

# **Workshop on Performance-based Environmental Policies for Agriculture**

## **Executive Summary**

Performance-based environmental policies for agriculture were the subject of a workshop in Washington, D.C., March 20 and 21, 2003. On hand to discuss how such policies might be used were more than 100 farmers, landowners, local watershed officials, private consultants, and representatives of non-governmental organizations, USDA, U.S. Environmental Protection Agency (EPA), state departments of agriculture and natural resources, as well as leading scholars from the economic, political, agricultural, and environmental sciences.

The workshop was convened to identify how performance-based policies could be developed to address environmental issues in agriculture. Participants identified technical, economic and administrative barriers to the implementation of such policies, and developed strategies that might be used to overcome those barriers. Work is in progress to take the strategies generated at the workshop to the field for further development.

Farm Foundation sponsored the workshop, which was organized by Winrock International's Henry A. Wallace Center for Agricultural and Environmental Policy, in collaboration with USDA's Economic Research Service, the Center for Sustainable Development at the University of California-Berkley, and Defenders of Wildlife.

Agriculture is the leading contributor of nonpoint source pollution to ground and surface water in the U.S. Current policies and programs to control agricultural pollution have largely focused on voluntary, design-based measures. These include cost-sharing of farm infrastructure, such as manure storage lagoons or stream bank fencing, and implementation of best management practices (BMPs), such as grass buffer strips or nutrient management planning. Although positive environmental outcomes may result from these measures, there is very little, if any, focus on the resulting environmental performance. Additionally, without significant knowledge on the effectiveness of design-based measures, it is impossible to know the cost-effectiveness of these programs.

The performance-based environmental policy approach is a way to link farmer incentives with environmental performance from agriculture. The primary benefits of this approach are the focus on resulting environmental performance and, by linking incentives to outcomes, farmers will be motivated to meet environmental performance in the least-costly manner. The primary challenges are to find performance measures that are both measurable at a reasonable cost and clearly linked with farm management decisions.

In addition to presentations on the major issues surrounding performance-based policies, farmers, watershed organizers and scientists from five agricultural watersheds around the U.S. provided "from the field" perspectives, helping to focus discussions on relevant challenges and practical issues that need to be addressed. The focal watersheds were: Suwannee River, Florida; Rathbun Lake, Iowa; Union School Slough, California; Cannonsville Reservoir, New York; and Tillamook Bay National Estuary, Oregon.

### ***The Big Picture***

In his keynote address, Stanley Johnson, vice provost for Extension at Iowa State University, outlined some compelling motivations for agricultural and environmental groups to work together to develop performance-based policies to meet their respective objectives. For producers these motivations include providing predictability, less costly solutions, flexibility and innovation, as well as a social

contract with the environmental community. Environmentalists may be motivated by the increased accountability inherent in performance-based approaches.

Both Tom Christensen of USDA, and Clayton Ogg of EPA, emphasized that within their respective agencies, the outlook is toward performance- and market-based watershed-level solutions to agriculturally-related environmental problems.

Other *key points* from the plenary session presentations are:

- \* Targeting outcomes rather than practices is likely to be more cost-effective. It may also promote farmer innovation in finding least-cost solutions if the associated challenges of measuring and monitoring performance can be resolved.

- \* The ability to measure and/or estimate performance is critical in evaluating the success of any performance-based policies. This can be achieved through water quality monitoring as well as computer simulation modeling.

- \* Realistic understanding is needed of the causes of environmental problems. This includes the time frame over which they evolved, appropriate potential remedies and the time over which those remedies may produce measurable improvements. Focusing on the farm and watershed scales is the most appropriate approach for creating effective policy.

- \* Performance-based policies provide incentives for what is to be achieved (the environmental outcome) and do not dictate how that outcome is to be achieved. A combination of positive financial incentives (carrots) and regulations with enforceable penalties (sticks) are likely to be needed for farmer compliance.

- \* Information is a critical component of performance-based policies. Policy makers need information on the value of environmental quality; farmers need accurate information on pollution levels associated with various production practices; and agencies need information on farmers' actions and resulting environmental outcomes. Continuing rapid improvements in information systems are likely to aid the development of performance-based policies.

- \* Performance-based policy approaches present administrative complexities, may involve high costs to monitor performance, and could generate legal challenges.

- \* The new Conservation Security Program may be a vehicle to help us move toward performance-based policies.

### ***Watershed Approaches***

Specific issues for performance-based policy development were addressed in each of the five watershed-focused breakout sessions. In each session an overview of the watershed, its agriculture and environmental concerns, was presented. Participants were asked to identify potential performance measures, incentive mechanisms and information needs for the development of performance-based policies. Spirited discussion yielded varied and innovative ideas. A brief synopsis of each session is presented below.

**Suwannee River:** The performance measure discussed is nitrogen loading as measured in the southern stretch of the river, below the town of Branford. The group suggested providing incentives to farmers for the voluntary adoption of comprehensive nutrient management plans. If target nitrogen loads are not reduced to the level specified, regulatory action would result.

**Rathbun Lake:** The primary concern is sediment going into the Lake. The performance of farms in controlling erosion might be measured using the Revised Universal Soil Loss Equation (RUSLE) and by measuring total suspended solids in the lake and its tributaries. Farmers need more information on cost-effective strategies for controlling erosion; research projects and farmer-to-farmer learning were identified as potential information sources.

Union School Slough: Sediment loading from extreme weather events is the major issue. A potential performance measure could be the level of total suspended solids and turbidity in the irrigation return flows. Strong incentive mechanisms are needed to promote maximum farmer participation in watershed management plans; the level of the incentive might be graduated based on the level of participation. Better information is needed on the relationship between practices and performance, as well as the costs and benefits of different practices.

Cannonsville Reservoir: Phosphorus concentration levels are the primary concern in the Cannonsville reservoir, which is part of the New York City water supply. Farm-level phosphorus balance was focused on as a tractable performance measure that is correlated with phosphorus concentration levels in the reservoir. Incentive mechanisms discussed include indemnification from legal proceedings, eligibility for continued government program participation, and direct payments. More information is needed on the most cost-effective ways to achieve a phosphorus balance on the farm.

Tillamook Bay: The major agriculturally-related environmental issue identified is bacteria contamination in the estuary that affects shellfish harvests. A potential performance measure is the in-stream level of bacteria at the mouth of each of the major tributaries to the estuary. Incentive mechanisms might include a payment or penalty to each sub-watershed based on its performance. A tradable permit system was discussed that would allow the farmers in each sub-watershed to decide as a whole whether they could exceed the performance target; if so, they could sell their excess permit to discharge bacteria to another sub-watershed where meeting the target will be more costly. Peer pressure among farmers to achieve or exceed the performance target would act as an additional incentive. Information needs include farm practices to reduce bacteria and the ability to monitor bacteria levels at a reasonable cost.

### ***The next steps***

The feedback from workshop participants generally indicated a high level of interest in pursuing these ideas and that the workshop was successful in initiating new thinking for many on the topic of agri-environmental policy. Based on the reactions from the watershed breakout session participants, performance-based policy approaches hold significant potential to improve our current system of agricultural conservation programs. The representatives from all five of the watershed groups have expressed an interest in continuing this work.

The workshop represented Phase I of this work. Phase II is to develop detailed performance-based policy recommendations through facilitated stakeholder and technical input processes in each watershed. These processes will illuminate the research agendas and create the multi-disciplinary scientific teams necessary to determine technical- and cost-effectiveness, as well as the socio-economic effects of this approach in each watershed. Proposals for Phase II are currently pending from several funding sources. Phase III will be to conduct the identified research. If the research results reveal net social benefits from the implementation of performance-based policies, Phase IV will be the pilot-testing of these policy approaches in the watersheds. Updated information on the development of these national and watershed efforts can be seen at <http://www.winrock.org/events/wallace/PEPA/>.

Although change comes about slowly, a paradigm shift is taking place in how we think about agricultural conservation programming. Performance-based environmental policies for agriculture are likely to be a prominent part of U.S. agri-environmental policy in the coming decades.