United States Department of Agriculture

Economic Research Service

Agriculture Information Bulletin Number 554

January 1989

The Conservation Reserve Program and Its Effect on Land Values

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Some farmers enrolled in the Conservation Reserve Program (CRP) in 1986 and 1987 may have earned more under the CRP than they would have if they had not enrolled in the CRP and had farmed or rented out their land instead. The difference in earnings may have resulted in as much as a 7-percent average increase in values for enrolled land. The CRP may have also cushioned the decline in all land values. U.S. land values fell 8 percent under the CRP between 1986 and 1987, possibly 0.3 percentage point less than they would have fallen without the CRP.

The primary aim of the CRP is to protect the Nation's highly erodible cropland and to conserve and protect water and wildlife resources. The program may also reduce the production of surplus commodities and provide financial relief to farmers. The CRP offers annual rental payments (also called "CRP contract rental payments") and half the cost of planting permanent trees and grasses to farmers who agree to retire their highly erodible cropland for 10 years. Congress established enrollment goals of 5, 15, 25, 35, and 40-45 million acres for fiscal years 1986-90.

Cash rental payments, the amounts farmers would pay to rent the land in the private land rental market, are capitalized into the value of land. Land values frequently reflect farm program payments because of the additional returns the payments provide, which are then capitalized into or become part of the land values. CRP competition in local land rental markets may also have increased cash rental payments in heavily enrolled counties between 1986 and 1987. Anecdotal evidence of this has been provided by Extension agents in Illinois, Minnesota, and Missouri.

This report uses differences in average bids between signups (enrollment periods) to estimate an upper limit on the CRP's effects on the value of enrolled land. These bids are the CRP rental rates that producers need to receive in order to enroll in the CRP. The report also estimates the possible effects of the program on the average U.S. farmland value, based on the acreage of enrolled land as a share of all farmland.

Producers enroll in the CRP during designated signup periods. During the signup periods, producers must submit bids that specify the amount of eligible cropland they want to enroll and the annual rental payments they require for this purpose. As bidding was originally envisioned, farmers would be expected to offer bids in amounts near the returns they could earn on the land if they were to farm the land or rent it out. The bids would be adjusted for additional costs or benefits the farmers expected from enrolling in the CRP. Such a process would tend to minimize the CRP's effects on values and rental rates because CRP contract rental payments would not exceed cash rental payments and, thus, would not provide any gains.

Bid acceptance was initially determined by whether the offers were lower than the maximum acceptable rental rates (MARR's). MARR's are the maximum amounts that farmers can bid and still have the amount accepted (see box). The U.S. Department of Agriculture (USDA) sets the MARR's, based on average cash rental rates for cropland within a pool (see box). A pool is a group of counties with land values and rental rates similar enough to justify using a single MARR. MARR's are based on a general knowledge of land values, cash rental rates, and other factors related to the pools. After the fifth signup, counties had the

authority to lower the MARR's. As a result, USDA was able to tailor MARR's to specific areas.

This analysis is limited to the first four signups because of the changes in setting the MARR's in the fifth and sixth signups. Thus, the estimated upper-limit effects in land values pertain only to these first four signups. As farmers became familiar with the MARR's, however, they had little incentive to offer bids less than the pool MARR. Farmers also had an incentive to withhold bids in anticipation of later MARR increases. In fact, MARR's were raised for the sixth signup in certain targeted areas, such as in the Corn Belt and the Mid-Atlantic States, and lowered in others.

Program Implementation and Farmland Markets

A producer who wants to enter into a CRP contract submits a bid to the county Agricultural Stabilization and Conservation Service office during a designated signup period. The bid is then reviewed based on the MARR's and land eligibility criteria (see box). Upon accepting the bid, USDA draws up a contract with the producer.

Grazing or harvesting of forage or engaging in any other commercial activity, except hunting and fishing where fees are paid, is not permitted during the CRP contract, unless specifically allowed by the Secretary of Agriculture. Also, the cropland base (cropland enrolled in other programs) and allotment history of the farm are reduced by the ratio of the land enrolled in the CRP to total cropland acreage. The cropland base acreage is fully restored at the end of the CRP contract.

Six signup periods during 1986-88 enrolled some 25.5 million acres. About 2 million acres were enrolled in the 1986 crop year, 13.6 million more were enrolled during the 1987 crop year, and roughly 6 million have been enrolled for the 1988 crop year. An additional 3.4 million acres were enrolled in the February 1988 signup.

Land eligibility criteria involve the cropping history of the acreage and various environmental aspects of the land, such as erodibility, ground water contamination, and runoff. Enrollment is also generally limited to 25 percent of total cropland in a county, unless specific exception is made by the Secretary. The limit is designed

Tools for Implementing the CRP

Three instruments are used to implement the CRP: eligibility criteria, pool size, and maximum acceptable rental rates (MARR's).

- ***Eligibility criteria.*** Eligibility is determined by an erodibility index (EI) and a soil loss tolerance level. The EI indicates the inherent erodibility characteristics of a soil relative to its natural regeneration rate. The soil loss tolerance level is the maximum rate of possible annual soil erosion that would still permit a high level of economical and indefinite crop productivity. A farmer's land is eligible if it equals or exceeds a specified EI or exceeds three times the soil loss tolerance level. The land must have been owned by the same person and cropped for at least a 3-year period before the first year of the contract. Since the fifth signup, filter strips have become eligible. Filter strips are areas 66-99 feet wide adjacent to permanent bodies of water regardless of class of land.

- ***Pool size.*** Pools are collections of counties with similar characteristics. The pool determines the amount of land eligible for a specific geographic area. CRP participation within a county is limited to no more than 25 percent of cropland, unless specific exception is made by the Secretary of Agriculture.

- ***Maximum acceptable rental rates.*** MARR's are the maximum acceptable rates the producers can bid. These rates are determined by USDA based on average cash rental rates for cropland within a pool. Since the fourth signup, MARR's have been set at the county level and are subject to review.

to prevent the CRP from hurting the local economy. These criteria affect the total land eligible for the program, the amount enrolled in the program, and the rate at which it is enrolled.

The CRP may have created market distinctions between eligible and ineligible land. In this sense, the CRP may be similar to commodity support programs that tend to raise land values for the commodity acreage base. To limit the possibility of outside investors taking advantage of the CRP, buyers of unenrolled eligible land must generally wait 3 years before applying to the program.

The value of enrolled acreage would be expected to rise when farmers are able to receive an annual CRP contract rental payment higher than the return they would receive from cropping the eligible acreage. Owners of eligible acreage that is below average in quality could have received (for enrolled land) an annual return equal to the MARR in 1986 and 1987. Below-average land is land that would rent for less than the county or pool average. Returns to enrolled land and the associated land values would have risen because the MARR was generally set near average cash rental rates for the pool (table 1).

Direct Effect: CRP Contract Rental Rates Versus Market Rental Rates

The CRP may have raised returns to enrolled farmers whose land would have earned less if they had not enrolled and instead had farmed or rented out the land. The maximum gain could have been an estimated 7 percent, or $51 per acre, for CRP-enrolled cropland (table 2). Seven percent may be an overestimate because it is based on the assumption that the value of CRP-eligible land is the same as all cropland.

The average CRP contract rental payments were lower during the initial signup than the MARR's in all regions, the difference averaging $5 per acre or more (table 1). The biggest differences were in the Northeast ($14) and the Pacific region ($11).

Table 1—Farmers' better understanding of the CRP and their increasing awareness of the MARR's are the main reasons that the average bids progressively approached the value of the MARR's

Region	Signup	Contract rental payments	MARR's	Region	Signup	Contract rental payments	MARR's
		Dollars				*Dollars*	
Northeast	1	45	59	Lake States	1	50	57
	2	53	58		2	55	57
	3	55	58		3	57	57
	4	57	58		4	57	57
Appalachia	1	45	52	Northern Plains	1	40	42
	2	50	52		2	44	48
	3	51	52		3	46	48
	4	52	52		4	47	49
Southeast	1	29	44	Southern Plains	1	36	41
	2	41	46		2	40	43
	3	44	46		3	42	43
	4	45	46		4	42	43
Delta States	1	36	45	Mountain	1	34	39
	2	43	47		2	40	43
	3	45	47		3	42	43
	4	45	47		4	43	45
Corn Belt	1	60	68	Pacific	1	46	57
	2	65	71		2	47	55
	3	69	71		3	49	55
	4	69	71		4	50	55

Average contract rental payments equaled or were within $1 or $2 of the MARR's for most regions by the fourth signup, however. The Pacific region, with its contract rental payments $5 less than the MARR, had the largest remaining difference. Reports for the fifth signup and preliminary reports for the sixth signup indicate that all the bids nearly equaled the MARR's.

Farmers' better understanding of the CRP and their increasing awareness of the MARR's are the main reasons that the average bids progressively approached the value of the MARR's. As a result, farmers with less productive land received earnings above what they could earn from cropping or renting out the land.

This analysis calculates the upper-limit effect of the CRP on land values as the capitalized difference between the CRP rental payments received in the first signup and the payments received in the subsequent four signups over the 10-year life of the enrollment. In other words, the upper-limit effect is the gain in the land's worth between the first and fourth signups. (Extension agents around the country have suggested that the upper limit may be much higher than suggested here.) The analysis assumes that the cropping potential of land enrolled during the first signup was the same on average as that enrolled during later signups.

Table 2—How did the CRP affect the value of enrolled land between 1986 and 1987?[1]

Region	Gain in land values[2]
	Dollars per acre
Northeast	68
Appalachia	40
Southeast	95
Delta States	55
Corn Belt	57
Lake States	44
Northern Plains	43
Southern Plains	39
Mountain	53
Pacific	20
United States	51

[1]Assuming a discount rate of 8 percent.
[2]Capitalized value of the difference in CRP rental payments between signups capitalized over the 10-year life of the enrollment and weighted by the proportion of acreage enrolled during each signup.

Let's look at the Northern Plains as an example of how the effect of the CRP is calculated. The accepted bid rate in the first signup was $40 per acre. This amount reflects the returns per acre that farmers would expect from the land if they were to produce on it or rent it out (table 1). Many bids were significantly above the MARR and were naturally rejected, but the ones that were accepted likely reflected the land's true earning potential. Since farmers did not know the level of the MARR's and, therefore, the maximum bid that would be accepted, we therefore assume that they offer only a bid equal to what they could earn on the land.

Producers began to learn the bidding procedure after the first signup and were able to offer bids greater than the land's earning potential but less than the MARR. The accepted bid rate was $44 per acre in the Northern Plains during the second signup, a $4 gain to those enrolled if their land would otherwise earn $40 per acre (table 1). The third and fourth signups yielded accepted bid rates of $46 and $47. This analysis finds that the $4, $6, and $7 gains, capitalized over the life of the enrollment and weighted by the proportion of acreage enrolled during each signup, could have been worth as much as $43 per acre between 1986 and 1987 (table 2).

The effect on land values would be lower than the results suggest if the cropping potential of land enrolled in later signups was higher. Although we don't have specific data on average yields for enrolled land by signup, we do have yield information on base acreage for Acreage Reduction and Paid Land Diversion programs that are enrolled in the CRP. While these data may or may not reflect the productivity of CRP-enrolled land, they do not present a clear trend in the quality of land entering the CRP during the four signups. If the average quality (and therefore value) of the land entering the CRP were increasing, then the gains calculated above would not be due to the CRP but would simply be a reflection of the increasing average value of the land entering the CRP. Since our yield data do not present any clear trend in land quality, we view with caution the results presented here as the upper-limit effect of the program.

The effect would also vary across enrolled acreage. The earnings from cropping the land for some acreage would be near the MARR, and the effect on land values would be negligible. In addition, the approach used here may overestimate changes in land value because the full effect of the CRP may not be capitalized as quickly as the calculation implies.

If we assume that the value of land enrolled in the CRP is roughly equal to that of other unenrolled cropland, then the upper-limit gain could be an estimated 7 percent, or $51 per acre, for total U.S. acreage enrolled in the CRP during the first four signups (table 2). The upper-limit regional effect ranged from a low of $20 per acre in the Pacific region to $95 in the Southeast. Thus, while the average value per acre of all U.S. farmland actually declined between 1986 and 1987, these results support the comments of some respondents in an Economic Research Service survey. The respondents indicated that the CRP "has put a floor under the value of low-quality (eligible) land in the area."

CRP's Effect on Average Cropland Value

The CRP may have cushioned the decline in the average value per acre of all U.S. farmland between 1986 and 1987. However, the CRP's effect on the value of all cropland is likely to have been small. Although over 15 million acres were enrolled during the first four signups of the CRP, that amount represents less than 4 percent of all cropland.

The value of all cropland would have dropped an additional 0.3 percent between 1986 and 1987 without the CRP compared with the estimated drop of 8 percent (table 3). This is calculated by weighting the change in the value of enrolled land (from table 2) by the amount of enrolled land. This weight change is then subtracted from the actual change in the value of all land.

The estimates vary across regions. In the Mountain region, where enrollment was heavier, the CRP may have reduced the drop in values of enrolled acreage by 1.3 percent. Thus, the reduction may partly explain the smaller drop in overall values for the region. The Southeast also shows a relatively large difference (0.4 percentage points). The CRP contributed little to land values in the Northeast. Enrollment was low in the Northeast because the cost of tying up land in a 10-year program may be high given nonagricultural land use alternatives.

Indirect Effect of the CRP on Land Markets

The CRP may reduce production of surplus commodities, which may raise market prices and, thus, land values. With excess agricultural production, reductions in Federal deficiency payments and other program payments partly offset additional returns to land generated by CRP-influenced market prices. With surplus stocks falling and market prices recovering, the supply control effects of the CRP may rise.

The local effects of heavy enrollment on land markets are likely to have been more limited. Cash rental rates for nonenrolled acreage could rise in local areas if, for example, large amounts of eligible grazing land, depending on its cropping history, in the county were enrolled and competition for remaining acreage increased. Alternative sources of feed, however, limit the size of the increases. The duration of the increases is likely to be limited as well, lasting only 1-2 years as local cattle farmers reduce herd sizes. Thus, the temporarily higher rental rates would not be expected to significantly affect values for noneligible land even in heavily enrolled counties.

So, although the CRP may have placed a floor under the value of eligible land and provided a gain to farmers with eligible land earning cash rental rates below the county average, the overall effect is a one-time effect on the rate of change in average national values of less than half a percentage point. Future effects will depend on what MARR's are needed to induce enrollment to meet the number of acres targeted in the legislation.

Table 3—How did the CRP affect all land values between 1986 and 1987?[1]

Region	Change in actual value	CRP effect on value change	Estimated change without CRP
		Percent	
Northeast	14.0	0	14.0
Appalachia	-3.0	.1	-3.1
Southeast	0	.4	-.4
Delta States	-16.0	.2	-16.2
Corn Belt	-10.0	.2	-10.2
Lake States	-15.0	.2	-15.2
Northern Plains	-11.0	.4	-11.4
Southern Plains	-11.0	.4	-11.4
Mountain	-6.0	1.3	-7.3
Pacific	-8.0	.1	-12.1
United States	-8.0	.3	-8.3

[1]Breakdown of actual land value growth into CRP effects and all other effects, such as returns to assets, real interest rates, and so forth.

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For more discussion on the performance of the CRP, see: Dicks, Michael R., Felix Llacuna, and Michael Linsenbigler. *The Conservation Reserve Program: Implementation and Accomplishments, 1986-87.* SB-763. U.S. Dept. Agr., Econ. Res. Serv., Jan. 1988.

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