Chapter 5.3

Compliance Provisions for Soil and Wetland Conservation

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Compliance provisions require Federal farm program participants to conserve soil (on highly erodible cropland) and wetlands. Conservation compliance, which requires application of a soil conservation system on highly erodible cropland, may have reduced annual soil erosion by as much as 295 million tons, accounting for 25 percent of all erosion reduction between 1982 and 1997.

Introduction

To improve consistency between commodity and conservation programs, compliance provisions require farmers to meet some minimum standard of environmental protection on environmentally sensitive land as a condition of eligibility for many Federal farm program benefits—including farm commodity program payments. Under current compliance requirements, farm program eligibility could be denied to producers who:

- Fail to implement and maintain a Natural Resources Conservation Service (NRCS)-approved soil conservation system on highly erodible land (HEL) that is currently in crop production and was cropped before 1985—a provision known as conservation compliance;
- Convert HEL to crop production without applying an approved soil conservation system—referred to as sodbuster; or,
- Produce an agricultural commodity on a wetland converted after December 23, 1985, or convert a wetland after November 28, 1990, in a way that makes the production of an agricultural commodity possible—referred to as swampbuster.

Producers who violate compliance requirements risk losing all Federal farm programs payments—not just those payments that were (or might have been) made on the HEL or wetland in question.

Sodbuster and swampbuster provisions became effective on December 23, 1985, when the Food Security Act became law. Conservation compliance was implemented over a period of years. By 1990, producers growing crops on HEL were required to have an approved conservation plan. Plans were developed site by site to account for the broad diversity of resource conditions, cropping patterns, and producer preferences. By 1995, producers were required to be actively applying the conservation systems specified in their

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conservation plan. All three types of compliance have been continued in subsequent farm bills (1990, 1996, and 2002).

Compliance was originally designed to prevent farm support and conservation programs from working at cross-purposes. In the 1970s, evidence suggested that farm commodity programs encouraged crop production on relatively erosive land, even as conservation programs attempted to mitigate erosion (Watts et al., 1983; Reichelderfer, 1985; Heimlich, 1986). Compliance eliminated the farm program incentive to expand production onto HEL.

Compliance mechanisms can also leverage farm program payments for environmental gain—without additional payments—to the extent that producers adopt conservation practices to retain farm program eligibility. Compliance mechanisms are a unique policy tool, distinct from—and in some ways more effective than—conservation payment incentives (e.g., cost sharing). In particular, compliance may be more effective than payments in deterring environmentally harmful actions. For example, a hypothetical subsidy program designed to prevent wetland drainage would require policymakers to pay for protection of all wetlands on agricultural land—a potentially expensive proposition—or decide which wetlands are sufficiently vulnerable to agricultural conversion as to warrant protection—a potentially difficult task (Heimlich and Claassen, 1998b). In contrast, swampbuster penalties are assessed only when a violation occurs, eliminating the need for broad-based subsidies or the need to anticipate the potential for a violation to occur on any given wetland. No direct costs are imposed on producers who comply, although there may be an opportunity cost associated with production forgone on wetlands.

The Compliance Incentive: Producers Weigh Benefits Against Costs

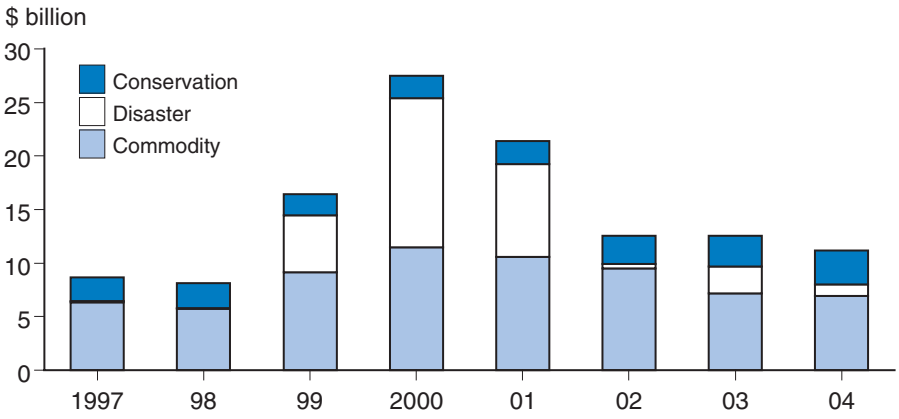
In making decisions about land use and production practices, agricultural producers respond to a range of market signals in the context of available technology, the resources they control (e.g., land), and their own skills and preferences. Any change in land use, investment (e.g., new machinery), or production practices (e.g., reduced tillage) involves both benefits and costs. Likewise, producers who decide to meet compliance requirements are likely to do so because the benefits of compliance outweigh the costs.

Farm Program Benefits and Compliance

Farm program benefits subject to compliance—including farm commodity, disaster, and conservation programs—ranged from $8 billion to $27 billion between 1997 and 2004 (fig. 5.3.1). Farmers may also become ineligible for loan and loan guarantee programs that offer reduced interest rates or improved access to credit. Whether these benefits are large enough to leverage conservation depends on whether they exceed the cost of required conservation actions. Because farm program payment levels are set independent of the compliance requirement, there is no guarantee that they will exceed compliance costs. Correlation between payments and conservation needs is critical to the (environmental) success of any compliance requirement, as on highly erodible cropland (fig. 5.3.2).

Figure 5.3.1

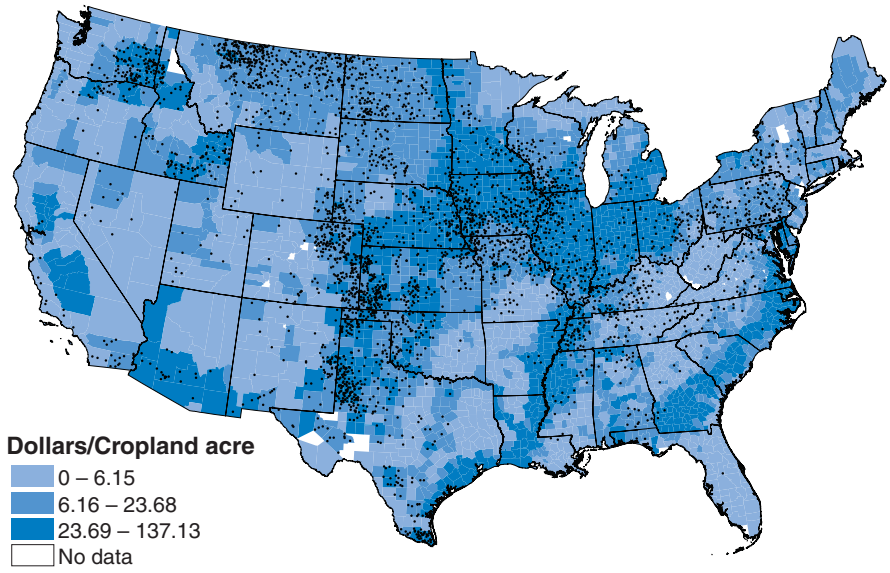
Farm program payments subject to compliance



Source: ERS, based on data from the Office of Budget and Program Analysis, USDA, the Highly Erodible Land and Wetland Conservation final rule (7 CFR 12, 61 FR 47019), and communications with national program staff, Farm Service Agency, USDA.

Figure 5.3.2

Commodity payments and Highly Erodible Land (HEL) cropland



• 1 dot = 25,000 acres of HEL cropland.

Source: Farm Service Agency and NRI.

Compliance Costs

Producers may incur direct costs and/or opportunity costs in meeting compliance requirements. Direct costs include the cost of applying and maintaining a conservation system, which depends on the erosion standard to be met and the characteristics of the land (e.g., inherent erodibility). As originally envisioned, conservation systems would be designed to reduce soil erosion to the soil loss tolerance ("T") level—the level that a soil can sustain without long-term productivity damage. Before conservation compliance was implemented, however, USDA determined that reducing erosion to

T would be very costly on some land—so costly that a considerable amount of HEL cropland would be unprofitable to farm (Canning, 1994). In the meantime, doubts about the scientific validity of T were being voiced (Cook, 1982) and research showed, increasingly, that water quality damage from sedimentation (which is unrelated to T) exceeded the value of productivity loss (see Ribaudo, 1986; Ribaudo et al., 1990).

As eventually implemented, producers could meet compliance requirements by designing conservation systems to obtain "significant" erosion reduction using "technically and economically feasible" practices, rather than reducing erosion to T. In most cases, conservation systems could be based on inexpensive management practices such as conservation cropping, crop residue management, and conservation tillage. More than half of the HEL cropland acres that meet the Conservation Compliance requirement have approved conservation systems made up of these three practices alone or in combination (USDA, 1999).

Producers may also incur opportunity costs when they refrain from converting additional HEL or wetland that could have been profitably cropped. With wetlands, the opportunity cost equals the value of the land for crop production, less the cost of drainage and land use conversion (e.g., removing trees). HEL not previously cropped can be converted to crop production if an approved conservation system is applied. Compliance cost equals the lower of (1) the opportunity cost of forgoing agricultural production, or (2) the cost of applying a conservation system. On land not cropped before 1985, however, conservation systems must reduce erosion to the T level—a potentially expensive task.

Enforcement

USDA's major enforcement tool is the annual Compliance Status Review (CSR). Each year, through the CSR, USDA field staff assess HEL and wetland compliance on a sample of "tracts" that are identified as part of farms receiving Federal farm program payments subject to compliance provisions. Some tracts are selected at random from the national Farm Service Agency (FSA) database, while others are added by State FSA offices because of potential for noncompliance. For example, tracts on which temporary variances or waivers were previously granted must be checked to establish a return to full compliance.

According to the CSR, overall compliance is high. Based on 1997 CSR data, 95.9 percent of producers subject to compliance were actively applying approved conservation systems. In more recent years, the CSR has shown compliance rates of roughly 98 percent. However, a recent GAO report (2003) identified a variety of deficiencies in the CSR, among them the methods used to select the sample for review, consistency, and clarity of guidance provided to local offices, data handling and analysis, failure to cite producers for significant deficiencies, and inadequate justification for waiver of penalties. This suggests that the actual level of compliance—and whether environmental gains have been realized—cannot be clearly understood using CSR data alone.

What Have Compliance Mechanisms Accomplished?

The rate of soil erosion on U.S. cropland and the rate of wetland drainage for agricultural production have dropped significantly in recent decades. Cropland erosion fell from 3.1 billion tons in 1982 to about 1.9 billion tons in 1997, a reduction of 1.2 billion tons or just under 40 percent. Wind erosion declined by 542 million tons per year (40 percent), while water erosion declined by 633 million tons per year (38 percent). The rate of wetland conversion for agriculture has also declined from 235,000 acres per year during 1974-84 (Dahl and Johnson, 1991) to 26,000 acres per year for 1992-97 (USDA-NRCS, 2002) (see Chapter 2.3, "Wetlands: Status and Trends").

Although these trends coincide with implementation of compliance mechanisms, the trends alone are insufficient to show compliance's efficacy. Environmental gain can be attributed to compliance mechanisms (or any agri-environmental program) only to the extent that the incentive prompted a change in producer behavior. In other words, we can attribute wetland conservation or erosion reduction to compliance only if the producer or landowner would have done otherwise in the absence of compliance. Because producers respond to a wide range of market and policy incentives, isolating the effect of compliance mechanisms can be difficult. To disentangle these effects, a careful analysis is required (Claassen et al, 2004).

Has Conservation Compliance Reduced Soil Erosion?

Between 1982 and 1997, annual soil erosion from cropland dropped by 1.2 billion tons. (Erosion reduction data are from the National Resources Inventory (NRI)). Of this total, 442 million tons occurred on non-HEL land—where conservation compliance did not apply—leaving 732 million tons (fig. 5.3.3). Because compliance was formulated to avoid forcing land out of production, erosion reduction due to land use change (365 million tons, including CRP enrollment) was probably not caused by compliance, leaving 367 million tons. Erosion reduction to levels below the soil loss tolerance (T) level (36 million tons) also cannot be attributed to conservation compliance because conservation compliance required—at most—that erosion be reduced to T. Finally, erosion reduction on farms that do not receive government payments (36 million tons) cannot be attributed to compliance, leaving 295 million tons, or 25 percent of the 1.2-billion-ton reduction in cropland soil erosion between 1982 and 1997.

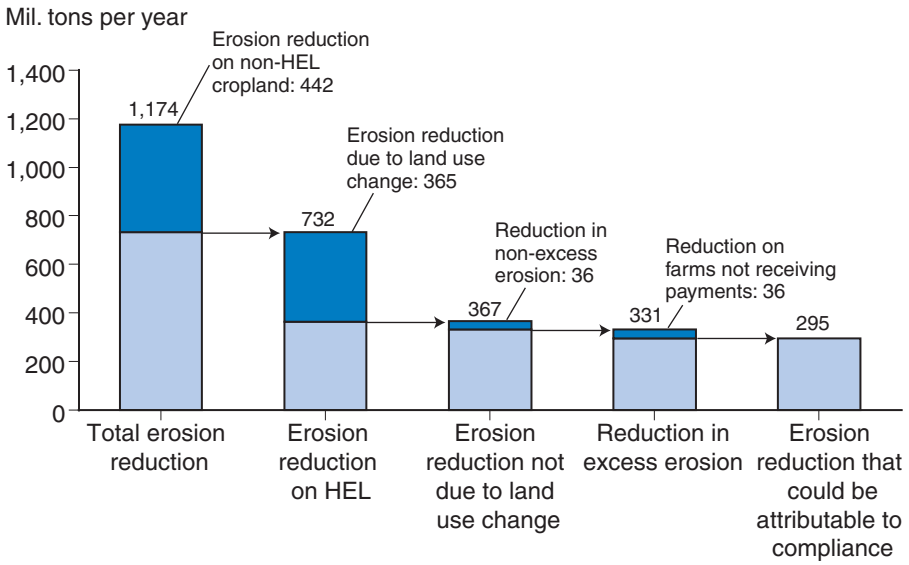
Furthermore, some erosion reduction may have occurred even in the absence of a compliance requirement. For example, conservation tillage can preserve soil moisture where rainfall is limited and can also reduce machinery, fuel, and labor costs, making it profitable for some producers regardless of its effect on soil erosion. Tillage and planting machinery needed to practice conservation tillage became widely available only in the mid- to late 1970s. Because widespread adoption of new practices often occurs over a long period of time, producers who included conservation

tillage in compliance plans may have eventually adopted the practice for economic reasons even without the compliance requirement.

Still, evidence suggests that compliance did have an effect. Reductions in excess erosion (i.e., erosion in excess of T) were larger on farms that received farm program payments than on farms that did not. Excess wind erosion declined by 31 percent on farms receiving payments, but only 14 percent on farms not receiving payments (fig. 5.3.4). Excess water erosion dropped by 47 percent on farms receiving payments and by 41 percent on farms not receiving payments.

Figure 5.3.3

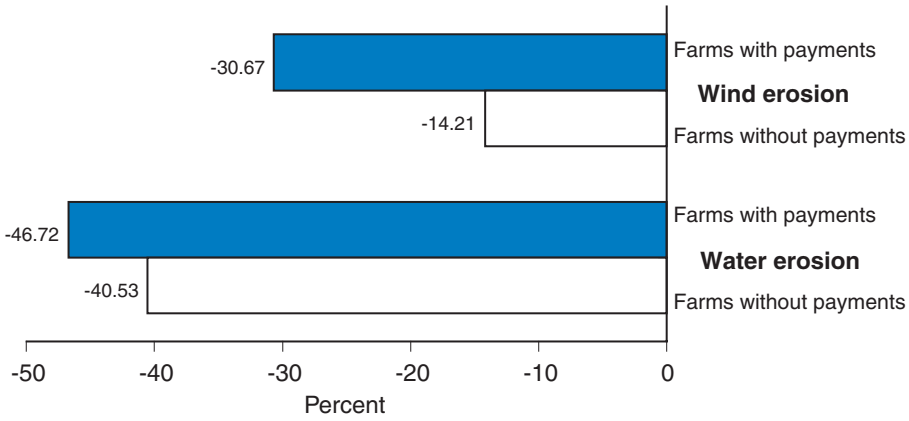
Erosion reduction that could be attributable to conservation compliance, 1982-97



Source: ERS analysis of 1997 NRI and ARMS data.

Figure 5.3.4

Change in excess erosion on HEL cropland on farms with and without payments, 1982-97



Source: ERS analysis of 1997 NRI and ARMS data.

Has Swampbuster Slowed Agricultural Wetland Conversions?

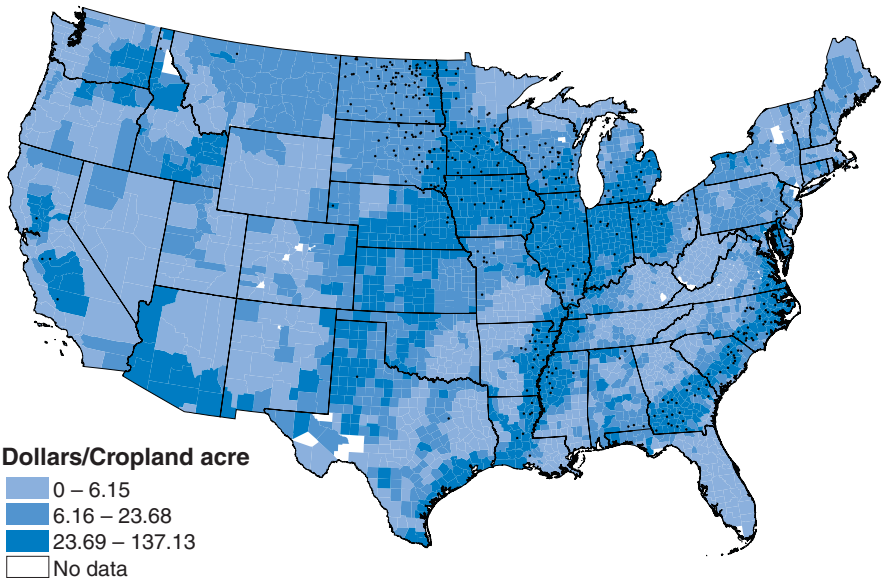
Though wetland conversion for agricultural production has declined over time (see Chapter 2.3), the role of swampbuster is not entirely clear. Swampbuster penalties constrain wetland conversion only when: (1) wetlands are located on farms that participate in Federal programs subject to swampbuster, (2) those wetlands could be profitably converted to crop production in the absence of swampbuster, and (3) other policies (e.g., Section 404 of the Clean Water Act) are not applicable or not effective in deterring wetland conversion.

Many wetlands, ostensibly subject to swampbuster, are in remote areas unlikely to be converted to cropland because they cannot be easily incorporated into an existing farm. Of roughly 90 million acres subject to swampbuster, only 12.9 million are adjacent to existing cropland. These wetlands appear to be located in areas that receive large government payments (fig. 5.3.5).

Even so, swampbuster deters conversion only if conversion would otherwise be profitable. On this question, the evidence is mixed. Some researchers have questioned whether wetland conversion for crop production is profitable even without swampbuster (Tolman, 1997; Kramer and Shabman, 1993). Others, using more detailed data on the potential productivity of wetland soils, suggest that there are wetlands that could be profitably converted to crops in the absence of policy constraints. In the absence of swampbuster sanctions, Claassen et al. (2000) estimate that between 1.5 million and 3.3 million acres of wetlands could be profitably converted to crop production under favorable market conditions.

Figure 5.3.5

Commodity payments and wetlands adjacent to existing cropland



• 1 dot = 25,000 acres of wetlands adjacent to cropland.

Source: Farm Service Agency, USDA.

Finally, swampbuster is just one of a number of policies designed to deter or discourage wetland drainage (see Chapter 5.7 "Federal Laws Protecting Environmental Quality"). Section 404 of the Clean Water Act (CWA) gives the Environmental Protection Agency and the Army Corps of Engineers authority to regulate wetland drainage. Since the January 2001 Supreme Court decision in Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers, however, the extent of that authority with respect to isolated wetlands (which are likely to occur in agricultural areas) has been in doubt (Kusler, 2004). While many State and local governments also have wetland laws and regulations on the books and some have increased wetland regulation since the SWANCC decision, many heavily agricultural States have little wetland regulation (Petrie et al., 2001). In these States, swampbuster may be the only remaining policy disincentive to wetland drainage.

Future of Compliance

Compliance mechanisms have seemingly been effective in promoting soil and wetland conservation. While USDA's Compliance Status Review appears to have flaws, these flaws do not mean that compliance rates are low. Evidence from other sources, primarily the National Resource Inventory (NRI), shows that soil erosion on HEL cropland and wetland conversion for agriculture have been sharply reduced. Farms that receive government payments appear to have reduced erosion more sharply than those that do not receive payments, especially in the case of wind-erodible soils. Nonetheless, enforcement of compliance requirements will continue to be a challenge.

Finally, other problems could also be addressed using compliance mechanisms. Claassen et al. (2004) show that a compliance mechanism could be used to address nutrient runoff from land in crop production by encouraging the use of nutrient management or buffer practices. More generally, 86 percent of U.S. cropland is on farms that receive Federal program payments subject to compliance requirements. Thus, compliance could provide leverage in addressing any agri-environmental issue that occurs largely on land in crop production. However, adding multiple or costly compliance requirements could threaten the goal of income support by increasing the cost of farm program participation relative to its benefits.

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