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The Conservation Crossroads in Agriculture:

Insight from Leading Economists

Examining the Relationship of **Conservation Compliance** & **Farm Program Incentives**



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Executive Summary

The Conservation Compliance program faces an historic moment in its 25-year history as Congress tackles this important policy arena as part of the 2012 Farm Bill discussion. It is appropriate to examine the role and effectiveness of the program in light of the growing global population and increased demands for natural resources such as freshwater and arable land.

The “Conservation Compliance” program delineates the minimum soil conservation outcome on highly erodible cropland that farmers must plan to attain in order to be eligible for participation in most federal farm payment, cost-sharing and loan programs. Its goal is to reduce soil erosion to levels that keep the land productive over the longer term. Under the program farmers who are receiving farm program payments must also not plow up new highly erodible land and must conserve wetlands.

A farmer’s decision whether or not to comply with the minimal conservation requirements in the United States is a question of the cost of compliance—both resources and time—in comparison to the benefits of receiving federal payments, since the program remains voluntary. From the perspective of the American public, benefits include the value of habitat, water quality, maintaining farmland productivity and avoided off-site erosion costs that come from successful implementation of this provision. Understanding the incentives, costs and benefits of Conservation Compliance is crucial right now, as we face high commodity prices and a possible significant shift in the Farm Bill safety net features from direct payments (to which Conservation Compliance is linked) to crop and revenue insurance options (to which Conservation Compliance has not been linked since 1996).

As the 2012 Farm Bill is considered, critical questions include: (1) How effective has Conservation Compliance been in producing environmental benefits? (2) What incentives are required for farmers to comply with and thus assure production of those benefits; and (3) What happens to the compliance incentive and its consequential environmental benefits when the value of the program benefits to which it is tied are reduced?

This policy brief provides a review of some evidence-based causes and consequences of Conservation Compliance, some of the issues involved in decisions about the program including compliance and economic incentives, and summarizes available empirical evidence to identify the likely consequences of diminished incentives for compliance.

This review and synthesis of economic studies of Conservation Compliance program concludes that:

- Conservation Compliance works. The program benefits of Conservation Compliance outweigh the costs of compliance for farmers, even in the absence of conservation programs that assist farmers in meeting many direct costs of compliance.

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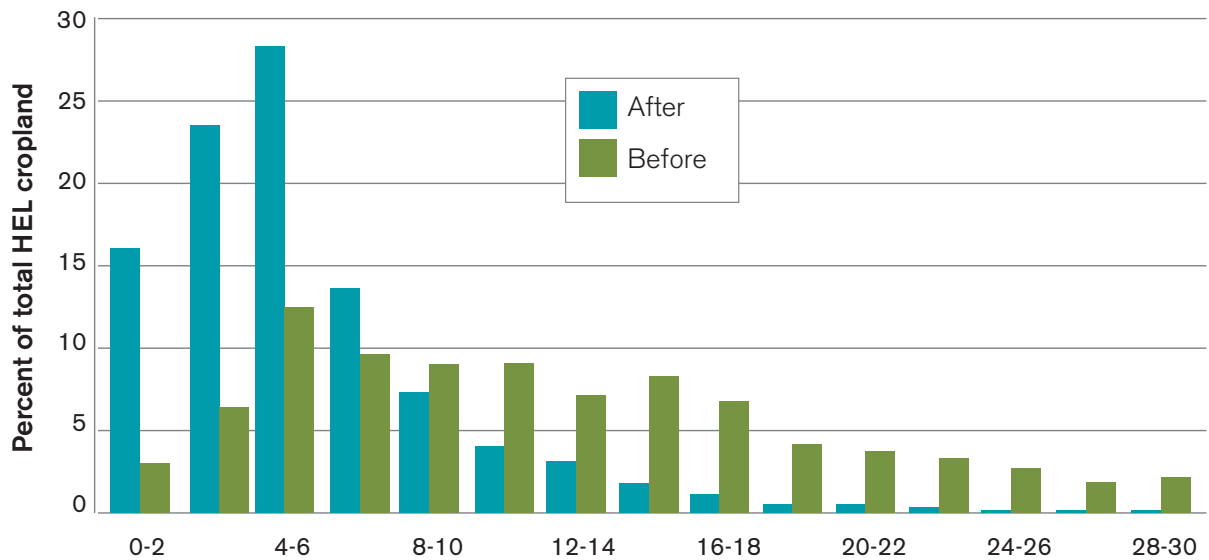
(1) How effective has Conservation Compliance been in producing environmental benefits?

(2) What incentives are required for farmers to comply with and thus assure production of those benefits; and

(3) What happens to the compliance incentive and its consequential environmental benefits when the value of the program benefits to which it is tied are reduced?

- Compliance is still a voluntary decision by the farmer. If the benefits of farm programs do not cover the costs of compliance, then the farmer can opt out of the programs.
- Both the expectation that compliance will be enforced, and the amount of farm program payments that would be foregone under noncompliance are important determinants of the number of farmers who will comply with conservation requirements.
- Incentives for Conservation Compliance have to be strong enough to overcome the value of management and operation time that will be required to comply.
- Expected reductions in traditional farm programs and the rising role of crop and revenue insurance as the main “safety net” for farmers will increase the probability of farmers opting out of traditional programs, and could result in the loss of some of the progress seen from Conservation Compliance in reducing soil erosion and its inherent public costs.

Figure 1 Distribution of highly erodible cropland subject to compliance by soil erosion rate before and after Conservation Compliance, 1997



Source: Economic Research Service, Agricultural Economic Report No. 832 by Claussen et al.

History

Farm programs in the United States are voluntary as a result of the Supreme Court striking down the mandatory production control provisions of the 1933 Agricultural Adjustment Act. By the 1936 Soil Conservation and Domestic Allotment Act, farmers were required to submit conservation-oriented adjustment plans and enroll in the conservation program to participate in farm programs. There was also a cross compliance aspect, as farmers who fell short of the "soil building goal" would have their farm payments reduced.

Later, there was a cross compliance provision in a portion of the 1956 soil bank. In subsequent acts, the benefits of joining farm programs, in terms of price/income supports, insurance or other benefits, needed to outweigh whatever requirements were placed on the farmer for his or her program participation. One compliance requirement placed on farmers in the 1960s to the mid 1980s was that they had to "set aside" (not use for production) a proportion of acreage in order to receive the benefits of price supports or target payments. This was a supply control measure to reduce overall acres and thus raise prices of agricultural commodities.

A new Soil Conservation Act of 1984 denied federal price supports, crop insurance and other program benefits to farmers who plowed highly erodible land. This concept was then included in the 1985 Food Security Act (Randall, Kramer and Batie 1985).

Why Do We Have Conservation Compliance?

Conservation Compliance as we know it today arose out of concerns in the 1970s that farm program incentives for increasing commodity production were inducing farmers to plow up highly erodible cropland.

In 1973, demand for U.S. commodities was growing, export markets were flourishing, and commodity prices were high. The 1973 Agricultural Consumer Protection Act relied on a system of "target prices" that would provide price support payments to farmers only if market prices were to drop below a set level. Farmers responded to this market and policy combination by (in the words of then Secretary of Agriculture Earl Butz) "planting fencerow to fencerow" in 1974 and raising record crops in subsequent years.

In years of high prices, participation in farm programs would not require "set aside" acres, and less productive and possibly problematic land would be released for production. The number of acres under cultivation rose steadily, including land previously used for ranching and other land highly susceptible to erosion. More than 20 million acres were converted to cropland between 1975 and 1981 (Heimlich).

Soil erosion from U.S. lands subsequently increased, as documented by the 1977 National Resources Inventory and the 1980 Resource Conservation Assessment, and could be directly linked to production incentives (Heimlich; Watts, Bender and Johnson). Then associate head of the

USDA's Soil Conservation Service, Norman A. Berg, said that this "underscores a caution ... widely voiced ... that any attempt to raise production must be accompanied by an equally active attempt to conserve natural resources. Otherwise, any production increases that are achieved cannot be sustained." (Berg 1975).

Even as market conditions worsened in the 1980s, increasing amounts of erosion-prone land came into production, often by operators whose perilous financial position precluded their implementation of conservation practices. The problem, then, was neutral with respect to commodity market conditions at that time.

Reichelderfer identified two sources of basic inconsistency between commodity and conservation policy in the early 1980s. The first was the fact that taxpayer support kept erosion-prone land in production even as additional taxpayer support was used to encourage farmers to reduce erosion on that same land. Second was the fact that the eight basic row crops that were eligible to receive farm payments, nonrecourse loans, and federal all-risk crop insurance are inherently more erosive land uses than other agricultural uses.

Estimation of the relationship between farm program participation and soil erosion in critical resource areas of the U.S. concluded that in 1982, between 40 to 65 million acres of U.S. cropland eroding at the unsustainable level of 5 tons per acre per year were operated by participants in USDA commodity or conservation financial or technical assistance programs or both (Reichelderfer 1985).

In recognition of these problems, the legislative option for Conservation Compliance was first introduced by Senator Bill Armstrong of Colorado in 1984 and was incorporated into the 1985 Food Security Act.

Compliance Nuts and Bolts

Under Conservation Compliance, producers are ineligible for many federal farm program benefits if they do not meet the requirements of specific provisions for highly erodible lands (HEL), native sod (“Sodbuster”) and wetlands (“Swampbuster”). Farming new or newly cultivated land requires farmers to limit soil erosion from their land to a minimum specified level. Noncompliance could lead to loss of price and income supports, disaster relief, loans, conservation payments, credit support, and other benefits that the USDA provides to farmers and farmland owners, (Zinn). Program benefits are lost for all the land the farmer operates even if it includes non-HEL land. Conservation compliance applied to crop insurance as well until the 1996 Farm Bill.

USDA estimates that, as of 2011, Conservation Compliance mechanisms applied to just over 100 million acres of U.S. cropland that are considered highly erodible land—this is close to one-third of all commodity cropland under cultivation in 2011 (Claassen 2012).

The mechanisms to achieve compliance with the law on highly erodible land are included in site-specific plans that could include conservation cropping,

crop rotations, conservation tillage, crop residue management, and/or conservation structures. The planning is done in conjunction with experts from the USDA’s Natural Resources Conservation Service (NRCS).

Compliance Effects Depend on Socioeconomic Factors

Participation in Conservation Compliance is voluntary, although failing to do so has a cost. Thus actual and expected costs and benefits are all involved in the decision to meet or not to meet the requirements. There are costs associated with adoption of conservation technology. Hoag and Holloway (1991) show how the decision whether or not to comply relies on costs as compared with the expected benefits of farm program participation. Conservation planning also has transaction costs. Still, when full implementation of Conservation Compliance commenced, Esseks and Kraft (1991) found that Midwest producers were conducive to the required planning for the program.

In the interim, continued formal and informal research on the yield and moisture holding effects of the practices required to keep erosion levels in check has demonstrated that several of the practices are associated with higher profits. Conservation tillage requires less labor and fuel than traditional types of tillage and even with the increased herbicide requirement can reduce costs. The amount of cost reduction and yield impact varies by soil type and weather, but Conservation

tillage frequently results in a modest positive economic benefit for the farmer in many regions of the country. Management of crop residues retains soil moisture and can also increase yields during periods of low rainfall. One reason farmers adopt some form of conservation tillage is the reduced labor and time requirement. What is important here is not necessarily the dollar cost of labor savings, but the reduced time for soil preparation that allows a farmer to cover more land in a timely fashion during the limited spring planting window of opportunity (Uri 1998 and Harper 1999)

Conservation Compliance Works

USDA’s 1997 Conservation Compliance Status Review showed very high rates of compliance with Conservation Compliance provisions, ranging upward of 95 percent. This means that a majority of the land coming under compliance is operated by individuals who found the expected benefits of complying greater than the costs of not doing so. In fact, the cost of implementing conservation practices is generally less than the value of any farm program payments foregone (Claassen et al.). Farmers also are often paid or assisted under the conservation programs for activities that would bring them into compliance.

Claassen et al. illustrate the change in erosion rates on highly erodible cropland before and after Conservation Compliance. Claassen et al. conducted analysis to separate incidental reductions in soil erosion due to changes in land use and

conversion, as well as to identify the specific soil savings that can be directly attributable to Conservation Compliance. Their study estimates that 295 million tons of soil erosion reduction between 1982 and 1997 could be attributed to Conservation Compliance. That tonnage is equal to 89 percent of the 331 million acres of erosion reduction on HEL land that was cropped both in 1982 and 1997, and 25 percent of all soil erosion reduction over that time period. This was achieved both by the adoption of conservation practices and by deterring the cultivation of highly erodible land.

Conservation Compliance could probably work better. Not everyone complies. Esseks, Dixon, Kraft and Furlong conducted a survey of farmers' observations of peers' compliance and found that those who attached a high probability to being detected and penalized for noncompliance expected a greater percentage of their peers to comply. And Giannakas and Kaplan found that when farm program payment levels are low incentives are low ("the program design of Conservation Compliance creates incentives for all noncompliant producers to masquerade as adopters and claim government payments for which they are not entitled") and that higher farm program payments will increase compliance, as there is more to lose from noncompliance.

So, both the expectation that compliance will be enforced, and the amount of farm program payments that would be foregone under noncompliance are important determinants of how many farmers will comply. This has implications for the

scenario that would be created in the absence of farm program incentives.

When Conservation Compliance was written into the 1985 Food Security Act, the Natural Resources Conservation Service (NRCS) was given the responsibility for enforcing compliance. This proved difficult in terms of the traditional technical assistance role of NRCS and the politics of agriculture.

A technical assistance role and an enforcement role are basically antithetical—both cannot be effectively carried out by the same individual. Farmers were reluctant to access NRCS technical assistance in case a Conservation Compliance violation might be seen. In addition, political pressure built against Conservation Compliance and its enforcement so that the Conservation Compliance provisions have been made less stringent over the years. The sod-buster provisions were weakened and the 1990 Food, Agriculture and Trade Act allowed "good faith" waivers and set up graduated penalties for farmers and ranchers out of compliance. The 1996 Farm Act exempted crop insurance from conservation requirements and allowed "economic hardship" waivers and a one-year grace period for farmers deemed out of compliance. The 2008 Farm Act shifted decisions on "good faith" determinations from local USDA offices to district or state offices (Schnepf 2012).

Thus the current system is largely self-certification by farmers and has greatly reduced penalties as compared with the 1985 Act. This means that enforcement of

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Conservation Compliance has likely been a decreasing factor in farmer's adoption of compliance activities and economic incentives may be even more important.

The Complexity of Program Incentives

In the original Compliance Provisions of 1985, crop insurance payments were part of Conservation Compliance. The elimination of Conservation Compliance from the crop and revenue insurance title in 1996 was based on several factors.

First, there was an assertion at a critical time in the development of crop insurance that Conservation Compliance requirements would lower the participation in crop insurance programs. This has not been validated by any research.

Second, farmers paid at least in part for the insurance and, in this sense, it was argued that it was not a program benefit. However, the reduced premium passed on to farmers by subsidized crop insurance agents still remained. In 1996 the amount of federal subsidy for the crop insurance program was lower than most other program costs. However, the crop insurance subsidy, which was \$1.5 billion in 2002, had risen to \$7.4 billion in 2011. The Congressional Budget Office estimates an average annual insurance subsidy cost of \$9 billion a year over the next decade.

Crop weather and revenue insurance have become the main federal expenditure to aid farmers. This has been recognized as an important issue with the passage in June 2012 of an amendment to Senate Bill S. 3240 that would again link

Conservation Compliance to crop insurance (and revenue insurance) premiums.

A patchwork quilt of federal farm subsidies accrue to farmers today from the direct payments (likely to be discontinued), to countercyclical payments and marketing loans, disaster payments, crop insurance subsidies and conservation payments.

Insofar as a payment under a program serves as incentive for Conservation Compliance, then the question is which programs have farmers signed up for that might provide this incentive. This varies widely across different regions and crops. As an example, in the Upper Midwest, on average, the largest program benefit is the direct payment and in the Northern Great Plains it is often the crop insurance subsidy (Claassen). One might generalize that the loss of the direct payment subsidy would lower the cross compliance incentive for farmers in the Upper Midwest, especially if cross compliance was not tied to the crop insurance title. At the same time, the loss of the direct payment in the Northern Great Plains would be more than offset if Conservation Compliance were added to the crop insurance title because this is the larger program benefit for many farmers in that region. In this example, if the direct payment is eliminated it would be important to have Conservation Compliance in the crop insurance title to maintain an economic incentive for farmers in both regions to come under compliance.

The Economic Research Service estimates that if direct payments (to which Conservation Compliance is tied) are discontinued, that change would

“sharply reduce” compliance incentives for 141,000 farms on 65 million acres of land (Claassen). Much of the federal subsidy expenditure represented by the direct payments program would move to crop insurance which, as in the recent past, might not be covered by Conservation Compliance.

Soil Erosion Rates to Rise in the Absence of Farm Program Incentives

Current 2012 Farm Bill policy discussion is focusing on the elimination or reduced use of direct and countercyclical payments to farmers. Economic research suggests that not everyone now complying with minimum soil conservation standards on sensitive land would continue applying required conservation practices in the absence of Title I programs that provide significant farm program benefits. It all depends on stewardship ethic, relative costs and benefits to the farmer, and the geographic distribution of any remaining subsidies relative to the location of highly erodible land.

In the absence of or with large reductions in farm program benefits, farmers who have profited from or already incorporated sound soil management into their routine operations, are likely to continue the good practices that Conservation Compliance may have nudged them to adopt decades ago. But those for whom Conservation Compliance was a deterrent only because they faced the loss of substantial expected farm program payments, there may be no

incentive to maintain soil management practices or restrain from “breaking sod” by newly cultivating highly erodible land.

Farmers’ individual decisions about whether or not to continue the practices that keep highly erodible land from being blown or carried away by water will be based on several factors:

- **Commodity prices:** Current commodity prices are high, and likely to remain high for the foreseeable future. The influence of high prices on farm management decisions is to increase production. If production does not include conservation practices, the overall effect is likely to be an increase in soil erosion and other environmental damages.
- **The finite agricultural land base:** With the currently strong and expected future price incentive to produce more, one option for farmers is to further intensify production on existing land. Another option would be to expand on suitable land that might have been farmed in the past. Yet, for the first time in U.S. agricultural history, most of our land suitable for agricultural production is already being farmed. The amount of suitable farmland in the Conservation Reserve Program is limited. When high prices drove farmers to expand corn production in 2007 to 2008 the land for more corn came primarily from acreage devoted to other crops. Current intensification or expansion under land constraints has increasingly severe environmental consequences.

- **Relative costs and benefits of complying:** If the farm program payment benefit of compliance is less than the cost of complying,¹ farmers seeking to maximize net farm income will choose not to comply (Hoag and Holloway 1991). Likewise, if the penalty for noncompliance is lower than the cost of complying, farmers will not comply.

Costs to the farmer are not just the dollar costs of implementing practices or the foregone income from highly erodible land that cannot be tilled. Time is often an overlooked factor. As the adoption of conservation tillage has been stimulated by its time (and labor) saving aspect, so too is management time an increasingly scarce commodity in agriculture. Incentives for Conservation Compliance have to be strong enough to overcome the value of management and operation time that will be required to comply.

Conservation Compliance can also be justified from a public goods perspective. European practice, for example, is based on the notion that farmers have a basic stewardship responsibility that the public has a right to expect. Thus Europe has stringent conservation laws that enforce this public perception to a given level of stewardship. Farmers are only offered incentives if they go beyond that basic level. That has not been the case in the U.S. where farmers have been largely incentivized to meet stewardship levels with payments or other benefits.

During any debate about the attachment of Conservation Compliance to crop and revenue premiums, the looming question is whether there is a basic level of stewardship, in this case erosion control, sod-buster and swamp-buster, that the public can demand through Conservation Compliance without incentives.

But the issue of enforcement of Conservation Compliance has not been fully addressed as a policy concern. Currently the major “enforcement” of Conservation Compliance is moral suasion and the good faith of farmers. In states like Iowa, the majority of farmers support Conservation Compliance. We do know that some threat of discovery helps increase compliance and we also know that the bulk of farmers who comply resent those who do not comply and do not get caught. Some suggest a more effective system of spot checks carried out at a state or national level would reduce the pressure on local conservation technical assistance personnel.

Concluding Observations

Conservation Compliance has resulted in reduced soil erosion and provided the allied environmental benefits of water quality and soil health.

Compliance has leveraged expenditures already made on other farm programs. There is no additional outright cost to gain the benefit of reduced soil erosion.

¹ The cost of compliance includes the costs of practices required to meet compliance, as well as the opportunity cost of reduced revenue if yield reduction ensues.

There are administrative costs of program management and enforcement, but these are minimal in comparison to the value of the conservation benefits gained. Insofar as the majority of farmers support the need to reduce erosion and mitigate other negative impacts of agriculture, enforcement costs should be low.

From all available research results we can conclude that the program benefits of conservation compliance outweigh the costs of compliance for farmers, especially as conservation program benefits are

available to meet many direct costs of compliance. Compliance is still a voluntary decision by the farmer. If the benefits of farm programs do not cover the costs of compliance, then the farmer can opt out of the programs.

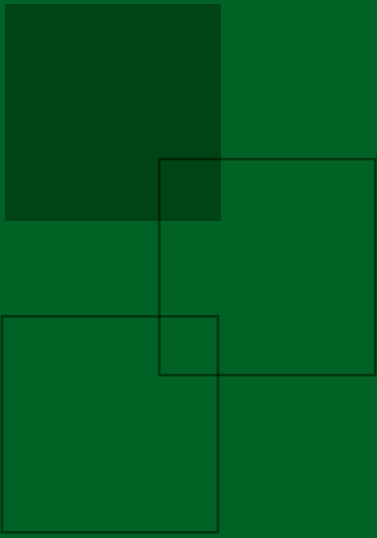
Expected reductions in traditional farm programs and the rising role of insurance as the main “safety net” for farmers will increase the probability of farmers opting out of traditional programs. Furthermore, if Conservation Compliance is not tied to strong “incentives” like crop and revenue

insurance premiums, from the above literature review it is likely the trend toward reducing soil erosion from farmland will be reversed.

Farmers’ experience with conservation practices that reduce both erosion and costs of production would keep soil loss controlled on some acreage. But high commodity prices and low cost insurance provide powerful incentives for expanding production, with consequential increased soil loss from newly cultivated land and land on which current costs of compliance are high.

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