

Under the CRP baseline scenario adopted in this report, the CCC realizes direct cost savings because production falls due to retired program base acreage, and indirect cost savings if market prices of program crops rise due to the CRP. However, under an alternative baseline which assumes that in the absence of the CRP the USDA would have expanded acreage reduction programs and paid land diversions to the level of supply control achieved by the CRP, there would be no effect on estimated CCC commodity program costs. The costs of the CCC programs would probably increase if annual acreage reductions and diversions were expanded. For farmers to be willing to retire additional land under annual retirement programs, the relative attractiveness of the programs would have to improve as an enticement for farmers to participate in the programs. Target prices and/or paid land diversion payments would have to increase. Estimation of these costs is beyond the scope of this analysis. However, these cost increases could exceed the costs of the CRP, especially during the later years of the program when stocks are lower and commodity prices are higher.

#### *Direct CCC Cost Savings*

Stopping production on land that once produced program commodities saves the CCC price support payments, storage costs, and other program costs. About \$10.2-\$12.2 billion will be saved over the life of the CRP (table 14). Savings grow as the program expands to the full 45 million acres. As market prices rise in response to the CRP, savings to the CCC begin to decline after 1993. If price increases after 1992 are excluded from the analysis, the net direct cost savings to the CCC falls to \$10.2 billion.

The savings to the CCC depend on which commodity had been produced on the land. Corn acreage yields the largest total savings in the FAPSIM simulation (table 15). If more corn base were retired in place of barley base, for example, CCC would gain even more cost savings.

#### *Indirect CCC Cost Savings*

When commodity prices are higher, the CCC deficiency payment rate is lower. By cutting supply and boosting commodity prices, the CRP saves the CCC about \$6.0-\$7.3 billion in discounted value of deficiency payments (table 14).

The simulation predicts that market prices exceed loan rates after 1988. The indirect CCC savings are found by multiplying the change in market prices

times program production. Program production is base acres less acres set aside in other supply reduction programs, times CCC participation rate, times CCC program yields. The result is net present value of reduced deficiency payments at \$7.3 billion.

Commodity prices rise slowly in the early years of the program, until enough cropland base is retired to lower stocks of surplus commodities. After 1992, prices climb quickly in this simulation (table 7).

We made a second estimate under the assumption that commodity prices would not rise after 1992.

**Table 14—CCC cost savings under the CRP<sup>1</sup>**

Year	Indirect	Direct	Total
<i>\$million</i>			
1986	47	11	58
1987	209	47	256
1988	334	76	410
1989	57	925	982
1990	478	809	1,287
1991	257	1,382	1,639
1992	861	1,292	2,153
1993	442	2,354	2,796
1994	1,250	1,325	2,575
1995	1,085	1,299	2,384
1996	996	1,192	2,188
1997	650	778	1,428
1998	400	479	879
1999	192	230	422
Total	7,259	12,200	19,459

<sup>1</sup>Present value of FAPSIM simulation results. Totals may not add due to rounding.

**Table 15—CCC cost savings under the CRP by commodity<sup>1</sup>**

Commodity	Indirect	Direct	Total
<i>\$million</i>			
Wheat	2,983	3,309	6,292
Corn	1,893	7,097	8,990
Sorghum	209	295	504
Barley	215	-40	175
Oats	33	4	37
Cotton	1,926	1,053	2,979
Rice	0	482	482
Total	7,259	12,200	19,459

<sup>1</sup>Present value of FAPSIM simulation results.

Indirect CCC cost savings fell to \$6.0 billion under this restriction.

## Program Evaluation

The effects analyzed in the preceding sections of this report should be considered as parts of an overall pattern of economic tradeoffs set into motion by the CRP. Some of the individual effects, such as less crop production and soil erosion, represent changes in the quantity or quality of goods and services that comprise total national income or wealth. Others, including most costs for Government commodity programs, do not represent changes to real goods or services but are merely adjustments in transfer payments between sectors or regions of the economy.

### Evaluation Framework

To place the many different economic effects into a consistent framework, we chose the following perspectives for evaluating the CRP:

- How will the CRP affect total national income? This evaluation method, sometimes called economic efficiency or benefit-cost analysis, looks at national income in the present and near future. It covers only those effects that change the value of real goods and services.
- How will the CRP affect Government spending? Government cost savings and new expenses attributable to the program are considered in this framework. Most of these effects are adjustments or transfer payments between taxpayers and the Government, or between different Government programs. The effects examined in this framework usually do not overlap the national income framework.
- How will the CRP affect different regions and economic sectors? Enrollment is not uniform over regions, and the CRP's effects are not consistent across sectors of the economy. We looked at how regions and sectors fare in different stages of the program's implementation.

### National Income

The present value of net benefits for a 45-million-acre CRP was estimated to be \$3.4-\$11.0 billion. Estimating the full net national income effect of the CRP requires estimating all product and service value changes that occur with versus without the

CRP. Value increases (benefits) include improved environmental conditions, decreased costs of surplus commodity production and storage, increased future supplies of timber, higher farm income, and fewer costs of administering traditional conservation programs. Value decreases (costs) of the program include higher per-acre production costs from restructured production of crops, CRP administrative costs, cost to establish cover crops (both Government and farmer shares), technical assistance costs, unemployment or underemployment of immobile production and marketing resources caused by reduced crop production, and increased consumer food costs.

For a number of reasons, our estimate of CRP net economic benefit should only be regarded as an approximation of the true net benefit of the program.

First, due to the methods used for analysis, the estimated effects on farm income and consumer costs do not exclusively reflect changes in economic welfare. Second, it was impossible to estimate all of the economic effects of the CRP. For example, potential economic effects resulting from changes in ground water quality, surplus crop costs, and unemployment or underemployment of production resources are not included. Estimates of the primary effects are shown in table 16. And third, the effects we did estimate are dependent to varying degrees upon the assumptions of the no-CRP baseline situation. Our baseline assumed that in the absence of the CRP, acreage reduction program and paid land diversion levels would remain at the legislated maximums that were in effect at the time of the analysis. Under alternative baseline assumptions, the magnitude of the estimated effects on net farm income and consumer food costs would undergo the most change, while the size of the other effects would likely be altered to a lesser degree. However, because net farm income and consumer food costs effects are largely offsetting, different baseline assumptions would probably not cause large changes in the estimated net economic benefit of the CRP.

### Government Spending

The CRP will cost the Government an estimated \$2.0-\$6.6 billion over the life of the program, even though estimated CCC cost savings offset most of the expenditures (fig. 6). In the early years of the CRP, program costs exceed CCC cost savings, since the Government pays rent and other costs while market prices of program crops have not yet risen sufficiently to affect CCC costs. After 1991, however, annual CCC cost savings start to exceed

the CRP costs (primarily rental payments). Over the 15-year life of the CRP, Federal Government costs are \$21.5 to \$22.8 billion compared with CCC cost savings of \$16.2 to \$19.5 billion. The net Government financial effect of the CRP is a cost increase of between \$2.0 and \$6.6 billion (table 17).

**Table 16—National income gains and losses from the CRP**

Category	Value
	\$billion
<b>Gross income gains:</b>	
<b>Landowners:</b>	
Net farm income	9.2 to 20.3
Timber production	4.1 to 5.4
<b>Natural resources/environment:</b>	
Soil productivity	.8 to 2.4
Surface water quality	1.9 to 5.3
Filter strip water quality	0 to .3
Wind erosion	.4 to 1.1
Wildlife	3.0 to 4.7
<b>Gross income losses:</b>	
Consumer costs	(12.7 to 25.2)
<b>Establishing cover crops:</b>	
Landowner's share	(1.6)
Government's share	(1.6)
Technical assistance cost	(.1)
<b>Net program benefit</b>	<b>3.4 to 11.0</b>

Savings to the CCC would increase if CRP land were to remain out of crop production after 1995. If rental rates are higher than estimated in 1989 and 1990 as an inducement for increased program participation, the net expense of the program will rise.

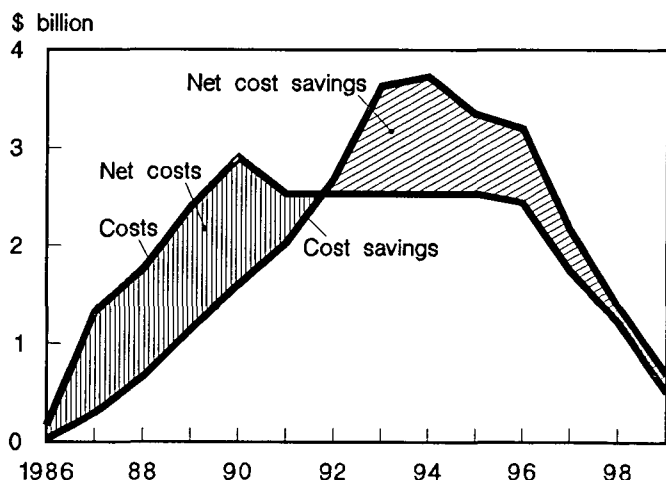
Our estimate of the net Government expense of the CRP is only one approximation of the true net Government expense of the program. As with the net economic benefit estimate, it was not possible to include estimates of all of the potential Government cost effects of the CRP. More importantly, though, estimates of Government cost effects are greatly influenced by acreage reduction program levels assumed in the no-CRP baseline situation. Different assumptions about the level of acreage reduction programs in the absence of the CRP will result in different estimates of net Government expense.

In a separate analysis performed after the 1988 drought, Barbarika and Langley estimated the present value of the CRP's net Government expense to be approximately \$9.7 billion. Their estimate was the result of a similar set of models, but used different assumptions concerning expected supply-demand-price conditions and CCC programs than did our analysis. They assumed lower commodity stock levels, higher market prices, lower acreage reduction and paid diversion levels, and lower CCC program outlays stemming from the effects of the 1988 drought. Most significantly, they assumed that acreage reduction/paid diversion levels would have been higher in the absence of the CRP. These assumptions reduce the CCC cost savings attributable

**Table 17—Government expenditures and cost savings for the CRP**

Category	Value
	\$billion
<b>Gross Government expenses:</b>	
<b>CRP program costs:</b>	
Rental payments	19.5 to 20.8
Corn bonus payments	.3
Cover crops	1.6
Technical assistance	.1
<b>Gross Government cost savings:</b>	
<b>CCC cost savings:</b>	
Direct	10.2 to 12.2
Indirect (price effect)	6.0 to 7.3
<b>Net Government CRP expense</b>	<b>2.0 to 6.6</b>

**Figure 6  
USDA costs for the CRP**



to the CRP and thus cause their estimate of net Government expense to exceed our estimate.

### Regional and Sectoral Economic Effects

The CRP will reduce economic activity significantly in the agricultural production and agricultural input sectors. Effects on the agricultural processing, household, and other sectors will be minor. Because enrollment in the CRP is concentrated in the Northern Plains, Southern Plains, and Mountain States, these areas will bear the brunt of the economic downturns linked with the CRP.

Agricultural production is forecast to fall 3 percent after the CRP is fully in place. Agricultural input industries decline by 2 percent. The household sector loses one-tenth of 1 percent in total income, total gross output, and employment. The agricultural processing sector declines even less.

#### Variations Over Time

Economic effects on geographic regions and other sectors differ in each of the following three stages of the program:

- 1) the first year, in which production stops and part of producers' rental income goes to establish cover crops;
- 2) 9 years when rental payments flow in;
- 3) after the 10th year, when rental payments stop and the land may go back to agricultural uses.

Total income and employment fall at first, as cropland is retired from production, participants receive rental payments, and cover crops are established. Establishing cover crops generates activity to partly offset the effects of falling farm production. During the next 9 years, the economic activity in the processing, household, and other sectors is slightly higher than in the first period since revenue from rental payments is not used to plant ground cover. The agricultural input sector continues to decline in the second period because there is no more activity generated by cover crops.

When rental payments end, economic activity declines even further. The decline would be tempered if the CRP lands were returned to agricultural production as haying or grazing land or as cropland.

### Agricultural Production and Related Industries

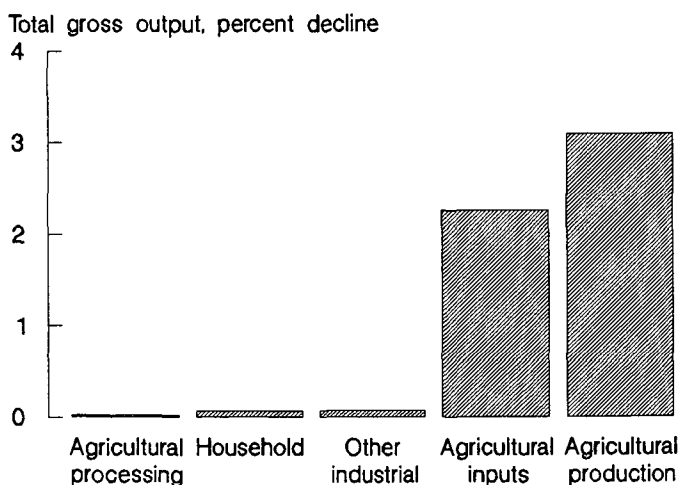
An input-output model developed by the Forest Service called IMPLAN was the basis for the estimate of how the CRP affects other economic sectors (Dicks and others, 1988a) (fig. 7). Agricultural production is forecast to fall 3 percent after the CRP is fully implemented. Agricultural input industries decline by 2 percent. The CRP will have a minor percentage effect on the economic activity in the agricultural processing, household, and other industrial sectors. Total income, total gross output, and employment fall by about one-tenth of 1 percent in the household sector, and by even less in the processing sector of the economy (fig. 7).

Manufactured input industries such as fertilizer, other chemicals, fuel and energy, and seeds are tied to crop acreage and commodities planted in the immediate geographic area. Input use falls as CRP enrollment increases and planted acreage declines. Fertilizer use declines by more than 12 percent by 1990 (fig. 8). Manufactured input industries rebound somewhat as other land is brought into production in response to rising commodity prices. Similar trends were noted for other inputs.

#### Regional Variations

Regions that depend on farming and have high rates of enrollment in the CRP feel the economic effects most. Because a high percentage of eligible land is enrolled in the CRP in the Northern Plains, Southern

Figure 7  
Economic activity slows under the CRP



Plains, and Mountain States, the economic impact is greatest in these regions. Economic effects are significant in the Lake States and the Corn Belt as well, because the land that enrolled in the program is quite productive and the drop in production from retiring the land is correspondingly high.

When we looked at smaller, more farm-dependent geographic areas, the decline in economic activity was greater. Northeastern Montana suffers more than the Mountain States region overall (fig. 9). The problem for areas where enrollment is concentrated intensifies as the CRP expands to 45 million acres.

Recovery after the 10 years in the reserve are over depends on how the land is used. If the land is used for haying and grazing, regions with large livestock sectors such as the Southern Plains and Mountain States can recover quickly because seeds and fertilizers will not be needed to bring the land back into agricultural production.

### Changing the Emphasis of the CRP

If the CRP were redirected to target other than highly erodible land, the economic results of the program would change (tables 18 and 19). Emphasizing forestry with a 45-million-acre CRP would boost the timber industry but decrease consumer food costs and cut farm income relative to the current program. Focusing on environmental goals would raise the environmental gains. Expanding the CRP to 65 million acres would help landowners and yield natural resource gains but expand the budget.

The following analysis indicates the direction of changes expected from reorienting the program, compared with what is estimated for the current program. No attempt was made to quantify each of the effects under different program goals.

### Forestry Emphasis in the CRP

Redirecting the CRP to meet or exceed the goals of the FSA to plant trees on 12.5 percent of enrolled CRP cropland would reduce program costs and shift the regional distribution of enrolled acreage. Most of the added forest acreage would be in the Southeast and Delta regions. Additional participation may also occur in the Appalachian and Lake States.

For the first five signups, average CRP rental rates in the Southeastern States were below the national average rental rate. Enrolling additional acreage in these regions would reduce average rental costs, unless a premium or bonus were needed to induce additional program participation in a smaller geographic area. Costs to plant the trees would likely remain at current levels since costs for trees in the Southeast have been less than or equal to costs for planting other cover crops, primarily grasses and legumes. However, Dicks and others (1988b) report that establishment costs for trees are considerably higher in other regions. If CRP land were converted to trees in these other regions, establishment costs might increase.

Enrollment of additional acreage in the Southeast and Delta regions would reduce the estimated

Figure 8  
**Fertilizer use drops under the CRP**

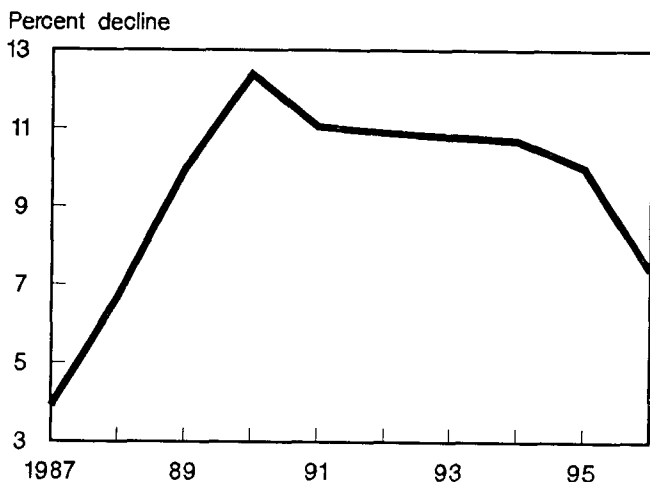
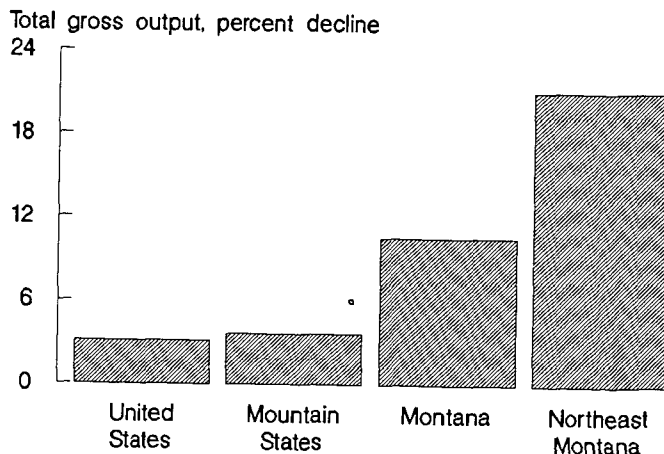


Figure 9  
**Regional effect of CRP on agricultural production varies by concentration of enrollment**



increase in market prices of program crops since fewer program crop (base) acres would be enrolled. The Southeast, Northeast, and Delta regions enrolled the lowest ratio of base acres to total acres in CCC programs of all U.S. regions. Because participation in CCC programs is lower in these regions, direct CCC cost savings after the land is retired would be lower. These regions also grow relatively less corn, which has the highest CCC costs of all program commodities. Since the increase in market prices would be lower due to the smaller reduction in program crop production, indirect savings would also be lower.

Other effects of enrolling additional acres for tree planting include: 1) since market prices of program commodities would rise by a lesser amount, net farm income and consumer food costs would increase by a lower amount; 2) forest production would increase; 3) more CRP land would remain in retirement past the 10-year contract period; and 4) to the extent that forests increase recreational activities such as hunting or lead to water-quality improvements, environmental benefits from the CRP would increase. However, per-acre water-quality and hunting benefits tend to be higher for land retired in the Corn Belt, Lake States, and Northeast regions than in the Southeast and Delta regions.

### Environmental Emphasis in the CRP

Targeting the CRP toward environmental goals would entail retiring more land in the Corn Belt and Lake States and the Chesapeake Bay drainage

**Table 18—Changes in national income from alternative CRP's**

Category	Forestry	Environmental	Expanded
	<i>Direction of impact</i>		
Landowners:			
Net farm income	-	+	+
Timber production	+	-	+
Natural resource gains:			
Soil productivity	?	+	+
Surface water quality	?	+	+
Filter strip water quality	-	+	+
Wind erosion	-	-	0
Wildlife	?	+	+
Irrigation pumping	-	-	0
Consumer costs	+	-	-
Administrative costs:			
Establishing cover crops	?	?	+
Technical assistance	?	?	+

basin. This option increases the gains associated with water-quality improvement. The increase of water-quality benefits of up to \$300 million from filter strips illustrates the magnitude of potential environmental gains. Improved wildlife habitat yields the greatest benefits per acre in these regions.

Increasing CRP enrollment in these regions would greatly increase CRP rental costs; however the net impact on CCC program costs is not clear. If a substantial amount of base acres, particularly corn base, were retired under an environmental CRP, the market price of corn would increase by a greater amount than predicted for the current CRP. In addition to the direct CCC cost savings from retiring the corn base, the indirect savings to the CCC could be larger. If corn prices rose, farmers would demand higher rental payments to offset the lost income from corn production as an incentive to participate. A rise in the market price of corn coupled with higher rental rates would lead to greater increases in net farm income. When commodity prices rise, consumer costs also rise, thereby partially or wholly offsetting the gains from increases in farm income.

Reduced production of corn would cut foreign trade and hurt input supply firms. Foreign sales of corn are an important component of U.S. trade in agricultural commodities. Use of manufactured inputs is relatively high for corn production compared with input use for other program commodities. If corn production were substantially reduced, agribusiness firms would face decreased sales.

### Expansion to 65 Million Acres

Expanding the CRP to 65 million acres instead of the current target of 45 million acres would produce similar types of effects to the forestry and environmental alternatives discussed above. However, the

**Table 19—Changes in Government expenditures from alternative CRP's**

Category	Forestry	Environmental	Expanded
	<i>Direction of impact</i>		
CRP program costs:			
Rental payments	-	+	+
Corn bonus payments	0	0	0
Establishment cost-share	?	?	+
Technical assistance	?	?	+
CCC cost savings:			
Direct	-	+	+
Indirect (price effect)	-	+	+

magnitudes of the adjustments would be greater. The pool of eligible acres would have to be expanded to include both forestry production and environmental goals unless other acreage reduction programs were lifted. Rental rates would probably rise substantially as an incentive for program participation. Market prices for agricultural commodities would also rise. Expansion of the CRP beyond 45 million acres could reduce the Secretary of Agriculture's discretionary ability to control agriculture production. Long-term retirement of a significant amount of additional land could restrict timely expansion of crop production to meet major shortfalls in commodity stocks. Such shortfalls can be caused by factors such as the drought of 1988.

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## **Appendix: Background and Operation of the CRP**

Some of the CRP's goals and operating features are similar to those of previous USDA land retirement programs. This section reviews earlier programs and provides detail on the CRP.

### **Previous Land Retirement Programs**

The USDA has implemented land retirement programs in the past. Looking at these precursors to the CRP offers some clues about the CRP's methods and goals upon its implementation in 1985.

#### ***Soil Bank Program***

The CRP has its roots in the Soil Bank Conservation Reserve Program administered by USDA from 1956 to 1962. Under the voluntary Soil Bank, farmers were encouraged to enroll any land used for field crop production for 3-10 years (10-15 years for trees). In return, farmers received annual rental payments and 80 percent of the cost of installing a permanent land cover. No limits were placed upon the amount of land a farmer was allowed to enroll. In fact, those willing to enroll their entire farm were offered a 10-percent rental bonus. Lands placed into the Soil Bank could not be used for commercial purposes such as haying, grazing, Christmas tree production, or fruit production.

Among conservationists, the Soil Bank is considered a great success. The long-term retirement of farmland under the Soil Bank was immensely valuable to wildlife due to habitat diversification and the creation of escape and winter cover and nesting sites. Tree planting resulted in especially long-term conversions. In all, 2.1 million acres were planted to trees. A followup study in 1976 showed that 89 percent of the tracts and 86 percent of the acreage were still planted to trees (Ailig, 1980).

While the conservation effects of the Soil Bank are often extolled, the program failed to accomplish its primary objective, which was to reduce crop surpluses. Crop surpluses continued because approximately one-quarter of the maximum 29 million acres enrolled in the Soil Bank had been in relatively nonerosive pasture or hay, which were not in oversupply. Agricultural production also increased on land not enrolled in the program.

The Soil Bank also caused local economic stress. A high proportion of land was retired in some counties, and rural areas that were heavily dependent

upon crop production became economically depressed.

#### ***Payment-in-Kind Program***

The 1983 Payment-in-Kind (PIK) Program, which was implemented to combat overproduction resulting from record crops in 1981 and 1982, was also important in setting the stage for the CRP. Production fell, due to PIK coupled with reduced export demand and the 1983 drought. As the largest and most expensive set-aside program in the Nation's history, PIK drew national attention to the costs and long-term effectiveness of commodity programs. This led to questions concerning whether commodity programs tied to production encouraged farmers to plant more acreage to commodity crops. Frequently farmers planted inherently erosive crops that allowed soil erosion on highly erodible soils (American Farmland Trust, 1984; and USDA, ERS, 1985).

Environmental gains were small under PIK. Erosion was reduced by only 1.8 tons per acre, far less than could have been achieved had erosion reduction been a primary goal (Colacicco and others). Wildlife benefits were meager. Since PIK was an annual program, many farmers did not establish cover crops on their enrolled lands, and some farmers received payments for idling land on one farm while bringing additional acreage into production on another farm (CRS, 1984). PIK, more than any other factor or event, alerted conservation and environmental groups to the fact that as long as conservation and commodity programs remained separate and worked at cross-purposes, agricultural soil erosion would continue. Consequently, the push for integrating soil conservation goals with farm commodity programs was born.

#### **CRP Legislative History**

Congress authorized the CRP on December 17, 1985, under Subtitle D, Title XII of the Food Security Act of 1985 (FSA, Public Law 99-198). Following the President's signature on December 23, 1985, the act went into effect. The Secretary of Agriculture has broad discretion in determining the regulations necessary to implement the specific provisions of the subtitle (Dicks and Reichelderfer; and Reichelderfer and Boggess). USDA issued interim rules and regulations for the CRP on March 13, 1986, and final rules and regulations on February 11, 1987.

#### **CRP Rules**

Enrollment is limited by law to 25 percent of the cropland in a county. The 25-percent limit reduces

the amount of highly erodible cropland potentially available for the CRP to about 70 million acres (table 1). This restriction limits economic damage in areas heavily dependent on crop production. The limit may be waived by the Secretary of Agriculture if expanded enrollment would not significantly harm the local economy. The limit has been waived in selected counties where CRP land is planted to trees. Many of these areas depend on forestry production, and planting trees will boost future economic activity.

At least two-thirds of a field must meet one of three basic criteria to be considered highly erodible cropland: 1) the soil must be in land capability class VI-VIII; 2) the soil must be in land capability class II-V and be eroding at a rate exceeding three times the soil tolerance rate (T), or exceeding two times T if the cropland is to be planted to trees or if subject to severe gully erosion; or 3) the soil must have an erodibility index (EI) greater than eight and be eroding at greater than T. The EI is defined as the product of the rainfall (R), erodibility (K), and length and slope (LS) factors from the Universal Soil Loss Equation divided by T (Lee and Goebel).

The Secretary of Agriculture may also include lands, such as filter strips, that are not highly erodible if they contribute to environmental damage off the farm, or that may lose productivity due to soil salinity if permitted to remain in production.

Landowners or operators wanting to participate in the CRP must agree to implement a plan approved by the local conservation district to place highly erodible cropland into grasses, trees, or other acceptable conserving uses for 10 years. They must further agree not to harvest, graze, or make other commercial use of the forage unless the Secretary permits, as in a drought or similar emergency. The conservation plan must describe the measures and practices required, the commercial use, if any, to be permitted, and the amount of cropland base and allotment history, if any, to be permanently retired.

The amount of the reduction in cropland base acreage and allotment history during the life of the contract is based on the ratio between acreage placed in the reserve and total cropland acreage on the farm for those crops that have production adjustment programs in place. The Secretary may preserve the cropland base and allotment history unless the owner and operator agree to retire that cropland base and allotment history permanently.

To induce farmers to participate, USDA must pay an annual fee sufficient to compensate for the conversion of highly erodible land to grasses and trees and the retirement of any cropland base and allotment history. The annual rental payments may be made in cash or in kind and may be made prior to the implementation of the contract by owners or operators. The total payment cannot exceed \$50,000 per year, and does not affect the total amount of payments that are available under other Government programs. USDA must make the payments as soon as possible after October 1 of each year. The Secretary must also provide technical assistance and 50 percent of the cost of establishing conservation practices. These payments must be made as soon after the expenses occur as is feasible.

Land on which ownership has changed in the 3-year period preceding the first year of the contract is ineligible for the CRP unless the land was acquired by inheritance or prior to January 1, 1985, or where the Secretary determines that the land was not purchased for the purpose of being placed in the reserve. Ownership is not a requirement for eligibility provided the person has operated the land for the 3-year period preceding the first year of the contract and will continue to control the land for the duration of the contract.

The Secretary may modify or terminate an individual contract if the owner or operator agrees to the change and if the action is in the public interest. If the contract is violated, the owner or operator forfeits all rights to past, present, and future rental and cost-share payments or must accept adjustments to payments that the Secretary determines appropriate. On transfer of ownership or lease, the new owner or operator has the option to continue the current contract, enter into a new contract, or refuse to participate.

To place highly erodible cropland into the CRP, a farmer applies at the county Agricultural Stabilization and Conservation Service (ASCS) office during the designated signup period. The farmer indicates the amount of land to be enrolled, the yearly rental payment (rental bid), the proposed land cover, and the Commodity Credit Corporation (CCC) crop base which would be reduced during the life of the CRP contract.

Once all applications for a particular signup period have been received, ASCS determines maximum acceptable rental rates (MARR's) for predesignated areas referred to as pools. After verifying that

eligibility conditions have been met, county ASCS committees review each application. An application is accepted if the rental bid does not exceed the established MARR and if the rental bid is consistent with market rents for comparable cropland.

The CRP has been modified several times to induce additional program participation. A one-time bonus of \$2 per bushel of retired corn base equaling about \$180 per acre was offered during the fourth signup in February 1987 (Dicks, 1987b). This offer was not extended for subsequent signups. Beginning with the sixth signup, in February 1988, eligibility was expanded to encourage tree planting and to improve water quality. MARR's were also increased in several regions (Osborn). Cropland where at least one-third of the field is eroding at a rate in excess of 2T is eligible if the land is planted to trees. Land that is within about 100 feet of a stream, lake, or wetland is eligible for CRP enrollment to function as filter strips without regard to the erosion rate. Filter strips contribute to water quality by trapping sediments and nutrients that erode from adjacent fields before they reach water.

#### **CRP Relationship to Other Programs**

The CRP is part of an FSA package that addresses both environmental quality problems and the production of surplus commodities. Eligibility for commodity program benefits, such as commodity loans and deficiency payments, depends on meeting conservation provisions that are being phased in through 1995. The effectiveness of the conservation provisions depends upon the attractiveness of Federal price and income support programs. If Federal commodity support programs become less attractive due to such factors as higher market prices or increased set-aside requirements, the conservation provisions will become less effective.

The "sodbuster" provision discourages farmers from converting highly erodible lands to cropland unless conservation practices are installed. The "swampbuster" provision discourages farmers from converting additional wetlands to cropland. Violation of either provision results in the loss of USDA program benefits.

The conservation compliance provision restricts future eligibility for Federal farm programs if existing highly erodible cropland is farmed without an approved conservation plan. Farmers must have plans approved by January 1, 1990, and fully implemented by January 1, 1995, to preserve eligibility for most farm programs.

The conservation easements provisions allow producers to cancel the outstanding principal on any loan made or held by the Farmers Home Administration (FmHA) in exchange for an easement on wetlands, highly erodible lands, or lands deemed suitable by the Secretary.

The CRP is an integral part of this package of conservation provisions. The CRP provides landowners a means of retiring erodible land in order to meet the conservation compliance provisions. In turn, conservation compliance results in a more cost-effective CRP, because farmers subject to conservation compliance are willing to accept lower rental payments for retiring their highly erodible cropland. Finally, land retired under the CRP is somewhat more likely to remain in retirement after the 10-year contract period since most of it will be subject to conservation compliance if it is returned to crop production in the future.

The CRP also works in conjunction with the annual acreage reduction program (ARP) to control the production of surplus crops. The ARP's require farmers to set aside a certain proportion of their land as a condition for receipt of deficiency payments. Annual adjustments in the ARP levels permit the Secretary to control USDA program expenditures. As CRP acreage increases, the need to set aside cropland on an annual basis decreases.

#### **Factors Affecting CRP Enrollment**

The primary factors affecting participation are whether or not the landowner or operator meets ownership eligibility criteria and whether or not the cropland conforms to the CRP definition of highly erodible. Once eligibility is established, the farmer must determine if he or she is better off farming the land, renting the land to the Federal Government under the CRP, or selling or renting the land for other uses (Boggess; Ervin and Dicks).

Conservation compliance provisions may also be a factor in the decision to participate in the CRP. One way to satisfy the compliance provisions is to place highly erodible land in the CRP. This decision is influenced by the expected costs of controlling erosion, the relative profitability of the land, and the farmer's expectations of future USDA program payments. At the end of the CRP contract this land may be planted to crops if adequate conservation practices are implemented within 1 year.

Four characteristics of landowners who are likely to bid land into the CRP were identified by Esseks and Kraft:

1) the owner's willingness to accept that his/her land had erosion problems; 2) the owner's age—those close to retirement were less likely to bid, presumably because the 10-year CRP contracts were seen as obstacles to selling the land; 3) whether the owner was also an operator—owner-operators were more likely to bid than nonoperators, probably because the former were closer to the land and better appreciated its suitability for the CRP; 4) whether an owner had recently (in the past 5 years) received technical assistance from USDA's Soil Conservation Service—recipients were more likely to bid than nonrecipients, perhaps because that connection inclined the farmer to be better plugged into the information flows about the CRP, and also to be more comfortable about entering into a contractual arrangement with USDA.

While participation in SCS programs increases the likelihood of participation in the CRP, the effect of participation in ASCS commodity programs on CRP participation is unclear. Farmers with base acreage allocations for ASCS commodity programs must retire a proportionate amount of the base. Presumably this affects the relative profitability of their farm. They have the option of selecting the crop base that is to be retired. Magleby and Dicks report that farmers choose to retire their least profitable base first (barley, oats, and sorghum base). Taff and Runge argue that the requirement to retire base acres may not have lowered CCC program costs and may have reduced farmer participation. They argue that similar reductions in planted acreage would result without the base retirement requirements due to the current set-aside programs. Dicks and others (1988b) found that CCC program participants tend to enroll larger blocks of acreage in the CRP than nonparticipants. Presumably, CCC program participants farm larger areas and thus have more land to enroll.

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