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# Export Responsiveness and U.S. Farm Policy Options for Wheat

Larry Salathe

**Abstract.** *The effects of alternative farm policies on the U.S. wheat sector are similar despite quite different assumptions for the price elasticity of exports. The goal of reducing the Federal cost of the 1985 wheat program directly conflicts with the goal of maintaining farm income. The article compares four policy options for wheat, ranging from a reduction in price supports and elimination of deficiency payments and acreage programs to an expansion of voluntary acreage reduction programs, under alternative assumptions regarding the responsiveness of exports. Each option is compared with a continuation of the 1985 wheat program.*

**Keywords** Exports, farm income, farm policy, program costs, wheat

After nearly 12 months of debate, Congress passed the Food Security Act of 1985. The debate leading up to and following its passage brought to the forefront two opposing views on the future direction of agricultural policy. One group argued that past farm programs have left U.S. agriculture at a competitive disadvantage in world markets and have distorted market signals to both domestic and foreign producers. This group argued that agriculture must, therefore, become more market-oriented. The other group argued that elimination of farm programs would worsen an already severe financial crisis. This group favored expansion of acreage and production controls and higher support prices as the appropriate direction for future agricultural policy. The debate on the future direction of farm policy will surely continue, given the current farm financial situation, the accelerating cost of farm programs, and pressure to reduce the Federal budget deficit.

In this article, I analyze the effects of four alternative farm policies on U.S. wheat producers, taxpayers, and consumers: (1) eliminating voluntary acreage programs, (2) lowering loan rates, (3) eliminating direct payments, and (4) expanding voluntary acreage programs. I compare each policy with continuing the 1985 wheat pro-

gram. The alternatives are simulated for crop years 1986/87 through 1991/92 under various wheat export elasticity assumptions. These simulations are designed to show the effects on farm and retail levels and on the Federal budget as well as the extent to which export responsiveness can alter these effects. I do not attempt to determine the export elasticity *per se*, but rather how the choice of export elasticity influences the predicted outcomes of alternative policies. A previous article examined the consequences of alternative export subsidy programs for U.S. wheat (4).<sup>1</sup> Here I examine how changes in domestic farm programs affect U.S. wheat producers, consumers, and taxpayers.

## Domestic Farm Policy and Export Response

Wheat exports currently account for about half of total annual disappearance of U.S. wheat. Stated differently, if the United States were to withdraw from the wheat export market, wheat planted acreage would have to be reduced 50 percent or more to balance supply and demand. Thus, the outcomes of alternative wheat programs are thought to be strongly influenced by wheat export response. Table 1 shows the potential effects of alternative farm programs on farmers, domestic consumers, and taxpayers under various export elasticity assumptions. Each policy option is compared with the 1985 wheat program.

### Lower Loan Rate

The first option, lowering the loan rate, will depress farm prices assuming market prices are initially supported by the loan rate. The incomes of farmers not participating in farm programs will fall. The drop in these farmers' incomes will encourage additional participation in announced acreage reduction programs. The amount of land idled will rise and more farmers will become eligible for price-support commodity loans and income support payments. The incomes of farmers, who had previously participated in farm programs, will be virtually unaffected by a drop in the loan rate because lower prices will be nearly offset dollar-for-dollar by

The author is an agricultural economist with the Economic Analysis Staff, Office of the Assistant Secretary for Economics, U.S. Department of Agriculture. He gratefully acknowledges the helpful comments of anonymous reviewers.

<sup>1</sup> Italicized numbers in parentheses refer to items listed in the References at the end of this article.

**Table 1—Qualitative effects of policy options**

Option	Export elasticity	
	Inelastic	Elastic
<i>Baseline = 1985 program</i>		
Lower loan rate		
Net farm income	?	?
Taxpayer costs	+	—
Consumer expenditures	—	—
Lower loan rate, no acreage programs		
Net farm income	+	+
Taxpayer costs	+	?
Consumer expenditures	—	—
Lower loan rate, no acreage programs, and no deficiency payments		
Net farm income	—	?
Taxpayer costs	?	—
Consumer expenditures	—	—
Expand acreage reduction programs		
Net farm income	?	?
Taxpayer costs	?	?
Consumer expenditures	?	?

? = Uncertain

larger income support (deficiency) payments. Total aggregate net farm income may rise or fall, depending on whether larger direct Government payments triggered by lower farm prices and higher participation offset the loss in market receipts as prices fall. The degree of responsiveness of exports to a change in price could change how much prices fall as the loan rate is reduced, but the effect of lowering the loan rate on farm income would remain uncertain.

Lowering the loan rate increases Government income support payments, but reduces the cost of supporting farm prices at the loan rate. Income support payments are based on the difference between an announced target price and the maximum of the loan rate and farm price over a designated portion of the crop year. Lower farm prices and increased program participation will increase income support payments. However, the cost of supporting farm prices declines. Lower prices encourage more farmers to participate in acreage-idling programs, thereby cutting production, and lower prices also increase domestic use and exports. Thus, lowering the loan rate reduces the surplus the Government must purchase to support prices at the lower loan rate.

The net effect on Government costs of reducing the loan rate depends on the price responsiveness of wheat demand. If exports are inelastic, larger income support payments will more than offset lower costs of supporting prices at the lower loan rate, causing total Government costs to rise. If exports are elastic, Government costs will fall because the decline in the cost of supporting prices will exceed the increase in income support payments.

Domestic consumer demand for wheat products is quite unresponsive to changes in prices. Elasticity estimates range from  $-0.02$  to  $-0.20$  (1, 3, 4). Thus, lower prices will change retail demand only slightly, and a drop in market prices will reduce retail expenditures for wheat products.

### Lower Loan Rate and No Acreage Programs

Under the second option, a lower loan rate and no acreage programs, producers would be required neither to idle land nor to plant within their base to be eligible for income support payments and price-support commodity loans. The loan rate would also be reduced to increase the competitiveness of U.S. wheat. The European Community's farm policy has the same attributes above market-clearing guaranteed returns to producers and no acreage control programs.

The net income of producers would be higher under the second option than under the 1985 farm program. Because acreage reduction programs are eliminated, all wheat producers would be eligible to receive income support payments on their planted acreage. More farmers would become eligible for payments, and eliminating the requirement to idle land would allow producers to receive income support payments on a larger volume of production. Net farm income would rise regardless of the responsiveness of wheat exports.

Farm program costs may rise or fall, depending on the responsiveness of exports. If exports are inelastic, farm program costs will rise because larger income support payments will more than exceed the decline in the cost

of supporting prices at the reduced loan rate. However, if exports are price elastic, program costs could fall as lower costs to support prices at the reduced loan rate might offset the increase in income support payments.

Retail consumer expenditures for wheat products will decline under the second option. Lowering the loan rate will reduce market prices. Demand increases, but by less than the percentage reduction in market prices, causing expenditures to fall.

#### **Lower Loan Rate, No Acreage Programs, and No Income Support Payments**

Under the third option, a lower loan rate, no acreage programs, and no income supports, deficiency payments and voluntary acreage reduction programs are eliminated. The loan rate is also lowered to increase the competitiveness of U.S. wheat in world markets. Eliminating income support payments reduces net farm income, but eliminating acreage reduction programs has the opposite effect. Farmers may expand production and increase marketings, potentially offsetting the decline in income support payments. If exports are inelastic, net farm income will fall as the change in market receipts will be small compared with the loss in income caused by eliminating income support payments. If exports are elastic, the increase in market receipts may offset the loss in income caused by eliminating income support payments.

Taxpayer costs are expected to be below those for the 1985 wheat program, if exports are elastic. Eliminating acreage reduction programs is expected to increase wheat production. Larger wheat production will raise the cost of supporting farm prices. These added costs will likely be more than offset by budget savings from eliminating income support payments, especially if exports are elastic. If exports are inelastic, budget savings from eliminating income support payments may be offset by higher price-support costs.

Lower market prices will again lower retail expenditures for wheat products under the third option.

#### **Expand Acreage Reduction Programs**

Under the fourth option, an expansion of acreage reduction programs, wheat producers must idle additional land to obtain income support payments and price support commodity loans. A policy of larger acreage reduction programs and relatively high loan rates would reduce U.S. competitiveness compared with the previous options. This policy option is generally advocated on the basis that it would maintain farm income at a relatively high level, yet reduce taxpayer costs.

Increasing the unpaid acreage-idling requirement reduces the incentive to participate in acreage-idling programs. Fewer farmers voluntarily participate in the announced program, and thus fewer receive income support payments. Former participants expand production, whereas those who continue to participate reduce production. The net effect on production is uncertain. If production declines, net farm income will necessarily decline because lower deficiency payments will exceed any increase in market receipts of farmers who opt not to participate in the expanded voluntary acreage programs. However, net income may increase if production increases and exports are inelastic. Farm income could also increase if farmers are compensated for the larger acreage-idling (paid land diversion) requirement.

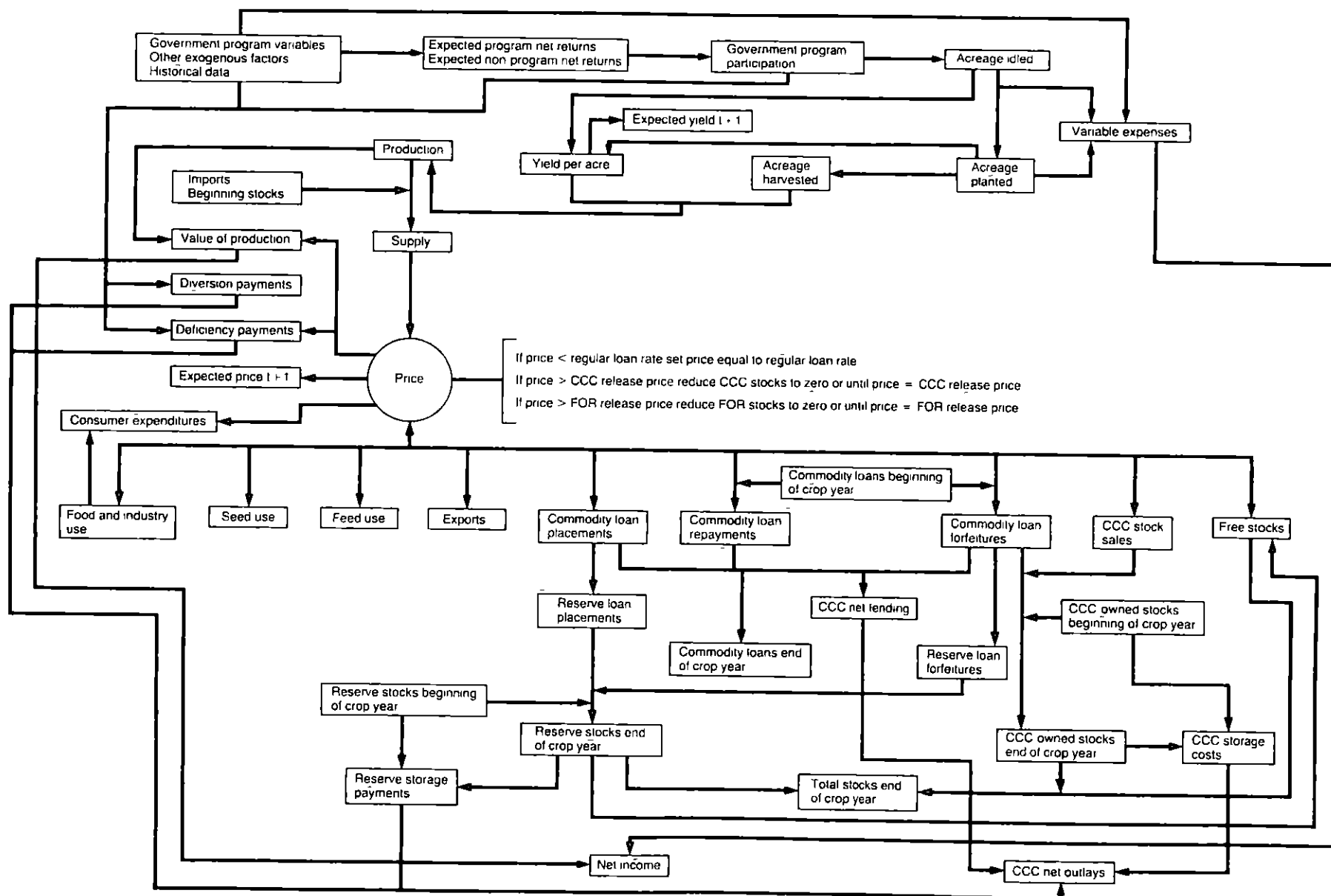
The effect of the fourth option on taxpayer costs and consumer expenditures is also uncertain. If production increases and prices fall, retail consumer expenditures will fall. However, if production falls and prices rise, consumer expenditures will also rise.

If production falls, taxpayer costs will drop under the fourth option. Fewer farmers will be eligible for payments, and those who receive income support payments will receive less because their planted acreage will be lower. Lower production will further reduce the cost of supporting wheat prices. However, if production rises, taxpayer costs could rise or fall, and the net result will depend heavily on the price responsiveness of wheat exports.

#### **Research Method**

A computer simulation model of the U.S. wheat sector is used to quantify the effects of each policy alternative. The model consists of 39 equations to estimate wheat production, use, price, Commodity Credit Corporation (CCC) loan activity, producers' gross and net income, consumer expenditures for wheat products, and Government wheat program outlays. The model's simultaneous system of equations is solved on a personal computer with the LOTUS 1-2-3 software. All functions are linear in parameters, but the assumed intercept and slope coefficients can be changed each year, thereby allowing one to analyze alternative policies over a range of supply and use elasticities. The model's default response coefficients were derived from previous empirical studies of the wheat sector (2, 3, 5).

A simulation begins by providing historical and exogenous data, including values for Government policy variables (see figure). The model uses data on target prices, loan rates, acreage reduction and diversion rates, past yields, and prices to estimate acreage response to Government programs. With these data and slope and



intercept coefficients for production and demand functions, the model determines equilibrium prices and quantities through an iterative process

## Supply

The model assumes that relative profitability determines whether farmers participate in voluntary acreage control programs. The greater the expected relative profitability of participation, the greater the rate of farmer participation. The expected farm price times the expected yield (5-year moving-average excluding high and low) less variable production costs provides the estimated return from nonparticipation. The target price, expected farm price, loan rate, expected yield, acreage reduction and diversion rates, diversion payment rate, and program yield are combined to estimate the return from participation.

I calculated acreage idled by an identity using the program participation rate, base acreage, and acreage reduction and diversion rates. Acreage planted is estimated from acreage idled adjusted for slippage (0.33) and the expected returns from participation and nonparticipation (0.15).<sup>2</sup> An increase in expected returns is assumed to be an incentive for producers to plant additional acreage, whether from market forces or from farm programs.

Acreage harvested is a linear function of acreage planted (0.908), and yield per acre is a function of acreage planted (0.046) and acreage idled (0.13). It is assumed farmers idle their least productive land, therefore, an increase in idled area causes average yield to increase. Production equals acreage harvested times yield per harvested acre, whereas supply equals production plus beginning-year stocks plus imports.

## Use

The model estimates food and industrial use, seed use, feed use, exports, and ending-year stocks. Stocks consist of three components: farmer-owned reserve, CCC-owned stocks, and free stocks. Food and industrial use (-12.5), exports (-200), and feed use (-108) are linear functions of price with slope coefficients based on econometric results of previous studies. The default slope coefficients assume feed use is slightly price-elastic, food and industrial use is exceedingly inelastic, and exports are moderately inelastic. Seed use is a linear function of acreage planted (1.23).

Free stocks are specified as a function of price (-130) and the quantity of farmer-owned reserve stocks (-0.30). A 1-bushel increase in reserve stocks is assumed to reduce the demand for free stocks less than 1

bushel. Wheat placed in the farmer-owned reserve is assumed to remain for 5 years, unless market price equals or exceeds the release price, at which time reserve stocks are returned to the market. If price fails to reach the release level, reserve stocks default to the CCC.

CCC stocks are those acquired by the Government through price-support programs as farmers default on reserve and regular 9-month loans. They become available to the market when price exceeds the reserve release by 5 percent.

## Loan Activity

The model predicts price-support loan activity based on farm price, the loan rate, and CCC interest charges. Total loan placements (farmer-owned reserve and regular) are estimated as a function of farm price divided by the loan rate (-766.8). Reserve loan placements are also a linear function of the ratio of farm price to the loan rate (-450). Farmers are assumed to repay their loans if price exceeds the loan rate plus interest charges; if not, commodity collateral is defaulted and added to existing CCC-owned stocks.

## Farm Price

One can determine the farm price of wheat by solving the supply-demand equilibrium condition for price. The equilibrium price equates total supply with total use plus ending stocks. Because total supply is predetermined at the beginning of the crop year and all use and ending stock equations are linear in price, I used the supply-demand identity to determine the price that uniquely equates supply and demand.

Decision rules are used to adjust initial price estimates when they exceed either the farmer-owned reserve or CCC release triggers, or when price falls below the loan rate. The loan rate is assumed to act as a price floor or the minimum price. Reserve and CCC stocks are assumed to be accessible to the market whenever price exceeds their corresponding release triggers. Thus, the farm price is assumed not to exceed the release triggers for reserve or CCC stocks unless these stocks become depleted.

## Producer Income

The model estimates gross and net income of wheat producers from previously estimated endogenous variables and exogenous data or policy variables. For example, net income is the sum of the value of production (price times production), deficiency payments, diversion payments, and reserve storage payments, less variable costs of production.

<sup>2</sup> Numbers in parentheses denote default model coefficients.

## CCC Outlays

The model estimates net CCC outlays on a fiscal-year basis. I derived these estimates by allocating crop-year (June–May) loan activity and Government payments among fiscal years (October–September). Government payments consist of diversion, deficiency, and farmer-owned reserve storage payments. I estimated CCC price-support loan outlays by subtracting the value of loan placements (quantity times the loan rate) from loan repayments. I estimated the cost of storing and handling CCC-owned stocks by multiplying average CCC stock holdings by a fixed cost per bushel (0.42).

## Consumer Expenditures

I estimated consumer expenditures for bakery products by multiplying the wheat price times the quantity used for food and industrial use and then by adding a constant amount for marketing, processing, and transportation.

## Baseline

Each policy option was simulated for 6 crop years, 1986/87–1991/92. I assumed productivity would continue to increase at about the same annual rate as the past decade, about 0.6 bushel per acre. Food and industrial use should increase with population growth, from about 650 million bushels in 1985/86 to 700 million bushels in 1991/92. Export growth will likely be slower than in the seventies as the dollar is expected to remain strong in relation to historical levels.

Given these assumptions and a continuation of the 20-percent voluntary acreage reduction and 10-percent paid land diversion programs for 1985 with a \$4.38 target price and a \$3.30 loan rate, I estimated a baseline for the 6-year period. The acreage reduction and paid land diversion programs remove about 20 million acres from production each year. Yet, ending stocks grew steadily with the \$3.30 loan rate, essentially determining the price of wheat over the period. CCC net outlays average over \$4.3 billion annually with over a half accounted for by deficiency and diversion payments. Producers' net income averaged nearly \$7 billion per year.

## Analysis of the Options

I analyzed four policy options and compared them with the baseline (continuation of the 1985 program). Each option is simulated with the elasticity of U.S. wheat exports ranging from  $-0.25$  to  $-4.00$ , reflecting the disparity in estimates from past studies of U.S. wheat export response (4).

The first option assumes the loan rate is lowered from \$3.30 to \$2.50 per bushel, but all other 1985 wheat program provisions are unchanged. The second option assumes elimination of voluntary acreage reduction and paid land diversion programs as well as a reduction in the loan rate from \$3.30 to \$2.50 per bushel. The third option assumes elimination of voluntary acreage programs and deficiency payments and a reduction in the loan rate (\$3.30 to \$2.50). The fourth option assumes an expansion of voluntary acreage and paid land diversion programs and a loan rate of \$3.30 and a target price of \$4.38 per bushel.

## Lower Loan Rate

The first option, lowering the loan rate, also lowers the price received for wheat. The extent of the price decline, however, depends on the elasticity of U.S. exports (table 2). For example, if the export elasticity is  $-0.25$ , the simulation model estimates farm price would average \$0.40 per bushel lower than the baseline, but only \$0.10 per bushel lower if the export elasticity is  $-4.00$ . Despite lower prices, producers' net income changes only moderately, because lower prices increase deficiency payment rates and encourage greater participation in acreage reduction programs. More producers are eligible for deficiency payments, thus, lower sales receipts are largely offset by larger deficiency payments. Higher participation and lower prices cause planted acreage to decline, reducing aggregate variable production expenses relative to the baseline.

CCC outlays (taxpayer costs) would rise moderately if exports are inelastic and would decline moderately if exports are elastic. If the export elasticity equals  $-0.50$ , net CCC outlays average \$238 million higher. If the export elasticity equals  $-2.00$ , net CCC outlays fall, on average, by \$369 million. These changes reflect the combined effect of larger diversion and deficiency payments due to lower farm prices and increased program participation, as well as lower CCC and reserve loan activity due to the lower loan rate. If exports are inelastic, the increase in deficiency and diversion payments exceed the decline in loan activity, whereas the opposite occurs when exports are elastic. But even when the export elasticity equals  $-4.00$ , CCC net outlays still exceed \$3.7 billion annually, 15 percent less than the baseline.

Consumer expenditures for bakery products vary only moderately from their baseline values: \$258 million less per year when the export elasticity equals  $-0.25$ , but only \$67 million less per year if the export elasticity is  $-4.00$ . Thus, lowering the loan rate, by itself, appears to only moderately affect producers, consumers, and taxpayers.

**Table 2—Option 1 Lower loan rate<sup>1</sup>**

Item	Unit	Baseline	Export elasticity				
			- 0 25	- 0 50	- 1 00	- 2 00	- 4 00
Acreage planted	Mil ac	72 2	69 4	69 8	70 3	70 9	71 4
Acreage harvested	Mil ac	64 9	62 4	62 8	63 3	63 8	64 3
Yield per acre	Bu /ac	41 4	41 9	41 8	41 7	41 6	41 6
Supply							
Beginning stocks	Mil bu	2,309	1,968	1,942	1,909	1,876	1,849
Production	Mil bu	2,689	2,614	2,624	2,640	2,656	2,669
Imports	Mil bu	3	3	3	3	3	3
Total	Mil bu	5,001	4,585	4,569	4,552	4,535	4,521
Use							
Food and industrial	Mil bu	683	688	687	686	685	684
Seed	Mil bu	91	87	88	89	89	90
Feed	Mil bu	264	307	300	291	282	275
Exports	Mil bu	1,387	1,429	1,457	1,494	1,532	1,563
Total	Mil bu	2,425	2,511	2,532	2,560	2,588	2,612
Ending stocks	Mil bu	2,576	2,074	2,037	1,992	1,947	1,909
Price	Dol /bu	3 30	2 90	2 97	3 05	3 13	3 20
Income indicators							
Value of production	Mil dol	8,873	7,584	7,787	8,043	8,309	8,530
Deficiency payments	Mil dol	1,995	3,199	3,020	2,786	2,550	2,364
Storage payments	Mil dol	155	89	79	67	54	44
Diversion payments	Mil dol	812	917	905	883	860	841
Total gross income	Mil dol	11,835	11,790	11,792	11,779	11,773	11,778
Variable costs	Mil dol	5,026	4,882	4,901	4,931	4,962	4,987
Total net income	Mil dol	6,809	6,908	6,891	6,848	6,811	6,791
Net CCC outlays <sup>2</sup>							
Deficiency payments	Mil dol	1,965	3,133	2,953	2,725	2,499	2,320
Diversion payments	Mil dol	813	927	913	889	864	844
Storage payments	Mil dol	152	87	77	65	53	43
Net lending	Mil dol	804	157	125	86	46	13
Other costs	Mil dol	601	506	505	505	505	505
Net outlays	Mil dol	4,336	4,810	4,573	4,271	3,967	3,725
Consumer expenditures <sup>3</sup>	Mil dol	37,776	37,518	37,561	37,613	37,666	37,709

<sup>1</sup> Unless indicated otherwise numbers are averages for the 6 crop years 1986/87-1991/92

<sup>2</sup> Fiscal year 1987-91 averages

<sup>3</sup> Consumer expenditures for bakery products

### Lower Loan Rate and No Acreage Programs

Under the second option, wheat producers expand planted acreage an annual average of about 18.5 million acres (table 3). This expansion reflects the absence of voluntary acreage reduction and paid land diversion programs with a guaranteed return of \$4.38 per bushel. The expansion in acreage places pressure on prices. Farm price averages \$0.30-\$0.80 per bushel lower than under continuation of 1985 programs, depending on the export elasticity.

However, despite the lower farm price, wheat producers' net incomes are projected to increase. Although cash receipts fall for most values of the export elasticity, they are more than offset by larger deficiency payments. Deficiency payments average \$4.5-\$5.9 billion

per year under the second option, compared with less than \$2.0 billion under continuation of 1985 programs. Producers' net incomes average about \$1 billion higher, 15 percent more than the baseline.

CCC net outlays increase considerably, especially if exports are inelastic. With inelastic exports, CCC net outlays average \$2.7-\$3.4 billion higher than under the baseline. Even if exports are elastic, higher deficiency payments are not offset by the elimination of diversion payments and by reduced loan activity and reserve commodity storage payments.

Consumer expenditures for bakery products average \$195-\$521 million lower. The reduction is about double that when only the loan rate is lowered. The second



**Table 3—Option 2 Lower loan rate and no acreage programs<sup>1</sup>**

Item	Unit	Baseline	Export elasticity				
			- 0.25	- 0.50	- 1.00	- 2.00	- 4.00
Acreage planted	Mil ac	72.2	90.6	90.6	90.6	90.5	90.5
Acreage harvested	Mil ac	64.9	81.7	81.7	81.7	81.6	81.6
Yield per acre	Bu /ac	41.4	37.8	37.8	37.8	37.8	37.8
Supply							
Beginning stocks	Mil bu	2,309	2,766	2,560	2,288	2,022	1,930
Production	Mil bu	2,689	3,084	3,084	3,084	3,082	3,080
Imports	Mil bu	3	3	3	3	3	3
Total	Mil bu	5,001	5,853	5,647	5,375	5,107	5,014
Use							
Food and industrial	Mil bu	683	693	693	692	689	687
Seed	Mil bu	91	113	113	113	113	113
Feed	Mil bu	264	350	349	341	321	296
Exports	Mil bu	1,387	1,472	1,555	1,690	1,834	1,896
Total	Mil bu	2,425	2,628	2,711	2,837	2,958	2,992
Ending stocks	Mil bu	2,576	3,225	2,935	2,539	2,148	2,022
Price	Dol /bu	3.30	2.50	2.50	2.58	2.77	3.00
Income indicators							
Value of production	Mil dol	8,873	7,711	7,714	7,959	8,532	9,234
Deficiency payments	Mil dol	1,995	5,883	5,882	5,780	5,202	4,483
Storage payments	Mil dol	155	155	154	140	109	75
Diversion payments	Mil dol	812	0	0	0	0	0
Total gross income	Mil dol	11,835	13,749	13,751	13,879	13,844	13,791
Variable costs	Mil dol	5,026	5,906	5,906	5,905	5,901	5,897
Total net income	Mil dol	6,809	7,843	7,845	7,974	7,943	7,895
Net CCC outlays <sup>2</sup>							
Deficiency payments	Mil dol	1,965	5,831	5,831	5,717	5,140	4,435
Diversion payments	Mil dol	813	0	0	0	0	0
Storage payments	Mil dol	152	152	151	137	107	73
Net lending	Mil dol	804	1,065	835	559	217	107
Other costs	Mil dol	601	693	634	595	505	506
Net outlays	Mil dol	4,336	7,741	7,451	7,007	5,970	5,120
Consumer expenditures <sup>3</sup>	Mil dol	37,776	37,255	37,255	37,308	37,431	37,581

<sup>1</sup> Unless indicated otherwise, numbers are averages for the 6 crop years, 1986/87-1991/92

<sup>2</sup> Fiscal year 1987-91 averages

<sup>3</sup> Consumer expenditures for bakery products

option would raise producers' net incomes considerably, would slightly lower consumer expenditures, and would increase CCC net outlays significantly

#### **Lower Loan Rate, No Acreage Programs, and No Deficiency Payments**

The second option resulted in larger CCC net outlays, primarily because deficiency payments were paid on full production. With no deficiency payments, the third option, CCC outlays would be reduced greatly, but so would wheat producers' incomes. Annual net income averages \$3.3-\$4.5 billion less (a 48- to 68 percent decline) than under a continuation of 1985 programs (table 4).

CCC net outlays drop considerably, averaging \$0.6-\$1.2 billion per year compared with \$4.3 billion per year

under a continuation of the 1985 programs. Producers' incomes tend to fall more than CCC net outlays, especially if exports are inelastic. For example, if the export elasticity is -0.50, net income declines \$4.4 billion while CCC net outlays decline \$3.4 billion per year. If the elasticity is -4.00, net income declines \$3.3 billion, while CCC net outlays decline \$3.7 billion.

Consumer expenditures for bakery products average \$123-\$400 million lower than under the 1985 programs. The third option would severely reduce the income of wheat producers, sharply cut taxpayer costs, but only moderately reduce consumer expenditures.

#### **Expand Voluntary Acreage Programs**

Under the third option, acreage programs and deficiency payments were eliminated, causing both farm

**Table 4—Option 3 Lower loan rate, no acreage programs, and no deficiency payments<sup>1</sup>**

Item	Unit	Baseline	Export elasticity				
			- 0.25	- 0.50	- 1.00	- 2.00	- 4.00
Acreage planted	Mil ac	72.2	81.2	81.3	81.8	82.6	83.2
Acreage harvested	Mil ac	64.9	73.1	73.2	73.7	74.4	74.9
Yield per acre	Bu /ac	41.4	38.2	38.2	38.2	38.1	38.1
Supply							
Beginning stocks	Mil bu	2,309	2,236	2,125	2,006	1,939	1,886
Production	Mil bu	2,689	2,791	2,795	2,811	2,835	2,854
Imports	Mil bu	3	3	3	3	3	3
Total	Mil bu	5,001	5,030	4,923	4,820	4,777	4,743
Use							
Food and industrial	Mil bu	683	691	690	689	687	685
Seed	Mil bu	91	102	102	103	104	104
Feed	Mil bu	264	330	328	315	298	284
Exports	Mil bu	1,387	1,452	1,512	1,589	1,656	1,709
Total	Mil bu	2,425	2,575	2,633	2,696	2,745	2,783
Ending stocks	Mil bu	2,576	2,455	2,290	2,124	2,033	1,960
Price	Dol /bu	3.30	2.68	2.71	2.82	2.98	3.11
Income indicators							
Value of production	Mil dol	8,873	7,489	7,563	7,931	8,451	8,873
Deficiency payments	Mil dol	1,995	0	0	0	0	0
Storage payments	Mil dol	155	126	121	103	78	58
Diversion payments	Mil dol	812	0	0	0	0	0
Total gross income	Mil dol	11,835	7,615	7,684	8,034	8,529	8,930
Variable costs	Mil dol	5,026	5,283	5,291	5,325	5,376	5,417
Total net income	Mil dol	6,809	2,332	2,393	2,708	3,153	3,514
Net CCC outlays <sup>2</sup>							
Deficiency payments	Mil dol	1,965	0	0	0	0	0
Diversion payments	Mil dol	813	0	0	0	0	0
Storage payments	Mil dol	152	124	118	101	76	57
Net lending	Mil dol	804	467	326	192	115	54
Other costs	Mil dol	601	586	541	506	506	505
Net outlays	Mil dol	4,336	1,177	985	799	697	616
Consumer expenditures <sup>3</sup>	Mil dol	37,776	37,376	37,390	37,466	37,570	37,653

<sup>1</sup> Unless indicated otherwise, numbers are averages for the 6 crop years, 1986/87-1991/92

<sup>2</sup> Fiscal year 1987-91 averages

<sup>3</sup> Consumer expenditures for bakery products

income and program costs to sharply decline. However, if deficiency payments are continued while voluntary production controls are eliminated, producers' incomes are maintained, but CCC outlays increase. The fourth option maintains loan rates and target prices at their 1985 levels, but increases the level of voluntary acreage and paid land diversion programs. Producers would be required to idle 30 percent of their acreage base and divert an additional 20 percent (for a payment of \$2.70 per bushel) to be eligible for deficiency payments.

The fourth option results in higher farm prices of \$0.06-\$0.20 per bushel (table 5). Net income would increase moderately if exports are inelastic, but would decline moderately if exports are elastic. Overall, farm income remains relatively unchanged because lower

deficiency payments resulting from higher prices are offset by larger diversion payments.

CCC net outlays remain at about \$4 billion per year. Maximum taxpayer savings of only about \$430 million annually seem possible under the fourth option. Consumer expenditures for bakery products increase by \$38-\$127 million per year. The fourth program option would change farm income little while moderately decreasing taxpayer costs and slightly raising consumer expenditures.

## Conclusions

The results of these simulations, in comparison with continuing the 1985 wheat program, suggest that two of

**Table 5—Option 4 Expand voluntary acreage programs<sup>1</sup>**

Item	Unit	Baseline	Export elasticity				
			-0.25	-0.50	-1.00	-2.00	-4.00
Acreage planted	Mil ac	72.2	67.5	67.2	66.9	66.5	66.2
Acreage harvested	Mil ac	64.9	60.7	60.5	60.2	59.8	59.5
Yield per acre	Bu /ac	41.4	42.6	42.6	42.7	42.8	42.9
<b>Supply</b>							
Beginning stocks	Mil bu	2,309	2,157	2,182	2,199	2,217	2,232
Production	Mil bu	2,689	2,583	2,578	2,568	2,558	2,548
Imports	Mil bu	3	3	3	3	3	3
Total	Mil bu	5,001	4,744	4,763	4,770	4,778	4,784
<b>Use</b>							
Food and industrial	Mil bu	683	681	681	681	682	682
Seed	Mil bu	91	85	85	84	84	83
Feed	Mil bu	264	242	244	249	253	257
Exports	Mil bu	1,387	1,367	1,350	1,329	1,307	1,287
Total	Mil bu	2,425	2,374	2,360	2,343	2,326	2,310
Ending stocks	Mil bu	2,576	2,369	2,403	2,427	2,452	2,474
Price	Dol /bu	3.30	3.50	3.48	3.44	3.40	3.36
<b>Income indicators</b>							
Value of production	Mil dol	8,873	9,036	8,965	8,830	8,685	8,561
Deficiency payments	Mil dol	1,995	1,143	1,177	1,245	1,319	1,382
Storage payments	Mil dol	155	131	134	138	144	148
Diversion payments	Mil dol	812	1,388	1,400	1,420	1,442	1,461
Total gross income	Mil dol	11,835	11,699	11,676	11,634	11,590	11,553
Variable costs	Mil dol	5,026	4,832	4,822	4,805	4,786	4,769
Total net income	Mil dol	6,809	6,866	6,854	6,829	6,804	6,783
<b>Net CCC outlays<sup>2</sup></b>							
Deficiency payments	Mil dol	1,965	1,135	1,170	1,234	1,305	1,365
Diversion payments	Mil dol	813	1,378	1,391	1,414	1,438	1,460
Storage payments	Mil dol	152	129	131	136	141	145
Net lending	Mil dol	804	679	703	725	748	769
Other costs	Mil dol	601	586	594	596	598	599
Net outlays	Mil dol	4,336	3,906	3,990	4,105	4,230	4,338
Consumer expenditures <sup>3</sup>	Mil dol	37,776	37,903	37,891	37,865	37,838	37,814

<sup>1</sup> Unless indicated otherwise, numbers are averages for the 6 crop years, 1986/87-1991/92

<sup>2</sup> Fiscal year 1987-91 averages

<sup>3</sup> Consumer expenditures for bakery products

the options are politically unrealistic. Eliminating deficiency payments and acreage programs with a lower loan rate is unlikely because farm income would be affected adversely (table 6). Maintaining target prices at their 1985 level while eliminating acreage controls and lowering loan rates is also unlikely because farm program costs would increase greatly.

The two remaining policy options are more realistic because they control taxpayer and consumer costs while maintaining farm income. But both these options, lowering the loan rate while maintaining target price protection and expanding voluntary acreage and paid land diversion programs, fail to substantially reduce

program costs. Assumptions regarding the responsiveness of exports to changes in price appear not to greatly affect these findings. Thus, the only way to substantially reduce the cost of the wheat program seems to be to reduce income support to wheat farmers.

The Food Security Act of 1985 reduced loan rates and expanded voluntary acreage programs. Pressure to reduce program costs also led to discretionary authority to freeze program yields at historical levels, changing the method of calculating base acreages, basing deficiency payments on season-average prices, and cutting target prices—all of which lower direct payments and farm income.

**Table 6—Quantitative effects of policy options<sup>1</sup>**

Option	Export elasticity	
	- 0.25	- 4.00
	<i>Million dollars</i>	
Lower loan rate		
Net farm income	+ 100	- 81
CCC outlays	+ 473	- 611
Consumer expenditures	- 258	- 67
Lower loan rate, no acreage programs		
Net farm income	+ 1,034	+ 1,086
CCC outlays	+ 3,405	+ 784
Consumer expenditures	- 521	- 195
Lower loan rate, no acreage programs, and no deficiency payments		
Net farm income	- 4,477	- 3,295
CCC outlays	- 3,159	- 3,720
Consumer expenditures	- 401	- 123
Expand acreage programs		
Net farm income	+ 57	- 26
CCC outlays	- 430	+ 2
Consumer expenditures	+ 127	+ 38

<sup>1</sup> Annual average change from baseline

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## In Earlier Issues

[T]he application of scientific principles to the use of mail surveys would probably strengthen such surveys to the point where they would yield just as accurate results as do enumerative surveys. This is not an attempt to minimize the importance of enumerative surveys in an over-all statistical program. It means, however, that a mail survey should be planned with as much attention to scientific principles as an enumerative survey. When that is done, the mail approach can be expected to yield satisfactory results in many situations in which its use has seemed undesirable.

Walter A. Hendricks  
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