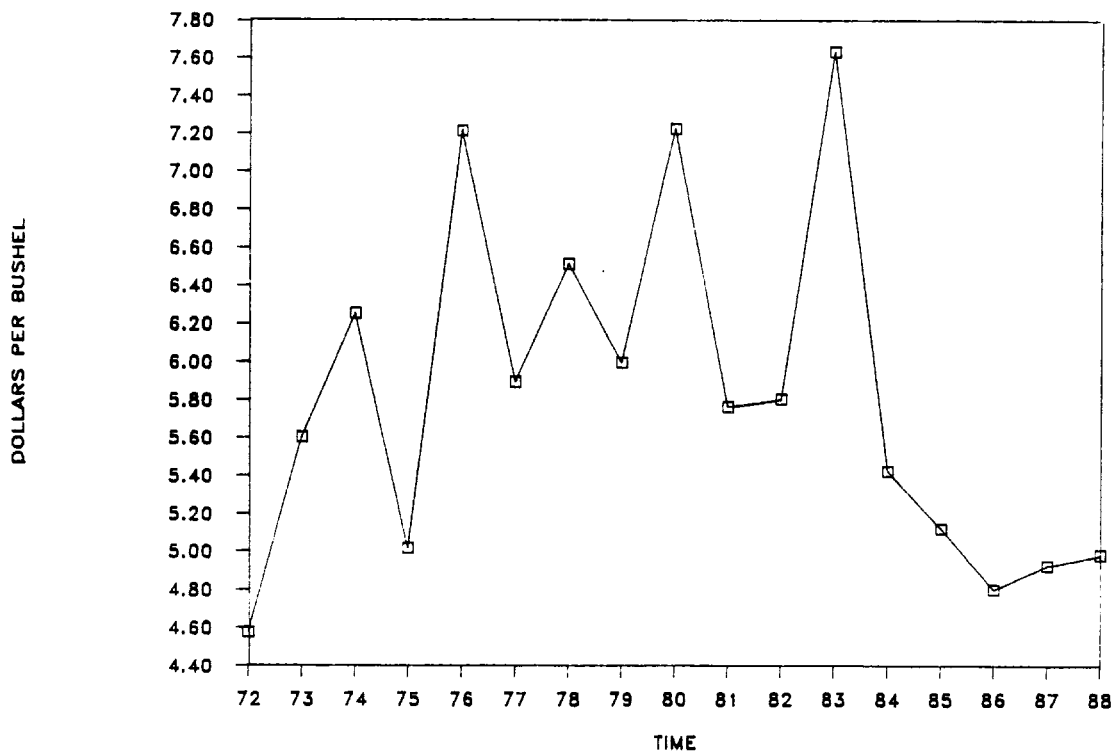


Figure 9. *MINNESOTA SOYBEAN FARM PRICE*



total base. This reduction in slippage will free up the nonbase acres for planting in soybeans. On the other hand, any incentives toward expansion will be moderated by falling soybean prices and signups in the conservation reserve program. Soybean production is estimated to rise from 160 million bushels in 1985/86 to 188 million bushels by 1988/89 due to expectations of rising trend yields over the projection period. Minnesota soybean farm prices are projected to drop from \$5.13 per bushel in 1985/86 to \$4.80 in 1986/87, and then rise to \$4.99 by 1988/89

Wheat

A 22.5 percent acreage reduction program (ARP) with a 2.5 percent paid land diversion was implimented for 1986/87, followed by a 27.5 and 30 percent ARP in 1987/88 and 1988/89, respectively. FAPRI estimated program participation to range between 81 and 85 percent over the forecast period. Minnesota wheat acreage planted is estimated to fall approximately 33 percent from 2.8 million acres in 1985/86 to 1.9 million acres by 1988/89 (table 4 and figures 10-13). Minnesota wheat production is expected to fall dramatically from 142 million bushels in 1985/86 to 109 million bushels in 1986/87, as record level yields in 1985/86 are expected to fall to normal levels in 1986/87. Production is then expected to continue to fall to 84 million bushels by 1988/89. Minnesota wheat farm prices are projected to follow a similar path, falling sharply from \$3.17 per bushel in 1985/86 to \$2.63 in 1986/87, and then continuing to fall to \$2.43 per bushel by 1988/89.

Livestock

Minnesota cattle and calf marketings are expected to increase from 1.75 billion pounds in 1985 to 1.91 billion pounds by 1988 in response to cattle and calf production numbers and deflated farm prices (table 5 and figures 14-15). The Minnesota average farm price for cattle is expected to strengthen from

Table 4. MNAG Projections for Minnesota Wheat under the Food Security Act of 1985

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89
Acres Planted (1,000 acres)	2,340	2,635	2,835	2,588	2,341	1,910
Acres Harvested (1,000 acres)	2,140	2,553	2,683	2,484	2,250	1,842
Yield (bushels)	36.90	47.30	53.10	44.04	44.88	45.72
Production (million bu.)	78.96	120.71	142.43	109.41	100.99	84.20
Farm Price (dollars per bu.)	3.82	3.41	3.17	2.63	2.55	2.43

Figure 10. *MINNESOTA WHEAT ACREAGE PLANTED*

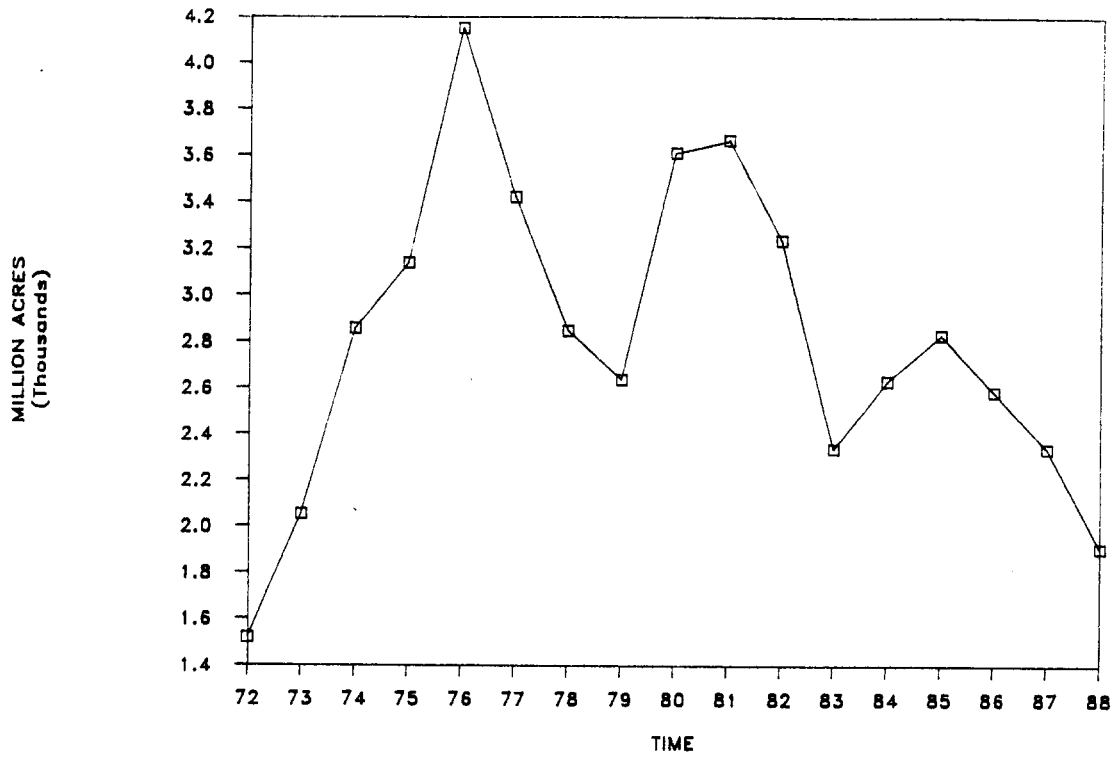


Figure 11. *MINNESOTA WHEAT YIELD*

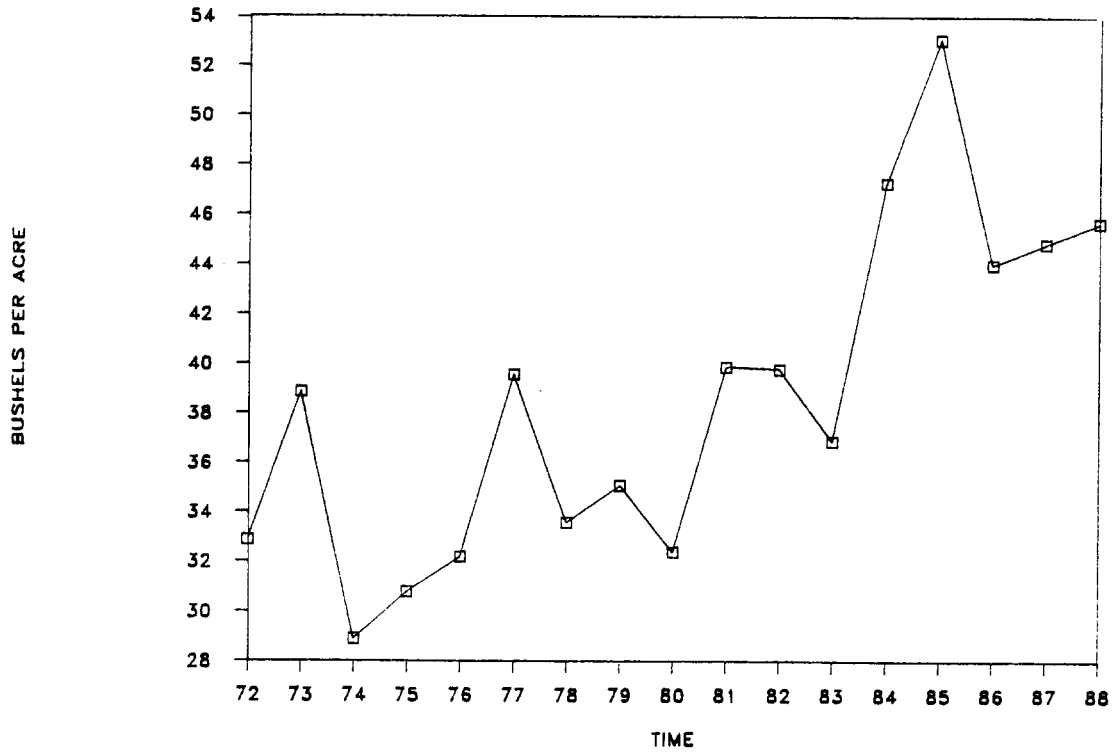


Figure 12. *MINNESOTA WHEAT PRODUCTION*

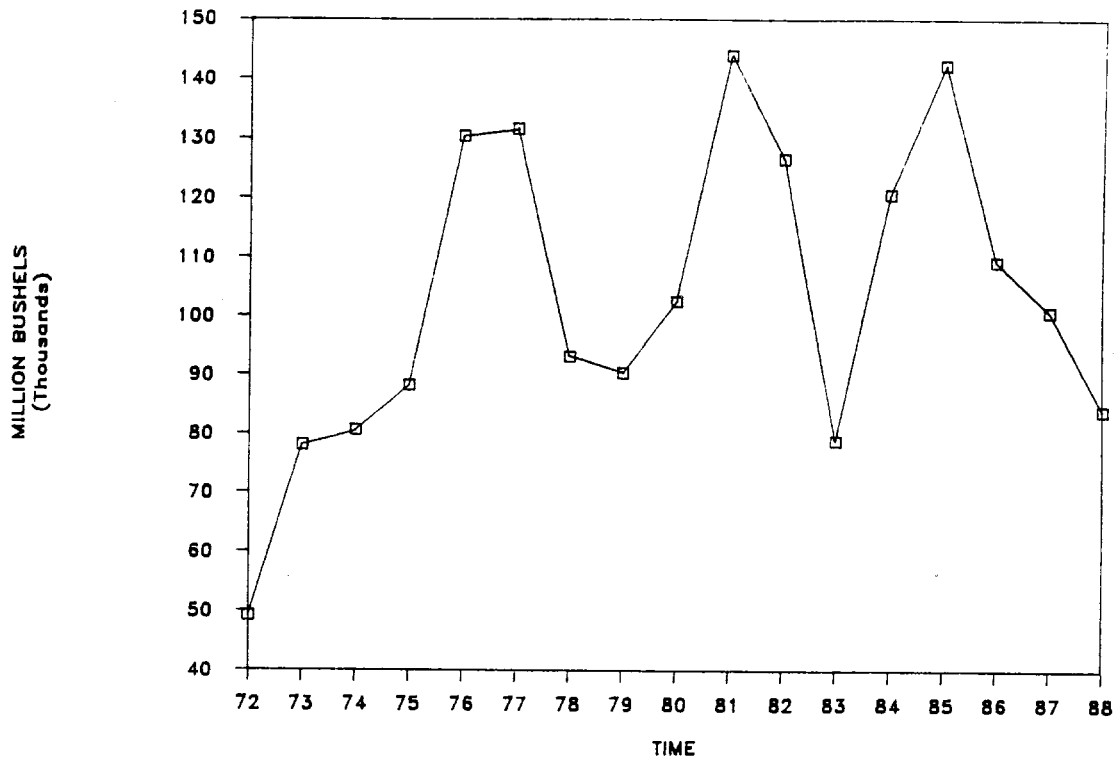


Figure 13. *MINNESOTA WHEAT FARM PRICE*

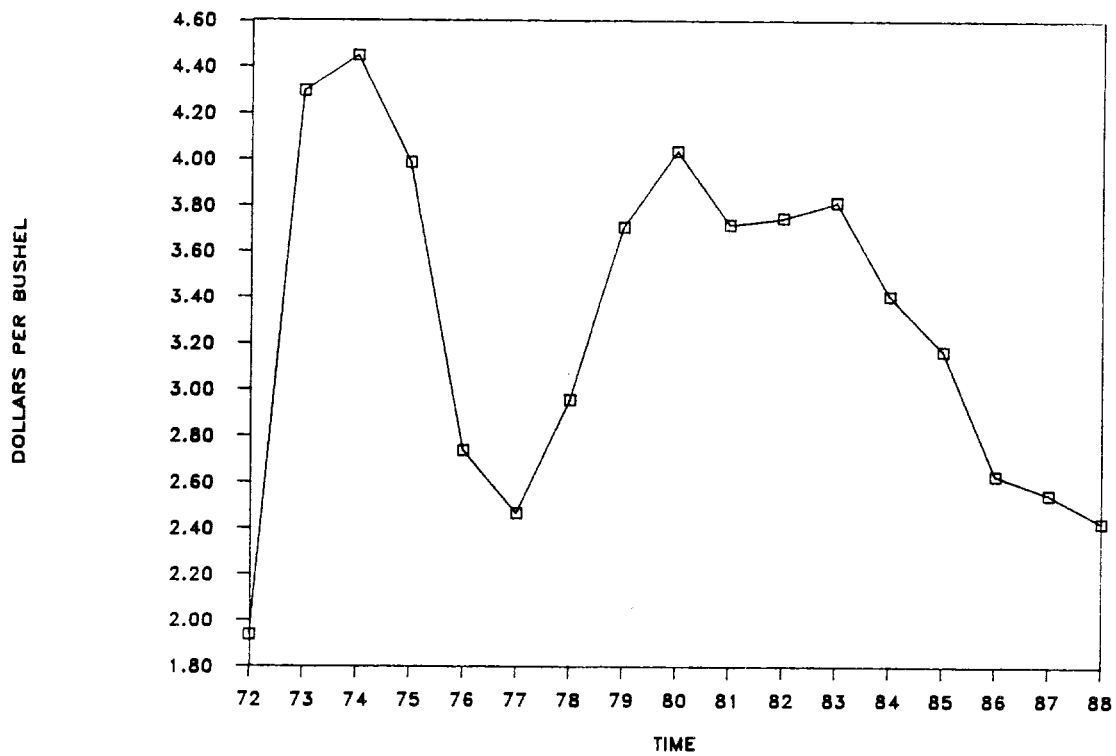


Table 5. MNAG Projections for Minnesota Livestock under the Food Security Act of 1985

Variable/Year	1983	1984	1985	1986	1987	1988
Cattle and Calves						
Marketings (million lbs.)	1,747	1,770	1,754	1,825	1,900	1,907
Annual average price (dollars per cwt)	47.60	48.60	46.62	48.74	50.32	48.74
Hogs						
Marketings (million lbs.)	1,564	1,511	1,412	1,334	1,422	1,490
Annual average price (dollars per cwt)	46.90	47.50	43.41	41.14	36.76	34.82
Milk						
Production (million lbs.)	10,913	10,331	10,706	10,794	10,892	11,073
Annual average price (dollars per cwt)	12.94	12.82	12.02	11.94	11.64	10.93

Figure 14. *MINNESOTA CATTLE & CALF MARKETING*

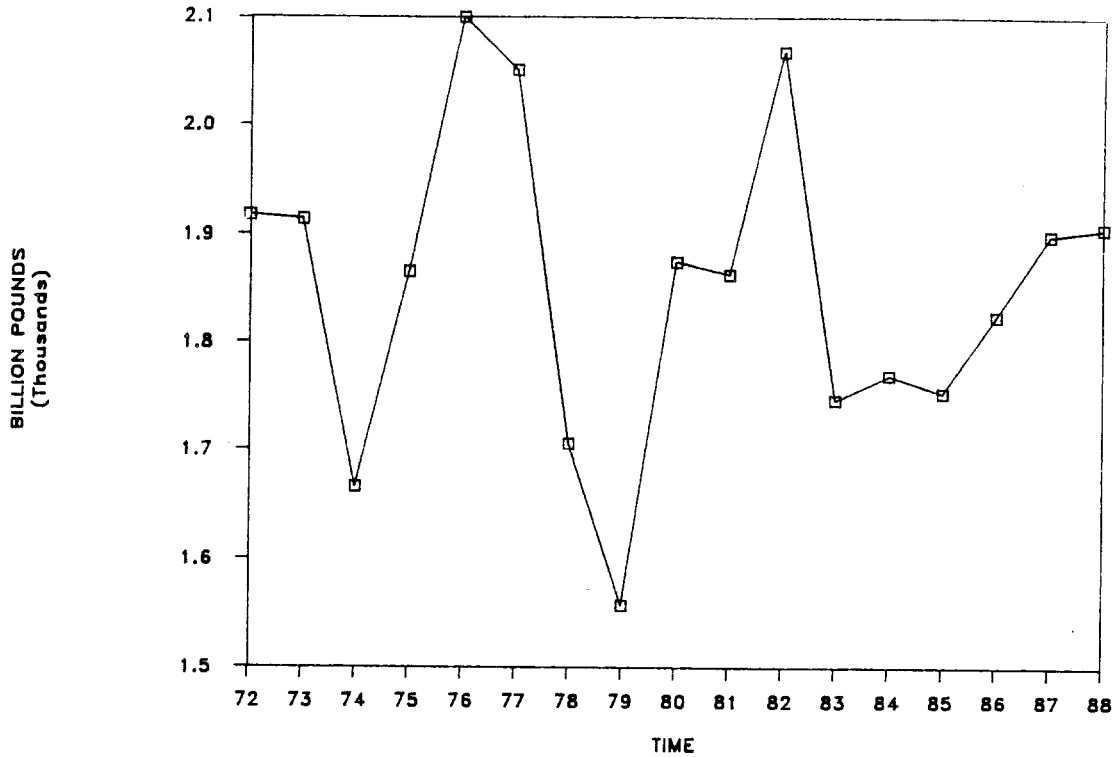


Figure 15. *MINNESOTA CATTLE & CALF FARM PRICE*

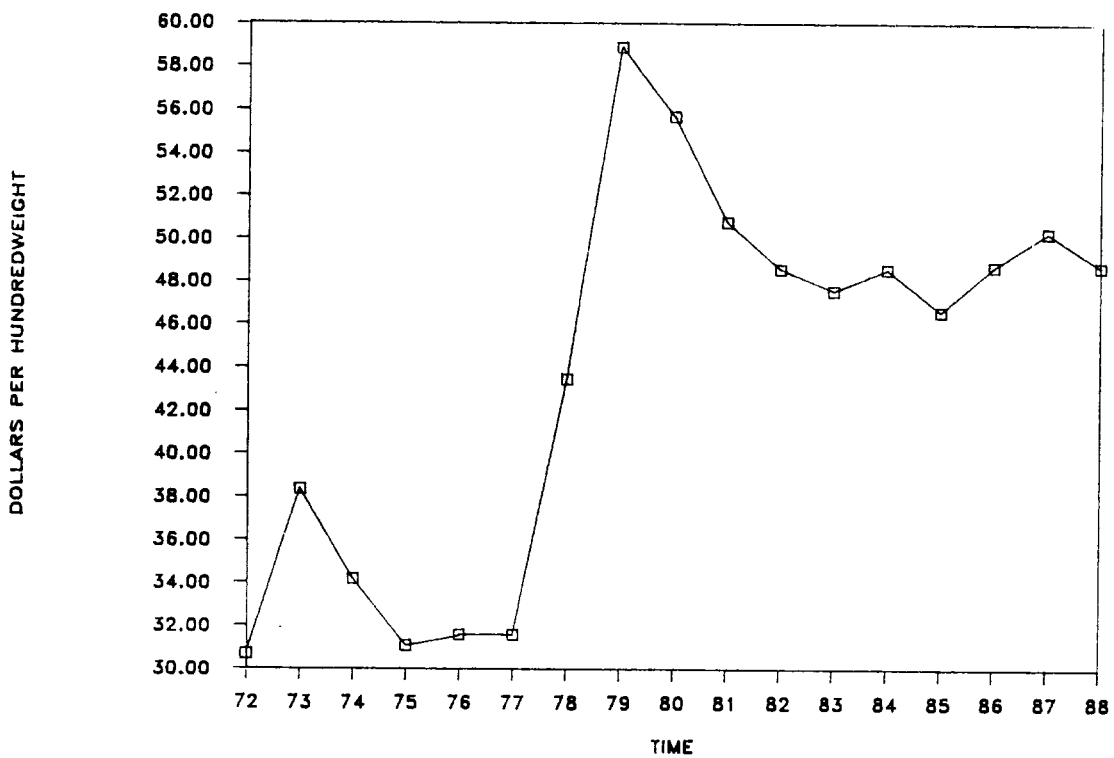


Figure 16. *MINNESOTA PORK MARKETING*

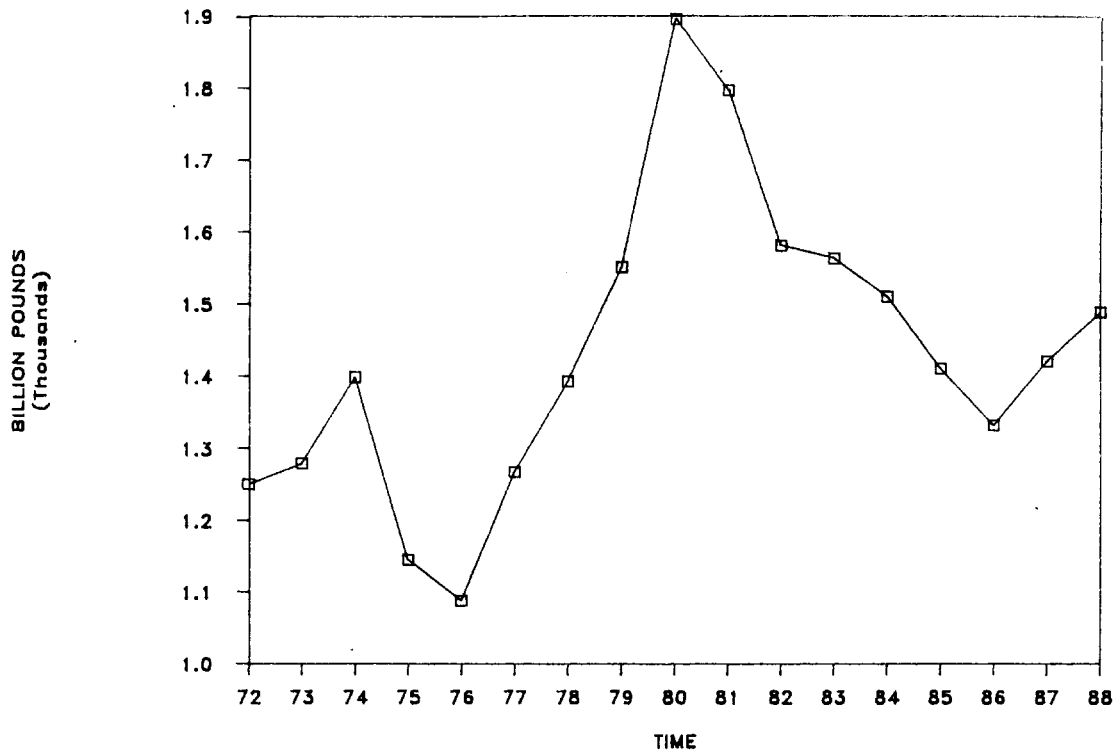


Figure 17. *MINNESOTA PORK FARM PRICE*

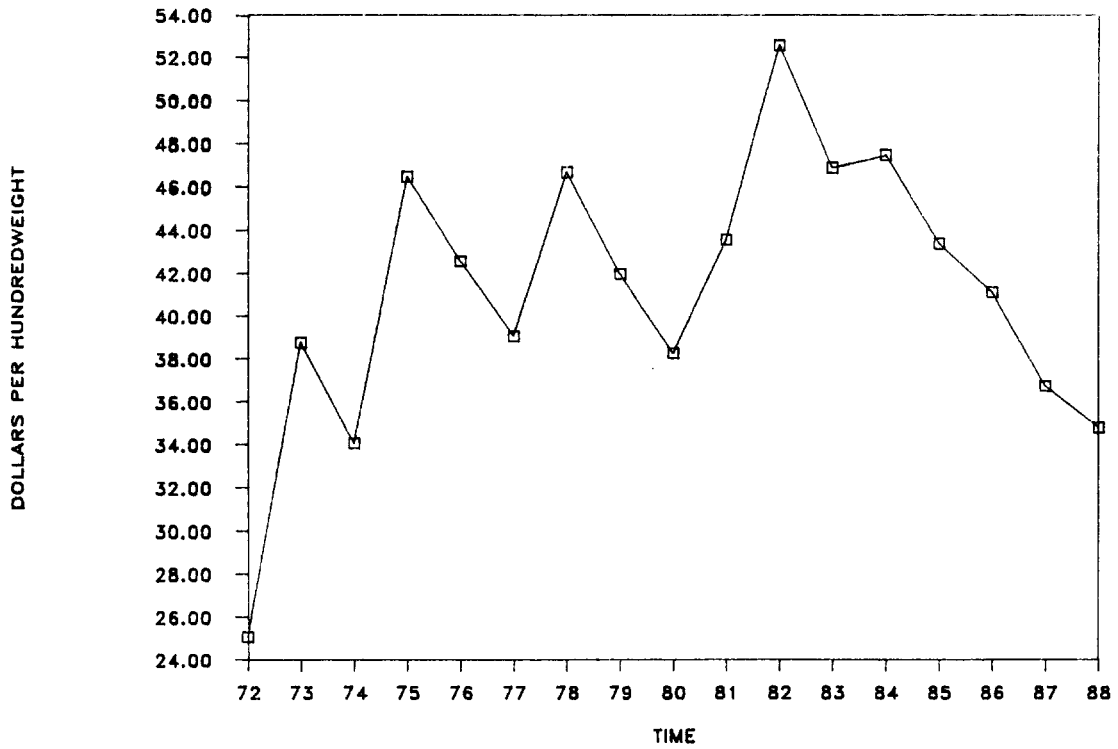


Figure 18. *MINNESOTA MILK PRODUCTION*

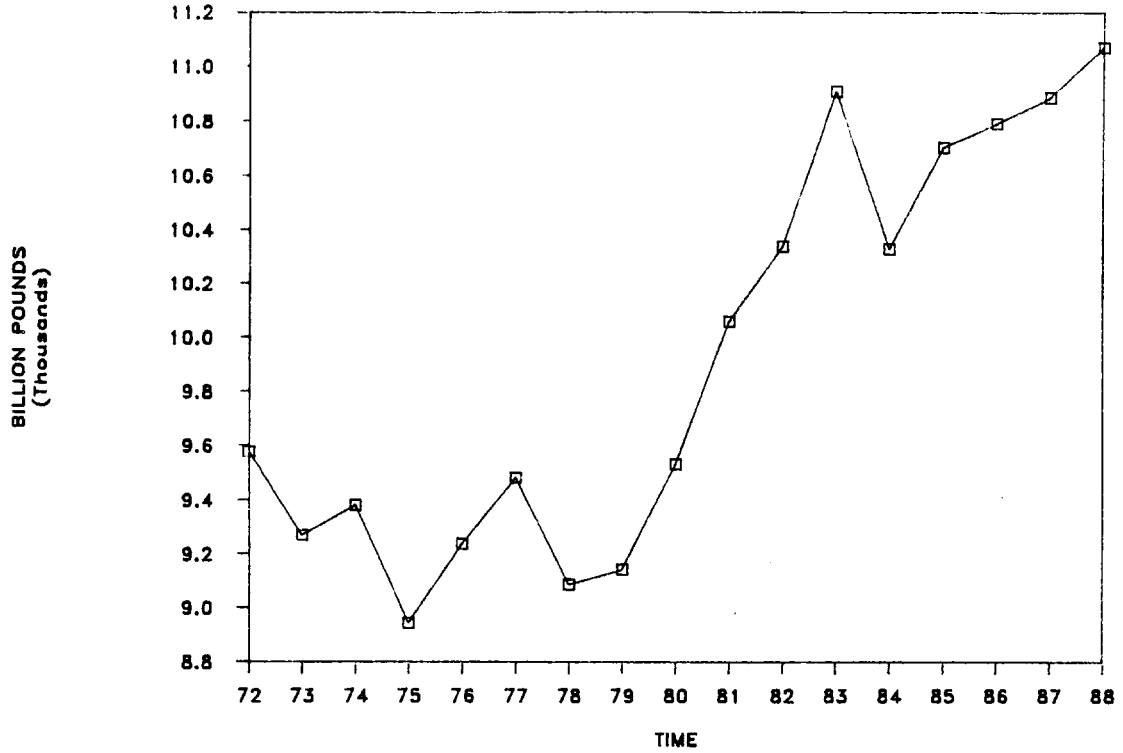
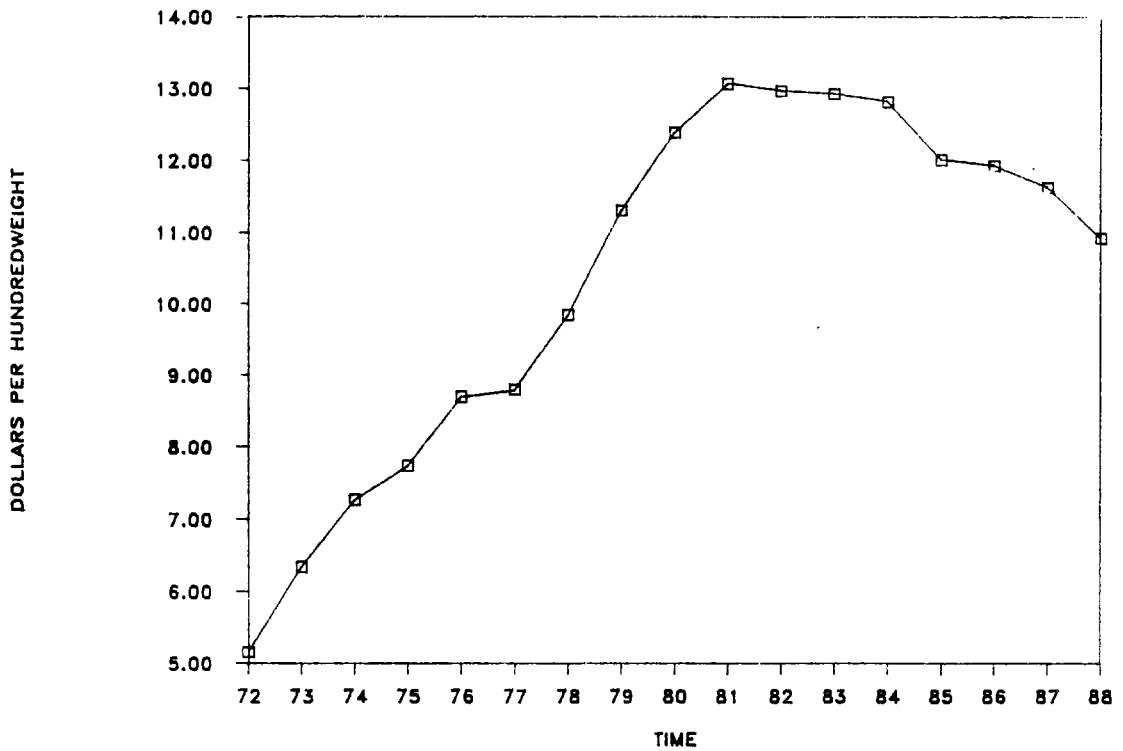


Figure 19. *MINNESOTA MILK FARM PRICE*



\$46.62 per hundredweight (cwt) in 1985 to \$50.32 per cwt by 1987, and then decline to \$48.74 per cwt in 1988.

Minnesota hog marketings are projected to decline from 1.41 billion pounds in 1985 to 1.33 billion pounds in 1986, and then rise to 1.49 billion pounds by 1988 (table 5 and figures 16-17). Minnesota hog farm prices are expected to decline steadily over the projection period from \$43.41 per cwt in 1985 to \$34.82 per cwt by 1988.

Milk production in Minnesota is projected to increase from 10.71 billion pounds in 1985 to 11.07 billion pounds by 1988, despite the implementation of the dairy buyout program (table 5 and figures 18-19). The Minnesota all milk wholesale price is expected to decline continuously over the projection period from \$12.02 per cwt in 1985 to \$10.93 per cwt by 1986, as the milk support rate falls in response to authorized cuts and estimated CCC removals.

Farm Income

Minnesota's farm cash receipts are projected to decline under the FSA85 from \$5.96 billion in 1985 to \$5.62 billion in 1986, and then decline to \$5.50 billion by 1988 (table 6 and figures 20-21). This 5.7 percent drop in farm cash receipts from 1985 to 1986 is solely attributable to the crops sector, where expectations are that farm prices will fall and crop yields will return to normal levels.

Direct government payments to Minnesota farmers are expected to rise 94 percent over the projection period from \$480 million in 1985 to a record \$931 million by 1988. This dramatic increase in farm program payments is in response to larger deficiency payments and greater program participation.

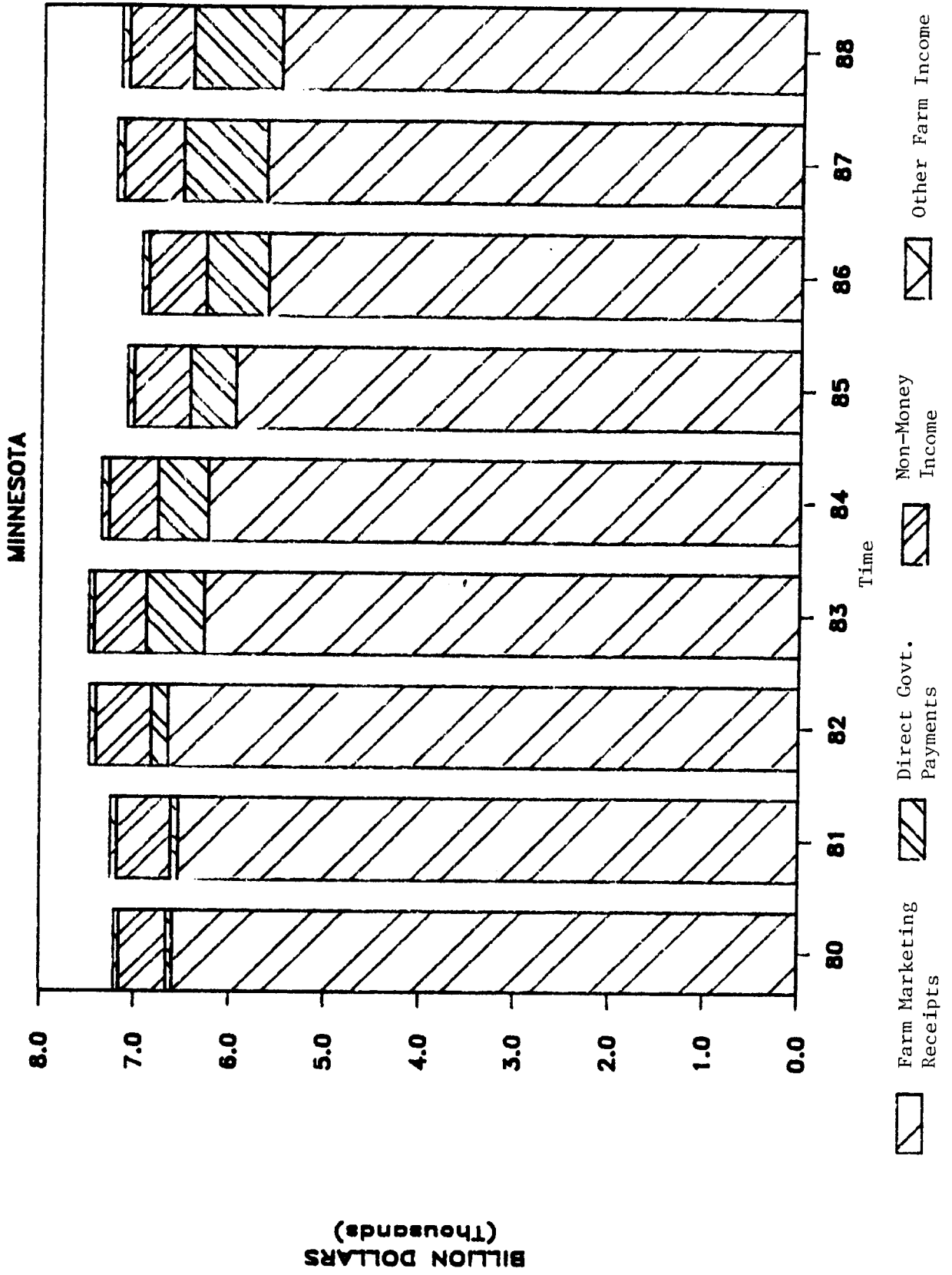
Realized gross farm income, which is the sum of total farm cash receipts, government payments, and non-money and other farm income, is projected to drop 2 percent from \$7.10 billion in 1985 to \$6.96 billion in 1986. This \$143 million

Table 6. MNAG Projections for Minnesota Farm Income under the Food Security Act of 1985

Variable/Year	1983	1984	1985	1986	1987	1988
-- Million Dollars --						
Total Farm Cash Receipts	6,472	6,242	5,961	5,623	5,643	5,499
Direct Government Payments	612	530	480	656	884	931
Non-Money Income	525	515	587	606	629	676
Other Farm Income	63	78	73	73	75	79
Realized Gross Farm Income	7,671	7,365	7,101	6,958	7,230	7,185
Farm Production Expenses	6,381	6,499	6,124	6,003	6,065	6,129
Realized Net Farm Income	1,291	866	977	955	1,165	1,056
Realized Net Cash Income	766	351	391	349	537	380

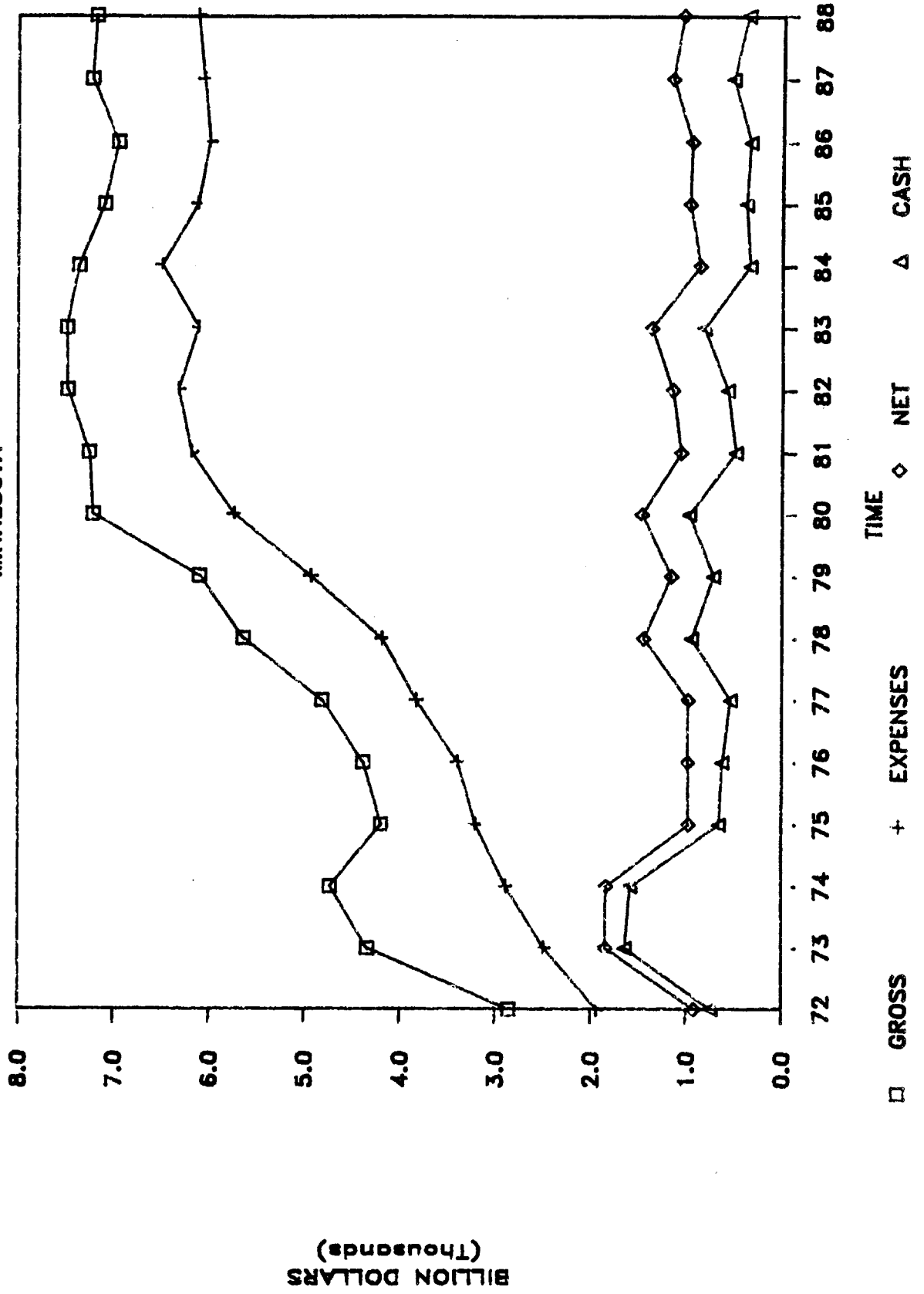
MINNESOTA REALIZED GROSS FARM INCOME

Figure 20.



REALIZED FARM INCOME

MINNESOTA



reduction is due in part to a \$339 million reduction in cash receipts from farm marketings and a rise of only \$176 million in direct government payments. This increase in government payments helps to buffer the decrease in farm cash receipts, but does not completely offset the reduction.

Minnesota farm production expenses are projected to fall 7.6 percent from \$6.5 billion in 1984 to \$6.0 billion in 1986, and then rise gradually to \$6.13 billion by 1988. This two year reduction in Minnesota's total production expenses is due in part to falling grain prices, which reduces feed costs, and greater set-asides of program crop acres in 1986, which reduces crop production expenses.

Realized net farm income for Minnesota, which is realized gross income less production expenses, is projected to fall 2.2 percent from \$977 million in 1985 to \$955 million in 1986, and then average a little over \$1 billion in 1987 and 1988. Another income measure used here is realized net cash income, which is realized net farm income less non-money income. Realized net cash income is cash income used to service debt and family living expenses and is therefore a good measure of farm cash flow. Realized net cash income is projected to fluctuate widely over the projection period, dropping from \$391 million in 1985 to \$349 million in 1986, rising to \$537 million in 1987, and then dropping to \$380 million by 1988.

It should be emphasized here that realized net farm income equals realized gross less production expenses and **does not** include the value of net changes in crop and livestock inventory. Net Changes in inventory plus realized net farm income equals total net farm income.

Implications for Minnesota Producers

To illustrate the implications of the FSA85 for individual farmers in Minnesota in 1986, comparisons of compliance options for two representative cash grain farms with a corn and wheat base are presented in tables 7 and 8. The tables were developed using MNAG and FAPRI projections of expected yields, expected market prices, and variable costs per conservation use acre. Estimated deficiency payment rates are USDA estimates. ASCS base yields were calculated as the average Minnesota yield in the five year period 1981-1985. Variable costs per harvested acre were calculated from University of Minnesota Crop Budgets. Totals reflect values generated per 100 acres. Gross revenue, total variable costs and total net over variable costs are calculated for each option.

Corn

A comparison of four options available to a representative corn producer under the FSA85 is outlined below (table 7). These options are: not to participate, to participate at the full permitted acreage level, to participate and underplant by 50 percent, or not to participate and plant soybeans instead. More specifically, these options are described as follows:

1) Nonparticipant - a producer who elects **not** to participate in the farm program, and may plant his whole 100 acre base to corn. However, he foregoes the opportunity to receive any deficiency or diversion payments, and is not eligible to receive nonrecourse loans on corn produced.

2) Basic participant - a producer who elects to participate in the program and agrees to set aside 20 percent of his base acreage, of which 2.5 percent is eligible for payment-in-kind (PIK) grain. The maximum number of acres that can be planted to corn under this option is 80 percent of his corn

Table 7. Comparison of Program Options under the 1985 Food Security Act for a Typical Minnesota Cash Grain Farm with a 100 acre Corn Base

	Non Participant	Basic Participant	50% UnderPlant	Soybeans
ARP %	0	17.5	17.5	0
PIK %	0	2.5	2.5	0
Under Planting %	0	0	50	0
Base acres	100	100	100	100
ARP set aside (acres)	0	17.5	17.5	0
PIK diversion (acres)	0	2.5	2.5	0
Under Plant (acres)	0	0	40	0
Harvested (acres)	100	80	40	100
Expected yield	107	110	115	35.3
Base yield (ASCS)	N/A	105.8	105.8	N/A
Production (bu)	10700	8800	4600	3530
Market Price	\$1.87	\$1.87	\$1.87	\$4.80
Loan Rate	N/A	\$1.92	\$1.92	\$4.77
Target Price	N/A	\$3.03	\$3.03	N/A
Deficiency Pmnt Rate	N/A	\$1.03	\$.95	N/A
Deficiency Pmnt	\$.00	\$8,717.92	\$8,020.49	\$.00
PIK Pmnt Rate (\$/bu)	N/A	\$.73	\$.73	N/A
PIK Pmnt	\$.00	\$193.09	\$193.09	\$.00
Value of Production	\$20,009.00	\$16,896.00	\$8,832.00	\$16,944.00
Gross Revenue	\$20,009.00	\$25,807.01	\$17,045.57	\$16,944.00
Variable Costs				
Per Harvested Acre	\$165.00	\$165.00	\$165.00	\$72.00
Per Cons. Use Acre	N/A	\$20.00	\$20.00	N/A
Total Variable Costs	\$16,500.00	\$13,600.00	\$7,800.00	\$7,200.00
Total Net over Var. Csts	\$3,509.00	\$12,207.01	\$9,245.57	\$9,744.00
Advantage Per Base Acre over Non-participation	\$.00	\$86.98	\$57.37	\$62.35
Breakeven Price for non-participation		\$2.68	\$2.41	\$2.45
Advance Cash Def. Pmnt		\$2,615.38	\$2,406.15	
Advance PIK Def. Pmnt available May 1		\$871.79	\$802.05	
PIK Div. Pmnt.		\$193.09	\$193.09	
Total Pmnt available May 1	\$.00	\$3,680.25	\$3,401.28	\$.00
Percent of Var. Costs		27.1%	43.6%	

base, or 80 acres. The basic participant is eligible to receive the deficiency payment, the PIK diversion payment, and to place the harvested crop under non-recourse loan.

3) Underplanting - a producer who not only participates in the program by setting aside the required 20 percent of his base acreage, but elects to divert additional acreage to conservation use or planting to a nonprogram crop. To remain a participant, the producer must plant at least 50 percent of his permitted base (his corn base less required set-aside) to corn, or 40 acres of his 100 acre corn base. The third column illustrates the effect of underplanting by the maximum allowable 50 percent.

The producer receives the full PIK diversion payment, but his deficiency payment is equal to 92 percent of the deficiency payment rate, times his program yield, times his full permitted base acreage (80 acres).

4) Soybeans - a producer who elects not to participate in the farm program and plants soybeans instead of corn.

Based on the projected market price, trend yields, Minnesota average base yield, and projected program payments, the average Minnesota corn producer will strongly consider participation in the 1986 feedgrain program. The major attractions of the program include; the relatively high level of deficiency payments, the advance payment of 40 percent of projected deficiency payments, and the reduction in risk under program participation. With market prices for Minnesota producers projected to fall to levels near the announced loan rate, expected deficiency payment rates will average 55 percent of the projected market price per bushel. This more than offsets the loss in value of production of idling 20 percent or more of their base acreage. Under these projections the basic participant increases net returns per base acre \$86.98. The

nonparticipant would need to receive a market price of \$2.68 per bushel to reach the same level of net returns over variable costs. In addition, the farm program offers a reduction in risk facing the producer. The loan rate serves as a price floor while the advance deficiency payments provide cash to help meet expenses in the spring, perhaps lowering the amount of borrowed capital required. Producers may request 40 percent of their projected deficiency payments when they sign up. Seventy five percent of this advance deficiency payment will be paid in cash during signup, with the remaining 25 percent paid as PIK beginning May 1. Producers will have from May 2 to September 30 to request the PIK portion of their advance deficiency payment. In this example 100 acre base, an estimated total of \$3,680.25 in advance deficiency and PIK diversion payments will be available by May 1.

Total net revenue for the 50 percent underplanting option is also greater than that generated under non-participation but is \$2961.44 per 100 acre base less than under the full basic participation option. The 50 percent underplanting calculations here have assumed that no nonprogram crop has been planted. Nonprogram crops would include sunflowers, canning peas, sweet corn, vegetables and others, but exclude those crops which are considered under the farm program. A producer would need to compare the expected net revenue generated by planting some portion of the underplanted acres to a nonprogram alternative crop versus the basic participation option. The full 50% underplanting alternative was used as an example in this table but a producer may choose to underplant at less than the maximum rate. Underplanting may reduce the risk associated with poor weather, low yields, low prices or tight credit restrictions. The relatively high rate of advance payments as a percent of total variable costs (43 percent in this example), may attract producers unable to obtain sufficient credit. This option does, however, limit the

opportunity to benefit from better than average yields or better than average prices. A reduction in deficiency payments due to a higher than projected average market price would not be totally offset by the increase in the value of production. For the underplanting participant deficiency payments are paid as 92 percent of the deficiency payment rate times the full permitted base (80 percent of the corn base) times the ASCS base yield, while the market price is only received for those bushels actually produced. In this example for instance, the deficiency payment for the 50 percent underplanting participant is in effect paid on 7788 bushels (planted acreage times program yield times .92) while his actual production for market is 4600 bushels. However, under the projected market prices and yields, a producer choosing to underplant permitted acreage by the maximum 50 percent would still increase net revenues per acre by \$57.37 over nonparticipation. A nonparticipating producer would need to receive a market price of \$2.41 per bushel to equal the net returns over variable costs generated by the producer underplanting by the maximum allowable 50 percent. In addition, an estimated total of \$3,401.28 in advance deficiency and PIK diversion payments will be available under this option by May 1.

Net revenue for raising soybeans is well below the net revenue generated under the basic participation option, about the same as under the 50 percent under planting option, but significantly higher than nonparticipation raising corn. For the typical corn soybean cash grain producer in Minnesota, full participation in the 1986 Farm Program is likely with soybeans being planted on non corn base acreage. Given the current outlook situation dairy and other livestock producers who raise corn mainly for feed will also strongly consider participation even if grain must be bought for feed later.

Wheat

A comparison of various program options under the FSA85 outline four possible choices available to a representative wheat producer (table 8). These are: nonparticipation, full participation with no underplanting or additional diversion, participation with an additional 10 percent paid diversion, and participation with an additional 50 percent underplanting.

1) The nonparticipant - as under the corn program provisions a producer who elects not to participate in the acreage reduction program may plant the full 100 acres of his base to wheat. The producer foregoes the opportunity to receive any deficiency or diversion payments and is not eligible to receive CCC price support loans for wheat produced.

2) The basic participant - a producer who elects to participate in the program and agrees to set aside 22.5 percent of his base, or 22.5 acres, to conservation use acres. No direct payment for this reduction is received. In addition, 2.5 percent or 2.5 acres are diverted to conservation use for which the producer receives payment-in-kind (PIK) grain. The maximum number of acres that can be planted to wheat by the basic participant is 75. The basic participant is eligible to receive the deficiency payment, the PIK diversion payment, and to place the harvested crop under CCC loan.

3) Diverting participant - under provisions of the FSA85, those producers who planted wheat prior to the 1986/87 final program announcement (winter wheat producers) will have the option to idle an additional 10 percent of their base acreage in return for a \$2.00 per bushel additional paid diversion. Under this provision, 22.5 percent of the base acreage would be set aside as unpaid ARP acres, 2.5 percent would be idled receiving PIK payments of \$1.10 per bushel, and 10 percent would be idled as the additional paid diversion acres. The

Table 8. Comparison of Program Options under the 1985 Food Security Act for a Typical Minnesota Farm with a 100 acre Wheat Base

	Non Participant	Basic Participant	Diverting Participant	50% UnderPlant
ARP %	0	22.5	22.5	22.5
PIK %	0	2.5	2.5	2.5
Under Planting %	0	0	0	50
Paid Div. Plowed Under %	0	0	10	0
Base acres	100	100	100	100
ARP set aside (acres)	0	22.5	22.5	22.5
PIK diversion (acres)	0	2.5	2.5	2.5
Under Plant (acres)	0	0	0	37.5
Plowed Under (acres)	0	0	10	0
Harvested (acres)	100	75	65	37.5
Expected yield	42	44	45	47
Base yield (ASCS)	N/A	43.4	43.4	43.4
Production (bu)	4200	3300	2925	1762.5
Market Price	\$2.63	\$2.63	\$2.63	\$2.63
Loan Rate	N/A	\$2.40	\$2.40	\$2.40
Target Price	N/A	\$4.38	\$4.38	\$4.38
Deficiency Pmnt Rate	N/A	\$1.83	\$1.68	\$1.68
Deficiency Pmnt	\$0.00	\$5,956.65	\$5,480.12	\$5,480.12
Diversion Pmnt. Rate	N/A	N/A	\$2.00	N/A
Diversion Pmnt.	\$0.00	\$0.00	\$868.00	\$0.00
PIK Pmnt Rate (\$/bu)	N/A	\$1.10	\$1.10	\$1.10
PIK Pmnt	\$0.00	\$119.35	\$119.35	\$119.35
Value of Production	\$11,046.00	\$7,920.00	\$7,020.00	\$4,230.00
Gross Revenue	\$11,046.00	\$13,996.00	\$13,487.47	\$9,829.47
Variable Costs				
Per Harvested Acre	\$75.00	\$75.00	\$75.00	\$75.00
Per Cons. Use Acre	N/A	\$20.00	\$20.00	\$20.00
Per Plowed Div Acre	N/A	N/A	\$45.00	N/A
Total Variable Costs	\$7,500.00	\$6,125.00	\$5,825.00	\$4,062.50
Total Net over Var. Csts	\$3,546.00	\$7,871.00	\$7,662.47	\$5,766.97
Advantage Per Base Acre over Non-participation	\$0.00	\$43.25	\$41.16	\$22.21
Breakeven Price for non-participation		\$3.66	\$3.61	\$3.16
Advance Cash Def. Pmnt		\$1,787.00	\$1,644.04	\$1,644.04
Advance PIK Def. Pmnt available May 1		\$595.67	\$548.01	\$548.01
PIK Div. Pmnt.		\$119.35	\$119.35	\$119.35
Additional paid div.		\$0.00	\$868.00	
Total Pmnt avail. May 1		\$2,502.01	\$3,179.40	\$2,311.40
Percent of Var. Costs		40.8%	54.6%	56.9%

maximum number of acres of wheat which could be harvested would be 65.

4) Underplanting - under the FSA85 a producer who elects to participate also has the option to further reduce the number of acres of wheat planted either through diverting acreage to conservation use, or planting to a nonprogram crop. To remain a participant, the producer must plant at least 50 percent of his permitted base (or 37.5 acres) to wheat. The fourth column illustrates the effect of underplanting by the maximum allowable 50 percent. A producer who chooses to underplant his permitted base continues to receive the full PIK diversion payment. However, the producer's deficiency payment rate is equal to 92 percent of the deficiency payment rate, times his program yield, times his full permitted base acreage (75 acres).

Based on the forecast market price, trend yields, Minnesota average base yield and projected program payments, the average Minnesota wheat producer will also strongly consider participation in the 1986 Farm Program. As for the corn producer, the major reasons are the relatively high level of deficiency payments, the opportunity to receive 40 percent of the projected deficiency payment in advance and the reduction in overall risk under program participation. Again net returns over variable costs are highest for the basic participant. With market prices for Minnesota producers projected to fall to near the reduced loan level, expected deficiency payment rates could reach nearly 70 percent of the market price. This more than offsets the loss in value of production of idling 25 percent or more of the base acreage. Under these projections the basic participant increase net returns per base acre \$43.25. To achieve the same level of net returns the nonparticipant would need to receive a market price of \$3.66. Producers may request 40 percent of their projected deficiency payments when they sign up. Seventy five percent of this advance

deficiency payment will be paid in cash during signup, with the remaining 25 percent paid as PIK beginning May 1. The example producer would receive \$2502.01 in total advance payments by May 1, representing approximately 40 percent of the projected total variable costs. The reduction in marketing risk provided by the non-recourse loan available to the participating producer will provide additional incentive to comply.

For Minnesota winter wheat producers, the 1986 Farm program provides an option to divert an additional 10 percent of the base acreage. The producer receives a direct diversion payment of \$2.00 per bushel based on ASCS established yield, for the additional diverted acres. Net returns generated under this option are very close to the projected net returns of the basic participating producer. The diverting participant will increase net returns over variable costs by approximately \$41.16 per acre compared to the nonparticipant. A nonparticipating producer would need to receive a market price of \$3.61 to achieve the same level of net returns as the diverting participant. In addition, the example diverting participant will be eligible to receive a total payment of \$3179.40 in advance cash and PIK deficiency payments, PIK diversion payments and the addition diversion payment. This would represent 54.6 percent of the estimated total variable costs.

Total net revenue for the 50 percent underplanting option is also greater than that generated under nonparticipation but is \$2104.03 less than total net revenues of the basic participating producer. As was calculated comparing corn producers this 50 percent underplanting option did not include planting a nonprogram crop. A producer choosing to underplant allowable acreage by 50 percent would still increase net revenues per acre by \$22.21 over nonparticipation. A nonparticipating producer would need to receive a market price of \$3.16 to reach the same level of net returns over variable costs. The

producer choosing to underplant the maximum 50 percent would receive \$2311.40 in total payments by May 1. This would represent approximately 56.9 percent of the estimated total variable costs.

SUMMARY AND CONCLUSIONS

The Food Security Act of 1985 (FSA85) marks a significant departure from previous legislation as loan rates are given greater downward flexibility in an attempt to make U.S. commodities more competitive overseas. The lower loan rates combined with frozen target prices will result in greater deficiency payments which are expected to help producers adjust during the current transition to an environment of lower crop prices. This producer income protection will not come without a significant cost to the federal government, as the larger deficiency payments combined with greater participation in the farm programs will result in significantly greater budgetary exposure.

Minnesota crop farm prices are projected to fall significantly in the coming crop year and will remain at low levels for the duration of the projection period. Lower farm prices combined with increased set-asides and normal yields will result in a 2.2 percent reduction in Minnesota's realized net farm income from 1985 to 1986. This reduction can be attributed in part to a \$339 million reduction in Minnesota farm marketing receipts in 1986, which is moderated by a \$176 million increase in direct government payments to Minnesota farmers. The MNAG analysis suggests that the FSA85 will not fully support income in Minnesota's crop sector at 1985 levels, but will only moderate any reductions in farm marketing receipts.

Analysis of farm program options available to Minnesota producers under the FSA85 indicate a higher level of participation in 1986 than in previous years. This would be expected due to the lower projected market prices for wheat and the feed grains. The resulting deficiency payments make nonparticipation in the farm program a more risky decision than before as forecasted returns are significantly lower than returns for the participating producer.

To conclude, the FSA85 will not provide sufficient income protection to maintain Minnesota's farm income in 1986 at the previous year's level. Farm prices will fall in the 1986 crop year but will begin to rebound in 1988 as foreign countries adjust to lower U.S. prices and the demand for U.S. exports increase.

It is important to remember that the calculations reported here for 1986 and beyond are "projections," not necessarily "predictions." Projections like those reported here are based importantly on the continuation of existing trends in the broader national and world economy. Abrupt changes in any of these underlying forces or other non-economic factors may override and obscure the projections and analyses of this report.