planned countries. Since imports by these countries depend heavily upon income growth, economic conditions in these countries are crucial in determining U.S. corn exports.

Access to financing by the developing countries, whether they choose to use the available credit for consumption or productive investment, and terms of credit available to these nations have also been important determinants of U.S. corn exports. The mounting debt situation facing a number of developing countries, such as Mexico, has added another uncertainty to U.S. corn exports to those countries, depending on their ability to export more goods abroad so as to earn foreign exchange to pay their debts and buy U.S. corn. Any increase in U.S. interest rates will likely worsen the situation since a 1-percentage-point increase in the U.S. interest rate translates into substantial additional annual debt service in Mexico.

The increased share of world corn imports by centrally planned countries holds potential to disrupt U.S. corn exports to that part of the world. The Soviet Union and China have struggled to meet their domestic needs; their imports have been variable. For example, China greatly reduced its imports in 1983/84, and was actually a net corn exporter by 1985. The Soviet Union has been the single largest source of instability for world grain markets.

The EC's price support and trade-restricting policies in large part explain the dramatic decline in EC corn imports from the United States. If the EC countries had lowered grain price supports and aligned them more closely with world prices, the EC would likely have increased use of feed grains in the feed rations and thereby have increased corn imports and reduced use of cereal substitutes. However, analysts believe the EC would assure that its grain, not imports, be used for animal rations. Thus, the EC may offer a larger market under this circumstance than presently for corn, but it is very unlikely that EC demand will return to its earlier level, in the absence of successful multilateral trade negotiations.

Major U.S. competing exporters have taken steps to protect their market shares. Argentina, for example, has reduced its export taxes and the degree of overvaluation of its currency. It has also undertaken a fertilization program to increase grain production 30 percent. Bilateral agreements signed by Thailand, Australia, and Canada made the United States even more a residual supplier in the world grain market. Canada has taken major steps to expand its export capacity, including major port and rail investments. Australia, with its competitive wheat export prices, has aggressively marketed its wheat to East Asia and the Middle East, further encouraging substitution of feed wheat for U.S. corn and other feed grains by these countries. The United States responded by introducing its export enhancement program that subsidizes selected agricultural exports such as wheat and barley to targeted countries.

Trends in Prices and Farm Returns

In the early 1950's, U.S. corn prices were high historically because of high price support rates. Prices received by farmers trended downward in real terms, but remained close to the loan rate until 1972-74 when market prices began to respond to the increasing world demand for corn due to a worldwide grain production shortfall and devaluation of the dollar. After 1974, prices again trended downward through 1977 and then rebounded in response to an increase in demand and drought problems through 1980 (see fig. 2).

Stagnant domestic demand, sagging exports, bumper crops in 1981 and 1982, and mounting carryover stocks resulted in low corn prices in 1981 and 1982. In 1983, the combination of the payment-in-kind program and drought significantly reduced production. As a result, corn prices jumped 26 percent, and corn stocks fell to their lowest level since 1975/76. Corn ending stocks since have been building, reaching 4.9 billion bushels by 1987. Corn prices, which jumped 31 percent due to the severe drought in 1988, are expected to drop to normal levels for the 1989/90 crop year. Corn ending stocks are projected to decline to 1.8 billion bushels for 1988/89.

There are many ways to indicate the financial health of corn producers. One measure, farmers' returns above cash expenses, shows their changing average cash flow position (table 11). These net returns are determined by subtracting total cash expenses from gross receipts. The gross receipts include corn

Figure 2
Corn prices and loan rates, by quarter, 1979-88

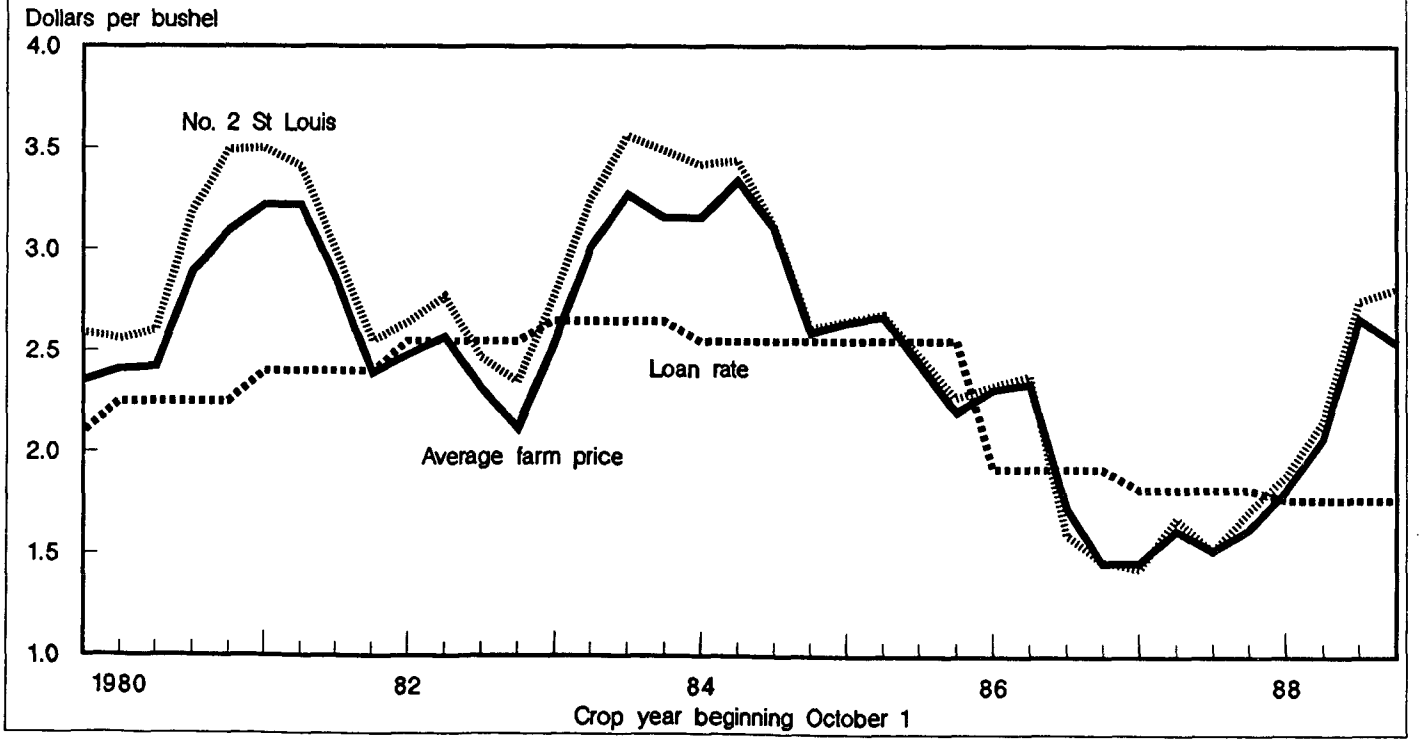

Table 11--Returns above cash expenses in U.S. corn production, 1975-88

Crop year	Value of output[1]	Direct payments[2]	Gross income	Total cash expenses[3]	Returns over cash expenses[4]		
					Total	Per bushel	
						Nominal	Current[5]
	Billion dollars					Dollars	
1975	14.83	0.005	14.84	8.72	6.12	1.05	1.77
1976	13.52	.010	13.53	10.13	3.40	.54	.86
1977	13.14	.300	13.44	11.04	2.40	.37	.55
1978	16.35	.840	17.19	12.53	4.66	.64	.89
1979	20.01	.350	20.36	10.79	9.57	1.21	1.54
1980	20.71	.210	20.92	13.28	7.64	1.15	1.34
1981	20.05	.460	20.51	15.29	5.22	.64	.68
1982	20.99	.920	21.91	15.27	6.64	.81	.81
1983	13.40	6.656	10.96	11.66	8.30	1.98	1.91
1984	20.18	1.753	21.93	17.35	4.58	.59	.55
1985	19.79	2.644	22.43	17.52	4.91	.55	.49
1986	12.79	6.669	19.46	15.05	4.41	.54	.47
1987	13.22	7.737	20.95	13.09	7.86	1.11	.94
1988	12.64	4.076	16.71	13.51	3.20	.65	.53

[1] Corn production times season-average price received by farmers.

[2] The sum of deficiency, diversion, disaster, and storage payments; for 1983, PIK entitlements are included as part of direct payments.

[3] Costs per planted acre times acreage planted for grain; cost of maintaining conserving-use acreage is 20 percent of variable expenses times the acreage. Cash expenses prior to 1981 are computed from percentage changes between 2 succeeding years and based on cash expenses reported in Economic Indicators of the Farm Sector: Costs of Production, U.S. Dept. Agr., Econ. Res. Serv., various years. Cash expenses for 1988 estimated based on 1987 costs of production; not yet available for 1988 costs.

[4] The difference between gross income and total cash expenses; this difference was divided by quantity produced and was then deflated for per-bushel returns.

[5] Current dollars based on 1982=100.

sales receipts and direct Government payments. Returns above cash expenses are available for paying expenses associated with land, capital replacement, family debt, and living expenses.

The cash flow position of corn producers heavily depends on market prices, crop yields and the level of Government payments on the revenue side, and size of interest payments on the expense side. The high interest rates imposed on capital for farm expansion during the inflationary period of the late 1970's followed by the slide in the export market in the mid-1980's left many farmers in precarious positions. Gross income was fairly constant in that period ($20-22 billion), but cash expenses, primarily in the form of interest payments, increased by nearly 50 percent between 1983 and 1984, and per bushel returns fell precipitously as a result.

High corn yields and loan rates tend to strengthen corn farmers' cash flow positions. In 1977/78, for example, U.S. corn yields averaged 90.8 bushels an acre and the loan rate was $2.00 per bushel. In 1979/80, yields increased to 109.5 bushels an acre and the loan rate rose to $2.10 per bushel for the regular CCC loan and $2.60 for the farmer-owned reserve loan. As a result of these higher rates, corn farmers' returns above cash expenses increased from $0.37 a bushel to $1.21 in nominal terms, or from $0.55 to $1.54 in 1982 dollars (table 11). In real terms, the returns above cash expenses per bushel since 1975 were the lowest in 1977. In the early 1980's, cash receipts remained fairly strong but Government payments were low as practically no deficiency payments were made. Returns strengthened in 1983, as a result of the payment-in-kind program and drought, to $1.98 per bushel, or $1.91 per bushel in real terms. In that year, production fell, so cash receipts were low despite high prices, but huge PIK payments supplemented corn gross income. The Food Security Act of 1985 mandated lower loan rates for all crops to reduce Federal outlays and excessive stocks. In addition, corn market prices were significantly below the loan rates in the latter part of the 1986 crop year and use of generic certificates tended to reduce the price support impact of the loan program by returning forfeited grain to the marketplace. Per bushel real returns above cash expenses were down to $0.47 in 1986/87.

Government payments as a component of gross income have varied over the last few decades. These payments have fluctuated from less than $200 million a year in the mid-1970's to more than $6 billion a year for the first 3 years of the 1985 farm act. The share of Government payments in total revenue has ranged from 0.6 percent in 1975 to nearly 37 percent in 1987. In fact, in 1986-88, total Government payments constituted more than 125 percent of total returns above cash expenses.

Returns for producing corn, while subject to changing economic conditions (including the growth in productivity, market prices, and cost of output), also depend on the size of the operation. The special tabulation of the 1982 Census of Agriculture data for the 21 corn-producing States show that cost per dollar of receipts declines as farm size increases up to the 500-999 acre

interval for cropland before appearing to level off. Large commercial farms growing corn are probably more cost-efficient than small farms, although additional gains in efficiency (decreases in unit cost) are minimal once a farm reaches a commercial size.

History of Corn Programs

Federal farm policies and programs are designed to address the problems of low farm income, price instability, and periodic surplus stocks. Efforts by Congress to become involved in the corn market trace back to early this century, when increased production led to high corn prices. Following the war, commodity prices dropped abruptly, leading to unrest in the sector. Legislative attempts to strengthen prices by selling farm products for domestic consumption at a "fair exchange value" and surplus products abroad at the world price were periodically proposed in Congress but not passed until 1927 and 1928. President Coolidge vetoed the legislation both times.

Legislation of the Late 1920's

A Federal farm program was implemented when President Hoover signed the Agricultural Marketing Act of 1929. The objectives were to stabilize prices and control surpluses. A federally funded corporation, the Federal Farm Board, with a revolving fund of $500 million, was set up to make loans to marketing cooperatives that would purchase grain, including wheat and corn, from farmers. However, a steep decline in prices that started in 1930 exhausted the resources of the corporation and it ceased to function.

While the Federal Farm Board failed, the idea that Federal farm programs could and should be used to alleviate price and income problems for grain and cotton farmers gained political acceptance. The role of the Government in dealing with such problems was consistent with the concepts of the New Deal.

Farm Programs of the 1930's

The severe economic problems of the farm sector during the depression caused Congress to pass the Agricultural Adjustment Act in 1933. Under the 1933 Act, farmers could enter into contracts with the Secretary of Agriculture to adjust production of surplus commodities such as corn in return for parity payments that were financed by processing taxes on the commodities concerned. The Commodity Credit Corporation (CCC), incorporated under the laws of Delaware later that year, was required to make mandatory price support loans on "basic" (storable) commodities such as corn.

In January 1936, the Supreme Court ruled against the processing taxes and declared the production control program unconstitutional. In the subsequent Soil Conservation and Domestic Allotment Act, passed the following month, the emphasis was shifted from acreage control toward soil conservation by

authorizing payments for conserving activities, and direct appropriations replaced the processing tax. This act set up the various soil conservation programs and authorized Federal payments to cover part of the costs of soil-conserving practices on farms.

After a prolonged drought in 1936 followed by a return of normal growing conditions, the Agricultural Adjustment Act of 1938 was passed to assist producers of cotton, wheat, corn, tobacco, and rice to obtain nonrecourse loans based on parity prices and parity payments. Farmers could secure loans from the Government by pledging the commodity as collateral. The Government would take title to the commodity if the loan was not repaid, with no further recourse to the borrower.

New features of the legislation included mandatory nonrecourse loans, authority for marketing quotas if supplies reached certain levels provided that two-thirds of the producers voting in a special referendum approved, and parity payments if funds were appropriated. Marketing quotas were not in effect for corn in 1938, since supplies of corn were under the level which called for marketing quotas. However, parity payments were made to corn producers in amounts which would provide a return as nearly equal to parity as the available funds would permit. The act also provided adjustment payments for shifting land from "soil depleting" to "soil conserving" crops and conservation payments for instituting specific conservation practices.

Farm Acts of Postwar Period

Agricultural policy during the early 1940's shifted to encouraging production of farm commodities required to meet wartime and postwar needs. The Agricultural Act of 1948 provided support for basic commodities at 90 percent of parity for 1949 but provided for lowering support levels in 1950 should supplies become excessive. The Commodity Credit Corporation Charter Act, also enacted in 1948, provided a Federal charter for CCC and established it as an agency of USDA. Dissatisfaction with the price support provisions in the 1948 Act led to the Agricultural Act of 1949, which set support prices for basic commodities at 90 percent of parity for 1950. Price supports for basic commodities continued at 90 percent of parity through the 1954 crop year because of the Korean War.

Prices were supported entirely through nonrecourse loans and direct purchases by CCC prior to 1961. From a high of $1.62 per bushel in 1954, the loan or purchase rate was reduced each year to $1.06 per bushel in 1960 as hybrid corn boosted productivity growth rapidly, more than offsetting the cuts in price supports. Average farm prices for corn were below the loan rate for a decade. By the fall of 1961, corn stocks exceeded 2 billion bushels, resulting from price supports which prevented corn prices from falling enough to clear the market. In 1950, corn acreage allotments were in effect in "commercial corn areas." Acreage allotments were also in place during 1954-58. Planting within allotments was not mandatory, but the high price supports

were available only to farmers who planted within their allotments or were not in a commercial corn area when the allotments were in effect.

Commodity Programs of the 1950's

The increase in stocks during the 1950's led to several new policy initiatives. First, the Agricultural Trade Development and Assistance Act of 1954 (PL 480) channeled surplus farm commodities into foreign aid, selling them for foreign currency, for emergency relief, and for strategic materials. Second, the Agricultural Act of 1954 introduced flexible support prices that could be set within a range based on percent of parity. Finally, the Agricultural Act of 1956 provided for a two-part soil bank program to encourage farmers to divert cropland from production to conserving uses. The conservation reserve program authorized 3- to 10-year contracts with payments for shifting cropland into grass or other conservation uses. The annual acreage reserve program diverted specific crop allotment acres in return for a direct payment. This was the first major attempt since 1936 to control production by withholding land. This program reduced the acreage of corn harvested for grain in 1957 by 10 percent below the early 1950's. But, since the less productive land was taken out of production, the acreage reduction was more than offset by increased yields due to higher input application, and carryover stocks continued to increase. The acreage reserve part of the Soil Bank program was discontinued after 1958. The conservation reserve ended in 1961, although conservation reserve land remained idle through the 1960's because of the long-term contracts.

Corn producers received an opportunity in the Agricultural Act of 1958 to choose between (1) no allotments in 1959 and subsequent years with prices supported at 90 percent of the previous 3-year-average market price but not less than 65 percent of parity, or (2) allotments with prices supported at 74 to 90 percent of parity. Corn growers voted in a 1958 referendum to end corn allotments.

U.S. Government Intervention in the 1960's

At the beginning of the 1960's, surplus stocks continued to grow despite falling support rates and prices (table 12). Farmers had no better alternatives on land suitable for corn and yields continued to increase, given the then existing support prices and acreage restrictions on alternative crops (table 13). Among the major crops, only feed grains and soybeans had no production control provisions.

Emerging conditions led to considerable pressure to end the stocks buildup. The Agricultural Act of 1961 established specific acreage diversion programs for the 1961 crops of feed grains (corn and sorghum). The aim was to divert acreage from these crops to conserving uses. Barley was added to the program in 1962.

Table 12--Government and privately owned stocks of corn, 1962-88

Year beginning Oct. 1[1]	CCC-owned stocks	Under loan	Farmer-owned reserve	Free stocks	Total stocks
		Million bushels			
1962	888	647	--	118	1,653
1963	810	465	--	90	1,365
1964	828	472	--	237	1,537
1965	540	384	--	233	1,157
1966	249	301	--	292	841
1967	139	234	--	453	826
1968	182	532	--	455	1,169
1969	295	441	--	382	1,118
1970	255	345	--	406	1,005
1971	105	234	--	328	667
1972	160	562	--	405	1,127
1973	79	88	--	541	708
1974	7	4	--	472	483
1975	0	3	--	359	361
1976	0	32	--	601	633
1977	0	143	--	999	1,135
1978[2]	3.5	480	212	740	1,435
1979	100	158	585	866	1,709
1980	260	116	670	988	2,043
1981	242	126	0	800	1,392
1982	280	365	1,276	539	2,536
1983	1,143	113	1,890	361	3,523
1984	201	44	447	313	1,006
1985	225	657	383	377	1,648
1986	546	2,589	564	193	4,039
1987	1,443	2,102	1,320	-161	4,881
1988	835	929	1,127	1,369	4,259
1989[3]	400	400	750	280	1,830

-- = Not authorized.
[1] Crop year changed to September 1-August 30 in 1985.
[2] Farmer-owned reserve program authorized in 1977 Food and Agriculture Act.
[3] Preliminary.
Source: Agr. Stab. and Conserv. Serv., U.S. Dept. Agr.

The 1961 legislation marked a major shift from total support through commodity loans to a loan rate combined with payments for acreage diversion. Further, the program was voluntary and only participants were provided support. With 19 million acres of corn base (22 percent) diverted from production in 1961, the buildup of CCC stocks was halted. The program continued in 1962. A direct price support payment was introduced in 1963 as an addition to the diversion payment. It was paid on acreage planted in compliance with program provisions and was not affected by actual price or the price the individual farmer received. The loan rate was lowered by the amount of the price support payment. As a result, CCC acquisitions dropped from 460 million bushels in 1962/63 to 16 million bushels in 1963/64 and remained low during the rest of the 1960's and 1970's, except 1967/68. The basic elements of the program in effect for 1963 continued for 11 years: price support loans at or below world prices, direct price support payments, and diversion payments. An optional acreage diversion program offering payments for idling additional land was also available between 1961-70 (except 1967). Thus, corn acreage was diverted every year to keep carryover stocks from growing into surpluses which developed when prices, because of price support, were not permitted to fall enough to clear the market.

The first omnibus farm act which started the trend of bringing additional crops under voluntary programs was the Food and Agriculture Act of 1965, which made no other major program changes. One of the underlying issues confronting farmers and program administrators at that time was that the historically based acreage allotments and feed grain bases were restricting farmers from making crop mix adjustments on their farms. Total factor productivity, output per acre, and output per labor hour were increasing; farm size was increasing due to economies of size; and farms were moving toward more specialized operations because of the reduction in price risk. This raised a conflict between these economically desirable changes and the rigidities imposed by the program provisions. As a result, farmers with both wheat allotments and feed grain base were allowed to substitute among these crops, a first step to alleviate the restrictions that historically based acreage allotments imposed on farmers.

The 1960's ended with programs in place that had brought surpluses under control. The cost was substantial: $1.5 billion in fiscal 1969, compared with well under $1 billion in previous years. Even though prices had not increased and the parity ratio had continued to drift downward, the rapid productivity growth had sustained farmers' returns.

Agricultural Programs of the 1970's

The Agricultural Act of 1970 addressed two issues of growing concern: payment limitations and flexibility in planting on base acreage.

Table 13--Price support operations for corn, crop years, 1967-88

Year beginning Oct. 1	Price support rates			Put under support		Acquired by CCC[2]	Total payments to participants[3]
	Loan rate	Support payments	Total support[1]	Quantity	Percentage of production		
	-------Dollars/bushel------			Mil. bu.	Percent	Mil. bu.	Mil. dol.
1967/68	1.05	0.30	1.35	497	10.4	193	731
1968/69	1.05	.30	1.35	404	9.2	36	1,166
1969/70	1.05	.30	1.35	398	8.7	5	1,365
1970/71	1.05	.30	1.35	324	7.9	7	1,228
1971/72	1.03	.32	1.35	953	16.9	35	893
1972/73	1.01	.40	1.41	420	7.5	1	1,469
1973/74	1.32	.32	1.64	261	4.6	0	910
1974/75	1.10	.28	1.38	77	1.7	0	244
1975/76	1.10	.28	1.38	147	2.5	0	90
1976/77	1.50	.07	1.57	278	4.4	0	181
1977/78	2.00	0	2.00	1,164	17.7	94	281
1978/79	2.00	.10	2.10	641	8.8	0	683
1979/80	2.10	.10	2.20	557	7.0	0	126
1980/81	2.25	.10	2.35	840	12.6	42	280
1981/82	2.40	0	2.40	1,977	24.1	45	92
1982/83	2.55	.15	2.70	1,585	18.9	NA	290
1983/84	2.65	.21	2.86	NA	NA	NA	904
1984/85	2.55	.43	3.03	3,846	50.0	NA	342
1985/86	2.55	.48	3.03	5,166	58.0	NA	2,479
1986/87	1.92	1.11	3.03	5,549	67.0	NA	6,150
1987/88	1.82	1.09	3.03	5,272	75.0	NA	7,290
1988/89[4]	1.77	.33	2.93	4,921	100.0	NA	4,796

NA = Not available.
[1] Beginning in 1974, and until 1977, total support is the target price on allotment production.
[2] Includes deliveries from original loan program, the reseal loan program, and over-deliveries to CCC.
[3] Payments have been made to feed grain producers under deficiency, disaster, and diversion provisions.
[4] All producers were eligible to receive aid under the 1988 Disaster Relief Act.

Source: Agr. Stab. and Conserv. Serv., U.S. Dept. Agr.

Some of the direct payment checks that went to individual farmers prior to 1970 totaled more than $100,000 and a few were issued for over $1 million. The 1970 Act limited direct payments to $55,000 per crop per person for producers of upland cotton, wheat, and feed grains. Nonrecourse loans were not included. The limit had no significant effect on total outlays because many large farmers were able to divide up operations so as to largely circumvent the limit.

By introducing the concept of set-aside acreage, the act also addressed continued producer complaints about not being able to select crop mixes or make crop adjustments in response to the most economical use of resources. In contrast to diverted acreage that applied to specific crops, under set-aside, participants were required to set aside a portion of their allotment or base acreage to conserving acres, in addition to normal conserving base requirements. Then they could plant any crop on the remaining acreage except those under marketing quotas. This gave producers more flexibility to base production decisions on expectations of economic conditions.

The Agriculture and Consumer Protection Act of 1973 took another step in the shift from strict production controls to market-oriented programs that had price and income safety nets. Support prices based on parity were replaced by target prices, with the target price level related to changes in production costs adjusted for yields. With target prices, a deficiency payment would be made if the average market price during the first 5 months of the marketing year was below the target price. No payment would be made if the market price remained at or above the target price. This made 1974 the first year since voluntary programs started that a participating corn farmer was not assured of a direct payment regardless of the market price level.

The disaster payment feature, another new concept, provided for a direct payment to participants who, because of natural causes, either were unable to plant a crop or suffered low yields. The disaster payment program recognized that farm income is affected by yield as well as by prices. At that time, multi-peril crop insurance was not available in many high-risk areas. The disaster payment program was available to any participating producer and no premium was required. Therefore, the disaster payment program actually induced planting of corn in high-risk areas.

The $55,000 payment limit was reduced to $20,000 and included all program crops associated with the person subject to the limit. Loans and any compensation for resource adjustment were not subject to the payment limit. The 4-year span (1974-77) covered by the 1973 Act was a time of rising exports and dwindling stocks. Corn prices stood at a record $3.45 a bushel in October 1974 because of a drought and an extremely low stock carry-out level; only 359 million bushels were on hand on September 30, 1975. As a result, the loan rate had no real market price impact until mid-1977, and no deficiency payments were made to corn producers under the 1973 Act.

An acreage allotment based on the acreage required to meet domestic and export needs was announced each year under the 1973 Act. The allotment specified the acreage eligible for target price protection and disaster payment protection. A farmer had to plant at least 90 percent of the allotment to be eligible for full target price protection; however, any of a number of crops could substitute for the program crop.

Replacement of the longstanding acreage allotments (derived from production patterns dating back to the 1950's) by a current planting concept represented a major change in the 1977 Food and Agriculture Act. Under the 1973 Act, corn farmers received deficiency payments based on their allotments, regardless of the number of acres they planted. Under the 1977 Act, deficiency payments were to be based on the production from current plantings, adjusted by the program allocation factor. The program allocation factor is the ratio of the national program acreage to the estimate of harvested acreage. In 1978, the allocation factor for corn was 97 percent. During 1974-77, acreage planted to corn, on the average, exceeded allotment by about 20 million acres.

The act adjusted target prices on the basis of changes in corn production costs per bushel, instead of using the aggregate prices paid index which does not take into account the growth in productivity. Therefore, under the 1977 Act, growth in corn yields were taken into account in setting target prices.

Corn stocks were on the rise during the last year of the 1973 Act. The increase in stock levels also raised the possibility that the Government might end up holding stocks again. Nonrecourse loans continued to be the major price support mechanism, so a continued increase in stocks would inevitably result in increasing CCC inventories. Meanwhile, U.S. corn exports were rising and by 1977 they were approaching 2 billion bushels. Recognizing the growing importance of exports, the need to protect grain and livestock producers from price shocks, and increasing corn carryover stocks, Congress established the farmer-owned reserve program (FOR) under the 1977 Act to help reduce price instability and to control the cost of holding CCC inventories.

The FOR permitted farmers who complied with the set-aside requirements to place their grain into the reserve (initially 3 years, but now 3 to 5 years), normally after regular CCC loans matured. Under the program, farmers agreed to hold their grain in storage until maturity of the contract or until a specified release price was reached in the market. In return, farmers received payments for storing their grain (presently 26.5 cents a bushel), and interest was waived on the loans after the first year of the contract. Following the U.S. embargo on grain sales to the Soviet Union, reserve loan rates were set higher than regular loan rates. The farmer-owned reserve became an instrument for price support. At the end of 1981/82, corn stocks under the farmer-owned reserve reached 1.3 billion bushels.

The 1977 Act covered the 1978 through 1981 crops. Set-aside requirements were announced as a condition of eligibility to receive price and income supports in 1978 and 1979, but no restrictions were imposed on crop planted acreage in 1980 and 1981.

Farm Programs of the 1980's

The 1980's have seen a very volatile environment, with shifting world prices and exchange rates and thus varying export demand, and Government stocks and Federal spending have grown rapidly in response to efforts to support farmers.

Corn prices rebounded to $3.11 per bushel in the 1980 crop year due to strong exports. As a result, a set-aside was not in effect until 1982, the first year under the 1981 Agriculture and Food Act. The 1981 Act responded to problems stemming from provisions of the 1977 Act. Use of cost of production data to set and adjust target prices was not working as expected. Rising land values in an inflationary economy brought great resistance to lowering target prices. Changing yields introduced instability into the adjustment formula results.

Acreage controls were not considered satisfactory either. Allowing all planted acreage to qualify for target price protection invited additional acreage. Another concern was that set-aside was not effective in achieving crop-specific acreage reduction.

To address these issues, the 1981 Act mandated specific loan and target price minimums that would override the Secretary's discretion in setting the minimum price and income support levels for each year. Crop-specific acreage reduction programs were introduced which revived the allotment concept. The legislative authorities for the farmer-owned grain reserve gave the Secretary more discretion in managing the conditions of release from the reserve.

When the 1981 Act became law, the yearly increase of nearly 6 percent in target prices for the 1982 through 1985 crops was viewed as very modest. Export markets were expected to continue strong, supporting farm prices. At the same time, rapid inflation, which reached 15 percent in 1980, was forecast to exert strong pressure on farm costs. As the 1981 farm bill was being debated, crop prices were rising. But by the time the 1981 Act was signed, the corn market was weakening. It did not recover until after the 1983 payment-in-kind program was announced. The PIK program, together with the acreage reduction program and paid land diversion, diverted nearly 32 million acres of cropland from corn production.

Participants in the 1984 corn program were protected against down-side price risk by a $2.55 per bushel loan rate, down from $2.65 in 1983. In addition to being eligible for price support, participants in the 1984 corn program were eligible for deficiency payments since the average farm price during the first

5 months of the 1984/85 season was below the target price of $3.03 per bushel.

The Food Security Act of 1985 (FSA) continued many of the programs and provisions of the previous farm act, including the acreage reduction program, deficiency payments, generic certificates, disaster payments, and various export certificate programs. The FSA was also designed to address many of the problems created by the state of the world economy during the early 1980's and the structure of the 1981 Act. Loan rates above world prices pushed commodity stocks to record levels. By 1986, ending stocks of corn totaled over 4.8 billion bushels (see table 12).

The high and rigid price supports established in the 1981 Act were not responsive to market conditions. As a result, U.S. farmers had difficulty selling their products overseas when global markets changed in the 1980's. U.S. exports of corn declined by almost 50 percent from 1980 to 1.2 billion bushels in 1985.

At the same time, corn prices fell from $3.12 a bushel in 1980 to $2.23 in 1985. Depressed commodity prices, coupled with deflated expectations regarded farmland appreciation, and sudden increases in real interest rates led to declining farm asset values. Between 1981 and 1986, farm asset values fell by more than one-quarter.

The high price supports also meant costly Federal farm programs. Commodity Credit Corporation outlays for corn jumped from $2.1 billion in 1980 to $10.1 billion in 1986. Total Federal farm expenditures for farm programs increased more than 700 percent between 1980 and 1986.

Loan rates and target prices were set in order to encourage exports and avoid excessive stocks by better reflecting prevailing supply and demand conditions. Target prices were initially frozen at their 1985 levels then decreased annually to $2.75 a bushel by 1990. The basic corn loan rate (previously the national average loan rate) was set by law at $2.40 for 1986/87. For 1987-90, the basic loan rate is to be announced by the Secretary near the beginning of subsequent crop years, at the same time as other program provisions. The Findley provision of the act provided that the loan rate may be further reduced from the basic level by up to 20 percent if the average market price is 110 percent or less of the announced loan rate or if the reduction is seen as necessary to maintain domestic and export markets. Thus, prevailing market conditions caused the Secretary to announce an effective loan rate of $1.92 a bushel for corn for 1986 (see table 13). By 1988/89, the loan rate had declined to $1.77 per bushel (table 14).

The 1985 Act provided that diversion payments and part of deficiency payments may be paid to farmers in advance and in the form of generic certificates. The conservation reserve program (CRP) was established with the primary aim of removing highly

Table 14--Corn program provisions, crop years, 1987-89

Provision	Unit	1987	1988	1989
Acreage reduction	Percent of base acre	20	20	10
Paid land diversion	Do.	0	2.5	0
Paid land diversion rate	Do.	NA	1.75	NA
Target price	Dollars per bushel	3.03	2.93	2.84
Basic loan rate	Do.	1.82	1.77	1.65
Deficiency payment rate	Do.	1.21	1.09	.33

NA = Not available.

erodible cropland from production. The program idled more than 3 million acres of corn cropland for a 10-year period by 1988. In addition, the 1985 Act permitted using a marketing loan for corn, similar to those now in use in peanuts and cotton. To date, such a program has not been implemented for corn.

The Secretary was authorized to make in-kind payments in the form of transferable certificates that would allow producers to receive the same total return that they would have otherwise received in cash. This so-called generic certificate has been used by the Department of Agriculture as payment to producers who participate in Government programs such as acreage reduction, paid land diversion, conservation reserve, marketing loan, disaster payment, export enhancement, and ethanol fuel subsidy. These certificates constitute a claim on commodities held by the Commodity Credit Corporation with a fixed dollar value valid for 8 months. They can be exchanged for commodities pledged by farmers as collateral for price support loans or for most commodities owned by CCC at the prevailing market price, thus saving storage costs. Between April 1986 and January 31, 1989, almost $22.6 billion in certificates were issued, more than half of which went to corn producers. Over that time, more than two-thirds of the certificates were redeemed for corn owned by the CCC or under loan.

The farmer-owned reserve was maintained in the 1985 Act, though in a somewhat different version. The loan period was reduced from 5 to 3 years, although it can be extended as warranted by market conditions. The release price is set at the higher of 140 percent of the stated loan rate or the corresponding target price, instead of being set by the Secretary as in the 1981 Act.

The following provisions were put into effect for the 1989/90 crop year:

(1) The 0/92 option: producers are permitted to commit all or part of base acreage to the conservation reserve and receive 92 percent of the deficiency payments they would otherwise have received.

(2) Advance deficiency payments will be made equal to 40 percent of anticipated payment rates.

(3) Limited cross-compliance for 1989 wheat, corn, sorghum, barley, upland cotton, and rice. Farmers are allowed to shift 10-25 percent of permitted program plantings to soybeans and sunflowers without suffering penalty to base acreage.

(4) Minor haying and grazing provisions on acreage reduction and conservation reserve land in the event of natural disaster.

A severe early spring and summer drought, combined with high late summer temperatures which affected most areas of the country in 1988, caused a drastic reduction in yields and output of the major grain and soybean crops. This blow to U.S. farmers, many of whom were just beginning to recover from the financial stress of the early 1980's, prompted an emergency drought relief bill in mid-summer. The Disaster Assistance Act of 1988 (PL 100-387) was the largest disaster relief measure in U.S. history. The law contained provisions dealing with almost all aspects of agriculture affected by the natural disasters of 1988. Payments were allocated both to program participants and nonparticipants based on their deviation from established program yields of program crops, including corn.

Producers of annual commercial crops who lost at least 35 percent of their 1988 crop due to drought or other natural disaster received disaster payments. Payment rates differed depending on the commodity, the amount of crop loss, and whether producers participated in the 1988 Federal commodity programs. The disaster payment for feed grains program participants who lost 35 to 75 percent of their crop equaled 65 percent of the 1988 target price. Nonparticipants raising program crops received 65 percent of the county loan rate. Participating producers with losses greater than 75 percent received 90 percent of the target price. Similarly, nonparticipating producers received 90 percent of the county loan rate. Actual yields equal to or below an USDA-established "de minimus yield" received maximum benefits.

Participating producers with losses up to 35 percent were not required to refund their 1988 advance deficiency payments. At the discretion of the Secretary, producers with more extensive losses were not required to repay their advance deficiency payments until July 31, 1989.

The Disaster Assistance Act imposed a number of limitations on the amount of benefits producers could receive. The law also addressed concerns about Federal aid to higher income farmers by instituting the first "means test" for agricultural program payment eligibility. Any person with gross revenues over $2 million annually was not eligible for crop payments. Total payments to producers with Federal crop insurance were limited to combined crop insurance benefits and disaster payments up to an

amount not exceeding the income that would have resulted from a normal crop yield.

Effects of Corn Programs

Crop Producers

Corn producers benefit from participation in corn programs directly through supported prices and direct payments, and indirectly through higher market prices and the land capitalization induced by program benefits. Moreover, soybean producers also benefit somewhat from the corn programs for two reasons: (1) higher loan rates and target prices for corn have encouraged some farmers to switch from soybeans to corn and (2) higher corn prices resulting from the program may have induced substitution of soymeal for corn in the feed ration, further raising soybean prices.

Size of Program Payments

Since 1961, U.S. corn farmers have received program payments ranging from $90 million in 1975 to $917 million in 1982 to $7,737 million in 1987. Reserve storage payments became more significant in recent years, reaching a peak of $625 million in 1982 (table 15 and app. table 4) due to bumper harvests and often low market prices.

During 1983-88, program payments varied from 8.7 percent of sales receipts of the corn industry in 1984 to 58.4 percent in 1987. Program payments averaged 36 percent of corn producers' sales receipts or 90 percent of returns above cash expense. Program payments ranged from $0.23 a bushel in 1984 to $1.08 in 1987. Program payments ranged from 38.2 percent of returns above cash expenses in 1984 to 151 percent in 1986.

Distribution of Program Payments

Analysis of the 1987 corn program reaffirms that benefits are closely related to participating acreage and production and that the regions with larger base acreage in compliance receive a larger share of the program payments. This tendency was true in 1982/83 in which only 30 percent of the corn base was in compliance, and even more evident in 1987/88, a year in which 90 percent of base acreage was in compliance (table 16).

Compliance increased threefold nationally between 1982 and 1987, but the distribution of deficiency payments was quite similar. The major loser was the Plains region, which lost more than 30 percent of its share of national deficiency payments. Base acreage went up slightly or remained the same in all regions except the South, which surrendered more than 20 percent of its corn base yet doubled its share of deficiency payments. Participation rates were up in all regions but were highest in the Plains, North Central, and Southwest regions.

Table 15--Value of crop and program payments received by corn farmers, crop years, 1983-88

Item	1983	1984	1985	1986	1987	1988
			Million dollars			
Value of crop[1]	13,402	20,183	19,795	12,792	13,228	12,646
Program payments:						
Deficiency payments	--	1,653	2,479	6,030	5,874	2,300
Diversion payments	904	--	--	120	1,416	560
Reserve storage payments	22	100	165	519	447	307
Disaster payments	--	--	--	--	--	909
PIK entitlement	5,639	--	--	--	--	--
Total	6,565	1,753	2,644	6,669	7,737	4,076
			Percent			
Program payments as percentage of sales receipts	48.9	8.7	13.3	52.1	58.4	32.2
			Dollars			
Per bushel:						
Sales receipts--						
Nominal	3.21	2.63	2.23	1.55	1.94	2.57
Real[2]	3.09	2.44	2.01	1.36	1.65	2.11
Program payments--						
Nominal	.65	.23	.30	.81	1.08	.82
Real	.63	.21	.27	.71	.92	.68
			Percent			
Program payments as percentage of returns above cash expenses[3]	79.1	38.2	53.8	151.2	98.4	127.3

-- = No payments.
[1] Corn production times season average price received by farmers.
[2] In 1982 dollars.
[3] Calculated by dividing program payments by farm returns above cash expenses in table 11.

Effects on Corn Production and Prices

Since 1956 and except for 1959-60, 1974-77, and 1980-81, the Government has attempted to reduce surplus production of corn by offering voluntary diversion, set-aside, or acreage reduction programs. However, the programs were not always as effective as intended. In 1987, about 21 million acres out of the 83-million-acre corn base were idled. Prior to the 1985 Act, without frozen program yields, a 1-percent increase in expected net returns from corn production, other things including feed grain program being equal, had resulted in a 0.66-percent increase in acreage planted to corn in the Corn Belt.

Effectiveness of acreage reduction is further eroded by the fact that farmers remove marginal land from production, and participants and nonparticipants alike usually devote more inputs to land in production. In the early 1980's, after farmers removed marginal land from production, corn yields on remaining acres increased an estimated 3 percent in the Corn Belt and 2.5 percent in the Lake States for each 10 percent of corn base idled.

Producers are required to idle a portion of the farm base acreage under the 1985 Act to be eligible for price and income protection through nonrecourse loans, deficiency payments, and paid land

Table 16--Distribution of corn acreage base and deficiency payments by region, crop year, 1982/83 and 1987/88

Region	Participation rate		Base acreage		Share of deficiency payments	
	1982/83	1987/88	1982/83	1987/88	1982/83	1987/88
	----Percent----		--Million acres--		----Percent----	
North Central	27.2	91.4	52.4	53.7	62.2	68.7
Plains	46.3	93.3	16.4	17.8	32.7	22.4
Northwest	10.7	65.9	.3	.3	.1	.3
Southwest	22.4	88.8	.5	.5	.3	.6
South	10.6	75.2	10.4	8.0	2.7	5.8
Northeast	38.7	67.4	1.2	2.9	2.0	2.3
Total	29.1	90.2	81.2	83.3	100.0	100.0

Sources: U.S. Senate, Committee on the Budget, 1982 Farm Program Benefits: Participants Reap What They Sow, 1985, and Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture, 1987 Deficiency Payment System, Compliance Report, 1988.

diversion payments. Program enrollment ranged from 21 percent in 1979 to nearly 90 percent in 1987. The low rate of the late 1970's and early 1980's reflected low expected net gains, estimated at less than 2 percent, due to market prices near or above the loan rate and relatively low target prices. Participation rates went from about 19 percent in 1982 to 50 percent in 1984 (table 13) because of nationwide drought in 1983 and the late enrollment date of the payment-in-kind program and remained at high levels. The expected gain for being in the program was estimated at 240 percent for 1987, with a resulting 90 percent of the corn base enlisted in the program.

The disaster payments program (as written in the 1973 and 1977 Acts) offered a form of free insurance against production risk for program participants. The program has induced larger production of corn in more risky areas. This effect has been dampened somewhat since 1982 as the payments were excluded in areas where crop insurance was available.

The loan program protects participating farmers from down-side price risk, since the loan rate sets the floor under market prices. Thus, the program not only reduces price risk but also raises expected prices to participants. Record ending stocks of 4.9 billion bushels were held at the end of 1987 (table 12). Farmers essentially produced corn for the farmer-owned reserve program or the CCC, not necessarily for the market. In 1988, farmers with good crops received high prices in the market, while those struck by the drought held on hoping for a drought relief bill.

Acreage reduction programs, coupled with the operation of the farmer-owned reserve and the regular CCC loan program, tend to keep prices higher than they would otherwise be, at least in the short run. Until corn placed into the farmer-owned reserve loan program reaches release status, stocks under the program are not available to the market. In times of large corn surpluses such as 1982/83 and 1986/87, the operation of the loan program could reduce free stocks and strengthen prices above what they would otherwise be.

Livestock Producers and Consumers

Corn programs are designed to strengthen farm prices for corn, other feed grains, and soybeans through acreage reduction programs, paid land diversion, set aside, and the operation of CCC loan and the farmer-owned reserve. But strengthening crop prices represent a cost to the livestock sector and, thus, to consumers of red meat, poultry, milk, and eggs. On the other hand, more unstable grain prices such as those during the early to mid-1970's can force the livestock sector to make more major adjustments in the volume of feeding from year to year in response to changing feed grain prices.

Higher corn prices directly affect livestock producers by raising feed cost in livestock and poultry production, resulting in the curtailment of livestock inventories (the liquidation phase of