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Rising



Market-based environmental initiatives may be an idea whose time has arrived.

Setting it aside: A Virginia crop producer walks along a strip of ground taken out of corn production and given over to water stewardship near the Rappahannock River.

photo courtesy Clear Window

BY DAVID E. ERVIN AND FRANK CASEY

When household incomes increase, the demand for environmental services (“green” products and services such as organic foods, environmentally friendly packaging, environmentally friendly production and distribution processes) increases faster than the demand for agricultural commodities. As a result, environmental management plays a larger role in the food industry. The political process responds to these demands by setting standards and developing public programs. Market participants — buyers and sellers — also respond. Consumers and investors now reward farms and agribusinesses that supply desired environmental services along with food and fiber. These market participants are turning to “green” products and the firms that produce them.

Scholars and managers have devoted much effort to evaluating public environmental programs such as the Conservation Reserve Program (CRP), but little analysis has been directed at private agro-environmental management. The potential

and limitations of private activities merit more study, especially during an administration that seems to favor voluntary and private industry actions. A lack of understanding of causes and consequences of these private efforts will hinder sound decisions about their roles in solving complex environmental problems, and failed private efforts may prompt stronger regulation. Building understanding of the different types of private environmental initiatives is a first step to using them to help achieve society’s environmental objectives of meeting growing green market demand, and avoiding unnecessary cost and regulation.

The Search for Private Green

Today’s farmers face a bewildering array of federal, state, and local environmental programs, as well as a market that is increasingly rewarding environmental quality. As the costs of participating in public programs grow, and as the market for green products expands, producers have new and increased

incentives to pursue private environmental quality management initiatives.

Economic research on business environmental management (BEM) in industries outside of agriculture has grown rapidly of late. The literature identifies three types of BEM: unilateral initiatives by individual firms to control pollution or by industry groups to self-regulate, bilateral or negotiated agreements between the government and firms including a voluntary environmental target and a timetable for reaching it, and voluntary government programs to encourage individual firms (farms) to practice certain types of environmental protection.

The third approach, voluntary government programs, has been the mainstay for agriculture. However, when incentives end, environmental effort usually wanes. The potential for long-term environmental protection thus depends on continuing the public funding. Total expenditures on USDA voluntary incentive programs for soil erosion control, improved water quality, wildlife habitat, and other purposes have ranged from \$3.2 billion to \$3.7 billion per year in nominal terms since 1992 (Zinn).

The level of funding has declined in real terms. Congress may be unable to appropriate enough funds for incentives to satisfy the growth in the public's demand for agro-environmental improvements. Program reforms that foster unilateral initiatives or negotiated agreements may increase the effectiveness of the remaining public funds.

In our judgment, unilateral and negotiated environmental schemes in agriculture will increase in number because of unsatisfied public demands for environmental services, along with efforts by farmers and agribusinesses to avoid more stringent regulations. Five different but related motivations for private involvement in the production of environmental services are described here.

Improving firm productivity. The creation of production and marketing systems to implement BEM can lead to the discovery of cost reductions or opportunities for new products. Firms may find cost savings from using BEM information, management systems, and production techniques. Boggess, Johns, and Meline (1998) found productivity gains for some dairy farms that adjusted to higher nutrient pollution control standards for Lake Okeechobee. The regulations encouraged these dairy farmers to adopt new production technologies that simultaneously reduced water pollution and improved net returns.

Other dairy farms moved to new locations to avoid the added regulatory costs

Satisfying the demands of "green" consumers and investors. Retail products and investment funds that emphasize environmental performance are multiplying. Investments in "socially responsible" investment funds grew from \$40 billion in 1984 to \$2.16 trillion in 1999 (Social Investment Forum, 1999), and mainstream food retailers are beginning to stock "natural" and "organic" foods.

Preempting or mitigating future environmental regulations. The incentive to avoid government regulation may increase as public demand for an improved environment grows. However, the costs of building coalitions among diverse farming interests may restrict effective BEM initiatives in farming.

Strategic "management" of competitors. Adding expenditures to improve environmental performance may increase a firm's profits relative to those of its competitors if its actions

cause the competitors' expenditures to rise even higher in matching the performance. Also, early adopters may enjoy a strategic cost advantage by forcing competitors to follow suit or risk public or market penalties.

Redefining markets. Some firms can redefine their markets to deliver more environment-based value to customers. For example, some ranchers have differentiated their wool or beef products to show that they are using "predator friendly" production management systems.

Early evidence, mostly from outside agriculture, suggests that the probability of actually undertaking BEM increases with firm size and higher R&D capacity. Firms also have more incentive to adopt BEM schemes if they produce final goods, face strong competition, are innovative in their production practices, or if they are using older production equipment and will incur lower costs after replacing it.

Growing consumer demands for green foods should persuade an increasing number of agricultural firms to practice BEM. The growth in green mutual funds suggests investors also influences the behavior of firms. Capital markets penalize firms for higher than expected levels of toxic emission and reward them for superior environmental performance. Businesses respond to such investor pressure. These pressures will most likely be passed on to food processing and retail firms that use contracts to reward farmers whose production systems protect the environment.

Green Alphabet Soup: An Acronym Guide

- BEM:** Business Environmental Management
- CRP:** Conservation Reserve Program
- WRP:** Wetland Reserve Program
- EQIP:** Environmental Quality Incentives Program
- WHIP:** Wildlife Habitat Incentives Program
- RSA:** Resource Stewardship Agreement

Firms with poor environmental records are more likely to undertake BEM than firms that do not face such conditions. There are fewer environmental regulatory penalties in agriculture than other industries. However, the number of regulatory programs affecting farming is growing, especially at state and local levels and for animal agriculture operations. The trend will likely continue. Agriculture's tradition of voluntary government programs backed by public payments stems in part from the problems of identifying and dealing with diffuse and numerous nonpoint sources of pollution. Public programs designed to help spread BEM in farming can assist in reducing such persistent problems.

Giving Private Initiatives a Public Boost

Public desire to improve the environmental performance of agriculture has spawned several programs at the federal, state, and local levels. The largest is the CRP and its companion programs — the Buffer Initiative, the Conservation Reserve Enhancement Program (CREP), and the Wetland Reserve Program (WRP). The smaller Environmental Quality Incentives Program (EQIP) and the Wildlife Habitat Incentives Program (WHIP) target specific issues. The motivations for BEM offer insights into potential changes in the programs to build more private environmental management.

Farming for Flexibility

Giving producers flexibility allows them to capture the productivity and marketing benefits that stem from BEM. A menu of incentives including, but not limited to, full cost reimbursement (green payments), cost sharing, tax allowances, deposit/refund schemes, conservation easements, and tradable development or polluting rights offers such flexibility. If flexible means are available, producers are free to choose the mix of incentives that maximizes their net benefits while also contributing to public environmental objectives.

Programs that allow last minute adjustments because of limited knowledge of the future effects of present economic and environmental decisions and actions will improve overall cost-effectiveness. Producers will also benefit from the flexibility to design, test, and implement — with possible assistance from public agencies, third-party non-profit groups, or certified private consultants — new green technologies and marketing strategies appropriate to local physical and economic conditions.

Institutional Innovations

Improved coordination in the delivery and administrative systems of the multi-layered federal, state, and local resource conservation programs decreases producers' transaction (search and negotiation) and administrative costs. One possibility is private contracting to bundle together several programs aimed at restoring or conserving environmental amenities. A contract of this type might be termed a Resource Stewardship Agreement (RSA).

The private sector can assist with RSA design, administration, and monitoring. Several states presently use staff funded by non-profit groups to implement conservation programs. In Oregon, the Oregon Wetlands Joint Venture Initiative funds a position within the State Natural Resource Conservation Service to process WRP applications. Similarly, crop consultants could represent several producers interested in designing agreements for



an area or a watershed protection plan.

The traditional delivery public agency roles are needed if unilateral and bilateral BEM initiatives are to grow. Technical advice and funding for production systems and monitoring remain essential, and public agency capacity in education and training should extend to integrated production — environmental systems that reduce waste and afford green marketing opportunities. Reducing producer uncertainty concerning potential regulatory penalties in the early stages of BEM will foster cost-effective private investments. Public agencies can use various options for providing regulatory certainty in return for managing environmental goals and implementing environmental quality standards.

Alternative market institutions that help producers capture the full social benefits of their environmental management investments require investigation as well. One of the most crucial attributes of institution building is providing producers and consumers with timely and credible information about opportunities to sell environmental services such as wildlife hunting and viewing. Government agencies can assist in the development of such market institutions.

Technology Research and Development

Agro-environmental services often suffer missing market incentives for two different reasons. Some benefits extend geographically beyond the farm boundary, as with reductions in sediment and nutrients. Other benefits, such as the preserva-

tion of biodiversity, fall mostly to future generations. Public investment in developing production systems that reduce environmental wastes and public risk is essential to capture long term social benefits. The new R&D orientation requires increased public funding and an ongoing effort to enhance adoption of BEM in agriculture, and to respond to demands for agro-environmental services.

An Organization's Got to Know Its Limitations

Public programs will continue to play important environmental management roles, but one can make the case that the leading edge of agro-environmental management is shifting to the private sector. Both private for-profit and non-profit organizations are currently engaged in these activities. However, assuming that private action will mitigate all agro-environmental problems is asking too much. Totally private strategies and ventures will likely encounter failure, frustrate public environmental demands, and jeopardize the full potential of BEM until researchers can better determine:

Consumer demand and willingness to pay for environmental attributes associated with food and fiber products and their production processes;

Investment costs and long-run returns to integrated production systems that reduce wastes and conserve environmental services;

BEM transaction and administrative costs for addressing complex problems, such as the protection of biodiversity on public and private lands; and

Potential roles of NGOs, for eco-labeling, certification, monitoring, and other services.

A shift toward BEM means that farmers and agribusinesses will have greater access to rewards for producing environmental goods. Private incentives can develop and spread environmentally and economically sustainable production and marketing system innovations. However, public roles remain essential, especially in setting clear performance targets, reducing regulatory risks during transition, delivering management education, and developing science-based innovations for the next generation of food and fiber systems.

For More Information

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