

**The Conservation Reserve:  
A Preliminary Assessment of  
Short-Term Impacts**

David E. Ervin, Burton C. English, and S.R. Johnson

*Staff Report 86-SR 5*  
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**The Center for Agricultural and Rural Development  
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**1. Introduction**

With passage of the Food Security Act of 1985 (FSA85), Congress and the Administration set in motion the largest set of conservation measures since the inception of federal soil conservation programs. Although the FSA85 also has sodbuster, swampbuster, cross compliance and conservation easement components, the Conservation Reserve (CR) is the centerpiece. During Congressional deliberations, some participants claimed the CR as a foundation of all future agricultural conservation policy (U.S. Senate).

This report provides a preliminary analysis of CR impacts for the 1986/87, 1987/88, and 1988/89 crop years. Since the CR is yet to be fully defined, the focus is on shorter term effects. A set of options reflecting alternative possibilities for key program characteristics is constructed. Each option is evaluated relative to three performance criteria:

- (a) government cost, land rental payments and cost-sharing to cover establishment expenses;
- (b) soil conservation, type of fragile land enrolled and erosion changes; and
- (c) regional production patterns for major crops.

A brief description of the CR as specified in the authorizing legislation and suggested by preliminary implementation procedures is provided. Then, the modeling system used to analyze the CR options is briefly reviewed. The CR program options and the basis for their selection are detailed in the next section. Results of the evaluation exercise are then presented, emphasizing the three performance criteria. Finally, observations suggested by the policy analysis and a number of unresolved CR issues are summarized.

**2. Structure of the Conservation Reserve**

Voluntary restriction of cropping rights to enhance soil conservation is not a new concept. In the late 1950's and 1960's, the federal government implemented a "Soil Bank" program which idled more than 65 million crop acres at its height. The soil bank allowed landowners to place cropland in a special category prohibiting crop production for periods up to ten years in exchange for annual government payments. The Soil Bank program is similar to the recently approved CR with two major exceptions:

- (a) any cropland was eligible for enrollment in contrast to the targeting of highly erodible soils by the CR, and
- (b) landowners could enroll qualified land at a government offer price rather than submit competitive bids as required under the CR.

The primary purposes of the CR are to reduce erosion damages on highly vulnerable cropland, including both on-site productivity losses and off-site costs, such as sedimentation, and to curb agricultural production. Eligible cropland will be enrolled for 10 years under contracts prohibiting commercial harvest of any crop (except in emergency) and require that certain conservation practices be implemented.

The acreage enrollment schedule from Title XII of the Food Security Act of 1985 is:

1986:	at least 5, not more than 45 million
1987:	at least 15, not more than 45 million
1988:	at least 25, not more than 45 million
1989:	at least 35, not more than 45 million
1990:	at least 40, not more than 45 million

The Secretary of Agriculture is permitted to reduce the minimum annual enrollment, if significantly lower rental payments in the following year are expected. Obviously, there is considerable latitude for enrollment of CR acreage during any program year. To prevent adverse economic impacts in regions with highly erodible soils, no more than 25 percent of the cropland in a county may be enrolled unless the Secretary determines that a higher percentage will not adversely affect the local economy.

Preliminary implementation procedures for the Conservation Reserve define eligible land as:

- land planted to produce an agricultural commodity (including sugarcane, but excluding horticultural crops) in two of the 1981 through 1985 crop years, including land in Agricultural Stabilization and Conservation Service (ASCS) land retirement programs, and
- land with a predominant proportion (two-thirds) in Soil Conservation Service (SCS) land capability classes (LCC) II-V, eroding at rates in excess of three times the tolerance (T) level or any LCC VI-VIII land.

According to the erosion inventory taken in 1982, approximately 70 million acres meet the LCC and erosion rate criteria. A minimum of 10 acres is set as the field size eligible for participation unless the established field is smaller. Finally, participants must have owned the land three years prior to January 1, 1985, or the signing of the easement contract.

Landowners with eligible cropland may submit bids for enrollment during announced sign-up periods. Presumably these bids will be determined by the expected reductions in net farm income and the costs of meeting CR contract provisions. An example of the latter is the owner's 50 percent share of cover establishment costs. Title XII also specifies (unless the Secretary provides for preservation of cropland base and allotment history) a reduction in farm acreage bases, quotas, and allotments for crops with production adjustment programs. According to preliminary implementation procedures, the ASCS acreage base reductions will occur in the ratio of CR

acres to total cropland acres on the farm. If the ASCS base reduction provision is implemented, landowners will also likely include opportunity costs of expected base losses into CR bids. Finally, the total amount of the annual rental payment to an owner or operator may not exceed \$50,000.

Commercial harvest of forage or forest crops is prohibited during the 10-year contract period. However, after the easement contract expires, CR acres may return to crop production. The owners, however, are at risk of losing their agricultural program benefits (under the conservation compliance provisions) unless they follow an approved conservation plan. Special emphasis is to be placed on encouraging owners to plant at least one-eighth of the CR acres in trees, presumably with a cost sharing incentive.

### 3. Conservation Reserve Options

Four key characteristics of the CR program were used to design the options studied in this analysis. Because of the uncertainty about the CR, the alternatives selected reflected extreme implementation possibilities. This approach provided information over a wide range of potential CR designs.

Enrollment Schedule - Title XII specifies minimum and maximum CR acreages for each of the implementation years. There is a wide permissible range between the yearly minima and maxima. Given the importance of enrollment pace to government cost, two alternative schedules were analyzed. Table 1 shows the assumed enrollment rates for the 1986/87 through 1988/89 years for minimum (MIN) and accelerated (ACC) CR schedules. While both meet the specifications of the FSA85, the accelerated schedule implies more immediate impacts on soil erosion, farm production, and commodity prices.

Land Eligibility Criteria - Two approaches portray the impact of alternative conditions for land eligibility. The first, termed HE for highly erodible or eroding, follows the preliminary designation by USDA that eligible cropland soils will include in LCC II-V, eroding at greater than three times the tolerance (T) level, and all cropland in LCC VI-VIII. This option is interpreted as reflecting the tightest conservation standard and, thus, the smallest eligible acreage. A second option places no LCC, erosion rates, or other restrictions on eligible cropland, approximating Soil Bank (SB) eligibility.

Regional Distribution of CR Acres - The economic and conservation impacts of the CR will be highly dependent upon the regional distribution of acreage enrolled. Again, two options were defined to capture potential impacts. The first allows acres to be enrolled in each producing area<sup>1</sup> in proportion to the percentage of eligible cropland. This option distributes funds to areas according to their endowment of qualified land and is known as the percent of eligible (PE) distribution option. The second option places no restrictions on the regional distribution of CR acres. This option is designed to enroll acres on a least rental cost (LC) basis.

<sup>1</sup>The nation is divided into 105 producing areas in this analysis.

Cost Sharing for Establishment Expenses - A stipulation in Title XII is that the government pay 50 percent of the cost of establishing an admissible cover crop on the CR land. Thus, landowners with eligible CR land should logically incorporate the other 50 percent of cover establishment expenses in land rental bids. These costs vary considerably by region impacting CR bids and the regional distribution of land enrolled. Since cost-sharing of cover establishment expenses is, in fact, a cost of complying with the CR program, off setting 50 percent of these expenses can affect program performance. Thus, two different cost sharing alternatives are analyzed: none (NCS) and half or 50 percent (FCS).

Sixteen alternatives for the CR can be constructed from these policy alternatives. However, time and budget constraints dictated the evaluation of only five. Table 2 defines the alternatives selected for evaluation. Given legislative requirements and preliminary implementation announcements, Option 1 is the most likely. For Option 2 the conditions of Option 1 are retained with the exception of the required regional acreage distribution. Thus, a comparison of Options 1 and 2 permits an evaluation of removing the regional acreage distribution constraint. Option 3 retains the same conditions as 2 but removes cost-sharing, hence, identifying effects of incorporating all CR costs into the rental bids. Option 4 eliminates the erosion criteria for the cropland, similar to the soil bank (SB). Option 5 increases the pace of enrollment, reflecting the accelerated schedule of Table 1 and the other conditions of Option 1.

#### 4. Evaluation System

At the Center for Agricultural and Rural Development (CARD), resource modeling systems reflect regional yields, costs, land quality, and land availability. The CARD resource model assumes profit maximization in determining production patterns for major crop and livestock commodities. Resources employed and soil losses are conditioned by output prices, input costs, availability constraints, and provisions of the CR and are analyzed by farm production region.

Projected input and output prices used in this evaluation exercise are from the FAPRI evaluation of the FSA85 (FAPRI #1-86). Other data used from the FAPRI analysis include projected set-aside acreage levels, participation rates, and livestock production levels. In short, the CARD resource modeling system is "tuned" to the results of the FAPRI evaluation of the FSA85. Key average annual farm prices and net returns over variable cost estimates for program participants and nonparticipants are summarized in Table 3. These prices and returns were developed on the basis of a 25 million acre enrollment but should be similar for the 40 million enrollment assumption as well.

The CARD resource model includes four sectors, two for production and two for resource availability (Figure 1). The land sector uses the eight land groups shown in Table 4. Land qualifying for the CR using the criteria previously mentioned and the total cropland base by quality class are also given in Table 4. Figure 2 shows the location of these CR eligible lands by proportion of the total cropland base. The water sector determines the water supply to each of 95 producing regions. Irrigation is not admitted in

the Northeast region. Costs of irrigation reflect the regional efficiencies and water availability, the distance that water must be pumped, and costs of application.

The crop sector incorporates alternative production technologies for crops and livestock. These technologies reflect implications of land quality differences for yields, cropping practices, and input usage. Projected productivity improvements and changes in the production costs are introduced as well. Crops included in the CARD model are feedgrains -- barley, corn, oats, and sorghum -- soybeans, wheat, and cotton, along with the roughages -- legume and nonlegume hay, corn silage, and sorghum silage. While these crops could all be analyzed, the present analysis emphasizes production patterns and levels of the major program crops, corn, wheat, and soybeans. The livestock sector generates feed demands for producing dairy, beef, and pork. Again, regional costs of production are incorporated for determining production patterns and levels.

Land qualifying for the CR is determined using the National Resource Inventory data base developed by SCS in 1982. The rate at which this land can be enrolled is estimated using the land base and results of the FAPRI evaluation of the FSA85. The model is then solved sequentially for three years to estimate the land bid into the CR, the bid prices on land enrolled, and the cost of establishing admissible cover on the CR land. These values are then used, along with the restrictions on land acreage to be removed, to update the available land base.

Cover establishment costs for mixed hay are determined using results obtained from applying the CARD model. Non-machinery input levels, machinery use, and depreciation are from the CARD/Soil Conservation Service budgets. Input prices and input/output information are extrapolated from the Firm Enterprise Data System, state budgets, and extension data. A breakdown of cover establishment costs is provided in Figure 3 and Table 5. These establishment costs vary from \$110 to \$54 per acre. Forest crop establishment costs are not introduced in this analysis.

## 5. Analysis Implications

Since this is a preliminary analysis of short-term CR impacts, sweeping conclusions and recommendations are unwarranted. Nevertheless, the estimation of impacts suggests several observations about CR program design and operation worthy of consideration and further study. This section, providing the discussion of our results, is divided into 3 areas: environmental benefits, regional production patterns and government cost. For the sake of brevity, individual alternatives are not discussed. Rather, a table is provided summarizing impacts of each option relative to the three performance criteria. If very little or no change in performance was suggested among the options, then no summary table is provided.

### Environmental Benefits

- The results indicate that erosion will be significantly reduced if the Conservation Reserve is fully employed. For each acre in the reserve, total sheet and rill erosion will be changed by as much as

20 percent, depending on implementation choices or, in our analysis, the option. Of course, the most effective acreage distribution for reducing erosion occurs when higher erodible lands are targeted.

- When no targeting of funds is enforced, wind erosion is more significantly reduced since land in the program shifts to the West and North. However, water erosion is largely unaffected (Table 6).
- A 14 percent reduction in erosion occurs when 15 million additional acres are placed into the reserve in the accelerated option.

#### Regional Production Patterns

- The distribution of lands in the CR depends on the restrictions of funds. Table 7 illustrates the distribution of land bid into the program under the five options. When no restrictions on distribution of CR funds is imposed, the lowest bids occur in the Western United States. The importance of the distributional restriction is to move CR land out of the West. This is a result of the lower establishment costs in the Mountain and Plains states.
- Nearly 50 percent of the cropland retired will come from either wheat or wheat/fallow cropping systems, 35 percent from corn/soybean cropping systems, and the remainder from systems that incorporate small grain, cotton, or hay.
- These cropping distribution results would differ if the eligibility criteria were oriented more toward sheet and rill erosion. A large expansion of acres currently in wheat and/or fallow occurs when wind erosion estimates are incorporated in the eligibility criteria.
- The range for corn yields in 1989 on eligible land is 58 to 123 bushels per acre. The range for wheat is 20 to 68 bushels per acre on eligible land. Yield ranges for other crops are similar. Yields on the land placed into the CR are 20%, 35%, 10%, and 50% less than average yields for corn, wheat, soybeans, and cotton.

#### Government Cost:

- Cover establishment costs reflected in Table 8 range from \$28 to \$31 per acre, assuming that the government pays one-half of the cost.
- Rental costs range from \$29 to \$52 per acre (Table 9). As expected, forcing the land enrolled to reflect the distribution in eligible land results in a higher program cost; approximately \$9 per acre.
- The estimated costs do not fully include the opportunity costs of losses in base acreage allotment. Estimation of these opportunity costs would have required a longer term solution of the CARD resource model.



- Option 2 is the most cost effective. However, the distribution of payments is not equal across the country. Incorporating a distribution objective by enrolling lands as a percent of those eligible lands (by an erosion or acreage base criteria) increases rental costs by \$10 to \$11 per acre.

## 6. Remaining Problems and Concerns

A number of problems with CR design and operation either do not lend themselves fully to the modeling analysis or deserve separate discussion.

Eligibility Criteria -- The modeling results demonstrate that eligibility criteria play a prominent role in determining regional CR enrollment patterns. Given the announced intention to use the CR first to reduce erosion damages, the eligibility criteria proposed for implementation are limited in two respects. First, the LCC system with erosion rate limits is not a precise indicator of the severity of on-site productivity loss. Heimlich and Bills (1984) and Lee and Goebel (1984) have shown that the LCC system does not correlate well with erosion potential. The LCC system was embraced probably because it avoids administrative costs to switching to a new system under the tight time pressure. Second, none of the criteria considered to date reflect off-site erosion costs. This is surprising when available evidence suggests that off-site damages may be 2 times as high as costs of on-site productivity losses (Clark 1985; Crosson 1986). In fact, the procedure outlined in the preliminary implementation plan appears to preclude incorporation of off-site damages unless they are highly correlated with the LCC system. Bids solicited are pooled at the state level for ranking and acceptance, but contain no explicit information on off-site effects.

Prohibition of Forage Use on CR Lands -- Except in instances of emergency (e.g., drought), the CR land cannot be used for harvest or forage. This restriction may not be economically sound. If the CR land can be managed under forage production to reduce erosion damages to acceptable levels, then precluding commercial forage production on CR land costs society the net value of the forage. This limitation also has two practical implications. First, it raises the CR land rental payments in areas where forage is an economically viable enterprise. Second, by reducing total agricultural economic activity, especially in highly erodible areas, the local economic base is reduced (and probably the property tax base), thus further impacting economies of rural agricultural areas.

Temporary Conservation Services on Highly Erodible Lands -- Because the penalties for returning CR land to crop production apply only to the participants and may be nonexistent if these programs are discontinued, the erosion control benefits may be short-lived. Land planted to trees is the exception. The planned CR approach may be more costly than purchasing long-term or permanent

conservation easements on highly erodible land. However, the present CR retains more flexibility for meeting unexpected foreign demand changes.

Over Enrollment -- No internal mechanism is incorporated in the CR program to insure that the benefits, both monetary and nonmonetary, outweigh the costs. Thus, society may lose in an economic sense if the most profitable number of CR acres is exceeded or not achieved. Commodity program savings are only transfer payments affecting the federal budget. The potential for over-enrollment is high given pressures to reduce commodity program expenditures. An economically based cost analysis could provide guidance for determining target enrollment levels.

Enrollment of Rented Land -- A section in Title XII clearly states that the Secretary will take measures to protect the interests of tenants and sharecroppers to the CR. Presumably, this language is intended to prevent eligible landlords from ignoring the operating land base requirements of tenants or sharecroppers when submitting bids. That is, tenants and sharecroppers could find farm sizes diminished with little alternative land available and/or higher cropland rental prices and less-than-efficient machinery inventories. Implementing procedures available to date are silent on this subject.

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Table 1. Alternative Enrollment Schedules for the Conservation Reserve Analysis

Crop Year	Accelerated (ACC)	Minimum (MIN)
	- - - - - million acres per year - - - - -	
86/87	15	5
87/88	25	10
88/89	<u>0</u>	<u>10</u>
Total	40	25

Table 2. Long-term Conservation Reserve (CR) Options Evaluated

Option	Enrollment Schedule	Land Eligibility	Regional Distribution	Cost Sharing
1.	MIN	HE	PE	HCS
2.	MIN	HE	LC	HCS
3.	MIN	HE	LC	NCS
4.	MIN	SB	PE	HCS
5.	ACC	HE	PE	HCS

MIN: minimum enrollment schedule in FSA85

ACC: accelerated enrollment schedule

HE: only highly erodible soils eligible

SB: no restrictions on cropland eligibility (Soil Bank)

PE: distribute CR acres to regions on basis of percent of eligible cropland

LC: no restrictions on regional distribution of CR funds

HCS: cost share half of cover establishment expenses

NCS: no cost sharing of cover establishment expenses

Table 3. Key Results from the FAPRI Analysis of the FSA85

Commodity and Crop Year	Target Price	Loan Rate	Farm Price	Net Returns Over Variable Costs/Acre		Yield per Acre
				Part.	Non-Part.	
<b>Wheat</b>						
1985/86	\$4.38/bu	\$3.30/bu	\$3.00/bu	\$67.97	\$51.83	37.4 bu
1986/87	4.38	2.40	2.47	64.23	18.82	37.8
1987/88	4.38	2.28	2.39	61.94	13.73	38.2
1988/89	4.29	2.17	2.27	63.07	6.38	38.7
<b>Corn</b>						
1985/86	\$3.03/bu	\$2.55/bu	\$2.47/bu	\$167.15	\$130.81	116.6 bu
1986/87	3.03	1.92	1.99	148.58	60.88	114.0
1987/88	3.03	1.82	1.94	145.04	51.95	115.0
1988/89	2.97	1.73	1.96	137.83	48.95	116.0
<b>Soybeans</b>						
1985/86	NA	\$5.02/bu	\$5.19/bu	NA	102.72	34.2 bu
1986/87	NA	4.77	4.86	NA	74.61	31.5
1987/88	NA	4.77	4.99	NA	78.27	31.9
1988/89	NA	4.77	5.05	NA	77.90	32.0
<b>Rice</b>						
1985/86	\$11.90/cwt	\$8.00/cwt	\$6.32/cwt	\$256.45	\$180.83	5426 lb
1986/87	11.90	7.20	4.32	254.15	39.06	5750
1987/88	11.66	6.84	4.86	264.11	71.96	6050
1988/89	11.30	6.50	5.18	291.01	82.55	6165
<b>Cotton</b>						
1985/86	\$0.81/lb	\$0.57/lb	\$0.54/lb	\$171.67	\$78.86	630 lb
1986/87	0.81	0.55	0.35	143.65	1.67	574
1987/88	0.79	0.52	0.39	133.39	11.46	584
1988/89	0.77	0.50	0.43	122.08	50.56	594

Source: Womack, et al. "An Analysis of the Food Security Act of 1985."  
FAPRI Staff Report #1-86, February 1986.

Table 4. Land Definitions in the CARD Modeling System and CR Eligible Acres by Land Group

Land Group	USDA Land Classification	Total Land	CR Eligible Land
- - thousand acres - -			
1	I, II <sub>wa</sub> , III <sub>wa</sub> <sup>a</sup>	61,895	0
2	II <sub>e</sub>	86,404	9,560
3	III <sub>e</sub>	74,932	21,766
4	IV <sub>e</sub>	37,807	11,477
5	II <sub>c</sub> , III <sub>c</sub> , IV <sub>c</sub>	20,417	1,117
6	II <sub>s</sub> , III <sub>s</sub> , IV <sub>s</sub>	23,644	3,213
7	II <sub>w</sub> , III <sub>w</sub> , IV <sub>w</sub>	50,265	2,604
8	V, VI, VII, VIII	15,831	15,277

<sup>a</sup>wa indicates land in subclass w but not completely defined.

Table 5. Estimated Cover Establishment Costs by Region used in the Conservation Reserve Analysis

	North Atlantic	South Atlantic	Lake States	Corn Belt	Delta	Southern Great Plains	Northern Mountains	Pacific Northwest	Southwest
	----- dollars per acre -----								
Seed	40.10	24.50	26.20	25.90	23.40	19.20	22.60	30.10	28.30
Nitrogen	7.40	0	6.00	0	1.80	3.30	0	0	0
Phosphate	16.00	16.60	6.60	8.40	15.00	14.00	13.00	16.50	16.50
Potash	8.80	7.50	3.10	6.70	4.50	2.70	6.50	0	0
Lime	26.10	29.60	12.60	5.00	15.00	5.30	3.40	5.60	5.60
Chemicals	2.30	1.20	.50	3.50	2.70	4.30	.90	5.90	17.00
Tractor Fuel & Lube	1.00	.60	1.20	1.10	1.06	1.40	1.00	.90	2.50
Tractor Repairs	.40	.20	.40	.40	.40	.60	.40	.50	1.30
Machinery Fuel & Lube	1.30	1.20	1.30	1.20	1.20	1.20	1.00	2.60	2.90
Machinery Repairs	1.40	.70	1.00	1.00	.90	1.00	1.00	1.70	2.30
Machinery Labor	3.70	3.00	3.80	3.90	2.80	2.70	3.50	8.00	10.30
Interest	1.80	1.00	1.10	1.80	1.10	1.20	.90	3.00	6.40
<b>Total</b>	<b>110.30</b>	<b>86.00</b>	<b>63.80</b>	<b>58.90</b>	<b>69.80</b>	<b>56.90</b>	<b>54.20</b>	<b>74.80</b>	<b>93.10</b>



Table 6. Policy Option Effectiveness in Erosion Reduction

CR Policy Options	Erosion From		
	Sheet and Rill	Wind	Total
	- - - - Percent change from option 1 - - - -		
1 (MIN, HE, PE, HCS)	0.00	0.00	0.00
2 (MIN, HE, LC, HCS)	5.90	-2.00	2.50
3 (MIN, HE, LC, NCS)	6.20	-2.00	2.70
4 (MIN, SB, PE, HCS)	1.50	-- <sup>a</sup>	0.8
5 (ACC, HE, PE, HCS)	-13.90	-- <sup>a</sup>	-7.8

<sup>a</sup>less than 0.01 percent change.

Table 7. Distribution of Land in the Conservation Reserve by Policy Option

USDA Farm Production Region	Policy Options					Acres That Qualify
	1	2	3	4	5	
	- - - - - thousands - - - - -					
Northeast	920	0	0	1,092	1,472	2,510
Appalachian	1,742	0	0	1,294	2,787	4,752
Southeast	806	0	0	1,089	1,290	2,198
Delta	627	0	0	1,306	1,003	1,710
Corn Belt	5,877	0	0	5,526	9,403	16,040
Lake States	1,578	0	0	2,628	2,525	4,305
Northern Plains	3,402	7,523	8,942	5,560	5,443	9,283
Southern Plains	4,722	10,945	11,551	2,678	7,555	12,887
Mountain	4,166	6,532	4,507	2,489	6,666	11,368
Pacific	1,160	0	0	1,338	1,856	3,164

Table 8. Estimated Owner-borne Per Acre Cover Establishment Costs by Solution

Policy Options	Years			Total	Rental Cost
	1987	1988	1989		
	- - - - - million dollars - - - - -				
1	157,955	315,911	315,911	789,777	31.59
2	136,768	280,673	287,698	705,139	28.21
3	272,824	561,824	568,558	1,403,206	56.13
4	156,925	315,961	315,961	788,847	31.55
5	471,959	787,921	0	1,259,880	31.50

Table 9. Estimates of Governmental Costs for the Conservation Reserve Program

Policy Options	Per Acre Costs		Program Costs	
	One Time Establishment	Bid Price <sup>a</sup>	Establishment	Annual Rental
	----- \$/acre -----		----- million dollars -----	
1	31.59 <sup>a</sup>	39.48	790	987
2	28.21	27.01	705	675
3	0.00	31.14	0	779
4	31.55	39.38	789	985
5	31.50	52.54	1,260	1,314

<sup>a</sup>Assume a nine percent interest rate for determining the cost of establishing the cover.



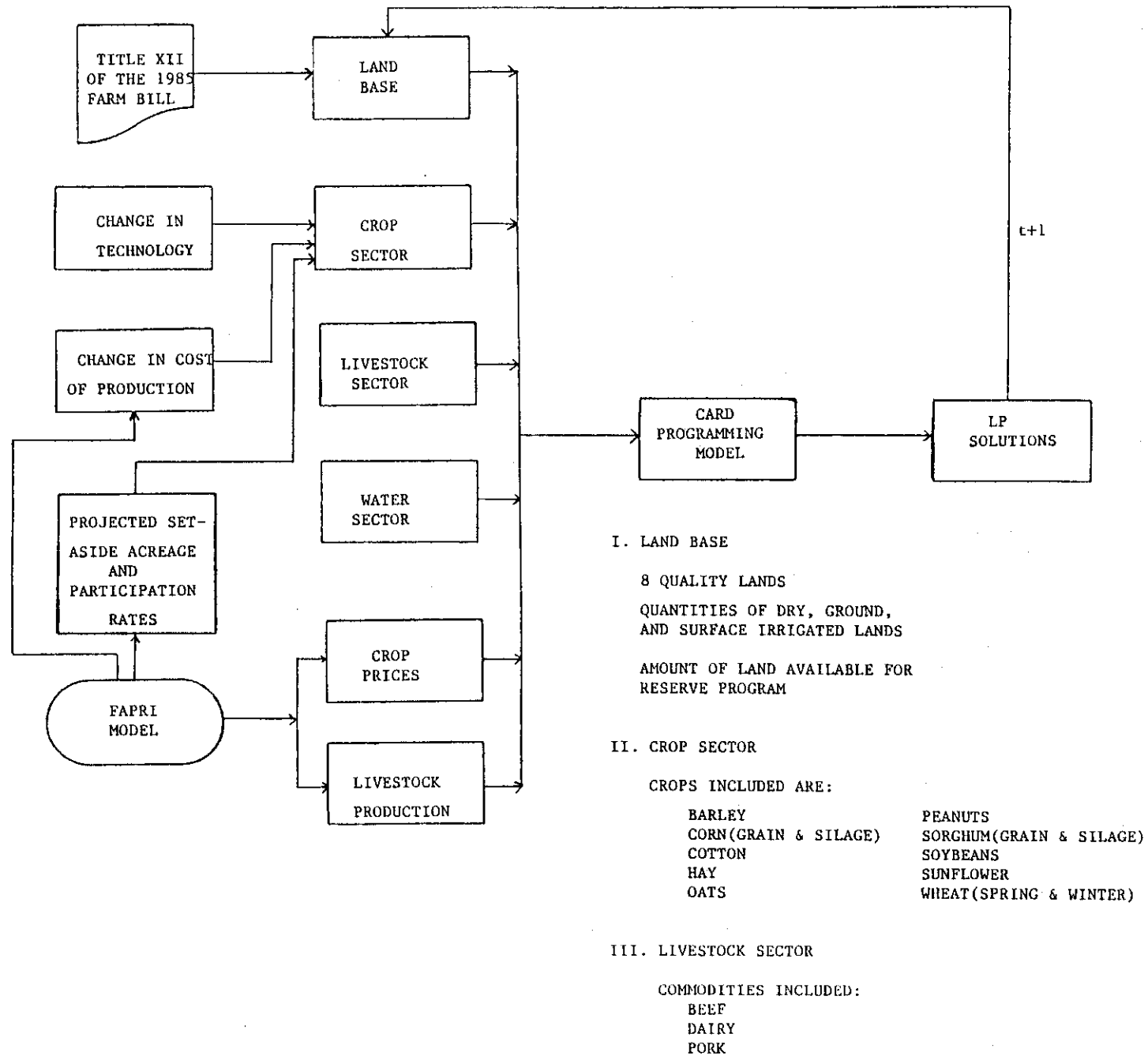
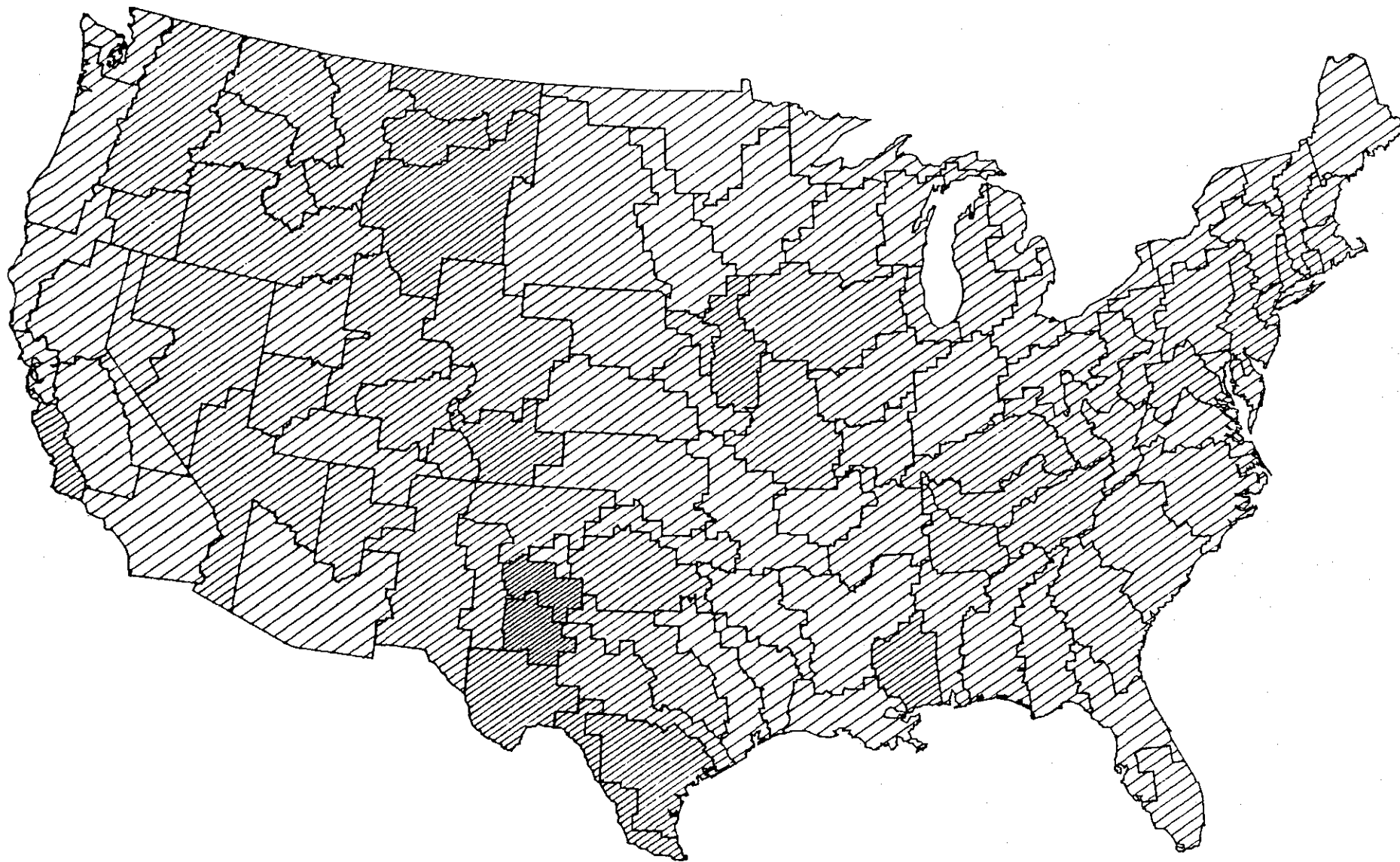


Figure 1. Flows of Information in the CARD Modeling System.

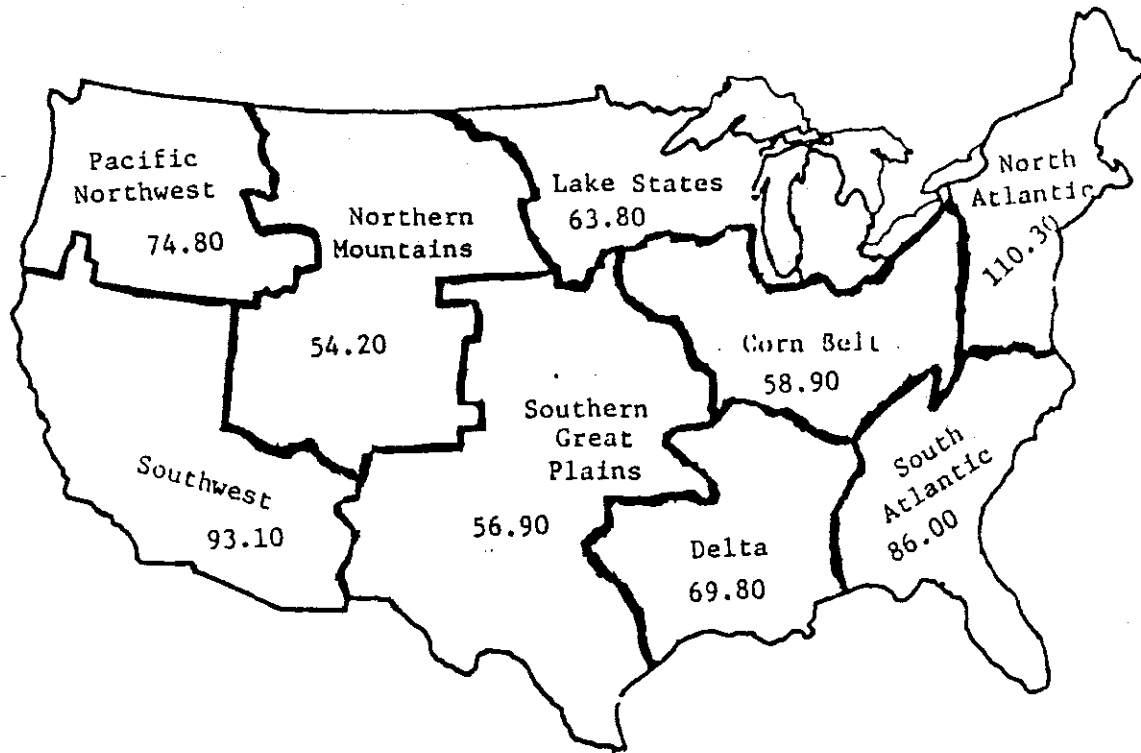
Figure 2. Percent of Total Land Eligible for Retirement Under the Conservation Reserve, 1982.



PATPU;  > .5       0.3-0.5       0.2-0.3  
 0.1-0.2       0.01-0.1

Source: National Resource Inventory, 1982.

Figure 3. Estimated Annual Cover Establishment Costs (dollars per acre) by Region.



Source: Budgets for the Resource Conservation Act Analysis, CARD Modeling System.