would be dampened depending on how much land now idled under U.S. acreage reduction programs re-entered production.

Some aspects of liberalization could contribute to further world price instability. Stockholders, such as the United States and EC, might hold lower stocks with the elimination of support programs linked to the acquisition of surpluses. With lower world stocks, prices would be more sensitive to changes in yields and imports. As a result, liberalization could heighten interest in an international wheat stockholding mechanism, as certain exporters shed their traditional role of holding large stocks. But overall, some argue that world price stability would rise.

The United States probably has a long-term comparative advantage in wheat production because of its climate, soil fertility, and well-developed production and distribution system. Trade reform would likely enhance the long-term U.S. position, since the most efficient producers and marketers would gain the most from trade reform. But producers who cannot cover their costs over the long run without Government support, or who cannot absorb any increased variability in returns, would likely not fare well. The U.S. wheat sector would likely become increasingly concentrated as management and labor are used more efficiently.

U.S. Export Prospects

Recent history points to several factors which will continue to be important to U.S. export growth prospects throughout the 1990's. First, imports by developed countries will probably continue to shrink in importance, while purchases by developing and centrally planned nations will continue to be important. The growth in world wheat trade in the late 1970's was, in large part, due to increased imports by developing nations. These imports were heavily dependent upon increased export income, growing per capita income, continued population growth, and the availability of credit. Indonesia, Mexico, and Nigeria relied heavily upon foreign exchange earned from petroleum exports to finance food imports. Although some developing and centrally planned countries would likely increase their imports if they had sufficient foreign exchange reserves, many countries are constrained by export revenues and international debt problems, reducing their ability to finance wheat imports.

The rapidly developing economies of East Asia have increased their demand for imported wheat. As incomes rise in these countries, the demand for increased variety in food products is likely to rise.

The centrally planned nations have also been major contributors to the growth in world wheat trade. While the rate of growth in wheat imports is likely to decline, these countries are expected to maintain their current import levels. Import demand could decline if yields and area increased in these countries. However, recent history indicates that these countries might not be able to expand production sufficiently to meet demand. Since the early 1970's, their imports have fluctuated widely from year

to year. Policymakers are likely to continue facing the demand for providing a variety of food products, including wheat, to satisfy consumer demands. Although the political turmoil in China creates great uncertainty regarding China's import policies, China will likely continue to be a major buyer of U.S. wheat as it attempts to meet food demand for its urban population. Soviet agriculture continues to struggle to increase production targets or meet consumption needs. Hence, that country will continue to need large, but variable, imports. The weak financial condition of the Eastern European nations, particularly Poland, will be a continuing problem. Although these nations need the grain, they will likely have problems financing purchases.

Competition among exporting countries intensified in the late 1980's as growth in world wheat trade slowed. Major exporters took steps to protect market share. The subsidy policies of the EC and the United States will be important factors influencing world wheat trade. The EC greatly expanded its share of world wheat trade during the 1980's in response to the support programs provided through the Common Agricultural Policy. Total production increased as average yields increased by about 4 percent per year. The level of funding for domestic agricultural price support programs in the EC is expensive, which may reduce EC incentives to encourage growth in domestic wheat production.

U.S. decisions on income and price support levels, acreage reduction programs, stockholding policies, export credits, long-term trade agreements, and food aid will affect U.S. wheat exports. Exchange rates may also play a role in foreign sales. Actions designed to encourage U.S. export sales may be offset by economic policies that bolster the value of the dollar relative to importers and exporters. Credit guarantees and concessional sales remain important, and shipments under the export enhancement program played a significant role in expanding U.S. exports throughout the latter part of the 1980's. Export enhancement program shipments grew from less than a fifth of wheat exports in 1985/86 to nearly two-thirds of U.S. wheat exports in 1987/88. If extended into the 1990's, the program could continue to play an important role in reducing the cost of wheat to foreign purchasers.

These factors suggest that balancing supplies and demands is difficult. Specifically, the variability in world wheat production often makes it impossible to maintain a situation where neither surpluses nor shortages create problems.

Trends in Prices and Farm Returns

Net farm returns for wheat increased from 1985 through 1987. Drought in 1988 and 1989 allowed prices to increase further but hindered net farm income for those farmers who faced large production declines.

Price Trends

The average farm price of wheat fell from $3.99 per bushel in 1980/81 to $2.42 per bushel in 1986/87 (fig. 3). The 1988 drought, combined with acreage restrictions and an aggressive export program, caused prices to rebound to $3.74 in 1988/89.

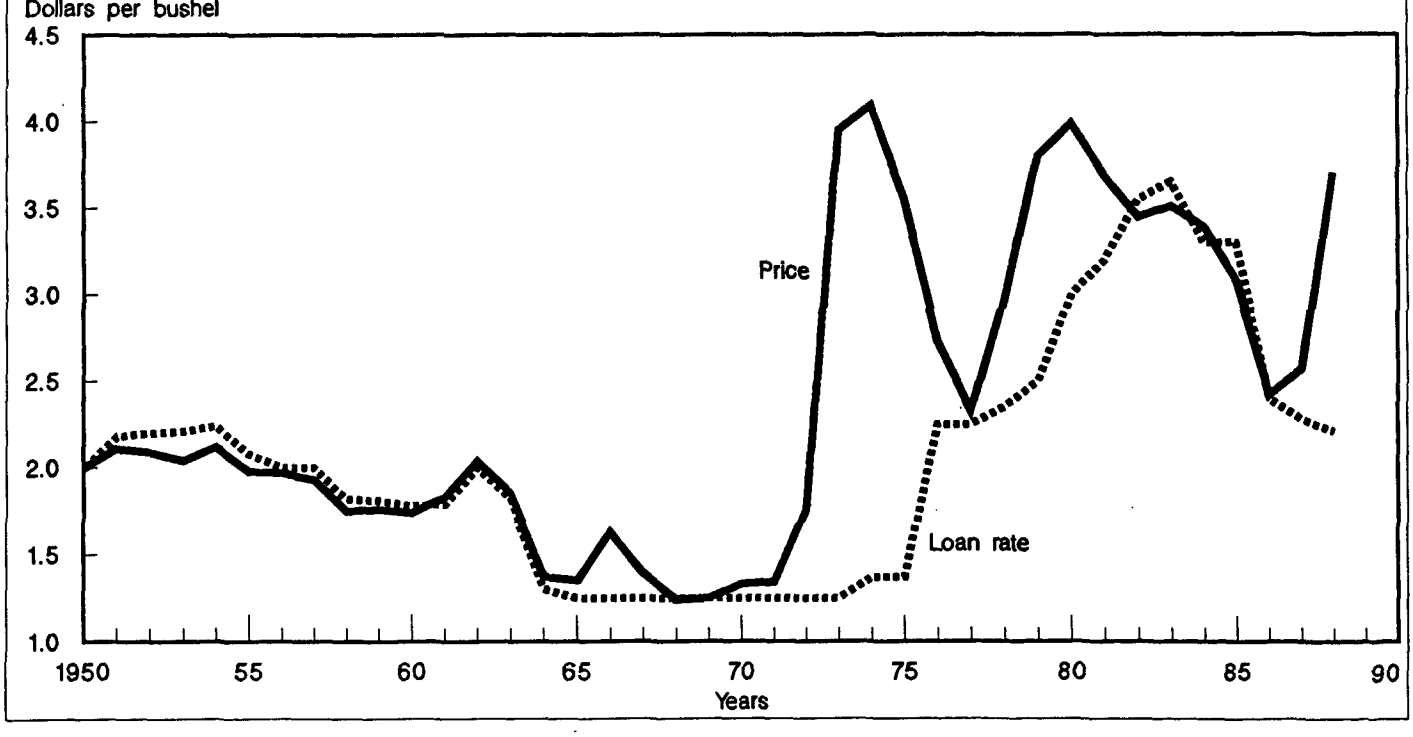
Even so, the real price of wheat has declined steadily since the post-World War II period, the exception being sharp increases in 1973-75 and in 1988/89. The real price for 1988/89 is lower than real prices in previous decades. However, real price trends do not tell the whole story. Wheat yields are now about double those of the 1950's. Despite the increase in wheat yields, annual revenues per harvested acre, excluding Government payments, in the 1980's are about 33 percent lower than those of the previous decades (table 9). Technological change allows farmers to farm more acres, thereby maintaining income potential.

Costs and Returns

The overall financial condition of wheat farmers improved gradually from 1985 through 1987. The 1988 drought in the spring wheat growing areas reduced average net returns. However, disaster relief payments and higher wheat prices enabled real net returns in 1988 to remain above 1985 levels (table 10).

There is much variation in the cash flow position and the importance of Government payments to individual wheat growers. Established farmers owning land with little or no debt should be

Figure 3
Wheat prices and loan rates



financially sound. Farmers who must rent land or have heavy debt loads have cash flow problems when prices are low. Farm program benefits are more important to these farmers.

Total wheat per-acre returns above cash expenses gradually increased from 1980 through 1987 due to the combined effect of higher yields and Government payments. The loan rate increased annually from 1980 through 1983 (see fig. 3). While the 1985 Food Security Act provided for immediate reductions in loan rates, target prices were not reduced until 1988 and direct Government payments exceeded $1.00 per bushel between the 1986/87 and 1988/89 crop years. The higher market prices that occurred in the 1988/89 crop year as well as the reduction in target prices reduced the value of Government payments. The higher market value enabled net returns above cash expenses per acre to be maintained throughout the 1980's.

Prior to enactment of the 1985 Act, wheat land tended to stay in production unless the acreage reduction program was attractive. Where wheat is supplementary to a larger enterprise, producers tend to consider only returns above cash expenses rather than returns above cash and fixed expenses in deciding whether to produce the crop. The returns above cash expenses also help explain why wheat acreage has expanded, especially outside the traditional areas.

Table 9--Wheat farm prices, yields, and revenue, 1940-88

Crop year	Average farm price		Yield	Gross revenue per harvested acre 1/
	Nominal	1982$		
	Dollars per bushel		Bushels/acre	1982$ 2/
1940-44	1.10	7.56	17.1	130.39
1945-49	1.91	9.21	17.0	156.91
1950-54	2.07	8.00	17.3	137.74
1955-59	1.88	6.52	22.2	143.48
1960-64	1.77	5.55	25.2	139.67
1965-69	1.37	3.79	27.5	103.55
1970-74	2.49	5.10	31.3	156.64
1975-79	3.08	4.55	31.4	143.12
1980-84	3.61	3.71	36.3	133.82
1985	3.08	2.78	37.5	104.15
1986	2.42	2.12	34.4	73.09
1987	2.57	2.18	37.7	82.32
1988	3.74	3.04	34.1	103.67

1/ Excludes direct Government payments received by participants in the wheat program. 2/ Yield times nominal price divided by the GNP deflator (1982 = 1.0).

The 1985 Act established two programs that were relatively attractive to wheat producers to retire land. The 50/92 (later the 0/92) program provides a guaranteed deficiency payment for the annual retirement of land. The conservation reserve program provided annual rental payments to landowners who placed cropland in a conserving use for 10 years. The rental payments were relatively attractive in the Southern and Northern Plains States, areas which predominately produce wheat.

History Of Wheat Programs

Current Federal wheat policies trace back to World War I. Since that time, the U.S. Government has pursued price and production objectives through policies including: export quotas and fixed wheat prices, acreage allotments, a soil bank, nonrecourse loans, set-asides, target prices, deficiency payments, the farmer-owned reserve, the conservation reserve program, and the export enhancement program.

Table 10--Wheat sector costs and returns, 1981-88

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/	Returns above cash expenses: Nominal 5/	Returns above cash expenses: 1982$ 6/
	Billion dollars					Dollars/bushel	
1981	10.28	0.79	11.06	7.67	3.40	1.22	1.30
1982	9.54	.77	10.31	7.44	2.87	1.04	1.04
1983	10.42	1.31	11.73	7.43	4.30	1.78	1.71
1984	9.13	1.73	10.86	7.54	3.32	1.28	1.19
1985	7.37	2.35	9.72	6.01	3.71	1.53	1.38
1986	5.04	3.86	8.90	5.12	3.78	1.80	1.58
1987	5.42	3.61	9.03	4.82	4.21	2.00	1.70
1988	6.77	2.03	8.80	5.39	3.42	1.89	1.55

1/ Production times average farm price. Market value of production in 1983 and 1984 includes payment-in-kind entitlements valued at the season average price. 2/ The sum of deficiency, diversion, disaster, reserve storage, and long-term conservation reserve program payments. 3/ Total cash expenses equal the sum of planted acre, conservation, and conservation reserve program 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 (acreage reduction program, paid land diversion, payment-in-kind, and 0-92) times variable cash expenses per acre times 0.25. Conservation reserve program cash expenses per acre equal conservation reserve 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 GNP implicit price deflator (1982 = 100).

World War I and the 1920's

With wheat supplies scarce in Europe and the United States during 1916 and 1917, the U.S. Government imposed export quotas and fixed wheat prices. The Government pursued its price and production objectives through wheat purchases and sales and was successful in preventing runaway inflation and in supporting wheat prices at harvest, successes which inspired demands for subsequent programs.

During the 1920's, world wheat production exceeded demand, despite lower prices, and major exporters accumulated large stocks. The collapse of wheat prices in the early 1920's spurred the demand for subsequent programs. The trend toward overproduction generated calls to raise wheat farm income through a two-price system. Legislative versions of the two-price proposals were vetoed by President Coolidge in 1927 and 1928. These bills, based on the McNary-Haugen plan, were the first to propose boosting domestic wheat prices to "parity," a relationship between costs and prices which was defined to exist in 1910-14.

A Federal farm program, designed to stabilize prices and control surpluses, was finally implemented when President Hoover signed the Agricultural Marketing Act of 1929. A federally funded corporation was set up to make loans to marketing cooperatives that would purchase surplus wheat and other products from farmers. However, large supplies and plunging prices exhausted the resources of the corporation, and it ceased to function.

Legislation in the 1930's

The agricultural policies of the 1930's introduced many features that appeared in later programs, including acreage allotments, nonrecourse loans, and direct payments.

The AAA of 1933

The Agricultural Adjustment Act of 1933 (AAA) was enacted to raise farm incomes and control production. The wheat program under this act had many now-familiar features. Producers were assigned an allotment based on an average of past acreages. They were given the opportunity to reduce area by a certain percentage of this allotment base and in return receive a cash payment on their domestic allotment, that part of their allotment that would be used for domestic food. The programs of the AAA coincided with droughts and the Dust Bowl. Together, they turned wheat surplus into scarcity by 1936.

In January 1936, the Supreme Court ruled against processing taxes which had been imposed to finance the production control and declared the production control features of the 1933 Act unconstitutional. Higher prices combined with the lack of effective production controls for wheat under the Soil Conservation and Domestic Allotment Act of 1936 prompted a large increase in production and, once again, low prices.

The AAA of 1938

The Agricultural Adjustment Act of 1938 was the next major piece of legislation. It came in response to surpluses and low prices as a result of large wheat and cotton crops in 1937. This act introduced features contained in legislation that followed: nonrecourse loans, storage payments, direct payments, allotments, marketing quotas, export subsidies, and conservation incentives. Loan rates were to be set between 52 and 75 percent of parity, a term used for the first time in legislation. In order to receive parity payments--based on the difference between the farm price and 75 percent of parity--on normal production, and to be eligible for loans, farmers had to abide by acreage allotments. If supplies exceeded 135 percent of total use, compulsory marketing quotas were to be announced, and if approved by two-thirds of the farmers, put into effect. If a marketing quota was in effect, all producers were required to comply with the announced program provisions. The first mandatory quotas for wheat were approved for the 1941 crop. Quotas made acreage allotments mandatory and imposed penalties on any farmer exceeding the assigned allotment.

The 1938 Act sharply lowered wheat acreage from 80 million planted acres in 1938 to 63 million in 1939. U.S. prices were pushed well above world prices and export subsidies were used to maintain exports. The Government acquired large wheat stocks which were later reduced through a subsidized "wheat-for-feed" program and the world food shortages during and after World War II.

Postwar and the 1950's

The Agricultural Acts of 1948 and 1949 revised the parity formula because the relative prices of crops based on 1910-14 did not reflect economic conditions. The 1949 legislation also pegged support rates at 90 percent of parity for 1950. Support rates could be reduced in subsequent years depending on supplies. Despite Government authority to lower support prices, the wheat loan rate was set at or above 90 percent of parity through 1954. Because acreage allotments and market quotas were not in effect during this period, the high loan rates supported prices and wheat stocks grew sharply. After passage of the Agricultural Act of 1954, wheat support prices were reduced below 90 percent of parity, from 82.6 percent in 1955 to 75 percent in 1960. However, it was not enough to balance the market, one reason being that the act specified a minimum allotment of 55 million acres.

The soil bank was established by the Agricultural Act of 1956 to withdraw farmland from production to help reduce the growing surpluses. It had two components: (1) an acreage reserve which aimed at shortrun production adjustments by paying farmers to put part of their wheat and feed grain allotments into a conserving use and (2) a conservation reserve which allowed for longrun (3 to 10 years) land retirement. Neither program was especially effective for wheat. The acreage reserve often attracted land

that was fallowed or had poor yield prospects and the conservation reserve was not crop-specific. The acreage reserve program ended in 1958 and the conservation reserve ended in 1961. Some conservation reserve land remained idle through the 1960's because of the long-term contracts. Over 85 percent of the land planted to trees as part of the conservation reserve remains in forest and did not return to crop production.

Farm Program Adjustments in the 1960's

Wheat surpluses had built to immense levels by the early 1960's. From 1959 to 1962, beginning stocks were higher than total disappearance in each year. If the 1962 wheat allotment had been determined solely on the basis of the supply formula rather than the 55-million-acre statutory minimum, the allotment would have been zero.

As a result, a supplemental voluntary paid land diversion was implemented in 1962 and 1963. Growers disapproved marketing quotas for the 1964 crop, ending mandatory acreage control programs for wheat. New legislation was passed quickly, and the wheat program changed significantly under the Cotton-Wheat Act of 1964.

The national minimum acreage allotment was lowered, the loan rate was reduced to the feed value of wheat, and the program became entirely voluntary. Program compliers received domestic and export wheat certificates so that the blend of the market price and certificate value would be about 80 percent of parity. These measures were the first steps in separating income and price supports, an attempt to keep U.S. wheat prices competitive and at the same time support farmers' incomes.

The Food and Agriculture Act of 1965 made some important changes. Feed grains, wheat, and cotton were covered by the same omnibus legislation. The act extended the voluntary programs through 1969 (later extended to include 1970) and added a cropland adjustment program to retire land under 5- and 10-year contracts. These programs in the early and mid-1960's were effective in reducing wheat surpluses, and they showed that surpluses could be managed without mandatory programs. Food aid exports of wheat under the PL 480 program were important in reducing surpluses during this period (app. table 11).

Farm Program Adjustments in the 1970's

The farm programs of the 1970's introduced several adjustments that made agriculture more market-oriented. New programs included set-asides, target prices, and deficiency payments.

Agricultural Act of 1970

The program changes that occurred in the 1960's, such as the introduction of direct payments, were important first steps toward a more market-oriented agriculture. However, direct payment program costs were large and visible. In addition,

attention focused on the distribution of program benefits which showed farmers receiving large payments, some in excess of $1 million. In reaction, the Agricultural Act of 1970 limited payments to $55,000 per crop per person.

The 1970 Act introduced the set-aside concept in an effort to give market prices a greater role in planting decisions. It also recognized that area and regional adjustments in cropping patterns were being inhibited by the use of historical allotments. Once the farmer idled a stated percentage of the farm's domestic allotment, remaining land could be planted to any nonquota crop, including wheat. Thus, the program did not specifically restrict acreage of any crop. Farmers who did not comply with the set-aside requirement were not eligible for direct payments or the loan program. Program participation was very high during 1971-73, and wheat acreage was kept below levels reached in the late 1960's.

Target Prices Introduced in 1973 Legislation

During the 1974-77 crop years, the period covered by the Agriculture and Consumer Protection Act of 1973, wheat and other crops generally enjoyed strong exports and prices which aided the move toward more market-oriented farm programs. The 1973 Act made significant revisions in income programs. To complete the separation of price and income support, the wheat certificate program was repealed and replaced with the target price concept. Under target prices, deficiency payments would be made to farmers when the farm price fell below the target, with the maximum payment rate equal to the difference between the target and the loan rate. The goal of the target price system was to support income without affecting the market price. The target price covered production from allotment acreage and allotments were sharply increased. The target price was set directly by legislation for 1974 and 1975 and was adjusted thereafter by a formula based on an index of prices paid by farmers and changes in yields.

The 1973 Act also initiated the disaster payments program. Participating farmers would receive payments to cover losses due to natural causes which either prevented the crop from being planted or resulted in abnormally low yields. The payment rate was a percentage of the target price. Disaster payments did not count against the payment limitation, which was reduced to $20,000 per person by the 1973 Act. The disaster payments program recognized that farm income is affected by yield as well as price. At that time, all-risk crop insurance was not available in many high-risk counties. The disaster payments program was available to any participating producer and no premium was required.

The disaster payments program was later replaced by the all-risk crop insurance program provided by the Federal Crop Insurance Act of 1980. The high cost of the disaster payments program and the perception that it encouraged keeping marginal land in production were reasons for the change. Although the Government now pays a

portion of the insurance premium, participation has been low. Farmers cite high premiums relative to expected indemnities as a reason.

The Food and Agricultural Act of 1977

The Food and Agricultural Act of 1977 made significant changes in farm programs. Under the 1973 Act, wheat farmers received deficiency payments based on their allotments, regardless of how many acres of wheat they planted. In many cases, allotments were out of line with current planting patterns. The 1977 Act replaced the allotments with the current plantings concept: deficiency payments were to be based on normal production from current plantings. Normal production was determined by the program yield. To control the size of the payment, the payment rate could be reduced by an "allocation factor" if plantings were too large relative to needs (the minimum factor was 0.8).

The 1977 Act adjusted target prices on the basis of changes in wheat production costs per bushel, instead of using the aggregate prices paid index. Therefore, fluctuations in wheat yields had to be taken into account in setting the levels of target prices.

The farmer-owned grain reserve, established by the 1977 Act, was a recognition of the growing importance of exports to U.S. agriculture and the potential for greater demand and price instability. In return for loans and annual storage payments, farmers agree not to market their grain for an extended period (initially 3 years, but now 3 to 5 years), unless the average farm price reaches a specified level, the release price. The farmer-owned reserve loan rate was sometimes higher than the regular 9-month loan.

The farmer-owned reserve left stocks under the ownership of farmers. Thus, if and when prices rose, farmers would realize the increase in the value of the stocks. When the Government owns stocks, farmers who have forfeited their production to the Government at low prices have no opportunity to realize any gain if prices go up. The reserve also specified trigger prices to provide control over release and give potential buyers an idea of price levels required in order for them to be able to purchase farmer-owned reserve stocks.

The Agriculture and Food Act of 1981

Set-aside programs in 1978 and 1979 reduced wheat acreage to some extent and raised prices. Strong exports eliminated the need for further acreage control programs until 1982, the first year under the Agriculture and Food Act of 1981. The 1981 Act continued the wheat target price/deficiency payment program, farmer-owned reserve program, and set-aside program authority. It also authorized a crop-specific acreage reduction program aimed at better crop selectivity under acreage reductions. Minimum loan rates and target prices for each year were written into the legislation. The target prices were based on forecasts of

inflation which, as it turned out, were too high. The act allowed the wheat loan rate to be reduced 10 percent when the average farm price in the previous year was less than 105 percent of that year's loan rate. The minimum loan rate was $3 a bushel in 1980. It reached $3.65 in 1983, but was reduced to $3.30 in the 1984 and 1985 crop years.

The acreage reduction program, introduced as a new and more specific acreage control method, required diversion from a crop-specific acreage base. The diverted land had to be put in an approved conservation use. There was a 15-percent acreage reduction program for wheat in 1982. In 1983, a 15-percent acreage reduction program, a 5-percent cash diversion program, and a 10- to 30-percent payment-in-kind program were in effect. Participating growers could also submit bids to idle their entire bases for payment-in-kind in 1983. Bids were stated as a percentage of the farm program yield. Lowest bids were accepted first on a county-by-county basis. No more than 50 percent of the wheat base in any county could be idled under the combined programs.

The effects of the 1982 and 1983 programs were mixed. Deficiency, diversion, and in-kind payments did support income but added to high Government costs. The reserve loan rate in 1982/83 was set at $4 a bushel, 45 cents above the regular loan. The higher reserve loan was granted to raise program participation, but questions also surfaced about the goals of the farmer-owned reserve: price stability or price enhancement? Despite 48 percent of the wheat base in the program, harvested acreage in 1982/83 was the second highest ever, contributing to a rise in carryover stocks to 1.52 billion bushels, including over 1 billion bushels in the reserve. In reaction to this, the attractive payment-in-kind program, with over 75-percent participation, put record wheat acreage into conserving uses. Program participation was large because the payment-in-kind compensation did not count against the $50,000-per-person payment limit. However, falling exports and record yields prevented 1983's sharp acreage cut from achieving a significant reduction in stocks.

The Food Security Act of 1985

The Food Security Act of 1985, which came at a time of large stock buildups (see table 11 and app. table 3), was designed to increase U.S. competitiveness in world markets and to support farm income. To achieve these goals, it employed lower loan rates, generic certificates, and export promotion in the wheat program. It gave the Secretary of Agriculture greater flexibility in setting loan rates and allowed exporters greater latitude in setting competitive prices.

Under the act, loan rates and target prices continued to protect producer incomes. The "basic" (or statutory) loan rate for crop years 1987-90 was set at 75-85 percent of the simple average of the season farm prices over the previous 5 years, excluding high and low values. It could not fall by more more than 5 percent

Table 11--Wheat supply, disappearance, area, and prices, 1985-89

Item 1/	1985/86	1986/87	1987/88	1988/89 2/	1989/90 3/
			Million bushels		
Supply:					
Beginning stocks, June 1	1,425	1,905	1,821	1,261	616
Production	2,425	2,092	2,107	1,811	2,028
Imports 4/	16	21	16	24	21
Total	3,866	4,018	3,945	3,096	2,665
Domestic disappearance:					
Food	674	696	719	730	735
Seed and industrial	93	84	85	100	105
Feed and residual 5/	279	413	288	210	175
Total	1,046	1,193	1,092	1,040	1,015
Exports 4/	915	1,004	1,592	1,440	1,150
Total disappearance	1,961	2,197	2,684	2,480	2,165
Ending stocks, May 31	1,905	1,821	1,261	616	500
Farmer-owned reserve	433	463	467	287	100
Special program 6/	163	169	0	0	0
CCC inventory 7/	602	830	283	190	100
Free	707	359	511	139	300
Outstanding loans 8/	678	236	178	19	9
			Million acres		
Area:					
Planted	75.6	72.1	65.8	65.5	75.3
Harvested	64.7	60.7	56.0	53.2	60.3
Set-aside and diverted 9/	18.8	21.0	23.9	22.5	9.5
Conservation reserve	---	.6	4.2	7.1	9.5 10/
National base acreage	94.0	92.2	91.8	91.9	91.2
			Bushels per acre		
Yield per harvested acre	37.5	34.4	37.7	34.1	33.6
			Dollars per bushel		
Prices:					
Received by farmers	3.08	2.42	2.57	3.74	4.00
Loan rate	3.30	2.40	2.28	2.21	2.06
Target	4.38	4.38	4.38	4.23	4.10

--- = Not applicable.

1/ Totals may not add because of rounding. 2/ Estimated. 3/ Projected. 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 147 million bushels in the food security reserve in each year. 8/ Projected amount of free stock carryover under 9-month loan. 9/ Includes acreage reduction program, diverted, 50/92, and 0/92 acres. 10/ Through the 7th signup, 8.4 million acres of wheat base were enrolled in the conservation reserve program.

from year to year. Under the Findley Amendment, the Secretary could reduce the statutory loan rate by as much as 20 percent. This provision has been implemented in each year.

Loan rates fell substantially under the 1985 Act. The national average loan rate was $3.30 in 1985. After implementation of the Findley Amendment, the loan rate fell from $2.40 per bushel in 1986 to $1.95 for crop year 1990 (table 12). The target price was initially frozen at the 1985 level of $4.38 per bushel for the 1986-87 crops, and then was allowed to drop to $4.23 in 1988, $4.10 in 1989, and $4.00 in 1990.

To be eligible for loans and deficiency payments (see below), producers must participate in an acreage reduction program (ARP) if supplies are expected to be excessive. The percentage of a farm's wheat acreage base idled under the 1985 Act has depended on the stocks level. If projected beginning stocks exceeded 1 billion bushels, the acreage reduction was allowed to range from 15-22.5 percent in 1986, from 20-27.5 percent in 1987, and from 20-30 percent in 1988-90. If stocks were 1 billion bushels or less, the reduction could range from 0-15 percent in 1986, and from 0-20 percent in 1987-90. A farm's wheat acreage base is defined under the 1985 Act as a 5-year moving average of the number of acres planted and "considered" planted (idled under Government programs). The acres idled under the ARP must be devoted to conserving use.

Even with an acreage reduction program in effect, the Secretary can offer a paid land diversion if supplies are projected to be excessive. Under the 1985 Act, a mandatory 2.5-percent paid land diversion was in effect in 1986. In addition, an optional diversion was offered in the same year to winter wheat producers who reduced their acreage by an additional 5 or 10 percent beyond the acreage reduction program, for which they received a $2-per-bushel payment.

Participating producers are eligible for a "regular" deficiency payment under the 1985 Act. If the national weighted average farm price received by producers for the first 5 months of the marketing year falls below the target level, eligible producers receive deficiency payments in December of that year, less any advance. This payment is equal to the difference between the target level and the higher of the basic loan rate or the national weighted average market price received by farmers for the first 5 months of the marketing year.

Advance deficiency payments were also allowed under the act. The Secretary made advance deficiency payments to participants in the 1986 wheat program because an acreage limitation was in effect and it was likely that deficiency payments were to be made. The Secretary has had the option of offering these payments in 1987-89, and has done so in each year. In 1989, producers participating in the acreage reduction program could request 40 percent of their projected deficiency payments in advance. The advance deficiency payment in 1989 was $0.20 per bushel.

Participating producers have also been eligible for additional payments under the 1985 Act, called "Findley" or emergency compensation payments. These payments equal the difference between the basic loan rate and the higher of the announced national average loan rate or the national weighted average market price received by farmers for the entire marketing year. Findley payments were made in 1986 and 1987, but not in 1988.

There were no Findley payments in 1988, and none were projected for 1989, because the weighted average market price received by farmers for the marketing year had been above the basic loan rate and the national average loan rate. If Findley payments were to have been made under the 1989 program, they would be paid to

Table 12--Wheat program provisions, 1986-90

Provisions	1986/87	1987/88	1988/89	1989/90	1990/91
			Percent of base acres		
Acreage reduction program	22.5	27.5	27.5	10	5
Paid land diversion	2.5 1/	0	0	0	0
Winter wheat paid land diversion	5-10 2/	0	0	0	0
			Dollars per bushel		
Target price	4.38	4.38	4.23	4.10	4.00
Basic loan rate	3.00	2.85	2.76	2.58	2.44
Findley loan rate	2.40	2.28	2.21	2.06	1.95
Advance deficiency payment	.732/.183 3/	.84	.612	.20	NA
Farmer-owned reserve	4/	5/	6/	7/	NA

NA = not available.

1/ Payment rate of $1.10 per bushel paid in generic certificates. 2/ Winter wheat growers who elected to reduce their acreage an additional 5 percent or 10 percent of base received a diversion payment in generic certificates. Diversion payments were valued at $2.00/bu times those additional acres diverted times the program yield. 3/ 0.732 at signup; 0.183 in August 1986. 4/ A ceiling was placed on the size of the farmer-owned reserve. If the quantity of wheat in the farmer-owned reserve exceeded 17 percent of estimated wheat usage for the 1986 crop year, entry of 1986 crop wheat was not to be permitted. 5/ If total wheat in the farmer-owned reserve exceeded 17 percent of estimated domestic and export disappearance for the 1987 marketing year, entry of 1987 crop wheat was not to be permitted. 6/ The farmer-owned reserve level for the 1988 crop was 300 million bushels. When 9-month loans matured, entry into the farmer-owned reserve was to be permitted only if reserve quantities fell below 300 million bushels and farm prices did not exceed 140 percent of the current loan rate. 7/ The limit on the farmer-owned quantity for wheat was 300 million bushels for the 1989/90 marketing year. If reserve quantities exceeded the limit at the time that the 1989-crop wheat loans mature or if market prices were greater than 140 percent of the loan rate, no entry into the reserve was to be permitted.

eligible producers in July 1990. In this situation, producers could have elected, at signup time, to receive a minimum of 75 percent of this deficiency payment in December 1989 based on a December 1, 1989, estimate of the season average market price.

Deficiency payments equal the deficiency payment rate times the farm program yield times the payment acreage (the amount of land planted to wheat after meeting any acreage reduction program requirements). Except for 0/92 acres (see below), the payment acreage is the acreage actually planted. The payment acreage cannot exceed the permitted acreage (the difference between the base acreage and the acres idled under the acreage reduction program and paid land diversion). Program yields under the 1985 Act equal the average program yield on the farm during crop years 1981-85, excluding the years with the highest and lowest yields, although some adjustments have been made to avoid reducing program yields too far below 1985 levels.

Wheat producers have had the option of participating in an acreage diversion program in which they may underplant their permitted wheat acres and still, under some conditions, receive deficiency payments on a portion of the underplanted acreage. Producers participating in the "50/92" program, in effect for the 1986 and 1987 crops, planted between 50 and 92 percent of their permitted acreage to wheat and devoted the remaining acres to a conserving use. Participating farmers were eligible to receive deficiency payments on 92 percent of the permitted acreage.

Beginning with the 1988 wheat program, the "50/92" provision was replaced by the "0/92" provision. Growers who plant less than their permitted acreage may receive deficiency payments on a portion of their underplanted acreage. If growers plant between 0 and 92 percent of their permitted acreage to wheat and devote the remaining permitted acres to a conserving use, they are eligible to receive deficiency payments on 92 percent of the permitted acreage. The production of alternate crops on the conserving use acreage has not been permitted.

The 1985 Act also authorized generic certificates. Certificates can be used to acquire stocks held as collateral on Government loans or owned by the CCC. Certificates free stocks that otherwise would be unavailable to the market. The largest impact occurs when market prices are near the loan rate. Certificates are part of the 1985 Act's focus on developing a more market oriented agricultural sector.

Generic certificates have a fixed dollar face value and an 8-month life beginning at the end of the month they are issued. They are not currency. Rather, they are a claim on CCC assets and are backed by commodities owned by the CCC. Because they are generic, they can be exchanged for a variety of commodities under loan and in CCC inventory, including wheat, rice, rye, corn, grain sorghum, barley, oats, soybeans, upland cotton, honey, and dairy products. The certificates are also negotiable: ownership and the right to exchange can be transferred.

Generic certificates have been used as payment for participation in several Government programs, including the acreage reduction, paid land diversion, conservation reserve, and disaster programs. In addition, grain merchants and commodity groups have been issued certificates through the export enhancement program and the targeted export assistance program.

Farmers exchange generic certificates for grain loan collateral based on an exchange price determined daily by USDA's Agricultural Stabilization and Conservation Service. These exchange prices, or posted county prices, are based on the previous day's closing market prices for 19 terminal markets. Posted county prices are determined for over 3,000 counties and 7,000 warehouse locations by adding or subtracting a predetermined differential to the terminal market price. Most counties are assigned two terminal markets with a differential assigned for each market.

Advantages of using certificates include ready access to most program commodities, easy sale or transfer of certificates to others, and the certificates' fixed dollar face value. Holders of certificates are protected when commodity prices decline because the amount of commodity for which certificates can be exchanged increases.

Wheat auctions were an administrative decision by USDA to facilitate transition to a more market oriented agriculture. To start the wheat auction process, the CCC prepares a list or a "catalogue" of specific lots of wheat in specific locations. Interested parties submit bids in generic certificates to the CCC office in Kansas City for individual lots. The highest bids can be accepted. CCC reserves the right to reject all bids if bids do not reflect market prices.

Wheat exchanges were heaviest over the initial months of the auctions. CCC auctioned 388 million bushels between the first wheat auction in November 1987 and February 15, 1989. CCC auction sales of wheat dropped dramatically after April 1988 because of the drought's effect on stocks. Lots have still been available for auction, but the CCC has accepted few bids. A monthly average of 64 million bushels was sold between November 1987 and April 1988. Between May 1988 and February 15, 1989, monthly sales averaged 0.5 million bushels.

The act also mandated a 40- to 45-million-acre conservation reserve to help protect highly erodible cropland. Under the program, USDA contracts with farmers to idle highly erodible cropland for 10 years. Land that was in production for 2 of the 5 years between 1981 and 1985 is eligible.

Landowners enrolling land in the conservation reserve must retire a portion of their base acres for wheat and/or other annual program commodities. Base acres entering the reserve must be retired at the same rate as the number of base acres to the total acres on the farm. About 8.4 million acres of wheat base were

retired by the end of calendar year 1988, accounting for about 9 percent of total wheat base acres.

If the bid submitted by a producer to enter the reserve is accepted, a contract is signed and the land must be planted in grasses, trees, or other vegetative cover, and may not be hayed or grazed except in emergencies determined by the Secretary. Annual rental payments, which may be in cash or generic certificates, are made on the basis of accepted bids.

The export enhancement program, also authorized by the 1985 Act, helps U.S. exporters compete with other countries that subsidize exports. The program employs a two-step, competitive bid process. The CCC initially targets a country for a specific quantity of a commodity. U.S. exporters then compete for the sale, knowing that they have the opportunity to obtain a CCC bonus. The exporters make sales contingent on receiving a CCC bonus and then bid against each other. The CCC evaluates the sales prices and bids to see if they fall within an acceptable range, and then awards the bonuses. Exporters receive bonuses in generic certificates.

Effects of the 1985 Act

Wheat programs under the 1985 Act have had sizable effects on farmers and taxpayers. Participation in the wheat program increased sizably between 1984 and 1988. Government direct payments for wheat, financed by taxpayers, peaked in 1986 and have since trended downward, but are considerably above 1981-85 levels. The 1985 Act has had a relatively small direct impact on consumers.

Farmers

Direct payments made under the wheat program have been a larger proportion of growers' incomes in the mid- to late 1980's than in the early 1980's. Total direct payments--the sum of deficiency, diversion, reserve storage, disaster, and conservation reserve payments--ranged from $0.79 billion in 1981 to a high of $3.86 billion in 1986 (table 13). They were an average 12 percent of the market value of production from 1981 to 1984, increasing to an average of over 50 percent from 1985 to 1988.

Aggregate direct payments in 1986 were the largest in the decade, at over three-fourths of the market value of production. This is because the loan rate fell faster than the target price and market prices were low, increasing deficiency payments. Deficiency payments prevented a drop in net income again in 1987. However, in 1988, payments were projected to fall as production shortfalls for the major producers and reduced stocks pushed up world wheat prices.

When idled acreage requirements are taken into account, direct payments to wheat growers raised net returns by 62 percent on average between 1981 and 1988 (table 14). Using a different

calculation, nonparticipants were worse off in 1986 than in any other year, with participant returns 125 percent higher than nonparticipant returns (table 15). Participants, on average, fared better than nonparticipants in each year except 1988.

Participation in the annual wheat program grew from 60 percent of wheat base acres in 1984 to a high of 87.5 percent in 1987:

Year	Participation rate
1984	60.0
1985	73.0
1986	85.3
1987	87.5
1988	85.7

Returns to participants were cushioned by deficiency payments and relatively high target prices despite stringent acreage reduction requirements. Until 1988, nonparticipants faced relatively low wheat prices due to large surplus stocks and a drop in the loan rate.

Generic commodity certificates, new with the 1985 Act, also contributed to greater producer participation. Before certificates, when prices were below the loan rate, farmers put their grain under loan for 9 months and paid storage costs (see "nonrecourse loans" in Glossary). With certificates, producers have other options. For instance, they can put their grain under loan, immediately redeem those loans with commodity certificates, and market the grain, thus avoiding storage costs. This can reduce forfeitures of wheat to the CCC, reducing CCC stock buildups. Generic certificates provide a mechanism for moving wheat stocks into commercial channels. This increased the price

Table 13--Direct payments to wheat farmers, 1981-88 crops

Item 1/	1981	1982	1983	1984	1985	1986	1987	1988
				Billion dollars				
Deficiency payments	0.42	0.48	0.77	1.05	1.54	3.46	3.29	1.31
Diversion payments	---	---	.31	.51	.65	.23	---	---
Reserve storage payments	.15	.28	.24	.17	.16	.17	.11	.05
Disaster payments	.22	.01	---	---	---	---	---	.28
Conservation reserve payments	---	---	---	---	---	---	.21	.39
Total direct payments	.79	.77	1.31	1.73	2.35	3.86	3.61	2.03
Market value of production	10.28	9.54	10.42	9.13	7.37	5.04	5.42	6.77
Total income	11.06	10.31	11.73	10.86	9.72	8.90	9.03	8.80

--- = No payments.

1/ Totals may not add because of rounding.

risk to nonparticipants, since the loan rate no longer sets an effective price floor to those outside the program.

The 1985 Act also allows producers to sell or transfer commodity certificates to others. Certificates sold for more than their face value between spring 1986, when they were first issued, and the spring of 1988, benefiting producers. Between spring 1988 and July 1989, certificates sold at par or at a discount. As availability tightened, certificates sold for as much as 105 over par between July and September of 1989.

Under the 1985 Act, program participation has also been influenced by a change in the definition of a farm's crop acreage base (the acreage certified by Agricultural Stabilization and Conservation Service county offices for disbursement of program payments). With the Food Security Act of 1985, a farm's wheat base acreage is calculated as a 5-year moving average of planted and "considered" planted acres (idled under Government programs). As a result, producers who do not participate for a year can increase their crop acreage base by only 20 percent of the additional acres they planted that year.

Table 14--Wheat returns above cash costs, with and without direct Government payments, 1981-88

Crop Year	Net returns, 1982$ 1/				Direct payments as percentage of--	
	Without direct payments		With direct payments		Farm value	Net returns 2/
	$/bu.	$/planted acre	$/bu.	$/planted acre 3/	---Percent---	
1981	1.00	31.47	1.30	40.95	7.6	23.1
1982	.76	24.39	1.04	33.27 (28.28)	8.0	26.7
1983	1.19	37.56	1.71	54.11 (27.05)	12.6	30.6
1984	.57	18.66	1.19	38.95 (19.47)	19.0	52.1
1985	.51	16.29	1.38	44.28 (31.00)	31.8	63.2
1986	-.03	-.99	1.58	45.99 (29.89)	76.4	102.1
1987	.24	7.70	1.70	54.34 (39.39)	66.7	85.8
1988	.63	17.40	1.55	42.85 (31.06)	30.0	59.4
Average	.61	19.05	1.43	44.34		
Coefficient of variation	.25	7.99	.04	1.17		

1/ Calculated from data in table 10 and appendix table 1. Total net returns without direct payments equal the market value of production less total cash expenses. Total net returns with direct payments equal total income less total cash expenses. All data are deflated by the GNP implicit price deflator (1982 = 100). 2/ Net returns include direct payments. 3/ Numbers in parentheses are per-acre returns reduced by the maximum acreage reduction/paid land diversion/payment-in-kind percentage in effect in that year.

Table 15--Wheat returns above variable costs to program nonparticipants and participants, 1984-88 1/

Year	Nominal net returns to:		Real net returns to:		Gain to participants
	Nonparticipants	Participants	Nonparticipants	Participants	
	--Dollars per acre--		---Dollars per acre---		Percent
1984	78.88	92.66	73.24	86.03	17
1985	64.40	86.27	58.07	77.79	34
1986	37.31	83.90	32.76	73.66	125
1987	52.33	85.44	44.46	72.59	63
1988	81.53	79.56	67.00	65.37	-2

1/ Net returns to nonparticipants equal market returns per acre less variable expenses. Market returns equal yield times the season average market price received by farmers. Planted acre expenses equal planted acres times variable expenses per acre. Net returns to participants equal the sum of Government returns and market returns per acre less variable expenses (planted and idled). Government returns per acre equal the sum of deficiency payment returns (the nonacreage reduction program fraction of the acre times deficiency payment rate times program yield) plus diversion payment returns (the diverted fraction of the acre times diversion payment rate times program yield). Planted acre expenses equal the fraction of the acre planted times variable expenses per acre. Idled acre (acreage reduction program and paid land diversion) expenses equal the fraction of the acre idled times variable expenses times 0.25. For participants, it is assumed that for every 10 percent of acreage set aside, yield on the remaining acreage increases 2.2 percent. Only the required acreage reduction program and paid land diversion for program participation are taken into account.