WHEAT FARMING

In the Columbia Basin of Oregon

Part 3. *Impact of Proposed Wheat Programs on a Specialized Wheat-Summerfallow Farm*

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Introduction

This publication reports an investigation of the effects of various industry-wide wheat programs on farm organization and income of a specialized wheat-summerfallow farm. The report draws on Part 1 of this series, which describes the types and sizes of wheat-farm organizations, and Part 2, which discusses costs and returns on specialized wheat-summerfallow farms.

The analysis is based on farm budgets of land use and input-output data for a typical farm of 1,600-acres of cropland, with the moldboard-plow system of summerfallowing. The farm chosen is identical in size with the average of all specialized wheat summerfallow farms in the Columbia Basin of Oregon. It is also the size on which operation appears to be most efficient.

Analysis indicates that various farm programs would have about the same effect on income of farms of different sizes.[1] Therefore, only one size of farm is analyzed. The 1,600-acre farm is sufficiently large to capture the economies of large-volume operation.

The assumed programs were chosen arbitrarily from a wide variety of those proposed by various people and

[1] Unpublished Master's thesis: "Income Distribution of Wheat Farmers as Affected by Selected Government Programs," Ajmer Singh, March, 1961.

groups. Programs studied are not exhaustive, and individual provisions may not agree with those the reader has seen because proposals are continually being revised.

The direct effect of an industry-wide program on farm organization and income is only one aspect of a plan or program designed to solve the "wheat problem." Additional direct effects on different sectors of the economy, as well as indirect effects on producers and other groups within the economy, could not be treated adequately here. Therefore, no attempt was made to judge the adequacy of proposed programs in achieving the goals for which they were designed. The main purpose of the study was to ascertain changes in organization wheat farmers would make under the various wheat programs proposed and their effect on farm income and production of wheat or feed grains. However, a brief discussion of some additional considerations is included to emphasize that support programs have an impact on other groups within the economy, groups that would have an important voice in determining the kind of program adopted.

The results of the study are expected to help farmers estimate the effect of different programs on their farming operations and to provide information to farm leaders and policymakers.

Method of Analysis

In budgets used for each program situation, an attempt was made to keep the factors that influence costs as nearly the same or as comparable as possible with those used in each of the other situations listed. Full ownership of the farm with no indebtedness was assumed for all programs. Land was valued at $150 per acre, which with a uniform investment in buildings and machinery resulted in an overall investment of $285,000 per farm, or $178 per acre of cropland.[1]

[1] The impact of varying government programs on land values is discussed later.

Tillage practices are identical under all program situations. The farm is operated on a strictly crop-fallow basis, and the fallow land is plowed with a moldboard plow. Land productivity is assumed to vary for different parts of the farm, and because wheat is usually seeded on the most productive portions, yields of wheat vary depending upon the acreage used under each program. As land productivity is less important than weather in determining yields of barley, these yields were not changed as acreages seeded were changed.

For programs specifying diversion of wheatland to other uses, barley is grown in the wheat area as the best

alternative to wheat. Of the acreage diverted, 75% is seeded to fall barley and the remainder to spring barley. In addition, one-fourth of the fall barley is assumed to be winterkilled, and the land is reseeded to spring barley.

To permit comparisons of total output on the wheat farm under different program assumptions, bushels of wheat and barley were converted in a few instances to net energy value (total digestible nutrients, TDN). This is explained later. In programs that provide for land retirement, the average 1959 conservation reserve payment rates in the area are used. The acreage contracted under a land-retirement program is seeded to an approved cover crop. Costs of this work have not been considered; they are assumed to be covered partly by cost-sharing payments and by the general improvement of the soil as a result of this practice.

Total farm operating costs are arranged by major types of cost items, as is explained in greater detail in Part 2 of this series. Briefly, major groupings are cash and noncash costs. Cash costs are divided into the cash operating costs— those that must be incurred if a crop is to be produced and that vary directly with the acreage operated —and cash overhead costs, such as taxes and insurance, that are not associated with a particular crop but which must generally be met on a yearly basis. Noncash costs include depreciation and interest on investment and working capital.

Prices received for wheat and barley are given for each program situation. These were computed from indicated support levels or have been estimated from current or expected feed grain prices. Income from the sale of crops produced is enhanced by payments for land retired, by floors under market prices, and by direct payments to farmers. Subtracting total cash costs plus depreciation from gross receipts shows the net farm income representing the return to the farmer for his capital, labor, and management.

Of considerable importance in any wheat program are the administrative difficulties involved and the regulations needed to make it operate. No attempt was made in this study to evaluate the programs on the basis of administrative consideration.

Wheat Programs Studied

Programs included in the study reported may be grouped into those restricting the acreage of wheat and those not restricting acreage but limiting the amount of wheat that can be marketed at support prices. The 1959 acreage-allotment program is an example of the former; a bushel allotment or marketing-quota program represents the latter. Major specifications for the program situations analyzed are as follows:

Acreage-Allotment Programs

Program "A." "The 1959 Allotment Program" would provide for a limitation on wheat acreage for harvest of about 65% of the base acreage on each farm. The wheat base acreage is the average 1951 to 1953 acreage of wheat grown on the farm, adjusted for land diverted prior to initiation of the program and adjusted for the alternate crop-fallow method of operation. There would be no restrictions on use of the acreage diverted from wheat. In the Columbia Basin, most of this land has been planted to barley.

Price-support levels have varied since the present acreage-allotment program was initiated in 1954. In 1959, they were set at 75% of the parity price. This resulted in an average price received by farmers of $1.79 per bushel of wheat. The barley price received by farmers in the area in 1959 was near the support level of $0.87 per bushel, or about $36 per ton net.

Program "B." "The 1959 Allotment Program with Compulsory Land Retirement" was included to determine farm income when the diverted acres are contracted under a land-retirement program, such as the conservation reserve at the 1959 payment rates. Acreage retired, however, would be limited to the acreage which with average rates of payment would result in a total payment not to exceed $5,000 per farm. Acres diverted from wheat in excess of the amount contracted could be used for barley. Price supports for wheat and barley would be the same as under program "A."

Program "C." "The Modified Acreage-Allotment Program" would restrict wheat production still further than was specified in the 1959 allotment program. Wheat allotments would be 20% below 1959 allotments, and the 20% would be contracted in a mandatory land-retirement program. All other diverted acres could be planted to barley.

All wheat harvested would be price-supported at 80% of parity, which for the wheat area would result in prices received by farmers averaging $1.91 per bushel.[1] The barley price was assumed to be the same as the 1959 price of $0.87 per bushel. Compensation for land to be retired from production would be made in kind. The farmer would receive from government stocks of wheat the normal yield times the acreage of land that would have been harvested. Value of this wheat to the farmer is estimated at $1 per bushel.

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[1] With the support price in the wheat area under Program "A" of $1.79 at 75% of parity, the assumed price under this program is $\frac{80}{75} \times \$1.79 = \$1.91$.

Marketing-Quota Programs

Program "D." "The Multiple-Price Program" would provide for domestic food and export quotas. The food quota would be 35% and the export quota 15% of the base acreage times normal yield. To qualify for compensatory payments on food-quota wheat, the farmer would be required to contract 20% of his wheat base acreage in a land-retirement program for which he would receive current payment rates. There would be no other restrictions on use of cropland; most farmers would prefer to plant wheat instead of other grains on the remaining land.

Food wheat and export-quota wheat would be supported at 65% of parity, or $1.55 per bushel. In addition, if he complied with land-retirement provisions, the farmer would receive from the government $0.80 per bushel for food-quota wheat and the 1959 payment rates on the land retired. Wheat produced in excess of the food and export quotas would sell at $1 per bushel.

Program "E." "The Marketing-Quota Program" would provide for a bushel allotment on wheat for domestic food and export equal to 50% of the base acreage times normal yield. Ten percent of the wheat base would have to be signed up in a land-retirement program for which there would be no compensation. There would be no further restrictions on use of cropland. In the Columbia Basin, farmers would prefer to grow wheat even though there would be no price support.

Marketing-quota wheat would be supported at 95% of parity, which in the wheat area would result in a price of $2.27 per bushel. Wheat in excess of the marketing quota would sell at $1 per bushel.

Free-Market Situation

Program "F." "No controls or Supports" is considered by its advocates to be the solution to the "wheat problem." Whatever would be produced would find a market at some price, and adjustments in total production would be made at the margin. The wheat farmer in the Columbia Basin with practically no feasible alternatives would continue to grow wheat on all his available cropland. While small acreages in the strictly wheat-summerfallow area might change to an annual cropping system in years of favorable moisture conditions and some poor land would no longer be used as cropland, these shifts would be insignificant. They were not considered in this study.

Wheat prices without production controls would decline to a feed price level, even though we assume that accumulated stocks would not be disposed of in a way that would further reduce market prices of wheat. A price level for soft white wheat of $1 per bushel was assumed in this study, although at times some classes and types of wheat may command premiums or be sold above or below this level.[1]

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[1] For other estimates of the "free" market price for wheat see:
(1) Report from the U. S. Department of Agriculture and a statement from the Land Grant Colleges IRM-I Advisory Committee on Price and Income Projections, 1960-65. Eighty-sixth Congress 2d Session. Senate Doc. No. 77. U. S. Govt. Print. Off. Washington, D. C., 1960.
(2) Shepherd, G., A. Paulsen, F. Kutish, D. Kaldor, R. Heifner, and G. Futrell, *Production, Price and Income Estimates and Projections for the Feed-Livestock Economy Under Specified Control and Market-Clearing Conditions*. Special Report No. 27, Iowa State University of Science and Technology, Ames, Iowa, August 1960.

Comparison of Program Assumptions

Program provisions as discussed above are listed in Table 1 for ready reference in subsequent discussions, as well as for purposes of comparison.

Acreage restrictions may be in the form of allotments or limitations on the acreage from which wheat can be harvested as in programs A, B, and C. Restrictions may also apply to the uses made of the acreage that cannot be seeded to wheat if the farmer is to receive the specified supports and avoid penalties for noncompliance. Thus, programs B, C, D, and E include provisions for land retirement in varying amounts.

Acreage-allotment programs (A, B, and C) specify a price support for all wheat marketed, while bushel-allotment programs (D and E) specify a price support that applies only to the estimated wheat requirements for domestic food and export. Wheat in excess of these requirements would not be supported and would sell in competition with feed grains. Program D, which has a relatively low support level, includes a direct payment to the farmer for food-quota wheat if he complies with the land-retirement provisions.

Programs specifying certain percentages of the wheat base acreage to be retired from use (B, C, D) also provide for compensation in kind or at specified rates for land that would have been seeded (regular rate) and land that would have been summerfallowed (nondiversion rate). This does not apply to program E, under which 10% of the wheat base acreage is to be retired from use. In this program, the relatively high support level for wheat is intended to compensate for land retired.

Program F, a situation of no controls or supports is not shown in Table 1. It is included in subsequent discussions to compare farm costs, output, and returns with those for control programs.

Each program is considered as a separate situation existing over a number of years. However, it is unrealistic to assume that in a dynamic society stated prices will remain at the indicated levels for any length of time even if the program were successful in reducing production and accumulated stocks to a level approaching domestic and export demand. This is particularly true of nonsupported wheat entering feed channels when competing feed grains

are supported or controlled by similar programs. Prices of feed wheat would be expected to be governed by the value of wheat as a feed and the price of other feed grains. Prices used in the analysis illustrate differences in general levels of prices that might be anticipated with different programs, but they are not to be considered as precise and they might not remain at indicated levels for any length of time.

Table 1. Major Provisions of Specified Assumed Programs

Item	A 1959 allotment program	B 1959 allotment program	C Modified 1959 program	D Multiple-price program	E Marketing-quota program
Acreage restrictions: Wheat allotment	65% of wheat base acreage	65% of wheat base acreage	52% of wheat base acreage (20% below 1959 allotment)	None (limited production under support)	None (limited production under support)
Use of acreage diverted from wheat	Not restricted	To be contracted under land retirement program up to $5,000 compensation per farm, remainder not restricted	20% reduction in allotment to be contracted, remainder not restricted	20% of wheat base acreage to be retired to qualify for payments on food-quota wheat, no other acreage restrictions	10% of wheat base acreage to be retired, no other restrictions
Land retirement (mandatory)	None	Maximum, limited to $5,000 compensation per farm or 404 acres	13% of wheat base acreage (20% of 1959 allotment)	20% of wheat base acreage	10% of wheat base acreage
Wheat supports: Proportion of wheat crop supported	All	All	All	Domestic food and export requirements	Domestic food and export requirements
Level of support	75% of parity ($1.79/bu.)	75% of parity ($1.79/bu.)	80% of parity ($1.91/bu.)	65% of parity $1.55/bu.	95% of parity ($2.27/bu.)
Compensation for land retired:	None	1959 Conservation reserve rates ($16.50/A. regular, $8.25/A. nondiversion)	In kind, normal yield times one-half of the acreage retired	$0.80/bu. payment on food-quota wheat and 1959 Conservation reserve rates (16.50/A. regular, $8.25/A. nondiversion)	None
Assumed free-market price: Wheat Barley	None $0.87/bu.	None $0.87/bu.	None $0.87/bu.	$1.00/bu. None	$1.00/bu. None

Land Use and Production

From the standpoint of practical farm operations, one of the most difficult problems for most farmers is compliance with acreage-allotment programs, particularly when year-to-year changes are made in program provisions or administration. Fields are generally not of the correct size to adjust readily to acreage limitations, and if land is rented from several owners, each allotment may need to be planted on the corresponding land with the diverted acres scattered over different parts of the farm unit.

Bushel allotments not involving acreage restrictions on wheat, except possibly for a land-retirement provision, do not require careful field measurements; they merely specify the quantity of wheat that a farmer can market under one or more quotas. Such programs do not induce production of a possibly high-risk or lower valued alternative crop.

Land use in accordance with the specifications of the six programs tested is shown in the upper part of Table 2. Because total earnings for land retired are limited to $5,000, program B, the maximum acreage contracted, cannot exceed 404 acres, half of which would otherwise be cropped in any one year. This leaves a small acreage to be planted to barley.

Table 2. Land Use, Yields, and Production of Crops Under Specified Wheat Program Assumptions (1,600-acre specialized wheat-summerfallow farm)

Item	A 1959 allotment program	B 1959 program with land retirement	C Modified 1959 program	D Multiple-price program	E Marketing-quota program	F No controls or supports
Land use:	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Wheat seeded and harvested	520	520	416	640	720	800
Winter barley seeded..................	210	58	210	....	....	....
Winter barley harvested..............	158	44	158	....	....	....
Total spring barley harvested....	122	34	122	....	....	....
Summerfallow	800	598	696	640	720	800
Acreage retired	......	404	208	320	160	....
Yield per acre harvested:	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*
Wheat	32.0	32.0	32.5	32	31.5	31
Winter barley	40.0	40.0	40.0	....	....	....
Spring barley	38.0	38.0	38.0	....	....	....
Production:						
Wheat	16,640	16,640	13,520	20,480	22,680	24,800
Barley	10,956	3,052	10,956	....	....	....

In the lower part of Table 2, total production of wheat and of barley under various programs is shown. Wheat production is lowest under program C, but production of barley remains the same as with program A (1959 program). Highest wheat production results from a situation of no controls.

Marketing-quota programs (D and E) specify estimated food and export requirements for wheat by using an assumed percentage of the base acreage times normal yield. For purposes of this analysis, it is assumed that basic needs for wheat for domestic food and normal exports would require half the total production of wheat that would be forthcoming on the 1,600-acre farm without production controls.

To compare programs with regard to production of grain in excess of the requirement for wheat, production above basic needs was converted to a common denominator

[1] It is recognized that barley produced on wheat farms enters a different market than wheat and strictly speaking, cannot be classified as surplus or excess grain production without an investigation of the supply and demand situation for barley and other feed grains. Present efforts to alleviate the surplus feed grain situation, however, indicate that production on farms which without controls on wheat production would not grow barley, is an addition to already burdensome feed grain supplies. The solution of the "wheat problem," therefore, cannot lie in a mere shifting of the burden to another commodity which on a national basis in combination with other feed grains, if not locally, appears to be plagued by price-depressing supplies. For these reasons, barley produced instead of wheat or wheat in excess of basic needs are considered grain supplies in addition to specified requirements for wheat.

of net energy value or total digestible nutrients (TDN) at the rate of 48 pounds per bushel of wheat and 34 pounds per bushel of barley.[1] These data are given in Table 3. Grain production above domestic food and export requirements for wheat under various programs is shown graphically in Figure 1.
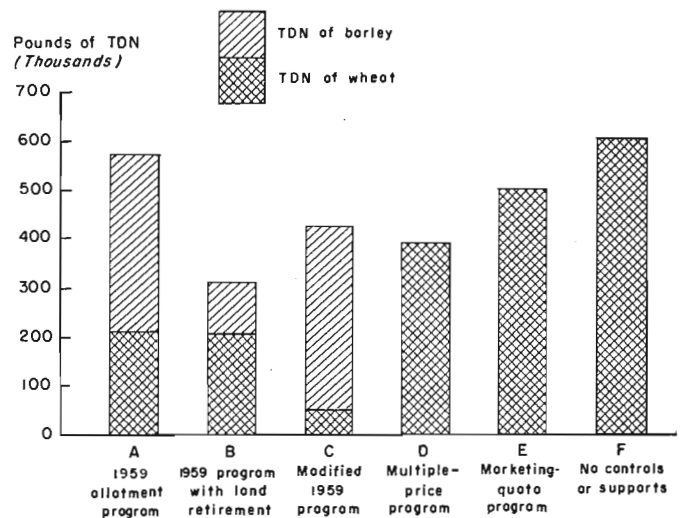

FIGURE 1. Wheat and barley produced above estimated food and export requirements on a 1,600-acre farm under specified program assumptions.

Table 3. Estimated Requirements and Supplies of Grains in Excess of Requirements for Wheat Under Specified Wheat Program Assumptions (1,600-acre specified wheat-summerfallow farm)

Item	A 1959 allotment program	B 1959 program with land retirement	C Modified 1959 program	D Multiple-price program	E Marketing-quota program	F No controls or supports
Requirements:	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*
Domestic food wheat	8,680	8,680	8,680	8,680	8,680	8,680
Export wheat	3,720	3,720	3,720	3,720	3,720	3,720
Total requirements	12,400	12,400	12,400	12,400	12,400	12,400
Additional grain produced:						
Wheat	4,240	4,240	1,120	8,080	10,280	12,400
Barley	10,956	3,052	10,956	....	....	....
Additional grain production, TDN	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
From wheat	203.5	203.5	53.8	387.8	493.4	595.2
From barley	372.5	103.8	372.5	....	....	....
Total excess[1]	576.0	307.3	426.3	387.8	493.4	595.2

[1] Supplies in excess of wheat needed for domestic food and normal exports.

Wheat production in excess of domestic and export needs is largest in a no-control or support situation (F), followed by the bushel-allotment programs (E and D). These three programs do not involve diversion of wheat acreage to barley. The lower wheat production in the bushel-allotment programs is caused by mandatory land retirement. Acreage-allotment programs tested result in the smallest excess wheat production. However, the diversion of land to barley brings additional grain production to a substantial amount. Total grain production would be reduced in programs B and C to the extent that crop-land would be retired. Without land retirement (program A), the quantity of additional grain produced, when expressed in net energy value, is nearly as large as under a no-program situation (F). Somewhat lower net energy value results because the value produced per acre of barley is slightly lower than the feed value per acre of wheat. Thus, under the current program, additional grain production is only about 3% lower than without controls. The lowest additional production results from an acreage-allotment program, which includes the maximum of land retirement (B).

Gross Receipts

Gross returns to the farmer under the different program assumptions are based on assumed market prices, compensatory payments received, and payments for land retirement as specified earlier.

These items are given in detail in Table 4 and grouped in Figure 2.

Except for a situation of no controls or supports (F), total gross receipts under different support programs lie

Table 4. Prices Received, Sales, and Gross Receipts Under Specified Wheat Program Assumptions (1,600-acre specialized wheat-summerfallow farm)

Item	A 1959 allotment program	B 1959 program with land retirement	C Modified 1959 program	D Multiple-price program	E Marketing-quota program	F No controls or supports
Price received:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Food-quota wheat, bu.	....	....	....	1.55	....	....
Food compensatory payment, bu.	....	....	....	.80	....	....
Export-quota wheat, bu.	....	....	....	1.55	....	....
Marketing-quota wheat, bu.	....	....	....	....	2.27	....
All other wheat, bu.	1.79	1.79	1.91	1.00	1.00	1.00
All barley, bu.	.87	.87	.87	....	....	....
Land retired, regular, A	....	16.50	....	16.50	....	....
Land retired, nondiversion, A	....	8.25	....	8.25	....	....
Land retired, payt. in kind, bu...	....	....	1.00	....	....	....
Quantities:	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
Food-quota wheat	....	....	....	8,680	....	....
Food compensatory payment	....	....	....	8,680	....	....
Export-quota wheat	....	....	....	3,720	....	....
Marketing-quota wheat	....	....	....	....	12,400	....
All other wheat	16,640	16,640	13,520	8,080	10,280	24,800
All barley	10,956	3,052	10,956	....	....	....
	Acres	Acres	Acres	Acres	Acres	Acres
Land retired, regular	....	202	....	160	....	....
Land retired, nondiversion	....	202	....	160	....	....
Land retired, payt. in kind, bu...	....	....	104	....	....	....
Land retired, no payment	....	....	....	....	160	....
Gross receipts:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Food-quota wheat	....	....	....	13,454	....	....
Food compensatory payment	....	....	....	6,944	....	....
Export-quota wheat	....	....	....	5,766	....	....
Marketing-quota wheat	....	....	....	....	28,148	....
All other wheat	29,786	29,786	25,823	8,080	10,280	24,800
All barley	9,531	2,655	9,532	....	....	....
Land retired, regular	....	3,333	....	2,640	....	....
Land retired, nondiversion	....	1,667	....	1,320	....	....
Land retired, payment in kind	....	....	3,328	....	....	....
Total gross receipts	39,317	37,441	38,683	38,204	38,428	24,800

within 5% of each other. Highest gross receipts occur with the current allotment program (A) and lowest gross returns occur under this program with mandatory land retirement (program B). Other programs (C, D, and E) result in gross returns falling between these limits. Gross receipts from the sale of wheat (including support payments) are highest under the marketing-quota program (E) with its relatively high support price. Receipts from wheat are lowest under the modified 1959 program (C) primarily because of the small quantity of wheat produced and a lower price. Gross returns from the sale of barley in the acreage-allotment programs vary from 7% of the total (B) to 25% (C), depending on the acreage diverted from wheat and the amount of land retired. Compensation for land retired constitutes an important 9% to 13% of gross receipts in three programs. The payment per acre contracted under program B, in which the payment is made in kind, is higher than at the 1959 contract rates.

Gross returns under various program assumptions are important, but differences in costs must be considered also.
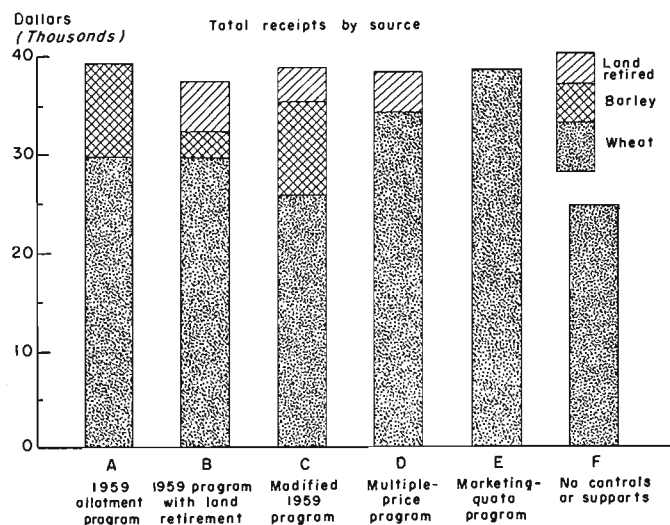

FIGURE 2. Comparison of gross receipts on a 1,600-acre farm under different program assumptions.

Farm Operating Costs

Operating costs were computed using the assumptions and procedure discussed in Part 2 of this series of publications. Total costs (cash and noncash) would be lowest with programs that include land-retirement provisions (B, C, D, and E) and vary with amount of land contracted (Table 5). Costs would be highest under the current allotment program, followed closely by a situation of no controls or supports. Variations in total costs between programs can be traced primarily to differences in cash operating costs.

An entirely different situation is presented if costs are calculated per acre harvested (Table 5). Cash and noncash costs on this basis are lowest for the situation without any controls (F) and next lowest under 1959 program conditions. Costs per acre harvested, particularly noncash costs, rise substantially with the amount of land retired. The reason for this is the smaller acreage of land over which total costs are spread. Land retirement results in a reduction in the operating unit without an equivalent reduction in total costs.

Differences in overall costs are due primarily to differences in cash operating costs. This is illustrated graphically in Figure 3, which gives the magnitude of the major components of farm expenses. It also illustrates that, while certain programs including land-retirement provisions have lower total farm expenses, the efficiency in operation as indicated by expenses per acre harvested is reduced. The efficiency of farm operation as measured by farm expenses per acre is greatest under conditions of no controls.
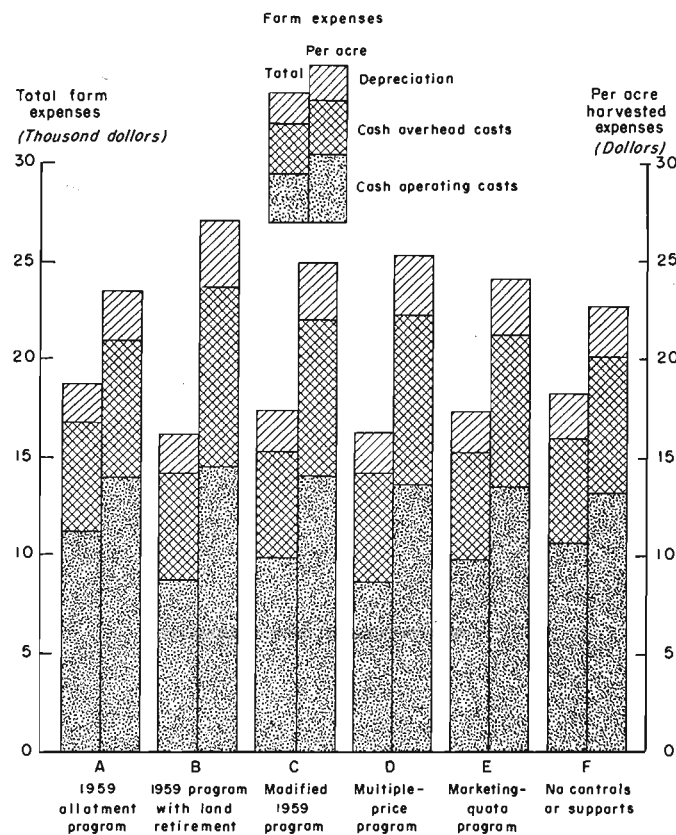

FIGURE 3. Farm expenses on a 1,600-acre farm under different program assumptions, total and per-acre harvested.

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Table 5. Total and Per-acre Costs Under Specified Wheat Program Proposals (1,600-acre specialized wheat-summerfallow farm)

Item	A 1959 allotment program	B 1959 program with land retirement	C Modified 1959 program	D Multiple- price program	E Marketing- quota program	F No controls or supports
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Total Costs						
Cash operating costs	11,134	8,704	9,813	8,744	9,792	10,596
Cash overhead costs	5,603	5,480	5,537	5,490	5,546	5,594
Total cash costs	16,737	14,184	15,350	14,234	15,338	16,190
Depreciation	2,043	2,043	2,043	2,043	2,043	2,043
Interest on investment and working capital	14,908	14,863	14,884	14,864	14,883	14,898
Total noncash costs	16,951	16,906	16,927	16,907	16,926	16,941
Total all costs	33,688	31,090	32,277	31,141	32,264	33,131
Costs Per Acre Harvested						
Cash operating costs	13.92	14.56	14.10	13.66	13.60	13.24
Cash overhead costs	7.00	9.16	7.96	8.58	7.70	7.00
Total cash costs	20.92	23.72	22.06	22.24	21.30	20.24
Depreciation	2.55	3.42	2.94	3.19	2.84	2.56
Interest on investment and working capital	18.64	24.85	21.38	23.23	20.67	18.62
Total noncash costs	21.19	28.27	24.32	26.42	23.51	21.18
Total all costs	42.11	51.99	46.38	48.66	44.81	41.42

Net Farm Income

Net farm income is the residual after all cash costs have been paid and a charge has been made for depreciation of equipment and buildings. These cost items, commonly referred to as total farm expenses, represent the minimum that must be covered by receipts over the long run if the farmer is to continue operating his farm. Receipts above farm expenses will give him a return on his capital investments and compensation for his own labor and management.

Gross receipts under all programs studied will cover farm expenses on the 1,600-acre farm (Figure 4). However, although this farm is adequate in size and efficiency, it will not have sufficient revenue to return the going rate of interest on investment nor any return for labor and management in a situation of no supports (program F). A prolonged period of inadequate returns to capital and operator's labor inevitably would reduce the value of assets, particularly land. Investment in land was set at approximately the appraised value for tax purposes rather than at current market value. With current rates of assessment, a decline in land values followed by a reduction in appraised values would result in a considerable reduc-

tion in needed tax revenues. If assessment rates were raised to yield the same revenue as before, farmers would not experience a reduction in taxes. A decline in farm values due to inadequate returns to capital would greatly concern those farmers who had bought land at the higher prices, largely with borrowed funds. Interest and amortization payments on mortgages might absorb the revenue above operating expenses, leaving little for family living. Under such circumstances, many farmers would need to liquidate their assets. One of the main objectives of farm support programs is to prevent extremely low farm income.

For the support programs studied, total farm expenses range from a low of about $16,200 (B) to a high of nearly $18,800 (A) as shown in Table 6. Since gross receipts for these extremes show a similar trend, there is only a minor difference in net farm income. The low-cost operation (program B) results in a $677 higher net farm income than the high-cost operation (program A). Thus it appears that under the current program, farmers would have benefited if they had contracted most of the diverted acres under the Conservation Reserve Program, particu-

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larly if some land is of lower than average productivity. Absence of participation indicates that the small difference was not enough to induce farmers to place the maximum permissible acreage in the conservation reserve. Except for program F, net farm income is about the same under all support programs studied. It varies within a range of $1,390. Net farm income under program F, on the other hand, only would be about a third of the income under the various support programs.

Table 6. Net Farm Income and Return to Operator's Labor per Hour of Work Under Different Program Assumptions

Item	A 1959 allotment program	B 1959 program with land retirement	C Modified 1959 program	D Multiple- price program	E Marketing- quota program	F No controls or supports
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Gross receipts	39,317	37,441	38,683	38,204	38,428	24,800
Farm expenses	18,780	16,227	17,393	16,277	17,381	18,233
Net farm income	20,537	21,214	21,290	21,927	21,047	6,567
Interest on investment	14,908	14,863	14,884	14,864	14,883	6,567[1]
Return to labor and management	5,629	6,351	6,406	7,063	6,164	0
Operator's labor:	Hours	Hours	Hours	Hours	Hours	Hours
Field work	913	674	799	708	794	881
Other work and management	750	750	750	750	750	750
Total	1,663	1,424	1,549	1,458	1,544	1,631
Return to operator for labor and management:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Per hour of work	3.38	4.46	4.14	4.84	3.99	0

[1] This is $8,331 short of providing a return to capital comparable to the support programs.

Returns to Capital and Labor

Over an extended period of time, capital funds invested in farming must earn an interest rate comparable to the rate the farmer could get for his funds elsewhere. There may be year-to-year variations in the return to capital depending upon the success in farming but a charge for the capital needed is a justified charge against the farm business.

For purposes of the study reported, an average rate of interest has been assumed which compares with reasonable rates of returns on capital invested in other enterprises. Because of these uniform rates and the same amount of fixed capital assumed, interest charges under different programs vary only by the amount of interest charged on annual cash operating funds needed. The difference between programs is minor, but the total of all interest on capital requirements, which is in the neighborhood of $285,000, becomes a major cost item.

All support programs leave sufficient funds after covering farm expenses to yield a return to capital in the neighborhood of 5%. Without price or income supports, the operator receives slightly more than 2% on the value of his assets. A price of $1.35 per bushel with no production controls would be necessary to yield a return at the going rate of interest, although such a wheat price would

not be adequate to yield a return to both the operator's capital and his labor and management.

Cost calculations, as used in the study, do not include an allowance for the labor and management of the farmer. The reason for this is the difficulty of estimating and evaluating labor spent on supervision and management. Therefore, returns to operator's labor and management were treated as a residual after cash costs, depreciation, and interest on investment have been deducted from gross receipts.

Labor and management return as shown in Table 6 and Figure 4 is largest under the multiple-price program (D), amounting to slightly over $7,000 a year. In operating his farm under this program, the farmer would spend about 708 hours in actual fieldwork. If it is assumed that he would spend another 750 hours of work on farm maintenance, supervision, and management, he would expect compensation for a total of nearly 1,460 hours, the equivalent of 5 to 6 months of full-time work. The return to labor and management per hour of work would amount to $4.84. If the return per hour of total operator's labor under alternative programs is computed by the same method, a measure of evaluating different support programs from the viewpoint of returns to labor and management is provided. The multiple-price program (D) ranks ahead of the acreage-allotment program with land retirement (B) and the modified acreage-allotment program (C). Returns to labor are less with the marketing-quota program (E), the current allotment program (A), and, of course, the program of no supports.
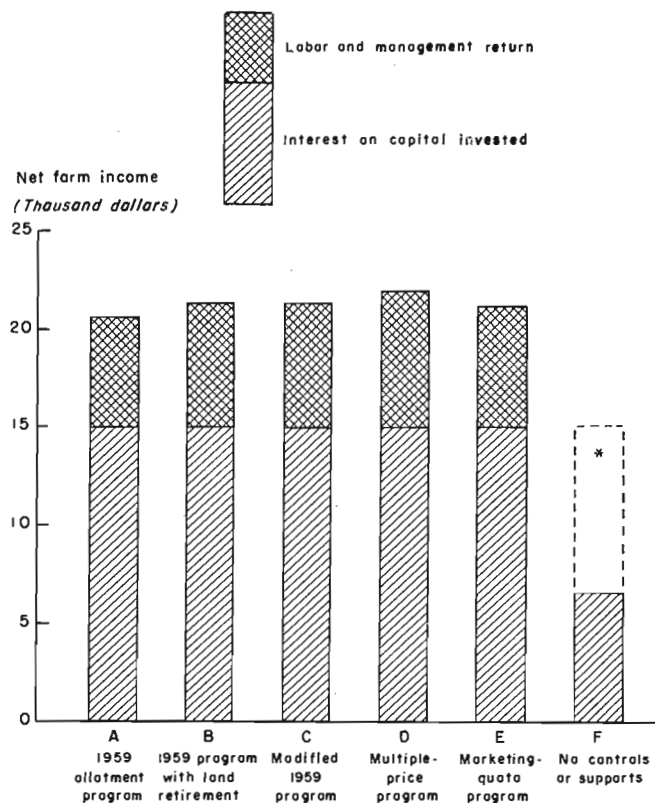
* Income required to return interest on investment comparable to that under various support programs with no return to operator's labor and management.

FIGURE 4. Net farm income on a 1,600-acre farm under different program assumptions distributed between interest on capital invested and returns to operator's labor and management.

What Are the Choices?

The preceding discussion compares wheat programs on the basis of operating costs and returns to farmers. The "wheat problem" is more complex than this. Producers and users of feed grains have an interest in government wheat programs that influence the supply and price of grain. Other sectors of the economy also are involved. When government expenditures are used to correct any income situation considered inequitable, the taxpayer is affected. Even though the price of wheat received by the farmer represents only 14% of the price paid by the consumer for bread, the consumer does pay any additional cost resulting from higher wheat prices. Furthermore, accumulation of surplus stocks is of concern to the taxpayer who visualizes expenses of storage, transportation, and final disposal of commodities that move into government storage, but does not associate them with some of the offsetting benefits the public receives from agriculture's increasing productivity. These include lower production costs and hence lower food costs, associated with increased output, as well as our contribution to economic development in underdeveloped countries and to world stability, which would be more difficult without a productive agriculture in this country.

Programs considered in this study vary with respect to their impact on consumer prices, the volume and cost of wheat and feed grains produced, surplus stocks, the amount of land retired, and opportunities to produce wheat and feed grains. Most of these factors are interrelated. Beneficial effects of any one factor are often offset by its tendency to increase the cost of another factor or to affect another sector of the economy. For example, the level of production on individual farms that would minimize production costs would tend to lower consumer prices. But in our current surplus situation, it would also increase surpluses and associated storage costs, or it would force operators out of production. Furthermore, the chain of reaction would extend to both producers and consumers of alternative or competitive products. Conversely, somewhat higher production costs and hence higher consumer prices would accompany a wheat program bringing

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total wheat production and utilization into balance by idling a portion of the production resources on individual farms. But such a program would reduce storage costs, thereby offsetting, at least partly, the higher consumer prices.

An adequate appraisal of alternative programs from the viewpoint of all affected parties is not possible in this report. The discussion that follows is limited to the first stage of production—the point at which the products leave the farm. Both benefits and costs in other parts of the economy vary with the amount and disposition of wheat and feed grain leaving the farm. Nevertheless, a consideration of the situation at the farm level will help provide a basis for a study of marketing and surplus-disposal aspects that is needed in a complete evaluation of different wheat programs.

Another limitation of the study involves dependence on a 1,600-acre farm as a basis for generalization. Even though this farm was found to be one of the most efficient farm sizes studied and discussed in detail in Part 2 of this series of reports, generalizations to other sizes of farms, to wheat farms outside the area, or to the entire wheat industry need to be made with care.

The "no controls and no supports" program (F) provides a basis for comparison in appraising the effects of alternative programs on output and production costs. Under a situation of no supports, the 1,600-acre farm would produce 24,800 bushels of wheat at a cost of $1 a bushel. Domestic human consumption is estimated at 35% of total production without controls, and exports are estimated at 15%. Thus, the proportionate share for the 1,600-acre farm would be 8,680 and 3,720 bushels, respectively. Additional wheat or barley produced would go either into the feed market or into storage.

Under a program of no supports, the 1,600-acre farm would yield a gross income of $24,800 (Table 7). This is the lowest direct cost to society of any of the programs considered. But indirect costs, either those associated with storage and handling of excessive supplies and income transfers to maintain acceptable levels of farm income, or social costs associated with the elimination of producers, would be considerable. Society has apparently decided that the indirect costs associated with no controls or supports are excessive and that some type of control or support program is appropriate. Without controls or supports, half of the wheat produced would go into storage or into a feed market already burdened with surpluses. And gross farm income would need to be increased by more than $13,000 to give the farmer a return on capital comparable to that in other productive enterprises and about $3 per hour for 1,631 hours of labor spent in fieldwork, supervision, and management (Table 6). This would provide a total payment of nearly $5,000 for labor and management. It is not implied here that this is either an adequate or an inadequate return to labor and management; it is used merely as a basis for making comparisons between programs. Obviously, the farmer must receive some return for his labor, management, and capital if he is to continue to use them in wheat farming over an extended period of time.[1]

Table 7 permits a comparison of the various programs on some of these points that will be of interest to wheat farmers, taxpayers, consumers, and producers of competing products. The first line of the table presents the total direct costs to society for the various programs. As explained earlier, this represents the farmer's gross income. All of the government programs involve a higher direct cost than would a program of no controls and no supports (program F). They vary by $1,876, or 5%. Returns to operator's labor, capital, and management for the various support programs vary by $1,390, or about 7%. A wheat price of $1.53 per bushel would be required to raise net farm income from the $6,567 found in a situation of no controls and no supports to $19,791, the return necessary to cover all costs, assuming capacity production of 24,800 bushels. This would be a lower per-unit cost to society than for any of the support programs, but the indirect costs associated with excess supplies would still be incurred.

Despite relatively small variations among the support programs in direct costs to society and in net farm income, they vary considerably in amounts of food and feed produced and land retired. The relative weights placed on production of wheat and barley above domestic food and normal export requirements for wheat and on land retirement influence the evaluation of the "direct costs" considered in determining the "best" program. If it is assumed that production in excess of food and export requirements has a high priority, a support program without production controls would also have a high priority. By supplementing farm income by 53 cents per bushel of wheat, the highest production at the lowest direct cost per unit could be obtained.[2] On the other hand, if additional production is viewed as a liability, program B would result in the lowest total production. The greatest amount of TDN production is found with program A followed by program E. Study of Table 7 will permit a comparison to be made among programs with respect to direct costs, wheat and feed grain production, and direct cost per unit of production.

The question as to whether production above domestic and export requirements should be viewed as a net asset or a net liability does not have a clear answer. Obviously, this production is capable of satisfying human wants. If it is moved into commercial channels either domestically or abroad, it affects price levels of other commodities and

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[1] It was pointed out earlier that input prices probably would not remain constant for all programs. For example, land prices would undoubtedly decline if a situation of no controls and no supports prevailed. Failure to receive a return to land at current land prices and prevailing interest rates would not necessarily mean that land would go out of wheat production. But, if land and other resources are to continue to be used for wheat production, farmers must receive a return that at least equals the return they would earn in the next most profitable alternative.

[2] This would amount to approximately $1.53 per bushel, $47.53 per acre harvested, $31.31 per 1,000 TDN produced.

producers. Distribution in noncommercial channels, such as school lunch programs, a food stamp plan, or various other domestic humanitarian endeavors, may minimize adverse effects on producers of other commodities while helping to attain desired goals of society. Also, using "excess" supplies in international relief programs or plans to further the objectives of the free world may be of benefit to our society, although values realized are not readily expressed in monetary terms.

Certain costs are associated with each of these uses or any combination of them. Movement of excess supplies into commercial channels at home or abroad could affect adversely the incomes of other producers. As a result, a program that permits distribution outside normal channels with little effect on regular trade patterns is preferable. It is also clear that an indefinite storage of surplus production is uneconomic. It would be more appropriate to

conserve our land resources by leaving them idle and to avoid storage and other charges than to produce crops for which there are no feasible outlets. Thus, it may be more efficient to support farm income at the desired level but to control production to a level at which it can be distributed. Meanwhile, means are needed for encouraging excess resources in agriculture to seek other, more productive pursuits.

The discussion has not indicated any one "best" plan. It does bring out some of the considerations to be taken into account when a program is selected. In summary, these are: (1) the level of net farm income, (2) total direct costs to society at the farm level, (3) the benefits other than those to the farmer of food and feed production, (4) the indirect costs associated with differing quantities of food and feed production, and (5) the "conservation" benefits of land retirement.

Table 7. Comparison of Support Programs on the Basis of Major Characteristics

Item	Unit	A 1959 allotment program	B 1959 with land retirement	C Modified 1959 program	D Multiple-price program	E Marketing-quota program	F No controls or supports
Total costs to society[1]	Dollar	39,317	37,441	38,683	38,204	38,428	24,800
To cover farm expenses[2]	Dollar	18,780	16,227	17,393	16,277	17,381	18,233
To yield return on capital, operator's labor and management[3]	Dollar	20,537	21,214	21,290	21,927	21,047	6,567
Acreage harvested[4]	Acre	800	598	696	640	720	800
Acreage retired[5]	Acre	....	202	104	160	80	....
Wheat produced, total	Bushel	16,640	16,640	13,520	20,480	22,680	24,800
Domestic food and export	Bushel	12,400	12,400	12,400	12,400	12,400	12,400
Other wheat[6]	Bushel	4,240	4,240	1,120	....	....	....
Feed wheat	Bushel	....	....	....	8,080	10,280	12,400
Barley produced, total	Bushel	10,956	3,052	10,956	....	....	....
Total TDN production[7]	1,000 pounds	1,171.2	902.5	1,021.5	983.0	1,088.6	1,190.4
Cost per unit							
Per acre harvested[8]	Dollar	49.15	62.61	55.58	59.69	53.37	31.00
Per 1,000 TDN produced[9]	Dollar	33.57	41.49	37.87	38.86	35.30	20.83
Per bushel of wheat[10]	Dollar	1.54	1.96	1.71	1.87	1.69	1.00
Per bushel of winter barley[10]	Dollar	1.23	1.57	1.39	....	....	....
Per bushel of spring barley[10]	Dollar	1.29	1.65	1.46	....	....	....

[1] Gross receipts of the farmer.
[2] Cash farm operating costs plus depreciation.
[3] Net farm income.
[4] Acreage in crops minus land retired which would have been used for crops in the absence of controls.
[5] Land that would have been used for crops. An equal acreage that is retired would have been fallowed.
[6] Wheat above domestic food and export requirements supported above feed price level.
[7] Bushels of all wheat and barley produced converted to net energy value.
[8] Total costs divided by acreage harvested.
[9] Total costs divided by total TDN produced.
[10] Costs per acre harvested divided by applicable yield.