

**DISASTER ASSISTANCE FOR U.S. FARMERS:
AN OVERVIEW OF THE CURRENT DEBATE AND TWO PROPOSALS**

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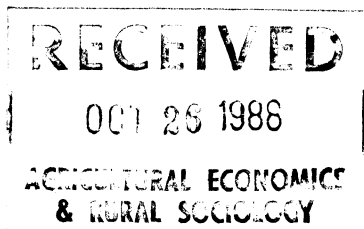
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**DISASTER ASSISTANCE FOR U.S. FARMERS
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The U.S. drought of 1988 has focused attention on federal assistance to farmers affected by drought and other natural disasters. However, disaster aid for farm operators has been a significant claimant on federal outlays since the mid-1970s. Current aid programs include emergency loans, direct payments, and subsidized crop insurance. Historically, cost of this assistance has been viewed as unacceptably high, resulting in continuous national debate and associated policy experimentation. Genealogy of this debate is explored, and two proposals are advanced.

A Farm Level View of Disaster Assistance

Farm disaster assistance was negligible prior to 1975 (Table 1). In contrast, between 1975 and 1982, disaster loans and payments averaged 8.5% of annual net farm cash flow. Despite a sharp decline for the 1983 to 1987 period, disaster assistance still averaged 2.8% of annual net farm cash flow.

The increase in disaster assistance during the mid-1970s was associated with changes in the farm production/financial environment. One change was increased variability in crop yields (Figure 1). For major U.S. cereal crops, the standard deviation about trend line aggregate yield equalled 4.6% of average aggregate yield from 1950 through 1969. Between 1970 and 1988 this ratio more than doubled to 11.0%.

During the 1970-1988 period, the largest year-over-year declines were years of national drought (1974, 1980, 1983, and

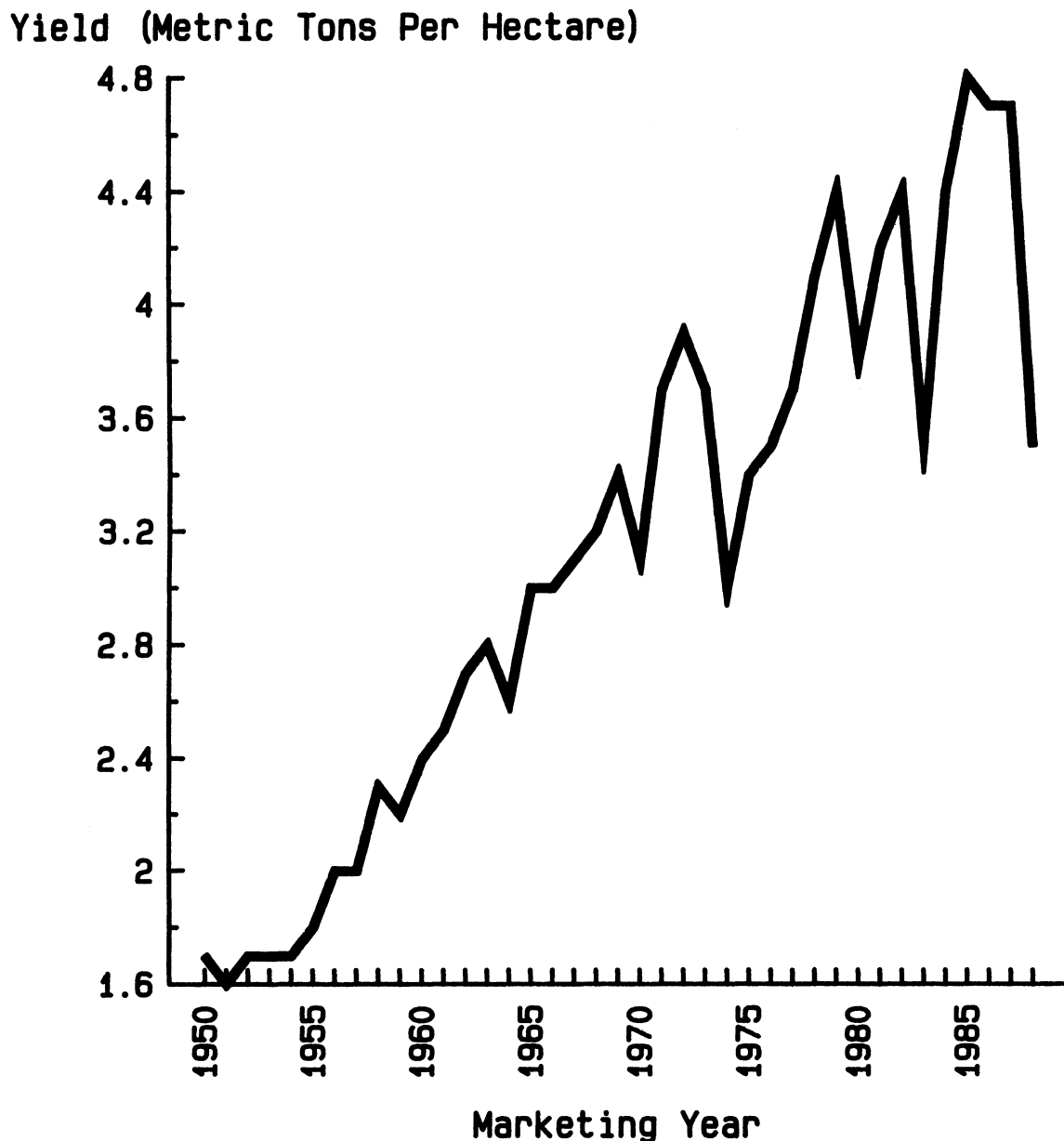
Table 1. Average Annual Disaster Payments and Loans to Farmers, U.S., Selected Periods, 1950-87

Period	Agricultural Stabilization and Conservation Service Payments			Farmers Home Administration Loans ^a	Federal Crop Insurance Net Indemnities ^b	Disaster Aid's Share of Net Farm Cash Flow
	Crops	Livestock ^c	Total	Million \$		%
Fiscal Years						
1950-64	NP ^d	-- ^e	-- ^e	52.9	(1.5) ^f	0.4
1965-74	NP ^d	-- ^e	-- ^e	150.8	(3.8) ^f	0.7
1975-82	484.6	75.8	560.4	2414.3	48.0	8.5
1983-87	134.4 ^g	17.4 ^g	151.8	488.0	304.0	2.8

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- a Includes emergency disaster and guaranteed emergency livestock loans.
 - b Indemnities minus premiums plus subsidy.
 - c Includes only federal expenditures for the cost-sharing of feed purchased by farmers beyond their normal amount. Hay and cattle transportation assistance was so small it was not reported as a separate budget entry by Commodity Credit Corporation. Purchase of government stocks at prices below the loan rate was only reported by poundage or bushels. No expenditure data are available.
 - d No programs.
 - e No information was found on annual costs of the livestock programs.
 - f Premiums exceeded indemnities.
 - g Includes the value of payment-in-hand certificates issued as part of the 1986 drought relief legislation for the U.S. southeast.

Sources: Commodity Credit Corporation (CCC), unpublished data.
 CCC, History of Budgetary Expenditures, Fiscal Years 1961-1979 Actual
 CCC, History of Budgetary Expenditures of the Commodity Credit Corporation, Fiscal Years 1980-1987 Actual
 Farmers Home Administration, Farmers Home Administration, Total Obligations Through Fiscal Year 1987
 Federal Crop Insurance Corporation, unpublished data
 U.S. Department of Agriculture (USDA), Agricultural Outlook, October 1988
 USDA, Agricultural Statistics
 USDA, Economic Indicators of the Farm Sector, National Financial Summary, 1986

**FIGURE 1. CEREAL YIELDS, U.S., 1950-1988
MARKETING YEARS *,****



* Includes barley, corn, oats, rye, sorghum, and wheat for their respective marketing years

** 1988 yield excludes rye because no production was reported

SOURCES: "World Grain Situation and Outlook"

"Grains: World Grain Situation and Outlook"

"Crop Production" - September 1988.

"World Crop Statistics" - 1948-64.

1988). Since droughts (natural disasters) occurred from 1950 through 1969, they are probably not the sole cause of the increase in yield variability. However, they are clearly a factor.

A second change in the farm environment was a decline in self-insurance by farm operators (Table 2). Farm household financial assets declined from 78% of farm cash expenses during 1950-54 to 37% from 1970-74 to 29% in 1986. Similar declines are noted when farmer-held crop and livestock inventories and/or nonfarm household income are added to household financial assets (Table 2). On the positive side, self-insurance has increased since the early 1980s, partly because of lower cash expenses.

Another aspect of self-insurance is that it declines as farm size increases (Figure 2). For 1986, financial assets plus crop and livestock inventories declined from 295% of cash expenses for farms with gross farm sales less than \$10,000 to 66% for farms with gross sales of \$500,000 or more. In short, commercial farms appear to be most at risk if a natural disaster strikes.

A third change in the farm environment was the implementation of target prices/deficiency payments for major field crops in 1973. This change undermined a form of natural disaster insurance based on the short-term inelastic demand for crops. Inelastic demand implies that a given percent decline in market production causes a larger percent increase in market price. Consequently, in a market without deficiency payments, income earned by farmers as a group increases when a natural disaster reduces market production.

Table 2: Self Insurance by Farm Operators, U.S., 1950-1986^a

Year	Cash Expenses (billion \$)	Cash Expense Coverage Ratio		
		Financial Assets ^b	Liquid Assets ^c	Nonfarm Income ^d Plus Financial Assets
		----- % -----		
1950-54	18.0	78.3	202.7	120.6
1955-59	20.1	72.6	173.6	111.9
1960-64	25.0	54.0	147.2	94.0
1965-69	31.9	46.4	121.0	92.2
1970-74	47.0	37.4	134.5	84.7
1975-79	78.5	24.3	106.0	60.0
1980	111.1	18.0	102.3	49.2
1981	115.3	17.6	89.2	48.7
1982	114.9	18.2	88.4	49.9
1983	115.8	18.8	82.2	50.8
1984	118.8	19.8	86.4	52.0
1985	112.0	22.3	84.3	60.0
1986	102.4	28.6	93.1	72.3

^a Includes farm households.

^b Deposits, currency, and U.S. Savings Bonds.

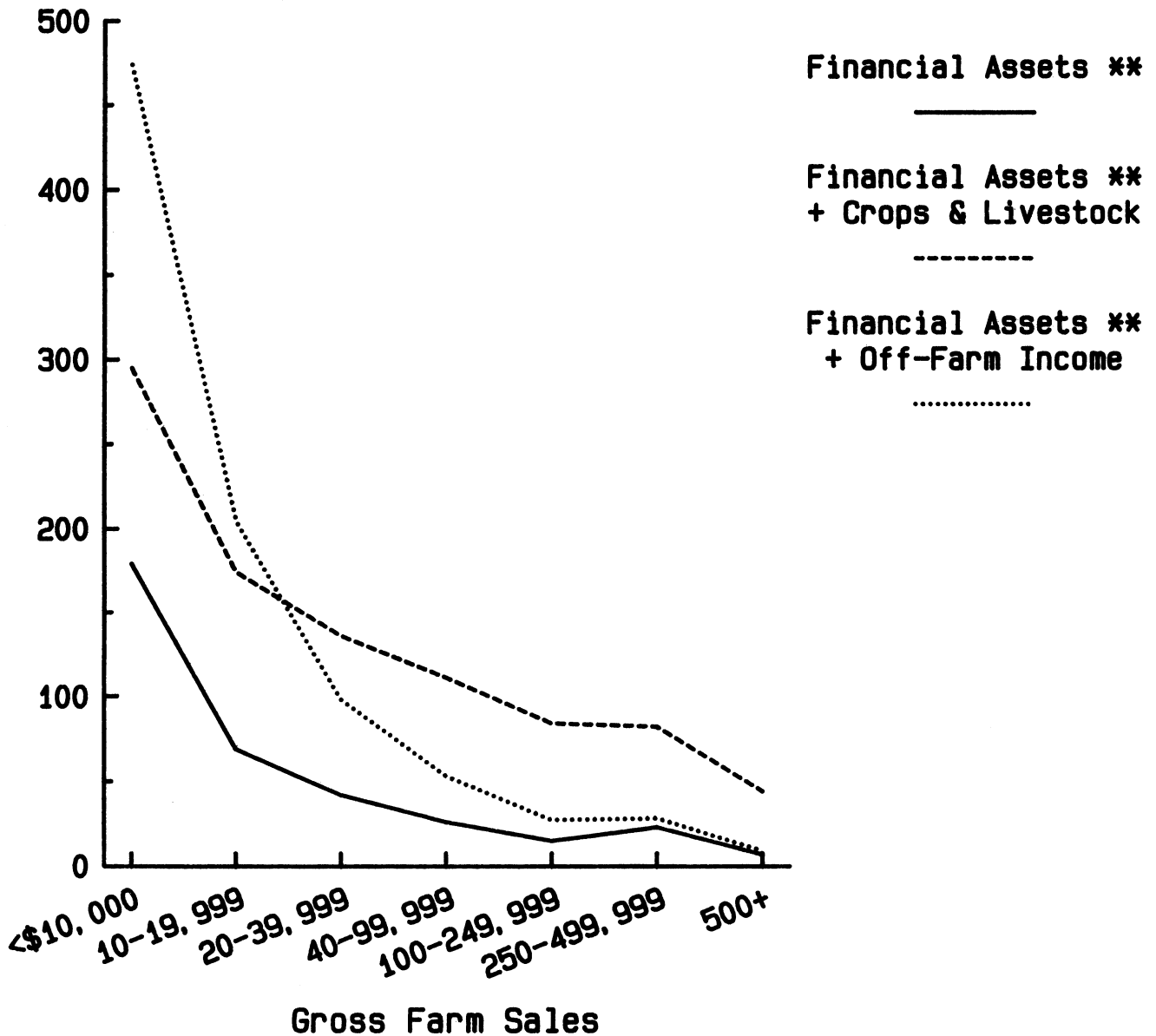
^c Deposits, currency, U.S. Savings Bonds, livestock, and crops.

^d Nonfarm income of farm operators for 1950-1959 was estimated using the following equation: $Y = -234.16 + 1.23X$ ($R^2 = .994$) where y = nonfarm income of farm operators and X = personal income of farm population from nonfarm sources. The equation was estimated over the period 1960-1969. Farm population nonfarm income was obtained from Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1983.

SOURCE: Economic Indicators of the Farm Sector, National Financial Summary, 1986.

FIGURE 2. SELF INSURANCE BY FARM OPERATORS BY FARM SIZE, U.S., 1986.

Coverage of Cash Expenses (%) *



* Excludes household cash expenses.
 ** Includes household assets.
 SOURCE: Economic Indicators of the Farm Sector: National Financial Summary, 1986.

The impact of a natural disaster on individual farmers depends on the change in their production (yield) relative to changes in market production (yield). If their production declines no more than market production, they will earn more income as higher prices more than compensates for their loss of production. Even farmers whose production declines more than national production benefit from the higher prices associated with the short-term inelastic demand.

Current farm income support programs undermine this insurance whenever market price is below the target price and above the loan rate. Under this scenario, the benefits of higher prices are largely offset by lower deficiency payments (difference between target price and higher of market price or loan rate).

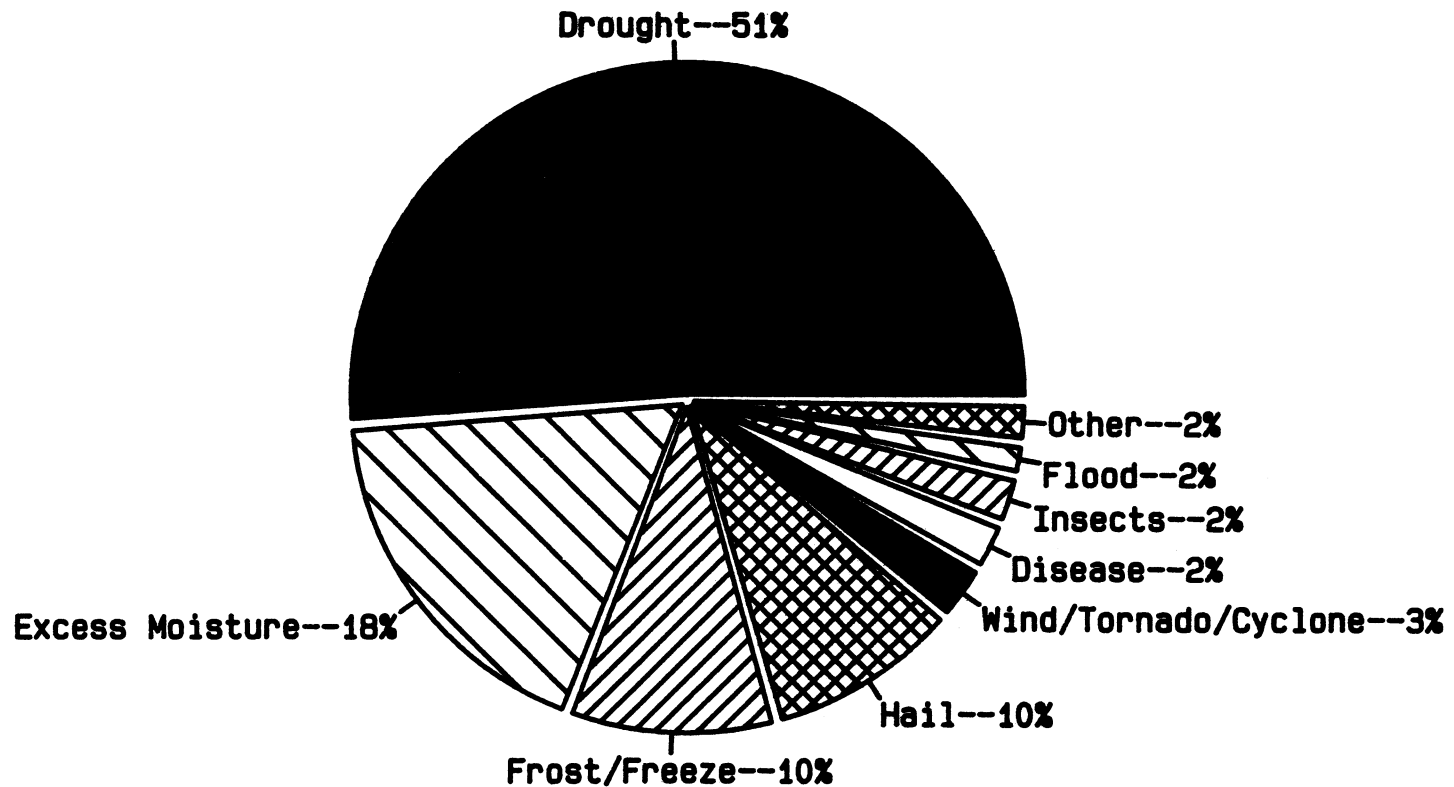
The insurance provided by short-term inelastic demand takes on added significance because drought is by far the largest cause of yield loss (Figure 3). Droughts have a greater tendency than other natural disasters to affect market production and, thus, trigger the inelastic demand-driven price response.

Disaster Assistance Programs

Emergency Loans

Loans to farmers affected by natural disasters were first authorized in the Disaster Loan Act of 1949. Farmers Home Administration (FmHA) was designated as the lending agency. It has since lent approximately \$23 billion in emergency disaster loans to farmers, most as direct loans.

FIGURE 3. AVERAGE PERCENTAGE OF FEDERAL CROP INDEMNITIES ATTRIBUTED TO SPECIFIC HAZARDS, 1948-86



SOURCE: Agricultural Statistics, 1987 (USDA).

A second natural disaster loan program involved FmHA guarantees of commercial loans to financially distressed livestock and poultry producers. This program was authorized by the Emergency Livestock Credit Act of 1974. It ended in 1979 after \$1.0 billion had been lent.

The annual volume of FmHA disaster loans was largest from 1975 through 1982, when an average of \$2.4 billion was lent (Table 1). Volume has declined substantially since 1982, in part because eligibility criteria for emergency disaster loans were tightened. For example, the Food Security Act of 1985 limited eligibility to family-size farms who could not obtain credit elsewhere. It also repealed FmHA's authority to make subsequent emergency loans for annual production expenses. Furthermore, beginning with crops planted and harvested in 1987, only farmers who purchase crop insurance are eligible for disaster loans. The latter requirement was, however, waived by The Disaster Assistance Act of 1988 for 1988 drought-related loans.

As of March 31, 1988, \$8.7 billion in emergency disaster loans was outstanding, of which 76% were held by delinquent borrowers. Furthermore, loans held by delinquent borrowers on March 31, 1988 totalled 38% of all emergency disaster loans that had ever been extended through September 30, 1987. Last, as of September 30, 1987, 39% of borrowers were delinquent. These high delinquency rates suggest emergency disaster loans have often been associated with extended periods of financial stress.

Direct Disaster Assistance

Direct assistance to farmers affected by natural disasters began in 1961, when livestock producers whose production was reduced by natural disaster were permitted to purchase government stocks at 75% of the nonrecourse loan rate. The Disaster Assistance Act of 1988 also permits, under specified conditions, government stocks to be sold at a price not to exceed 50% of the average market price. Other livestock assistance includes up to a 50% cost-share for a) feed purchased beyond the normal amount, b) transporting hay and forage purchased beyond the normal trade area, and c) transporting livestock to grazing areas. While numerous, these disaster assistance programs for livestock producers have been small in scope, in part because they are limited to producers who grow their own feed (Table 1).

An important source of disaster assistance for livestock farmers in recent years has been the haying/grazing of set-aside and conservation reserve acreage. This program does not involve direct federal outlays, and thus is not included in Table 1.

Direct disaster assistance for crop producers was first authorized in the Agriculture and Consumer Protection Act of 1973 and the Rice Production Act of 1975. Upland cotton, feed grain, wheat, and rice farmers who participated in the announced land set-aside program were eligible to receive direct payments for either prevented planting or low yields.

The so-called Disaster Payments Program proved costly, averaging almost \$500 million annually from fiscal years 1975

through 1982 (Table 1). Its cost eventually resulted in the program being ended after the 1981 crop year by the Federal Crop Insurance Act of 1980. Nevertheless, direct assistance to crop producers continues to be authorized on an ad hoc basis in years of widespread natural disaster. For the 1986 drought in the southeast U.S., approximately \$550 million of payment-in-kind certificates were authorized for drought assistance. For the 1988 U.S. drought, the U.S. Department of Agriculture estimates that The Disaster Assistance Act of 1988 authorized approximately \$3.0 billion in assistance for crop farmers.

Federal Crop Insurance

The Federal Crop Insurance Act of 1980 expanded the then-existing multiperil federal crop insurance program to replace the Disaster Payments Program as the major federal disaster assistance program. Federal crop insurance was first authorized by the Federal Crop Insurance Act of 1938 to cover drought, hail, excess moisture, frost/freeze, wind, disease, insect, flood, and other unavoidable causes of crop losses. Like the attempts of private companies before it, the initial federal attempt at multiperil insurance incurred large losses. In response, Congress reduced crop insurance to an experimental program in 1947. Subsequently, a program of limited expansion was undertaken. From 1948 to 1979, acres insured increased from 8.9 to 21.4 million. Nevertheless, participation remained low, accounting for only 6.2% of harvested plus failed acres in 1979.

To encourage purchase of crop insurance, the Federal Crop Insurance Act of 1980 directed the Federal Crop Insurance Corporation (FCIC) to develop an individualized insurance program based on a farmer's actual production history and authorized federal subsidies for premiums. A farmer's FCIC program yield is based on a 10-year moving average of a farmer's actual or county average yield, minus the high and low yield. A farmer who has at least three years of verified yields can qualify for the actual production history program.

Farmers who purchase crop insurance elect one of three levels of yield protection: 50, 65, and 75% of their FCIC yield. They also elect one of three price levels. These price levels vary by crop and year. For example, 1989 corn price levels are \$1.50, \$2.00, and \$2.60. Insurance payment (indemnity) equals the elected price times the following: FCIC yield times elected yield protection minus actual yield.

The premium paid by a farmer depends on the yield protection elected, the price elected, his/her yield history, and the premium subsidy. The latter equals 30% for the 50 and 65% yield elections. For the 75% yield election, it equals the absolute dollar subsidy for the 65% yield election. This typically translates into a 20-25% subsidy.

The actual production history option and subsidized premiums, along with encouragement from lenders, have resulted in increased participation. Acres enrolled totalled a preliminary 49.4 million in 1986, an increase of 131% since 1979. Participation was

probably higher in 1987 and 1988 and should increase further in 1989. One reason is that The Disaster Assistance Act of 1988 requires, subject to certain exceptions, that farmers purchase 1989 federal crop insurance if they accept disaster payments and if their 1988 yield was less than 35% of their normal yield as defined by the Act. A second reason is that farmers with crop insurance in 1988 will collect more total assistance, including indemnities, than farmers without crop insurance. Nevertheless, participation in federal crop insurance remains lower than desired. Congress has responded by establishing a commission to study the current program.

Summary and Proposals

Increased yield variability, lower self-insurance by farm operators, and income support payments based on target prices have combined to increase national attention and resources devoted to farm disaster assistance since the mid-1970s. Counting the estimated 1988 disaster assistance for crop producers, ad hoc crop disaster payments have averaged \$612 million since 1982. Furthermore, net federal crop insurance indemnities paid to farmers have averaged \$304 million from 1983 through 1987 (Table 1). Taken together, these two programs have averaged over \$900 million annually since 1982. Furthermore, emergency loans have averaged about \$500 million annually over this period (Table 1).

The cost of these programs has become a source of national concern, especially given the amount of assistance authorized by

The Disaster Assistance Act of 1988. Disaster assistance programs can also be questioned on economic efficiency grounds. They encourage production in high risk areas and partially offset the moral hazard of avoidable losses created by poor management decisions.

Despite these concerns, the political system has continually reaffirmed America's commitment to disaster assistance for farmers. In light of this continuing political support, two proposals are made for revising current programs. One addresses federal crop insurance, while the other concerns a new self-insurance program.

A Federal Crop Insurance Proposal

Almost every study of federal crop insurance has found that a key reason given by farmers for not purchasing insurance is that the premium is too high. A lower premium should therefore increase participation. One suggestion for reducing premiums is to replace the current yield elections, which are stated in terms of a farmer's FCIC program yield, to yield elections which are stated relative to changes in the corresponding market yield. For example, instead of the current greater-than-25% decline in yield before indemnities are collected (75% yield election), a farmer's yield would have to decline 25 percentage points more than the percent decline in national yield. Thus, if national yield declined 10%, a farm operator's yield would have to decline more than 35% before indemnities are collected.

This proposal is keyed to the short term inelastic demand for crops. Lower national production due to widespread natural disaster means higher market price, which partially or totally offsets an individual farmer's loss of production.

The proposal means that, in years of a large-scale natural disaster, fewer farmers would receive crop indemnities, and average indemnity would be smaller. In contrast, under the current program, more farmers collect higher average indemnities in such years, despite higher prices. To illustrate, in 1983, a year of major nation-wide drought, indemnities were collected by 29% of the insured farm units. Net indemnity received averaged \$11.50 per acre insured. However, in 1984 and 1985, years with no nation-wide drought, indemnities were collected by only 21% of insured farm units while the average net indemnity equalled \$6.50 per insured acre.

Therefore this proposal should result in lower premiums and higher participation. For major field crops, some of the proposal's allure is undercut by the fact that higher prices are offset by lower deficiency payments if prices are between the loan and target prices. However, because the existing crop insurance program requires yield reductions of at least 25% of a 10-year moving average, it provides only limited protection against the loss of deficiency payment.

A Disaster Assistance Self-Insurance Proposal

An alternative to current disaster assistance programs is to encourage self-insurance by farm operators. This could be accomplished by permitting farmers to place up to a pre-specified share of their cash farm expenses into an individualized disaster assistance account (IDAA). Taxes on income earned by the account would be deferred until the year the income is removed from the account. Funds could be removed whenever a natural disaster caused production to decline a specified amount. Any amount left in the IDAA when the farm operator stopped farming could be converted into a retirement account.

Cost of IDAAs to the federal treasury would depend on the program's parameters. Assume a farmer can place up to 40% of cash expenses into an IDAA and that everyone participates. Because cash expenses currently total about \$110 billion, \$44 billion would be contributed to IDAAs. Assume only returns are tax deferred and they accrue at an 8% annual rate. Thus, \$3.5 billion would be tax deferred annually. Assume the earned returns would be taxed at the highest personal tax rate of 28% in the year earned, but at zero when removed from the account. The amount of federal income tax lost would, therefore, equal \$986 million annually. Therefore, even with these conservative assumptions, an IDAA of 40% of cash expenses would be no more expensive than the current annual cost of disaster assistance. Furthermore, the cost of IDAAs could be reduced by tying them into Individual Retirement Accounts, which many farmers qualify for and use.

Unlike current programs which exclude many producers, particularly livestock producers who purchase their feed, IDAAs would be available to all producers. Furthermore, the level of protection offered by IDAAs for crop producers would be comparable to that offered by current programs. The average national cash cost of production for 1984 through 1986 was \$1.78 for corn, \$2.69 for wheat, and \$3.55 for beans. These figures are, in essence, the IDAA payment rate. The payment rates from The Disaster Assistance Act of 1988 for participants in 1988 farm programs who experienced production losses between 35 and 75% were \$1.90 for corn, \$2.75 for wheat, and \$3.69 for soybeans. The highest price election for 1988 crop insurance was \$2.00 for corn, \$2.60 for wheat, and \$5.00 for beans.

Assuming that the share of cash expenses which could be placed in an IDAA would be less than 100%, IDAAs would not cover situations where yields approach zero. To cover this possibility, the current crop insurance program could be converted into a catastrophe program, with a zero cost to the federal government.

In summary, IDAAs could be designed to cost no more than current programs while providing comparable levels of protection. Furthermore, they would be available to all farm operators, would reduce the need to borrow in an emergency, which the FmHA disaster loan program suggests is not a desirable strategy in many cases; and may increase savings, an emerging national concern. More important, they would encourage a farmer to utilize his/her

entrepreneurial skills to increase self-insurance, thereby
enhancing the ability to survive.