

AN INCENTIVE FOR ADOPTING BEST MANAGEMENT PRACTICES FOR THE APPLICATION OF MANURE TO LAND

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Abstract. Although federal and state regulations have greatly reduced pollutants from concentrated animal feeding operations (CAFOs), pollutants from manure applications on land continue to impair water quality. Producers of confined animals not regulated as CAFOs have few incentives to adopt practices to minimize pollution. Given contamination from these producers, regulators might develop a plan to encourage practices to reduce contaminants entering waters. This paper proposes an incentive to encourage farmers to employ best management practices in the application of manure to lands. Farmers who fail to employ acceptable manure application measures would be disqualified from the state's anti-nuisance defense. In this manner, a government could reduce pollutants from manure applications thereby improving water quality.

INTRODUCTION

The production of animals has been accompanied by problems involving allegations of water pollution (Bakhsh et al., 2005; Elrashidi et al., 2005). Large animal production facilities and the concentration of the livestock industry in regions (Golleson et al., 2001) have been accompanied by wastes containing nitrogen and phosphorus that contaminate waters (Ribaud et al., 1999; Sharpley et al., 2000). Responses to these problems include recommendations of management practices to minimize pollutants that enter waters (Araji et al., 2001; Letson et al., 1998).

Federal and state governments have adopted legislation to control this pollution, and regulatory agencies have been busy amending regulations to implement the legislative changes (Centner, 2004b; Metcalfe, 2000). The most visible regulations are those adopted pursuant to the Clean Water Act that govern concentrated animal feeding operations (CAFOs). As a result of challenges by environmental groups, the Environmental Protection Agency has amended the federal CAFO Rule (Environmental Protection Agency, 2003; Environmental Protection Agency, 2006). The proscriptions set forth in the Rule should lead to the abatement of some pollution from large animal

producers.

However, the CAFO Rule does not address pollution from most animal production units. Only about 15,000 operations will need to secure a permit under the Rule, meaning that 223,000 confined animal feeding operations do not have to follow the water quality provisions of the CAFO Rule (Environmental Protection Agency, 2003). Moreover, some states' governments are precluded by state law from adopting water quality rules more stringent than federal rules (Arizona Revised Statutes, 2006). These "no-more-stringent-than" laws are intended to provide assurance to businesses that the state's environmental controls will not impose costs that would place the businesses at a disadvantage to competitors in other states.

Because most states do not prescribe water quality requirements for animal producers beyond those dictated by the Clean Water Act, no meaningful regulations control the discharge of pollutants from those confined operations not regulated as CAFOs. Governments might direct more attention to these nonregulated operations. While agriculture traditionally has used manure to enhance crop performance, an overabundance of animal wastes at an operation may require governments to take further action to advance the more provident use of this byproduct. Although state legislatures might consider imposing mandatory guidelines limiting the amounts of animal manure that may be applied to lands (Centner, 2004a), this would be costly. An alternative response advocated by this paper involves the use of an incentive to encourage all animal producers to employ best management practices in the application of manure to minimize the flow of contaminants into waters.

OVERSIGHT OF MANURE DISPOSAL

Three sets of water quality regulations have been adopted to help safeguard our country's water quality. For producers of animals, nonpoint-source water quality regulations provide encouragement for practices that minimize pollution. Second, federal and state CAFO regulations enumerate requirements of practices that apply to operations with large numbers of animals and a

discharge of pollutants to waters. Third, federal effluent limitation guidelines provide more stringent controls but only apply to a limited number of CAFOs.

Nonpoint-Source Provisions

Animal production units that do not meet the definition of a CAFO are subject to federal and state nonpoint-source pollution regulations. For areas with substantial water quality problems, states are required to develop and implement area-wide waste treatment management plans that include a process to identify runoff from manure disposal areas and land used for livestock production (U.S. Code, 2000). States also must prepare state management programs for controlling pollution emanating from nonpoint sources, including the implementation of best management practices (U.S. Code, 2000).

While the nonpoint-source water pollution regulations help reduce the impairment of waters, they do not set forth specific requirements governing the application of manure. Therefore, the provisions do not preclude confined animal operations from engaging in practices that cause contaminants to enter waters. Moreover, regulators are not assessing meaningful penalties for violations of nonpoint-source regulations.

CAFO Regulations

The CAFO Rule delineates a permitting system with mandatory, regulatory controls for those CAFOs having a discharge of pollutants. The Rule prescribes best management practices for the application of manure to fields for minimizing the impairment of water quality. Due to the costs imposed by the permitting system, the requirements of the CAFO Rule only apply to large operations. Under the CAFO Rule, states have adopted regulations delineating practices for manure application. For example, Iowa's environmental protection rules prescribe requirements in Chapter 65 of the Iowa Administrative Code. Minnesota has prescribed rules for CAFOs in Rule 7020.

In Iowa, regulated CAFOs are precluded from applying "manure in excess of the nitrogen use levels necessary to obtain optimum crop yields" (Iowa Administrative Code, 2005). Other significant practices are governed by recommendations, such as limitations on phosphorus applications, spreading manure on land adjacent to water bodies, and applying manure on snow-covered ground (Iowa Administrative Code, 2005). CAFOs are encouraged to adopt those practices but do not violate regulations if they decline to do so.

Chapter 7020 of the Minnesota Rules enumerates numerous regulations for the land application of manure. These regulations cover basic practices such as application near water bodies or on steeply sloping

croplands. A few provisions are quite specific, such as limitations on the application of manure on snow-covered ground. Other provisions are rather general, such as Minnesota's prohibition on applying manure to "cause pollution of waters of the state . . ." (Minnesota Rules, 2003). However, these provisions governing the application of manure only apply to some animal feeding operations. Moreover, governments may not prosecute violators due to difficulties in proving a deviation from required standards and the source of pollutants. Few sanctions are imposed on persons who impair waters with animal waste.

Effluent Limitation Guidelines

Federal effluent limitation guidelines for large cattle, dairy, swine, and poultry CAFOs prescribe best management practices for the application of manure (Code of Federal Regulations, 2005). These CAFOs need a nutrient management plan "based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field." Manure needs to be applied according to agronomic rates to avoid pollution from overapplication.

Technical standards in nutrient management plans delineate field-specific assessments of the potential for nitrogen and phosphorus transport from the field to surface waters, address the application of nutrients on each field to achieve realistic production goals, and minimize nitrogen and phosphorus movement to surface waters. By incorporating agronomic rate requirements, manure applications do not involve the overapplication of waste. The effluent limitation guidelines help minimize adverse impacts on water quality.

ADOPTING AN INCENTIVE NOT TO POLLUTE

The issue is whether a government might take additional action to encourage the land application of manure pursuant to best management practices and thus minimize the flow of contaminants into waters. The existing regulations for CAFOs enunciate practices that significantly reduce the flow of contaminants into waters, but do not apply to most confined animal feeding operations. To further reduce animal production pollutants from contaminating waters, encouragement might be given to all producers to adopt best management practices for manure application. Because governments are hesitant to impose mandatory, water-quality controls on non-CAFOs, an alternative strategy is needed.

To complement the permitting provisions for CAFOs, a government might offer an incentive to encourage practices to reduce pollution from non-CAFOs. While incentives often involve money, another

type of incentive is to adopt a qualification for governmental benefits. By delineating voluntary manure management practices as a qualification for a government benefit, a government could offer greater encouragement for eliminating activities that contribute to water pollution. For producers of animals, the qualification could involve the employment of best management practices in the application of manure to lands. In this manner, fewer pollutants from the application of animal waste would be expected to impair water quality.

The Federal Swampbuster Provision

Congress adopted a qualification for a federal benefit in the “swampbuster” provision of the Food Security Act of 1985 (Public Law No. 99-198, 1985). Swampbuster provides that agricultural producers who grow crops on converted wetlands become ineligible for various benefits available under federal farm programs. The government’s objective was to prevent the destruction of wetlands by agricultural producers. The means adopted to achieve the objective was to limit federal farm program benefits to producers who desisted from converting wetlands to other land uses (Heimlich et al., 1998). This discloses a voluntary approach to foster an environmental objective. Farmers have the option of draining wetlands, but if they select this option, they become ineligible for federal farm program benefits. Many farmers have refrained from draining wetlands given the potential loss of participation in these programs (Kramer and Shabman, 1993).

The federal swampbuster provision shows that an incentive does not have to be directly related to the environmental goal or mandatory controls. Rather, Congress furthered its environmental objective of preserving wetlands by placing a qualification on participation in federal farm programs. Producers who converted wetlands to cropland were simply ineligible to participate in federal farm programs. In an analogous fashion, it may be possible to reduce contamination from livestock production by disqualifying producers from a benefit if they fail to comply with voluntary best management practices for manure application. To advance the goal of reducing the impairment of waters, legislators might identify a benefit and adopt a qualification for the benefit.

State Right-to-Farm Laws

A governmental benefit that could be employed for this purpose is the anti-nuisance protection offered agricultural producers by state right-to-farm laws. Anti-nuisance laws were enacted to support the retention of farmland by reducing situations whereby nuisance law can be used to end an agronomic activity (Grossman and

Fischer, 1983). The laws were also intended to protect the existing investments of farmers in agricultural operations (Hand, 1984). To accomplish these objectives, the laws incorporated a “coming to the nuisance” doctrine. Persons moving adjacent to an offensive activity can be precluded by the statutory defense from obtaining an injunction. For producers of animals, this means that smelly manure application activities may continue so long as the practices existed prior to persons moving to the area and complaining about them.

State right-to-farm laws show equitable considerations in granting special dispensation for qualifying business activities. Two major considerations are significant. First, a law recognizes contributions of existing businesses to an area’s economy and seeks to assist businesses in continuing their activities. Second, right-to-farm laws protect and encourage investments in facilities by assuring persons they may continue with activities even if neighboring land uses change. Despite the negative effects agricultural activities may have on future neighboring property owners, legislatures have made a policy decision to provide anti-nuisance protection.

Given that anti-nuisance laws favor agricultural producers and other businesses over neighboring land owners, a legislature might decide that the special dispensation is not needed if a producer is imposing environmental damages on others. Operators of confined animal operations who fail to employ best management practices in the application of manure to lands are impairing water quality. The failure to employ best management practices might disqualify them from state anti-nuisance protection. A qualification could be added to an anti-nuisance law whereby persons could only qualify for anti-nuisance protection if they apply manure pursuant to best management practices.

CONCLUSION

The best management practices required by the CAFO Rule and effluent limitation guidelines may be used for defining the qualification for anti-nuisance protection. Best management practices are reasonable and prudent methods for the application of manure to pastures and fields at agronomic rates so that the manure serves as a source of nutrients for plant growth. This involves the development and implementation of a nutrient management plan with agronomic manure application rates to minimize phosphorus and nitrogen transport from fields to surface waters (Code of Federal Regulations, 2005). Technical standards in each plan delineate field-specific assessments of the potential for nitrogen and phosphorus transport from the field to

surface waters.

Under this proposal, additional mandatory water quality controls would not be used to reduce the impairment of water quality. The mandatory regulations for CAFOs would be retained, complemented by an incentive for other producers to voluntarily adopt appropriate manure application practices to qualify for state anti-nuisance protection. Since many small livestock producers live in urban fringe areas where nuisance lawsuits are a concern, this incentive might be expected to lead to better manure application practices. Producers' responses to swampbuster suggest that many confined animal feeding operations would desire to qualify for the incentive and would structure their activities to minimize water pollution.

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