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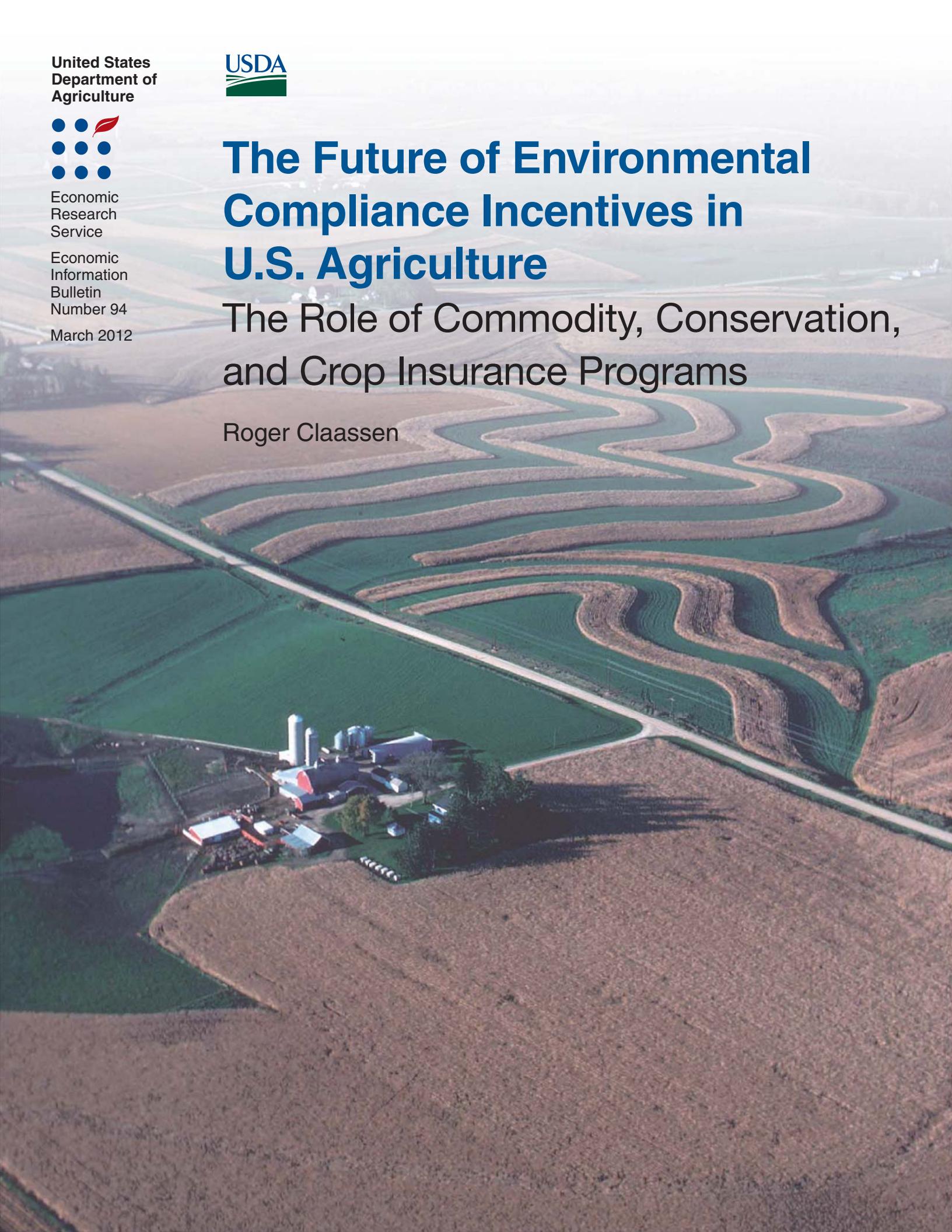
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The Future of Environmental Compliance Incentives in U.S. Agriculture

The Role of Commodity, Conservation, and Crop Insurance Programs

Roger Claassen





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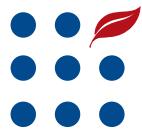
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The Future of Environmental Compliance Incentives in U.S. Agriculture

The Role of Commodity, Conservation, and Crop Insurance Programs

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Abstract

In recent years, direct payments—a type of farm commodity program payment—have made up a large share of Federal agriculture assistance that could be withheld from farmers who fail to comply with highly erodible land conservation (conservation compliance and sodbuster) or wetland conservation (swampbuster) provisions, known collectively as environmental compliance requirements. If direct payments are sharply reduced or eliminated to help reduce the Federal budget deficit, compliance incentives would be reduced on many farms, potentially increasing environmental quality problems. Some farmers will still be subject to compliance through existing Federal agricultural programs (e.g., conservation or disaster programs) or programs that may succeed direct payments. Making federally subsidized crop insurance subject to compliance could also make up some of the lost incentive to farmers.

Keywords: Direct payment, crop insurance, conservation compliance, sodbuster, swampbuster

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Summary

What Is the Issue?

Environmental compliance means that producers who participate in most Federal agricultural programs must implement soil conservation plans on highly erodible cropland *and* refrain from draining wetlands for agricultural production or risk losing most farm financial assistance. Direct payments (DPs) are a type of commodity payment that has, in recent years, made up roughly half of the producer payments that could be withheld from producers who violate compliance requirements. These payments are an effective compliance incentive because they are substantial (roughly \$5 billion per year), cover a large share of cropland (71 percent), and are paid annually regardless of crop production or prices. Direct payments, however, may be sharply reduced or eliminated in the next farm bill (due in 2012) to reduce Federal spending.

If direct payments end, compliance incentives could be maintained in several ways. Some farms will continue to receive conservation and disaster payments, which are also subject to environmental compliance. New commodity programs, which may be created as part of new farm legislation, could also help fill the gap. Extending compliance requirements to federally subsidized crop insurance, the only large USDA program not currently subject to environmental compliance, may be another way of providing incentives to farmers. Between 2005 and 2010, Federal subsidies paid 60 percent of crop insurance premiums—average annual expenditure of \$4.1 billion, or about 80 percent of the \$5 billion annual expenditure for direct payments during the same period. The extent to which crop insurance can fill the gap left by an end of direct payments, however, depends on the extent to which premium subsidies go to the producers who also received direct payments under the 2008 Farm Act, particularly for farms that contain highly erodible cropland or wetlands subject to compliance.

What Did the Study Find?

In 2010, an estimated 448,000 farms (about 20 percent of all farms) received direct payments and accounted for 283 million acres of cropland. In the absence of direct payments, 126,000 of these farms (28 percent of cropland) would still be subject to compliance because they also receive conservation payments. Farms that receive disaster assistance are also subject to compliance, although data limitations preclude an exact estimate of farms that receive (or are likely to receive) disaster assistance.

Roughly 141,000 farmers (7 percent), operating on 33 million acres of cropland (8 percent), received direct payments in 2010 but did not purchase crop insurance or receive conservation payments. For these farms, extending compliance requirements to cover crop insurance would not replace incentives lost if direct payments are ended.

In 2010, 181,000 farms (9 percent), operating on 141 million acres of cropland (36 percent), received direct payments and also purchased crop insurance, but did not receive conservation payments. For these farms, making

crop insurance subject to compliance sanctions could compensate for compliance incentives lost if direct payments end. Regionally, direct payments tend to be larger than crop insurance subsidies in the Corn Belt and the South. Crop insurance subsidies are relatively large in the Great Plains, particularly the Northern Plains, and along the Eastern Seaboard.

Most environmentally sensitive land tends to be located in areas where crop insurance subsidies are smaller than direct payments. For example, 59 percent of cropland that is highly erodible due to wind is located in areas where direct payments exceed crop insurance subsidies. An even larger proportion of cropland that is highly erodible due to water (for sheet and rill erosion) is located in these areas. (Highly erodible land has an erodibility index of 8 or higher. The erodibility index measures the inherent propensity of a soil to suffer productivity damage due to soil erosion, incorporating both the propensity of the soil to erode and potential for damage due to erosion.)

How Was the Study Conducted?

The number of farms and acres covered by direct payments, conservation payments, and crop insurance were calculated based on the 2010 Agricultural Resources Management Survey (ARMS), developed by USDA's Economic Research Service (ERS) and National Agricultural Statistics Service (NASS). County-level data for the spatial distribution of crop insurance premium subsidies came from the Federal Crop Insurance Corporation's *Summary of Business* produced by USDA's Risk Management Agency (RMA). Direct payment data is based on county-level data from the Commodity Credit Corporation (CCC) and USDA's Farm Service Agency (FSA). Data on highly erodible land and farmed wetland is based on calculations from the 2007 National Resources Inventory (NRI) by USDA's Natural Resources Conservation Service (NRCS).

Introduction

Environmental compliance requirements encourage greater soil conservation and wetland protection. To maintain eligibility for most agricultural programs, farmers must:

- Actively apply an approved soil conservation plan on “highly erodible” land (HEL) used for crop production (or “conservation compliance”);
- Refrain from cultivating HEL that was not already cropland in 1985 without applying an approved conservation plan (the “sodbuster” provision), and
- Refrain from draining wetlands for crop production (the “swampbuster” provision).

Farmers who violate these requirements, even on a small number of acres, could lose some or all of their commodity, conservation, and disaster payments; access to USDA farm loan and loan guarantee programs; and other agriculture-related benefits. Hence, program payments and their environmental requirements may be a potent incentive for soil and wetland conservation.

Compliance requirements apply to a large share of U.S. cropland.

Approximately 100 million acres (about 25 percent) of U.S. cropland is considered HEL and potentially subject to conservation compliance requirements (see box, “Compliance Requirements and Accomplishments” for more information). Previous ERS research shows that conservation compliance for highly erodible cropland accounted for as much as 25 percent of soil erosion reduction between 1982 and 1997, a savings of roughly 300 million tons of soil per year (Claassen et al., 2004). The same study showed that the swampbuster provision was protecting between 1.5 million and 3.3 million acres of vulnerable wetland, although higher commodity prices in recent years may have increased the number of wetland acres that could be profitably drained for crop production.

Since 1985, when environmental compliance requirements were initiated, farm commodity program payments have accounted for a large share of payments that could be withheld from farmers who violate compliance requirements. Some commodity program payments depend on crop prices; as prices rise (or fall), program payments fall (or rise). Thus, the rise in commodity prices in recent years has reduced program payments and incentives for meeting compliance requirements. Other commodity payments that do not depend on crop prices may be severely reduced or eliminated in the next farm bill (due in 2012) to decrease Government spending. In the absence of these incentives, some producers may no longer feel obligated to meet compliance requirements.

Between 2003 and 2010, commodity program payments accounted for 64 percent of all payments subject to environmental compliance requirements. Most commodity program payments were made through three programs:

Compliance Requirements and Accomplishments

Environmental compliance requirements were enacted as part of the 1985 Food Security Act (FSA), largely to address concerns that commodity and conservation programs were working at cross-purposes. While conservation programs were designed to encourage farmers to conserve soil and other environmental resources, price supports and income payments may actually encourage farmers to expand crop production to erosion prone or otherwise environmentally sensitive land. Most Federal agricultural programs require that producers develop and implement soil conservation plans on highly erodible cropland and refrain from draining wetlands for crop production. Violators could lose part or all of payments on their whole farm—not just the part of the farm where the violation occurred.

More than 100 million acres of U.S. cropland (about 25 percent of all cropland) is highly erodible. About 85 percent of this land is located on farms that receive Government payments subject to compliance sanctions. Many more acres of hay, grazing, and forest land are also highly erodible and could trigger sodbuster sanctions if converted to crop production. Roughly 92 million acres of wetland may be subject to the swambuster provision, although many are in remote locations where there is little chance of conversion to cropland. ERS researchers estimated that 12.9 million acres of wetland were directly adjacent to existing cropland (Claassen et al., 2004).

Most agricultural programs are subject to compliance. Since 2003, the value of these payments varied from \$10 billion to more than \$20 billion. Producers who violate compliance requirements could also lose access to farm and commodity loans and loan guarantees that may ensure the availability of credit to producers with limited access to credit in private markets.

Soil erosion on land in crop production declined sharply between 1982 and 1997—years that bracket HEL compliance implementation between 1985 and 1995. According to the National Resources Inventory (NRI) data, cropland soil erosion declined by more than a third, or 1.2 billion tons per year, from 3.1 billion tons in 1982 to 1.9 billion tons in 1997. Highly erodible cropland accounted for 62 percent of this erosion reduction, even though it accounts for only 25

Payments subject to compliance¹

Category	Government program
Direct payments	Direct Payments
Countercyclical payments and marketing loan benefits ²	Countercyclical Payments Loan Deficiency Payments Marketing Loan Gains Certificate Gains
Disaster programs	Noninsured Disaster Program Ad hoc disaster assistance programs Supplemental Revenue Assurance (SURE)
Conservation programs	Conservation Reserve Program Environmental Quality Incentives Program Agricultural Water Enhancement Program Conservation Stewardship Program ³ Wetland Reserve Program Wildlife Habitat Incentives Program Farm and Ranch Land Protection Program Grassland Reserve Program

¹Chart includes only major Government programs. Some small payment programs and some loan programs are also subject to environmental compliance. Small programs and loan programs have been omitted for brevity. For full detail, see Claassen et al., 2004.

²Payments under Average Crop Revenue Election (ACRE) began in FY 2011.

³Conservation Security Program for 2003-08.

Source: USDA, Economic Research Service.

percent of cropland. ERS researchers found that 296 million tons of soil erosion reduction occurred on land subject to conservation compliance, or about 40 percent of soil erosion reduction on highly erodible cropland and 25 percent of all soil erosion reduction (Claassen et al., 2004). Another 40 percent of the reduction on highly erodible cropland occurred on land enrolled in the Conservation Reserve Program (CRP). The remaining 20 percent of erosion reduction on highly erodible cropland occurred on farms not subject to compliance (they do not receive payments subject to compliance) or occurred as a result of land-use changes that cannot be attributed to environmental compliance requirements (compliance plans were designed to avoid forcing land out of crop production).

- Direct payments (DP),
- Countercyclical payments (CCP), and
- Marketing loan benefits (MLB).

In recent years, CCPs and MLBs have not been paid for most crops because of high crop prices. Under the 2008 Farm Act, countercyclical payments are triggered when the “effective” price¹ for a program crop falls below its “target” price (for example, \$2.63 per bushel for corn). Marketing loan benefits are triggered when the local market price for a program crop falls below the county loan rate (the national average loan rate for corn in February 2012 is \$1.95 per bushel). Since 2008, because market prices for corn, wheat, and soybeans have been well above target prices, commodity program payments subject to environmental compliance have been lower than in previous years (fig. 1).

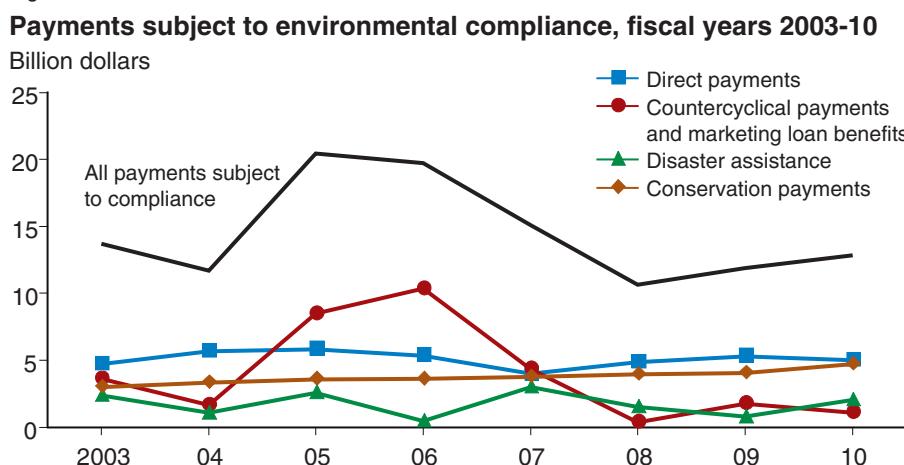
Under the 2008 Farm Act, DPs are “decoupled,” or separated, from current production and prices. Because they do not depend on prices, DPs continued to be made even as crop prices reached record levels, accounting for 82 percent of commodity payments during 2008-10. DPs are a good compliance incentive because they are relatively large (\$5 billion per year), are consistent over time (paid annually without regard to crop acreage, production, or prices), and cover a large share of cropland (71 percent).² As lawmakers attempt to reduce the burgeoning Federal budget deficit, however, DPs may be at risk when a new farm bill is written (due in 2012) given high crop prices and high farm income in recent years.

Disaster assistance and conservation payments (other Federal agricultural programs) are also subject to compliance requirements, but they accounted for only 38 percent of payments subject to compliance in 2003-10. Even during 2008-10, when high commodity prices meant that CCPs and MLBs were low, conservation and disaster payments accounted for less than half

¹The effective price of a commodity is the sum of the direct payment rate, plus either the national commodity loan rate or the national average farm price for the crop year, whichever is higher.

²Cropland is defined broadly to include cultivated land, hayland, and CRP. It is intended only as a general indication of the extent to which payments cover the crop sector. Producers will be subject to environmental compliance only if their farms include HEL or wetland that could be drained for crop production.

Figure 1



Note: Lines represent totals paid out from four categories of agricultural programs for which payments could be withheld based on environmental compliance regulations.

Source: USDA, Economic Research Service calculations based on USDA's Office of Budget and Policy Analysis (OBPA) data.

(48 percent) of total payments subject to environmental compliance requirements. Moreover, conservation and disaster payments often go to producers who do not participate in commodity programs. In 2009, 23 percent of farms (accounting for 71 percent of cropland) received commodity payments, while only 6 percent of farms (accounting for 28 percent of cropland) received both commodity and conservation payments.

If crop prices remain high and DPs are eliminated or sharply reduced, many producers may have substantially less incentive to maintain conservation practices on HEL or refrain from draining wetlands. Whether farmers who receive DPs and meet compliance requirements decide to drop farm program participation and stop meeting compliance requirements will depend on several factors, including participation in other programs that are currently subject to compliance requirements (e.g., conservation and disaster programs) and the extent to which direct payments are replaced by other commodity programs (e.g., the Average Crop Revenue Election (ACRE) program or a new program that could be included in the next farm bill). Given that budget savings are a key issue, however, payments in any subsequent program may not be as large, overall, as DPs. Extending environmental compliance requirements to federally subsidized crop insurance has been considered as another option for bolstering compliance incentives. Crop insurance is the only large USDA agricultural program not currently subject to environmental compliance requirements.³

Crop insurance participation is high. About 80 percent of eligible acres for the four major commodity crops (corn, wheat, soybeans, and cotton) are covered. Crop insurance also covers a broad range of crops not covered by commodity programs. Federal expenditure for crop insurance premium subsidies have grown rapidly over the past decade because of a significant increase in premium subsidy rates (beginning in 1999) and a surge in crop insurance purchases (new coverage and higher coverage levels) prompted largely by subsidy increases. Between 2005 and 2010, crop insurance premium subsidies covered about 60 percent of crop insurance premiums, on average. More recently, higher crop prices, which increase both crop insurance liabilities and premiums, have also boosted premium subsidy growth. Whether crop insurance could offset a loss of DPs as an environmental compliance incentive will depend largely on:

- The number of producers and acres covered by crop insurance relative to DPs;
- Overall size of crop insurance subsidies and DPs; and
- The distribution of crop insurance premium subsidies compared with that of DPs.

³Although crop insurance was initially subject to compliance requirements in the 1985 Food Security Act, lawmakers removed it from the list of programs subject to conservation compliance in 1996.

Farms and Acres Covered by Direct Payments, Crop Insurance, and Other Programs

If DPs were severely reduced or eliminated, the number of farms and the amount of farmland acreage subject to environmental compliance could decline. The decline could be offset, however, if producers had to meet conservation compliance requirements to receive crop insurance premium subsidies. An estimated 448,000 farms (20 percent) with 283 million acres of cropland (71 percent) received DPs in 2010. While the end of DPs could reduce compliance incentives for all farms that have received them in the past, 126,000 farms (6 percent) with 109 million acres of cropland (28 percent) that also receive conservation payments would still be subject to compliance. The end of DPs could be particularly significant for an estimated 322,000 farms (15 percent) with 174 million acres of cropland (44 percent) that received DPs in 2010 but did not receive conservation payments (fig. 2; sum areas in the DP circle but outside the conservation payment circle). Some of these farms may continue to be subject to compliance because of disaster payments, although farmers are eligible for these payments only if they purchase crop insurance (where crop insurance is available).⁴ Of course, farms that lose DPs may also be eligible for other commodity payments or programs that could be devised to replace DPs if they are sharply reduced or eliminated. For example, the Average Crop Revenue Election (ACRE) program, enacted as part of the 2008 Farm Act, may provide compliance incentives in the future. Producers who participate in commodity programs can opt for ACRE if they accept reductions in traditional commodity program payments, including DPs.⁵ In 2009, roughly 8 percent of eligible farmers, representing 13 percent of eligible acreage, opted to participate in ACRE. While enrollment increased only slightly in 2010, a sharp reduction in DPs could make ACRE more attractive.⁶

We estimate that 141,000 farms (7 percent) with 33 million crop acres (8 percent) received DPs, but did not purchase crop insurance or receive conservation payments in 2010 (fig. 2). If DPs are eliminated, these farms are likely to see a large drop in compliance incentives, unless they participate (or begin participating) in another program subject to compliance requirements. Even if crop insurance is tied to compliance requirements, these farmers are unlikely to be affected because there is little reason to believe that farmers who do not currently purchase crop insurance will start purchasing crop insurance in the absence of program changes that make it more attractive.

If conservation compliance is once again tied to crop insurance, however, the resulting compliance incentive could offset some of the loss due to the reduction or elimination of DPs. An estimated 181,000 farms (9 percent) with 141 million cropland acres (36 percent) received DPs in 2010 and purchased crop insurance but did not receive conservation payments (fig. 2). These farms would still be subject to compliance requirements if they continued to purchase crop insurance (and, thereby, also remain eligible for disaster assistance). Because the benefits and costs associated with crop insurance are different from those associated with DPs, however, tying compliance requirements to crop insurance programs in the absence of DPs could prompt some producers to reassess crop insurance purchase decisions.

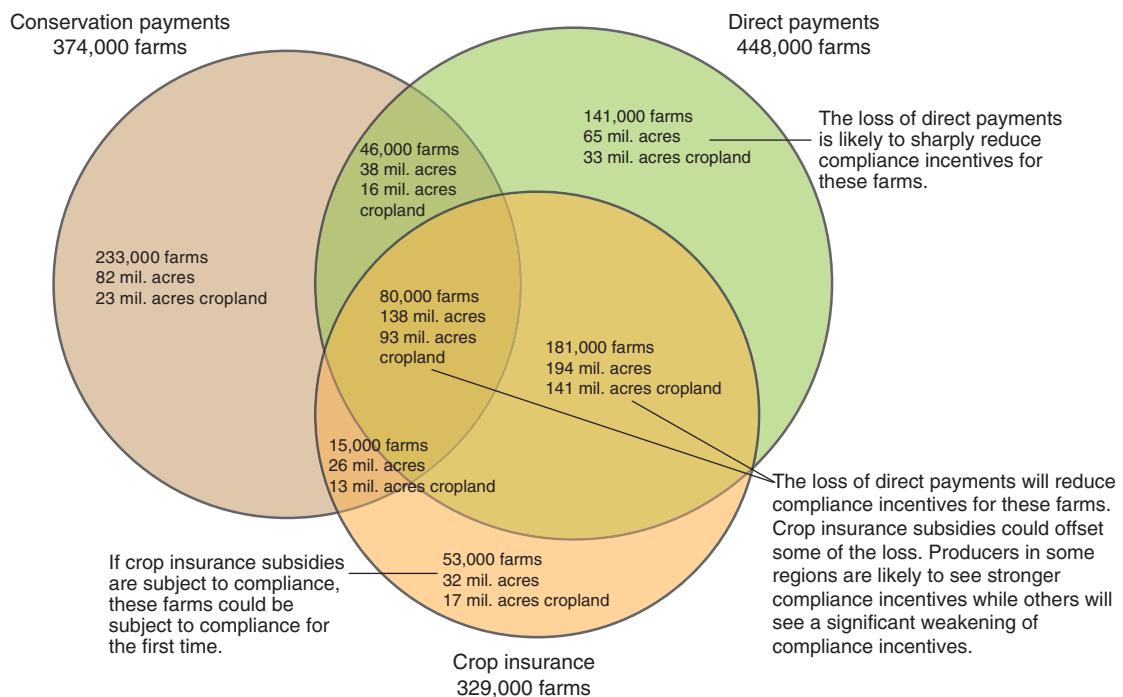
⁴Disaster assistance is not included in the analysis because of data limitations.

⁵See USDA, Economic Research Service, *Farm and Commodity Program Briefing Room: Program Provisions: Average Crop Revenue Election (ACRE)*.

⁶See USDA, Farm Service Agency, *DCP/ACRE Enrollment Data* at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=dccp&topic=09cy>.

Figure 2

Farm and farm acreage estimates, by commodity program, crop insurance, and conservation program participation, 2010



Notes: Due to data limitations, figure does not include disaster payments. If disaster payments were included, the number of farms buying crop insurance but not receiving program payments subject to compliance requirements would be smaller.

Source: USDA, Economic Research Service calculations based on 2010 Agricultural Resource Management Survey (ARMS) data conducted jointly by USDA's National Agricultural Statistics Service and Economic Research Service.

Finally, farmers who do not receive DPs or other payments subject to compliance but do purchase crop insurance may be subject to compliance requirements for the first time. In 2010, an estimated 53,000 farms (2.4 percent) with 17 million crop acres (4.3 percent) received neither conservation payments nor DPs but did purchase crop insurance (fig. 2). Some of these farms may already be subject to compliance requirements because of disaster payments. Of course, farms facing compliance requirements based on crop insurance coverage would be affected only if they continued to purchase crop insurance.

Different Programs, Different Incentives

Direct payments are a positive incentive for environmental compliance because:

- They are paid annually;
- The rough amounts are predetermined; and
- Producers incur very little cost, except for environmental compliance costs.

The benefits of crop insurance differ in several ways. Producers receive a benefit every year in the sense that annual premiums are lower than they would be without the subsidies. Crop insurance indemnities, however, are paid only when producers suffer a production or revenue loss of 25 percent or more, depending on the coverage selected by the producer. Producers benefit from crop insurance through reduced risk of loss and, over time, higher levels of average income as subsidies reduce premium payments and leave indemnities unchanged. Despite these differences, comparing crop insurance subsidies to DPs can provide information on the potential of crop insurance to make up for the loss in compliance incentives if DPs are actually eliminated.⁷

At the national level, DPs and crop insurance subsidies have remained consistent in recent years. Between 2005 and 2010, producer premium subsidies averaged \$4.1 billion per year, or about 60 percent of total crop insurance premiums⁸ (DPs averaged about \$5 billion per year over the same period). Estimating the value of risk reduction is complicated, but crop insurance indemnities regularly exceed subsidized premiums, increasing average crop revenue over time. Between 2005 and 2010, crop insurance indemnities totaled \$27.6 billion. After subtracting producer-paid premiums (\$16.8 billion), producer indemnities exceeded producer premiums by \$10.8 billion, an average net benefit of \$1.8 billion per year to producers with crop insurance.⁹

County-level crop insurance premium subsidies, relative to DPs, vary widely (fig. 3). In areas where premium subsidies exceed DPs, crop insurance subsidies may be large enough to replace the compliance incentive that would be lost if DPs are eliminated. In areas where premium subsidies are lower than DPs, crop insurance cannot make up the loss. If crop insurance premium subsidies are less than the cost of meeting compliance requirements, producers who would not otherwise be subject to compliance requirements may decide not to purchase crop insurance or meet compliance requirements. The total value of DPs tends to be relatively large where yields are high and crop production risk is low. In the Corn Belt (Iowa, Illinois, Indiana, and Ohio) and the Mississippi Delta, for example, producers receive considerably less in crop insurance subsidies than in DPs. Crop insurance subsidies are more likely to be higher in regions where production risk is high. Producers in the Northern Plains, for example, receive as much or more Government support from crop insurance premium subsidies as they do from DPs.

Regional differences in DPs and crop insurance subsidies suggest that the relative size of the benefits will also vary across the different types

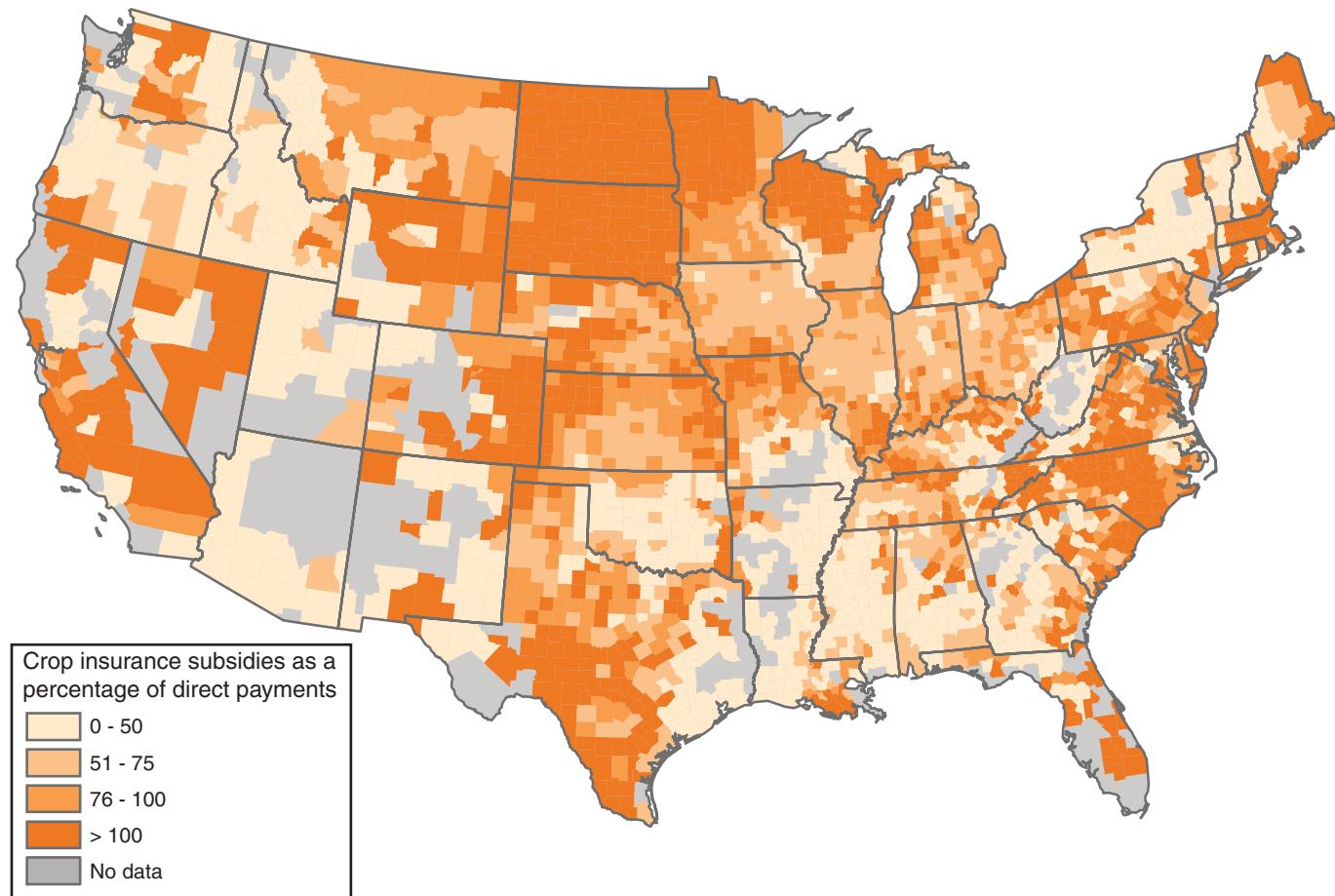
⁷Crop insurance subsidies can be compared with DPs assuming that crop insurance participation would be unchanged by the compliance requirement. Given existing data, however, it is not possible to estimate the effect of compliance requirements on crop insurance participation.

⁸Based on USDA's Risk Management Agency *Summary of Business Report and Data* for 2005-10.

⁹Results based on 6 years of data, which may not accurately estimate expected net indemnities.

Figure 3

County-level crop insurance subsidies and direct payments, 2005-10



Notes: County-level estimates based on average direct payments and crop insurance subsidies for 2005-10.

Source: USDA, Economic Research Service calculations based on USDA's Risk Management Agency (RMA) *Summary of Business Reports and Data* and the Farm Service Agency's (FSA) Commodity Credit Corporation (CCC) data.

of environmentally sensitive land covered by compliance requirements, including land that is:

1. Highly erodible for sheet and rill erosion;
2. Highly erodible for wind erosion; and
3. Farmable wetland—land dry enough to farm in most years but wet enough to fall under swampbuster provisions. (Farmable wetland is considered, rather than all wetlands that could be converted to crop production, because they may be at the greatest risk of further drainage and because the cropland potential of many other wetlands is difficult to determine.)¹⁰

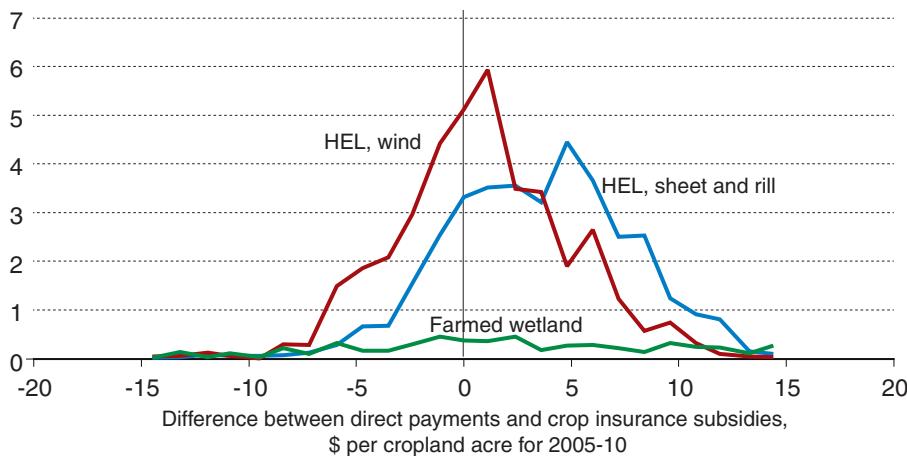
Figure 4 shows the number of acres of each type of land based on the difference between DPs and crop insurance subsidies where these lands are located. For example, -5 on the horizontal axis indicates that crop insurance subsidies exceed DPs by \$5 per cropland acre. Counties where crop insurance subsidies exceed DPs by about \$5 per acre account for roughly 2 million acres that are highly erodible for wind erosion; 500,000 acres that are highly erodible for sheet and rill erosion; and 100,000 acres of farmable wetland.

¹⁰Roughly 92 million acres of wetland may be subject to compliance sanctions. Most of these wetlands are in remote locations with little potential for conversion to crop production—only 12 million wetland acres are adjacent to existing cropland (Claassen et al., 2004).

Figure 4

Distribution of highly erodible cropland and farmed wetland, by difference between direct payments and crop insurance subsidy¹

Million acres



HEL=Highly erodible land.

¹County-level average direct payments and crop insurance subsidies for 2005-10 were used to classify counties into 25 groups, according to the difference between direct payments and crop insurance subsidies. The counties in each group are not necessarily contiguous. The median difference between direct payments and crop insurance subsidies for each group is reported on the horizontal axis.

Sources: USDA, Economic Research Service calculations based on USDA's Farm Service Agency Commodity Credit Corporation (CCC) data, Risk Management Agency's (RMA) *Summary of Business Reports and Data*, and Natural Resources Conservation Service's 2007 National Resources Inventory (NRI) data.

Figure 5 shows the average value of DPs relative to the value of crop insurance subsidies. In counties where crop insurance subsidies exceed DPs by \$5 per cropland acre, for example, the average DP per cropland acre is about \$9, while the acreage crop insurance subsidy per cropland acre is \$14.

Wind-erodible land tends to be located in areas where rainfall is minimal and crop production is risky. The dry conditions that make land marginal for crop production (in the absence of irrigation) also make land susceptible to wind erosion. Nonetheless, wind-erodible land tends to be located in areas where DPs are equal to or slightly higher than crop insurance subsidies (fig. 4). DPs and crop insurance subsidies range from just over \$6 per cropland acre to more than \$22 per acre for DPs and \$25 per acre for crop insurance subsidies (fig. 5).

Roughly 41 percent of wind-erodible land is located where crop insurance subsidies were greater than DPs in 2005-10. If DPs end and crop insurance subsidies are tied to conservation compliance, the incentive to comply could be greater for these lands. For the balance of wind-erodible land, where DPs have exceeded crop insurance subsidies, the end of DPs would mean fewer compliance incentives, even if crop insurance was tied to compliance.

Sheet and rill erosion are most likely in areas with relatively high rainfall and sloping terrain that is prone to rapid runoff. These soils are more likely than wind-erodible soils to be in areas where DPs are equal to or exceed crop insurance subsidies (positive numbers on the horizontal axis in fig. 4). The loss of DPs in these areas is more likely to reduce compliance incentives even if crop

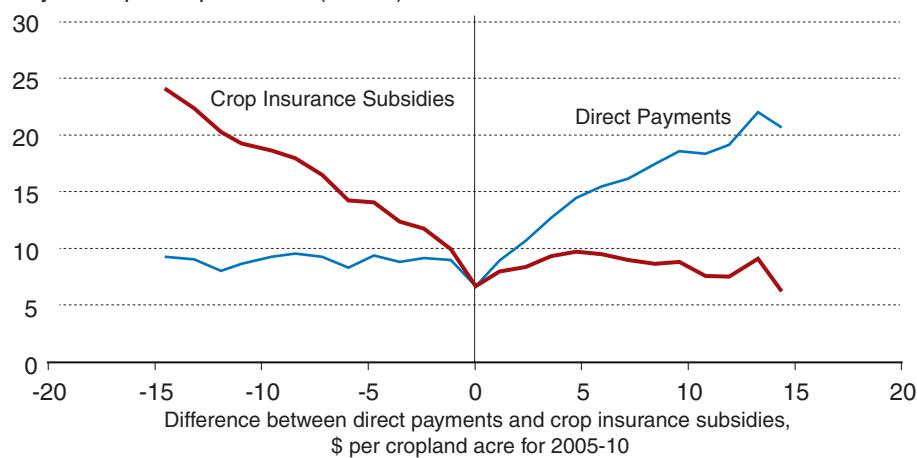
insurance is tied to compliance requirements. Almost 80 percent of this highly erodible cropland is located where DPs exceeded crop insurance subsidies during 2005-10. Nonetheless, crop insurance would provide some compliance incentive, even if at lower levels than that provided by DPs (fig. 5).

Farmable wetland area is small compared with HEL cropland area. More than half of farmable wetland acres are located where DPs exceed crop insurance subsidies—locations where compliance incentives are likely to decline.

Figure 5

Direct payments and crop insurance subsidies per acre, by difference between direct payments and crop insurance subsidy¹

Payments per cropland acre (dollars)



¹County-level average direct payments and crop insurance subsidies for 2005-10 were used to classify counties into 25 groups, according to the difference between direct payments and crop insurance subsidies. The counties in each group are not necessarily contiguous. The median difference between direct payments and crop insurance subsidies for each group is reported on the horizontal axis.

Sources: USDA, Economic Research Service calculations based on USDA's Farm Service Agency Commodity Credit Corporation (CCC) data, Risk Management Agency's (RMA) *Summary of Business Reports and Data*, and Natural Resources Conservation Service's 2007 National Resources Inventory (NRI) data.

Conclusions

Ending or sharply reducing direct payments could also reduce incentives for meeting conservation compliance requirements. Although conservation and disaster payments are also subject to compliance requirements, many farmers who receive DPs do not receive them. If program crop prices remain well above trigger points for CCPs and MLBs (or these programs are also eliminated), reducing DPs could sharply reduce compliance incentives for many farms.

Crop insurance reaches a large group of producers, providing a subsidy through reduced premiums. The level of compliance incentive, however, is likely to vary across regions. In some areas, such as the Northern Plains, crop insurance premium subsidies are as large or larger than DPs. In other areas, like the Corn Belt, crop insurance subsidies are generally not as large as DPs.

If DPs are eliminated and crop insurance is tied to environmental compliance, it is likely that fewer farms and fewer acres would be subject to compliance. Roughly 141,000 farms received DPs in 2010, but did not receive conservation payments or purchase crop insurance (and would not be eligible for disaster assistance). These producers, representing 8 percent of cropland, could still be subject to compliance requirements but only if they begin purchasing crop insurance or participate in another compliance-linked program.

On the other hand, roughly 53,000 farms (with 4.3 percent of cropland) purchased crop insurance in 2010 but did not receive direct or conservation payments, although they may be subject to compliance because of disaster payments. Some of these farmers, however, could be subject to compliance requirements for the first time if they continue purchasing crop insurance.

Finally, 181,000 farms that include 36 percent of cropland received DPs and purchased crop insurance in 2010. For these farms, making crop insurance subject to compliance requirements could replace at least some portion of the compliance incentive lost with an end of DPs if they continue to purchase crop insurance. The portion of the incentive that can be made up, however, may vary across farms and regions.

References

Claassen R., V. Breneman, S. Bucholtz, A. Cattaneo, R. Johansson, and M. Morehart. *Environmental Compliance in Agricultural Policy: Past Performance and Future Potential*, AER-832, U.S. Department of Agriculture, Economic Research Service, p. 50, June 2004.

Claassen R., and M. Morehart. *Greening Income Support and Supporting Green*, EB-1, U.S. Department of Agriculture, Economic Research Service, p. 6, March 2006.

Claassen, R., M. Aillery, and C. Nickerson. *Integrating Conservation and Commodity Payments Programs: Design Options and Outcomes*, ERR-44, U.S. Department of Agriculture, Economic Research Service, p. 27, October 2007.

U.S. Department of Agriculture, Economic Research Service. *Agricultural Resources Management Survey Briefing Room*, <http://www.ers.usda.gov/Briefing/ARMS/>.

U.S. Department of Agriculture, Economic Research Service. *Farm and Commodity Program Briefing Room: Program Provisions: Average Crop Revenue Election (ACRE)*, <http://www.ers.usda.gov/Briefing/farmpolicy/acre.htm>.

U.S. Department of Agriculture, Office of Budget and Policy Analysis (OBPA). *Budget Summary and Annual Performance Plan*, various issues, http://www.obpa.usda.gov/budsum/budget_summary.html.

U.S. Department of Agriculture, Risk Management Agency (RMA). *Summary of Business Reports and Data*, <http://www.rma.usda.gov/data/sob.html>.

U.S. Department of Agriculture, Farm Service Agency. Unpublished Commodity Credit Corporation (CCC) data.

U.S. Department of Agriculture, Natural Resources Conservation Service. *National Resources Inventory: A Statistical Survey of Land Use and Natural Resource Conditions and Trends on U.S. Non-Federal Lands*, 2009, <http://www.nrcc.usda.gov/technical/NRI/>.