



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Staff Papers Series

Staff Paper P87-4

February 1987

THE FUTURE OF MINNESOTA'S AGRICULTURE
UNDER THE FOOD SECURITY ACT OF 1985

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

THE FUTURE OF MINNESOTA'S AGRICULTURE
UNDER THE FOOD SECURITY ACT OF 1985

by

Vincent P. Byron
and
James P. Houck

Staff Papers are published without a formal review within or the endorsement of the Department of Agricultural and Applied Economics.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, or veteran status.

Vincent Byron is a research assistant and James P. Houck is a Professor in the Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minnesota.

February, 1987

INTRODUCTION

The purpose of this report is to analyze the impact of the Food Security Act of 1985 (FSA85) on Minnesota's agricultural economy over a ten year period, 1985-1995. Production, acreage, yield and farm price level projections are provided for the three major field crops; corn, soybeans and wheat. For the livestock sector, production and price level projections are made for cattle, hogs and dairy. Projections of Minnesota realized net farm income and net cash income provide an indication of the economic performance of the farm sector under the FSA85 over the next 10 years.

The study utilizes the Minnesota Agricultural Model, (MNAG) a linked system of equations that ties Minnesota's farm economy to factors affecting the national farm sector. MNAG uses results from a 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. The FAPRI model is capable of providing commodity level 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 farm economy. This allows us to project the effects of various policies upon the national farm economy and then

estimate their effects specifically to Minnesota's farm sector. This report is based on the December 1986 FAPRI Staff Report #3-86, "The Food Security Act of 1985 One Year Later: Implications and Persistent Problems", which examines the impacts of the FSA85 on U.S agriculture over the next ten years. While Minnesota's farm economic conditions are integrally related to the national farm economy, projections at the state level serve as important guides for state and local level policy makers, farmers, agribusinesses, commodity groups, lending institutions and others.

Summary of FAPRI Assumptions and Results

The national level projections developed in the FAPRI study are based on several key assumptions. Notable are assumptions concerning conditions generally considered outside the control of the U.S. agricultural policy. These include; i) macro economic factors influencing domestic and foreign commodity markets as outlined in Table 1, ii) normal weather conditions for the U.S. and foreign producers, and iii) policy behavior of major importers and exporters of agricultural products in response to the FSA85.

Two important assumptions related to factors within control of U.S. farm policy were also made. First, the policy objective of the Secretary is assumed to be a balanced use of government stocks and acreage, or supply control to smooth changes in market and other performance variables during the evaluation period. In addition, for the years beyond the control of FSA85 (1990-95) similar legislation and actions by the Secretary is assumed to continue. The policy provisions of the FSA85 and

Table 1 Domestic and Foreign Economic Projections Used in the FAPRI 10-Year Evaluation of the FSR05

Variable	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
United States												
Real GNP (% change)	3.0	2.6	3.6	2.9	.8	5.2	3.3	3.3	2.9	2.9	2.6	2.6
GNP Deflator (% change)	3.4	2.8	3.3	4.3	5.3	3.6	4.2	4.5	4.8	5.3	5.4	5.5
Civilian Unemployment Rate (%)	7.3	7.1	6.7	6.7	7.6	7.0	6.8	6.6	6.6	6.8	7.0	7.7
3-Month T. Bill Rate (%)	7.5	5.8	5.8	6.6	7.0	6.5	5.8	5.9	6.2	6.6	6.9	7.3
Moody's AAR Corporate Bond Rate (%)	11.4	8.9	8.6	9.3	9.7	8.8	8.1	8.2	8.4	8.7	8.9	9.4
Federal Budget Surplus (Bil. \$)	-198.0	-213.3	-155.5	-180.4	-239.4	-187.7	-159.4	-134.6	-111.6	-94.5	-56.9	-113.6
Foreign/Domestic												
Light Arabian Crude Oil (\$ per barrel)	28.0	14.0	15.0	17.0	19.0	21.0	24.0	24.0	24.0	24.0	24.0	24.0
Foreign Currency/Dollar (% change)	-17.0	-8.4	-5.3	-2.8	-1.4	2.9	1.4	2.8	1.4	1.3	1.3	1.3
Real GNP (% change)												
Africa	1.5	-3.9	-.1	2.4	2.8	4.4	3.2	3.1	3.0	3.1	3.1	3.1
Latin America	3.4	2.2	3.7	3.4	2.4	3.7	3.7	3.6	3.6	3.6	3.5	3.5
Pacific Basin	2.3	4.3	4.8	5.1	4.8	5.9	5.5	5.2	5.3	5.3	5.2	5.2
Western Europe	2.3	2.6	2.6	2.4	2.1	2.8	2.7	2.6	2.6	2.6	2.6	2.6
Centrally Planned	4.7	3.7	3.3	3.3	3.4	3.3	3.6	3.5	3.4	3.5	3.5	3.5

Table 2 FAPRI Projections for Farm Income and Government Payments under the Food Security Act of 1985

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
-----Billions of Dollars-----											
Cash Receipts from Marketings	142.1	134.8	131.6	131.0	131.7	134.8	136.2	136.8	138.2	139.9	142.4
Crops	72.6	61.6	58.7	59.6	62.5	67.8	70.6	73.0	75.4	77.8	79.6
Livestock	69.4	73.1	72.9	71.3	69.1	66.9	65.6	63.8	62.7	62.0	62.8
Direct Government Payments & Subsidies*	7.7	10.9	15.9	16.6	14.3	13.1	13.8	12.9	12.9	12.9	12.5
Total Farm Cash Receipts	156.2	151.7	152.6	153.5	152.1	153.9	156.0	155.8	157.2	158.8	160.9
Net Farm Income	30.4	26.5	35.2	33.8	27.9	26.2	27.5	24.6	25.1	23.2	22.2

* Five program crops (Corn, wheat, soybeans, rice, and cotton)

Table 3 Values for Policy Parameters for Corn, Wheat and Soybeans

CORN	Price Support Levels		Acreage Control Levels			
	Loan Rate	Target Price	ARP	Paid Land		CR
				Diversion Level	Rate	
	\$/bushel		% of base	\$/bushel (mil. acres)		
85/ 86	2.55	3.03	10.0			
86/ 87	1.92	3.03	17.5	2.5	.73	1.0
87/ 88	1.82	3.03	20.0	15.0	2.00	2.2
88/ 89	1.73	2.97	20.0	15.0	2.00	3.3
89/ 90	1.65	2.88	20.0	15.0	2.00	5.2
90/ 91	1.56	2.74	20.0	15.0	2.00	7.0
91/ 92	1.49	2.74	20.0	10.0	2.00	7.0
92/ 93	1.50	2.74	20.0	10.0	2.00	7.0
93/ 94	1.68	2.74	20.0	10.0	2.00	7.0
94/ 95	1.65	2.74	20.0	10.0	2.00	7.0
95/ 96	1.69	2.74	20.0	10.0	2.00	7.0

WHEAT	Loan Rate	Target Price	ARP	Paid Land		CR
				Diversion Level	Rate	
		\$/bushel		% of base	\$/bushel (mil. acres)	
85/ 86	3.30	4.38	20.0	10.0	2.70	
86/ 87	2.40	4.38	22.5	10.0	1.10	2.8
87/ 88	2.28	4.38	27.5	7.5	3.00	8.2
88/ 89	2.17	4.29	30.0	10.0	3.00	13.7
89/ 90	2.06	4.16	30.0	10.0	3.00	18.9
90/ 91	1.95	3.95	25.0	.0	.00	24.1
91/ 92	2.32	3.95	20.0	.0	.00	24.1
92/ 93	2.20	3.95	20.0	.0	.00	24.1
93/ 94	2.22	3.95	20.0	.0	.00	24.1
94/ 95	2.28	3.95	15.0	.0	.00	24.1
95/ 96	2.33	3.95	15.0	.0	.00	24.1

SOYBEANS	Loan Rate	CR
	(\$/bu)	(mil. acres)
85/ 86	5.02	
86/ 87	4.77	1.2
87/ 88	4.77	2.5
88/ 89	4.53	3.7
89/ 90	4.50	5.9
90/ 91	4.50	8.1
91/ 92	4.50	8.1
92/ 93	4.50	8.1
93/ 94	4.50	8.1
94/ 95	4.50	8.1
95/ 96	4.50	8.1

the projected years 1990-1995 are listed in Table 2.

The major conclusions drawn by FAPRI regarding the national farm economy are;

- 1) A drop in annual farm prices for wheat soybeans, corn, rice, and cotton. Lows are reached by 1989/90 but do not again reach 1985/86 price levels.
- 2) High program participation rates as net returns are much higher when compared to nonparticipation, mainly due to historically large deficiency payments.
- 3) Exports of feed grains, food grains and oilseeds respond much slower to lower price levels than anticipated during the drafting of FSA85.
- 4) Continued high excess capacity potential.
- 5) Livestock sector benefits from lower prices initially, but major adjustments are required as feed prices return to long term equilibrium.
- 6) Historically large direct government payments to producers during 1986 - 1989. Gradual decline in payments for the five major crops (corn, wheat, soybeans, rice, cotton) from \$14.3 billion in 1989 to \$12.5 billion in 1994.
- 7) Net Farm income rises sharply to 35.2 billion dollars in 1987 and then declines to 22.2 billion dollars by 1995. Table 3 outlines FAPRI's projections for Farm Income and Government Payments under the Food Security Act of 1985.

Summary of Estimated Impacts on Minnesota Agriculture

MNAG projections of Minnesota crops, livestock and farm income under the policies of the FSA85 over the ten year period, 1986-1995, are presented and discussed in this section.

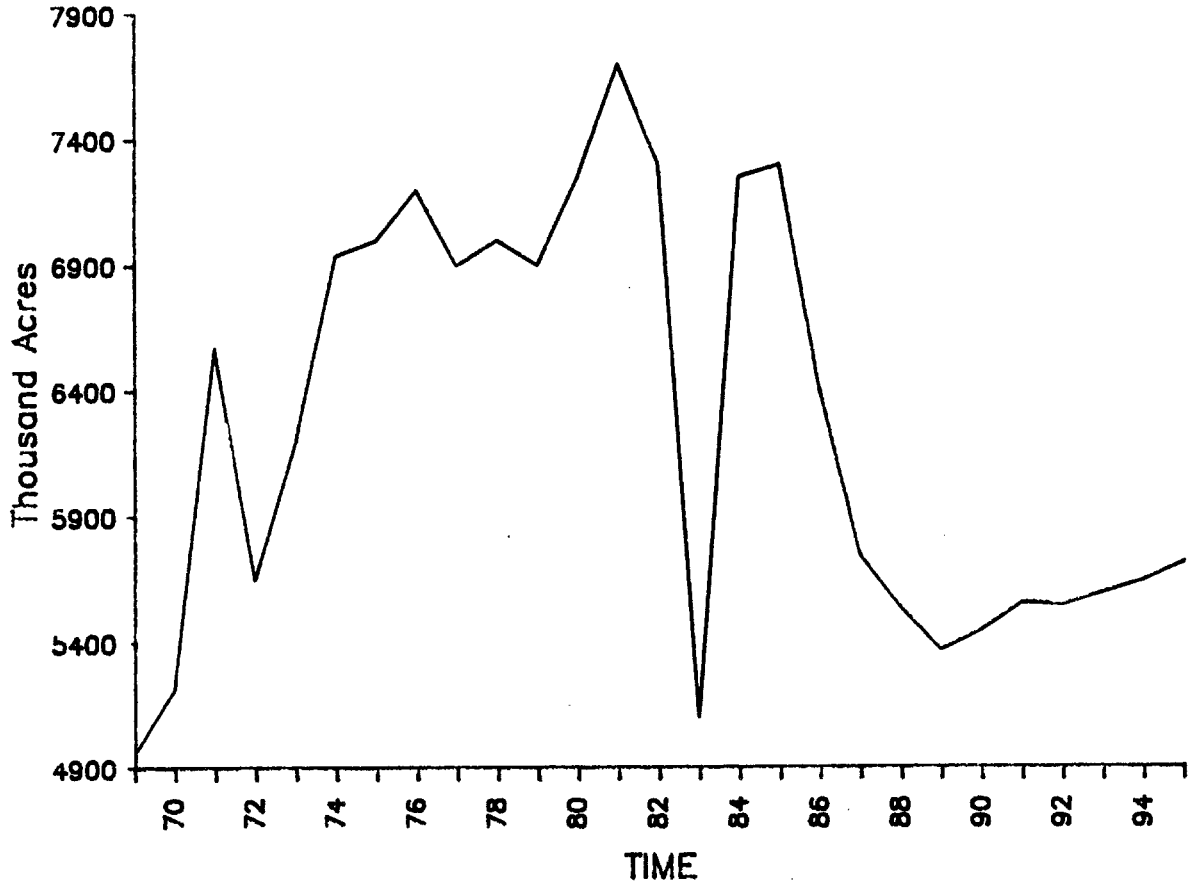
Corn

In response to the acreage reduction, paid land diversion and conservation reserve provisions of the FSA85, MNAG projects planted corn acreage in Minnesota to drop sharply to just above the 1983 PIK level of

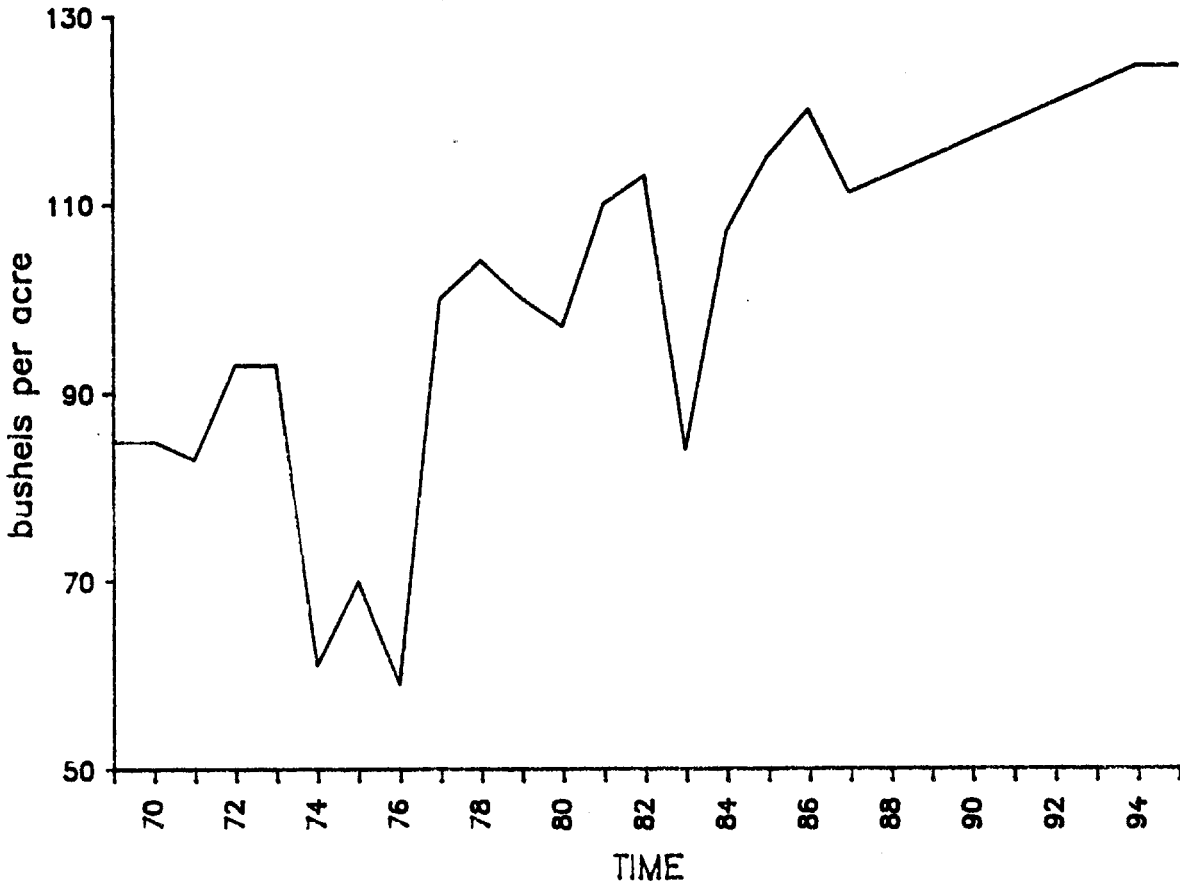
Table 4 MNRS Projections for Minnesota Corn under the FAPRI 10-year analysis of the FSR95

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
Acres Planted (1,000 acres)	5,100	7,250	7,300	6,400	5,743	5,536	5,369	5,448	5,556	5,546	5,595	5,645	5,714
Acres Harvested (1,000 acres)	4,370	6,440	6,500	5,787	5,150	4,994	4,871	4,955	5,065	5,075	5,134	5,194	5,252
Yield (bushels)	84.00	107.00	115.00	120.00	111.08	113.01	114.94	116.87	118.60	120.73	122.66	124.59	124.59
Production (million bu.)	367.08	689.08	747.50	694.47	572.06	564.35	559.86	579.13	601.70	612.66	629.76	647.10	654.34
Farm Price (dollars)	3.05	2.50	2.24	1.56	1.57	1.59	1.66	1.61	1.77	1.65	2.06	2.00	1.90

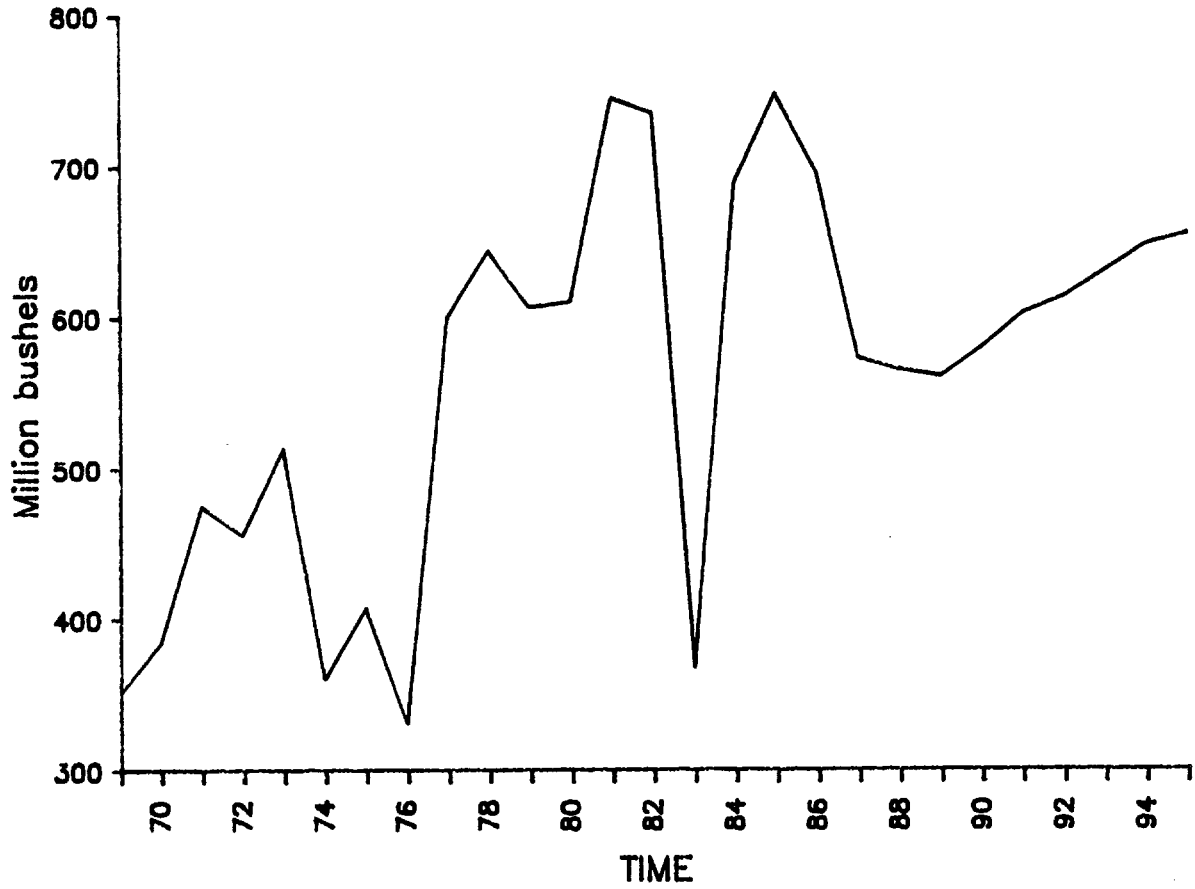
MINNESOTA CORN ACREAGE PLANTED



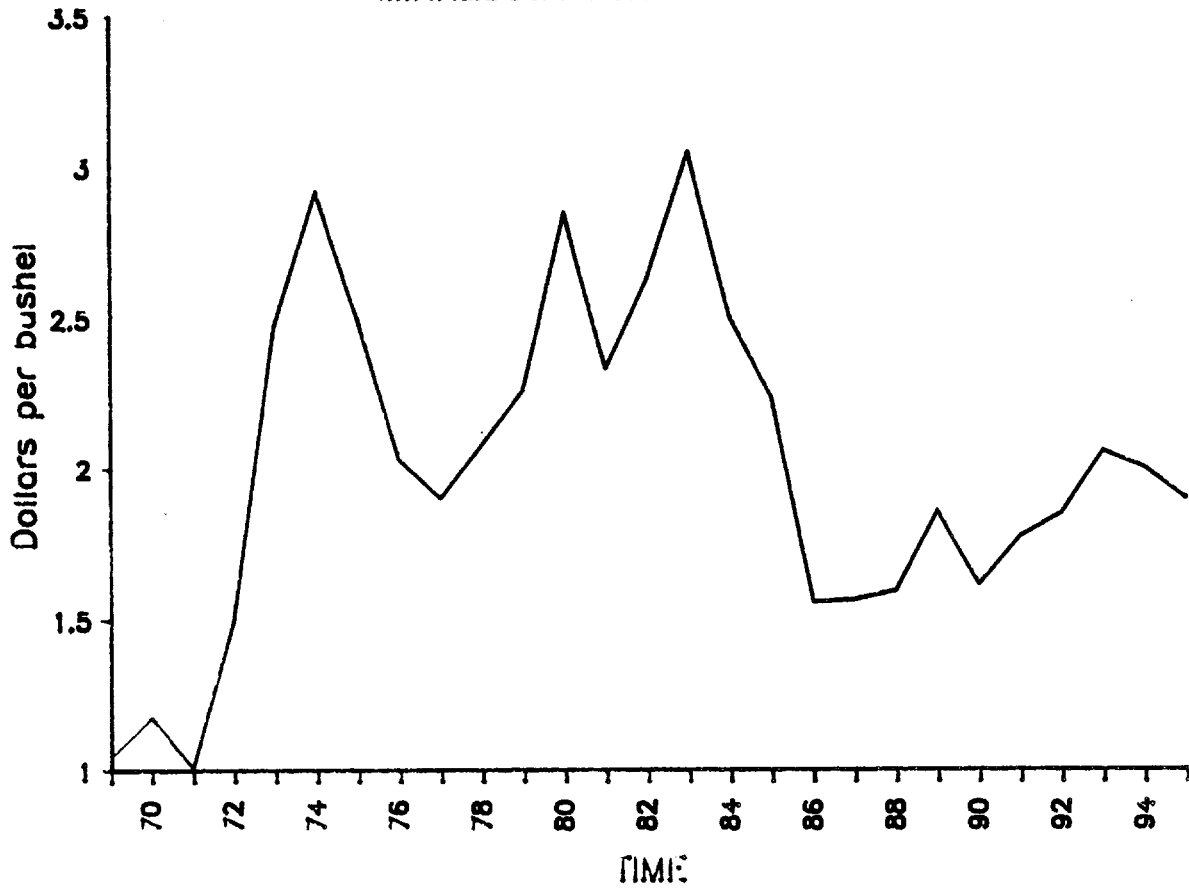
MINNESOTA CORN YIELD



MINNESOTA CORN PRODUCTION



MINNESOTA CORN FARM PRICE



5.1 million acres. By 1989/90 planted acreage drops to less than 5.4 million acres before rising slowly to just over 5.7 million acres by the end of the period, a level over 20 percent below the 1974 through 1985 average. The gradual rise in the years following FSA85 is based on reduced program participation levels as loan and target prices drop and Minnesota annual average farm price rises. Under the assumption of normal weather, corn yields are projected to increase an average of two bushels a year from 111 bu. per acre in 1987/88 to over 124 bu. per acre by 1995/96. These increasing yields reduce the effect of decreased acreage on total Minnesota corn production. Though total production falls sharply during the first years under the FSA85, (a 25 percent decrease from 1985/86 levels to 1988/89) total production recovers to the average levels of the late 1970's and early 1980's (not including 1983) by the final years of the period . Large carryover stocks at the national level, combined with declining loan support levels have pushed Minnesota farm prices for corn to the lowest levels since the early 1970's. Corn prices are expected to remain nearly 40 percent below 1984/85 levels through 1988/89 before rising slowly toward the end of the projection period. Still, Minnesota corn prices are not projected to recover to the average levels of 1975 to 1985.

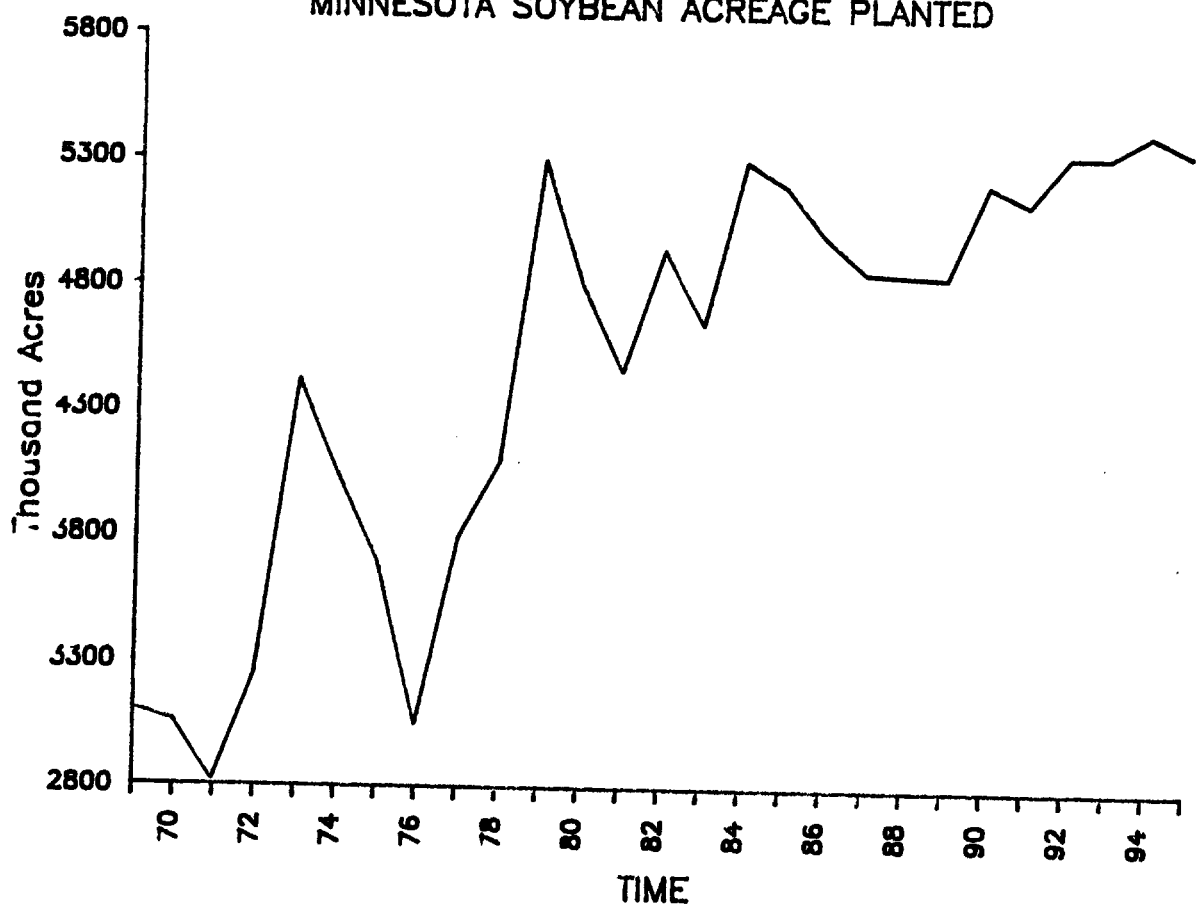
Soybeans

The FSA85 makes no provisions for target price or deficiency payments for soybean producers, however a loan and purchase program provides a price floor and is available to all producers with no ARP requirement. Planted acreage of soybeans in Minnesota is projected to decline by less

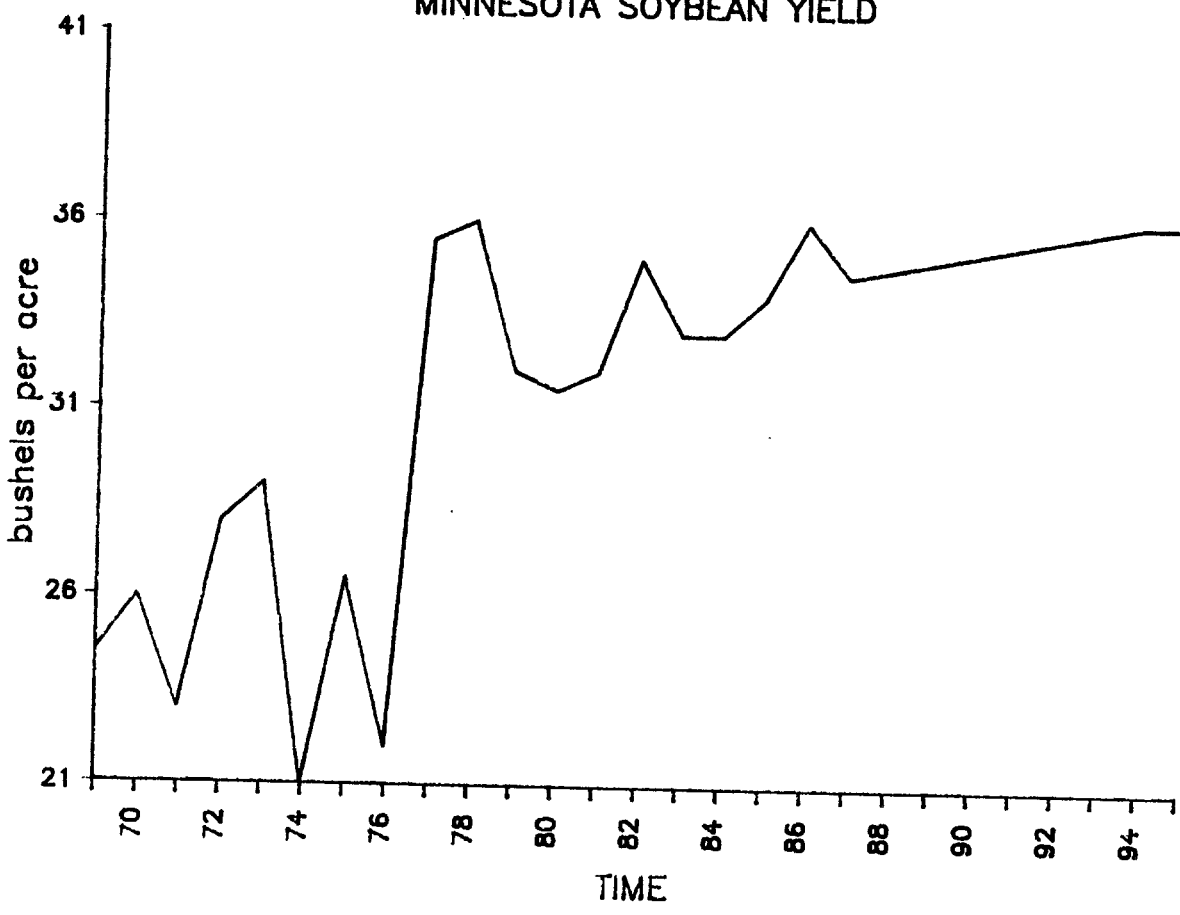
Table 5 MW96 Projections for Minnesota Soybeans under the FAPRI 10-year analysis of the FSR85

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
Acreage Planted (1,000 acres)	4,650	5,300	5,200	5,000	4,861	4,852	4,845	5,216	5,139	5,334	5,334	5,425	5,347
Acreage Harvested (1,000 acres)	4,600	5,240	5,140	4,850	4,768	4,779	4,772	5,137	5,062	5,253	5,254	5,344	5,266
Yield (bushels)	33.00	33.00	34.00	36.00	34.59	34.80	35.00	35.21	35.42	35.63	35.84	36.05	36.05
Production (million bu.)	151.80	172.92	174.76	174.60	165.60	166.29	167.05	180.90	179.30	187.17	188.30	192.62	189.84
Farm Price (dollars per bu.)	7.64	5.65	5.22	4.60	4.58	4.60	5.83	5.51	5.89	5.61	5.72	5.24	5.22

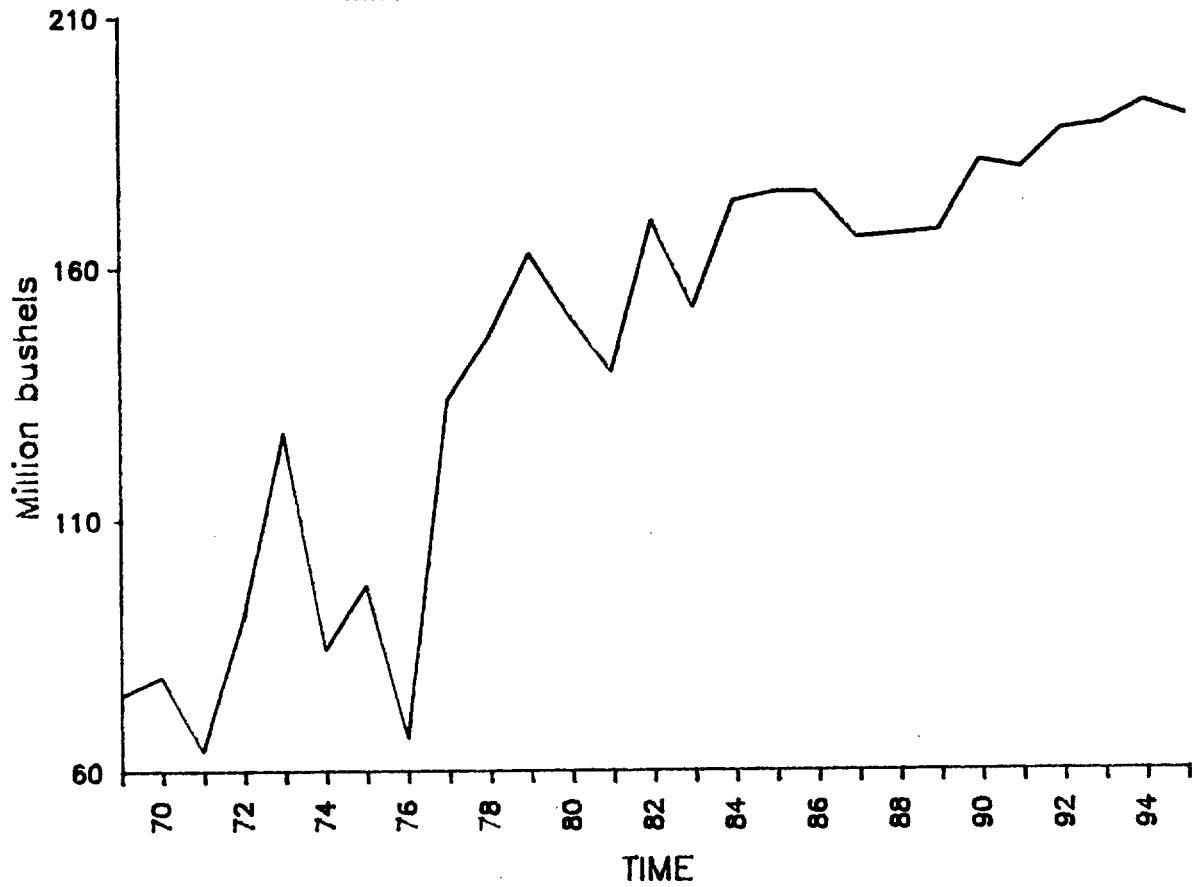
MINNESOTA SOYBEAN ACREAGE PLANTED



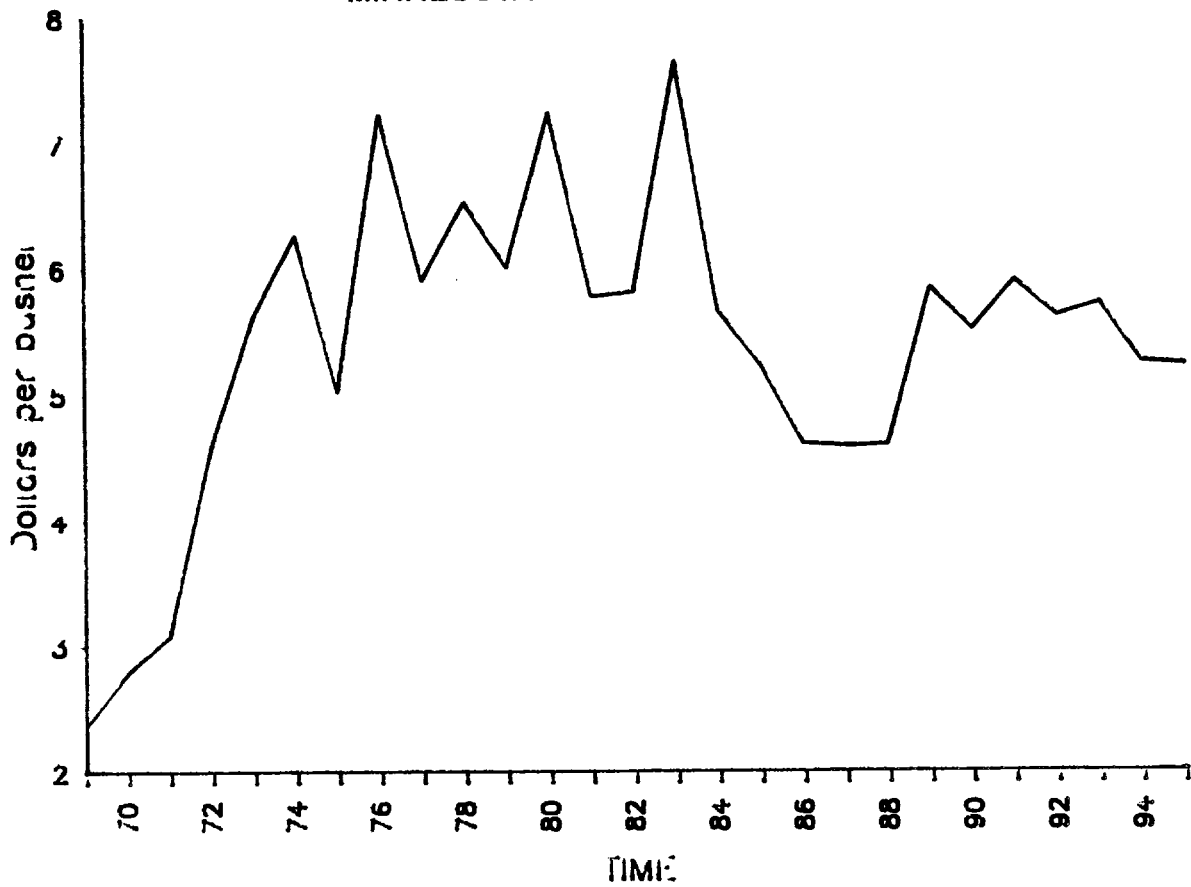
MINNESOTA SOYBEAN YIELD



MINNESOTA SOYBEAN PRODUCTION



MINNESOTA SOYBEAN FARM PRICE



than 5 percent during the first years of the FSA85 from 5.2 million acres in 1985 to a low of 4.85 million acres in 1987/88. Acreage increases steadily, eventually surpassing the levels of the late 1970's and early 1980's by the end of the period. Under normal weather conditions, soybean yields are projected by MNAG to increase by about .2 bushels per acre per year. These assumed increases in average yields combined with nearly steady acreage levels, push total Minnesota soybean production to record levels, just under 200 million bushels, by 1995/96. Minnesota farm soybean price has dropped sharply under the FSA85, to the lowest levels since the early 1970's. Prices remain at these levels over the next two years but recover by 1989/90 and stabilize in a range between \$5 and \$6 dollars per bushel.

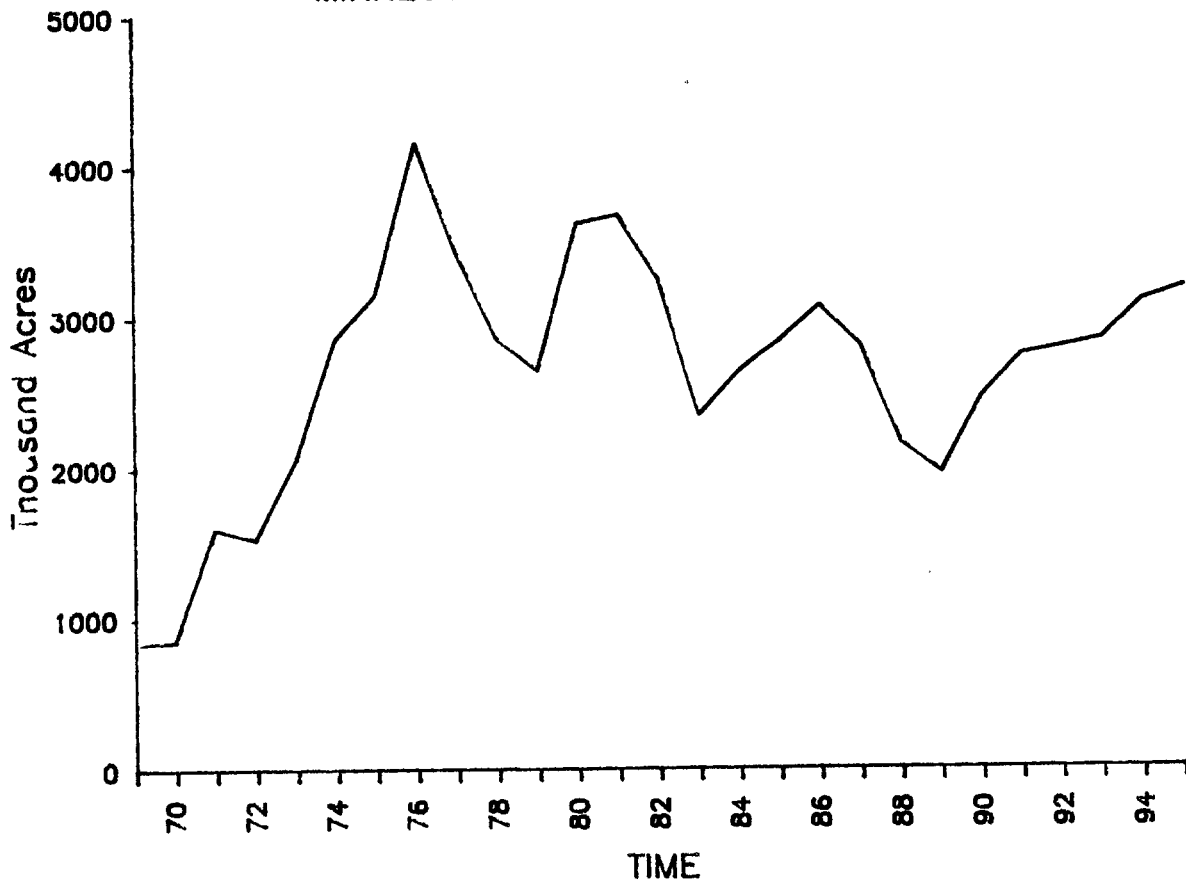
Wheat

The acreage reduction, paid land diversion and conservation reserve provisions of FSA85 were designed to quickly and dramatically reduce planted acreage of wheat in an effort to control rapidly increasing supplies. ARP requirements and PLD options are initially set at higher levels than for corn. Nationally by the end of 1989, 18.9 million acres of the national wheat base is projected to be removed into the CRP, while program participation requires 30 percent ARP with 10 percent optional PLD. Under these provisions, MNAG projects planted wheat acreage in Minnesota to fall from 1986 levels by more than 30 percent, to less than 2 million acres by 1989/90. As ARP requirements are reduced and PLD options are discontinued in the later years, planted acreage recovers to near the average levels of the past 10 years. Again, assuming average weather

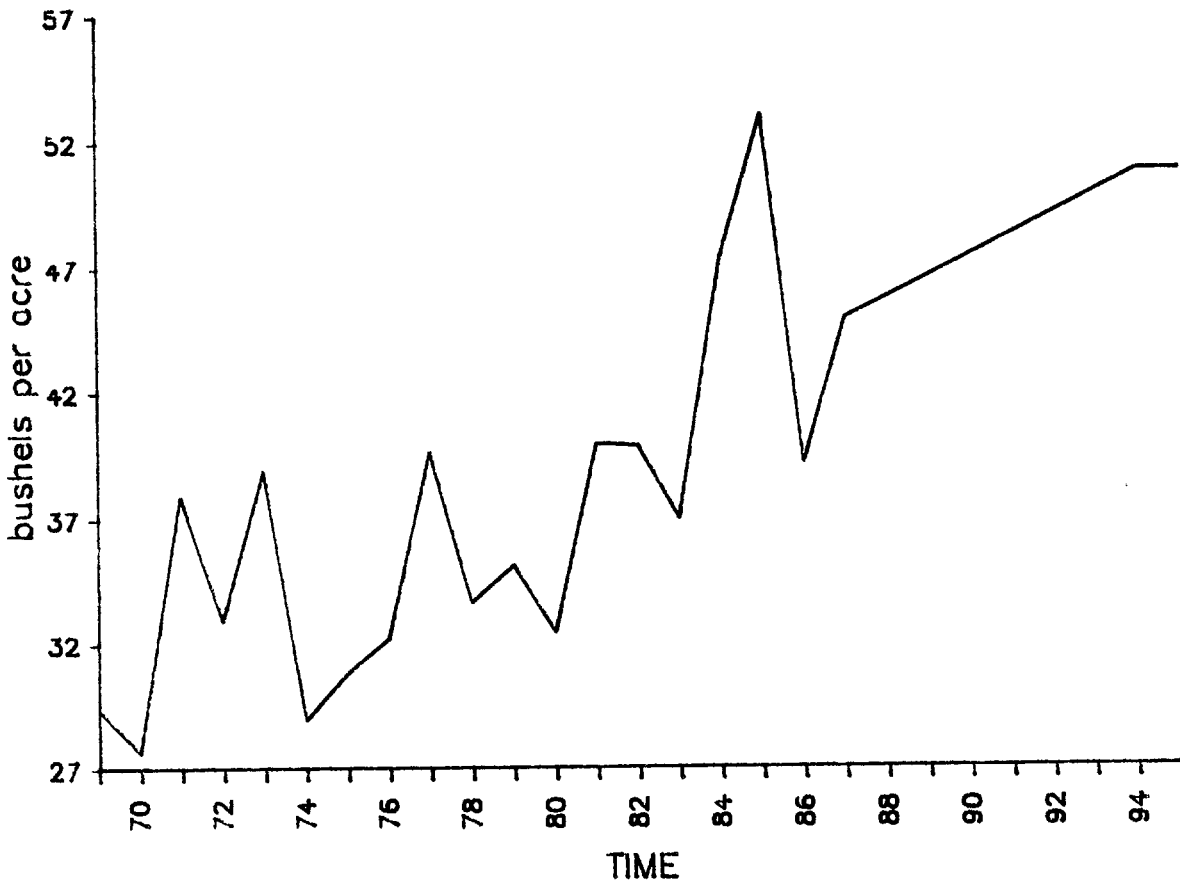
Table 6 MNRG Projections for Minnesota Wheat under the FRPRI 10-year analysis of the FSA85

Variable/Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
Acres Planted (1,000 acres)	2,340	2,635	2,835	3,065	2,805	2,153	1,955	2,461	2,738	2,788	2,843	3,093	3,180
Acres Harvested (1,000 acres)	2,140	2,553	2,563	2,964	2,698	2,077	1,890	2,370	2,634	2,681	2,734	2,971	3,054
Yield (bushels)	36.90	47.30	53.00	39.10	44.88	45.72	46.56	47.40	48.23	49.07	49.91	50.75	50.75
Production (million bu.)	78.96	120.71	135.84	115.89	121.07	94.98	87.98	112.34	127.05	131.56	136.46	150.81	155.01
Farm Price (dollars per bu.)	3.82	3.43	3.19	2.45	2.44	2.43	2.69	2.78	2.91	2.83	2.96	2.96	3.01

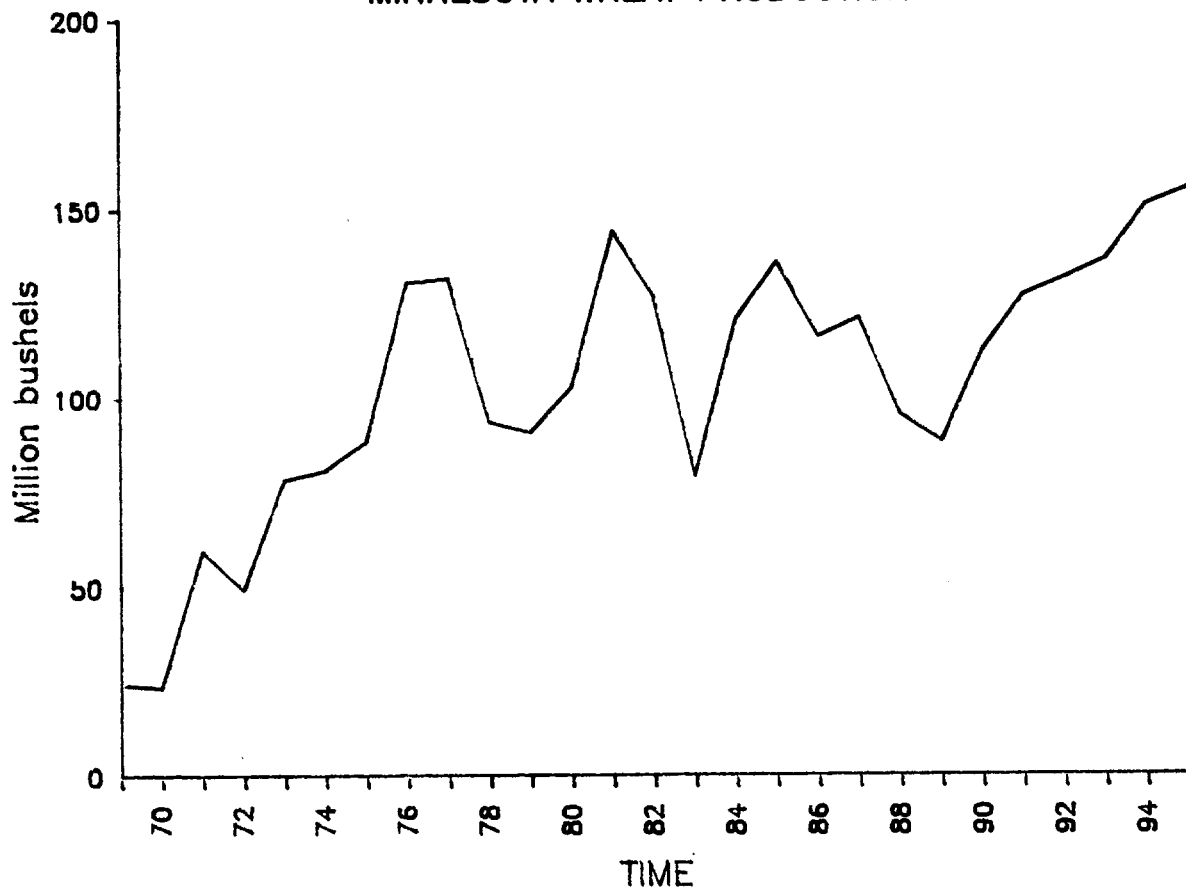
MINNESOTA WHEAT ACREAGE PLANTED



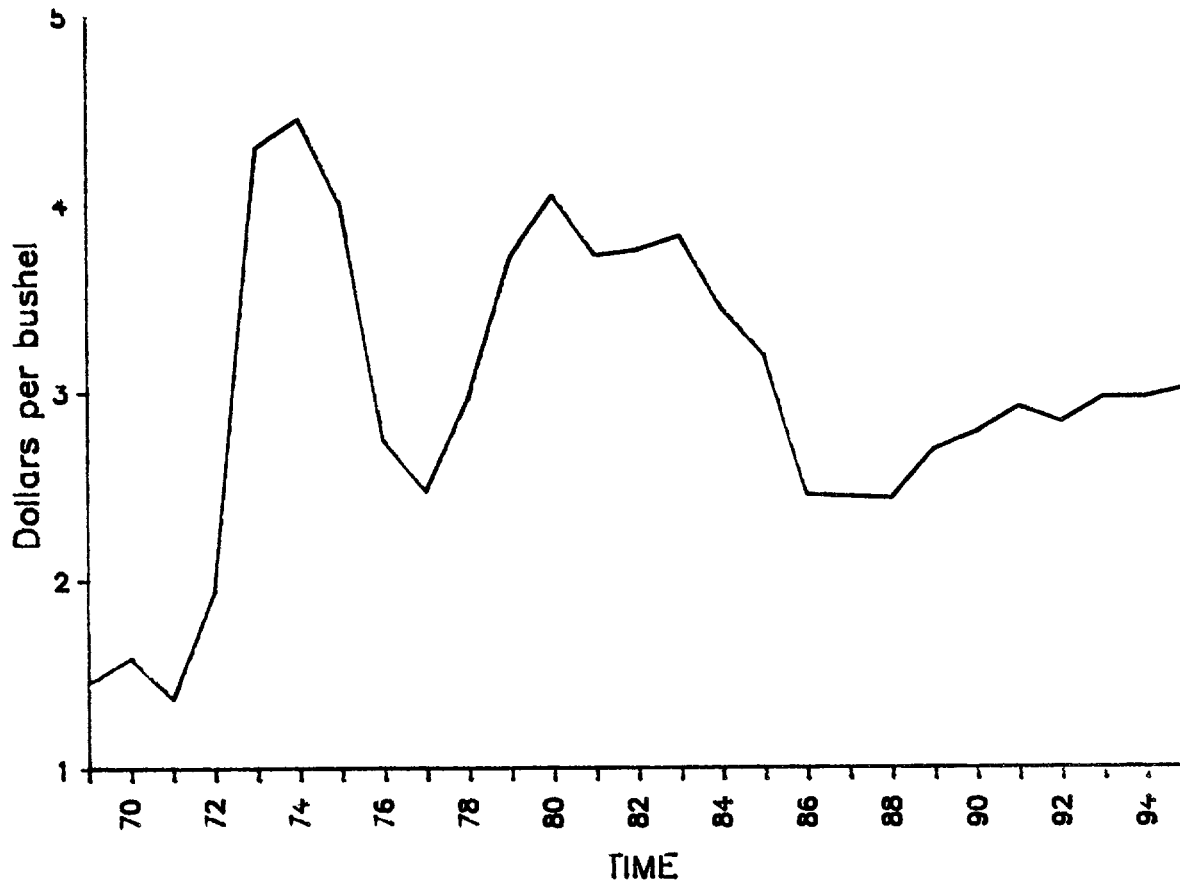
MINNESOTA WHEAT YIELD



MINNESOTA WHEAT PRODUCTION



MINNESOTA WHEAT FARM PRICE



conditions during the 10 year period, the MNAG model projects average wheat yields in Minnesota to increase about three quarters of a bushel per year, from just under 45 bu./acre in 1987/88 to about 51 bu./acre in 1995/96. As a result, though total wheat production is cut sharply by 1989/90, increasing acreage and higher yields during the 1990's, lead to potential record production levels by the end of the period. As in the case of corn, Minnesota average wheat price is pressured by large national supplies and sharply lowered support loan levels. Minnesota wheat price is projected to be near 1986 levels, just under \$2.50 per bushel, through 1988/89 before rising steadily to near \$3.00 by the final years of the period. Under the conditions assumed for the model, wheat prices are not expected to return to the levels of the late 1970's and early 1980's during the next 10 years.

Livestock

With the exception of dairy, the FSA85 does not directly address agriculture's livestock sector. However lower prices for the major feed crops reduce feed costs for livestock producers, resulting in sharp changes in the relative prices of crops and livestock. While feedgrain and soybean meal prices fall by as much as 40 percent, livestock prices are expected to remain steady to strong. Thus, in the first years of the evaluation, the FSA85 provides livestock producers an opportunity for higher profit margins than had been available. If in response, national livestock inventories are dramatically increased, returns to livestock producers will be pressured as prices fall and feed prices begin to rise

in the years following the FSA85.

Minnesota cattle and calves marketings are expected to fluctuate around 1.8 billion pounds during the 10 year outlook period. Marketings at these levels would be within the range of marketings in the past 25 years. Prices, however, are expected to rise during the early years under FSA85, as breeding herd inventories are built up. Minnesota's average annual price for cattle is projected to rise nearly 20 percent from 1986 levels by 1989, before falling steadily from 1989 to 1995 to near \$44 per cwt. At \$44/cwt, prices would be at the lowest level since 1977.

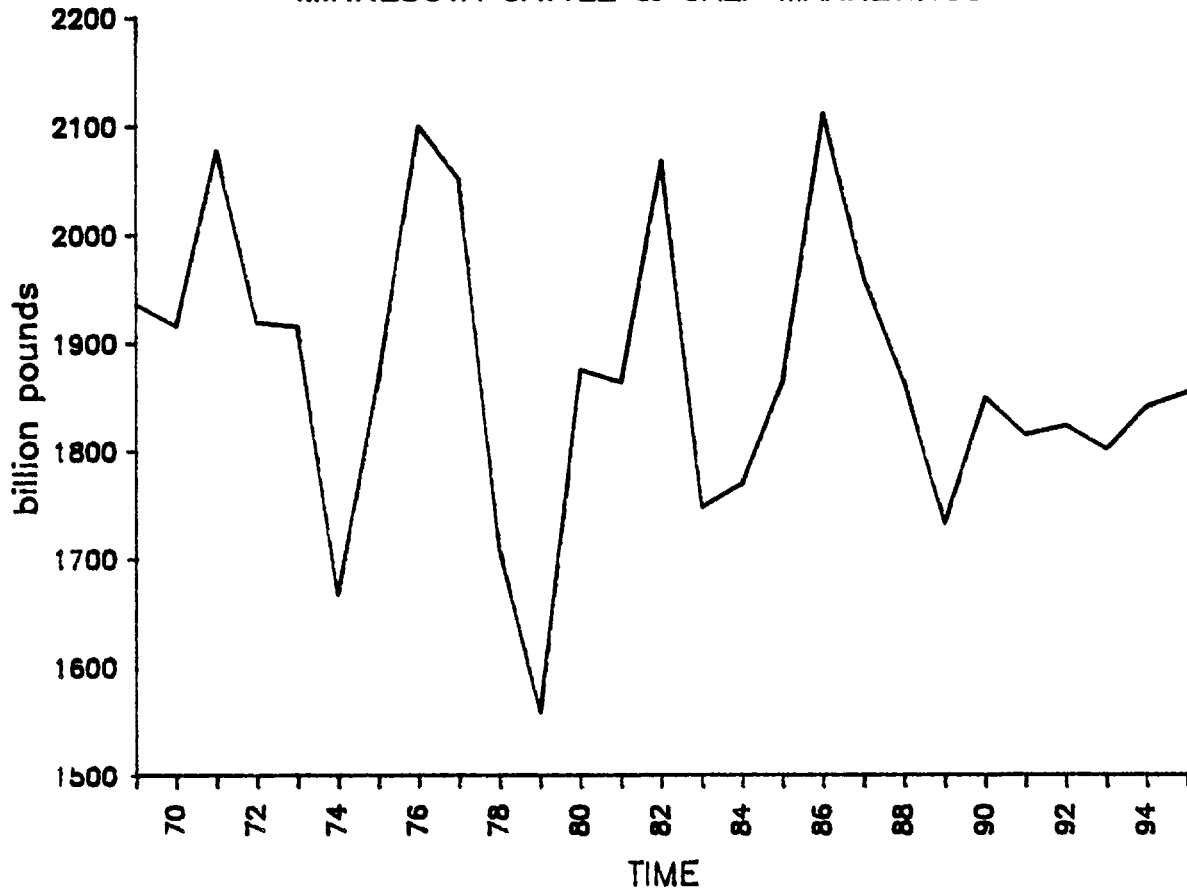
Hog marketings in Minnesota are projected to rise between 15 and 20 percent from 1985 to 1990. Hog marketings are expected to be more responsive to price changes and as hog prices fall, marketings fluctuate between present levels and the high levels reached by the end of FSA85. Wide swings in average farm prices are expected over the next ten years as producers attempt to adjust to lower feed costs relative to market price. After rising to over \$50 per cwt. in 1987, average hog prices decline by over 40 percent by 1990 as prices fall below \$30 per cwt for the first time since 1971. Prices are expected to recover to near \$45 per cwt. by 1993 before beginning another decline in the final two years.

Under the FSA85, the dairy industry's excess supply capacity was addressed through the Dairy Termination Program. The program was designed to reduce the national herd by offering cash payments to dairy producers who contracted to quit and remain out of dairying for 5 years. Herds from farms whose bids were accepted were then sold for slaughter. Nationally, bids from nearly 14,000 dairy producers were accepted, representing 8.7 percent of total U.S. milk production. Projections for

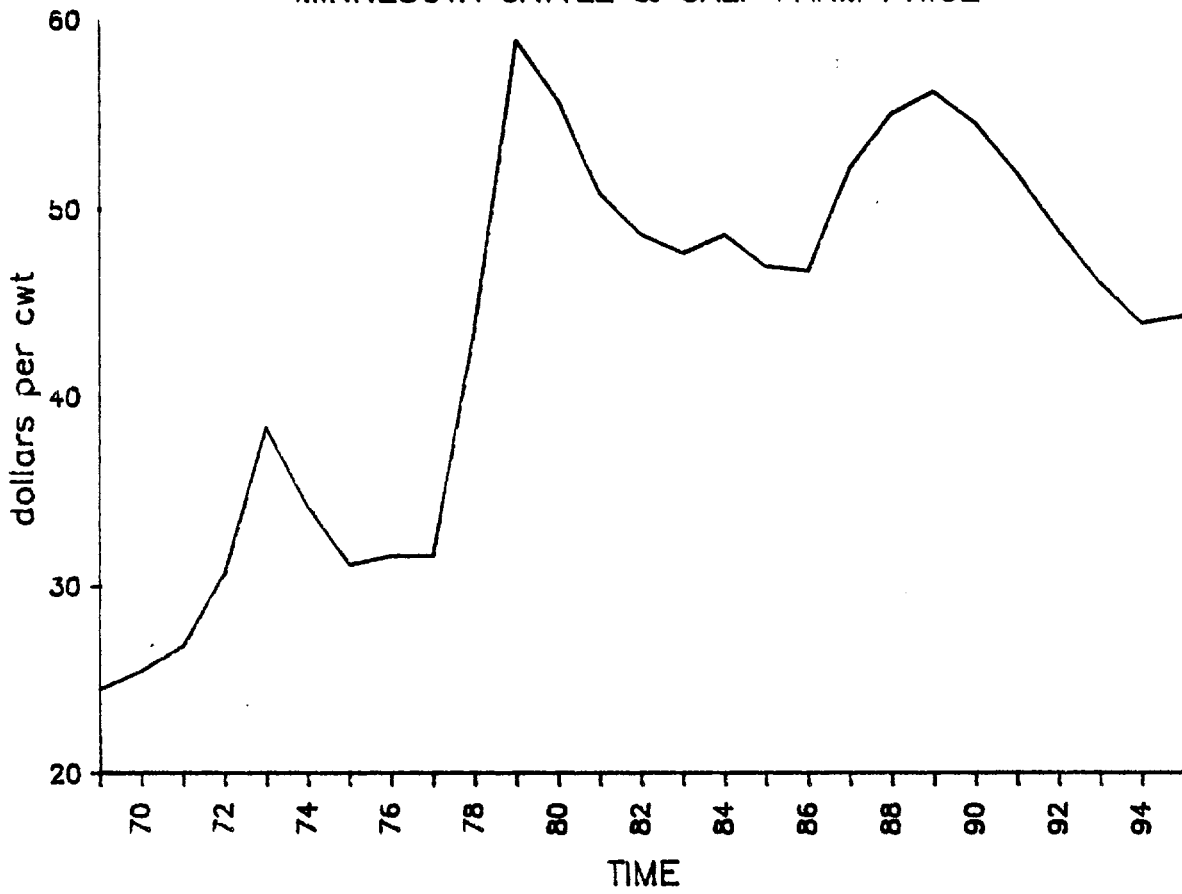
Table 7 MNRG Projections for Minnesota Livestock under the FAPRI 10-year analysis of the FSR85

Variable/Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Cattle and Calves													
Marketings (million lbs.)	1,747	1,770	1,865	2,112	1,959	1,863	1,731	1,849	1,815	1,823	1,801	1,841	1,854
Annual average price (dollars per cwt)	47.60	48.60	46.87	46.63	52.16	55.03	56.18	54.51	51.88	48.78	45.99	43.84	44.24
Hogs													
Marketings (million lbs.)	1,564	1,511	1,522	1,538	1,511	1,618	1,706	1,787	1,643	1,553	1,536	1,648	1,729
Annual average price (dollars per cwt)	46.90	47.50	43.47	49.88	50.37	43.63	35.81	28.97	33.86	38.74	45.10	42.65	39.72
Milk													
Production (million lbs.)	10,913	10,331	10,242	10,519	10,251	10,447	10,541	10,592	10,678	10,801	10,935	11,022	11,032
Annual average price (dollars per cwt)	12.94	12.82	11.82	11.91	11.59	9.86	9.35	8.84	8.32	8.32	8.32	8.32	8.32

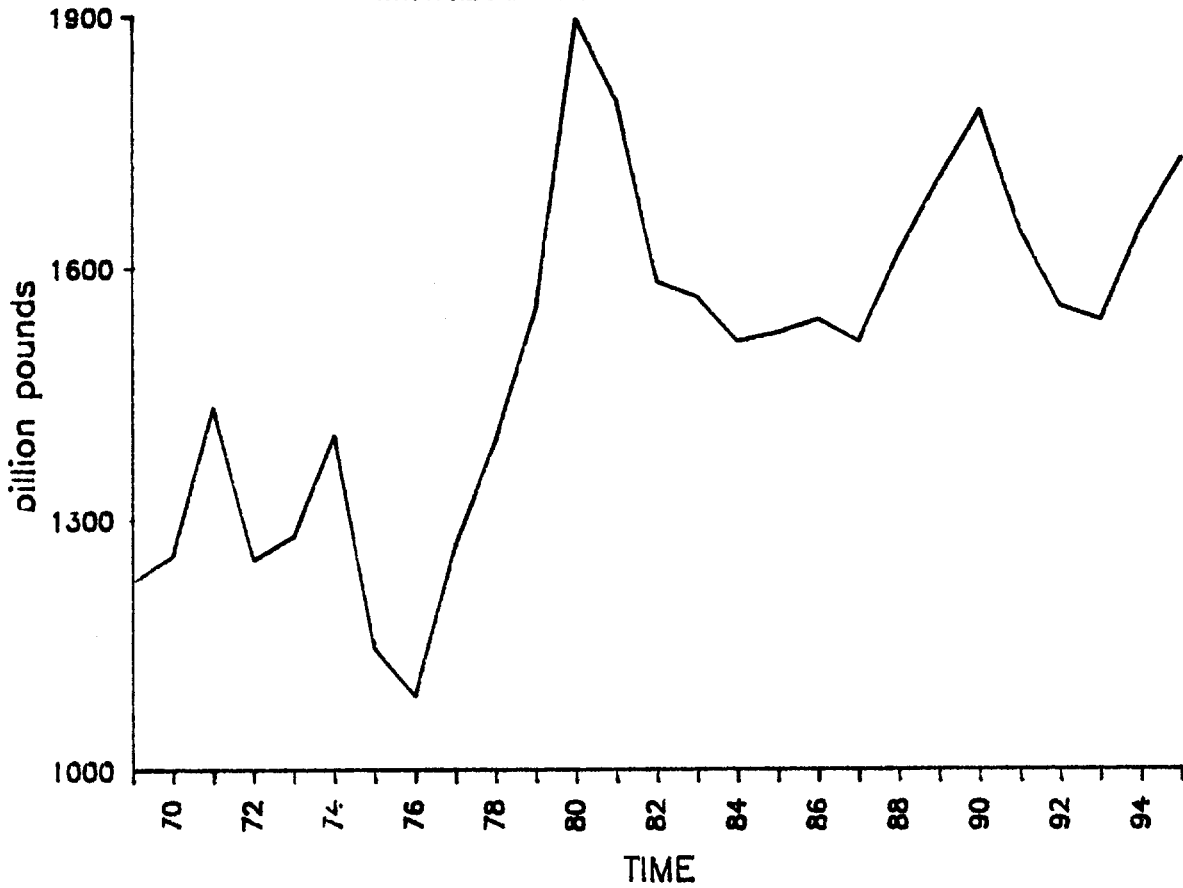
MINNESOTA CATTLE & CALF MARKETINGS



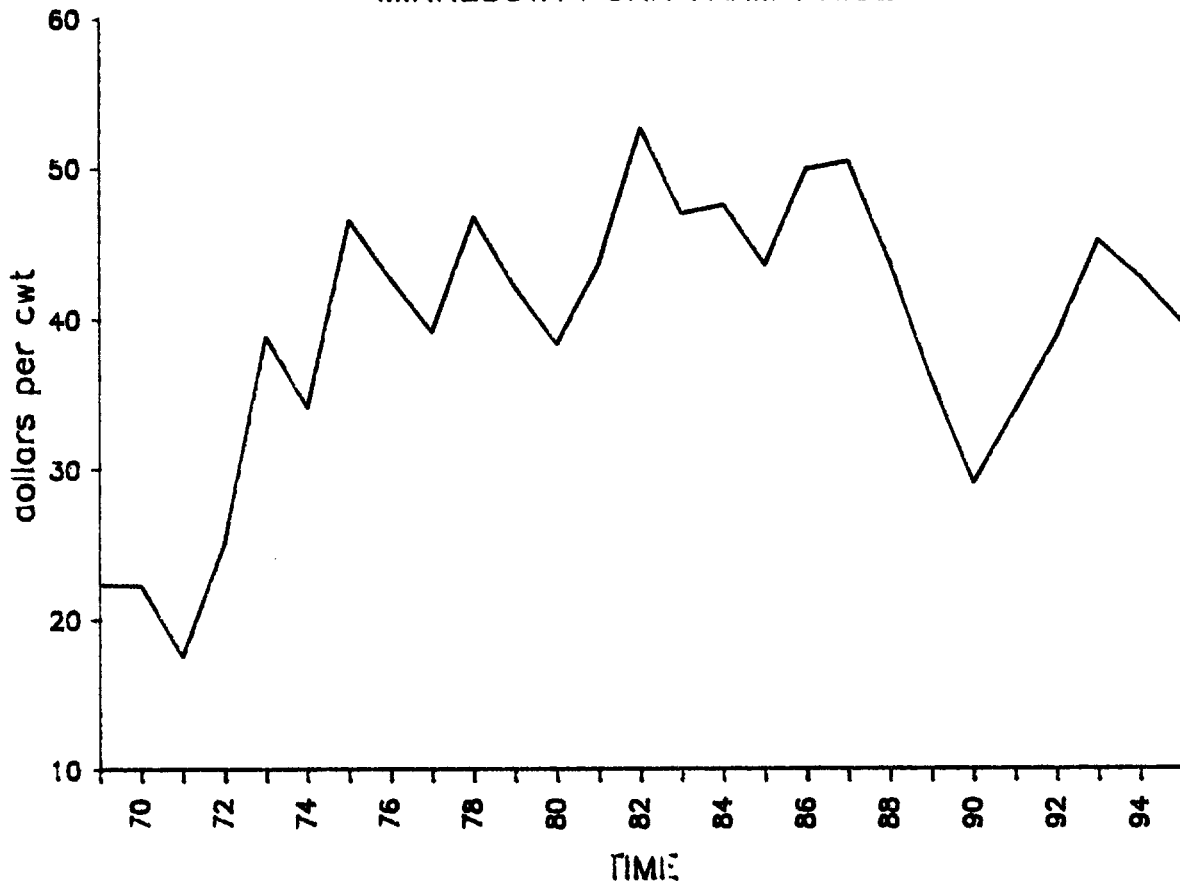
MINNESOTA CATTLE & CALF FARM PRICE



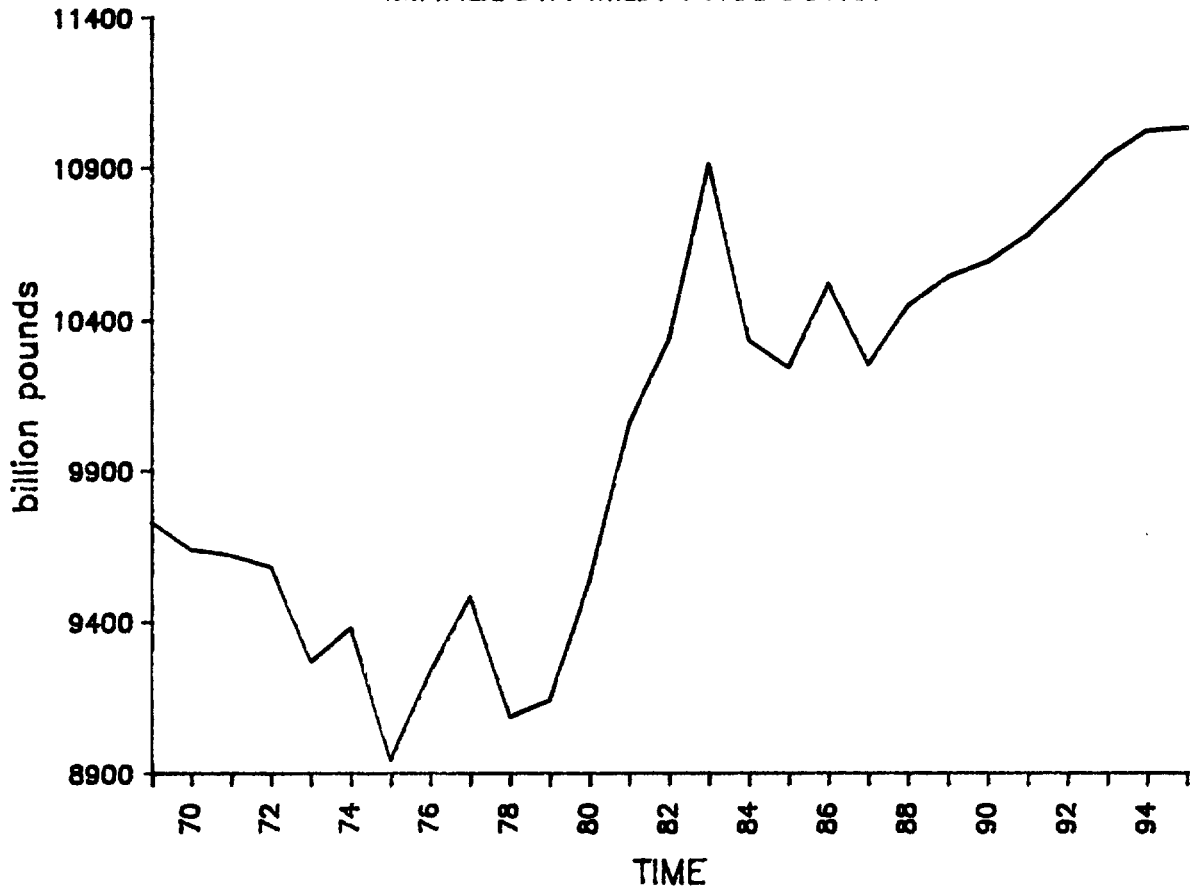
MINNESOTA PORK MARKETINGS



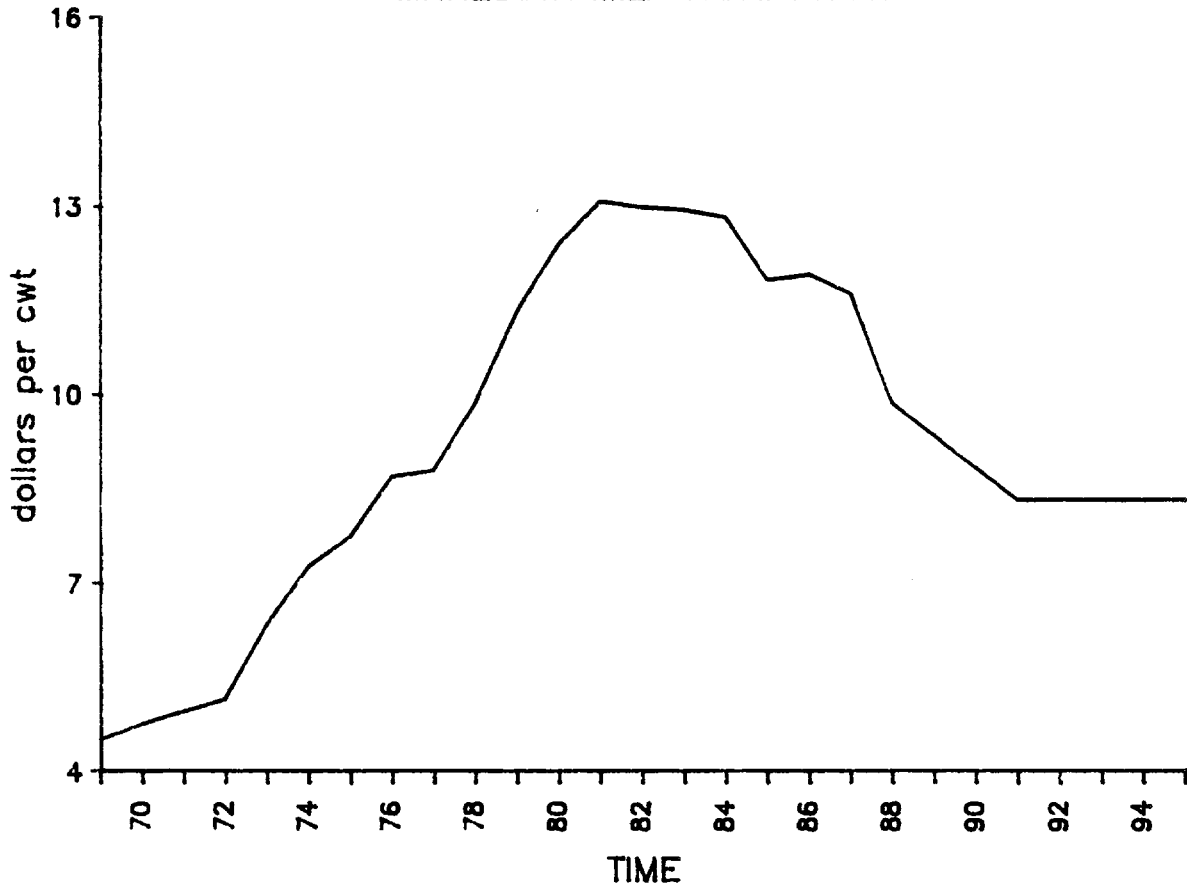
MINNESOTA PORK FARM PRICE



MINNESOTA MILK PRODUCTION



MINNESOTA MILK FARM PRICE



increased productivity levels in the dairy sector counteract the herd reduction provisions and as a result total milk production levels increase over the period, both nationally and in Minnesota. Milk production in Minnesota remains at historically high levels throughout the 10 years and by the end of the period exceeds the record levels of 1983. As a result, Minnesota dairy product prices are projected to decline as government purchases remain higher than the 5 billion pound level nationally, until the end of the period. An automatic reduction in the support price of \$0.50/cwt. as mandated under the FSA85 each year that government purchases exceed this level, reduces the average price in Minnesota from \$11.91/cwt in 1986 to \$8.32/cwt by 1991.

Minnesota's Farm Income

Two measures of Minnesota's farm sector income are projected by MNAG. Net farm income as measured by MNAG is an estimate of the net value of agricultural production for a given year. It is derived from a given year's production and average price levels and does not take into account whether commodities are actually sold, fed, placed under CCC loan or held in inventory. It is calculated here as the difference between estimated gross farm income (cash receipts + government payments + non-farm income + other farm income) and total farm production expenses. Net cash income provides a better measure of farmers' disposable income as it measures the amount of total income that farmers receive from the farm operation in a given year. It is calculated as the difference between gross cash income and the cash expenses incurred during the year (cash expenses do not include capital consumption expenses such as depreciation). Realized net

cash income is an estimate of the income available to farmers for cash expenses, retiring long and short term loans and purchasing capital assets such as land, machinery and facilities along with farm household expenses. In interpreting the MNAG projections for farm income it should be emphasized that realized net farm income equals the realized gross farm income less total production expenses and does not include the value of net changes in crop and livestock inventory. Net changes in inventory (not estimated by MNAG) plus realized net farm income equal Total Net Farm Income.

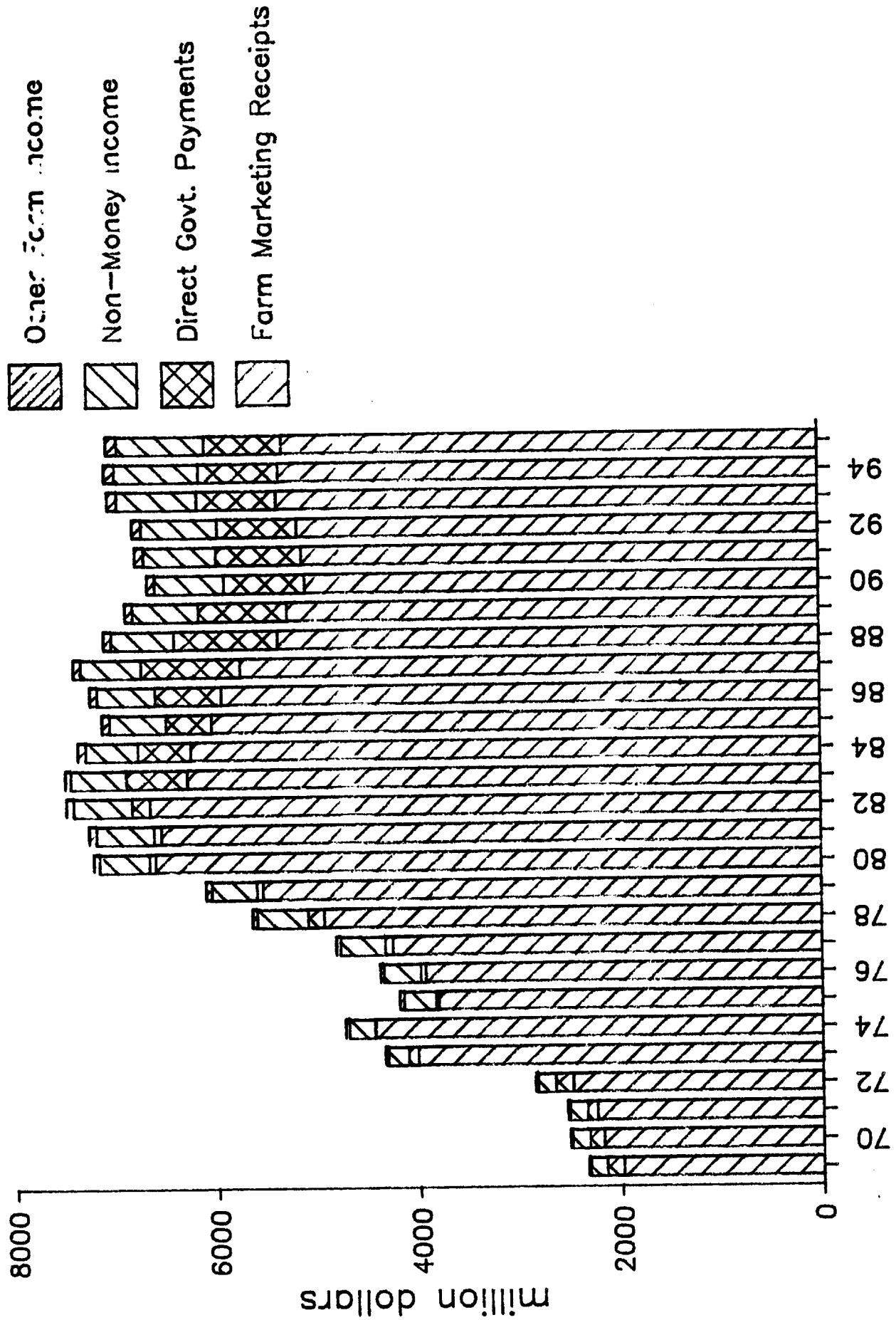
A major consideration in the development of FSA85 was to provide income support to the farm sector as U.S. agriculture was shifted away from government supported price levels to more market oriented world equilibrium price levels. For Minnesota, MNAG projections for farm sector income reveal that while Net Farm Income is protected during the life of the FSA85, this four year period is not sufficient for the transition to fully take place. Initially, supported by historically large government payments and the strength from the livestock sector, Minnesota farm income rises, remaining at or above the level of the early 1980's from 1986 to 1988. The failure of export markets to respond as hoped, continued excess supply capacity, and the reduction in government payments, coupled with production and price declines in the livestock sector after 1989 put a severe strain on Minnesota's farm sector.

Beginning in 1989 sharp drops in both realized net farm income and realized net cash income occur. By the end of the projection period, net farm income is expected to drop by 75 percent from its 1985 levels, to 244 million dollars. If actually reached, this would be the lowest Minnesota

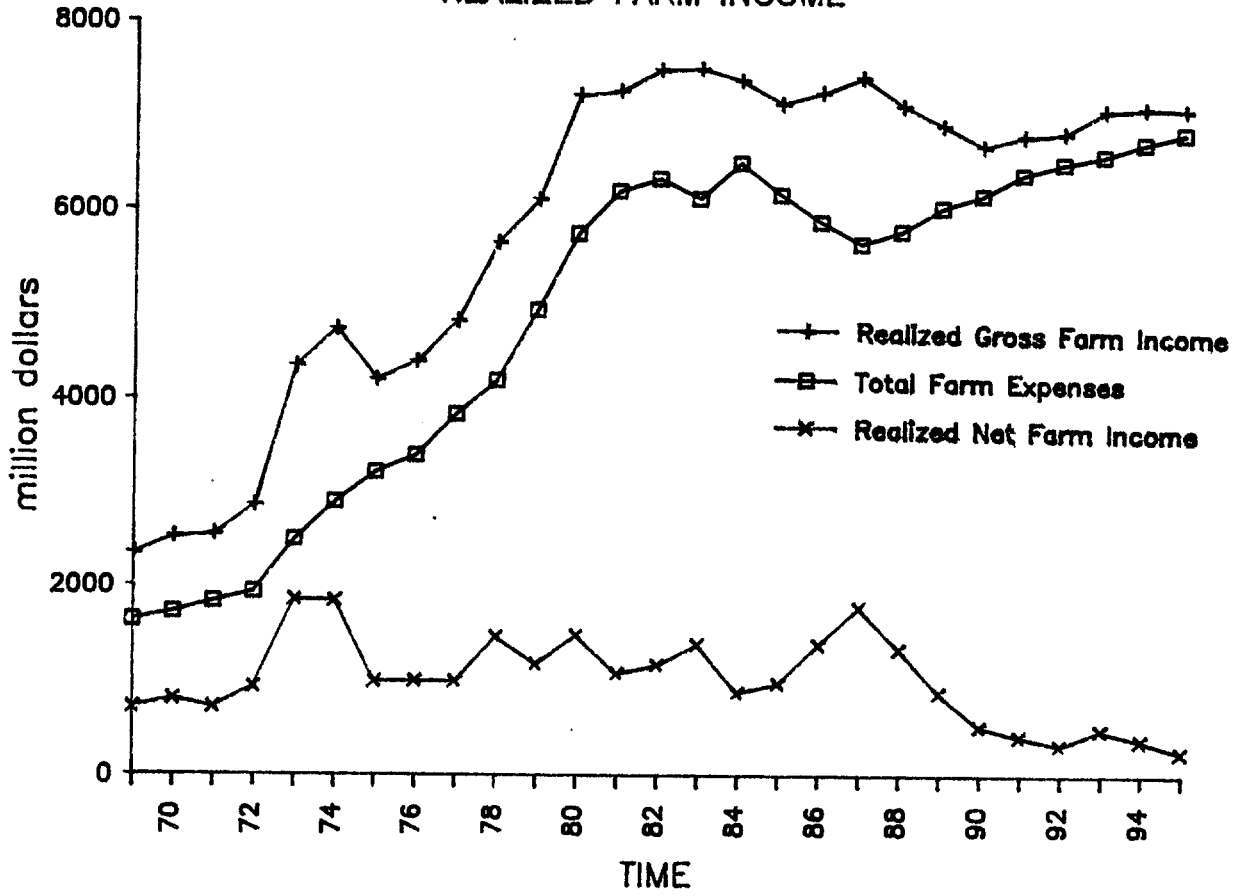
Table B MNRG Projections for Minnesota Farm Income under the FAPRI 10-year analysis of the FS985

Variable/Year	1983	1984	1985	1985	1987	1988	1989	1990	1991	1992	1993	1994	1995
-- Million Dollars --													
Total Farm Cash Receipts	6,472	6,242	6,033	5,933	5,745	5,370	5,275	5,096	5,128	5,171	5,374	5,352	5,317
Direct Government Payments	612	530	458	665	989	1,034	865	807	853	795	795	795	769
Non-Money Income	525	515	557	572	597	624	651	683	716	752	790	833	869
Other Farm Income	63	78	73	73	73	73	75	82	87	92	96	103	107
Realized Gross Farm Income	7,671	7,365	7,121	7,243	7,404	7,101	6,987	6,668	6,783	6,909	7,055	7,082	7,061
Farm Production Expenses	6,361	6,499	6,157	5,868	5,636	5,773	6,022	6,156	6,378	6,495	6,580	6,714	6,817
Realized Net Farm Income	1,291	866	964	1,375	1,768	1,328	866	512	406	314	475	368	244
Realized Net Cash Income	2,102	1,712	1,697	2,032	2,351	1,913	1,475	1,118	1,025	922	1,063	942	803

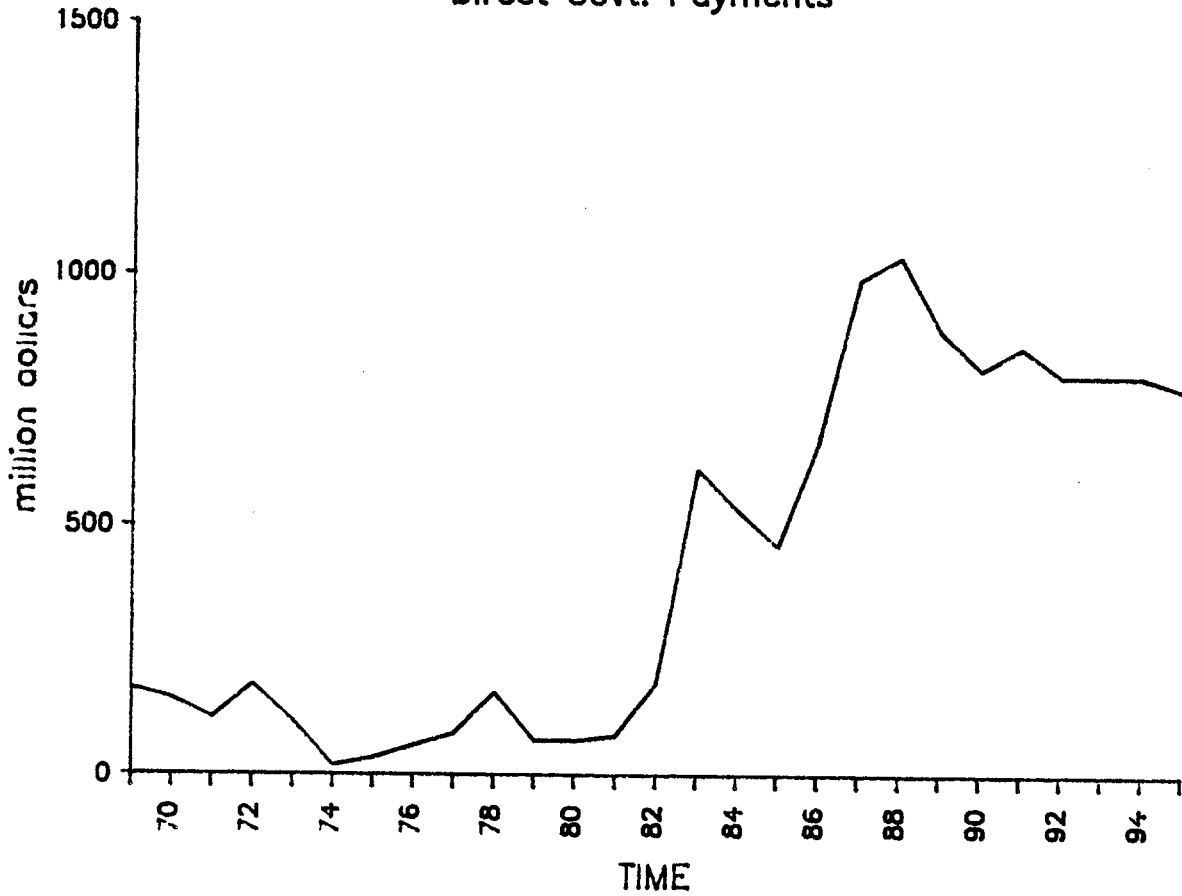
MINNESOTA FARM INCOME



REALIZED FARM INCOME



Direct Govt. Payments



farm income level in the past 40 years. Over the same period net cash income is projected to fall over 50 percent from its 1985 level to just over 800 million dollars.

Projections for Minnesota farm income are dependent upon the assumption that no major change in the major components of the farm sector take place. The projections are based on FAPRI projections made for corn, wheat and soybeans for the crops sector and cattle, hogs and dairy for the livestock sector. Strong shifts in the relative importance of other Minnesota farm production such as poultry, sugar beets or horticultural crops could lead to significantly different income estimates. In addition, MNAG net farm income projections are highly sensitive to the estimates of total farm production expenses used in the calculations. Based on projections by FAPRI for U.S. production expenses MNAG expects expenses to decline initially as planted acreage levels decrease and energy costs and feed costs decline. By the end of the projection period however, total Minnesota production expenses exceed the record levels of the early 1980's.

Summary and Conclusions

This analysis of the effects of the policies embodied in the FSA85 on Minnesota agriculture outlines significant changes taking place in this sector of the state economy. Initially, Minnesota crop prices are expected to drop significantly in response to supply conditions and lower loan support levels. Season average cash corn prices are projected to drop over 30 percent from 1984/85 levels by 1988/89. Wheat prices are

projected to drop nearly 30 percent and soybean prices by about 15 percent. Price levels are projected to rise in the final years of the period as supply and demand are brought closer into balance. Still, with the exception of soybeans, Minnesota crop prices are not expected to return to the average levels of the preceding ten years. The livestock sector, though initially benefitting from the lower feed costs, face much lower prices the final six years of the period as burdensome supplies develop in response. This combination of lower crop prices, reduced acreage and lower livestock prices following the FSA85 lead to cash marketing receipts falling by over 15 percent from 1985 to 1990, recovering only slightly by 1995.

Historically large direct government payments to Minnesota producers partially offset this drop in cash receipts. Large deficiency payments for corn and wheat producers, which are expected as cash prices and loan rates fall while target prices are held near 1985 levels, will provide incentive for high participation rates in Minnesota. Direct government payments to Minnesota producers will rise to over one billion dollars by 1988, representing over 75 percent of Minnesota Realized net farm income for that year. As prices recover and target prices are reduced in the years following the FSA85, direct government payment levels fall to less than 800 million dollars by the end of the forecast period.

Despite these large government payment levels, Minnesota realized net farm and realized net cash income are projected to decline sharply in the years following FSA85. Though net farm income remains above the level of 1985 under the FSA85, as production expenses increase and direct government payments decrease faster than total farm cash receipts

increase, realized net farm income decreases rapidly to levels nearly 75 percent below 1985 by the end of the period. Realized net cash income also declines sharply in the final years of the period to levels 50 percent below 1985. Using net farm and net cash income as measures of Minnesota's farm sector economic performance, it appears that though the FSA85 provides support during the years that it is in effect the sector will not be able to maintain current income levels as government support is withdrawn.

This study is intended to serve as a basis for discussing the transition and longer run effects of the FSA85. Calculations using the MNAG model are projections relying on the assumptions made concerning future trends in the world and national economic and policy conditions. They are not predictions about what will actually occur. Abrupt changes in any of these underlying forces or other non-economic factors may significantly affect the projections and analysis of this report. In addition, while providing insights regarding future agricultural production and price levels the MNAG income projections fall short of measuring the full financial condition of the sector. Estimates of changes in asset values in real estate, machinery, and facilities, as well as total debt levels are beyond the scope of this analysis, but should be considered in an evaluation of Minnesota's agricultural economy.