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Costs and Implications of Consevation Compliance

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Abstract

The costs of conservation compliance progarm (CCP) to farmers in U.S. are to range from .105 to 2.88 billion dollars for 23 million acres enrolled in the conservation reserve program (CRP), and from .0866 to 2.66 billion dollars for 40 million acres in the CRP if soil erosion from the highly erodibel cropland is to limited to the tolerance (T) level. The exact CCP costs will depend on what extent the economic hardship exemption is given to farmers. Farmers in the Sourthen plains, Mountain region, the Northern Plains, and Pacific will need exemption from the compliance to maintain current levels of production.

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Costs and Implications of Conservation Compliance

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INTRODUCTION

The conservation compliance provision (CCP) in the conservation title of the Food Security Act of 1985 requires a farmer with highly erodible cropland to begin a conservation plan approved by their conservation district by 1990 and to complete the plan by 1995. Without the conservation plan the farmer will lose eligibility for USDA (U.S. Department of Agriculture) program benefits. The benefits includes price support, loans, program payments, insurance and others. (Federal Register 1987)

A farmer can be expected to compare the compliance costs with his program benefits and decide whether to participate in conservation compliance. If the costs exceed the benefits, the farmer would be expected to avoid the compliance and forego the program benefit. Conversely, if the benefits exceed the costs the farmer would be expected to implement the conservation compliance plan and thus retain the program benefits.

To comply, a farmer will be required to reduce the level of erosion on highly erodible cropland to the soil loss tolerance level (T) in conformed to SCS (Soil Conservation Service) field office technical guide. The T value is the maximum rate of annual soil erosion that can occur without losing the soil's capacity to maintain current levels of productivity in the

future.

About 150 million acres of cropland currently have the silt and wind erosion greater than T (Table 1). These acres will have to be complied if the the T-value is established as the maximum level of erosion allowable to each acre of cropland. These acres are largely concentrated in the Corn Belt where silt erosion is the main problem and in the Northern Plains where the wind erosion is the main concern.

Because of regional variation in the physical environment for crop production, the cost of the compliance in reducing soil erosion varies among the regions. An accurate estimate of the regional and national compliance costs will enable policy makers to better assess impacts of the compliance cost to farmers and make necessary policy adjustments. Regions, where the compliance causes economic hardship to farmers, will have to be identified and some level of exemption allowed to individual farmers. Furthermore, knowing the magnitude of the compliance costs, the policy maker can examine possible implications to the commodity programs. Farmers may not participate in the commodity programs if the compliance costs appear to be greater than the benefits which they can receive from the government commodity programs. A low participation rate will weaken not only the effectiveness of the government policy on price stabilization and farm income support, but also will defeat the purpose of reduction of soil erosion. Finally, the policy maker can use the estimated costs to examine the trade-off between implementation of conservation compliance and expansion of the conservation reserve program in reducing soil erosion and government program costs.

This report is divided into the following sections: options to reduce erosion, farm and sector costs, estimation methods, compliance costs without exemption, compliance costs with exemption, summary and discussion, and policy implications. The report ends with a conclusion.

OPTIONS TO REDUCE EROSION

A farmer has four options to reduce soil erosion on highly erodible cropland. He (she) may (1) change the crop rotation, (2) adopt a conservation tillage practice, (3) implement conservation field practices or (4) take land out of crop production. Switching from row crops to the close grown crops in a crop rotation will slow the runoff of rainfall and soil movement by wind. Practicing conservation tillage which leaves crop residue on the soil surface can minimize raindrop impact and slow the runoff. It also slows the movement of soil by blowing wind. Application of the conservation field practices which includes terracing, contouring, or use of windbreak can slow movement of the soil on the field caused by both runoff and wind. Land use change from crop production to permanent pasture can minimize exposure of the soil surface to both rainfall and wind.

Changing from conventional production practice to a conservation tillage practice, such as minimum tillage or no-tillage, can reduce production costs, because the conservation tillage practice requires less numbers of field operations and thus can reduce operation costs. However, adoption of the conservation tillage practice in the regions of warm climate may

require additional application of pesticides to control pests in order to maintain crop yield, and thus may increase production costs for the pesticides applied. Installation of terracing and windbreak adds costs to the production and thus increase the production cost. Use of contouring or strip-cropping field operation may increases production costs significantly, depending on the configuration of the field. And removing cropland from crop production and placing the cropland in other uses often leads to reduction in farm income, because some highly erodible cropland can be highly productive.

FARM AND SECTOR COSTS

Conservation compliance can hurt farmers' income in two ways. It may increase costs per unit of production and may cause the loss of farm income because of reduced production. The unit cost increase is due to an additional production cost required to maintain the crop yield. The cost increase reduces net farm income. The loss in farm income refers to the income lost due to production reduction caused by the compliance. Conversely, the compliance can increase farm's income if switching from a conventional tillage to a minimum tillage practice reduces the production costs while maintaining the yield.

This paper reports two types of the compliance costs: One is aggregate cost to individual farms (farm cost) , while the other is aggregate cost (benefit) to farm sector (sector cost) as a whole. The aggregate farm cost

is the sum of the cost incurred by each individual farm, assuming one farm's gain can not be transferred to cover the loss of another farm. The aggregate sector cost (benefit) is the sum of both the gain and cost of all individual farms in the sector, assuming that the gain from one region can be used to compensate for the loss of other regions. The farm cost which reflects the compliance cost to individual farms provides the policy maker the cost of implementing the compliance, while the sector cost (benefit) provides the policy maker the cost (benefit) to the farm sector as a whole. Implementing the compliance can be economically justified if the estimated sector benefits show a significant gain.[1]

ESTIMATION METHODS

The accurate procedure to compute the compliance cost is to estimate the cost of each individual farm in the nation and then sum all the costs over all the farms. This approach can be very difficult and likely prohibitive, because it will require detailed information on each individual farm in the nation, including tillage practice, crop rotation, the nature of cropland and the production decisions of each individual farm.

An alternative and feasible computation procedure is to use anof aggregation method. This method divides the nation into several homogeneous production regions in which all farms are asumed to be identical in production practice and in resource endowment. The compliance costs to these identical

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[1] Other potential benefits such as on-side and possible off-side benefits are not considered in this report.

farms are aggregated to obtain the regional and national compliance costs Because of the 'identical farms' assumption which often departs from reality, an accurate point estimation of the compliance costs can be difficult. Despite this shortcoming, the method, however, can be a proper tool to provide range of the compliance costs. A range estimate which gives upper and lower bounds of the costs are reported in the paper.

Another reason to use a range estimate is because some exemptions are likely to be granted to farms in some regions and it is not knowm to what extent how the exemption will be implemented. Under such circumstance, estimates of exact compliance costs can be difficult.

In this study, I have estimated a range of the compliance costs. I expect that the final compliance costs will fall within the range. I used two scenarios to estimate the range of the compliance costs:

1. Without hardship exemption.

   All farmers will be required to use production practices with erosion levels less than T value which I assumed 5 tons per acre. No production will be allowed if the current production practices cannot bring soil erosion to or below the T-value.

2. With hardship exemption.

   Regions in which farmers have problems in reducing soil erosion to or below the T-value without a substantial economic loss will be exempted. Farmers in these regions will be allowed to use the best tillage conservation practices to reduce soil erosion even though the soil losses under the practices are is still greater

than the T-value.

I employed a profit maximization (PM) linear programming model to estimate the compliance costs of the first scenario, and a cost-minimization (CM) linear programming model to estimate the compliance costs of the second scenario. The PM method used in the first scenario considers the compliance costs as the foregone net revenue to farmers when the compliance is implemented. The compliance costs are the difference in farm income between with - and without - compliance. Because this method captures not only the changes in the production cost but also income loss due to production reduction, it can provide an estimate of the maximum farm income loss due to the compliance. Since it is likely that some exemptions can be expected, the costs will be reduced as an exemption is allowed. Thus the PM estimates can be considered as the upper bound of the compliance costs.

In the second scenario, the CM method assumes that farmers change crop rotation and land use to minimize production costs while maintaining current production levels. The compliance costs are the change of the least production costs between with - and without - the compliance. The estimates provides the minimum income loss, because of the following two reasons. First, The CM estimates assume that in each region farms are identical and each farm has a flexibility of resources to adjust production practice to minimize the compliance costs. Second, the CM estimates assume that a gain from a farm can compenste a loss from another farm . In reality, these two assumptions are not likely to be observed. Any departure from these two assumptions can cause an increase of the compliance costs. Thus the CM

estimates can be considered as the lower bounds of the compliance costs.

In each scenario, I separated the compliance costs into two categories: the farm cost and the sector cost. I estimated the compliance costs with current 23 million of acres in the CRP, and with the CRP enrollment expanded to 40 million acres. The 31 production regions (Figure 1) were employed as the geographic unit in which the data were prepared and the costs were computed. The results, however, were summed and presented in ten USDA production regions.

COMPLIANCE COSTS WITHOUT EXEMPTION

I employed the NRE linear programming model (Huang, et al 1988), a reduced version of 1985 RCA model (English et al 1987) as a tool to the compliance costs. The model used the 1980-1982 average crop yields and production costs and 1982 commodity prices. The model had 31 production regions. Each region in the model was considered as an independent production area. The model allowed crop rotation, cultivation practice and land use to change independently in each region. It used the projected 1990 national crop production as the basis to estimate regional production according to the 1985 regional production distribution pattern. The estimated regional production levels provided the maximum levels of crops production in each region. I designed the following four computer runs to estimate the costs:

1. Base run with 23 million acres in the CRP.

2. Compliance run with 23 million acres in the CRP

3. Base run with 40 million acres in the CRP

4. Compliance run with 40 million acres in the CRP.

The current CRP enrollment acres (23 million acres) were subtracted from the total land available in each producing region. The current CRP acres were proportionally increased and subtracted from the total land base for the runs with 40 million acres of CRP.

In the base run the production activities consisted of various combinations of crop rotation tillage and conservation practice. The number of acres currently in the conservation tillage, however, was limited to 35 percent of the total crop acres in each region. In the compliance run, the production activities with soil loss less than or equal to T were used while 35 percent in tillage restriction was removed.[2]

RESULTS

Table 1 displays regional impacts summarized from the solutions of the four scenarios. As shown in the Table, the compliance has different impacts on the regions. The Northeast, Appalachian, Corn Belt, and Lake states would gain from the compliance[3], while the Southeast, the Delta States, the

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[2] The removal of the 35-percent constaints also allows a possible expansion of conservation tillage practices on the non-erodible cropland in some regions. The effect were substracted from the the solutions.

[3] Again this is aggregated results. It is possible some unfortunate farms in these regions may experience economic loss because these farms may not have resources to adjust production for the compliance or may have

Northern Plains, the Southern Plains, the Mountain, and the Pacific regions would suffer from the compliance.

Those regions with the gains benefit from the expansion of the conservation tillage practices which have less operation costs than the costs of conventional tillage practices. As the tillage-restriction is removed in the compliance run, the use of conservation-tillage becomes the dominate practice in these regions. The Corn Belt, especially, gains most from expanding the conservation tillage practice.

The reason that some regions suffered from the compliance is due mainly to reduction of crop production from the highly erodible cropland. The loss particularly becomes significant in the Plains states and Mountain states. The two sums shown in the Table 2, 1.83 and 1.65 billion dollars respectively, are aggregate sector (compliance) costs, with the assumption that any gain in one region can be used to cover any losses in other regions. If the gain or loss from one region cannot be transferred to other regions, the farm (compliance) costs are the sum of losses only from the regions appearing to have economic losses from the implementation of the compliance. The farm compliance costs are estimated to be 2.88 and 2.67 billion dollars for 23 and 40 million acres enrolled in the CRP.

Compliance can affect crop production differently. It causes 47 percent reduction in cotton, 40 percent in sorghum, 29 percent in wheat, 21 percent in silage, 20 percent in barley and 11 percent in hay under the two CRP

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highly erodible cropland which may not be able to comply.

enrollment scenarios. Non-irrigated cotton and sorghum production and wheat in rotation with summer fallow are the losers. The reduction in hay appears to contradict the belief that more hay acreage will be expanded in reducing soil loss. However, as indicated in the solution, the reduction is caused by the reduction in profit in adopting the crop rotation in which hay is the major crop. The compliance also causes a 20 percent production increase in soybean and 1 percent increase in both corn and oats. The main reason for expansion of soybean on the cropland released by those suffering crops mentioned earlier is because soybean production can be in compliance with practicing conservation-tillage and non-till.

As shown in the Table 2, an expansion of the CRP enrollment to 40 million acres from 23 million acres, appears to have a small marginal reduction in compliance costs. This is because the marginal cropland was allocated for the CRP and removal of these acres from the compliance only caused a small reduction in compliance costs as CRP acres expanded.

In summary, under the assumption that farmers will be able to cover their losses from one crop in one year by the gains from other crops in the following years through crop rotation practices, the compliance will cost farmers $2.88 and $2.66 billion dollars respectively for 23 million and 40 million acres of CRP enrollment. These costs mainly come from production reductions. The costs establish an upper bound of the compliance cost mainly because some exemptions will be allowed in the regions where significant production reduction is to occur.

Under the assumption that the gains from one region can be transferred to cover the loss of other regions, the compliance will cost at least $1.8 and $ 1.6 billion for enrollment of 23 and 40 million acres in the CRP. It is clear that without some kinds of the exemptions available to farmers, the compliance will cause a significant net income loss to the U.S. farm sector.

COMPLIANCE COSTS WITH EXEMPTIONS

An exemption from the T restriction will be allowed to individual farms in some regions where the implementation of the compliance can cause economic hardship to farmers in the regions. Crop production will be allowed on the erodible cropland, even though a farmer cannot reduce the soil erosion of his cropland to T value. The exemption rule may vary among regions because of the difference in regional characteristics. In this analysis, farmers in a region where the soil erosion cannot be reduced to or below T without reduction of crop production will be allowed to employ the currently available best tillage conservation practice to reduce soil erosion even though the practice could not reduce soil loss to T.

I employed a cost-minimization (CM) LP model to estimate the compliance costs for 23 and 40 million acres of CRP enrollment. For the both enrollments, the method estimats changes in production costs of maintaining a level of production with - and without - the compliance. The model requires each region to maintain a fixed level of crop production in both base and compliance runs. The base run has production activities. Each of

them is a combinationof crop rotation, and conventional, conservation, non-tillage tillage practices, and contour or terracing field operation. In the compliance run, the model only usesd the production activities with soil erosion less than or equal to T in each region. The difference in production costs between the two runs determines the compliance costs.

The results from the compliance run show that the shaded regions in Figure 1 would have problems meeting production demands while in compliance. The problem is due to lack of available production practices which can reduce soil loss to T. For instance, in regions 20, 21, and 24, due to arid condition, erosion rates cannot be reduced to T for the non-irrigated cropland under currently available tillage practices.

I therefore conducted a second compliance run in which I relaxed the fixed crop production demand in those problem regions. I used the results of the second compliance and the base run to compute the compliance cost of the non-problem regions. In the problem regions, I used a partial budget (PB) method to calculate the compliance costs. In using the PB method, I used the optimal production activities (crop rotation and tillage conservation practice) which appeared in the base run as the representative activities. I changed each of the activities to a strip-cropping in combination with either a conservation tillage or a no-tillage practice and used the cost difference between the optimal and the strip-cropping production activity to compute the compliance costs.

RESULTS

The results are summarized in the Table 3. The compliance will is to cost farmers $102 and $86 million dollars for enrollment of 23 and 40 million acres in the CRP. I obtained those two figures by summing the losses only from the regions suffering from the compliance. I assumed that farmers in the region had complete flexibility in adjusting production practice and resource use in response to the compliance. I also assumed that a farmer could cover his loss in one crop by gains of the other crops within the region. This assumption might not be valid because all farmers in the region would not have identical cropping patterns. Thus, I expect that the costs can be higher. For this reason I expect that the estimates are likely to be the minimum compliance costs to farmers. Any deviation from the assumptions I made will increase the compliance costs.

The compliance to the farm sector as a whole is to reduce production costs $166 and $143 million dollars respectively under the two CRP enrollment scenarios (Table 3). These savings in production costs assume that the gains from production reduction in one (USDA) region can be transferred to other regions where farmers experience an increase in production costs. These two figures could also be used as maximum benefits (or minimum costs) to the farm sector because of the compliance. These two figures could be the lower bounds of the sector cost.

The regions where compliance would cause an increase in production costs are Delta, Southeast, Northern and Southern plains. It should be noted that in computing the compliance cost, no exemption was given to the farmers in the

Delta and the Southeast regions. The Northern and Southern regions insure the cost even though the farmers in those two region are exempted. An increase in production costs in cotton is the main reason for the compliance costs in the Delta, Southeast and Southern plains. The regions gaining from compliance are the Corn Belt, Northeast, Appalachian and Lake States. Their gains are mainly from converting the convention tillage to the conservational practice and readjusting land use change.

Soil saved from the conservation compliance are shown in Table 4. The national averages of annual reduction of soil loss are 768 and 718 million tons under the enrollment of 23 and 40 million acres in the CRP. In terms of per acre soil reduction, the national averages are 2.4 and 2.1 tons per acre based on acres in production in each region. It should be noted that I used the PB method to compute the soil loss in the Northern and Southern Plains, Mountain and Pacific regions, and I used the CM method to compute the soil saved in the rest of the regions. The Delta States appear to have the highest reduction in soil loss in terms of per acre or percent basis.

SUMMARY AND DISCUSSION

Figure 2 and 3 display the estimated farm costs with - and without - the hardship exemption. Under the no exemption scenario, the compliance will cost 2.88 and 2.66 billion dollars annually, respectively, for 23 and 40 million acres in the CRP. Under the exemption scenario, it will cost 102 and 86 million dollars annually, respectively, for the corresponding levels of CRP enrollment.

Because the PM estimates include both lost income from the production reduction and increased production costs from a change of production practices, and because there is a strong possibility that the "exemption" is likely to be granted in some problem regions, I consider the no-exemption estimates as the maximum level the compliance costs to farms under the assumed price levels. However, the costs will be higher as the expected commodity prices used in the computation exceed the 1982 prices. Because the CM estimates assume farmers have complete flexibility in adjusting crop production to minimize production cost in response to the compliance, I consider the exemption estimates as the minimum level of the compliance costs. Those PM and CM estimates form a range of the compliance costs to farmers. The expected compliance costs under two CRP enrollment scenarios are likely to fall within the ranges. The exact costs will depend on what extent the exemption is given to the farmer in the problem (Western) regions.

Figure 2 also displays the compliance costs estimated by Babarika and Dicks (BD), English and Frohberg (EFI), and Putman and ALT(PA). These estimates are within the range of the compliance costs estimated in this report. The EF and CM estimates are comparable because they are derived from treating the same amount of highly erodible cropland. Theoretically, the EF estimates should be equal to the CM estimates because both are obtained from the cost-minimization linear programming model. The discrepancy is likely due to the different assumptions used in dealing with the problem regions. The PA and PM estimates conceptually are comparable because both treat

compliance costs as lost net farm income. However, the discrepancy between these two estimates are due to the fact that the PA estimate focus only on the cost of treating water erosion while the PM estimates focuses on the cost of treating both water and wind erosion. As expected the PA estimates are less than the PM estimates.

The compliance, with no exemption, will reduce farm net income at least $1.8 and $1.6 billion under 23 and 40 million acres enrolled in the CRP, respectively. Under the exemption assumed in this study, the farm sector as a whole could gain at most $166 and $143 million under the two levels of the CRP enrollment, mainly from the saving of production costs resulting from conversion of current tillage practices to conservation tillage practices.

Implementation of conservation compliance has differential economic impacts to regions and to commodities. Without exemption, regions which are likely to incur compliance costs are the Southern Plains, Mountain, Northern Plains, Pacific, Delta States and Southeast. Crops which are likely to be affected in production reduction are cotton, sorghum, wheat, silage and barley.

Even if the exemption is granted, some farmers in Northern and Southern Plains will still incur increased production costs if they are required to adopt the best production practices currently available in reducing soil erosion while maintaining their production levels.

Under the assumed exemption scenarios, the compliance would save 768 and 718 million tons of soil for the CRP enrollment level aof 23 and 40 million acres in the nation. In terms of tons of soil saved per acre, the compliance would reduce soil erosion 39 and 38 percent under the two CRP enrollment scenarios.

POLICY IMPLICATIONS

The implementment of conservation compliance will affect the objectives of commodity programs and vice versa. A farmer who expects not to be in compliance and will not be in the commodity programs if the compliance is to cost him more than the benefit which he expects to receive from commodity programs. A change in either the compliance costs or the program benefits could affect farmers' participation in both programs. When the number of farmers who participat in the commodity programs is less than the programs' target, the objective of the commodity program could suffer. Similarly, as fewer farmer participate in the compliance commodity program, the objective of reducing soil erosion through conservation compliance will be defeated. Implementing the compliance or the commodity programs cannot be conducted separately. Good estimates of the program benefits are essential for designing policy strategies to achieve sucessful implementation of the compliance in 1995. The analyses presented in this report clearly indicate that given the magnitude of the estimated compliance costs and the current program benefits, most farmers in the regions expericing wind erosion problems are likely not to participate in the compliance.

In order to implement the compliance the condition of commodity market will

have to be considered. At the time of high commodity prices, a farmer can be expected not to participate in compliance because high return from the market will reduce the farmer' participation in the commodity programs and thus in the compliance. This could happen if the market prices singnificantly exceed the target prices of the commodity programs. On the other hand, at a time of low commodity prices and high government benefits, a farmer is expected to participate in the compliance if the benefit significantly exceeds the costs.

Another policy implication which needs to be examined is the budget trade-off between the conservation compliance program (CCP) and the conservation reserve program (CRP) currently implemented. Both programs are aiming to reduce soil erosion and can be substitued for one another in minimizing soil loss. However, the number of acres which need to be in the CCP is far greater than the number of acres eligible for the CRP and therefore quantity of soil saved can be greater. An expansion of the CRP enrollment requires an increase in government payments for the additional cropland enrolled and costs-sharing for establishing vegetation, while an implementation of the CCP will not cost the government unless a cost-sharing program is used to provide ecomonic incentive for farmers to comply. Thus the CCP can be a better tool to reduce soil erosion when the nation is in shortage of commodity supplies. It will be less expensive to treat the erodible cropland through a cost-sharing program under the CCP than to retire cropland from production under the CRP. Taking land out of production will aggrevate the supply and raise the rental payment. However, in a situation of commodity surplus, the CRP is a better tool to reduce soil erosion. Meanwhile it can

be used to reduce surplus commodities.

While implemening CCP can enhance quality of surface water, it may degrade quality of ground water. Decreases in soil erosion under the CCP will reduce sediment-bound nonpoint-source pollutants to streams and lakes. However, concerns have been raised regarding the environmental soundness of application of tillage and field practices to reduce soil erosion. Adopting conservation tillage practices may require additional pesticides in some areas, as compared to convention tillage. Studies have shown that more herbicides are required on corn with reduced tillage and on soybean with no-till (Hanthorn and Duff 1983). However, studies have also shown that conservation tillage can help in reducing the potential for pesticide leaching by making site conditions conducive to leaching by enhancing microbiological activity and degradation of pesticides (Helling 1986). The overall impact of the conservation tillage currently remains unclear (Logan et al 1988). Contouring and terracing can decrease surface runoff and increase holding water on the field. These two practices increase infiltration and thereby may increase the potential for pesticide leaching (Mass, et al 1984). Thus to implement the CCP with current conservation tillage and field practices, further research results are required to assess the leaching of pesticides to ground water.

Although it is an economic advantage for most farmers to adopt the conservation tillage, farmers still need to have up-front money to buy new farm implements and may suffer additional costs from the obsolescence of their replaced implements. Government loan programs or cost-sharing

programs could be used to provide incentives for farms to participate in the compliance.

CONCLUSION

The conservation compliance could cause a significant reduction of farm net income if farmers are required to reduce the level of soil erosion on highly erodible cropland to the soil tolerance level (T). The loss of net income is due to reduction in crop production. Regions with a wind erosion problem will be mostly affected because of the absence of inexpensive tillage and conservation practices to reduce the erosion. Some farmers in these regions will need an exemption from compliance to avoid economic hardship. Conditional exemption, such as allowing to erode to 2T, rather than granting a full exemption, will be preferred in order to maintain the objective of the conservation compliance program.

The compliance cost, government program benefits and the situation of the commodity markets are the major factors determining the degree of sucess in implementing conservation compliance. The conservation compliance could be sucessfully implemented when government program benefits are higher than the compliance costs and when commodity prices are low. Given the current trend of reducing the program benefits and possibly high commodity prices, farmers are likely to request exemptions because of decreasing economic incentives. Policy makers need to establish rules for granting an exemption in implementing the compliance while maintaining the program's objective, that is to reduce soil erosion from the highly erodible cropland.

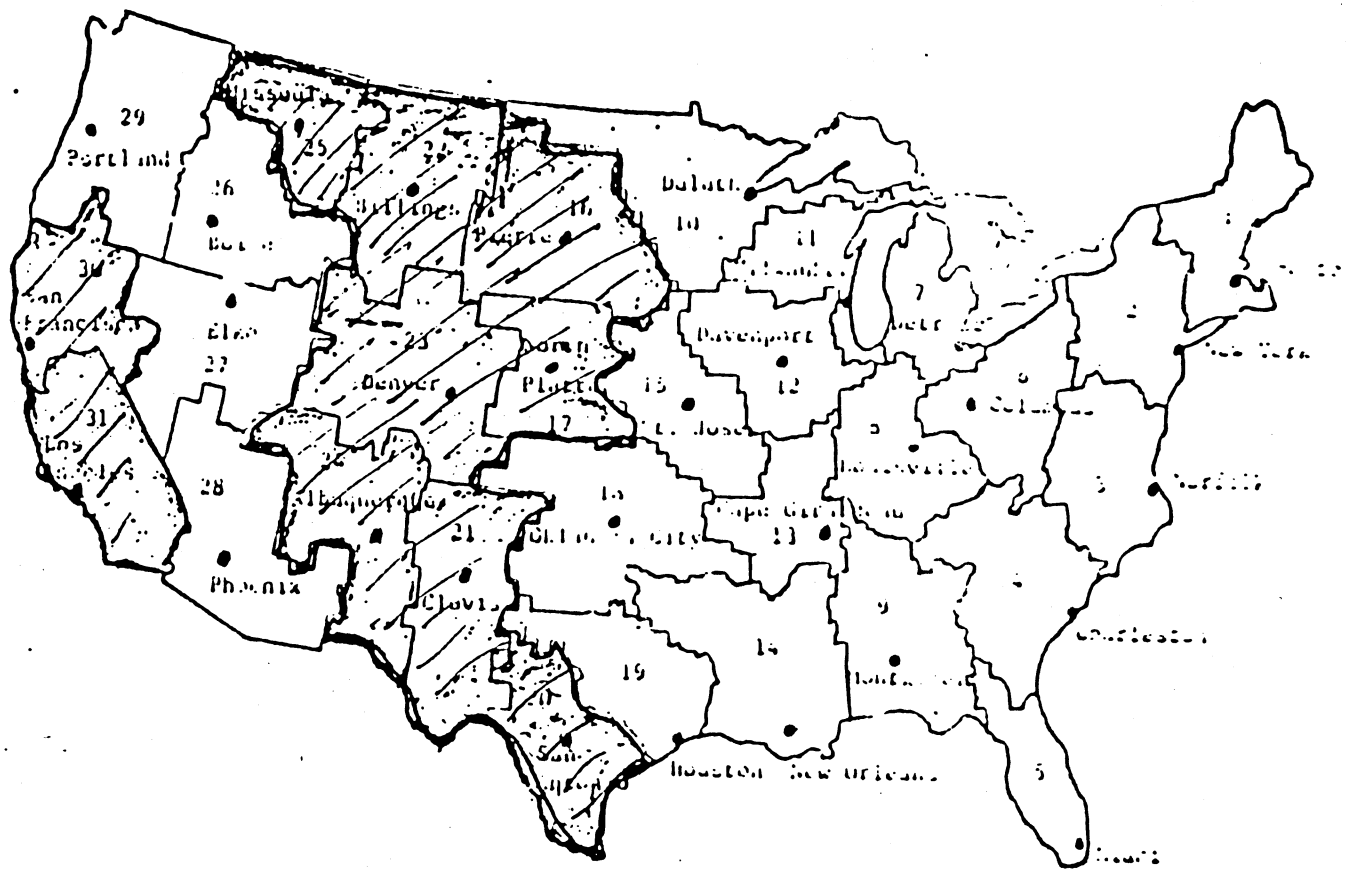

Figure 1. The 31 Regions

Figure 2. Cost of conservation compliance

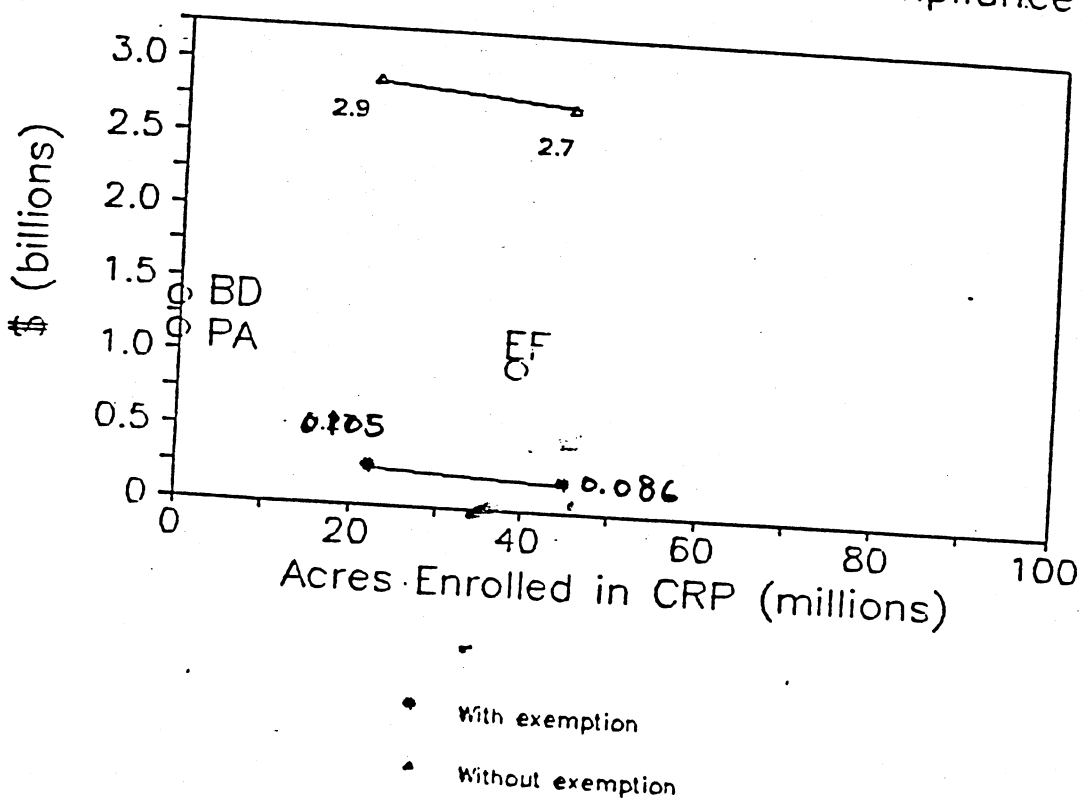

Table 1 Distribution of Cropland to be in compliance

Regions	Total	Non Erodible	CRP Eligible	CRP Eligible Not Enrolled	Non-CRP Erodible	Compliance Acres
		----------1000 Acres----------				
Northeast	14,951	9,803	3,744	3,610	1,404	5,014
Appalachian	19,110	10,976	5,658	4,795	2,476	7,271
Southeast	12,666	6,850	2,283	1,037	3,533	4,570
Lake States	39,105	20,532	5,355	3,282	13,217	16,499
Corn Belt	89,563	43,907	21,165	17,607	24,346	41,953
Delta States	17,445	9,860	2,108	1,330	5,477	6,807
Northern plains	86,646	51,847	16,019	9,979	18,780	28,759
Southern plains	39,675	17,430	15,705	11,605	6,541	18,146
Mountain states	37,347	16,796	16,173	10,954	4,378	15,332
Pacific	15,166	9,314	3,523	21,009	2,329	4,338
U.S. Total	371,675	197,314	91,734	66,209	82,627	148,836

Table 2. Net Income change No Exemption within Conservation Compliance

REGIONS	23 Million Acres in CRP	40 Million Acres a/ in CRP
	---- $ Million ----	
Northeast	60	58
Appalachian	82	82
Southeast	-34	-34
Lake States	279	268
Corn Belt	624	614
Delta States	-120	-119
Northern Plains	-403	-386
Southern Plains	-1,015	-968
Mountain	-1,005	-875
Pacific	-301	-287
Sector Cost (Sum)	-1,833	-1,647
Farm Cost (Sum of Negative Values)	-2,878	-2,664

Table 3. Estimated compliance costs with exemption.

REGIONS	23 Million acres in CRP	40 Million acres in CRP
	---- $ Million ----	
Northeast a/	-27	-15
Appalachian	-43	-34
Southeast	4	3
Lake States	-42	-42
Corn Belt	-148	-138
Delta States	74	63
Northern Plains (exempted)	22	17
Southern Plains (exempted)	3	3
Mountain (exempted)	+0	+0
Pacific (exempted)	+0	+0
Sector cost (Sum)	-166	-143
Farm cost (Sum of Positive Values)	102	86

a/ A positive value means an increase in production cost due to the compliance, while a negative value means a reduction in production cost.

Table 4. Reduction of Soil Loss due to Conservation Compliance

REGION	23 Million acres in CRP			40 Million acres in CRP		
	Tons	Tons/acre	%	Tons	Tons/acre	%
Northeast	47	3.4	59	47	3.4	59
Appalachian	61	3.2	52	58	2.9	49
Southeast	36	3.4	35	22	2.8	15
Lake States	13	0.3	14	13	0.3	15
Corn Belt	127	1.5	35	117	1.4	33
Delta States	111	7.3	79	109	7.3	79
Northern Plains (exempted)	142	2.0	51	138	2.0	53
Southern Plains (exempted)	119	3.8	28	114	3.8	28
Mountain (exempted)	69	2.9	25	58	2.9	25
Pacific (exempted)	43	1.9	37	42	1.9	35
National Average	768	2.4	39	718	2.1	38

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