Estimating the Costs of Conservation Compliance

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Abstract. *The conservation compliance provision of the 1985 Food Security Act requires farmers to implement conservation plans on highly erodible cropland as a prerequisite for eligibility in agricultural commodity programs Reducing erosion to the soil loss tolerance level on about 46 million highly erodible cropland acres needing treatment would cost almost $700 million annually, an average of $15 per acre*

Keywords. *Conservation compliance, soil erosion, Highly Erodible Land Subtitle, 1985 Food Security Act*

Crop production on highly erodible soils will continue to be the target of increasing interest for the remainder of the decade as conservation provisions of the 1985 Food Security Act are implemented These provisions are designed to prevent U S Department of Agriculture commodity programs from contributing to soil erosion problems By encouraging the cultivation of erodible soils or erosive crops, commodity programs may be contributing to soil erosion, an outcome inconsistent with overall USDA goals (*5, 10*) [1]

The conservation compliance provision in the Highly Erodible Land (HEL) Subtitle of the 1985 Food Security Act is of major importance to farmers The provision requires conservation plans to be implemented on highly erodible cropland as a prerequisite for access to Government commodity program benefits Although some 118 million acres are considered highly erodible, the compliance provision will affect fewer than 46 million acres because roughly 35 million acres are currently in compliance or are not considered cropland by the definition in the HEL subtitle, while another 37 million acres are likely to be enrolled in the Conservation Reserve Program or could be adequately treated with conservation tillage at no cost increase

Highly erodible cropland is defined in the HEL subtitle as land under cultivation of an annually produced commodity with an erodibility index of 8 or greater The erodibility index, a measure describing the relative susceptibility of a soil to erosion damage, is created by the division of a measure of the physical attributes of a soil's erodibility by the soil loss tolerance level (T) The greater the erodibility index, the more susceptible the soil is to erosion damage (*2*)

Implementation of conservation plans must begin by 1990, when farmers must decide between (1) placing their highly erodible cropland in the Conservation Reserve, (2) implementing conservation plans and continuing to farm the land, thereby retaining eligibility for commodity program benefits, or (3) farming without conservation plans and losing eligibility for commodity program benefits Farmers will have to weigh the value of their commodity program benefits against compliance costs

The level of erosion on highly erodible cropland that will be considered acceptable under the HEL provision is nonspecific The final rules and regulations governing implementation of this provision note that the T and 2T (twice the soil loss tolerance level) limitations for conservation plans and conservation systems may be too restrictive in some instances Thus, USDA has provided flexibility in the selection of locally approved conservation plans and systems The conservation systems are designed to achieve substantial reductions in soil erosion, taking into consideration economic and technical feasibility and other resource-related factors (*12*) The Soil Conservation Service has determined that roughly 85 percent of the cropland subject to conservation compliance can be treated to T The balance of the highly erodible croplands will continue to erode slightly above T when used for the production of agricultural commodities

Thus, we assume that farmers will generally be required to reduce the level of erosion on highly erodible cropland to T to comply with the provisions of the HEL subtitle T is basically the rate at which the soil is formed under natural conditions Because some leeway will be provided where compliance to T poses economic hardship to the farmer, we estimate costs at both T and 2T compliance levels to illustrate the effect of relaxing the required compliance level

How Can Compliance Be Achieved

Reducing erosion on highly erodible cropland can be achieved by (1) changing the current crop rotation, (2) moving from conventional (fall or spring plowing) to conservation tillage, or (3) implementing conservation practices

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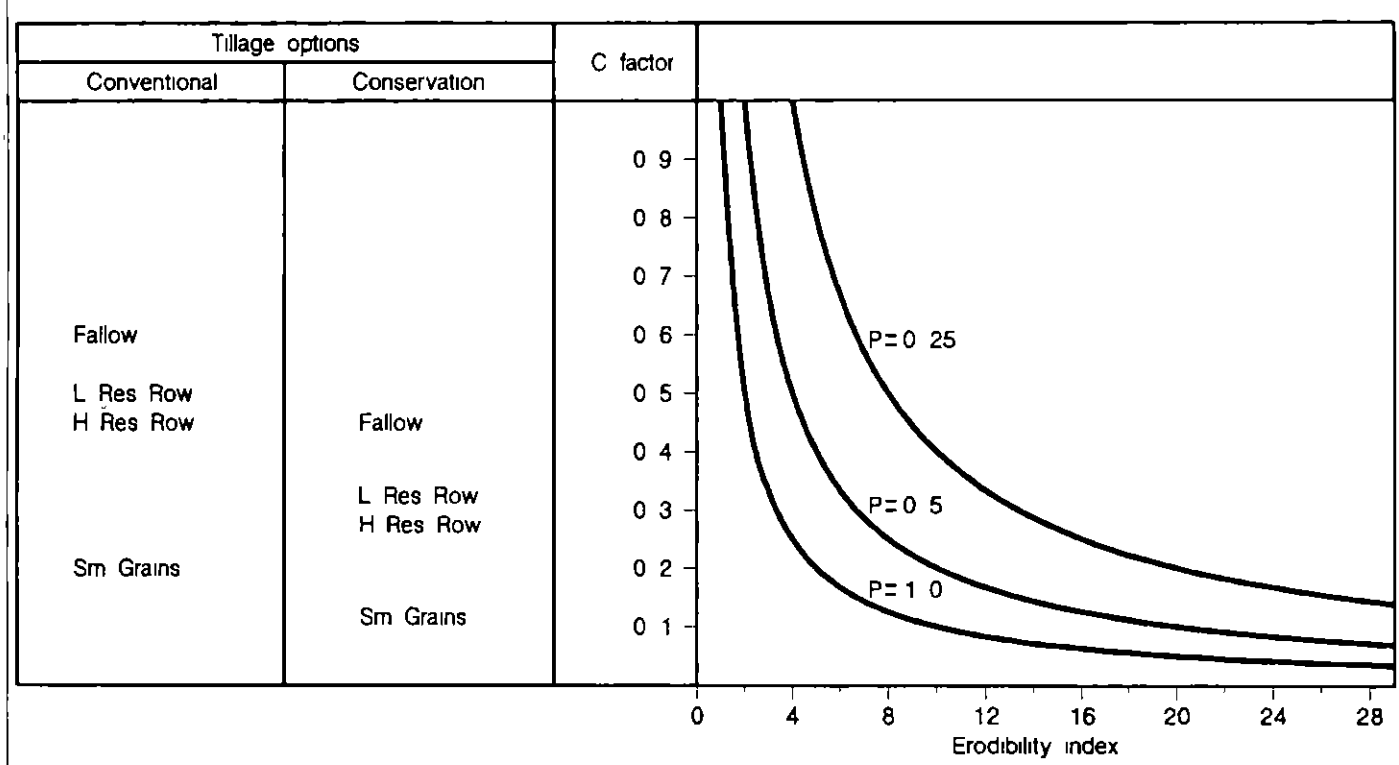
[1] Italicized numbers in parentheses refer to items in the References at the end of this article

Putman examined the relationship between erosion, erodibility, crops, and tillage practices (*8*) His nomograph (fig 1) illustrates that the more susceptible a field is to erosion (the higher the erodibility index), the more difficult it is to reduce erosion to T by changing the crop rotation or tillage pratices The left side of the nomograph describes four crop types (fallow, high-residue, low-residue, and small grains) under two options for tillage practice The corresponding cover factor (C) for each crop type and tillage combination is shown on the vertical axis The C factor reflects the effect of cropping practices on erosion and is the ratio of the soil loss as the land is actually being cropped to the corresponding loss if the land were clean-tilled fallow (*13*) The erodibility index, along the horizontal axis, multiplied by the C factor indicates the actual rate of erosion in proportion to the soil loss tolerance level Thus, the relationship between the erodibility index and the C factor forms an isoerosion curve The points along each of the three curves represent an erosion rate equal to T The nomograph shows, for example, that on soils with an erodibility index of 8, T can be achieved in the absence of conservation practices (the line corresponding to P = 1 0), only when small grains are cropped and conservation tillage is used

The third means of reducing erosion, conservation practices, is reflected in the nomograph by the different values of P, the support practice factor The P factor is the ratio of the annual soil loss with a conservation practice in place to the annual loss that would occur without the practice (*13*) Applying terraces or wind breaks, strip cropping, or contours, which reduce the P factor, reduces the C factor required to maintain the relative level of erosion at some prescribed level for any given erodibility index The application of a conservation practice shifts the isoerosion curve on the graph outward This process is demonstrated in the nomograph for various levels of P (0 25, 0 5, 1 0) where the isoerosion curve is drawn for all points at which the level of erosion is just equal to the soil loss tolerance level As with the C factor, the greater the effect of the conservation practice on reducing erosion, the lower the P value

The nomograph describes the tradeoffs between conservation practices, tillage practices, and crop types that are required to reduce either wind or sheet and rill erosion to a specific level However, when both wind erosion and sheet and rill erosion occur, the effect on erosion of substituting among crop types is not easily

Figure 1
Soil erosion nomograph, showing effect of changing P factor



L Res Row = Low-residue row crops (soybeans cotton peanuts and sunflower)
H Res Row = High-residue row crops (corn and sorghum for grain)
Sm Grains = Small grains (barley oats wheat)

defined Practices that may affect sheet and rill erosion may not affect wind erosion, and vice versa Thus, in areas such as the Great Plains where wind and sheet and rill erosion occur, treatment costs may be underestimated

Each method of reducing erosion has an associated cost Modifying the current cropping rotation will reduce net returns in most cases Changing from conventional to conservation tillage often reduces average annual production costs However, the change may require new equipment and make existing equipment obsolete, thereby offsetting some production cost decreases Implementing a conservation practice requires either direct capital outlays (terrace, windbreaks) or increases in variable costs of production (strip cropping, contouring) or both Our procedure allows for changing tillage practices and implementing conservation practices, but not for changing crop rotation or land use

We have omitted the estimation of rotational changes in our determination of compliance costs for several reasons First, the number of possible rotations for any given area is unlimited Although several linear programming models currently in use include rotations in their formulation, they represent only the most frequently used rotations in any given area, not those that may be used to meet compliance

Second, rotational changes that are made to meet compliance are dynamic That is, producers select rotations in response to relative prices of potential crops Where the production of more erosive crops is reduced and the production of less erosive crops increases sufficiently to affect the relative price of these crops, a new rotation may be used Furthermore, because the relative prices of more erosive and less erosive crops affect the selection of a rotation, other variables that can influence crop prices can also influence the selection of a rotation

Data and Methods

Two cost-of-treatment functions are used in conjunction with the 1982 National Resources Inventory (NRI) to estimate the cost of reducing erosion on highly erodible U S cropland to T Each NRI sample point was first checked to see if the land it represented would be eligible for enrollment in the Conservation Reserve Program (CRP) Using information from the first five CRP signups, we estimated total eventual CRP enrollment per county The CRP-eligible NRI sample points were then randomly seleted for enrollment until each county's acreage limit was reached The lands selected were assumed to represent an eventual 45-million-acre CRP and to have no compliance costs

Second, conservation tillage adoption was simulated on all sample points presumed to be faced with compliance in 1990 If the RCA/CARD model budgets associated with the sample points indicated that cost savings would probably occur, then the NRI sample point was "treated" with conservation tillage at no cost The NRI-reported soil erosion rates were adjusted downward to reflect the resulting soil savings on the sample points The amount of adjustment was estimated based on USDA's Conservation Reporting and Evaluation System (CRES) and NRI data

Using CRES-derived cost functions, we estimated the costs of reducing erosion to T and 2T on highly erodible land requiring treatment after a simulated enrollment in CRP and adoption of conservation tillage Finally, using the NRI-provided expansion factors, we expanded treatment costs to estimate costs of conservation compliance at the regional and national levels

CRES Data

USDA's 1985 CRES provides field-level estimates of soil savings and both public and private expenditures associated with conservation programs of the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS) These programs include the Agricultural Conservation Program (ACP), Great Plains Conservation Program (GPCP), Rural Clean Water Program (RCWP), and Conservation Technical Assistance (CTA) Information collected on fields treated in conjunction with these programs includes descriptions of practices implemented, implementation costs, effect on soil erosion, acres affected, and land use before and after treatment

We converted installation costs for multiyear practices to annual costs, using a discount rate of 4 percent and appropriate service lives as provided by ASCS Estimates of annual operation and maintenance costs were provided by SCS Technical assistance costs, valued at $62 50/hour (field time) were also annualized (*11*) The technical assistance is provided by SCS under the CTA program at no cost to the farmer However, whether incurred by the farmer or SCS, costs for technical assistance are still costs and are included in our estimate of treatment costs We used the total of the annual installation, operation, maintenance, and technical assistance costs divided by the acres treated for each observation to estimate the annual per-acre treatment cost Erosion rates in tons per acre per year (TAY) before and after treatment came directly from CRES we calculated the erosion rates with the Universal Soil Loss Equation for sheet and rill erosion (*13*) and the Wind Erosion Equation for wind erosion (*14*)

Technical assistance hours were not reported on most CRES records Only certain counties (about 330) reported the number of hours of technical assistance provided by SCS technicians Data from these counties were used in a regression model to predict hours used by farmers in other counties Hours per practice required in each farm production region for each type of practice installed, in fields with and without gullies, were hypothesized to be a function of the log of the acres served The hypothesis was tested, and data from the 330 reporting counties were used to estimate the coefficients The overall R-square was 0 45, and the significance level for all three categories of dummy variables (region, practice, and gully presence) was 0 0001 The estimated coefficients were used to predict the amount of technical assistance provided to farmers in the nonreporting counties Table 1 shows the range in regional average hours per acre for selected conservation practices, based on the estimated coefficients

Production cost adjustments resulting from the implementation of conservation tillage were not available from the CRES data Estimates of the average differences in net returns between conservation and conventional tillage practices by State and soil resource group were generated from the RCA/CARD model (9) They were used in place of the CRES-reported conservation tillage costs This procedure resulted in negative costs where adoption of conservation tillage would, on average, have reduced production costs

We estimated two treatment cost functions using CRES records meeting the following criteria (1) primary purpose of assistance was erosion control, (2) land use before and after treatment was cropland, (3) erosion rate before treatment was greater than T, (4) sheet and rill and/or wind erosion was reduced, (5) costs did not decline with a shift from conventional to conservation tillage, and (6) cost sharing with ACP or RCWP was provided These selection criteria generally ensure that annual treatment costs per acre can be calculated, and only the observations that represent cropland treated for erosion are used Almost 37,000 observations from the 1985 CRES met the criteria

Table 1—Estimated technical assistance hours per acre for selected conservation practices[1]

Conservation practice	Hours per acre[2]
Conservation tillage	0 02-0 38
Cover crop	0 08
Contour farming	33- 69
Dam	74 1 09
Diversion	87-1 23
Irrigation water management	80-1 15
Permanent vegetative cover	0 26
Sediment retention	1 14-1 50
Stripcropping	70-1 05
Terraces	1 53-1 89
Tree planting	0 - 15
Windbreaks	39- 75
Grass waterways	38 74

[1]Based on Conservation Reporting and Evaluation System data from the 330 reporting counties
[2]Range in regional averages, 10 acre field, no gullies

Criteria 1-5 are designed to eliminate observations atypical of treatment for conpliance Many practices are installed for reasons other than soil conservation If they were installed for moisture conservation or for production costs savings, then the CRES-reported costs would likely overstate (or understate) the true cost of reducing soil erosion These other factors affecting treatment costs could ideally be included in the regression model Criterion 6 is the result of technical problems with the CRES data Reliable estimates of the service life of the practice mix could be derived only from ACP- and RCWP-related installations Estimates of service life are necessary to calculate annual costs, the dependent variable in the cost functions

Cost Function Estimation

We assumed that the CRES data meeting the six criteria represent a cross-sectional set of observations on soil erosion abatement costs The annual per-acre treatment costs were hypothesized to be a function of the current erosion rate (a proxy for erodibility), the level of treatment (tons saved per acre), the type of erosion, the size of field treated, and the regional location Two separate cost functions were estimated from ordinary-least-squares regression We estimated the parameters for the first function using all the CRES records meeting the six criteria We estimated the second set of parameters using a subset consisting of all the selected CRES records except those describing conservation tillage implementation Function 1 was used to predict treatment costs on NRI sample points where conventional tillage was used in 1982 Cost function 2 predicts costs where conservation tillage was used in 1982 This procedure prevents conservation tillage from being used twice The estimated equations are as follows

$$\begin{aligned} CAY = {} & Ir + 3\ 07{*}TYPE + 0\ 551{*}SAVED + 0\ 0133{*} \\ & (se)\ (0\ 50) \qquad (0\ 021) \qquad (0\ 0011) \\ & SAVED^2 - 0\ 0141{*}SAVED{*}RATE + Dr{*}IACRES \\ & (0\ 0011) \qquad R^2 = 0\ 26 \end{aligned} \tag{1}$$

$$\begin{aligned} CAY = {} & Ir + 4\ 24{*}TYPE + 0\ 662{*}SAVED + 0\ 0160{*} \\ & (se)\ (0\ 52) \qquad (0\ 022) \qquad (0\ 0011) \\ & SAVED^2 - 0\ 0170{*}SAVED{*}RATE + Dr{*}IACRES \\ & (0\ 0011) \qquad R^2 = 0\ 26 \end{aligned} \tag{2}$$

where

CAY = annualized treatment cost per acre,
Ir = intercept for farm production region r (r = 1, 2, 10),
TYPE = dummy variable that changes intercept,
= 0 if erosion is sheet, rill, and wind,
= 1 if erosion is sheet and rill only,
SAVED = reduction in erosion (tons per acre per year) due to treatment,
RATE = erosion rate in tons per acre per year,
IACRES = inverse of acres affected by treatment, and
Dr = coefficient associated with IACRES for region r

We estimated the intercepts (Ir) and field size coefficients (Dr) separately for each region using region-specific dummy variables Table 2 shows the regional intercept and field size coefficient estimates and the significance levels Comparison of predicted costs indicates that, when conservation tillage is assumed already in use and, therefore, not an option (function 2), treatment costs are slightly higher

Field size is a significant factor explaining variation in annual per-acre treatment costs, which probably reflects the effect of spreading fixed costs over more acres The possibility that less costly practices were used on larger fields was not explored Ervin and others (*4*) found a similar negative relationship between farm size and cost per acre Costs differ significantly, depending on geographical location and type of erosion treated Farmers in the West spend less per acre than farmers in the East (table 2) When both water- and wind-caused soil erosion are treated (TYPE = 0), per-acre costs are lower than when only water-caused erosion is affected The few CRES records that described abatement of only wind erosion were not used to estimate the equations

The positive coefficients on the SAVED and SAVED-squared variables indicate that, for identically eroding fields, the cost per ton of erosion reduced will increase (at an increasing rate) as the amount of soil saved increases Costs are lower to save the first ton of soil than the last The negative sign on each equation's SAVED*RATE interaction coefficient indicates that the more erodible the land, the lower the average cost per ton saved Consider two fields, one eroding at 25 TAY and the other eroding at 10 TAY The negative coefficients for the interaction terms indicate that reducing erosion by 5 TAY on the 25 TAY field will cost less than reducing erosion by 5 TAY on the 10 TAY field Figure 2 plots the predicted costs using function 1 The three lines represent the predicted cost of treating fields with different pretreatment erosion rates The cost lines for other regions, field sizes, and erosion types have the same slopes, but different intercepts

Results

The low coefficients of determination would be a problem if important variables were omitted from the regression models or if the functional forms specified were inappropriate Neither problem is believed to be present to a significant extent The cross-sectional nature of CRES and the fact that reported costs are based on various sources (actual observation, engineering-based estimates, and county technicians' best guesses) partly explain the low R^2's Furthermore, CRES installations often had other purposes that could introduce sources of cost variation not accounted for in the model

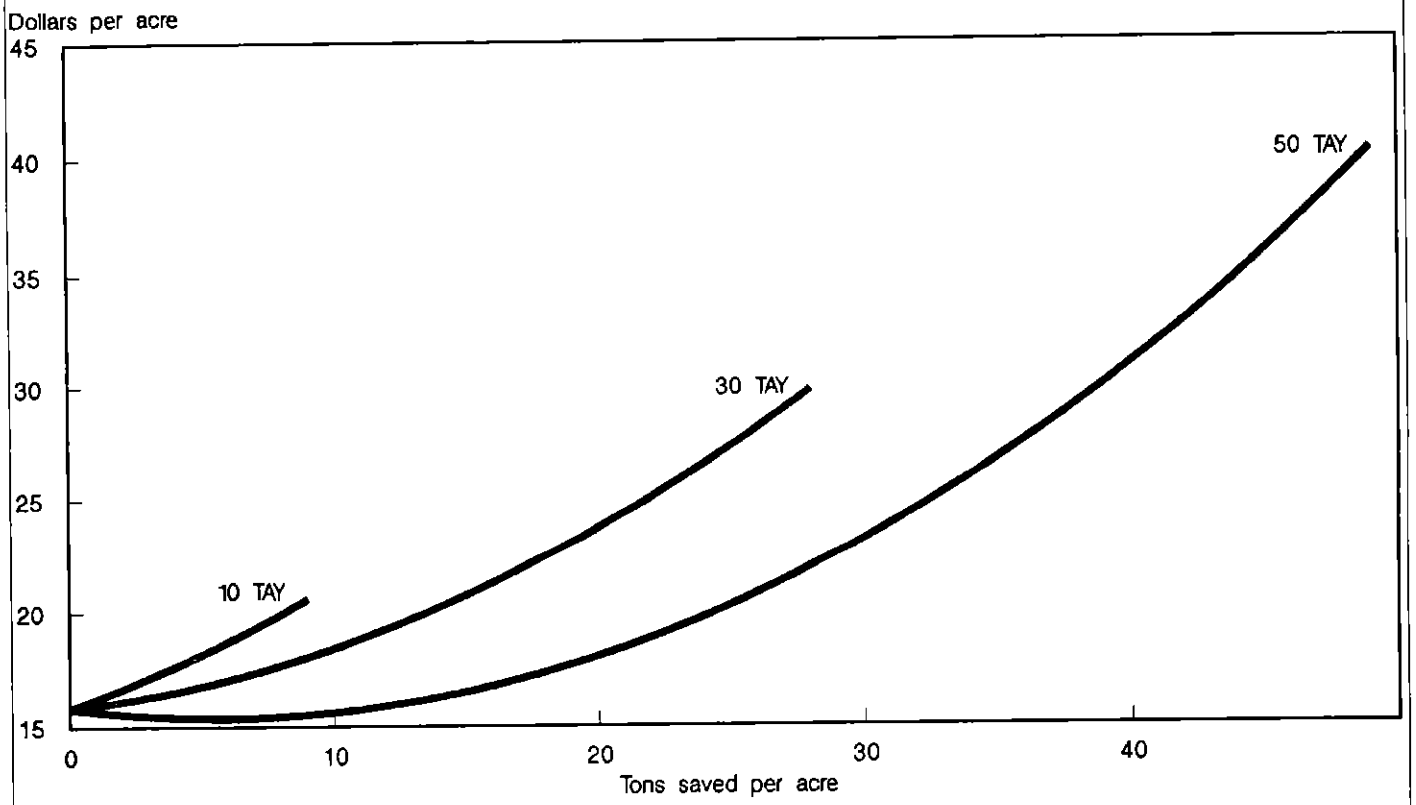
After the simulated enrollment in CRP and the adoption of conservation tillage, about 46 million acres of cropland required further treatment to reduce erosion to T (table 3) The treatment of the 46 million acres

Table 2—Intercept and field size coefficients for the two cost functions

Region	Intercept (Ir)		Field size coefficient (Dr)	
	Model 1[1]	*Model 2*	*Model 1*	*Model 2*
Northeast	10 80*	9 36*	74 04*	73 35*
Appalachia	7 24*	7 81*	25 96*	23 64*
Southeast	2 75	9 31*	101 32*	109 66*
Delta	4 96*	7 49*	84 30*	78 44*
Corn Belt	10 65*	8 73*	154 78*	153 43*
Lake States	2 23	93	160 78*	158 73*
Northern Plains	6 49*	4 70*	60 44*	59 72*
Southern Plains	2 31**	48	70 68**	70 09**
Mountain	–1 18	40	181 49*	170 37*
Pacific	–2 14	6 17	519 66*	465 10*

*=estimates are significantly different (at 0 05 level) from Southern Plains estimates
**=significantly different from zero
[1]Model 1 parameters are estimated from all selected CRES records Model 2 parameters are based on nonconservation tillage records only

Figure 2
Predicted treatment costs on fields eroding at different rates



30-acre field in the Corn Belt; sheet, rill and wind erosion treated; cost function 1.

Table 3—Regional and national annual costs of reducing erosion to the soil loss tolerance level (T) on U.S. highly erodible cropland

Region	Total[1]	EI ≥ 8 eroding above T[1]	Above T after CT and CRP[2]	Total treatment cost to reduce erosion to T and and maintain same rotation	Average cost per acre treated[3]	Cost per ton saved[3]
	Million acres			*Million dollars*		
Northeast	8 6	3 7	3 0	56 4	18 98	3 16
Appalachia	16 8	5 9	3 8	66 7	17 66	1 81
Southeast	14 5	2 5	1 4	23 1	16 57	1 90
Delta	20 4	2 3	1 2	21 3	17 30	1 65
Corn Belt	85 5	19 1	11 7	243 1	20 86	1 90
Lake States	33 4	3 9	1 7	13 5	8 07	1 29
Northern Plains	86 5	13 8	5 9	66 6	11 21	1 33
Southern Plains	41 9	13 8	8 2	109 3	13 36	53
Mountain	33 7	14 7	7 1	46 7	6 15	56
Pacific	16 4	3 4	1 6	20 7	12 98	1 05
United States	357 8	83 1	45 6	667 4	14 63	1 16

[1]Source 1982 National Resources Inventory Subset
[2]Acres still eroding above T after the simulated adoption of conservation tillage and enrollment in the Conservation Reserve Program
[3]Includes only those acres treated where conservation practices would need to be installed

of highly erodible cropland is estimated to cost about $667 million annually, an average of $14 63 per acre Annual per acre costs vary from $6 15 in the Mountain States to $20 86 in the Corn Belt The estimated costs per ton saved also vary, from $0 53 in the Southern Plains to $3 16 in the Northeast The cost per acre and cost per ton estimates are based only on those acres treated and only for the tons saved at some cost Tons saved as a result of the simulated adoption of conservation tillage or enrollment in the CRP are not included

The $667 million gross expenditure is a preliminary estimate of the additional expenses required to treat to T all highly erodible U S cropland eroding above T, after implementation of a 45-million-acre CRP Part of the expenditure could come from Federal programs such as the CTA and ACP, the remainder would come from the farmer The estimate assumes that cost savings associated with the use of conservation tillage are just offset by the investment cost required to replace the current, conventional tillage equipment Furthermore, this cost estimate probably does not represent the minimum cost of achieving T because the procedure does not allow for changes in land use, such as the establishment of permanent vegetative cover, or for changes in crop rotation, which in some cases may be a less costly means of achieving T

Tables 4 and 5 show the regional distribution of acreage that would be in compliance with T and 2T at various levels of expenditure Some 9 1 million acres would require expenditures greater than $20 per acre if compliance to T were the rule, whereas only 5 7 million acres would require expenditures greater than $20 to comply with 2T In both cases, most land requiring over $20-per-acre expenditures is in the Corn Belt, where the average per-acre treatment costs are highest

Other Studies

Pavelis (7) estimated expenditures on soil conservation at approximately $1 billion in 1983, which included both public and private expenditures on all agricultural land, not just highly erodible cropland In contrast, our procedure estimates the cost of additional conservation measures needed over and above any measures already in place, and it pertains only to highly erodible cropland How much of the estimated $1 billion is currently spent on the 83 million acres of highly erodible cropland is unknown However, according to our estimates the amount would have to increase by $667 million to fully comply with T

Using the CARD linear programming model, which allows for selected changes in crop rotation and implementation of selected conservation measures, English and Frohberg (3) estimated that production costs would increase by $1 1 billion if farmers were constrained to maintain erosion at or below T This figure is considerably higher than our estimate of $0 7 billion However, because the study frame was all U S cropland eroding above T (about 185 million acres), English and Frohberg's cost estimate per acre was much lower, around $6 per acre eroding above T, compared with our estimate of $15 per acre This large difference can be explained in part by the CARD model's inclusion of alternative rotations, inclusion of less costly acreage requiring treatment (EI <8 but eroding

Table 4—Acreage distribution of expenditure levels required to achieve compliance to soil loss tolerance level (T)

Region	EI ≥ 8 eroding above T[1]	No expenditure needed[2]	Under $5/acre	Under $10/acre	Under $20/acre	Acres left
	Million acres					
Northeast	3 7	0 7	0 7	0 7	3 0	0 7
Appalachia	5 9	2 1	2 1	2 1	5 1	8
Southeast	2 5	1 1	1 1	1 2	2 3	2
Delta	2 3	1 1	1 1	1 1	2 0	3
Corn Belt	19 1	7 4	7 4	7 4	14 4	4 7
Lake States	3 9	2 2	2 5	3 5	3 9	[3]
Northern Plains	13 8	7 9	7 9	10 9	13 4	4
Southern Plains	13 8	5 6	7 9	9 9	12 3	1 5
Mountain	14 7	7 6	11 8	13 4	14 4	3
Pacific	3 4	1 8	2 0	2 3	3 2	2
United States	83 1	37 5	44 5	52 5	74 0	9 1

[1]Source 1982 National Resources Inventory
[2]Cropland eroding at or below T after simulated costless adoption of conservation tillage and enrollment in Conservation Reserve Program
[3]Fewer than 50,000 acres

Table 5—Acreage distribution of expenditure levels required to achieve compliance to twice the soil loss tolerance level (2T)

Region	EI ≥ 8 eroding above 2T[1]	No expenditure needed[2]	Under $5/acre	Under $10/acre	Under $20/acre	Acres left
	Million acres					
Northeast	2 5	0 9	0 9	0 9	2 1	0 4
Appalachia	4 8	2 5	2 5	2 5	3 9	9
Southeast	2 0	1 0	1 0	1 2	2 0	[3]
Delta	2 0	1 1	1 1	1 2	1 9	1
Corn Belt	16 2	7 7	7 7	7 7	13 3	2 9
Lake States	2 6	1 6	2 0	2 4	2 6	[3]
Northern Plains	8 8	5 9	5 9	7 3	8 5	2
Southern Plains	11 5	5 0	6 6	8 3	10 5	1 0
Mountain	10 6	6 6	8 9	10 0	10 5	1
Pacific	2 8	1 5	1 8	2 1	2 7	1
United States	63 8	33 8	38 4	43 6	58 0	5 7

[1]Source 1982 National Resources Inventory subset
[2]Cropland eroding at or below 2T after simulated costless adoption of conservation tillage and enrollment in Conservation Reserve Program
[3]Fewer than 50,000 acres

greater than T), and other exogenous variables (crop prices and production costs) that affect farm income The CARD model also attributes large cost savings to the adoption of conservation tillage where there are cost reductions, and we do not subtract these cost savings from the cost of the compliance

Our cost equations predict average treatment costs They estimate regional average costs by field size and erosion rate treatment The actual level of expenditures on erosion control will depend on the required level of compliance, the profitability of maintaining eligibility for commodity program benefits, participation in the CRP, and onsite benefits due to the soil savings McSweeny and Kramer modeled a representative farm in southeastern Virginia and concluded that the farmer would probably choose to comply to retain commodity program benefits (*6*) Batie and Sappington discuss the interdependence between the level of compliance (soil loss restrictions of 5, 10, 15, and 20 TAY) and farmer participation (*1*) They concluded that farmers in a Tennessee county would base decisions on the required level of compliance, the availability of cost-sharing funds (for implementing compliance practices), and their recognition of onsite benefits

Conclusions

Estimating the installation costs of soil conservation practices is one step in evaluating the potential impacts on agriculture and the environment of conservation compliance The cost of reducing erosion to T on the Nation's highly erodible cropland was estimated to be as high as $667 million per year, $15 per acre The actual cost to the farmer would depend on the availability of publicly funded cost sharing and technical assistance and a farmer's choice to maintain eligibility for commodity program benefits Treatment costs are only one factor affecting decisions about conservation compliance Benefits are another important factor A more complete evaluation of the compliance provision and of alternative compliance criteria would include a consideration of benefits

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