



## PAYING FOR ENVIRONMENTAL PERFORMANCE: INVESTING IN FARMERS AND THE ENVIRONMENT

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*Given the demand for conservation funding, are there ways to allocate conservation funding more efficiently and effectively?*

### RECOMMENDATIONS

1. **Tie conservation payments to quantitative measures or estimates of environmental performance, where possible.** Currently, many environmental outcomes can be routinely and consistently estimated, including changes in soil erosion, nutrient losses, air quality, greenhouse gas emissions, and water usage. Using quantitative measures and estimates of these outcomes improves the allocation of funding and accountability of conservation programs. A transition to quantitative measures or estimates of environmental performance can be achieved through pilot programs that examine and refine a process for the larger scale implementation of these methods and technologies.
2. **Allocate funds based on biggest environmental ‘bang for the buck’ in ALL conservation programs.** Incorporate *and* apply cost-effectiveness criteria in conservation program ranking systems (including any state ranking systems) to ensure that conservation programs achieve the greatest potential environmental outcomes for the available funds.
3. **Standardize the mechanics of conservation program ranking criteria at the national level,** while leaving the identification of the environmental concerns largely to state and county technicians and stakeholders.

### CONSERVATION PROGRAMS ARE IN HIGH DEMAND

Farm Bill conservation programs are in high demand in the United States, with the number of applications in almost all major programs far exceeding the total funds available (See Table 1). For instance, the budget for the United States Department of Agriculture (USDA) Environmental Quality Incentives Program (EQIP)<sup>1</sup> in the last couple of years has only been able to fund 26–60 percent of applicants applying to the program.

Given the large number of applicants for conservation programs and the limited amount of funds available, allocating program funds to produce the greatest environmental outcome becomes important. While conservation programs attempt to allocate these funds in a cost-effective manner, this allocation process can be improved in the following ways:

- Using quantitative measures or estimates to assess the environmental outcomes associated with conservation program applications;
- Routinely applying cost-effectiveness criteria to rank applications; and
- Standardizing the mechanics of ranking conservation program applications at the national level.

This policy note is largely written in the context of EQIP because it has one of the largest budgets of the Farm Bill conservation programs. Our recommendations, however, apply to the funding of conservation practices in general.

TABLE 1 Major USDA Conservation Programs: Applications Received and Funded, FY2004 and FY2005

USDA Conservation Programs <sup>1</sup>	FY2004	FY2004 Applications			FY2005	FY2005 Applications		
	Payments (\$1,000)	Received	Funded	% Funded	Payments (\$1,000)	Received	Funded	% Funded
EQIP	908,280	181,807	46,413	26%	991,879	82,114 <sup>2</sup>	49,406	60%
Conservation Reserve Program (CRP)	1,665,144	26,080	19,732	76%	No general CRP signup in 2005			
Grassland Reserve Program	69,394	10,146	1,055	10%	78,222	8,631	1,219	14%
Wetland Reserve Program	274,769	4,219	1,035	25%	239,724	4,101	897	22%
Wildlife Habitat Incentives Program	27,828	6,045	3,012	50%	33,058	5,524	3,342	60%

Notes:

- EQIP funding allocation: <http://www.nrcs.usda.gov/programs/eqip/>; Personnel communication: Edward Brzostek (USDA Natural Resources Conservation Service (NRCS), June 2006).  
Conservation Reserve Program funding allocation 29th signup: <http://www.fsa.usda.gov/dafp/cepd/29th/TheConservationReserveProgram29thSignup.pdf>  
Grassland Reserve Program funding allocation: <http://www.nrcs.usda.gov/programs/grp/>  
Wetlands Reserve Program funding allocation: <http://www.nrcs.usda.gov/programs/wrp/>  
Wildlife Habitat Incentives Program funding allocation: <http://www.nrcs.usda.gov/programs/whip/>; Personnel communication: Albert Cerna (USDA-NRCS), June 2006.
- In 2005, USDA NRCS changed operating systems for EQIP applications and NRCS suspects that many states were not able to submit all their applications because of the workload to migrate data from the old system to the new system. Therefore, the percent of applications funded in 2005 may seem artificially high. (Personnel communication: Edward Brzostek, USDA-NRCS, June 5, 2006).

The first three sections of this Policy Note contain background information, while the remaining sections provide supporting information and conclusions for our recommendations.

### PERFORMANCE-BASED PAYMENTS

Paying for performance is increasingly important in the allocation of public funding for projects to ensure taxpayers' monies are well spent. This concept is also gaining popularity in many conservation and development arenas as a method to better identify potentially high-yielding environmental projects. In an agricultural context, paying for performance means that payments are based on the environmental outcomes resulting from the agricultural best management practice (BMP) rather than the implementation of the practice itself. This is a small but important distinction, as the environmental outcomes of BMPs vary depending on factors such as location and how they are implemented. For example, installing a manure management facility in a barnyard located immediately adjacent to a stream will typically result in a greater reduction in nutrients reaching the stream than installing the same facility in a barnyard that is 500 feet from a stream. If farmers were paid for the performance of their BMP, they would be paid for the estimated or measured reduction in nutrient runoff to the stream that resulted from installing the manure management facility. These estimates can be made before a BMP is implemented, or estimated/measured after the BMP is fully functional. This can be important when deciding who should receive funding in a conservation program with a constrained budget.

### HOW ARE FUNDS CURRENTLY ALLOCATED FOR EQIP<sup>2</sup>

To help guide the allocation of funding in conservation programs, USDA agencies that administer these programs identify national funding priorities for their programs. For instance, EQIP has a set of national environmental priorities that include:<sup>3</sup>

- Reducing soil erosion, nutrient runoff, pesticide losses, or excess salinity;
- Improving water conservation;
- Improving air quality (i.e., reducing particulate matter, nitrous oxides, volatile organic compounds and ozone precursors and depleters); and
- Increasing wildlife habitat.

Using the national priorities as guidelines, each state develops ranking systems to allocate the EQIP funds at the local level. As a result, EQIP ranking systems are highly variable between, and sometimes within, the states.<sup>4</sup> The State Conservationist is ultimately responsible for the allocation of funds at the state level, but, depending on the State, it may be the District Conservationists that evaluate EQIP applications and make funding recommendations at the county level.<sup>5</sup> Successful applicants sign a contract that outlines the BMP details, and payments are made once NRCS has determined that the requirements for BMP installation or implementation have been met.

The EQIP Final Rule, which contains the implementation language for the program, lists the factors that the State Con-

ervationist is required to consider in their allocation of funds. One of these factors is the degree of cost-effectiveness of the proposed BMP. Very few states, however, have incorporated cost-effectiveness criteria into their ranking systems.

Some state EQIP ranking systems are loosely based on the principle of paying for performance. An application is awarded points based on how well they are expected to address the environmental priorities and then ranked according to total points. Funding is supposed to be prioritized to those applications that are awarded the highest number of points and therefore have the largest expected environmental outcomes. However, the extent to which this occurs also appears to be highly variable.

Points are also typically awarded on a qualitative basis, rather than a quantitative basis, and are often related to whether various criteria are simply being met. For example, in Iowa points are awarded for criteria such as agreeing to have a farm nutrient management plan, and in Pennsylvania, points are awarded when a farmer plans to implement a pest management plan or establish a 35-foot riparian forest buffer along river headwaters.

### USING QUANTITATIVE MEASURES OF ENVIRONMENTAL PERFORMANCE

Technology and estimation methodologies have improved dramatically over recent years, making it easier to routinely, reliably and consistently estimate how well different conservation practices perform. For many BMPs, it is possible to estimate the environmental outcomes relating to water quality, soil erosion, air quality, greenhouse gas emissions, and water usage. Other environmental outcomes such as wildlife benefits, however, are not as easily estimated or quantified. Box 1 provides a brief overview of estimating environmental outcomes, and a supplementary policy note discusses this in more detail. Most likely, environmental outcomes would be estimated before a BMP is implemented with any payments being made after its implementation.

Estimating or measuring the environmental outcome(s) from implementing a BMP has many advantages, as it:

- Improves the rigor and consistency of ranking various BMPs;
- Enables farmers to provide compelling applications to conservation programs as they are able to specify the estimated environmental outcomes they would achieve;
- Will allow a more comprehensive assessment of any possible tradeoffs between multiple environmental outcomes; and

#### BOX 1

#### Estimating the environmental outcomes from conservation practices

Significant improvements have been made in the technology, modeling and accounting procedures to estimate and measure many environmental outcomes. Site specific or watershed models can be used to determine the baseline characteristics of a farm (e.g., amount of sediment or nutrients currently leaving a field), while significant research on the efficiency of many BMPs that improve various environmental conditions has been undertaken by universities and government agencies. Standardized methodologies based on these models, accounting procedures and BMP efficiencies can all be packaged into computer-based programs or tools. The increase in computing technology and its widespread availability means that farmers, agricultural consultants and USDA technicians now have greater capacity to utilize models or tools. This will enable the routine and consistent assessment of environmental outcomes.

- Can play an important role in determining the impact of these practices on the environment and more broadly for assessing the environmental outcomes associated with conservation programs.

Given there are now linkages between USDA environmental priorities and the environmental priorities in other federal agencies, measuring and estimating the performance of agricultural BMPs are also a way to support the goals of other agencies.

For example, the U.S. Environmental Protection Agency's (USEPA) Total Maximum Daily Load (TMDL) legislation is explicitly listed in EQIP's national environmental priorities relating to water quality. TMDL legislation identifies those watersheds that are impaired by pollutants and other factors such as nutrients, sediments, toxics, pesticides, excess salinity or increased temperatures, and places a limit on the amount of the identified pollutant(s) that can enter that watershed. Many state EQIP ranking systems award additional points to projects addressing water quality concerns in TMDL watersheds.

Any successful implementation of the TMDLs in watersheds where agriculture is listed as a source of impairment will require more quantitative approaches to measuring and estimating environmental outcomes from agricultural BMPs. This, in turn, will allow an assessment of the agricultural sector's contribution to meeting broader federal and state environmental goals such as those associated with TMDLs.

One of the challenges with using quantitative measures or estimates of environmental outcomes is that currently not all USDA staff are trained in estimating environmental performance. Ini-

tially requiring them to make these assessments may potentially be constrained by limited staff time and other limited resources. However, these initial hardships could be overcome by establishing standardized estimation methodologies and technologies, and testing them on a smaller scale through pilot programs aimed at easing any transition to using quantitative measures or estimates of environmental performance. In time, USDA personnel would become comfortable with these procedures and view them as an efficient tool to rank their applications.

### INCORPORATING COST-EFFECTIVENESS INTO EQIP

Using cost-effectiveness is one of the factors required to rank EQIP applications specified in the EQIP Final Rule. This measure is calculated by dividing the total cost of implementing the BMP by the estimated environmental outcome(s) derived. While some state ranking systems incorporate cost-effectiveness in determining the ranking of applicants for funding, many others do not consider cost-effectiveness at all.

Ranking applications based on cost-effectiveness will enable conservation programs to achieve greater environmental outcomes at lower cost. Furthermore, the precision in estimating the cost-effectiveness of a BMP can be improved by taking a more quantitative approach as discussed above. All states must routinely include *and* use the cost-effectiveness ranking criteria to allocate EQIP funds.

### STANDARDIZING THE MECHANICS OF RANKING SYSTEMS FOR CONSERVATION PROGRAMS

While both the 2002 Farm Bill and the EQIP Final Rule describe ranking application criteria, there is little standardization between (and sometimes within) states in how these criteria are applied. To ensure that the pertinent environmental concerns are being addressed in each state (or perhaps watershed), maintaining flexibility in how states determine these is important. However, criteria on how these environmental concerns are taken into account or how applications are ranked should be standardized nationally. For instance, quantitative measures

or estimates of environmental performance are used wherever possible rather than qualitative measures, or simply asking applicants whether they agree to undertake a specific action. This promotes uniformity in how environmental concerns are addressed and ranked within a county, amongst counties and between states. Greater consistency can also be achieved by standardizing the technologies and methods used to estimate and measure the environmental outcomes. Furthermore, explicitly requiring all ranking forms to include and use the ranking factors in the EQIP Final Rule (e.g., ranking applicants according to cost-effectiveness) is important.

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### NOTES

1. EQIP provides financial and technical assistance to farmers to install or implement structural and management practices on their land, such as installing manure management facilities, establishing cover crops and filter strips, and undertaking conservation tillage practices.
2. EQIP Final Rule: <http://www.nrcs.usda.gov/programs/farmbill/2002/rules/eqip030530.html>
3. EQIP national priorities: <http://www.nrcs.usda.gov/programs/eqip/>
4. For more information on state EQIP ranking systems visit: [http://www.nrcs.usda.gov/programs/eqip/EQIP\\_signup/2006\\_EQIP\\_Signup/index.html](http://www.nrcs.usda.gov/programs/eqip/EQIP_signup/2006_EQIP_Signup/index.html)
5. For more information on how EQIP is implemented visit: <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPPrDs.pdf>

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