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New Regulations Governing Concentrated Animal Feeding Operations Require New Solutions: Discussion

Ronald A. Fleming and Michael H. Thomas

This paper discusses the three invited papers presented in the session titled “New Regulations Require New Solutions: Federal Provisions Governing Concentrated Animal Feeding Operations” (i.e., CAFOs). These papers provide an excellent review of current state and federal laws and an excellent summary of what has been and is currently being done with respect to CAFO regulation. The papers present three different policy approaches: i) alternative performance standards, ii) location-specific regulation, and iii) insurance-based underwriting of CAFO discharges. Each approach has its drawbacks; however, blending these suggested policies into current regulation would result in efficiency gains.

Key Words: alternative performance standards, Animal Feeding Operations, Confined Animal Feeding Operations, environmental quality, insurance, livestock, manure management, market-based incentives, regulation, spatial regulation

JEL Classifications: D81, K32, Q52, Q53, Q55, Q58

The theme of the invited paper session, “New Regulations Require New Solutions: Federal Provisions Governing Concentrated Animal Feeding Operations,” is timely in light of the unprecedented expansion of confined animal feeding operations (CAFOs) across the country and the growing conflict between operators and regulatory agencies representing the public’s concern with potential water and air pollution. The recent spate of state and federal regulations appears to offer enterprising policy makers an opportunity to blend market efficiency into the more traditional command-and-control approach of environmental regu-

lation. This session explores the possible effects of these new regulations on regulatory effectiveness.

The session starts with a thorough overview of the recent Environmental Protection Agency (EPA) revision of CAFO environmental regulation. In their paper, “Reinventing Regulation of Agriculture: Alternative Performance Standards for Concentrated Animal Feeding Operations,” Pease and Bosch address the EPA provision that permits operators to select alternative performance standards (APS) to reduce effluent levels to “equivalent or better” than baseline performance standards, presumably to lower their compliance cost by using their specialized production knowledge to utilize alternative mitigation measures rather than the one-size-fits-all use of best management practices.

The authors identify four principal obstacles they believe may hinder APS implemen-

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tation: (i) problems with demonstrating superior performance for alternative measures, (ii) additional costs and risks associated with an alternative measure, (iii) organizational barriers from permitting agencies, and (iv) resistance by environmental groups. Their discussion identifies many potential risks facing an APS, including performance risk, cost risk, financial risk, and obsolescence risk. However, although they discuss human-based risk, they fail to address the possible problems of information asymmetry and could improve their story with some discussion of risk markets. For example, might there be market approaches such as insurance or assurance bonding to reducing moral hazard and adverse selection in implementing APS?

As an interesting sidelight, the authors suggest that the EPA might take a restrictive view in requiring CAFOs that select APS to produce equal to or greater pollutant reduction across "all media and across the entire operation." If true, this view would likely restrict market forces by preventing CAFOs from substituting between how an effluent is discharged (e.g., water vs. air) and its composition. Because substitution could have important distributional (people downstream vs. people downwind) and efficiency implications, additional discussion of how an agency might approach this issue would be helpful.

Pease and Bosch conclude by suggesting that the many costs and other unfortunate factors associated with APS may overreach any potential benefits of APS. Unfortunately, this may be true; however, it would be nice to leave the reader with the feeling that any effort to improve the efficiency of environmental regulation is better than the present-day status quo. Also, these costs indicate a pressing need for government assistance via cost-share monies for new technologies. The authors might take this opportunity to suggest cost-share assistance to help realize the potential benefits of APS.

In the session's second paper, "Regulatory Responses to Potential Pollutants from Animal Feeding Operations: Opting Out of Costly Permitting Regulations," Centner and Mullen narrow the discussion to the effectiveness of

CAFO size in regulation. Currently, CAFO regulation is tied to size of operation, yet the authors claim that recent regulatory changes may open the possibility for gains in regulatory efficiency.

Centner and Mullen suggest a number of alternative regulatory options that are not based on size, including: i) training and education programs; ii) regulation of CAFOs with lagoons; iii) a mandatory up-front payment (paid prior to receiving a construction permit) sufficiently large to cover the costs associated with closing and remediating a CAFO; iv) production indicators including site-specific best management practices (BMPs) or production technologies; v) regulation based on an animal density index; vi) mandatory management plans; and vii) regulation based on location-specific "screening" factors. Yet some of these solutions are still generally applicable to all, and do not take advantage of site-specific attributes. For example, the proposed training and educational programs would be applicable to all firms. Also, how are regulatory burdens reduced? Even with a general educational program, there would have to be verification of the curriculum and of having received training as well as quality control of instructors. Furthermore, specific regulation of CAFOs with lagoons is done in many states, but such regulation assumes guilt by association. Presence of a lagoon does not imply environmental degradation.

The authors suggest mandatory up-front payment of CAFO closure cost by all firms. However, such a policy does not take advantage of site-specific attributes and would be subject to moral hazard. For example, some firms might be less diligent in managing environmental releases knowing that all firms will pay if there is a catastrophic spill. Centner and Mullen also suggest the use of production indicators, but recall that Pease and Bosch claim that some production indicators (especially APS) may be subject to problems, including the need to demonstrate superior performance, additional costs and risks, organizational barriers from permitting agencies, and resistance by environmental groups.

Ultimately, Centner and Mullen suggest

that regulation based on location-specific "screening" factors coupled with production indicators is better than regulation by size. We concur, but believe that the use of a density index coupled with production indicators would be equally effective. Yet, Centner and Mullen do not address the drawbacks associated with their proposed solution. Specifically, verification, monitoring, and enforcement are major issues for any regulation, and the more individualized the regulation, the more effort must be given to verification, monitoring, and enforcement. Furthermore, the more individualized the regulation, the more likely the regulation will be challenged in court based on fairness issues.

Like the Pease and Bosch paper, Centner and Mullen provide an excellent review of current state and federal laws and an excellent summary of what has been done and is currently being done with respect to CAFO regulation nationwide. But their proposed regulatory substitutes for regulation by size are all problematic. It can be proved theoretically that location-specific regulation is cost-minimizing and more efficient for the firm. But location-specific regulation comes at a cost in terms of higher regulatory transactions costs and higher political costs (spatial regulation is politically unpopular). Previous studies have demonstrated that the efficiency (and cost reduction) gains associated with spatial regulation may be small relative to the added costs. These issues need to be recognized. Nevertheless, states do regulate CAFOs differently; thus, there is some recognition of the importance of location-specific regulation within current laws.

In the last paper, the session turns to a more empirical approach and specific example, providing a nice balance to the first two papers. In "Utilizing Contingent Claims to Improve the Management of CAFOs," Gramig, Skees, and Black explain how recent federal CAFO regulations might improve the possibility for a more incentive compatible approach to avoiding the harmful discharge of animal waste into surface waters. They start by reminding us of the inefficiencies that have historically accompanied regulatory actions de-

pendent on litigation via tort law, and make the case for a market-based alternative to regulatory business as usual.

After their nice explanation of the regulatory problem in terms of a principal-agent relationship with asymmetric information, the authors claim recent regulatory change may offer an opportunity for regulators by requiring CAFOs to develop individualized comprehensive nutrient management plans (CNMP). Their reasoning: this new requirement will force operators to record site-specific information necessary for effective risk sharing via a contingent claims approach to risk management. Additionally, they suggest that the present-day adversarial role between operators and regulators could be improved if the governmental regulator is replaced by a private risk-sharing partner.

Gramig, Skees, and Black explain the essential conditions for effective insurance underwriting and several ways to avoid the problems of adverse selection and moral hazard; these can be summed as (i) providing and using a proper risk assessment procedure, (ii) preventing the insured from benefiting from superior information, and (iii) good monitoring of their behavior. They continue by explaining that in order for insurance to become an effective tool it must (i) provide incentives for the operator to prefer mitigation to litigation, (ii) punish bad behavior, and (iii) have clearly identifiable indemnified events. Although they don't mention it here, one would further assume that the monetary impact of these indemnified events must also be clearly known or knowable.

To make their point, the authors then develop an insurance model based on an index of rainfall. In this example, because excessive rainfall is highly correlated with waste lagoon spills, CAFO operators are indemnified based on the level of rainfall. Using historic trends to establish the baseline, their model describes in detail how excessive rainfall could trigger payments to operators at critical points and help fund the costly actions they see as necessary to avoid a spill: essentially, a pay-as-you-go program to help operators do the right thing. Although tying indemnification to rain-

fall may avoid moral hazard and adverse selection at one level, we wonder what prevents the operator from using the indemnification payments for purposes other than spill avoidance—the threat of litigation? If so, then what have we gained over the traditional approach? The paper goes further to suggest that, as a starting point, CAFO operators decide on their level of coverage by envisioning the “worst case scenario” resulting from a lagoon failure. However, one must question whether the CAFO operator is in the best position to envision this scenario. After all, if the damage would accrue to a third party, shouldn’t the damage estimate originate from the prospective victim(s)?

We found the paper innovative and thorough in its discussion of the pros and cons of applying insurance to the problem of CAFO lagoon spills. The model is clear and easily applied. However, some of their assumptions may be incomplete or overly simplified. For example, they claim that operators “may respond more favorably to a risk-sharing partner than a government regulator.” We agree, but then again, they may not; and furthermore, it is not clear to us why switching to private insurance will avoid the problems of moral hazard and adverse selection. After all, private risk sharers have always faced the problem of asymmetric information. We wonder if an operator would make the distinction between being forced to share risk with a private agent or forced to follow the dictates of a government regulator. After all, insurance fraud is a big and growing business.

In the final analysis, although the process of using private insurance markets to mitigate risk from CAFO spills has substantial merit and the authors describe a model with considerable promise, there remain two thorny issues: (i) asymmetric information in the use of indemnification payments and mitigation actions, and (ii) defining the indemnifying event

and the expected loss. To partially remedy this, perhaps the area of assurance bonding could be considered. By requiring CAFO operators to *ex ante* provide financial assurance that they take the “correct mitigation actions” to avoid spills, equal to or greater than the cost of these actions, and promise these same operators the refund of this assurance upon successful compliance, one may simultaneously remove the problems of adverse selection and moral hazard.

All reasonable projections suggest that the livestock industry will continue to concentrate, with more animals being produced at a single location. This growth will only exacerbate current conflicts between the livestock production industry, the public, and regulators. State and federal regulations will have to adapt to continued growth. Thus policy makers have an opportunity to blend efficiency improving regulatory approaches into the more traditional command and control approach of environmental regulations.

The three papers presented in this session provide an excellent review of current state and federal laws and an excellent summary of what has been done and is currently being done with respect to CAFO regulation nationwide. The papers also present three distinctly different efficiency-improving policy approaches: i) alternative performance standards; ii) regulation based on location-specific screening factors coupled with production indicators; and iii) insurance-based underwriting of environment-damaging CAFO discharges. Each approach has its drawbacks; however, blending any one (or all) of these suggested policies into current regulation would result in efficiency gains. And in a time of low prices and tight margins, lower-cost regulation could make the difference as to whether a firm chooses to exit the industry. This is especially true of smaller, perhaps family-operated, livestock operations that are just large enough to be classified as CAFOs.