Wheat

Background for 1995 Farm Legislation

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Introduction

The 1995 wheat crop will probably be the last crop produced under the 1990 Food, Agriculture, Conservation, and Trade (FACT) Act. Although this act has met many of its objectives, dialogue has begun on ways to improve the next major farm bill. Many issues are being discussed, such as protecting the environment, regulating for food safety, allowing producers to continue to be viable and competitive, implementing a crop insurance plan that is affordable and effective, lessening budget expenditures, and continuing the current legislation with minor changes.

The focus of many discussions during the summer and fall of 1994 was on distributing benefits to producers; maintaining export competitiveness through the Export Enhancement Program (EEP); maintaining the Conservation Reserve Program (CRP) and environmental issues; and planting flexibility. Some groups fear that if Federal farm programs continue to reward consolidation in agriculture by helping well-established large farms acquire control of the land, these large farms will bid moderate-sized or beginning farmers out of the land market. Other concerns expressed are that ways should be sought to further protect the environment, regulate food safety, and minimize government costs while allowing producers to be viable and competitive. One group is developing a proposal for an Environmental Reserve Program that would replace the Acreage Reserve Program. Some groups are suggesting ways to continue with an improved CRP. Others want to continue the direction of the current law, but provide more planting flexibility and "creative environmental incentives" while maintaining farm income.

This report describes major factors and developments in wheat production and marketing that must be considered in finding appropriate policies. The current and prospective economic well-being of wheat producers is likely to affect the policy debate. Economic and structural factors affecting the current cost/returns position of wheat farmers are also reviewed. Trends in domestic use, exports, and supply are examined to explain price fluctuations that have characterized the wheat industry. Many of the issues facing the sector are briefly discussed.

The report also defines the characteristics of wheat production and demand that distinguish it from other crops. There are five major classes of wheat which are grown in distinct regions and which have different uses. The economic and environmental conditions affecting wheat and accompanying trends greatly influence how wheat farmers respond to market conditions and to farm programs.

The review of recent wheat programs presented in this report, economic conditions motivating the programs, results of those programs, and a review of issues facing the sector are useful in developing future policy.

Characteristics of the Wheat Industry

Wheat is the principal food grain in the United States and, along with rice, one of the major food grains throughout much of the world. The farm value of U.S. wheat production totaled $7.7 billion in 1993, 9 percent of total U.S. crop values that year (*26*).[1] Domestic use's average share of total wheat consumption has grown since 1980. Although exports' share of total consumption has dropped, exports still accounted for about 50 percent of total use in marketing year 1993/94 (app. table 1). Wheat exports accounted for 13 percent of total U.S. agricultural exports or $6.5 billion in fiscal 1993. The characteristics, performance, and issues of the wheat sector are examined to aid evaluation of policy alternatives.

[1]Italicized numbers in parentheses refer to sources listed in Additional Readings at the end of this report.

Structure of the Production Sector

The number of U.S. farms harvesting wheat fell 17 percent from 352,237 in 1987 to 292,464 in 1992 (table 1). The number of all-grain farms fell 16 percent. Part of the decline in wheat farming may be caused by a transfer of assets into the production of other crops, especially other grains (*18*). Farms harvesting wheat averaged 202 acres in 1992, up from 151 acres reported in 1987 (*32* and *33*). Reasons for the increase in harvested acres per farm were, in part, more favorable market returns to producers, a lower acreage reduction program (ARP) requirement in 1992 (5 percent) compared with 1987 (27.5 percent), and fewer farms in 1992 compared with 1987.

Wheat production continues to be a supplementary enterprise for many farmers. The number of farms harvesting wheat by each size group declined between 1987 and 1992 with a decline in the smaller farms' share of the total number but a slight gain in the larger farms' share (table 1). Fifty-seven percent of farms harvested 1 to 99 acres of wheat during 1992. Farms in this category accounted for only 11 percent of total wheat production in 1992. Consequently, the wheat program may not be as important to these producers as to producers with larger acres harvested. In contrast, farms harvesting 100 acres or more accounted for only 43 percent of the farms harvesting wheat but 89 percent of production.

The proportion of the larger farms harvesting wheat increased between 1987 and 1992, while the proportion of the smaller farms harvesting wheat declined (table 2). Farms with 500 acres of cropland or more accounted for 51 percent of farms harvesting wheat in 1992, compared with 48 percent in 1987. Farms with less than 260 acres accounted for 31 percent in 1992, down from 32 percent in 1987. Larger farms harvesting wheat may partly reflect the general trend of increasing farm size. The average size of all U.S. farms rose from 462 acres in 1987 to 491 in 1992. Nearly 35 percent of the farms harvesting wheat had annual sales of $100,000 or more in 1992, while only 13 percent had sales of less than $10,000 (table 2). In comparison, about 27 percent of the farms had annual sales of $100,000 or more in 1987 and 16 percent had sales below $10,000.

The organization and tenure of wheat farm operators did not change very much between 1987 and 1992. The largest group of wheat farm operators, 81 percent of all operators, continues to be individual or sole proprietorships. Partnerships account for 13 percent of wheat farms; and corporations, 5 percent. The tenure of wheat farm operators continues to be controlled by part-owners accounting for 55 percent of the total, followed by full-owners with 30 percent, and tenants with 15 percent.

Table 1—Number of farms harvesting wheat by acres, production, and yield, 1987 and 1992

Year/acres harvested	Farms	Share of total	Production	Share of total	Yield/acre
	Number	*Percent*	*Bushels*	*Percent*	*Bushels*
1987:					
1-99	224,529	63.7	292,651,950	15.5	40.0
100-249	65,041	18.5	365,017,228	19.3	35.9
250-499	36,471	10.4	435,897,148	23.1	34.5
500-999	19,915	5.6	457,393,896	24.2	34.5
1,000 and over	6,281	1.8	336,143,742	17.8	34.2
Total	352,237	100.0	1,887,103,964	100.0	35.5
1992:					
1-99	167,871	57.4	245,323,241	11.1	41.7
100-249	57,625	19.7	350,663,650	15.9	39.2
250-499	33,429	11.4	433,542,602	19.6	37.2
500-999	22,703	7.8	564,956,378	25.6	36.6
1,000 and over	10,836	3.7	612,243,605	27.8	35.6
Total	292,464	100.0	2,206,729,476	100.0	37.3

Sources: (*32* and *33*).

Table 2—Number of farms harvesting wheat by farm size and sales class, 1987 and 1992

Year/cropland acres	Farms	Share of total	Gross sales	Farms	Share of total
	Number	*Percent*		*Number*	*Percent*
1987:					
1-99	39,940	11.3	Less than $2,500	13,888	3.9
100-259	75,611	21.5	$2,500-$9,999	47,850	13.6
260-499	70,836	20.1	$10,000-$39,999	108,195	30.7
500-999	76,663	21.8	$40,000-$99,999	89,920	25.5
1,000 and over	89,187	25.3	$100,000-$249,999	64,705	18.4
			$250,000-$499,999	19,510	5.6
			Greater than $500,000	8,169	2.3
Total	352,237	100.0		352,237	100.0
1992:					
1-99	32,033	10.9	Less than $2,500	7,681	2.6
100-259	59,374	20.3	$2,500-$9,999	31,901	10.9
260-499	54,612	18.7	$10,000-$39,999	80,388	27.5
500-999	62,608	21.4	$40,000-$99,999	70,569	24.1
1,000 and over	82,837	28.7	$100,000-$249,999	64,217	22.0
			$250,000-$499,999	25,099	8.6
			Greater than $500,000	12,609	4.3
Total	292,464	100.0		292,464	100.0

Sources: (*32* and *33*).

The older age categories are claiming a larger share of the wheat farm operators. Between 1987 and 1992, the largest increase occurred in the 65 years of age and older category, increasing from 19 to 23 percent of the total. The age group incurring the largest decline was 34 years of age and under, declining from 16 percent to 13 percent.

Location of Production

Wheat is produced throughout the United States under different weather and soil conditions. The Great Plains region harvests the largest share of U.S. wheat acreage followed by the North Central, Northwest, South, Southwest, and Northeast (table 3). While there were minor variations in regional shares between 1960 and 1994, the Great Plains generally lost about 3 percentage points with an offsetting gain in the South. This shift occurred, in part, because of an increase in double cropping in the South with either soybeans or sorghum.

Wheat has two distinct planting periods. Winter wheat is sown in the fall and harvested during the following spring and summer. Spring wheat is sown in the spring and harvested in late summer or early fall.

Table 3—Wheat harvested area, by region, 1960-94

Selected regions	1960	1970	1980	1993	1994[1]
			Percent[2]		
Great Plains[3]	72	73	68	68	69
North Central[4]	15	11	15	16	15
South[5]	3	3	5	6	6
Northwest[6]	7	9	9	8	7
Southwest[7]	2	3	3	2	2
Northeast[8]	2	1	1	1	1
			Million acres		
U.S. wheat acreage	51.9	43.6	71.1	62.6	62.0

[1]Projections. [2]Percentages may not sum to 100 due to rounding. [3]CO, KS, MT, NE, ND, OK, SD, TX, and WY. [4]IL, IN, IA, MI, MN, MO, OH, and WI. [5]AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, and WV. [6]ID, OR, and WA. [7]AZ, CA, NV, NM, and UT. [8]DE, MD, NJ, NY, PA, and New England States.

Sources: (*9* and *26*).

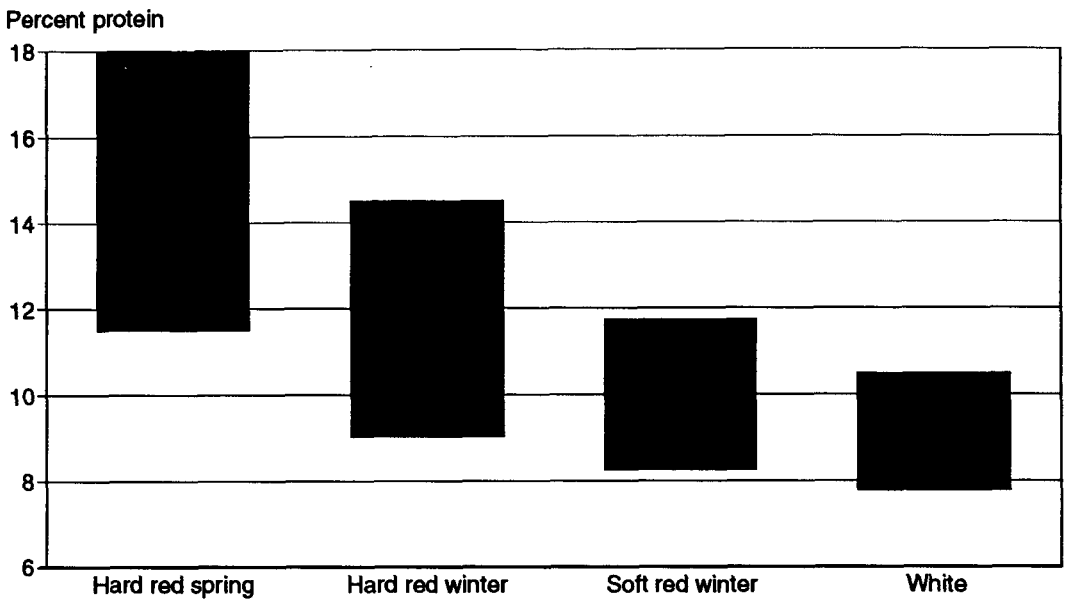
Winter wheat normally accounts for 70 to 80 percent of total production.

Wheat Classes

Five major classes of wheat are grown in the United States: hard red winter, hard red spring, soft red winter, white, and durum (table 4). The U.S. wheat program operates on a single national average farm price for wheat because of some substitutability of the different classes of wheat in end uses.

Each class of wheat has a somewhat different end use and its production tends to be region specific (figs. 1 and 2). U.S. white wheat is used primarily in noodle products, crackers, and cereal products. It is high-yielding and low in protein with production

Figure 1
Protein range and flour uses of major wheat classes[1]



Flour uses

- Used to blend with weaker wheats for bread flour.
- Whole-wheat and hearth breads.
- White bakers' bread and bakers' rolls.
- Waffles, muffins, quick yeast breads, and all-purpose flour.
- Noodles (oriental), kitchen cakes and crackers, pie crust, doughnuts, cookies, foam cakes, and very rich layer cakes.

[1]Flour uses are approximate levels of protein required for specified wheat products. Durum is not shown because it is not traded on the basis of protein content.

Table 4—Wheat production by class: Total and leading States, 1994[1]

Class	Production	Share	Leading States
	Million bushels	*Percent*	
Hard red winter	972	41	KS, OK, TX
Soft red winter	441	18	MO, IL, OH
Hard red spring	564	24	ND, MN, MT
White	311	13	WA, OR, ID
Durum	98	4	ND, CA, MT
Total	2,386	100	

[1]Projections.
Source: (*26*).

Figure 2

Distribution of the five U.S. market classes of wheat

1 Dot = 5,000 acres
Source: (*10*).

concentrated in the Pacific Northwest, Michigan, and New York. Durum wheat is used mostly in pasta products and is produced in the Northern Plains and desert Southwest. Hard red spring wheats are primarily used to make bread flour. Hard red winter wheat is used mostly for bread, while soft red winter is used largely in cakes, cookies, and crackers. Hard red winter wheat is produced from Texas to Montana and California to Missouri but is concentrated in the Central Plains whereas soft red winter wheat is concentrated in the Corn Belt and East. Generally, hard red spring wheat has the highest protein content and is produced in the Northern Plains where the climate is too cold for over-wintering of winter wheat varieties.

All five classes of wheat are exported. Between 1990 and 1994, hard red winter accounted for 37 percent of wheat exports; hard red spring, 26 percent; soft red winter, 15 percent; white, 18 percent; and durum, 4 percent.

Regional weather changes are less likely to cause fluctuations in total wheat supply than in other major field crops because wheat production is less concentrated geographically. For example, in 1991-94, U.S. average wheat yields varied by 6 percent (coefficient of variation) compared with 13 percent for corn (app. table 10).

Production by individual wheat classes is more concentrated than total wheat (fig. 2). Consequently, the supply and demand situation for a given class may differ from the supply and demand situation for all wheat. Since wheat demand is somewhat class-specific, shortfalls within a class can significantly raise the price of that class of wheat relative to other classes.

Trends in Supply

Beginning stocks, domestic production, and imports determine the total supply of wheat.

Beginning Stocks

Stocks rose to high levels in the 1980's, with more than 1 billion bushels held over between 1981 and 1987. However, stocks averaged about 522 million bushels during 1991-94, resulting in a stocks-to-use ratio near 21 percent (table 5). Both figures represent a sector reflecting a more balanced supply and use compared with earlier years.

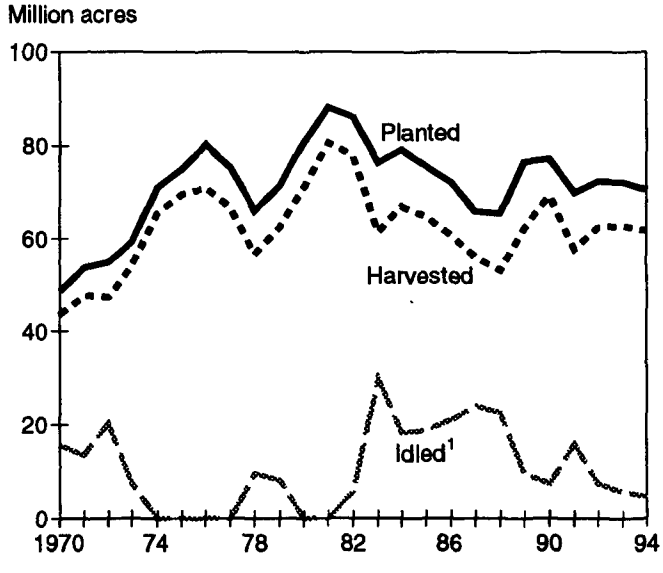
Production

U.S. wheat production is determined jointly by the area harvested for grain and average yield per acre. Farm program requirements and participation rates influence acreage harvested. Figure 3 illustrates acreage planted, harvested, and base acres idled under government programs. The relationship between area planted and harvested varies substantially by region. Producers in livestock feeding areas typically graze out some of their wheat fields, rather than harvest them for grain. Other producers allow cattle to graze wheat, but remove livestock to allow grain to form for harvest. Farmers make the decision to remove livestock from winter wheat prior to jointing depending on livestock prices relative to the value of wheat as grain, as well as on feed grain supplies and prices.

Area harvested. The relationship between planted and harvested acreage is fairly stable, except for periods of drought such as 1983 or 1988 when abandonment rates have been abnormally high (fig. 3). Between 1970 and 1981, planted area increased to a high of 88.3 million acres in 1981. Since 1981, planted area declined to a low of 65.5 million acres in 1988. Area planted to wheat was 70.5 million acres in 1994.

Sharp declines or increases in planted area are usually the result of changes in government programs requiring base acres to be idled. In an effort to control production, support farm income, and limit government costs, various acreage limitation programs have been employed. There has been some type of program provision idling base acres since 1970 with the

Figure 3
U.S. wheat acreage: Planted, harvested, and idled, 1970-94



[1]ARP, diversion, PLD, 50/92, 0/92, and 0/85. Excludes acres idled under CRP.

Table 5—Wheat supply, disappearance, area, and prices, crop years 1990/91-1994/95

Item[1]	1990/91	1991/92	1992/93	1993/94[2]	1994/95[3]
			Million bushels		
Supply:					
Beginning stocks, June 1	537	866	472	529	570
Production	2,736	1,981	2,459	2,403	2,320
Imports[4]	36	41	70	109	85
Total	3,309	2,888	3,001	3,041	2,975
Domestic disappearance:					
Food	790	790	834	869	885
Seed and industrial	93	98	98	95	97
Feed and residual[5]	491	246	186	278	225
Total	1,374	1,134	1,118	1,243	1,207
Exports:[4]	1,070	1,282	1,354	1,228	1,207
Total disappearance	2,444	2,416	2,472	2,470	2,457
Ending stocks, May 31	866	472	529	570	518
Farmer-Owned Reserve	14	50	28	6	0
Special program[6]	0	0	0	0	0
CCC inventory[7]	163	152	150	150	145
Free	689	270	351	414	373
Outstanding loans[8]	217	206	47	67	45
			Million acres		
Area:					
Planted	77.2	69.9	72.3	72.2	70.5
Harvested	69.3	57.7	62.4	62.7	61.7
Set-aside and diverted[9]	7.5	15.9	7.3	5.7	4.7
Conservation Reserve	10.3	10.4	10.6	10.8	10.8
National base acreage	90.8	89.6	89.6	89.6	89.0
			Bushels per acre		
Yield per harvested acre	39.5	34.3	39.4	38.3	37.6
			Dollars per bushel		
Prices:					
Received by farmers	2.61	3.00	3.24	3.26	3.45
Loan rate	1.95	2.04	2.21	2.45	2.58
Target	4.00	4.00	4.00	4.00	4.00

[1]Totals may not add because of rounding. [2]Estimated. [3]Projected, 11/9/94. [4]Imports and exports include flour and other products expressed in wheat equivalent. [5]Residual. Approximates feed use and includes negligible quantities used for alcoholic beverages. [6]Projected amount of free stock carryover in the Special Producer Storage Loan Program. [7]Includes about 147 million bushels in the Food Security Reserve in each year. [8]Projected amount of free stock carryover under 9-month loan. [9]Includes ARP, diverted, 50/92, and 0-85/92 acres.

Source: (*26*).

exception of the 1974-77 and the 1980-81 crop years (fig. 3 and app. table 1). Currently, acreage bases, 0/85, flexibility provisions, lower loan rates than in the early 1980's, and CRP acres provide a better balance between supply and demand.

Farmers have not been required to idle base acres under ARP provisions in 1993/94 or 1994/95 marketing years but an ARP of 15 percent was announced for 1991/92 and 5 percent for 1992/93, idling 10.1 and 3.3 million acres, respectively (table 5). During 1986-90 crop years, ARP's ranged from 5 to 27.5 percent and idled from 3.2 million to 20.2 million acres. 0-85/92 provisions idled 4 million to 5.8 million base acres between 1991 and 1994 compared with 1.3 to 5.3 million base acres during 1986-90. In addition to ARP and related annual programs, 10.8 million acres of wheat base were in the CRP program as of 1994. One reason why ARP's have been smaller in recent years is because nearly 11 million acres of wheat base acres were enrolled in CRP, thereby reducing production potential.

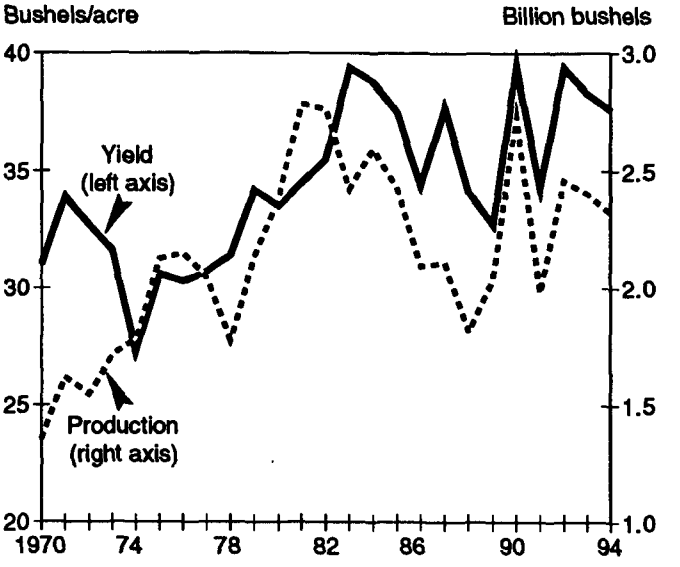
The flexibility provision of the 1990 FACT Act has also affected planted wheat acreage. Between 1991 and 1994, the net movement of flex acreage planted has been out of wheat, ranging from 1.3 to 2.3 million acres. An additional 0.7 to 2.9 million acres of wheat-base flex acres have not been planted.

Planted wheat area declined by 6.7 million acres between 1990 and 1994 despite a rebound in prices in 1993 and 1994. Net flex accounts for 1.5 million, flex not planted accounts for 2.9 million, and CRP accounts for 0.5 million for a total of 4.9 million. The remaining decline is not readily explained.

Yields. Because of growth in yields and acres harvested, U.S. wheat production rose from around 1.4 billion bushels in 1970 to nearly 2.4 billion bushels in 1994. Average U.S. wheat yields have risen from around 30 bushels per acre in the mid-1970's to an average of 38 bushels per acre in the 1990's (fig. 4). USDA's current yield trend increases 0.3 bushels per acre, per year. However, actual yield varies by wheat variety, region, and even individual farm.

Growth in U.S. yields has slowed in the last 15 years. The decline in yield growth may be due, in part, to the increased variability of yields. As newer, higher yielding varieties are adopted, average yield increases but variation also increases. Because much wheat is grown in areas with limited moisture, wheat will provide a lower yield in years of low moisture but a higher yield in years of abundant moisture.

Figure 4
U.S. wheat production and yields, 1970-94



Many factors affect U.S. average wheat yields: climatic conditions, weather, farm management practices, variety, type of soils, total acreage level, and regional distribution of acreage. U.S. wheat yields are predicted to increase about 0.7 percent annually over the next 6 years as long as marginal acreage is idled and weather is favorable (*27*). Plant breeding has created the potential for larger and more rapid improvements in yields. Average dry-land yields have reached 60 bushels per acre in some soft wheat producing States. However, moisture availability in hard wheat producing States may limit yield growth.

Growth in the U.S. yields should compete favorably with the global average. Global average wheat yields are projected to increase at a slower rate than in the 1980's (*25*). Global yield gains will be based on wider adoption of current technology. Technological breakthroughs that are cost effective and capable of boosting yield potential do not appear imminent and the gains from the Green Revolution are slowing. Yield growth will be strongest where irrigation systems are continuing to expand. Yield growth in the European Union (EU) is expected to slow in response to lower grain prices as producers reduce yield-enhancing inputs.

Imports

Wheat imports were an insignificant factor for U.S. supply for many years. Prior to 1973, imports were restricted. Wheat imports were fairly low in volume and less than 1 percent of supply between 1960 and

1989, but became an issue in the early 1990's, as imports reached 109 million bushels, including products, in the 1993 marketing year, or 4 percent of supply.[2] U.S. wheat producers became concerned over the volume of wheat imports, prompting an investigation by the International Trade Commission and later a U.S.-Canadian agreement was reached over temporary limits to U.S. wheat imports from Canada. The agreement established a joint commission to recommend solutions to the conflict (*26*).

The increase in 1993/94 imports was caused by some unusual circumstances (*26*). The reduced U.S. corn crop in 1993 happened to coincide with a poor-quality, freeze-damaged Canadian wheat crop, making it attractive for Canada to sell wheat to the United States as a feed grain. The U.S. spring wheat crop also suffered quality problems from disease and low protein, increasing U.S. millers' demand for the available good-quality Canadian spring wheat. Very tight U.S. durum supplies further increased demand for imports.

Some of the reasons for the surge in imports in 1993/94 are expected to diminish in 1994/95 (*26*). Based on the estimated U.S. corn crop for 1994, Canada has less economic incentive to sell wheat in the United States as a feed grain. U.S. and Canadian spring wheat crops have improved quality characteristics. U.S. durum production is up sharply. Despite these factors, the United States remains an attractive market for Canadian wheat producers. In addition, the recent agreement between the United States and Canada is expected to limit Canadian wheat shipments to the United States.

Trends in Total Disappearance

Total consumption of wheat is separated into domestic use (food, seed, and feed and residual) and exports. Domestic use accounted for an average 48 percent of total wheat disappearance during 1991-94 (fig. 5 and table 5). During the 1950's, domestic use of wheat was double or triple exports, but during 1975-84, exports averaged 60 percent of total disappearance (app. table 2). During 1991-94, exports averaged 52 percent of the total consumption.

Food Use

Food use has been the largest and most stable component of domestic use, characterized by a steady growth rate (table 6 and fig. 5). In 1970, food use was approximately 500 million bushels, 34 percent of total consumption or 70 percent of domestic use. Food use rose to 869 million bushels by marketing year 1993/94 and accounted for 35 percent of total consumption or 70 percent of domestic use.

The demand for wheat food use is relatively unaffected by changes in wheat prices or disposable income. However, demand is closely tied to population, tastes, and preferences. Between calendar years 1970 and 1993, food use of wheat grew 3 percent annually compared with population's annual growth of 1 percent (*15* and *16*).

While per capita consumption of wheat flour has been rising steadily, this growth rate is expected to slow. Originally, the growth in per capita consumption of wheat flour products could be attributed to the increase in consumption of fast food and prepared products. Recent acceleration in the growth of food use could be the result of healthier, grain-based, higher fiber diets. However, saturation is expected to eventually limit growth.

Feed and Residual Use

Feed and residual use is more variable and is related to corn/wheat prices and wheat crop quality. Wheat used as livestock feed is not expected to be a major source of growth in wheat consumption, if wheat prices remain strong compared with corn. Feed and residual use averaged 10 percent of total disappear-

[2]Imports include flour and other products expressed in wheat equivalent.

Figure 5
U.S. wheat disappearance, crop years 1970-94

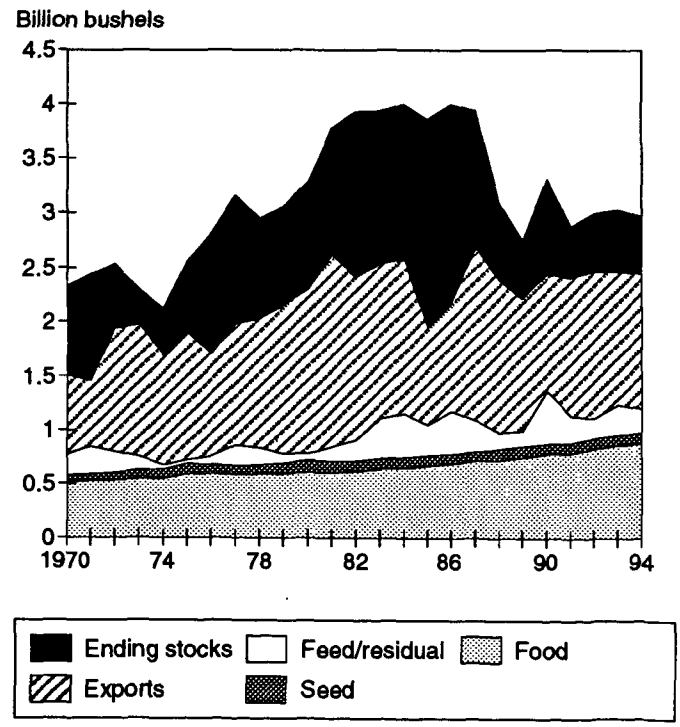


Table 6—Domestic use of wheat, selected crop years

Use	1970		1980		1990		1994[1]	
	Use	Share of total use	Use	Share of total use	Use	Share of total use	Use	Share of total use
	Mil. bu.	*Percent*	*Mil. bu.*	*Percent*	*Mil. bu.*	*Percent*	*Mil. bu.*	*Percent*
Domestic use:	772	51	783	35	1,374	56	1,207	49
Seed	62	4	114	5	93	4	97	4
Food	517	34	610	27	790	32	885	36
Feed and residual[2]	193	13	59	3	491	20	225	9

[1]Projections as of November 9, 1994. [2]Calculated as a residual.
Sources: (*9* and *26*).

ance during 1991-94, down slightly from a 12-percent average share during 1986-90 (fig. 5).

Feed and residual use changes substantially from year to year depending on relative prices of wheat, feed grains, and soybean meal; the quantity of wheat not meeting grade standards for domestic food use; and the quantity of animals on feed. Feed use of wheat is also seasonal, being most prominent right after wheat harvest when wheat prices are low, and when new-crop corn and sorghum have not yet been harvested.

Feed use is not measured directly and includes a residual component which includes negligible quantities used for alcoholic beverages.

Exports

U.S. exports averaged 57 percent of production and 53 percent of total consumption annually between 1985 and 1993 (fig. 5). While exports' share of production fluctuated throughout the 1980's and early 1990's, exports' share of use declined as the volume of exports fell and domestic use increased.

During 1982, the United States accounted for 48 percent of the world's wheat exports, about equal to 1973's 50-percent share. However, by the beginning of the 1990's, the U.S. share had fallen to about one-third. In the early 1980's, the United States began to lose market share because of high U.S. loan rates and strong competition, particularly with the EU. The EU's export share grew from about 16 percent in the early 1980's to about 20 percent by the end of the decade.

The Export Enhancement Program (EEP), a program initiated in May 1985 under a Commodity Credit Corporation (CCC) charter and later instituted as part of the 1985 farm bill, helped keep U.S. export share from falling further. Under the EEP, exporters are awarded generic commodity certificates or payments. In November 1991, wheat EEP bonuses began to be issued in cash rather than commodity certificates. The certificates were redeemable for CCC-owned commodities. The certificates or payments enable an exporter to sell certain commodities to specified countries at prices below those of the U.S. market.

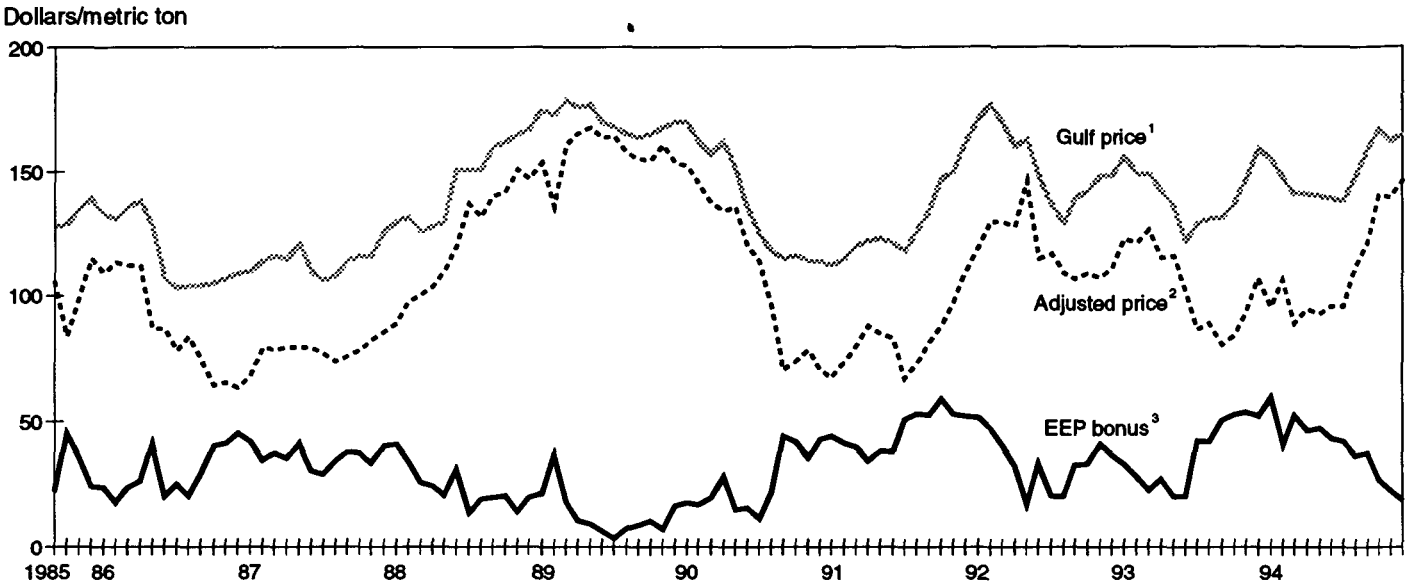
About two-thirds of U.S. wheat exports are currently receiving EEP subsidies (app. table 11). EEP subsidy levels have varied over time (fig. 6). Other programs, such as General Sales Manager (GSM) credit guarantees, are often used in conjunction with EEP to keep U.S. wheat exports competitive (app. table 11). Over the next decade, the United States is expected to maintain about one-third of the world export market. U.S. exports are also expected to rise, as the global market is forecast to grow moderately.

Trends in Global Wheat Trade With Future Prospects

Global wheat trade is expected to expand through the 1990's at a rate higher than the 1980's, but well below the rate experienced in the 1970's (table 7) (*25*). Nearly all the growth will be caused by larger imports by developing countries (fig. 7). Increased import demand is expected to lead to higher world wheat prices, stimulating moderate production and export growth, especially in Canada, Australia, and Argentina.

Production and use growth rates slowed in the early 1990's because of radical shifts in production and consumption in Eastern Europe and the Former Soviet Union (FSU). Also, drought in several parts of the world in 1993 and 1994 limited growth in yields and area. Assuming normal weather, growth trends should again turn positive, although production growth is likely to be slower than in recent decades. Some area expansion is expected, particularly in South Asia. But

Figure 6
Impact of EEP on U.S. wheat export prices, 1985-94



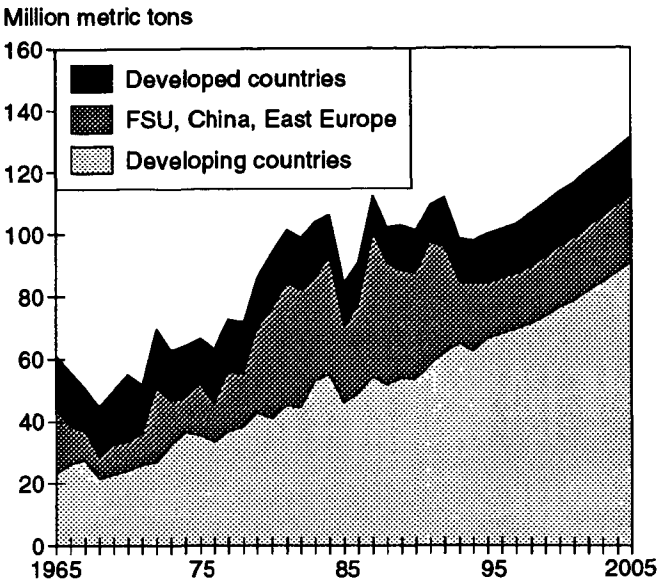
[1]HRW No. 2. [2]Adjusted by EEP bonus. [3]Weighted monthly average of all classes.

Table 7—Indicators of global change: Annual growth rates[1]

Item	1960's	1970's	1980's	1990-94	1995-99	2000-05
			Percent			
Area	0.7	1.2	-0.7	-1.5	0.4	0.5
Yield	3.1	2.0	2.9	-0.2	1.0	0.9
Production	3.7	3.2	2.2	-1.7	1.4	1.4
Total use	3.8	2.9	2.4	-0.1	1.3	1.5
Per capita use	1.7	1.1	0.6	-2.2	-0.3	0
Feed use	10.7	1.7	2.9	-6.2	0	0.6
Trade[2]	1.6	4.6	-0.4	-1.1	2.7	2.9
Ending stocks	3.3	5.2	1.2	-4.3	-1.2	-2.6
Population	2.1	1.9	1.7	1.7	1.7	1.6

[1]Exponential growth rate. Includes beginning and end of time period. [2]Excludes intra-EU and intra-FSU trade.
Source: (*25*).

Figure 7
World wheat trade: Actual 1965-93 and forecasts 1994-2005, by marketing year



Marketing year = July-June.

yield growth may decline from the 1980's because the gains provided by Green Revolution technology have largely been achieved. Additional yield increases will need to come from the expansion of current technology.

Consumption growth is also expected to decline from that of earlier decades. Food consumption of wheat is expected to continue expanding, particularly as incomes rise in developing countries. However, feed use of wheat is expected to remain low, mostly because of the drop in livestock inventories in the FSU and Eastern Europe.

Trade in the 1980's was highly variable and showed little growth throughout the decade. While developing country imports continued to expand, especially in the last half of the decade and into the 1990's, imports by the FSU and China (together accounting for a third of global trade) were highly variable.

These oscillations continued into the 1990's, with changes in the grain market resulting from market reforms in the FSU and China becoming more apparent by 1993 (table 8). Both buyers have sharply reduced their wheat imports. China is expected to expand imports during the next decade, although from a lower base. An expected low volume of FSU im-

Table 8—World wheat imports, selected countries, 1989/90-1994/95[1]

Country	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95[2]
			Million metric tons			
European Union[3]	1.6	1.5	1.2	1.3	1.7	2.0
Former Soviet Union[4]	20.4	23.2	22.2	23.7	13.4	12.4
China	12.8	9.4	15.9	6.7	4.3	9.0
East Europe	1.0	1.3	1.3	3.7	2.1	1.3
Latin America[5]	7.5	10.0	13.5	14.5	15.2	14.8
North Africa[6]	14.2	14.2	13.0	14.2	14.6	12.5
Sub-Saharan Africa[7]	3.6	6.0	4.6	5.6	5.8	5.1
Middle East	16.9	10.4	10.3	9.3	10.4	8.6
East Asia[8]	9.0	11.8	12.2	11.3	13.0	11.4
South Asia[9]	4.0	3.1	4.5	7.6	4.2	4.7
World total	102.8	101.4	109.2	111.8	99.5	95.6

[1]July-June marketing year. [2]Projections as of November 9, 1994. [3]Excludes intra-European Union trade, includes East Germany. [4]Includes intra-Former Soviet Union trade. [5]Includes Mexico. [6]Morocco, Algeria, Tunisia, Egypt, and Libya. [7]Includes South Africa. [8]Japan, Taiwan, South Korea, and Hong Kong. [9]India, Pakistan, Bangladesh, Sri Lanka, Afghanistan, Nepal, and Bhutan.

ports, however, will largely offset the increase in China's imports. Thus, developing countries will be the primary source of trade expansion. However, import growth by developing countries will continue to depend on exporter assistance.

Higher world prices will stimulate exporters to expand production to meet import demand and, in most cases, maintain current market shares. In Canada, Australia, and Argentina, wheat area is expected to rise as wheat prices increase relative to those of alternative crops. The most significant developments are expected to occur in the EU where reforms to the Common Agricultural Policy (CAP) are expected to slow wheat production growth and exports.

Prospects for U.S. Exports

Current projections are that the U.S. share of world trade in 2000 will about equal the 1990-94 average of 32 percent, but will begin to decline after 2000, falling to 31 percent by 2005 (*27*). Since 1985, the U.S. market share has fluctuated between 28 and 39 percent, with an annual average of 33 percent (table 9). Government programs, including EEP, have helped the United States maintain market share and are expected to play a significant role in the future. However, under the General Agreement on Tariffs and Trade (GATT), EEP's role will diminish.

Developing countries will take an increasing share of U.S. exports in the next decade. Between 1987/88 and 1992/93, China and the FSU together accounted for an annual average of 29 percent of U.S. wheat exports (table 10). In 1993/94, they accounted for only 12 percent. Even though some growth in U.S. exports to China is likely as China's wheat imports expand, U.S. exports to the FSU are unlikely to expand if FSU imports continue to decline. As a result, the FSU's importance as a market for U.S. wheat will

Table 9—Share of world wheat exports and ending stocks and global stocks-to-use ratio, 1970-94

Country or region	1970-74	1975-79	1980-84	1985-89	1990-94	1994[1]
			Percent			
Exports:[2]						
United States	41.6	44.0	41.3	33.8	32.4	35.6
Canada	21.1	19.3	19.3	18.7	20.4	21.4
Australia	12.7	13.4	11.2	13.5	9.4	6.8
European Union	9.1	10.5	16.5	18.2	19.8	18.3
Argentina	3.1	5.5	6.5	4.9	5.4	5.9
Others	12.4	7.3	5.2	10.9	12.6	12.0
			Million metric tons			
Total world trade[3]	60.8	72.2	100.9	98.4	103.5	95.6
			Percent			
Ending stocks:						
United States	21.1	22.6	26.4	21.8	11.7	12.1
Canada	15.6	10.2	6.9	5.3	7.4	6.2
Australia	2.3	2.5	3.6	2.4	2.5	2.2
European Union	10.3	8.4	8.9	10.4	13.4	11.7
Argentina	0.7	0.9	0.6	0.2	0.3	0.4
Others	50.0	55.5	53.6	59.9	64.7	67.4
			Million metric tons			
Total ending stocks[3]	81.7	115.8	134.3	148.3	136.8	117.0
			Percent			
Global stocks-to-use ratios	23.6	29.5	29.0	28.8	24.6	21.2

[1]Projected as of November 9, 1994. [2]Excludes intra-European Union trade, excludes intra-Former Soviet Union trade prior to 1987/88; July/June year. [3]Annual average.

Source: (*29*).

Table 10—U.S. wheat and flour exports to selected countries, June-May years 1989/90-1993/94[1]

Destination	1989/90	1990/91	1991/92	1992/93	1993/94
			1,000 metric tons		
Venezuela	675	497	335	832	652
Mexico	216	394	238	734	848
Brazil	133	0	647	151	146
Egypt	3,697	2,579	3,628	3,826	3,301
Algeria	1,442	1,716	1,419	1,175	1,301
Morocco	557	633	235	1,807	1,348
Nigeria	0	0	0	677	1,076
Japan	2,427	3,037	3,172	3,484	3,291
China	5,515	3,601	5,422	2,289	1,887
Pakistan	1,260	692	1,393	1,638	1,834
Philippines	793	1,303	1,301	1,577	1,883
South Korea	1,483	1,863	1,526	1,406	1,544
Former Soviet Union	4,313	2,816	7,051	5,557	2,667
Eastern Europe	46	156	91	508	622
European Union	890	639	552	466	397
Total wheat and wheat products	33,528	29,106	34,899	36,838	33,410

[1]Flour converted to grain-equivalent basis.
Source: (*26*).

likely diminish over time and exports to developing countries will become increasingly important.

Wheat imports are relatively price inelastic in many countries; that is, the volume of wheat imported does not change very much as prices increase or decrease. This is because food security and political stability in many developing countries depend on the ability of governments to import enough wheat to meet domestic needs. Thus, while the total volume of wheat imported by developing countries may not change very much as prices rise or as exporter assistance is increased or decreased, the source of those imports could be greatly affected.

Developing countries will likely continue to need assistance in the form of guaranteed credit, food aid, or other subsidies to buy U.S. wheat, especially as world wheat prices rise. The United States often combines EEP with GSM credit guarantees to make sales and retain market share in developing countries. Food aid is also an important component. Between fiscal 1986 and fiscal 1993, 36 percent of U.S. wheat exports to developing countries (excluding China) were financed with GSM credit guarantees, 47 percent were assisted with EEP, and 16 percent were exported under P.L. 480. Many of the sales made under the EEP were combined with GSM credit guarantees. Developing countries will likely claim an increasing percentage of assistance in the coming years.

The United States will continue to face strong competition from foreign competitors who also make broad use of assistance programs. In the USDA Baseline, the large amount of wheat base assumed to remain enrolled in the CRP will limit the area response to rising prices and constrain U.S. export supplies, particularly after 2000. As a result, U.S. market share is projected to fall slightly.

The EU's exports will be constrained by GATT, but will remain a strong competitor in FSU countries, Eastern Europe, North Africa, and the Middle East. Canada will be the strongest competitor for markets in Latin America and China. In the rest of Asia, Australia and Canada will remain the major source of

competition. Argentina will likely continue directing its exports toward Latin American countries, with Brazil its primary destination. Australia and Canada will also continue to sell to markets such as Iran, which does not buy from the United States.

Quality issues may become more important during the next decade. As governments begin liberalizing markets, the private sector will likely be more selective than centralized purchasing agencies regarding the quality and intrinsic characteristics of wheat imports. Currently, quality concerns are most evident in high-income, nonsubsidized markets (*12*).

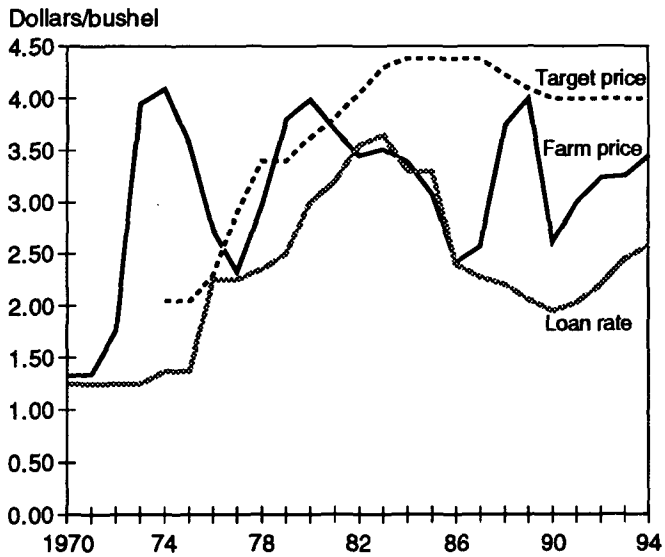
Trends in Prices, Costs, and Farm Returns

The real price (1987 = 100) of wheat continues to trend downward, but nominal prices firmed up between 1990 and 1994. Average real gross revenue per harvested acre is the lowest in 30 years. Total cash costs of production have risen slightly in the past 4 years. However, between 1991 and 1994, net returns above cash expenses have generally exceeded corresponding returns during 1980-90 due, in part, to larger market returns or larger direct government payments.

Prices and Gross Returns

The nominal price received by U.S. wheat producers fluctuated during 1980-93 (fig. 8). The average farm price for wheat was $3.17 per bushel for 1991-93, compared with an average of $3.07 per bushel in 1986-90 and $3.42 per bushel in 1981-85 when market prices were artificially supported by high loan rates. Target prices were lowered to $4.00 per bushel in 1990/91 and continued at this level between 1991 and 1995 (fig. 8). Loan rates declined to a low of $1.95 per bushel in 1990, but were raised in consecutive years to $2.58 per bushel for 1994/95.

Figure 8
U.S. wheat prices: Farm, target, and loan rate, 1970-94



The real price of wheat (1987 = 100) continues to decline, as it averaged $2.58 per bushel for 1990-94, a lower price than earlier periods (table 11). However, average yields rose by 52 percent between 1960-64 and 1990-94. Although real gross revenue per harvested acre averaged lower in 1990-94, excluding government payments, technological change enables individual producers to farm more acres and maintain income potential.

Costs

Total cash costs of production for wheat in 1994 are estimated to be $76.69 per planted acre, $55.12 per planted acre for variable expenses, and $153.79 per planted acre for total economic costs (app. table 12) (*23*). Although these estimates are slightly above 1990-93 costs, they are less than most of the early years in the 1980's. Cost of production, like yield, differs significantly depending on regional production practices, weather, insects and disease, management, and soil types.

It cost U.S. producers an average of $2.07 in variable cash costs to produce a bushel of wheat in 1989 (*8*). Individual farm costs ranged from less than $1.37 to more than $3.49 per bushel.[3] Expenses for fertilizers, chemicals, custom operations, fuel, lubrication, electricity, and hired labor varied the most among the cost groups.

About 52 percent of the wheat farms had variable cash expenses equal to or less than the average cost of $2.07 per bushel. However, 65 percent of the production was produced at or below the average variable cash expense (fig. 9). Cash expenses were converted to a per bushel basis and ranked from lowest to highest to form a weighted cumulative distribution of farms and production. Wheat farms were divided into three groups based on their level of variable cash expenses.

Differences between low- and high-cost producers in 1989 were attributed to per-acre costs, yields, and enterprise size. Low-cost producers had average variable cash expenses of $41.26 per acre compared with $50.85 per acre for high-cost producers. High-

[3]Data were obtained from Farm Costs and Returns Survey, USDA, ERS.

Table 11—Wheat farm prices, yields, and revenue, 1960-94

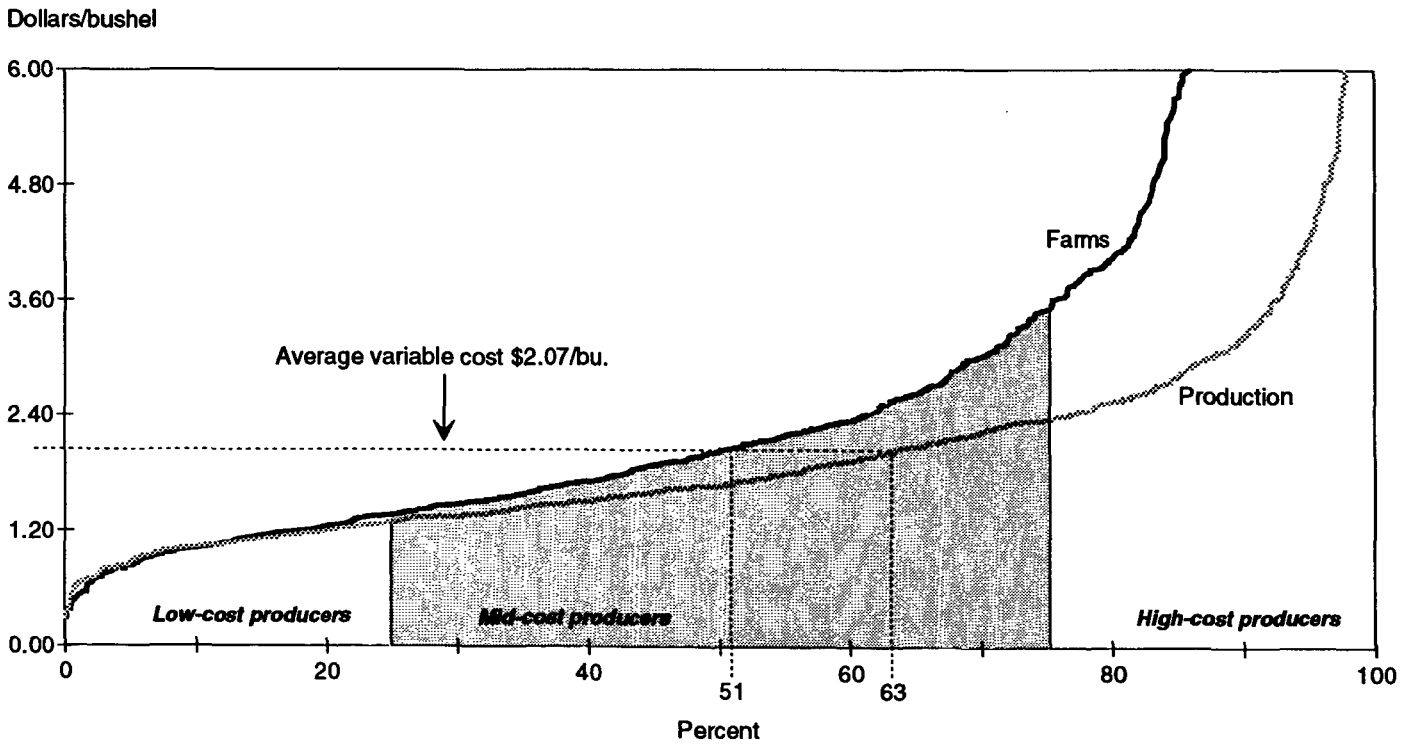
Crop year	Average farm price		Yield	Real gross revenue per harvested acre[1]
	Nominal	1987$		
	Dollars/bushel		*Bushels/acre*	*1987$*[2]
1960-64	1.77	6.60	25.2	165.91
1965-69	1.37	4.51	27.5	123.08
1970-74	2.49	6.12	31.3	187.76
1975-79	3.08	5.47	31.4	172.12
1980-84	3.61	4.42	36.3	159.41
1985-89	3.16	3.12	35.3	109.69
1990-94[3]	3.11	2.58	37.8	94.58

[1]Excludes direct government payments received by participants in the wheat program. [2]Yield times nominal price divided by the Gross Domestic Product implicit price deflator (1987 = 1.0). [3]Values for 1994 are projected as of November 9, 1994.

Sources: (*3* and *26*).

Figure 9

Cumulative distribution of variable cash expenses for U.S. wheat, 1989



Source: 1989 Farm Costs and Returns Survey.

cost producers experienced an average yield of 7 bushels per planted acre compared with low-cost producers' 38 bushels per planted acre.

Enterprise and farm size also characterized low- and high-cost wheat producers. Low-cost producers planted less acreage to wheat than high-cost producers and operated smaller farms. High-cost wheat farms in 1989 were more diversified than low-cost farms and so wheat contributed less to their total farm income (*8*). Only 44 percent of high-cost producers considered themselves as cash grain farms compared with 69 percent for low-cost producers. Half of the high-cost wheat producers considered themselves livestock producers. High-cost wheat producers grazed 35 percent of acreage, as opposed to 14 percent for mid-cost and only 4 percent for low-cost producers.

Regional growing conditions in 1989 were important factors influencing the wheat cost groups. High-cost producers were concentrated in the Central and Southern Plains (Colorado, Kansas, Nebraska, Oklahoma, and Texas), due in part to adverse weather in 1989. Low-cost producers were concentrated in selected North Central States (Illinois, Indiana, Missouri, New York, Ohio, and Pennsylvania) and Northern Plains States (North Dakota, South Dakota, Minnesota, Montana, and Wyoming) (*8*).

Net Returns

Net returns to the U.S. wheat sector improved during the 1991-94 period relative to earlier periods (table 12). Net returns, gross receipts less total cash expenses, go to pay the fixed expenses of land, capital replacement, debt, and the operator's living expenses. Returns above cash expenses averaged $1.84 per bushel in 1991-94 compared with $1.79 per bushel in 1986-90 and $1.30 per bushel in 1981-85. The gross value of farm wheat production (including government direct payments, but excluding EEP) ranged from $8.8

Table 12—Wheat sector costs and returns, 1981-94 crop years

Crop year	Aggregate market value of production[1]	Aggregate direct payments[2]	Aggregate gross income	Aggregate cash expenses[3]	Returns above cash expenses		
					Aggregate[4]	Nominal[5]	1987$[6]
	Billion dollars					*Dollars/bushel*	
1981	10.28	0.79	11.06	7.93	3.13	1.12	1.43
1982	9.54	0.77	10.31	7.71	2.59	0.94	1.12
1983	10.42	1.31	11.73	7.64	4.09	1.69	1.94
1984	9.13	1.73	10.86	7.74	3.12	1.20	1.32
1985	7.47	2.35	9.82	6.01	3.82	1.57	1.67
1986	5.06	3.90	8.96	5.10	3.86	1.84	1.91
1987	5.42	3.73	9.15	4.92	4.23	2.01	2.01
1988	6.74	2.17	8.91	4.84	4.07	2.24	2.16
1989	7.58	1.50	9.08	6.03	3.05	1.50	1.38
1990	7.14	2.95	10.09	6.35	3.75	1.37	1.21
1991	5.94	2.86	8.80	5.62	3.18	1.60	1.36
1992	7.97	2.12	10.09	5.59	4.50	1.83	1.51
1993	7.83	2.72	10.55	5.63	4.92	2.05	1.66
1994[7]	8.00	1.93	9.93	5.62	4.31	1.86	1.47

[1]Production times average farm price. Market value of production in 1983 and 1984 includes PIK entitlements valued at the season average price. [2]The sum of deficiency, diversion, disaster, reserve storage, and long-term CRP payments. [3]Total cash expenses equal the sum of planted acre, conservation, and CRP cash expenses. Planted acre cash expenses equal planted acres times total cash expenses (fixed and variable) per acre. Conservation cash expenses per acre equal conservation acres (ARP, PLD, PIK, and 0-92) times variable cash expenses per acre times 0.25. CRP cash expenses per acre equal CRP acres times variable cash expenses per acre times 0.25. [4]The difference between aggregate gross income and aggregate cash expenses. [5]The difference between aggregate gross income and aggregate cash expenses divided by the quantity produced. [6]Nominal per bushel returns above cash expenses deflated by the GDP implicit price deflator (1987 = 100). [7]Forecast as of November 9, 1994.

Sources: (*3* and *26*).

to $10.6 billion in 1991-94. Producers participating in government programs received deficiency payments, reserve storage payments, CRP payments, and disaster payments. All producers, participating or nonparticipating in government programs, received benefits from disaster payments. Between 1991 and 1994, total government payments ranged from $2 to $3 billion and averaged 24 percent of total gross income compared with 31 percent in 1986-90 and 13 percent in 1981-85 (table 12). Aggregate total cash expenses for the sector averaged $5.1 billion in 1991-94.

Much variation exists in net returns to producers and in the importance of government payments to individual wheat growers. In general, farmers with little or no debt should be financially sound, given the return levels of 1991-94. However, farm program payments are very important to those producers with heavy debt loads, especially during periods of low prices.

Recent Government Programs

Government programs for wheat date back to World War I. However, the first major U.S. laws with provisions for price support programs were enacted in the 1930's. The Agricultural Act of 1949, as amended, is the permanent legislation which authorizes current farm programs. New farm bills are passed at about 5-year intervals which amend the 1949 Act and supersede the previous act. After each interval, temporary provisions of the most recent farm bill automatically expire, unless extended, and the original provisions of the 1949 Act become effective, unless a new farm bill is passed. In recent years, other legislation—especially budget reconciliation acts—have had major impacts on commodity program provisions.

Since the 1930's, the U.S. Government's commodity programs have pursued a number of objectives: price and income support, production adjustment, subsidized financing, budget reduction, export enhancement, and environmental protection. These objectives have used different tools over time including: export quotas and fixed prices, acreage allotments, nonrecourse loans, storage payments, parity payments, marketing quotas, export subsidies, conservation incentives, a soil bank, set-asides, target prices, deficiency payments, the Farmer-Owned Reserve, the Conservation Reserve Program, the Export Enhancement Program, flex acres, and marketing loans. A more complete history of wheat programs can be found in (*2*, *7*, *9*, *11*, and *17*).

The Food Security Act of 1985

In the 1980's, world recession, an appreciating dollar, high real interest rates, and the farm financial crisis had a significant impact on U.S. agriculture and the effectiveness of agricultural policy. Market conditions deteriorated sharply and rapidly for U.S. farmers; commodity price support levels were providing a price floor for both U.S. and foreign producers. Large stocks, forfeitures of commodity loans to the Government, and escalating budget outlays resulted, as farm financial stress mounted.

The Food Security Act (FSA) of 1985 was crafted in a policy setting that demanded a change in direction for U.S. farm programs. Over 200,000 farms were considered financially vulnerable. Wheat carryover stocks equaled 97 percent of 1985/86 use, compared with an all grain stocks-to-use ratio of 69 percent for 1985/86; U.S. agricultural exports had dropped to $26 billion for fiscal 1986, compared with the record $44 billion set in 1981; and in fiscal 1986, farm program costs hit a record of almost $26 billion.

The FSA moved toward a more market-oriented farm policy that would enable farmers to respond to economic and market signals. The legislation inaugurated marketing loan provisions for cotton and rice, lowered loan rates and provided discretionary authority for their adjustment, reversed upward trends in target prices, generally froze program yields, and initiated EEP and the Targeted Export Assistance Program (TEAP) to promote agricultural exports in response to subsidized competition, especially from the European Community.

The FSA revived long-term paid land retirement by implementing the Conservation Reserve Program with a goal of retiring 40-45 million acres of highly erodible cropland from production for a period of 10 years. Farmers cultivating highly erodible land that was newly broken or cultivating newly converted wetland would be ineligible for farm program benefits.

The Food, Agriculture, Conservation, and Trade Act of 1990[4]

The Food, Agriculture, Conservation, and Trade (FACT) Act of 1990, as well as the subsequent Omnibus Budget Reconciliation Act of 1990 (OBRA), was built on the foundation laid by the FSA of 1985. When the 1990 FACT Act was being debated, the policy setting had improved considerably since 1985. For

[4]Relevant parts of the Omnibus Budget Reconciliation Act (OBRA) of 1990 are also discussed.

example, only half as many farms (100,000) were considered financially vulnerable, all grain carryover stocks fell to 30 percent of estimated 1990/91 use with wheat carryover levels equal to about 40 percent of estimated 1990/91 use, agricultural exports rebounded to $40 billion in fiscal 1990, and farm program costs fell to $6.5 billion in the same fiscal year.

The end of the 1980's saw other, broader initiatives to promote freer trade and to move U.S. agriculture toward greater market orientation. Those initiatives began with U.S. participation in the Uruguay Round of multilateral trade negotiations under the General Agreement on Tariffs and Trade (GATT) and the U.S.-Canada Free Trade Agreement (CFTA) implemented in 1989, and continued with extending a North American Free Trade Agreement (NAFTA) south to include Mexico.

Pressure to cut the Federal budget deficit played an important part in the designing of the FACT Act of 1990. Trade and conservation initiatives from 1985 were extended. EEP was continued and TEAP was replaced by the Market Promotion Program (MPP). The conservation reserve was augmented with new wetlands, water quality, and environmental easement provisions. Farmers received more planting flexibility, on up to 25 percent of program crop bases, and the Omnibus Budget Reconciliation Act of 1990 reduced the acreage on which farmers could collect deficiency payments.

The main goals of the FACT Act of 1990 were to further reduce spending, to help maintain farm income growth through expanding exports, and to enhance the environment. Major mechanisms used to accomplish reduced budget expenditures and improved agricultural competitiveness were reduced payment acres (as authorized by the Omnibus Budget Reconciliation Act) and planting flexibility. These mechanisms replaced declining target prices, lower loan rates, and a lack of planting flexibility from the Food Security Act (FSA) of 1985. Producers could begin to respond to market signals in their planting decisions because they could plant alternative crops on new nonpayment acres. The Conservation Reserve Program (CRP) of the 1985 FSA was altered to cover lands adversely affecting water quality and wetlands, and a new Water Quality Protection Program was added.

The Omnibus Budget Reconciliation Act (OBRA) of 1990 authorized a two-tier trigger mechanism requiring specific commodity and export program adjustments to be implemented or considered by the Secretary of Agriculture if an agreement on agricultural trade was not reached under the Uruguay Round (*14*).

- If a GATT agreement was not reached by June 30, 1992, the Secretary of Agriculture could waive the minimum level of any acreage limitation program for any 1993-95 program crops, must increase funding for export promotion programs by $1 billion during fiscal years 1994 and 1995, and must establish marketing loan provisions for the 1993-95 wheat and feed grain crops.

- If a GATT agreement was not reached by June 30, 1993, the Secretary of Agriculture must consider waiving all or part of the reductions in agricultural spending required by Title I of the OBRA, increasing the level of funds available for export programs, and establishing a marketing loan program for wheat and feed grains in 1993-95 crop years.

Provisions of the Food, Agriculture, Conservation, and Trade Act of 1990[5]

Among the most significant departures from farm legislation of the 1980's are the planting flexibility provisions in the 1990 FACT Act and OBRA. Normal flex acres (NFA) are not eligible for deficiency payments, regardless of the crop planted, including the original program crop. The maximum acreage eligible for payment became 85 percent of the crop acreage base established for the crop, minus acreage idled under an acreage reduction program (ARP). However, program crops and oilseeds planted on NFA are eligible for price support loans. The combination of flex acres and fixed payment yields reduces the total output eligible for deficiency payments.

The 1990 Farm Act prohibits the Secretary of Agriculture from reducing target prices below 1990 levels, which are approximately 10 percent below 1985. The Secretary lacks discretionary authority to lower target prices below minimum levels established by statute under either the 1990 or 1985 Acts. However, under the 1985 Act, the mandated minimum levels declined, while under the 1990 Act the mandated minimum levels were held constant.

[5]This discussion focuses on the major policy variables which are available for use by the Secretary of Agriculture. More details can be obtained from the Consolidated Farm Service Agency's *Farm Program Fact Sheets* or the actual legislation.

Base Acres

The computation of a farm's crop acreage base for wheat remains the same as under the 1985 FSA. The farm's base acreage is the average of the acreage planted and considered planted for the 5 preceding crop years. For farms that have an established rotation, the acreage base is the average of acreage planted and considered planted for the 3 preceding years corresponding to the rotation.

Loan Rates

A loan rate is the dollar amount per bushel at which the Federal Government will provide a loan to farmers, using the harvested wheat as collateral for the loan. Farmers are eligible for such loans only if they participate in the wheat program. These loans are nonrecourse, which means that the Government has no recourse but to take the crop as full repayment, if the farmer desires.

Loan rates are set to maintain a competitive relationship for wheat in domestic and export markets and to reflect production costs, supply and demand conditions, and world prices of wheat and feed grains. The 1990 Act establishes formulas for calculating "statutory-minimum" levels for both basic and effective loan rates (table 13). The 1990 Act changed the formulas by which statutory-minimum loan rates are calculated. In general, formulas for the 1990 Act lead to higher statutory-minimum loan rates than those calculated under the 1985 Act.

Each year two national loan rates are computed, the basic or formula loan rate and the effective or announced loan rate. Under the 1990 Act, the statutory-minimum basic loan rate is calculated as the higher of (1) 85 percent of the preceding 5-year moving average market price, dropping high and low price years, or (2) 95 percent of the preceding year's basic loan rate.

The statutory-minimum effective loan rate is determined through the use of two adjustments to the basic loan rate. The first adjustment is based on the stocks-to-use ratio. The Secretary of Agriculture may reduce the basic loan rate by up to 10 percent based on a projected year-end stocks-to-use ratio of 30 percent or more, and by up to 5 percent based on a projected stocks-to-use ratio of 15 to 30 percent, but may not reduce the rate on a projected stocks-to-use ratio of less than 15 percent. A minimum rate test is applied after

Table 13—Wheat program provisions, 1991 through 1995 crop years

Provisions	1991	1992	1993	1994	1995
			Percent of base acres		
ARP	15	5	0	0	0
Paid land diversion	0	0	0	0	0
			Dollars per bushel		
Target price	4.00	4.00	4.00	4.00	4.00
Basic loan rate	2.52	2.58	2.86	2.72	2.69
Findley loan rate	2.04	2.21	2.45	2.58	2.58
Advance deficiency payment rate	0.56/0.588[1]	0.325	0.525	0.425	0.35
Farmer-Owned Reserve	0.265	0.265	0.265	0.265	2.65

[1]Payment rate for winter wheat option = $0.56 per bushel. Payment rate for the standard program = $0.588 per bushel.
Source: (*26*).