



United States  
Department  
of Agriculture

Agricultural  
Economic  
Report No.  
832

June 2004



A Report from the Economic Research Service

[www.ers.usda.gov](http://www.ers.usda.gov)

# Environmental Compliance in U.S. Agricultural Policy

## Past Performance and Future Potential

**Roger Claassen, Vince Breneman,  
Shawn Bucholtz, Andrea Cattaneo,  
Robert Johansson, and Mitch Morehart**

### Abstract

Since 1985, U.S. agricultural producers have been required to practice soil conservation on highly erodible cropland and conserve wetlands as a condition of farm program eligibility. This report discusses the general characteristics of compliance incentives, evaluates their effectiveness in reducing erosion in the program's current form, and explores the potential for expanding the compliance approach to address nutrient runoff from crop production. While soil erosion has, in fact, been reduced on land subject to Conservation Compliance, erosion is also down on land not subject to Conservation Compliance, indicating the influence of other factors. Analysis to isolate the influence of Conservation Compliance incentives from other factors suggests that about 25 percent of the decline in soil erosion between 1982 and 1997 can be attributed to Conservation Compliance. This report also finds that compliance incentives have likely deterred conversion of noncropped highly erodible land and wetland to cropland, and that a compliance approach could be used effectively to address nutrient runoff from crop production.

**Keywords:** conservation compliance, Sodbuster, Swampbuster, conservation policy, agri-environmental policy, nutrient management, buffer practices.

### Acknowledgments

The authors gratefully acknowledge the helpful comments of Marca Weinberg, Ralph Heimlich, Alex Barbarika, Jeanne Christie, Skip Hyberg, Jeff Loser, Ed Rall, Marc Ribaudo, Kitty Smith, John Stierna, Keith Wiebe, and Doug Young. We also thank Lou King for editorial assistance and Cynthia Ray and Victor Phillips, Jr. for layout and cover design.

## Table of Contents

<b>List of Tables</b> .....	iii
<b>List of Figures</b> .....	iv
<b>Summary</b> .....	v
<b>Introduction</b> .....	1
<b>Compliance Mechanisms: A Primer</b> .....	3
<b>Current Compliance Mechanisms</b> .....	6
Compliance Objectives and Standards .....	6
Programs and Payments Subject to Compliance .....	8
Analysis of Conservation Compliance .....	11
Analysis of Swampbuster .....	22
<b>Potential for Extending Compliance: Nutrient Management in Crop Production</b> .....	26
Nutrient Loss and Crop Producers .....	26
Nutrient Runoff and Farm Program Participation .....	27
Reducing Nutrient Runoff: Nutrient Management and Buffer Practices .....	31
Cost of Nutrient Management .....	32
Cost of Buffer Practices .....	33
<b>Conclusions</b> .....	37
<b>References</b> .....	39
<b>Appendix 1: Linking Environmental Indicators to Farm-Level Data</b> .....	44
<b>Appendix 2: Methodology for Constructing Nutrient Loss Indicators</b> .....	46

**Cover photograph:** Tim McCabe, Natural Resources Conservation Service/USDA.

## List of Tables

1. Conservation management systems and practices applied on HEL cropland subject to compliance, 1997 .....	7
2. Direct payments subject to Wetland and/or HEL conservation provisions .....	8
3. Government loan programs subject to Wetland and/or HEL conservation provisions .....	10
4. Erosion reduction on U.S. cropland between 1982 and 1997 .....	15
5. Average and 95th percentile EQIP incentive payments for selected conservation practices .....	22
6. Average EQIP incentive payments for selected conservation practices, by region .....	22
7. Average and 95th percentile EQIP incentive payments for nutrient management .....	33

### *Appendix tables*

1. Acreage estimates using indicator surfaces and ARMS versus acreage estimates directly from NRI .....	45
2. Runoff curve table based on NRI land use .....	47

## List of Figures

1. Distribution of commodity program payments, 1998 .....	11
2. Distribution of highly erodible cropland subject to compliance by soil erosion rate before and after Conservation Compliance, 1997 .....	12
3. Erosion reduction and Conservation Compliance, 1982-97 .....	16
4. Distribution of commodity program payments and highly erodible cropland, 1998 .....	17
5. Highly erodible cropland acreage subject to Conservation Compliance on farms with and without farm program payments, 1997 .....	18
6. Highly erodible cropland on farms with and without payments, by ERS Farm Resource Region, 1997 .....	18
7. Highly erodible cropland on farms with and without payments, by commodity specialization, 1997 .....	18
8. ERS Farm Resource Regions .....	20
9. Highly erodible cropland acreage by payment per acre, 1997 .....	20
10. Percent change in excess erosion on highly erodible cropland on farms with and without payments, 1982-1997 .....	20
11. Distribution of commodity program payments and wetlands, 1998 ..	23
12. Distribution of commodity program payments and wetlands adjacent to existing cropland, 1998 .....	24
13. Distribution of commodity program payments and very high nitrogen-runoff potential, 1998 .....	28
14. Distribution of commodity program payments and very high phosphorus-runoff potential, 1998 .....	29
15. Distribution of commodity program payments and very high nitrogen leaching potential, 1998 .....	29
16. Percent of cropland acres on farms with and without payments, by potential nutrient loss to water, 1997 .....	30
17. Average farm program payment per acre of cropland, by potential nutrient loss to water, 1997 .....	30
18. Potential for overlap between existing compliance requirements and nutrient requirement .....	35