

# **What approaches are most likely to encourage the adoption of best management practices?**

## **Process Standards for Resolving Resource Conservation**

### **Dilemmas**

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Although they go by different names, many challenges in natural resource management have the general structure of collective action problems. A beneficial result can be achieved if everyone (or nearly everyone) defers some short-term benefit associated with resource exploitation and engages in use patterns that conserve the resource over the long term. These are not cases where individuals must permanently sacrifice self-interest for some larger cause. Every party will enjoy greater benefit if conservation is effective, so cooperation is consistent with self-interest. But in the absence of cooperation, each individual has strong incentives to engage in exploitive use. The policy challenge is to get the cooperative behavior up and running so that the collective benefits can be realized, and then to keep ensure that people keep cooperating in the face of opportunities to gain advantages by defecting from the cooperative scheme. These challenges have been variously described as the tragedy of the commons, common-pool resource management and free-rider problems.

The susceptibility of weeds to herbicides can be conceptualized as just such a problem if several conditions are satisfied. First, there must be patterns of herbicide use that would either prevent or substantially delay the emergence of resistant plants. Such patterns of use must be effective enough in controlling weeds to make them worth doing. Second, users of herbicides must stand to benefit over the long run if susceptibility is maintained or the onset of resistance is delayed. The most likely long-term benefit is simply the ability to continue to use a cost-effective weed control method that has acceptable environmental and health risks. Finally, there must be reasons why users would not utilize the conservation strategy. Such reasons may be complex. They may doubt the effectiveness of the conservation strategy, perhaps because they doubt that others will comply. Hence they hope to extract maximal short-term benefit before the effectiveness of the herbicide is lost. However, reasons may also be simple: they may not understand that the conservation strategy is in their self-interest, or may think that it is inconvenient to follow. The following discussion illustrates some generalized responses to collective action problems and does

not undertake detailed discussion of the biological strategies for controlling herbicide resistance or the human reasons for failing to deploy such strategies given current policies.

When ecologist Garret Hardin published his widely read article on “the tragedy of the commons” in 1968, the general thinking on collective action problems held that in the absence of means to privatize the resource in question, the only solution to them was government intervention. Interventions might take the form of coercive regulation or incentivizing compliance through subsidy, but the power of self-interest was believed to be so overpowering that individuals acting on their own could never develop a means to bring about or maintain cooperative conservation (Olson, 1965). Work by economists and political scientists has since documented in a wide variety of ways in which groups have brought about effective responses to the need for cooperative conservation. A detailed discussion of the new theory of common-pool resource management is beyond the scope of the present discussion. Responses generally combine ethics, understood as a means of mutually recognizing the value of conservation and reproducing cultural norms dedicated to its continuation, with monitoring and enforcement mechanisms that draw upon culturally robust institutions of duty, guilt and shame, as well as more conventional penalties (such as fines or denial of access to the resource) for defection (Ostrom, 2008; 2009).

Such informal governance mechanisms have been especially effective where the resource to be conserved is coextensive with a geographically contiguous region such as a forest, a fishery or a watershed. Spatial contiguity facilitates both the formation of a local culture and the group monitoring activities that are needed to enforce norms. It is not clear that management of herbicide resistance will lend itself to such informal mechanisms. However, another type of mechanism has evolved that exploits the organization of food system supply chains as they currently exist in highly industrialized and global markets. These mechanisms involve tri-partite standards regimes that include mechanisms for the creation, certification and accreditation of process standards for food and fiber products produced on commercial farms (as well as some manufactured goods) and traded on national and global markets. The picture will become clear as a few of these key terms are defined and some examples are given.

Grades and standards for agricultural products for agricultural products have traditionally been associated with product quality. Product standards such as the USDA grading criteria for meats were developed to organize markets, but were based on observable features of the final product. Standards for food safety were based on identification of tolerances for potential contaminants, trace chemicals or microorganisms, and were similarly based on scientifically observable characteristics of a product. In contrast, a *process standard* is based on characteristics of

the production process are not detectable through close observation or testing of the product. Key process standards that have emerged over the last twenty years include “fair trade,” “GlobalGAP” and various standards for the humane treatment of food animals. The most influential process standard is “organic” or “bio”, which stipulates a number of specific production practices that must be followed before products can be marketed under the corresponding label (Busch, 2011a).

Both product and process standards involve the interaction of three activities. First, there must be a bodies or organizations that develop the standards in question. It is not unusual for multiple standards to emerge from competing standards developers. Second, there must be a method for certifying that products and/or processes are in compliance with the standard. Classic product standards were certified by inspection or scientific test applied directly to the product, while process standards are more typically certified through inspection of the production process along with record-keeping methods (themselves the focus of process inspections) to ensure that products have indeed been produced according to the specifications of the standard in question. Finally, certifiers themselves must be accredited. Accreditation insures that certification methods and practices provide reasonable assurance that standards have been interpreted accurately and provides a mechanism for insuring that conflicts of interest do not undermine the entire purpose of standards implementation. The interlocking activities of standards development, certification and accreditation create a self-reinforcing network of organizations and activities. This network constitutes a *tri-partite standards regime* (Stone, Loconto and Busch, 2012).

Tri-partite standards regimes may involve government agencies in all or part of their activities. In the case of the USDA organic standard, standards development was undertaken under the auspices of the United States Department of Agriculture Agricultural Marketing Service. However, producers wishing to participate in the National Organic Program must contract with a private certifying agent. These agents may be non-profit organizations, though they tend to be for-profit firms. Certifying agents are in turn accredited by USDA. Thus in the case of the US organic standard, government operates two of three components of the tri-partite standards regime. Furthermore, farmer participation in the program is entirely voluntary and may be motivated by profit or by other personal goals. The National Organic Program was developed at the request of growers who hoped to simplify access to what they perceived to be an important market opportunity (Guthman, 2004). Although the National Organic Program is the most successful example of a current process standard, it may not be a particularly apt model for approaching the dilemmas of herbicide resistance. However, other process standards that have emerged in the food system illustrate this potential.

*Fair Trade* The term “fair trade” is used generically to indicate a number of specific standards intended to return a larger share of the final consumer price of agricultural commodities to primary producers. FairTrade is a term licensed by the Fair Trade Foundation, a non-profit organization based in the United Kingdom that was established with the goal of helping small-scale producers, especially in the developing world. The Fair Trade Foundation initially developed the standards for use of the FairTrade label, and served as a certification body. Now, standards development and accreditation have been ceded to a consortium of fair trade labeling organizations including Fair Trade International, while the Fair Trade Foundation concentrates on certification and market development. Literally dozens of similar standards have been associated with terms such as “equal exchange” “social accountability” and “Oxfam” (the name of a well-respected NGO), each of which is associated with a similar tri-partite standards regime.

Fair trade standards are worth noting in part because they operate almost entirely outside governmental authority. Key actors are primarily not-for-profit charitably oriented organizations, many of which have been formed with the express purpose of promoting fair trade. As with the organic standard, participation by producers is entirely voluntary. The primary incentive for participation by producers is economic. The effectiveness of the standard depends upon purchase behavior by consumers. If enough consumers can be enrolled, the fair trade standard becomes an effective way to return a larger share of consumer price to producers. However, consumer confidence is undermined when fair trade-type labels are deployed without adequate procedures for certification. Debates over the effectiveness of fair trade have led some to suggest that accreditation of certifiers, at least, should fall under the authority of a legally constituted government agency. Indeed, the United Nations Conference on Trade and Development (UNCTAD) has reviewed a number of fair trade schemes, identifying dozens that they believe accomplish fair trade objectives. UNCTAD stops short of recommending state-supervised accreditation. Compared to other standards reviewed here, fair trade is still the Wild West of tri-partite standards regimes.

*Sustainability.* There are a number of efforts to develop process standards focused on sustainability, both within the food system and more generally. The International Organization for Standardization (ISO) has a general sustainability standard (20121) in development. Other examples do not use the word sustainability, but are intended to promote environmental or social improvement while restructuring supply chains. Formerly known as EuropGAP, *GlobalGAP* is a set of common agricultural production process standards that are being developed by a consortium of European supermarket chains. It is but one of many efforts to develop standards under a broad “green” or sustainability umbrella. When complete, the content of GlobalGAP standards will be a set

of good agricultural practices covering food safety, worker health, food quality and environmental impact of production processes. The supermarket industry hopes that compliance with these standards will assure customers that they are working to achieve sustainability throughout the food system. The eventual goal is for all products sold in member stores to comply with GlobalGAP standards. As with USDA Organic, certification will be done by an independent organization or firm. Accreditation of these certifying agents will take place under the auspices of mostly government-supervised accreditation agencies in the respective countries where members of the consortium source products to be sold under the GlobalGAP standard. The relevant body in the United States is the American National Standards Institute (ANSI). ANSI itself is a private not-for-profit organization that includes U.S. government agencies as members, and that is the official U.S. Government representative to the International Organization for Standardization (ISO).

Although like all sustainability standards developed to date, producer participation in GlobalGAP is technically voluntary. But to the extent that these standards become requisite for one's products to appear on supermarket shelves, producers selling into commodity markets may find themselves with little choice but compliance. It is thus clear that *if* GlobalGAP decided to institute herbicide management procedures into its good agricultural practice requirements, this particular private process standard would very likely become even more effective than mandatory Federal regulation in incentivizing rapid change in farmer behavior (Loconto and Busch, 2010). GlobalGAP or other standards would be instituted by downstream actors in the supply chain in order to bolster consumer confidence or to burnish their image as a "green" company. However, because of the power associated with integrated access to the processing system or retail markets, this is a standard that would rapidly convert the idealized form of producer compliance into a reality (Busch, 2011b).

*Animal Welfare.* As with other areas reviewed above, process standards intended to address the welfare and well-being of agricultural animals are being developed under a number of distinct tri-partite standards regimes. State agencies have been the primary actors in the European Union, though a number of retailers have attempted to establish standards for premium products that could be offered at higher prices. NGOs such as the American Humane Association have been active in the United States, but an effort by a producer organization, the United Egg Producers (UEP) is of particular interest. Following an action by the McDonald's corporation in the 1998 requiring egg suppliers to meet standards for hen welfare that had been developed by an independent committee of experts, UEP convene its own scientific committee to recommend standards, which were adopted by the UEP Producer committee in 2000. At first initiation, the UEP welfare standard primarily

addressed space requirements computed on a per-bird basis, which were increased by nearly 50% of typical industry practice at the time. Standards have since been revised and updated to address non-cage production systems and other production practices, such as induced molting through feed withdrawal (Mench, 2008).

The UEP standard for hen welfare was voluntary, however, to incentivize compliance UEP developed a label, eventually call “UEP Approved”, which could only be applied to eggs produced in compliance with the standard. Certification was undertaken by both USDA inspectors and by private certifying firms. Accreditation of certifiers is currently done by UEP executive officers with advice . Although consumer awareness of the UEP Approved label remains low, several retail chains have adopted policies of stocking only UEP certified product. The result has been rapid and widespread compliance within the egg industry. In a personal communication, UEP President Gene Gregory reports that uptake was rapid, covering 80% of the industry within two years of adoption by the UEP Producer Committee, and participation has continued to increase in the intervening years.

The UEP’s effort is interesting in the present context because it represents an initiative undertaken by a producer organization, though as with GlobalGAP, a significant additional incentive for participation in the standard accrues from its use as a requirement for entry into key retail markets. However the fact that the standards process was begun by and remains controlled by producers shows that standards processes can be driven by any of several actors in the supply chain: producers, consumer oriented NGOs (as in the case of free trade) or retailers (GlobalGAP). There are thus significant options beyond the case of government regulation to bring about means for addressing collective action or common-pool resource dilemmas.

Like the common-pool resource management schemes for fisheries, forests and other classic instances of natural resource conservation, tri-partite standards regimes can be effective non-state means of soft law—the domain where social expectations and voluntary mechanisms create incentives and penalties that rival the power of governments for influencing human behavior. Ethics, understood to include the give-and-take of opinion and debate that creates and reinforces such expectations—is a crucial component of that process. If an ethically convincing rationale emerges linking conservation of herbicide effectiveness to sustainability, it could be possible for retailers or other actors within the food and agricultural products industries to put process standards in place that virtually force producers to comply. If producers not only come to understand that they would benefit from compliance with herbicide conservation strategies, but they should act collectively to do so, the opportunity for effecting a tri-partite standards regime to

bring this about might well arise within the industry. In the spirit of democracy and participation, the latter approach is preferable.

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