

THE PROPOSED USDA-USEPA UNIFIED NATIONAL STRATEGY FOR ANIMAL FEEDING OPERATIONS - WHAT IS INVOLVED? ¹

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Introduction

The number of animals fed at large animal feeding operations has increased in the past few decades. Public awareness about environmental issues such as water quality, waste management, and air quality at animal feeding operations has also increased. As politicians and regulatory personnel attempt to console the public about these environmental issues, the result has been an increase in the number of environmental laws and regulations governing animal feeding operations. Many state, local, and federal environmental laws and regulations are currently being modified. In this paper, we present an overview of the proposed USDA-EPA Unified National Strategy for Animal Feeding Operations (hereinafter called the "draft strategy") which was released for public review in September, 1998. We also discuss the current and proposed environmental regulations governing animal feeding operations in the state of Texas.

Here a Reg, There a Reg, Everywhere a Reg Reg

In the past twenty years, the U.S. in general has seen a major increase in the number of environmental laws and regulations. Before 1965, there were less than 10 federal environmental laws passed by the legislature. Between 1965 and 1999, that number increased to an overwhelming 69, with a deluge of laws in the late 90's (Figure 1). Agriculture was exempt from most of these laws and regulations for many years. However, recent public outcry about large feeding operations has led to laws and regulations specifically governing these operations, and it appears likely that more will follow. Not only are the number of federal and state laws increasing, but local city and county commissioners are following suit with their own zoning regulations governing large feeding operations. In many cases, the largest concern has been with odor and air quality, though water quality is also mentioned.

Many states have taken the approach to develop their own regulations that are more strict than the federal regulations. The result has been a wide variety of approaches and techniques for regulating animal waste. As an example of this variability, consider state regulations for governing allowable seepage from ponds and lagoons. In a recent survey of state regulations, it

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was found that maximum allowable seepage rates varied between 0.042 and 0.63 cm/day (0.017 to 0.25 inch/day) with some states having no defined regulations for allowable seepage rates (Parker et al., 1999). One might ask why some states are more strict, is it because they value their groundwater more than other states? In discussions with regulatory personnel, it seems the biggest reason for the differences in regulatory values is that the research results on which they are basing their reasoning has been quite varied.

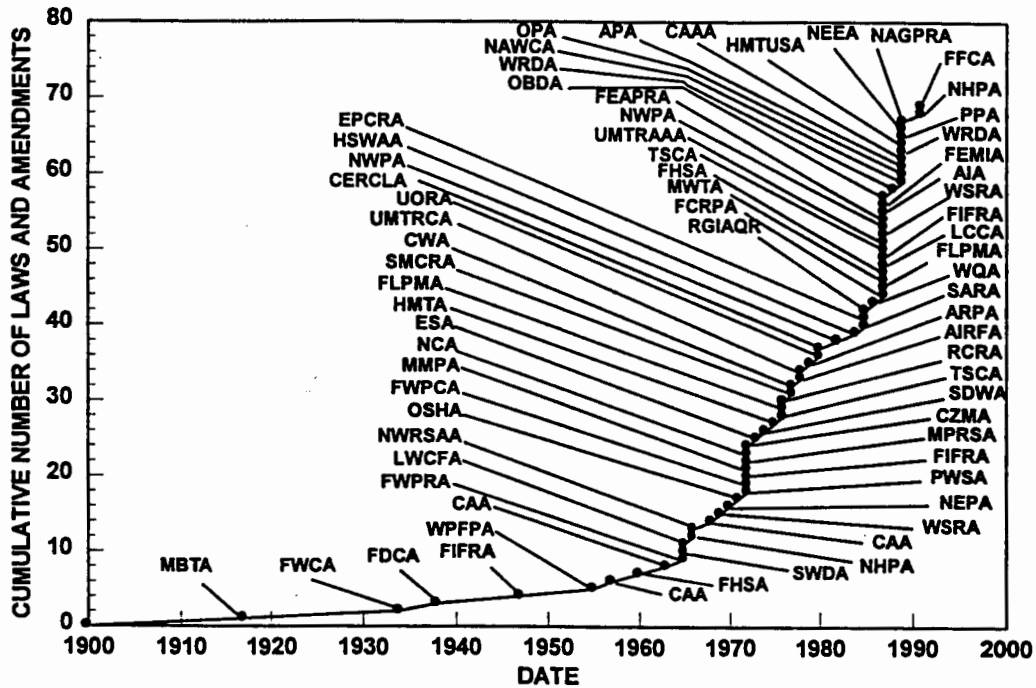


Figure 1. Federal environmental legislation: a plot of the cumulative number of environmental laws and amendments passed in the past 90 years (adapted from Anderson, 1998).

Definitions and Numbers

Before we dive into the details of animal feeding regulations, let us first set the stage with some definitions and numbers. Similar to animal nutritionists and other scientists, animal waste management scientists have their own shoptalk, and their vocabulary that can be confusing to the newcomer in animal waste management. In this paper, we discuss “animal feeding operations” or AFOs and “concentrated animal feeding operations” or CAFOs. An AFO is defined as a “lot or facility where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period and crops, vegetation, forage, growth or post harvest residues are not sustained in the normal growing season over any portion of the lot or facility.” Thus cattle that are pastured on grass are not included in this definition. A CAFO is an AFO where more than 1,000 animal units are confined at the facility (the EPA defines a CAFO as having more than 1,000 feeder cattle, 700 mature dairy cows, or 2,500 swine over 55 pounds).

Also, if an AFO has more than 300 animal units and discharges waste or waste water directly into surface water, then it is classified as a CAFO.

According to USDA, there are approximately 450,000 animal feeding operations in the U.S. Most of these operations are small, with about 85% feeding fewer than 250 animal units. In 1992, there were 6,600 feeding operations with more than 1,000 animal units, while now the estimated number is approximately 10,000. The EPA defines operations that feed more than 1,000 animal units as "concentrated animal feeding operations" or CAFOs, while those less than 1,000 animal units are "animal feeding operations" or AFOs.

Current Regulations Governing CAFOs in Texas

The Federal Clean Water Act provides the authority for permitting of CAFOs. These National Pollutant Discharge Elimination System (NPDES) permits include conditions to implement national minimum standards (commonly called effluent guidelines). The NPDES program for CAFOs was first implemented in 1974. It was subsequently modified in 1976 to define what constitutes a CAFO. In 1987, what is now called the Texas Natural Resource Conservation Commission (TNRCC) promulgated its Subchapter B rules specifically for CAFOs.

Many NPDES permits are issued by individual States who have been approved by the EPA to run their own regulatory program. On September 14, 1998, the U.S. EPA authorized Texas to implement its Texas Pollutant Discharge Elimination System (TPDES) program. These new TPDES rules are commonly referred to as the "Effluent Limitations Guidelines" or ELG. As a result of the new ELG, the TNRCC is in the process of amending its Subchapter B rules, which are the current regulations applying to CAFOs in Texas. The final Subchapter B rules are expected in summer, 1999. These rules combine the water and air permitting process for CAFOs.

The NPDES regulations are currently being revised by the EPA, with hopes of completion by December 2002 for beef and dairy feeding operations. When the new NPDES regulations are issued in 2002, the TNRCC has stated they will either adopt EPA's proposed general permit for CAFOs or will amend their Subchapter B rules to be consistent with the new regulations.

The Proposed USDA/EPA Unified Strategy

One of the latest outcomes of the concern for environmental issues at animal feeding operations was the result of the Clean Water Action Plan (CWAP), which was released by President Clinton in February, 1998. One of the items called for in the CWAP was the development of a joint USDA-USEPA Unified National Strategy to minimize the water quality and public health impacts at animal feeding operations (USDA-EPA, 1998). The primary guiding principles of the Strategy are to:

- Minimize water quality and public health impacts from animal feeding operations.

- Establish environmental performance expectations for all animal feeding operations.
- Foster public confidence that animal feeding operations are meeting their performance expectations.
- Focus technical and financial assistance to support animal feeding operations in meeting the national performance expectations.

The key element and probably the most important item in all of the strategy is the establishment of a national performance expectation for development and implementation of “technically sound and economically feasible Comprehensive Nutrient Management Plans (CNMPs) to minimize impacts on water quality and public health.” The draft strategy states that CNMPs should contain the following components:

- **Feed management** – “Animal diets and feed should be modified to reduce the amounts of nutrients in manure.” This includes use of enzymes such as phytase to increase phosphorus utilization.
- **Manure handling and storage** – “Manure needs to be handled and stored properly to prevent water pollution from AFOs.” Items to be considered in this component include 1) diverting clean water and runoff around the feedyard, and keeping clean water from roofs and buildings from contacting animal manure; 2) preventing leakage and seepage from ponds and lagoons; 3) storing manure in covered areas to prevent precipitation from coming in contact with manure; 4) treating manure for stabilization and reducing nutrient losses; and 5) management of dead animals to reduce pathogens and odors.
- **Land application of manure** – “Land application should be planned to ensure that the proper amounts of all nutrients are applied in a way that does not cause harm to the environment or to public health.” The strategy also states that land application is usually the most desirable method utilizing manure because of valuable nutrients and organic matter. Considerations for land application include balancing nutrients to prevent application of nutrients at rates that exceed the needs of the crops, and applying manure at times and locations that prevent it from entering surface water bodies or causing nuisances to nearby landowners.
- **Land management** – Cropping and farming techniques such as crop residue management (no-till, ridge-till), grazing management, and other conservation practices should minimize movement of soil, organic materials, nutrients and pathogens to surface water bodies. Items mentioned in the strategy include filter strips, contour buffer strips, and riparian buffers.
- **Record keeping** – “AFO operators should keep records that indicate the quantity of manure produced and ultimate utilization, including where, when, and amount of nutrients applied.” Other record keeping requirements include documentation of soil and manure testing results.

- **Other utilization options** – Other options for the beneficial use of manure include composting and the sale of compost and manure to other farmers. Manure can also be used for power generation by producing biogas (a mixture of methane and carbon dioxide) as a fuel source through anaerobic digestion.

CNMPs are to be site-specific to address the goals and needs of a particular feeding operation. The question arises as to who will be required to have a CNMP, and who should prepare them. The USDA and EPA hope to use voluntary programs as the principal approach to assist feeding operations in developing and implementing CNMPs. These CNMPs are *not required* for feeding operations participating in voluntary programs (as discussed below), though they are strongly encouraged.

How Will the Strategy Be Implemented?

The USDA and EPA hope to rely on voluntary programs for the majority of animal feeding operations. They estimate that 95% of all animal feeding operations will be controlled through voluntary programs, while 5% (approximately 10,000 operations with more than 1,000 animal units) will be controlled using regulatory programs such as NPDES permits.

According to the Strategy, it is the Federal government's responsibility to establish national expectations and regulatory requirements for AFOs, and to help provide the tools to achieve these expectations and requirements. The EPA is charged with the regulatory responsibilities, which are then delegated in some cases to the states and local governments who have the responsibility for implementing the Federal programs. Individual producers are responsible for implementing nutrient management plans to minimize the risks of pollution. Integrators are responsible for ensuring that their contract growers are environmentally responsible. Research and educational institutions are responsible for developing new and innovative technologies and analyzing their effectiveness.

What's Next?

The public comment period for the Draft Unified Strategy ended January, 1999. The USDA and EPA will then review all public comments and provide responses prior to issuing the final strategy. At the time of writing this paper, the EPA had not provided responses to the public comments.

Areas of Concern and Room for Improvement

One of the problems with the proposed "one size fits all" strategy is that it does not take into account the unique aspects of individual animal feeding operations. For example, there is a large difference in manure management and handling practices between swine or dairy operations, which are typically housed under roof, and beef cattle operations which are typically

located in open, earthen surfaced pens. The draft Strategy mentions of a requirement for storage of manure under cover. While this may be practical for swine, dairy, or poultry operations, it does not make sense for open beef cattle feedyards which are already required to contain all runoff from the pens. Also, covering an entire beef cattle feedyard is not economically achievable.

The Strategy suggests that feed management be an integral part of the nutrient management plans. While this sounds like a great idea, the science of modifying diets to control nutrients is still in the research phase. Although some researchers have shown that diet modification can affect items like phosphorus retention, we still have a lot to learn about the applicability of these results to large scale feeding operations, and more importantly how it might affect the economics of cattle feeding.

The Strategy suggests voluntary efforts as the primary approach for implementing nutrient management plans. However, the new ELG could redefine CAFO to include operations smaller than 1,000 animal units.

The Strategy calls for the animal feeding operator to record where, when, and the amount of nutrients applied through land application. The current situation where waste haulers remove the manure and make arrangements with landowners for land application appears to have worked for more than a decade. Some people are concerned that if animal feeding operators are required to put the burden of record keeping on the waste handlers and landowners, that the ongoing relationships that currently exist might develop some problems, as the waste haulers may not be willing to deal with the extra burden of record keeping. Most landowners currently look at manure as resource and pay for the manure to be applied to their land. If additional record keeping burdens are put on the landowners, they may decide it is not worth the trouble and decide to use inorganic fertilizers exclusively.

For Further Information:

The Draft Unified National Strategy for Animal Feeding Operations can be viewed on the internet at <http://www.nhq.nrcs.usda.gov/cleanwater/afo/index.html>.

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