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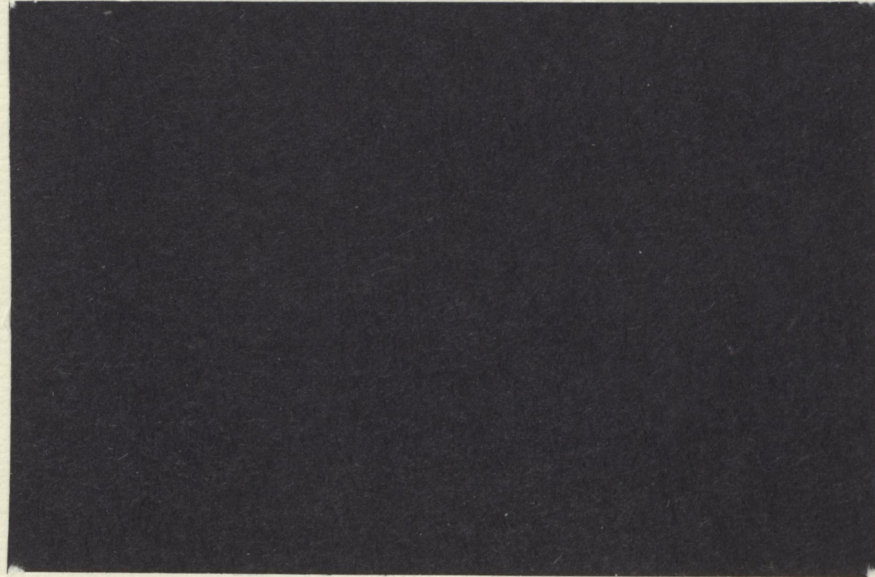
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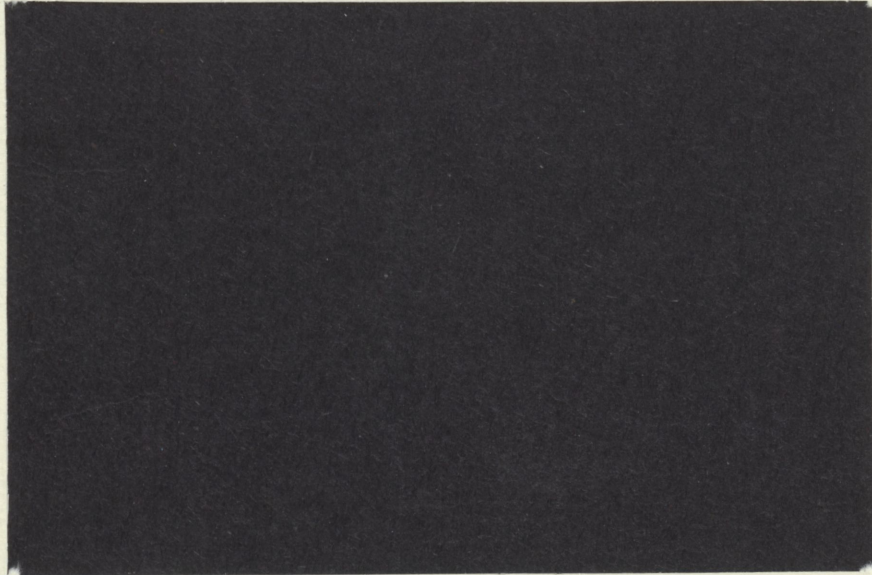
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Center for National Food and Agricultural Policy
Department of Agricultural Economics
University of Missouri-Columbia
Columbia, Missouri 65211
314-882-3576

Center for Trade and Agricultural Policy
Department of Economics
Iowa State University
Ames, Iowa 50011
515-294-7518



U.S. AGRICULTURE AND FARM
FINANCIAL CONDITIONS
TO 1989-90 UNDER
ALTERNATIVE POLICIES

FAPRI #2-85

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by

S. R. Johnson
Iowa State University

William H. Meyers
Iowa State University

Abner W. Womack
University of Missouri-Columbia

Robert E. Young
University of Missouri-Columbia

and

Robert W. Jolly
Iowa State University

Testimony presented by S. R. Johnson and W. H. Meyers to the
House Committee on Banking, Finance, and Urban Affairs

U.S. House of Representatives

U.S. Agriculture and Farm Financial Conditions to 1989-90 Under Alternative Policies

I. Introduction

An increasing amount of evidence indicates that the financial condition of U.S. agriculture is weak and deteriorating. This condition will be influenced in the future by agricultural policies of the U.S. government, external factors over which those in agriculture can exercise no control, and finally, the current situation, which of course is a function of actions by government, decisions of farmers, and past external conditions. This presentation evaluates the present situation for U.S. agriculture and how it is likely to be affected by government policy decisions about farm legislation taken during the current year. In addition, it examines domestic and foreign economic conditions which impact on agriculture. This evaluation is based on an information system developed and maintained by the Food and Agricultural Policy Research Institute (FAPRI) with centers at Iowa State University and the University of Missouri, Columbia.

This evaluation proceeds from a set of assumed general economic conditions, domestic and foreign, to determine equilibrium prices and production levels for major crop and livestock commodities. Two agricultural policy options are integrated into the analysis. The first, termed a "baseline," represents a continuation of the current farm programs. The second, termed a "market option," is characterized by a removal of target prices, a rolling average loan rate, and a moving acreage base. Although not identical, this second program is similar to the one introduced recently by the Administration.

With prices and production levels in major agricultural commodity markets determined under these two government policy options, industry performance is evaluated. Then, using these industry indicators and prices, a financial analysis is developed. This financial analysis is based on survey information for farms and essentially projects balance sheets of representative farms utilizing prices for the period 1985 through 1990.

2. Evaluation Process

The evaluation of the financial situation for U.S. agriculture involves the FAPRI econometric modelling system, a Farm Journal survey from January 1985, an Iowa farm survey of October 1984, an ERS/USDA Survey, and a farm financial model for integrating the prices determined from the econometric system and the survey information.

Specific steps in the evaluation process are:

- Detailing the economic assumptions for the domestic and foreign economies.
- Determining foreign production and consumption levels, exports supply, and import demand.
- Specifying U.S. domestic agricultural policy options.
- Determining U.S. production, consumption, and average annual prices for major crop and livestock markets based on policy assumptions and domestic economic conditions.
- Determining of U.S. export supply and demand.
- Aligning domestic and foreign markets to establish price, consumption, and production equilibria.
- Calculating farm income, government cost, and other industry variables.
- Developing balance sheet information based on Farm Journal and Iowa survey data.
- Analyzing with farm financial models the impact of alternative price projections.
- Assessing the financial condition of U.S. agriculture under the policy options.

It is important to recognize and emphasize that the agricultural market, sector, and financial analyses are conditioned on a set of assumptions for the domestic economy and for foreign economies. These assumptions have to do largely with exchange rates, interest rates, real rates per capita income growth, technological progress, and government programs for agriculture in other countries. Of these assumptions, exchange rates, interest rates, and economic growth rates are those involving the most uncertainty. For this reason, and particularly with exchange rates, the projections are investigated for their sensitivity to recent changes in these assumptions. This is especially important for the evaluation exercise, given the recent information on agricultural exports.

3. Farm Policy Options

The two U.S. farm policy options integrated into our evaluation of the financial situation for U.S. agriculture are, as indicated earlier, a baseline or slightly modified continuation of the 1981 Farm Bill and a market option, which would essentially take the U.S. government out of agriculture beginning with the 1985-86 crop year. Details for these options are specified in FAPRI Report #1-85. Implementing these options over the period to 1989-90 involved a number of specializing assumptions. The nature of these specializing assumptions is suggested by the following summaries.

Baseline

This policy through 1989-90 requires parameters for program operation on loan and target rates, PL-480 shipments, government stocks, and acreage control instruments. The following criteria have been used in establishing the program parameters for the baseline:

- Loan rates and target price minimums set at 1984-85 levels.
- Upward adjustment in loan and target prices to reflect five-year moving average from price with high-low prices removed for feedgrains, wheat, and rice.
- Cotton loan rate set at the lower of 85 percent of the preceding three-year average domestic price or 90 percent of the average price in northern Europe with a minimum of 55 cents a pound.
- Soybean loan established at 75 percent of the simple average of prices received by farmers over the preceding five marketing years--excluding the high and low years--with a minimum level of \$5.02 per bushel.
- Target prices at a constant percentage of loan rates, 1984-85 as the base.
- Reserve programs for feedgrains and wheat with reserve entry price set at the loan rate. No limit on level of reserves. Exit at current levels, plus a provision to allow grain to stay in Farmer Held Reserve and not default to CCC.
- Paid diversion and reduced acreage control programs implemented if stocks exceed long-term average levels.
- Base acreage for all crops maintained at 1984-85 levels.

Market Option

This program maintains government support but is more sensitive to market prices. Loan rates are adjusted up or down according to a fixed percentage of a moving average market price. Price supports are assured by government acreage programs, when necessary; however, participants receive no deficiency or diversion payments. Government CCC stocks are released when market prices reach 105 percent of the floating loan rate for nonreserve commodities. Program participants have the option of defaulting CCC loans for bottom side price protection. Specific characteristics include:

- Loan rates for feedgrains, cotton, wheat, and rice set at 80 percent of the five-year average market price where maximum and minimum years have been removed.
- Base acreage used for loans and supply control based on five-year moving average of actual planted acres.
- Target prices eliminated.

4. Domestic and Foreign Assumptions and Projections

The evaluation of the two policy options by FAPRI is based on two major sources of domestic and foreign projections and assumptions. The domestic projections are from the Congressional Budget Office, July 1984. The exchange rate and foreign projections and assumptions are from Wharton Econometrics. For consistency, the Wharton projections and evaluations are also for July 1984. Subsequent to the evaluation, in February of 1985, the Congressional Budget Office and Wharton Econometrics released revised evaluations and projections. These revised evaluations and projections obviously influence the U.S. agricultural financial situation. For this reason, key elements of these revisions are included in a sensitivity analysis of our results.

Assumptions and projections:

The following key factors from these projections impact directly on agriculture:

- Federal government deficit moving from \$175 billion in FY84 to \$263 billion by FY89.
- Growth in the nominal GNP falling from a high of 11.5 percent in 1984 to a low of 7.9 percent in 1989. In real terms, the GNP

(in 1972 dollars) projected to grow at 7.3 percent in 1984, falling to 3.6 percent in 1985, and averaging about three percent per year through 1989.

- Civilian unemployment declining from 7.3 percent in 1984 to 6.3 percent in 1989.
- Three-month T-bill rates declining from 10 percent in 1984 to 9.7 percent in 1985, and holding at 8.9 percent through 1989.
- Dollar devaluing in 1985, through the remainder of the projection period. Total fall of 18 percent from current levels, with the biggest decline in 1986.

Foreign market conditions are reflected by the expected movement in real gross domestic products of major developed, underdeveloped, and centrally planned economies. The following average annual economic growth rates are projected:

- Japan, 3.6 percent.
- Europe, 2.0 percent.
- Developing countries, 3.9 percent.
- Centrally planned economies, 3.1 percent.

Changes in assumptions and projections:

Selected assumptions and projections based on the July forecast of the Congressional Budget Office and Wharton Econometrics are presented in Table 1. Although the list in Table 1 is not complete, it is intended to be suggestive of the conditions assumed and importantly, the revisions that have occurred over the six-month interval between July 1984 and February 1985. For the U.S. economy, the projections of real GNP, the GNP deflator, civilian unemployment, and the three-month treasury bill rate imply a slightly less optimistic scenario. The exception is for the three-month treasury bill rates which are projected on a lower path.

The major difference between the sets of projections is the exchange rate and the rates of growth for major exporters and importers of agricultural products. Rates of growth for two of these countries, Japan and Germany, are included in Table 1. The projections for changes

in real GNP in these countries from Wharton Econometrics show little change between July 1984 and February 1985. On the other hand, the exchange rate shows substantial alteration. In July of 1984, exchange rates were expected to be down during 1985; the present projection is for an increase. Because exchange rates greatly influence agricultural export markets, this condition has major implications for our results.

5. Policy Evaluations

Based on the July 1984 Congressional Budget Office and Wharton Econometrics projections and assumptions and initial conditions from the USDA, a policy evaluation with the FAPRI agricultural modelling system was conducted. Our review of this evaluation is not complete. Specifically, this presentation summarizes the evaluation for the analysis of the financial condition of U.S. agriculture over the period of 1985-90. The evaluations will be summarized by: 1) major commodity market, and 2) by industry and government performance variables. The evaluations will also be investigated for their sensitivity to changes in projected economic conditions and, particularly, the exchange rate. In addition, the sensitivity analysis will incorporate updated export information from the USDA.

Major agricultural commodity markets

Results of the analysis under the continuation of the 1981 Farm Policy or the baseline show little improvement in agricultural prices for the period 1984-85 through 1989-90. Price projections for major crops are summarized in Table 2. For example, corn prices are projected to be \$2.68 per bushel for the 1984-85 crop year increasing to \$2.92 per bushel during the 1989-90 crop year, largely related to income growth and a presumed reduction in exchange rates. Wheat prices are estimated at \$3.40 in 1984-85 moving to \$3.72 in 1989-90.

Under the market option, major changes occur for all commodities except wheat and rice in the 1986-87 crop year. Our FAPRI projections for the market option also are included in Table 2. Generally, under the market option, the price differentials from the baseline are on the order of 30 to 50 cents per bushel for corn, \$2 to \$3 per hundredweight for rice, 30 to 70 cents per bushel for soybeans, and 30 cents per bushel for wheat. Therefore, the exit of the U.S. government from the support of agricultural commodity prices results generally in a reduction in farm prices for the major crops for the years 1986-87 through 1989-90.

These reductions in farm prices for major crops have important implications for the livestock industry. Resulting price paths for

beef, pork, and chicken are shown in Table 3. Generally, projected livestock prices are lower under the market option than for the baseline option. This is due largely to the reduction in feedgrain prices. The livestock herd builds in response to these prices. This building of the livestock herd results in lower farm level prices for all livestock commodities, with the impact first evidenced for chicken and then for pork and beef. The lag in the impacts is related to the production response periods for these three livestock commodities. The point to be emphasized relative to the financial situation for U.S. agriculture is that not much strength is exhibited in livestock prices over the period of 1985-90.

The implications of these policies for the financial situation of U.S. agriculture can be best summarized by converting the prices for major crops to projected annual gross returns less variable cost. These figures for major crops are provided in Table 4. These figures show that the relatively modest price decreases, which occurred under the market policy option compared to the baseline, convert to important reductions in the levels of gross returns less variable costs for major crops. The most significant reductions are for rice, which has been supported considerably above current world market levels. However, there are important reductions as well for corn, soybeans, and wheat.

In general, these gross returns less variable costs projections, which are based on optimistic export market conditions, show that little improvement in the financial condition of U.S. agriculture can be expected through 1989-90 even for the baseline policy option. The market option projections are considerably below those for the baseline. Thus, the financial stress situation for U.S. agriculture appears to be headed for little relief based on a continuation of current farm programs or a change to a market-oriented farm program. The change to the market-oriented farm program could significantly aggravate the financial stress situation.

The impacts from these policy options extend beyond farmers. Obviously, acreages planted and the demand for agricultural inputs and agricultural output levels influence industries kindred to farming. Table 5 shows the projected planted acres for major crops. These projections show relatively similar acreage paths under the baseline and market options. Importantly, even under the market option, the results indicate that U.S. agriculture will still not be at full historical production potential. The 1984 ASCS base for program crops (corn, cotton, rice, soybeans, wheat) was approximately 194 million acres. The total planted acreage indicated in Table 5 is in the neighborhood of 181 million acres. The implication is continued excess capacity for the baseline and market level prices. Of course, substantial government support is required to maintain the baseline prices at production levels indicated in Table 5.

Industry or sector evaluations

The market level evaluation that was just provided can be translated to an estimate of annual farm income and government costs under the baseline and market options. Table 6 shows that the total cash receipts under the baseline and market options are relatively similar for 1985-1990. In general, total cash receipts are off \$3 billion to \$4 billion over the projection period when compared between the baseline and the market options. Direct government payments to farmers are also indicated in Table 6. These direct government payments range from nearly \$6 billion in 1986 to around \$3.3 billion in 1988 and 1989. The reductions in the level of direct government payments are conditioned on an improvement in foreign markets that is projected to occur because of growth levels in the foreign economies and an improved exchange rate situation for U.S. agriculture. There are no government payments under the market option.

The real story for the financial condition of U.S. agriculture is indicated in the bottom two rows of Table 6. Net farm income under the baseline is in the \$20-\$25 billion range through the period 1985 to 1990. The reduction in 1988 is related to intricate assumptions associated with the implementation of the baseline program. In general, net farm income for the baseline is near that for the current year through the evaluation period. For the market option, net farm income ranges from \$15 billion to \$18 billion--\$7 billion to \$10 billion less than under the baseline option. Thus, the implication for the market option, unless exchange rates improve considerably over projections of July 1984 (opposite of what has occurred), will be a significant reduction in net farm income.

A final note may be useful. The government payments in Table 6 are for feedgrains, foodgrains, and cotton. Total government costs under the baseline option, when dairy and various speciality crops are included as well as nonrecoverable government costs, will range from \$9 billion to \$12 billion. The important point is that under the baseline option, substantial government outlays are required to keep agriculture in a financial situation similar to that for the current year.

Sensitivity analysis

From Table 1, it is apparent that the economic projections have changed since July 1984, particularly for exchange rates. Also, based on more recent USDA information, exports, in part due to the higher than anticipated exchange rates over the balance of 1984, have not reached levels assumed for the analysis in Tables 2-6. Table 7 reflects the changes that have occurred in the 1984-85 outlook as a result of changes in supply and demand conditions and macroeconomic projections since July of 1984. In general, these results show that in spite of higher

supplies and lower prices, corn and soybean export estimates are lower. This is largely a consequence of the stronger dollar. Similarly, the updated 1985-86 projections (Table 8) show the effects of weaker market conditions. Corn, soybeans, and wheat export projections are reduced by the stronger dollar projections. Even a large increase in government stocks of corn is not sufficient to offset the larger supplies and lower exports, and the price projection is lower.

These projection changes all occur under the current farm program, but they create larger surplus problems to face the new Farm Bill that is ultimately adopted. Thus, it is safe to conclude that, given these conditions, the net farm income projections under the baseline and market options will be considerably lower than shown in Table 6. In short, on the basis of changed macroeconomic conditions, current and projected and adjustments in USDA commodity market balance sheets, the projections in Tables 2-6 are optimistic relative to their implications for the financial condition of U.S. agriculture.

6. Impact on Financial Markets

We have projected commodity supply, demand, and prices over the next five years and the probable consequences of different policy directions. Given the financial stress in U.S. agriculture today, it is important to address directly another question. How will the choice of farm policy influence the financial condition of U.S. farmers and lending agencies?

Recent studies from several sources, including the USDA and Iowa State University, estimate that under current conditions 50 to 65 percent of farm debt cannot be serviced. That is, neither principal nor interest can be paid in full. Work at Iowa State University has analyzed the impact of commodity policies on the size of the principal and interest shortfalls. Generally, the magnitude of price differences between the baseline and market programs is enough to reduce the cash flow rate of return by about two percent.

The figures in Table 9 provide estimates of the impact of a two percent drop in the cash flow rate of return, from six percent to four percent, on the ability of farmers to make principal and interest payments on farm debt each year. As the cash flow rate of return declines, more farmers find themselves unable to make interest and principal payments. These estimates suggest that if we moved from our current programs to the market option, interest payment shortfalls could more than double. That is, many more farmers would find themselves unable to make interest payments on their loans. The increase in the amount of principal that could not be serviced is on the order of 25 or 30 percent. The cost of programs designed to redress these payment

shortfalls for farmers obviously would increase as a consequence of lower prices and rates of return under the market option. Thus, saving budget costs on commodity programs would lead either to greater stress on the financial markets or to greater costs of programs for alleviating the depressed financial condition of U.S. agriculture.

In addition, asset liquidation by farm businesses would greatly increase under the market option. With existing farm programs remaining in place, an estimated 10 percent of the agricultural sector's assets would have to be liquidated in order to achieve a stable financial structure. During the preceding decade, land markets have handled only 2-4 percent of the land resource annually. If the market oriented programs were to come into effect, it is estimated that approximately 21 percent of agricultural assets would be liquidated. There is real doubt as to the ability of the agriculture land market to handle the asset volume even under baseline conditions. Thus, the proposed market oriented program very likely could result in severe declines in land values and possibly a collapse of financial markets.

7. Summary

The agricultural outlook that we have presented is rather dismal. Even under current farm programs and fairly optimistic projections for exchange rates and domestic and foreign economics, there is no significant improvement in the current conditions of U.S. agriculture. Moreover, if a free market policy is adopted for commodities, farm income over the first few years could be 30 percent lower than under the continuation of current programs. Financial markets in agriculture would be severely stressed. Even a rapid export growth scenario brought about by bad weather abroad or unexpectedly high demand growth, would not substantially improve the financial picture for agriculture, due largely to the level of excess supply at current prices.

The fundamental source of weakness in the agriculture economy is the large surplus capacity in U.S. agriculture at present price levels combined with a macroeconomic policy that has led to high real interest rates, a strong U.S. dollar, and slowed growth in many foreign economies. These are all factors that are not likely to be reversed easily or quickly. Hence, the chances of a turnaround in the agriculture economy are very small. The present financial conditions are likely to require government intervention, if the high adjustment costs are not to fall entirely on agriculture, the holders of agricultural debt, and industries depending on agriculture.

Table 1. Domestic and foreign economic assumptions and projections

Conditioning Assumptions	Date	Years					
		1985	1986	1987	1988	1989	1990
<u>U.S.</u>							
Real GNP	July	3.6	3.1	3.3	3.1	3.0	--
% change	Feb.	3.5	3.2	3.3	3.4	3.4	3.4
GNP Deflator	July	4.9	4.9	4.8	4.8	4.8	4.8
% change	Feb.	3.6	4.6	4.4	4.2	4.2	4.2
Civilian Unemployment Rate	July	6.7	6.6	6.4	6.3	6.3	--
	Feb.	7.1	6.9	6.7	6.6	6.4	6.2
<u>Foreign/Domestic</u>							
3-month T. Bill Rate	July	9.7	8.9	8.9	8.9	8.9	--
	Feb.	8.3	8.7	8.2	8.2	8.2	8.2
Exchange Rate	July	-2.5	-7.1	-4.4	-3.8	-2	--
% change	Feb.	4.4	-4.6	-4.4	-3.5	-1.3	--
Real GNP	July	3.8	2.5	3.1	4.4	4.0	3.8
Japan	Feb.	3.8	2.7	3.5	4.4	4.4	2.3
	July	2.0	1.0	2.3	1.9	1.7	2.0
Germany	Feb.	2.2	1.0	2.3	1.8	1.8	.8

SOURCES: Congressional Budget Office and Wharton Econometrics, July 1984 and February 1985 and Food and Agricultural Policy Research Institute, Report No. 1, January 1985.

Table 2. Projected average annual farm prices for major crops, baseline and market policies

Crop	Policy	Projected Annual Farm Prices					
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Corn (\$/bu.)	Baseline	2.68	2.64	2.63	2.87	2.90	2.92
	Market	--	--	2.53	2.49	2.42	2.66
Cotton (\$/lb.)	Baseline	0.60	0.67	0.60	0.67	0.69	0.71
	Market	--	--	0.55	0.69	0.67	0.67
Rice (\$/cwt)	Baseline	8.57	8.54	8.90	9.34	9.23	9.43
	Market	--	8.51	7.07	6.80	6.64	6.81
Soybeans (\$/bu.)	Baseline	6.27	5.78	6.13	6.63	6.97	6.82
	Market	--	--	6.04	6.17	6.22	6.51
Wheat (\$/bu.)	Baseline	3.40	3.41	3.46	3.66	3.66	3.72
	Market	--	3.40	3.21	3.25	3.32	3.48

SOURCE: Food and Agricultural Policy Research Institute, Report No. 1, January 1985.

Table 3. Projected average annual farm prices for major livestock types, baseline and market policies

Crop	Policy	Projected Average Annual Prices					
		1985	1986	1987	1988	1989	1990
Beef ^a (\$/cwt)	Baseline	69.20	72.00	69.50	68.00	67.00	67.50
	Market	--	--	70.00	69.50	67.00	66.50
Pork ^c \$/cwt	Baseline	51.50	49.50	45.00	49.00	51.00	51.00
	Market	--	--	42.50	46.00	47.50	48.00
Chicken ^d \$/cwt	Baseline	30.10	27.60	26.50	29.40	32.90	27.90
	Market	--	--	22.90	23.90	24.90	24.90

^aSOURCE: Food and Agricultural Policy Research Institute, Report No. 1, January 1985; ^bOmaha price; ^cSeven market price; ^dFarm price

Table 4. Projected annual gross returns less variable costs for major crops, baseline and market policies for nonparticipants

Crop	Policy	Projected Annual Gross Returns Less Variable Cost					
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Corn (\$/acre)	Baseline	119.65	117.18	108.52	130.25	129.83	128.72
	Market	--	--	96.83	87.86	75.24	98.75
Cotton (\$/acre)	Baseline	121.19	93.99	45.82	72.28	76.81	77.09
	Market	--	--	21.14	88.26	65.74	59.12
Rice (\$/acre)	Baseline	176.71	132.84	136.90	144.68	125.99	121.99
	Market	--	131.43	50.79	24.79	3.35	-2.47
Soybeans (\$/acre)	Baseline	91.80	95.59	93.23	105.13	112.63	105.54
	Market	--	--	90.63	90.89	89.09	95.54
Wheat (\$/acre)	Baseline	63.59	51.86	50.91	55.16	53.69	54.51
	Market	--	51.49	41.53	39.80	40.94	45.17

SOURCE: Food and Agricultural Policy Research Institute, Report No. 1, January 1985.

Table 5. Projected planted acres for major crops, baseline and market policies

Crop	Policy	Projected Planted Acres						
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	
Corn (Million Acres)	Baseline	79.8	81.9	82.0	78.0	76.9	76.3	
	Market	--	--	81.8	81.7	81.5	81.3	
Cotton (Million Acres)	Baseline	11.0	11.0	11.5	11.5	12.0	12.5	
	Market	--	--	11.2	10.8	12.4	12.7	
Rice (Thousand Acres)	Baseline	2,850	2,850	2,850	2,850	3,000	3,000	
	Market	--	--	3,017	2,881	2,844	2,850	
Soybeans (Million Acres)	Baseline	68.2	67.6	67.0	67.2	67.8	71.5	
	Market	--	--	66.8	68.3	70.6	73.2	
Wheat (Million Acres)	Baseline	79.5	78.8	80.1	80.8	81.9	83.1	
	Market	--	--	82.8	83.6	84.6	85.5	

SOURCE: Food and Agricultural Policy Research Institute, Report No. 1, January 1985

Table 6. Projected annual total farm cash receipts, direct government costs and net farm income, baseline and market policies in nominal dollars

Sector Indicator	Policy	Projected Annual Totals (Billions of Dollars) ^a					
		1985	1986	1987	1988	1989	1990
Total Farm Cash Receipts	Baseline	150.75	156.08	159.42	165.07	169.42	175.10
	Market	--	155.56	156.40	159.78	164.25	171.93
Direct Government Payments ^b	Baseline	5.12	5.73	4.76	3.34	3.29	4.28
	Market	--	0.00	0.00	0.00	0.00	0.00
Net Farm Income	Baseline	25.73	25.64	24.58	20.04	22.39	25.66
	Market	--	18.08	16.81	14.67	16.60	15.63

^aSOURCE: Food and Agricultural Policy Research Institute, Report No. 1, January 1985.

^bFeedgrains, foodgrains, and cotton.

Table 7. Changes in 1984/85 projections due to changed supply, demand, and macroeconomic conditions

Crop	Exports (mil./bu.)	Government Stocks (mil./bu.)	Farm Price (\$/bu.)
Corn	-175	238	-.12
Soybeans	-50	0	-.22
Wheat	0	40	-.01

SOURCE: Preliminary Model Runs, Food and Agricultural Policy Research Institute, March 1985.

Table 8. Changes in 1985/86 projections due to changed supply, demand, and macroeconomic conditions

Crop	Exports (mil./bu.)	Government Stocks (mil./bu.)	Farm Price (\$/bu.)
Corn	-143	375	-.05
Beans	-40	0	-.05
Wheat	-11	0	-.05

SOURCE: Preliminary Model Runs, Food and Agricultural Policy Research Institute, March 1985.

Table 9. Estimated annual impact of lower commodity prices and net returns on debt service in U.S. agriculture, assuming interest rates of 11 percent

	Cash Flow Rate of Return	
	6%	4%
Breakeven debt-asset ratio ¹	.55	.36
Interest not paid (\$ bil)	2.5	6.8
Principal not paid (\$ bil)	6.2	8.5
Total principal and interest (\$ bil)	8.7	15.3
Percent of assets likely to be liquidated	10.1	21.0

^aIn general, farmers with debt-asset ratios higher than this cannot pay all interest due on outstanding debts. Principal repayment rates are assumed to be zero.

SOURCE: Damona G. Doye and Robert W. Jolly. 1985. "Projected Cash Shortfalls and Cost of Stress Allocation Policies," mimeo, Iowa State University. February.

