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United States Department of Agriculture  
*Economic Research Service*

ECONOMIC BRIEF NUMBER 1



## Conservation Program Design

# Greening Income Support and Supporting Green

Roger Claassen and Mitch Morehart

“Green payments” refer broadly to farm payment programs that would, if enacted, merge farm income support and conservation payments. Although some existing programs do support both objectives, they typically focus on one or the other. For example, the Conservation Reserve Program (CRP) retires land from crop production largely for environmental reasons, but may also reduce production and increase crop prices. Under the Conservation Security Program, “stewardship payments” that reward producers’ ongoing conservation efforts may also enhance their income. Likewise, Conservation Compliance is an example of a policy that makes traditional commodity payments “greener.” Because green payments would join two of the most popular aspects of agricultural policy into a single program, it is tempting to view them as a way to “kill two birds with one stone,” perhaps saving money and broadening support for agricultural policy in the process. The extent to which that is true, however, depends on the extent to which income support payments are also suited to achieving environmental goals, and vice versa.

Do farms with income support needs also have pressing environmental problems that could be addressed through green payments? Not necessarily. Income support and conservation payments are triggered by different actions or conditions, are made in different amounts, often go to different producers, and are spread across the country differently. Moreover, while many farms that receive income support payments also have acreage with resource concerns such as soil erosion and nutrient runoff, many farms with high erosion or nutrient runoff potential do not receive income support payments. These differences may indicate that some compromise of income support objectives, conservation objectives, or both would be required to create a program of green payment.

Voluntary conservation payment programs need to specify who is eligible to receive payments, how much can be received, for what actions, and the means by which applicants are selected. The achievement of program goals in a cost-effective manner hinges on the choices policymakers and program managers make when answering these questions.

**This Economic Brief is one in a set of five** exploring specific design options these decisionmakers face:

- (1) income support versus environmental objectives,
- (2) alternative ways to target programs,
- (3) the use of bidding in determining payment levels,
- (4) land retirement and conservation on working lands, and
- (5) payments for conservation practices versus the level of environmental performance.

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<sup>1</sup>Commercial farms are large family farms with sales above \$250,000 and some nonfamily farms organized as cooperatives or nonfamily corporations. Intermediate farms have sales below \$250,000 and the operator reports farming as his or her major occupation. Rural residence farms have gross sales below \$250,000 where farming is considered a secondary activity both in terms of resources invested in the farm and the amount of income it contributes to the farm household.

## Conservation and Income Payments and Purposes Differ

Commodity-based income support is intended to enhance the incomes of eligible producers, primarily of major field crops—corn, wheat, soybeans, and cotton (see box “Summary Comparison of Income Support and Conservation Payments”). Historically, producers with greater production received larger payments. Since 1996, some (but not all) income support payments have been based on historical crop acres and yields rather than current acres and yields. The change was designed to reduce the effect of income support on production decisions and avoid stimulating production that could otherwise affect commodity prices. Even so, producers who farm highly productive land (with a history of high yields) that is eligible for commodity payments (by virtue of a history of program crop production) will tend to reap the largest income support payments.

Conservation payments, on the other hand, are designed to prompt change in land use or production practices that would have a beneficial environmental effect. Conservation payments are available to a wider range of producers—nearly all crop and livestock producers are eligible for at least one conservation program. While conservation programs do seek to change production practices, the level of production itself may or may not be affected. Land retirement is likely to affect production, although how much depends on the quality of the land retired and the extent to which other land is converted to crop production (sometimes referred to as “slippage”). On the other hand, many conservation practices will have little or no impact on production levels. Producers who install terraces to reduce soil erosion, for example, would likely see little change in production, at least in the short term. Finally, most conservation payments are limited to the amount necessary to prompt adoption of new practices, perhaps covering only a portion of the producer’s cost. Some programs use competitive bidding among producers to stretch program budgets (see Economic Brief No. 3).

## Different Payments Mean Different Participants

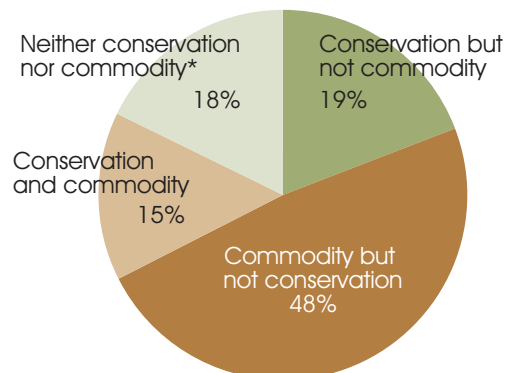
About 40 percent of U.S. farms, representing 60 percent of all agricultural production, receive some type of government payment. Of the 40 percent of farms that do receive some type of government payment, only 15 percent—about 6 percent of all farms—receive both commodity and conservation payments (fig. 1). If the amount of money available for conservation programs were significantly increased, the number of farms receiving both types of payment would increase. However, less than half of current conservation payments (43 percent) go to farms that also receive commodity payments, so a large share of additional conservation payments could also flow to farms that do not receive commodity payments.

Differences in the distribution of commodity and conservation payments across farm types and regions are striking. Most income support payments go to large, commercial farms, while most conservation payments go to rural residence farms<sup>1</sup> (fig. 2). Commodity payments, relative to the value of agricultural sales, are concentrated in areas where production of program crop commodities, including corn, wheat, and cotton, is prevalent—the Corn Belt, Northern Plains, and the Mississippi Delta (fig. 3a). Conservation payments tend to be higher relative to sales in some areas of the Northern Plains and intermountain West, and where farmlands are hilly and prone to soil erosion (southern Iowa and northern Missouri, for example; fig. 3b).

The lack of overlap between commodity and conservation payments, however, does not mean that commercial farms do not face environmental issues, nor that environmental

Figure 1

Distribution of farms receiving farm program payments by major program type, 2003



Source: Economic Research Service, using data from the Agricultural Resources Management Survey.

\*Mostly disaster payments.

## Summary Comparison of Income Support and Conservation Payments

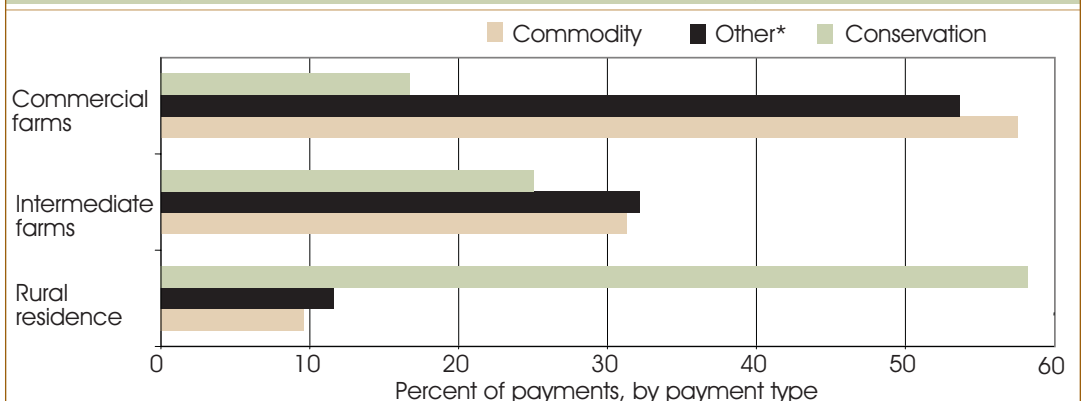
	Income support payments	Conservation payments
<b>Key programs</b>	Direct payments, counter-cyclical payments, loan deficiency payments, and marketing loan gains.	Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Environmental Quality Incentives Program (EQIP), and Conservation Security Program (CSP)
<b>Which producers?</b>	<p>Primarily producers of major field crops (e.g., corn, wheat, soybeans, cotton). To be eligible, producers must have a history of producing program crops. Since 2002, dairy producers are also eligible for income support payments.</p> <p>Programs are entitlements, so all eligible producers can participate if they choose to.</p>	<p>Crop and livestock producers, although emphasis varies among programs. Eligibility varies by program, but can depend on the type of land (e.g., highly erodible land), land use (e.g., land retirement focuses on cropland), or location (e.g., conservation priority areas). Livestock waste management is a priority in some programs.</p> <p>Programs are competitive and often favor enrollment of producers who offer greater environmental benefits relative to cost.</p>
<b>What action?</b>	<p>Direct and counter-cyclical payments are decoupled from production. Payments are based on a history of producing eligible crops.</p> <p>Loan deficiency payments and marketing loan gains are based on current production.</p>	Payments are based on conservation-oriented action, e.g., land retirement, conservation practice adoption, etc., to address environmental issues such as water quality.
<b>How much?</b>	Although some payments are decoupled from current production, payments still tend to be largest for producers who produce large quantities of eligible crops. Because decoupled payments are based on the amount of land a producer controls and the yield history, large payments tend to go to farms with large acreages of highly productive land.	Most programs attempt to limit payments to levels necessary to encourage participation. Some programs use competitive bidding to set payment rates.

problems are concentrated on rural residence farms. Nearly every farm faces some type of environmental concern. For example, the potential for nitrogen runoff associated with the application of commercial fertilizer in crop production is spread across all three farm types in the collapsed ERS farm typology (fig. 4). Rural residence farms account for a relatively small share of acres vulnerable to nitrogen runoff because they account for a relatively small share of land in crop production. Likewise, soil erosion on cropland that is not highly erodible is also spread across farm types. This is of concern because such land is not subject to conservation compliance (which makes soil conservation on highly erodible land (HEL) a condition of farm program eligibility) and is not generally eligible for the Conservation Reserve Program (which pays for long-term retirement of cropland).

The existing distribution of conservation payments largely reflects existing programs. The largest U.S. conservation program, the Conservation Reserve Program (CRP) provides annual payments in exchange for (1) long-term retirement of land and (2) installation of “buffer”

**Figure 2**

### Distribution of government payments by collapsed ERS farm typology



Source: Economic Research Service using data from the Agricultural Resources Management Survey.  
\*Mostly disaster payments.

practices such as edge-of-field filter strips or grassed waterways that can filter nutrient and sediment out of runoff before it reaches water. Roughly 60 percent of CRP payments go to rural residence farms, which accounts for their substantial share of overall conservation payments. But these farms receive a small share of commodity payments, contributing to the limited overlap between commodity and conservation payments.

The Environmental Quality Incentives Program (EQIP), on the other hand, focuses on a wide range of practices on working agricultural lands, including cropland, grazing land, and issues related to confined animal feeding operations (CAFOs). By statute, 60 percent of EQIP payments address livestock-related issues. Because livestock farms are less likely than crop farms to receive commodity payments, the EQIP requirement also tends to limit the overlap between commodity and conservation payments.

Does the existing distribution of conservation payments maximize the environmental benefit that could be gained from available funding? Because the processes by which agriculture affects the environment are very complex (e.g., nutrient runoff) and the damage to natural resources difficult to value (e.g., the loss in recreational value due to eutrophication), the environmental gain from application of conservation practices is difficult to gauge. Nonetheless, previous research suggests that targeting CRP enrollment using the Environmental Benefits Index has increased the level of environmental benefits obtained from that program (see Economic Brief No. 2). The same research indicates that additional gains are possible, but uncertainties remain because only some of the potential environmental gains from CRP (or other conservation programs) have been quantified.

## Greening Income Support or Supporting Green?

Commodity and conservation programs could be combined in many different ways. Consider hypothetical “polar” cases to illustrate key issues that policymakers are likely to face if they decide to meld commodity and conservation programs. On one end of the spectrum, policymakers could start with existing commodity programs and add “green” requirements similar to existing compliance requirements. Current compliance requirements make eligibility for income support (among other Federal agricultural payments) contingent on wetland conservation (Swampbuster) and soil conservation on HEL (Conservation Compliance and Sodbuster). On the other end of the spectrum, they could start with existing conservation programs and increase payments to levels that support farm income as well.

Figure 3a

### Commodity payments per dollar of agricultural sales

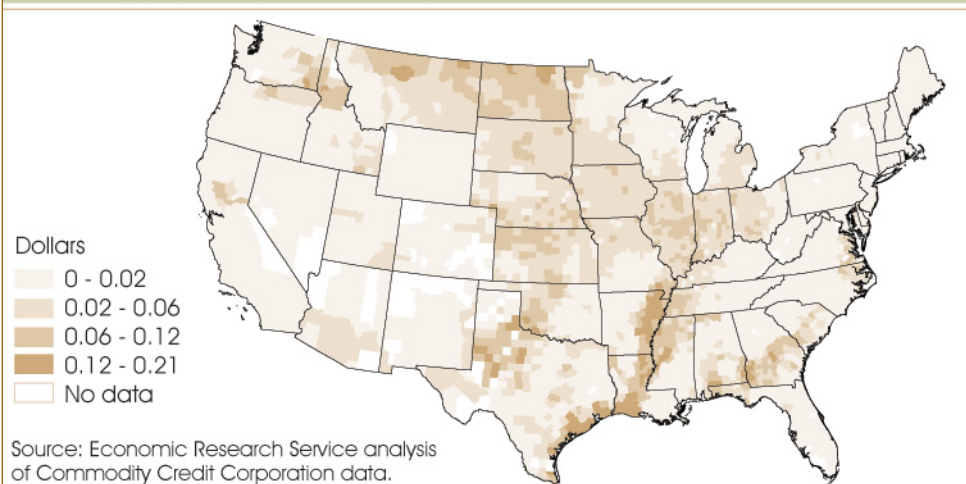
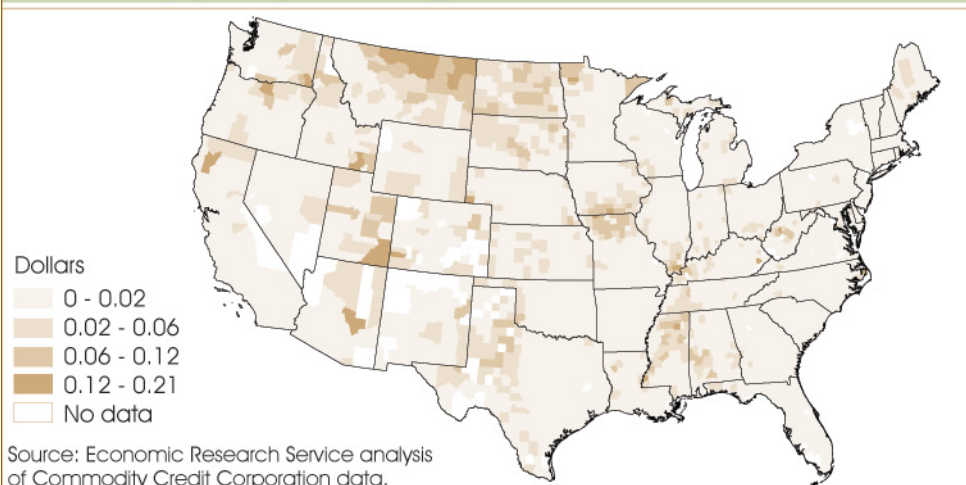


Figure 3b

### Conservation payments per dollar of agricultural sales



Roughly 60 percent of CRP payments go to rural residence farms, which accounts for their substantial share of overall conservation payments.

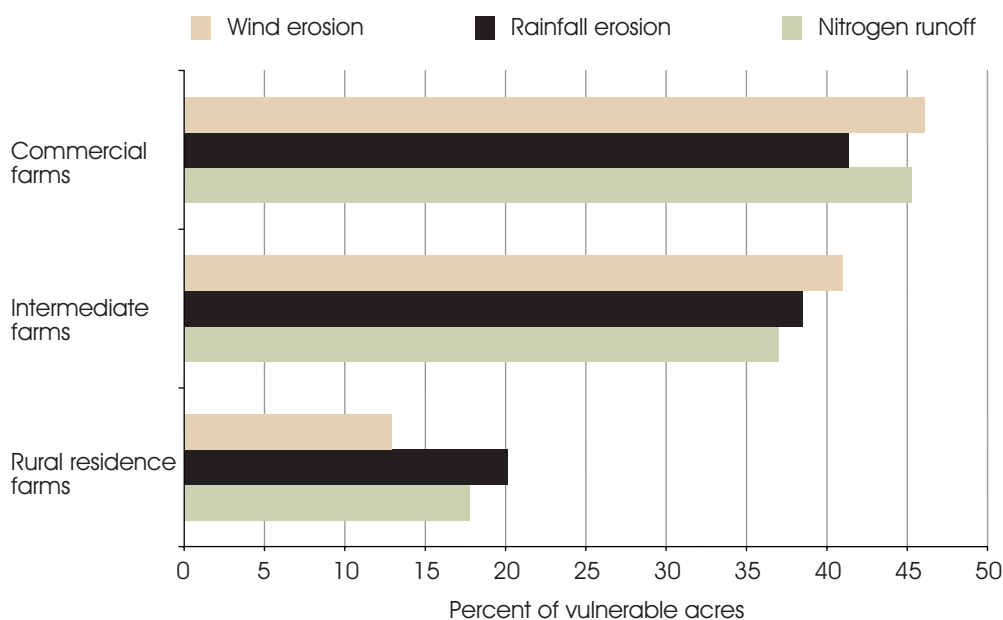
Many conservation indicators could be used to determine eligibility for conservation payments. For illustrative purposes, we consider three indicators:

- Rainfall erosion acreage—cropland that is not highly erodible land (HEL) with rainfall erosion rates greater than the soil loss tolerance (T);
- Wind erosion acreage—non-HEL cropland with wind erosion rates greater than the soil loss tolerance (T);
- Nitrogen runoff acreage—cropland acreage where nitrogen runoff to surface water is estimated to exceed 1,000 kg/km<sup>2</sup>/year.

For details see *Agri-Environmental Policy at Crossroads*, AER-794, 2001.

Figure 4

Acres vulnerable to selected environmental concerns, by collapsed ERS farm typology



Source: Economic Research Service using data from the National Resources Inventory (NRI) and the U.S. Geologic Survey.

Farms receiving commodity payments encompass about 75 percent of agricultural land and account for 55 percent of crop production and 45 percent of livestock production.

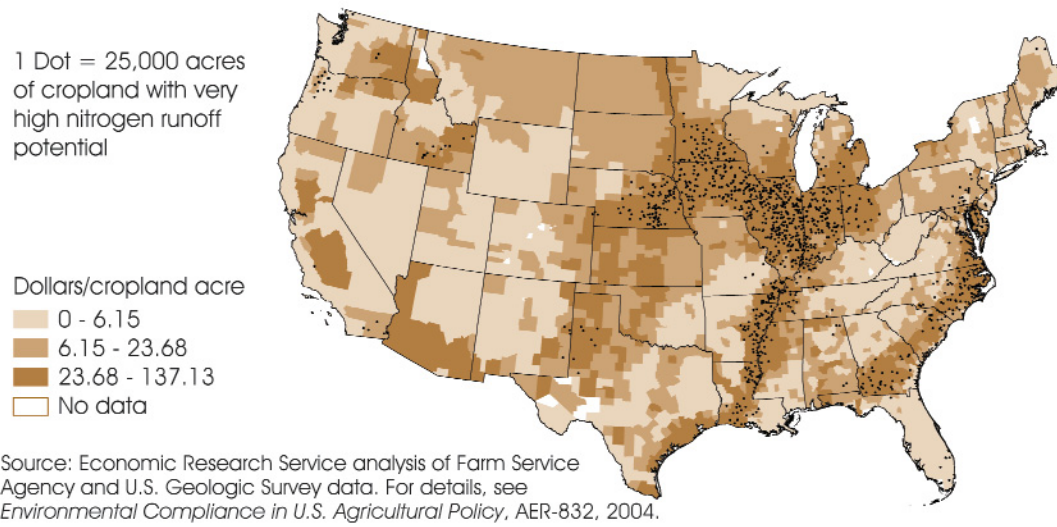
If policymakers choose to focus green payments on the current recipients of farm income support, these payments would not address the same environmental issues or direct funds to the same producers as current conservation payments. In 2003, only 43 percent of conservation payments went to farms that also received commodity payments. Likewise, recipients of commodity payments represent only a portion (albeit substantial) of agricultural production: farms receiving commodity payments encompass about 75 percent of agricultural land and account for 55 percent of crop production and 45 percent of livestock production. If commodity payments were to serve as the basis of a new green payments program, environmental effort would focus more heavily on crop production than on livestock concerns, which play a large role in existing programs such as EQIP.

One way to “green up” income support would be to expand compliance requirements. The effectiveness (and enforceability) of compliance mechanisms in achieving environmental gain, compared with a conservation payment program, would depend on the size and location of payments relative to the cost of addressing specific environmental problems and their location. Given that major income support programs are centered on major field crops, environmental problems associated with cropland are likely candidates for compliance. Witness the overlap between farm program payments and high potential for nitrogen runoff from land in crop production (fig. 5).

Expanding compliance could, however, undercut income support if conservation requirements were expensive to fulfill. Moreover, unless payments tend to be high where conservation costs are high (and there is no reason to believe that they would be), equity issues could also arise. Some producers could face relatively large costs while receiving only modest payments, while others who receive larger income support payments might face only minimal conservation cost. In Conservation Compliance, for example, the (estimated) level of farm program payment per HEL cropland acre—which represents the incentive to meet compliance requirements relative to the scope of the problem on a given farm—varies widely across farms.

Figure 5

## Distribution of commodity program payments and very high nitrogen runoff potential



If green payments were developed from existing conservation programs, payments would be distributed across producers differently than existing income support payments. While commodity payments go primarily to those who own or farm land with a history of producing certain crops, conservation payments tend to be more broadly available (even though participation has been small, relative to commodity programs, due to limited funding). The distribution of payments (under existing working land programs) would be unlikely to match that of current income support programs or even that of current conservation programs, with their overall emphasis on land retirement. Producers of non-program crops and livestock could be eligible for income support delivered through a green payments program.

Income support would depend on the relationship between green payments and conservation costs, which vary among producers. For example, producers with more erosion-prone land might find it more difficult and expensive to reduce soil erosion (to improve water quality) than producers who farm less erosion-prone land. Unless differences in cost are recognized, the effective level of support received by producers would be higher for producers with low costs than those with high costs. Existing conservation programs that offer cost-sharing to producers do recognize differences in the cost of applying practices. For structural practices like terraces and grassed waterways, actual cost can be precisely determined from receipts for dirt work, seed, planting, etc. For management practices such as conservation tillage or nutrient management, however, producer-specific costs are more difficult to determine because costs result from changes in input use and, perhaps, crop yields.

Payments could also be tied to the value of environmental gains that result from a producer's action (see Economic Brief No. 5). If producers who can deliver larger environmental benefits (and attract a higher payment) tend to have higher conservation costs, most producers would receive about the same level of income support. Otherwise, producers with low costs relative to the environmental gain-based payment would receive a higher level of income support than other producers.

Designing a green payments program would largely be an exercise in allocating the limited funds available for income support and environmental purposes. Because few producers receive both commodity and conservation payments from existing programs, however, melding income and conservation programs would likely require some compromise of income support and environmental objectives. Building green payments around commodity programs would risk excluding some producers who face environmental challenges, particularly in the livestock sector. On the other hand, starting with conservation programs could lead to a significant redistribution of income support efforts.

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## This brief is drawn from . . .

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