



**Karl B. Tolenhoff**  
Editor

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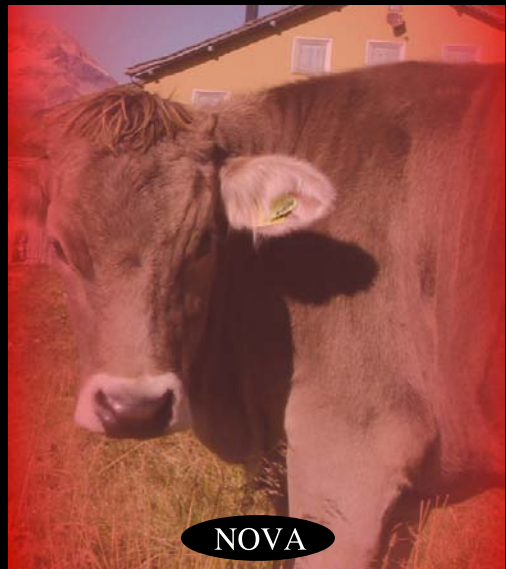
# Animal Agriculture Research Progress

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**Geoffrey S. Becker**  
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**ANIMAL AGRICULTURE  
RESEARCH PROGRESS**



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RESEARCH PROGRESS**

**KARL B. TOLENHOFF**  
**EDITOR**

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## PREFACE

This new book deals with the eradication of diseases that pose a risk the health of animals, wildlife and humans. It includes developing a safe and wholesome food supply and the best practices in environmental stewardship, animal health and well-being.

From an environmental quality standpoint, much of the public and policy interest in animal agriculture has focused on impacts on water resources, because animal waste, if not properly managed, can harm water quality through surface runoff, direct discharges, spills, and leaching into soil and groundwater. A more recent issue is the contribution of emissions from animal feeding operations (AFO), enterprises where animals are raised in confinement, to air pollution. Chapter 1 provides background on the latter issue.

Chapter 2 discusses a plan announced by EPA in January 2005, called the Air Compliance Agreement, that would produce air quality monitoring data on animal agriculture emissions from a small number of farms, while at the same time protecting all participants (including farms where no monitoring takes place) through a “safe harbor” from liability under certain provisions of federal environmental laws. Some industry sectors involved in negotiating the agreement, notably pork and egg producers, strongly support it, but other industry groups that were not involved in the discussions have concerns and reservations. State and local air quality officials and environmental groups oppose the agreement, as discussed below.

In Chapter 3, animal producers which closely follow the development of farm bills because of their potential impact on production and marketing costs is reviewed. For example, policies promoting crop-based alternative fuels like ethanol already have raised the prices of corn and soybeans, both important animal feedstuffs. Where additional biofuels policy incentives are being considered for inclusion in a 2007 farm bill, cattle, hog, and poultry producers have been urging restraint and/or encouraging more use of non-feed crops like grasses and field wastes. Other potential farm bill issues of interest include proposals from animal welfare groups to regulate on-farm care of animals; and from some farmer-rancher coalitions to address perceived anti-competitive market behavior by large meat and poultry processing companies.

Chapter 4 reviews the Bureau of Land Management (BLM) which issued changes to grazing regulations (43 C.F.R. Part 4100) on August 11, 2006, after a three year review. Some portions of the regulations have been enjoined. The previous major revision of grazing rules, which took effect in 1995, was highly controversial. The 2006 changes addressed many of the same issues, and received mixed reviews. BLM asserted that the 2006 changes were needed to increase flexibility for grazing managers and permittees, to improve rangeland

management and grazing permit administration, to promote conservation, and to comply with court decisions. Critics contend that a need for change was not justified and that changes adopted removed important environmental protections and opportunities for public comment.

Chapter 5 describes the provisions of Superfund and EPCRA, and enforcement actions under these laws that have increasingly been receiving attention. Congressional scrutiny in the form of legislative proposals and a House hearing in the 109<sup>th</sup> Congress are discussed. Bills intended to exempt animal manure from the requirements of Superfund and EPCRA were introduced in the 109<sup>th</sup> Congress, but no legislation was enacted. Similar bills have been introduced in the 110<sup>th</sup> Congress (H.R. 1398 and S. 807). Issues raised by the legislation are analyzed.

Animal protection activists in the United States have long sought legislation to modify or curtail some practices considered by U.S. agriculture to be both acceptable and necessary to animal health. Members of Congress over the years have offered various bills that would affect animal care on the farm, during transport, or at slaughter; in 2007 these include H.R. 503, S. 311, H.R. 661, S. 394, and H.R. 1726. Members of the House and Senate Agriculture Committees generally have expressed a preference for voluntary rather than regulatory approaches to humane methods of care as reviewed in Chapter 6.

Chapter 7 covers animal ID and, to a lesser extent, meat traceability. However, traceability, and the somewhat different but related concepts of “identity preservation” and “product segregation,” also pertain to other agricultural products (e.g., grains) and issues (e.g., genetically modified, or GM, crops; the labeling of GM foods; and the production and labeling of organic foods). Several sources cited below, including the U.S. Department of Agriculture’s (USDA’s) Economic Research Service (ERS) and *Choices* articles (see footnote 1) and a 2002 Sparks study (see footnote 5), cover traceability in more breadth.

Livestock industry groups, animal health officials, and the U.S. Department of Agriculture (USDA) have been working to establish a nationwide identification (ID) system capable of quickly tracking animals from birth to slaughter, in order to combat a serious animal disease and/or to satisfy foreign market specifications as noted in Chapter 8. Some consumer groups are among those who believe ID also would be useful for food safety or retail labeling purposes. Some producers oppose new programs, fearing they will be costly and intrusive. In the 110<sup>th</sup> Congress as of April 2007, one related bill (H.R. 1018) had been introduced; it would prohibit a mandatory program. Lawmakers could be asked to consider this or other measures on the topic, possibly as part of a 2007 farm bill.

In Congress, policy debate has revolved around impacts of the sector’s structural and technological changes on farm prices, on the traditional system of smaller-sized, independent farms and ranches, and on rural communities and workers. Also at issue are implications for consumers, the environment, and trade. Inherent in these questions, which could be addressed during consideration of a new farm bill in 2007, is the appropriate role of government in intervening in or assisting the livestock, meat, and poultry industries all of which is reviewed in Chapter 9.

*Chapter 1*

# **AIR QUALITY ISSUES AND ANIMAL AGRICULTURE: A PRIMER\***

*Claudia Copeland*

## **ABSTRACT**

From an environmental quality standpoint, much of the public and policy interest in animal agriculture has focused on impacts on water resources, because animal waste, if not properly managed, can harm water quality through surface runoff, direct discharges, spills, and leaching into soil and groundwater. A more recent issue is the contribution of emissions from animal feeding operations (AFO), enterprises where animals are raised in confinement, to air pollution. This report provides background on the latter issue.

AFOs can affect air quality through emissions of gases such as ammonia and hydrogen sulfide, particulate matter, volatile organic compounds, hazardous air pollutants, and odor. These pollutants and compounds have a number of environmental and human health effects.

Agricultural operations have been treated differently from other businesses under numerous federal and state laws. Some environmental laws specifically exempt agriculture from regulatory provisions, and some are designed so that farms escape most, if not all, of the regulatory impact. The primary regulatory focus on environmental impacts has occurred under the Clean Water Act. In addition, AFOs that emit large quantities of air pollutants may be subject to Clean Air Act regulation. Some livestock operations also may be regulated under the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA). Questions about the applicability of these laws to livestock and poultry operations have been controversial and have drawn congressional attention.

Enforcement of federal environmental laws requires accurate measurement of emissions to determine whether regulated pollutants are emitted in quantities that exceed specified thresholds. Two reports by the National Research Council evaluated the current

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\* Excerpted from CRS Report RL32948, dated April 11, 2007.

scientific knowledge base and approaches for estimating air emissions from AFOs as a guide for future management and regulatory efforts.

Stakeholders may find little agreement on these issues, with the exception of agreeing on a need for research to estimate, measure, and characterize emissions, and to develop and evaluate technologies to mitigate and control emissions.

In an effort to collect scientifically credible data on air emissions, in January 2005 the Environmental Protection Agency (EPA) announced a plan negotiated with segments of the animal agriculture industry. Called the Air Compliance Agreement, it is intended to produce air quality monitoring data on AFO emissions, while at the same time protecting participants through a “safe harbor” from liability under certain provisions of federal environmental laws.

## INTRODUCTION

Animal agriculture is a \$100 billion per year industry in the United States. Livestock and poultry are raised on an estimated 1.3 million farms throughout the nation. About 238,000 of these farms are considered animal feeding operations (AFO) — agriculture enterprises where animals are kept and raised in confinement. An estimated 95% of these are small businesses: most AFOs raise fewer than 300 animals. Very large AFOs, housing 300 or more animals such as cows (or equivalent numbers of other animal species), are defined as concentrated animal feeding operations, or CAFOs. For more than two decades, organizational changes within the industry to enhance economic efficiency have resulted in larger confined production facilities that often are geographically concentrated. Increased facility size, greater numbers of animals being raised at large feedlots, and regional concentration of livestock and poultry operations have, in turn, given rise to concerns over the management of animal wastes from these facilities and potential impacts on environmental quality.

From an environmental quality standpoint, much of the public and policy interest in animal agriculture has focused on impacts on water resources, because animal waste, if not properly managed, can adversely impact water quality through surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, and leaching into soil and groundwater. However, animal feeding operations can also result in emissions to the air of particles and gases such as ammonia, hydrogen sulfide, and volatile organic chemicals (VOC). At issue today are questions about AFOs’ contribution to total air pollution and corresponding ecological and possible public health effects. Resolving those questions is hindered by a lack of adequate, accurate, scientifically credible data on air emissions from AFOs, data that are needed to gauge possible adverse impacts and subsequent implementation of control measures.

This report provides background on these issues.<sup>1</sup> It first reviews the types of air emissions from livestock and poultry operations and their human health and environmental impacts. It then discusses provisions of several federal laws concerned with environmental impacts, beginning with the Clean Water Act, because protecting water resources has been the primary regulatory focus regarding livestock and animal operations. The Environmental Protection Agency (EPA) has authority to address AFO air emissions under several laws — the Clean Air Act; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund); and the Emergency Planning and Community Right-to-Know

Act (EPCRA) — which are discussed next. Questions about the applicability of these laws to livestock and poultry operations have been controversial in several arenas and have drawn congressional attention. Studies by the National Research Council concerning air emissions are reviewed, as are relevant activities of the states and the U.S. Department of Agriculture. Finally, the report identifies a number of key research questions needed to characterize and evaluate animal agriculture emissions.

In January 2005, EPA announced a plan called the Air Compliance Agreement that would produce air quality monitoring data on animal agriculture emissions from a small number of farms, while at the same time protecting all participants (including farms where no monitoring takes place) through a “safe harbor” from liability under certain provisions of federal environmental laws. Some industry sectors involved in negotiating this agreement, notably pork and egg producers, strongly support it, but other industry groups that were not involved in the discussions have concerns and reservations. State and local air quality officials and environmental groups oppose the agreement. Issues related to the Air Compliance Agreement are discussed separately in CRS Report RL32947, *Air Quality Issues and Animal Agriculture: EPA’s Air Compliance Agreement*, by Claudia Copeland.

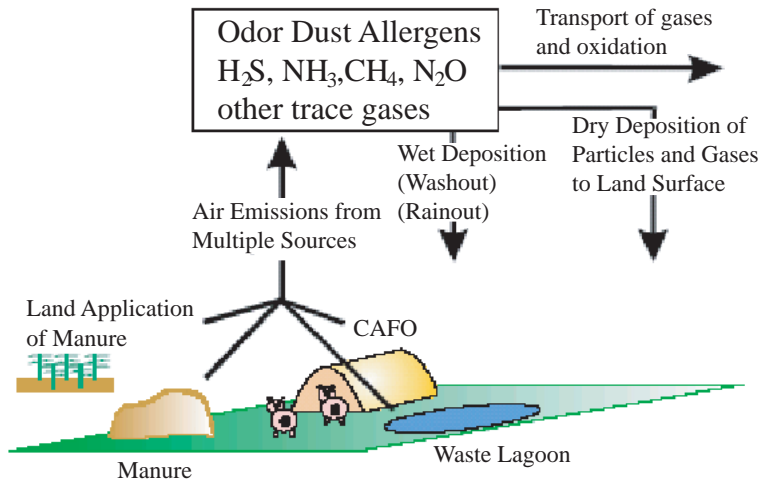
## **AIR EMISSIONS FROM LIVESTOCK AND POULTRY: SOURCES AND IMPACTS**

AFOs can affect air quality through emissions of gases (ammonia and hydrogen sulfide), particulate matter (PM), volatile organic compounds (VOC), hazardous air pollutants, microorganisms, and odor. AFOs also produce gases (carbon dioxide and methane) that are associated with climate change. The generation rates of odor, manure, gases, particulates, and other constituents vary with weather, time, animal species, type of housing, manure handling system, feed type, and management system (storage, handling, and stabilization).

Emission sources include barns, feedlot surfaces, manure storage and treatment units, silage piles, animal composting structures, and other smaller sources, but air emissions come mostly from the microbial breakdown of manure stored in pits or lagoons and spread on fields. Each emission source will have a different profile of substances emitted, with rates that fluctuate through the day and the year. The sources, fate, and transport of AFO emissions are illustrated in Figure 1.

### **Health and Environmental Impacts**

Pollutants associated with AFOs have a number of environmental and human health impacts. Most of the concern with possible health effects focuses on ammonia, hydrogen sulfide, and particulate matter, while major ecological effects are associated with ammonia, particulates, methane, and oxides of nitrogen.<sup>2</sup>



Source: The University of Iowa and The University of Iowa Study Group, *Iowa Concentrated Animal Feeding Operations Air Quality Study, Final Report*, 2002, p. 87.

Figure 1. Fate and Transport of Air Emissions Associated with Animal Feeding Operations.

The nitrogen in animal manure can be converted to *ammonia* (NH<sub>3</sub>) by a combination of processes. Ammonia released from the surface of liquid manure storage structures rapidly adheres to particles in the air, due to its cohesive properties, thus contributing to the formation of ambient particulate matter, specifically ammonium nitrate and ammonium sulfate. These particles form to a varying degree in the presence of ammonia and oxides of nitrogen or sulfur (see below). Once emitted, ammonia also is re-deposited back to earth in rainfall that can harm surface waters and aquatic life in lakes and streams. Ammonia aerosols in rainfall contribute to oxygen depletion of aquatic systems and excessive growth of algae, as well as acidification of the environment. It is estimated that emissions from animal waste account for about one-half of the total natural and anthropogenic ammonia emitted in the United States annually. Ammonia has a strong, sharp, characteristic odor that disperses rapidly in the air. Health effects at low concentrations include eye, nose and throat irritation; exposure at very high short-term concentrations can be lethal.

*Particles* are highly complex in size, physical properties, and composition. For regulatory purposes, airborne particulate matter (PM) is commonly considered as coarse particles (those less than 10 microns in diameter, referred to as PM<sub>10</sub>), or fine particles, those less than 2.5 microns in diameter (referred to as PM<sub>2.5</sub>). Agriculture is a major direct source of PM<sub>10</sub>, which is essentially dust raised from unpaved roads, grain mills or storage facilities, feeding equipment, and particles generated in other mechanical processes. In contrast, PM<sub>2.5</sub> is a different class of particles, resulting more from evaporation and atmospheric chemical processes than direct emissions. Fine particles are formed in the atmosphere through the interaction of gases such as sulfur oxides, nitrogen oxides, and VOC.

AFOs can contribute directly to particulate matter through several mechanisms, including animal activity, animal housing ventilation units, and particles of mineral and organic material from soil and manure that adhere to air molecules. As described above, particulate matter can contribute indirectly to fine particle formation by emissions of ammonia, nitrogen oxides, and hydrogen sulfide, which are converted to aerosols through reactions in the atmosphere. Particle formation is highly dependent on atmospheric temperature, humidity,

concentrations of the precursor compounds, and other factors, so the particle formation is variable and difficult to predict. Particles of differing sizes have been linked to health effects. Larger particles tend to be deposited in the upper airways of the respiratory tract, whereas small particles have both health and environmental effects: they can be deposited in the smallest airways in the lungs and, while still airborne, also play an important role in formation of regional haze. Populations with long-term exposure to heavier loads of particles have higher rates of mortality from major cardiovascular diseases, as well as increased rates of morbidity. The primary environmental and ecological effects of particles are related to haze and decreased visibility, which is caused by the suspended aerosols that both absorb and scatter light.

*Hydrogen sulfide* ( $H_2S$ ) is a colorless gas with a strong and generally objectionable rotten egg odor. It is produced in anaerobic (oxygen-deprived) environments from the microbial reduction of sulfate in water and the decomposition of sulfur-containing organic matter in manure. Acute human health effects include respiratory and cardiovascular irritation, as well as headaches.  $H_2S$  may have local effects of concern — especially odor — and may contribute to the atmospheric sulfur burden of regions with a high density of AFOs, but few other sources.

*Methane* and *nitrous oxide* are known to contribute to global warming. An estimated one-half of global methane comes from manmade sources, of which agriculture is the largest source, with livestock production being a major component within the sector. EPA estimates that 25% of the nation's methane emissions come from livestock. Agricultural methane is produced by ruminant animals, but also is emitted during microbial degradation of organic matter under anaerobic conditions. Nitrous oxide forms via the microbial processes of nitrification and denitrification. In the United States, animal waste accounts for about 6% of nitrous oxide emissions.

Many of the complaints about AFOs are generated by *odor*. Odor from AFOs is not caused by a single substance, but is rather the result of a large number of contributing compounds, including ammonia, VOCs, and hydrogen sulfide. As classes of compounds, odor and VOCs can be considered together. VOCs (also referred to as reactive organic compounds, or ROG) vaporize easily at room temperature and include a large number of constituents, such as volatile fatty acids, sulfides, amines, alcohols, hydrocarbons, and halocarbons. In terms of their health and environmental effects, some VOCs may irritate the skin, eyes, nose, and throat. They also can be precursors to the formation of  $PM_{2.5}$  and ozone (smog).

Adverse effects of ozone include lung damage and exacerbated respiratory disease, as well as diminished visibility. Ozone in the troposphere, the lowest layer of the atmosphere which is closest to the Earth, has both natural and anthropogenic sources. It can damage forests, crops, and manmade materials, and harm respiratory tissue through inhalation. Ozone that occurs naturally at ground-level is generally at low concentrations that are not believed to threaten human health or the environment. Ozone that is a byproduct of human activity is formed through the interaction of sunlight with VOCs, nitrogen oxides, and other substances and adds to the total atmospheric burden of the pollutant.

Effects of these pollutants occur on a variety of scales, as shown in Table 1.

## **Control Strategies**

Manure management varies widely across animal species, region, and farm type, depending on climate, soil productivity, farm size, and other factors. Systems and strategies now in wide use by farmers are those that have proved the most cost-effective and reliable at achieving their design objectives. Land application has been and remains the predominant method for disposing of manure and recycling its nutrient and organic content. For the most part, design objectives for managing manure do not include minimization of emissions of ammonia, methane or other gaseous compounds, but rather focus on odor and dust control, avoidance of direct discharge to surface water, and land application at rates that are beneficial to growing crops.<sup>3</sup>

**Table 1. Potential Importance of AFO Emissions at Different Spatial Scales**

Emissions	Global, national, and regional	Local (property line or nearest dwelling)	Primary effects of concern
NH <sub>3</sub> (ammonia)	Major	Minor	Atmospheric deposition, haze
N <sub>2</sub> O (nitrous oxide)	Significant	Insignificant	Global climate change
NO <sub>x</sub> (the sum of nitric oxide and nitrogen dioxide)	Significant	Minor	Haze, atmospheric deposition, smog
CH <sub>4</sub> (methane)	Significant	Insignificant	Global climate change
VOCs (volatile organic compounds)	Insignificant	Minor	Quality of human life
H <sub>2</sub> S (hydrogen sulfide)	Insignificant	Significant	Quality of human life
PM <sub>10</sub> (coarse particulate matter)	Insignificant	Significant	Haze
PM <sub>2.5</sub> (fine particulate matter)	Insignificant	Significant	Health, haze
Odor	Insignificant	Major	Quality of human life

Source: National Research Council, *Air Emissions from Animal Feeding Operations, Current Knowledge, Future Needs*, 2003, Table ES-1, p. 5. Rank order from high to low importance is major, significant, minor, and insignificant. Emissions from non-AFO sources may have different rankings. For example, VOCs and NO<sub>x</sub> play important roles in the formation of tropospheric ozone, however, the role of AFOs is likely to be insignificant compared to other sources.

As noted above, emissions of odors, gases, and dust from livestock production facilities arise from buildings, manure storage, and land application. Eliminating emissions from one of these sources will likely not eliminate emissions entirely, as control technologies often address only one of the three sources. Many of the available technologies reduce emissions; none eliminates them.<sup>4</sup> Some technologies have been evaluated to the point of demonstrating efficacy, but most have not been evaluated systematically.

Emissions from buildings can be reduced by inhibiting contaminant generation, or by capturing and treating the air as it leaves the building (e.g., by using biofilters to treat ventilation air, or wet or dry scrubbing of air as it passes through evaporative pads before release). Frequent manure removal is one of the best ways of reducing contaminant generation within the building. Other methods that can be used inside buildings include using



bedded solid manure (i.e., manure mixed with bedding that creates a solid stack of material), chemical additives on animal litter, and diet manipulation.

There are four general types of manure storage: deep pits, outdoor slurry storage, anaerobic lagoons, and solid stacks. Outdoor storage is the most apparent source of odors. Controls that have been shown to be effective when managed properly include various types of covers (permeable and impermeable, natural such as straw or cornstalks, and synthetic). Techniques to manipulate the manure to minimize emissions also exist but have certain limitations. For example, separating solids from liquid manure reduces the load on anaerobic lagoons, but also creates a second waste stream to manage which may be detrimental to overall air quality. Proper aeration will eliminate odors from outdoor storage, but it is expensive in a liquid system. Anaerobic digesters reduce odors, but they are also not economically feasible.<sup>5</sup>

Emission control during land application is best done by direct injection of liquid manure below the soil surface. Solid manure is generally less odorous than liquid, but because it cannot be injected, rapid incorporation into the soil by plowing or similar techniques is the best method to minimize odors.

While many treatment technologies are available that may be important in mitigating emissions, the effectiveness of most of them is not well quantified.

Extensive research programs are underway in the United States and Europe, and many options of varying cost and effectiveness are being evaluated. Livestock emission mitigation research is being performed by the University of California at Davis, California State University Fresno, Purdue University, Texas A&M University, and others, and information on available control measures and strategies for agricultural sources of air pollution is being presented.<sup>6</sup> Experts believe that cost, increased management requirements, and a lack of economic or regulatory incentives to encourage or require their use are the primary reasons that more poultry and livestock producers have not adopted technologies to reduce emissions.<sup>7</sup>

## **ENVIRONMENTAL STATUTES AND REGULATION OF ANIMAL FEEDING OPERATIONS**

The animal sector of agriculture has undergone major changes in the last several decades, a fact that has drawn the attention of policymakers and the public. In the United States there are an estimated 238,000 animal feeding operations where livestock and poultry are confined, reared, and fed, according to the U.S. Department of Agriculture's 1997 Census of Agriculture.

Organizational changes within the industry to enhance economic efficiency have resulted in larger confined production facilities that often are geographically concentrated.<sup>8</sup> The driving forces behind structural change in livestock and poultry production are no different than those that affect many other industries: technological innovation and economies of scale.<sup>9</sup> From 1982 to 1997, the total number of U.S. operations with confined livestock fell by 27%. At the same time, the number of animals raised at large feedlots (generally confining 300 animals or more) increased by 88%, and the number of large feedlots increased by more than 50%.<sup>10</sup> The traditional image of small farms, located in isolated, rural locales, has given

way to very large farming operations, some on the scale of industrial activities. Increased facility size and regional concentration of livestock and poultry operations have, in turn, given rise to concerns over the management of animal wastes from these facilities and potential impacts on environmental quality.

Agricultural operations often have been treated differently from other types of businesses under numerous federal and state laws. In the area of environmental policy, one observer noted that agriculture is “virtually unregulated by the expansive body of environmental law that has developed in the United States in the past 30 years.”<sup>11</sup> Some laws specifically exempt agriculture from regulatory provisions, and others are structured in such a way that farms escape most, if not all, of the regulatory impact. The Clean Water Act (CWA), for example, expressly exempts most agricultural operations from the law’s requirements, while under the Clean Air Act (CAA), most agricultural sources escape that law’s regulatory programs because the majority of them do not meet the CAA’s minimum emission quantity thresholds. Moreover, in implementing environmental laws, federal and state regulators have traditionally focused most effort on controlling the largest and most visible sources of pollution to the water, air, and land — factories, waste treatment plants, motor vehicles — rather than smaller and more dispersed sources such as farms.

Nevertheless, certain large animal feeding operations are subject to environmental regulation. The primary regulatory focus on environmental impacts has been on protecting water resources and has occurred under the Clean Water Act. In addition, facilities that emit large quantities of air pollutants may be regulated under the Clean Air Act. Some livestock operations may also be subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund law) and the Emergency Planning and Community Right-to-Know Act. The following sections describe relevant provisions of these laws.

## **Clean Water Act**

The Clean Water Act (CWA, 33 U.S.C. §§1251-1387) provides one exception to policies that generally exempt agricultural activities — and specifically the livestock industry — from environmental rules. The law protects water quality by a combination of ambient water quality standards established by states, limits on effluent discharges, and permits.<sup>12</sup> The regulatory structure of the CWA distinguishes between point sources (e.g., manufacturing and other industrial facilities which are regulated by discharge permits) and nonpoint sources (pollution that occurs in conjunction with surface erosion of soil by water and surface runoff of rainfall or snowmelt from diffuse areas such as farm and ranch land). Most agricultural activities are considered to be nonpoint sources, since they do not discharge wastes from pipes, outfalls, or similar conveyances. Pollution from nonpoint sources is generally governed by state water quality planning provisions of the act.

However, the CWA defines large animal feeding operations that meet a specific regulatory threshold number of animals (termed concentrated animal feeding operations (or CAFO); they are a small percentage of all animal feeding operations) as point sources and treats CAFOs in a manner similar to other industrial sources of pollution. They are subject to the act’s prohibition against discharging pollutants into waters of the United States without a permit. In 2003, EPA revised regulations that were first promulgated in the 1970s defining the

term CAFO for purposes of permit requirements and specifying effluent limitations on pollutant discharges from regulated feedlots.

These regulations are intended to address the concern that animal waste, if not properly managed, can adversely impact the environment through several possible pathways, including surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, leaching into soil and groundwater, and releases to air (including subsequent deposition back to land and surface waters). The primary pollutants associated with animal wastes are nutrients (particularly nitrogen and phosphorus), organic matter, solids, pathogens, and odorous/volatile compounds. Data collected for the EPA's 2000 National Water Quality Inventory identify agriculture as the leading contributor to water quality impairments in rivers and lakes. Animal feeding operations are only a subset of the agriculture category, but 29 states specifically identified animal feeding operations as contributing to water quality impairment.<sup>13</sup>

The 2003 clean water rule applies to approximately 15,500 of the largest animal feeding operations that confine cattle, dairy cows, swine, sheep, chickens, laying hens, and turkeys, or about 6.5% of all animal confinement facilities in the United States. The rule details requirements for permits, annual reports, and development of plans for handling manure and wastewater. The rule contains a performance standard which prohibits discharges from regulated CAFOs except in the event of wastewater or manure overflows or runoff from an exceptional 25-year, 24-hour rainfall event. Parts of the rule are intended to control land application of animal manure and wastewater.<sup>14</sup> In June 2006, EPA proposed revisions to the 2003 rule, in response to a federal court ruling that had upheld major parts of the regulation, vacated other parts, and remanded still other parts to EPA for clarification. EPA estimates that under the proposed rule about 14,100 CAFOs will be required to obtain permits. The proposal also provides for greater public participation in connection with nutrient management plans, requiring that they be subject to public notice and review and be included as enforceable elements of a permit. Under the 2003 rule, CAFOs were to obtain permits by February 2006 and to develop and implement nutrient management plans by December 2006. As a result of the federal court ruling, EPA pushed back the deadlines for permits and nutrient plans to July 31, 2007.<sup>15</sup>

Scientists recognize that actions taken to mitigate harmful water quality impacts of managing animal waste can have implications for air quality, in complex ways that are not perfectly understood. Environmental policies do not always account for interactions between media. For example, to meet water quality goals, lagoons are commonly used to store and treat manure waste from swine and other operations. These storage systems volatilize nitrogen, thereby reducing its concentration in lagoon effluent. But the volatilized nitrogen compounds escape into the air, creating odors, contributing to fine particulates (haze), and potentially hastening global climate change.<sup>16</sup>

## **Clean Air Act**

The Clean Air Act (CAA, 42 USC §§7401-7671q) provides a complex and comprehensive framework for regulating stationary and mobile sources of air pollution.<sup>17</sup> The law emphasizes controlling "major sources" that emit more than threshold quantities of regulated pollutants. Air emissions from farms typically do not exceed the specified

thresholds, thus they generally escape most CAA regulatory programs. However, livestock producers and other agricultural sources are not exempt from the statute, and for any whose emissions meet statutory or regulatory definitions of “major,” provisions of the act could apply.

**Table 2. CAA Classification of Substances in AFO Emissions**

Substance	Criteria pollutant	Hazardous air pollutant	Regulated air pollutant
Ammonia <sup>a</sup>			X
Nitrogen oxides	X		X
VOCs <sup>b</sup>		X	X
Hydrogen sulfide <sup>c</sup>			X
PM <sub>10</sub> <sup>d</sup>	X		X
PM <sub>2.5</sub>	X		X
Odor <sup>e</sup>			X

Source: National Research Council, *Air Emissions From Animal Feeding Operations, Current Knowledge, Future Needs*, 2003, table 1-1, p. 16.

<sup>a</sup> Ammonia is not a criteria pollutant but is a precursor for secondary PM<sub>2.5</sub>, which is a criteria pollutant.

<sup>b</sup> Some but not all VOCs are listed as hazardous air pollutants. VOCs contribute to the formation of ozone, a criteria pollutant.

<sup>c</sup> Hydrogen sulfide is not listed as a criteria pollutant or a hazardous air pollutant. However, it is a regulated pollutant because it is listed as having a New Source Performance Standard which EPA establishes for facilities that contribute significantly to air pollution.

<sup>d</sup> Prior to 1987, particulate matter (PM) was a criteria pollutant and regulated as total suspended particulate (TSP). Currently, the PM fractions listed as criteria pollutants are PM<sub>10</sub> and PM<sub>2.5</sub>.

<sup>e</sup> Odor is a regulated pollutant in some states.

Under the CAA framework, EPA designates criteria air pollutants that may reasonably be anticipated to endanger public health or welfare, and then establishes nationally uniform ambient air quality standards for those pollutants (NAAQS).<sup>18</sup> EPA has identified six criteria pollutants, two of which (particulate matter and nitrogen dioxide) are directly associated with AFO emissions. In addition, AFOs and other sources emit a number of substances (VOCs and nitrogen oxide compounds) which are precursors of ozone, another criteria pollutant. The CAA also regulates hazardous air pollutants (HAP). HAPs are identified in a statutory list that can be modified by EPA regulation; EPA currently regulates 188 HAPs, including volatile organic compounds (VOC) which are emitted by livestock facilities. Precursors of ozone (reactive VOCs) and PM<sub>2.5</sub> (ammonia), both emitted by livestock facilities, are regulated air pollutants, even though they are not listed as criteria pollutants or HAPs. (See Table 2.)

States play an important role in carrying out CAA provisions and assuring that state air quality meets federal air quality standards. The State Implementation Plan (SIP), prepared by the state (or local) air pollution control agency, translates national ambient standards into emission limitations and other control measures that govern individual sources of air pollution; the SIP is enforceable as both state and federal law. The CAA details the basic content of SIPs: enforceable emission limitations, other control measures, monitoring requirements, and schedules for compliance. The provisions of the SIP govern individual facilities through two types of state permitting programs. The preconstruction permit applies

to major new sources or major modifications of an existing source, and it describes proposed air pollution abatement systems, allowable emission rates, and other requirements. In addition, most major stationary sources are required to obtain operating permits which specify each source's emission limitations and standards, compliance schedule, reporting requirements, and other conditions.

The CAA threshold determination of whether a source — including a livestock or poultry operation — is subject to these requirements depends on whether it is defined as “major.” That definition differs based on the region in which the source is located and whether that region is attaining and maintaining national ambient air standards. The act classifies nonattainment areas based on the extent to which the NAAQs is exceeded, and it specifically creates five classes of ozone nonattainment (from least to most polluted: marginal, moderate, serious, severe, and extreme). More stringent control requirements are imposed in areas with worse pollution. Generally, a major source is a stationary source that emits, or has potential to emit, 100 tons per year or more of any pollutant. However, regulated sources of HAPs that emit more than 10 tons per year of an individual hazardous pollutant, or sources in the most serious nonattainment areas that emit as little as 10 tons per year of VOCs or NO<sub>x</sub>, are defined as major sources and would be subject to these CAA requirements.

A state's SIP provisions must be at least as stringent as federal requirements, but beyond the core CAA framework, states have latitude in adopting requirements to achieve national ambient air quality standards. States, for example, may regulate additional categories of sources or may define major sources more stringently than do federal programs.

Most agricultural operations are believed to be minor sources of air pollution, and few have been required to comply with the act's permit requirements. Some environmental advocates have argued that many large livestock facilities emit more than 100 tons per year of regulated pollutants (especially ammonia) and should be regulated as major sources under federal law. However, federal and state officials generally have placed a low priority on regulating agricultural sources, and, further, a lack of adequate air quality monitoring data hampers the ability of regulators to answer key questions. Agricultural air pollution has become more of an issue in some parts of the country as EPA implements the 1997 NAAQS for particulates, which EPA revised in September 2006,<sup>19</sup> and as nonattainment areas look to reduce pollutants from more sources as they strive to come into attainment. As discussed previously, emissions of ammonia and several other AFO pollutants are precursors that transform in the atmosphere to form secondary particulate matter. Aside from ammonia, other agriculture pollutants include dust that contributes to PM<sub>10</sub>, diesel emissions from farm equipment, and emissions from specialized activities such as crop burning.<sup>20</sup>

A 2004 lawsuit brought in federal court by environmentalists argued that feedlots must be regulated under the Clean Air Act and must obtain a CAA “permit to construct” under provisions of the Idaho SIP. The company, intending to construct a large feedlot, had argued that the SIP did not require a permit for key pollutants from agricultural sources, including ammonia and hydrogen sulfide. In September 2004, the court ruled that the state's plan did not allow such exemptions, indicating that any agricultural facility in the state with sufficient emissions levels would have to obtain a permit. The case was settled early in 2005 when the parties to the lawsuit agreed to request that the Idaho Department of Environmental Quality conduct a rulemaking to establish a process for CAA permitting of dairies in the state (*Idaho Conservation League v. Adrian Boer*, D.Id., Civ. No. 1:04-cv-00250-BLW, February 1, 2005). Industry officials say the case has limited implications, because it refers specifically to the

Idaho SIP, but environmentalists involved in the case believe it could have significance nationally because of the mutual agreement by the parties on emissions factors for ammonia that trigger CAA thresholds for dairies. In response to this case, in June 2006 Idaho finalized a requirement that dairies and other CAFOs obtain air quality permits if they emit 100 tons or more of ammonia per year. The new rule makes Idaho the first state to regulate ammonia emissions from CAFOs.

In calculating emissions to determine major sources, fugitive emissions are not counted; however, they do count for purposes of demonstrating attainment with NAAQS. Fugitive emissions are defined in regulation as “those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening” (40 CFR §51.165(a)(1)(ix)). EPA has issued a number of interpretive memoranda and guidance documents discussing how fugitive emissions should be accounted for in evaluating such industries as landfills, printing, and paint manufacturing. No such guidance with respect to animal confinement systems has been issued, but some groups, who believe that agricultural air pollution should be more vigorously controlled, have in the past expressed concern that EPA might make a determination that emissions from waste lagoons and barns are fugitive, thus excluding those types of AFO emissions from applicable CAA requirements. In a 2003 letter to EPA, state and local air program administrators said that such a policy, if pursued, would create inequities in CAA application between similar operations in some sectors but not others.

Since barns and lagoons are the dominant sources of emissions from the CAFO industry, such a policy would exempt most agricultural operations from many provisions of the Clean Air Act. The result would be an evisceration of states’ and localities’ ability to address air quality problems emanating from agricultural operations.<sup>21</sup>

### ***CAA Regulation in California***

Some of the interest in agriculture’s impact on air quality derives from events in California and that state’s progress in implementing the permit and SIP provisions of the Clean Air Act. The state’s air pollution problems are diverse and, in some areas, severe. Throughout the state, emission controls have become increasingly more stringent on currently regulated sources of air pollution, such as factories and cars. State officials believe that, to meet state and federally mandated requirements to improve air quality, emissions from all air pollution sources must be reduced, whether they are large or small, industrial or agricultural.

With regard to agriculture, air quality improvement efforts have focused primarily on two regions which represent California’s most challenging air quality problems for ozone and particulate matter pollution. The South Coast (Los Angeles) Air Basin and the San Joaquin Valley Air Basin are designated in extreme nonattainment for the federal health-based 1-hour standard for ozone. In addition, the South Coast Basin and the San Joaquin Valley Basin are designated in severe and serious nonattainment, respectively, for the more protective federal 8-hour ozone standard. In these two areas, all sources of air pollution produce air quality impacts and have some level of significance, and virtually all emission sources, even very small ones, are regulated. Both areas have large concentrations of confined animal feeding operations; agriculture is the San Joaquin Valley Basin’s most important industry and a significant source of its air emissions. Thus, agricultural sources have been a particular focus of efforts to implement the federal and state laws in both regions.<sup>22</sup>

For more than 30 years, California law specifically exempted existing major livestock production or equipment used in crop growing from all environmental permitting requirements. In 1994, EPA notified the state that the agriculture exemption was a defect in the state's clean air program that prevented California from fully regulating all air pollution sources. That notification and settlement of a lawsuit by citizen groups seeking to force EPA to impose air pollution controls on California's agriculture industry finally led EPA in October 2002 to withdraw federal approval of the state's program. Pursuant to the Clean Air Act, EPA was then required to implement a federal program while the state addressed the cited deficiencies. Following that action, and during the time it temporarily had responsibility for the California program, EPA evaluated ways to administer the law, while minimizing significant new permitting requirements on thousands of existing agricultural sources in the state. A major concern was recognition that there was insufficient scientific information about agricultural air emissions to immediately issue permits to sources or mandate pollution control requirements.

EPA considered various regulatory options, but did not actually issue any permits in California before its responsibility for the state program ended in August 2003. The state re-assumed responsibility after the legislature enacted a measure (California SB 700) that removed the long-standing exemption for agriculture and set timelines for existing facilities to apply for clean air permits and install control technologies. SB 700 regulates crop growers, dairies, poultry farms, cattle ranches, food-processing operations, and other agriculture-related businesses in the state. As of January 1, 2004, it made these sources subject to air quality permitting and specified emission mitigation requirements. Deadlines and requirements differ, depending on the size of facilities, level of emissions, and the attainment status of the region where the source is located.

The state and its local air quality management districts (in California, the state sets overall rules and policies, and 35 local agencies have primary day-to-day responsibility) are now implementing SB 700. The law mandated that the state Air Resources Board review scientific information and adopt a definition of large confined animal facilities by July 2005; that information is now being used by local air districts to begin issuing permits to facilities and adopting various regulations to control emissions. Under SB 700, the district rules must require facilities to obtain permits and to reduce emissions to the extent feasible. For severe and extreme ozone nonattainment areas, the law requires best available retrofit control technology (BARCT). In moderate and serious areas, regulated facilities will need to use reasonably available control technology (RACT). In federal ozone attainment areas where air quality problems are less significant, districts must adopt a rule requiring existing large confined animal facilities to reduce air contaminants to the extent feasible unless the district makes a finding that such facilities will not contribute to a violation of any state or federal standard. Regulated facilities must prepare emission mitigation plans and must comply with them by July 1, 2008.

The definition of "regulated facility" developed by the state board seeks to include the majority of emissions, or animals, which are in the larger livestock facilities in the state. By focusing on large facilities and excluding smaller farms, dairies and other operations, the board expects to obtain the most air quality benefit while regulating the fewest number of facilities. Under the approach approved by the board in June 2005, agricultural operations in areas designated in nonattainment for the federal 1-hour ozone standard will be defined as large confined animal facilities based on specified numbers of animals at the facility (for

example, facilities with 1,000 or more milk-producing cows or 650,000 chickens at broiler chicken operations) and will be required to obtain air quality permits. In areas with less significant air quality problems — those designated as in attainment for the federal one-hour ozone standard — thresholds are twice as high (e.g., 2,000 milk-producing cows or 1.3 million broiler chickens).<sup>23</sup> In addition, the state board is working with local air districts, university researchers, and others to develop and evaluate research on emissions factors from livestock operations to be used by facilities that are required to obtain air permits. Affected industries are closely watching these research studies and the standards being adopted by local air districts.

Even before the state board defined which existing facilities face new requirements, some local air quality control districts had moved ahead with permitting and emission reduction requirements. For example, the San Joaquin Valley district adopted rules to reduce PM emissions from general crop-based agricultural operations and dairies with 500 or more cows, and in the South Coast district, dairies with 50 or more cows are required to reduce emissions. Industry contends that the state board should have first established how much pollution comes from livestock operations before any permitting requirements were implemented, but the local districts interpreted SB 700 as requiring permits by January 1, 2005. The local districts have attempted to provide flexibility, but the overall situation has created substantial confusion for the farm community in California. Districts also have adopted additional rules more recently. For example, the San Joaquin Valley district adopted a rule in June 2006 to curb VOC emissions from dairies and other CAFOs. Farmers in the state have resisted efforts to implement federal and state laws to regulate emissions from agriculture. Some in industry contend that agriculture emissions are not major sources of pollution and that any regulation should await completion of federal and state studies that are examining the industry's contribution to air pollution.

While California SB700 focuses on existing agricultural sources, by lifting the long-standing exemption for such operations from the state Health & Safety Code, new and modified agriculture sources in the state also became subject to permit and regulatory requirements of the California State Implementation Plan (SIP). New or modified sources located in nonattainment areas which may emit air pollution must obtain New Source Review permits that require installation of best available control technology (BACT) and require purchase of “offsets” or “emission reduction credits” from other sources in the same nonattainment area, in a relation determined by the severity of the air pollution problem. Local district rules implement these federal and state requirements. For example, San Joaquin Valley District Rule 2201 requires a new or modified stationary source, including agriculture sources, to install BACT when the potential to emit VOC exceeds 2 pounds per day and to purchase offsets for VOC when the source's potential to emit exceeds 10 tons per year.

As agriculture operations continue to locate in areas of the state that already are highly industrialized by agriculture, their compliance with these environmental requirements is being scrutinized. For example, a large dairy under construction in Tulare County (San Joaquin Valley) has been sued by local citizen groups for Clean Air Act violations stemming from constructing a major stationary source without a New Source Review permit.<sup>24</sup>

### ***Other States' Air Quality Regulatory Activities***

In terms of geographic impact, every state has agricultural operations in which animals are raised in confinement, according to the U.S. Department of Agriculture. States with high



livestock populations, and with significant numbers of large operations (i.e., with more than 300 animal units), include several West Coast, Southwest, and Northwest states (Washington, Oregon, California and Arizona); the whole of the Midwest, from the Dakotas, Minnesota and Wisconsin south through Texas; sweeping across the southeast to the coastal states of Georgia, the Carolinas, Virginia, Maryland, and Pennsylvania; and north through New York and Vermont.<sup>25</sup>

The issue of evaluating and managing the health and environmental impacts of emissions from animal agriculture facilities has largely been left up to states. Air quality has not been the driving force behind state government action on AFOs, but has emerged out of long-standing concern to protect water resources. Several states have recognized a need to regulate air emissions from agricultural operations, but many states have not yet directly adopted or enacted programs affecting AFO emissions.

State programs, under statutes and regulations, both implement and supplement federal CAA requirements. That is, in some cases, state programs have been adopted to ensure state compliance with requirements of the federal law and to implement SIPs, such as facility permits that apply to construction and operation of livestock operations. In other cases, states have enacted more comprehensive laws and regulations calling for air emission testing and monitoring, manure management to abate pollutant emissions, inspections, and testing. Some states have regulatory programs or ambient air standards for odor and/or certain AFO pollutants, such as hydrogen sulfide, for which no NAAQS apply. In states with significant animal production, facility management statutes often govern construction and operation of AFOs, primarily for purposes of protecting water quality, with incidental provisions for air quality. For example, facility management statutes often contain setback requirements for confinement buildings and waste impoundments that may help to reduce air emissions by avoiding or minimizing odor nuisances.

A recent survey of seven states<sup>26</sup> identified a number of measures to govern air emissions from livestock facilities, but no comprehensive regulatory systems. States have used varied techniques to control air emissions from AFOs. State programs set emission limits, require use of best management practices, and impose other preoperational and operational requirements. Hydrogen sulfide and odor emissions from AFOs have received significant attention, but there is little or no standardization of approach. For example:

- Minnesota requires feedlots and manure storage areas to acquire construction and operating permits and also requires air emission plans for large livestock facilities. The state has adopted an ambient air quality standard for hydrogen sulfide which applies to emissions from AFOs as well as other sources.
- Iowa also has adopted a health effects-based ambient air quality standard for hydrogen sulfide that will be used in a three-year AFO field study to measure levels of H<sub>2</sub>S, ammonia and odor to determine if material adverse health effects exist.
- Missouri regulations set odor emission limitations and require large AFOs to submit odor control plans. In addition, the state's CAA permit program includes operational requirements for AFOs to prevent air pollution. Missouri's CAA contains a hydrogen sulfide emission standard that does not refer to AFOs or other agricultural operations specifically, nor does it exempt AFOs. Missouri also has an ambient acceptable level (AAL) for ammonia.

- In Texas, a consolidated program governs water and air quality general permits. Its requirements control the emission of odors and other air contaminants from AFOs, although it does not have a specific air emission threshold for odors. Like Missouri, Texas has a hydrogen sulfide emission standard that makes no specific reference to, or exception for, animal agriculture.
- Illinois has implemented a facility statute that relies in part on setback distances to control odor emissions. Like Missouri, Illinois has established a numerical “objectionable odor nuisance” standard (that is, when odor is detectable in ambient air adjacent to residential or similar structures after dilution with a specific volume of odor-free air) and has enforced the limitation against AFOs.
- Colorado water quality rules help to control air emissions through provisions that govern the construction and operation of facilities that treat animal wastes. A separate regulation establishes an odor emissions standard for swine feeding operations and requires that anaerobic waste impoundments be covered.
- North Carolina, like Colorado, has focused its regulatory efforts on odor emissions from swine operations. All AFOs must use management practices that control odors, and some swine operations must submit odor management plans, although it does not require control technology (e.g., covers) unless best management practices fail. North Carolina does not have air emission standards for H<sub>2</sub>S, ammonia, or odor.

A separate survey done by the Nebraska Department of Environmental Quality found that more than half of the states have standards for hydrogen sulfide. States base standards on a variety of issues, including odor or nuisance, welfare effects, and health effects. Consequently, standards vary considerably from as low as 0.7 parts per billion (ppb) for a yearly average (New York) and 5 ppb averaged over 24 hours (Pennsylvania), to standards based on nuisance, such as Minnesota’s 50 ppb not to be exceeded for one-half hour twice per year and measured at the AFO property line.<sup>27</sup>

## **CERCLA and EPCRA<sup>28</sup>**

Both the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund, 42 USC §§9601-9675) and the Emergency Planning and Community Right-to-Know Act (EPCRA, 42 USC §§11001-11050) have reporting requirements that are triggered when specified quantities of certain substances are released to the environment, including ambient air.<sup>29</sup> Both laws utilize information disclosure in order to increase the information available to the government and citizens about the sources and magnitude of chemical releases to the environment. At issue today is how the reporting requirements and other provisions of these laws apply to poultry and livestock operations.

Superfund authorizes programs to remediate uncontrolled or abandoned hazardous waste sites and assigns liability for the associated costs of cleanup. Section 103(a) of CERCLA requires that the person in charge of a facility (as defined in Section 101(9)) that releases a “reportable quantity” of certain hazardous substances must provide notification of the release to the National Response Center.

EPCRA establishes requirements for emergency planning and notification to communities about storage and release of hazardous and toxic chemicals. Section 304(a)(1) of EPCRA requires the owner or operator of a facility (as defined in Section 329(4)) to report to state and local authorities any releases greater than the reportable quantity of substances deemed hazardous under Superfund or extremely hazardous under EPCRA. Under Superfund, the term “release” (Section 101(22)) includes discharges of substances to water and land and emissions to the air from “spilling, leaking, pumping, pouring, emitting, emptying, discharging, injection, escaping, leaching, dumping, or disposing into the environment.” Under EPCRA, the term “release” (Section 329(8)) includes emitting any hazardous chemical or extremely hazardous substance into the environment. Superfund excludes the “normal application of fertilizer” from the definition of release, and EPCRA excludes from the definition of hazardous chemicals any substance “used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.”

The Superfund definition of “hazardous substance” (Section 101(14)) triggers reporting under both laws. Among the reportable substances released by livestock facilities are hydrogen sulfide and ammonia. The reportable quantity for both of these substances is 100 pounds per day, or 18.3 tons per year. Section 109 of Superfund and Section 325 of EPCRA authorize EPA to assess civil penalties for failure to report releases of hazardous substances that equal or exceed their reportable quantities (up to \$27,500 per day under CERCLA and \$27,500 per violation under EPCRA).

In addition to these reporting requirements, Superfund includes provisions authorizing federal cleanup of releases of hazardous substances, pollutants, or contaminants that may present an imminent and substantial danger to the public health or welfare (Section 104) and imposing strict liability for cleanup and damages to natural resources from releases of hazardous substances (Section 107). The applicability of these provisions to animal agricultural sources and activities has increasingly been receiving attention.

### ***Enforcement against AFOs***

EPA has enforced the CERCLA/Superfund and EPCRA reporting requirements against AFO release of hazardous air pollutants in two cases. The first involved the nation’s second largest pork producer, Premium Standard Farms (PSF) and Continental Grain Company. In November 2001, EPA and the Department of Justice announced an agreement resolving numerous claims against PSF concerning principally the Clean Water Act, but also the Clean Air Act, CERCLA, and EPCRA. Among other actions under the settlement, PSF and Continental were to monitor air emissions for PM, VOCs, H<sub>2</sub>S, and ammonia, and if monitoring levels exceed CAA thresholds for any regulated pollutant, the companies would apply to the State of Missouri for any necessary CAA permits. The companies also agreed to fund a \$300,000 supplemental environmental project (SEP) to reduce air emissions and odors from swine barns. More recently, in September 2006, the Department announced settlement of claims against Seaboard Foods, a large pork producer with more than 200 farms in Oklahoma, Kansas, Texas, and Colorado, and PIC USA, the former owner and operator of several Oklahoma farms now operated by Seaboard. Like the earlier Premium Standard Farms case, the government had brought complaints for violations of several environmental laws, including failure to comply with the release reporting requirements of CERCLA and EPCRA.

Both Superfund and EPCRA include citizen suit provisions that have been used to sue poultry producers and swine operations for violations of the laws. In two cases, environmental advocates claimed that AFO operators have failed to report ammonia emissions, putting them in violation of CERCLA and EPCRA. In both cases, federal courts have supported broad interpretation of key terms defining applicability of the laws' reporting requirements (*Sierra Club v. Seaboard Farms Inc.*, 387 F.3d 1167 (10<sup>th</sup> Cir. 2004) and *Sierra Club v. Tyson Foods, Inc.*, 299 F.Supp. 2d 693 (W.D. Ky. 2003)).

EPA was not a party in either of these lawsuits. The U.S. Court of Appeals for the 10<sup>th</sup> Circuit invited EPA to file an *amicus* brief in the *Seaboard Farms* case, in order to clarify the government's position on the issues, but EPA declined to do so within the timeframe specified by the court.

Three other cases in federal courts, while not specifically dealing with reporting violations and air emissions or what constitutes a "facility" for reporting purposes, also have attracted attention, in part because they have raised the question of whether animal wastes that contain phosphorus are hazardous substances that can create cleanup and natural resource damage liability under Superfund. In 2003 a federal court in Oklahoma held that phosphorus contained in poultry litter in the form of phosphate is a hazardous substance under CERCLA and thus could subject poultry litter releases to provisions of that law (*City of Tulsa v. Tyson Foods, Inc.*, 258 F. Supp. 2d 1263 (N.D. Okla. 2003)). This ruling was later vacated as part of a settlement agreement, but some observers believe that the court's reasoning may still be persuasive with other courts. The second case, *City of Waco v. Schouten* (W.D. Tex., No. W-04-CA-118, filed April 29, 2004), a suit by the city against 14 dairies alleging various causes of action based on disposal of wastes from those operations, was resolved by a settlement agreement early in 2006.

The third case, *State of Oklahoma v. Tyson Foods, Inc.* (N.D. Okla, No. 4:05-cv00329, filed June 13, 2005), is still pending. This suit, brought by the Oklahoma Attorney General, asserts various claims based on the disposal of waste from 14 poultry operations in the Illinois River Watershed. The state principally seeks its past and present response costs under CERCLA due to release of wastes from these facilities and natural resource damages. The net result of these lawsuits is growing concern by the agriculture community that other legal actions will be brought and that the courts will continue to hold that the CERCLA and EPCRA reporting requirements and other provisions apply to whole farm sites, thus potentially exposing more of these operations to enforcement under federal law.

In 2005, a group of poultry producers petitioned EPA for an exemption from EPCRA and CERCLA emergency release reporting requirements, arguing that releases from poultry growing operations pose little or no risk to public health, while reporting imposes an undue burden on the regulated community and government responders.<sup>30</sup> While the agency has not formally responded to this petition, early in 2007 EPA formed an internal workgroup to review information on animal waste as it relates to CERCLA and to possible exemptions from emissions reporting. Further, EPA Administrator Stephen Johnson told congressional committees that the agency will propose a rule to exempt routine animal waste air releases from emergency notification requirements. He did not provide details on how broad a waiver might be proposed. While such a regulatory exemption might satisfy many agriculture industry groups, environmental advocates and others oppose the exemption. Some argue that an exemption is premature, since EPA is moving forward with research on emissions levels (see CRS Report RL32947, *Air Quality Issues and Animal Agriculture: EPA's Air*

*Compliance Agreement*). State air quality officials have said that they oppose blanket regulatory or legislative exemptions, and they have recommended that if the agency considers any action, it should only be a narrow exemption, such as one based on a size threshold for farms.<sup>31</sup>

### ***Congressional Interest***

Congressional interest in these issues has been apparent for some time. For example, in report language accompanying EPA's FY2006 appropriations, the House Appropriations Committee urged EPA to clarify the reporting requirements of the two laws.<sup>32</sup>

The Committee continues to be concerned that unclear regulations, conflicting court decisions, and inadequate scientific information are creating confusion about the extent to which reporting requirements in [CERCLA] and [EPCRA] cover emissions from poultry, dairy, or livestock operations. Producers want to meet their environmental obligations but need clarification from the Environmental Protection Agency on whether these laws apply to their operations. The committee believes that an expeditious resolution of this matter is warranted.

Specific legislative proposals also have been discussed. In the 109<sup>th</sup> Congress, legislation was introduced that would have amended CERCLA to clarify that manure is not a hazardous substance, pollutant, or contaminant under Superfund and that the law's notification requirements would not apply to releases of manure (H.R. 4341). It was introduced the same day (November 15, 2005) that a House Energy and Commerce subcommittee held a hearing on animal agriculture and Superfund. The Subcommittee on Environment and Hazardous Materials heard from agriculture industry witnesses who urged Congress to provide policy direction on the issue that has resulted from recent and potential litigation. Other witnesses testified that the reporting and notification requirements of CERCLA and EPCRA provide a safety net of information, and that other environmental laws, such as the Clean Air Act, cannot function in that manner. An EPA witness said that the agency is considering ways to reduce the paperwork burdens for CAFOs to report their emissions, but has not yet formalized a proposal. Related legislation was introduced in the Senate (S. 3681). No further action occurred on either bill, but similar legislation has been introduced in the 110<sup>th</sup> Congress (H.R. 1398 and S. 807). (For additional discussion, see CRS Report RL33691, *Animal Waste and Hazardous Substances: Current Laws and Legislative Issues*.)

## **NATIONAL RESEARCH COUNCIL REPORTS ON AIR EMISSIONS FROM AFOS**

During the time that EPA was developing the revised Clean Water Act CAFO rules that it promulgated in 2003 (discussed above), the issue of air emissions from CAFOs received some attention. The Clean Water Act requires EPA to consider non-water quality environmental impacts, such as air emissions, when it sets effluent limitations and standards. EPA recognized that certain animal waste management practices can either increase or decrease emissions of ammonia and/or hydrogen sulfide and that some regulatory options intended to minimize water discharges (such as anaerobic lagoons and waste storage ponds)

have the potential to result in higher air emissions than other options, due to volatilization of ammonia in the waste. Likewise, emissions of nitrous oxide are liberated from land application of animal waste on cropland when nitrogen applied to the soil undergoes nitrification and denitrification.<sup>33</sup> Some environmental groups had urged EPA to address or restrict feedlot air emissions as part of the water quality rule. In the proposed rule and the 2003 final revised rule, EPA generally evaluated air emissions impacts of the rule, but it said that insufficient data exist to fully analyze all possible compounds and the significance of air emissions from feedlot operations.

In part because of this lack of information, in 2001 EPA asked the National Research Council (NRC) of the National Academy of Sciences for a report evaluating the current scientific knowledge base and approaches for estimating air emissions from AFOs. EPA asked the NRC to identify critical short- and long-term research needs and provide recommendations on the most promising science-based approaches for estimating and measuring emissions. USDA joined EPA in the request for the study. At the time, EPA was under a court order to issue the water quality rules and hoped that the NRC report would help assure that rules aimed at improving water quality would not have negative impacts on air emissions.

In an interim report released in 2002, the NRC responded to several of the EPA questions.<sup>34</sup> Nitrogen emissions from production areas are substantial, the committee found, and control strategies aimed at decreasing emissions should be designed and implemented now. It recommended developing improved approaches to estimating and measuring emissions of key air pollutants from AFOs and initiating long-term coordinated research by EPA and USDA with the goal of eliminating release of undesirable air emissions. The committee said that implementation of feasible management practices that are designed to decrease emissions, such as incorporating manure into soil, should not be delayed while research on mitigation technologies proceeds. This report focused particularly on the suitability of an approach for estimating air emissions from AFOs presented in a 2001 draft EPA report. In that report, EPA attempted to develop a set of model farms, based on manure management systems typically used by large AFOs, and identify emissions factors that could be associated with each element of the model farm. In the absence of actual data from extensive monitoring, EPA hoped that emission factors could be applied to model farms to estimate annual mass emissions.<sup>35</sup>

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of the pollutant. The emission factor approach is based on measuring emissions from a set of defined AFOs to obtain an average emission per unit (per animal unit, or per production unit process, such as manure storage piles and lagoons, stall areas, and feed storage areas), then multiplying the emission factor by the number of units and period of time (e.g., annually). The current method of estimating cow, chicken, swine, or any other livestock animal emissions is generally expressed in terms of emissions per head, per year. Using this method, facility emissions are directly proportional to the number of animals at the facility.

The NRC recognized that direct measurements of air emissions at all AFOS are not feasible. However, it found that the model farm construct described by EPA cannot be supported because of weaknesses in the data needed to implement it, which fail to consider variations in many factors (geography, climate, management approaches) that could affect annual amounts and temporal patterns of emissions from an individual AFO. Alternatively,

the NRC recommended that EPA consider a more complex process-based approach to focus on activities that determine the movement of nutrients and other substances into, through, and out of each component of the farm enterprise.

The NRC expanded on these recommendations in its final report, issued in 2003.<sup>36</sup> Overall, it found that scientifically sound protocols for measuring air concentrations, emission rates, and fates are needed for the elements, compounds, and particulate matter associated with AFOs. Similarly, standardized methodology for odor measurement should be developed in the United States, the NRC said. The report noted that emission factor approaches should be broadened to integrate animal and crop production systems both on and off the AFO (i.e., imported feeds and exported manure) in order to represent the full environmental effects of animal production systems. Such a systems analysis should include impacts of best management practices (BMPs) aimed at mitigating AFO air emissions on other parts of the entire system.

## **THE ROLE OF USDA**

The U.S. Department of Agriculture (USDA) manages a diverse range of programs involving food, forests, rural development, agricultural trade, and conservation of natural resources. Several USDA agencies have conservation responsibilities that may involve livestock and their environmental effects. For example, the Natural Resources Conservation Service (NRCS) provides technical assistance and information, as well as financial assistance, to landowners and agricultural producers to implement conservation systems and practices, such as developing Comprehensive Nutrient Management Plans to control AFO runoff.

The Agricultural Research Service (ARS) is the in-house research agency of USDA and conducts a wide range of research activities. Among those related to livestock production are national programs directed to air quality (focusing on particulates, agriculturally emitted ammonia, and odor) and manure and by-product utilization (focusing on nutrient management and atmospheric emissions). A second USDA agency is the Cooperative State Research, Education, and Extension Service (CSREES). Like ARS, CSREES has projects related to livestock production, such as an animal waste management program aimed at educating producers and increasing the use of best management practices through training for AFO operators.

USDA cooperates with EPA when issues concern both agriculture and the environment. Notably, the two collaborated on a Unified National Strategy for Animal Feeding Operations, issued in 1999, intended to minimize public health and environmental impacts of runoff from AFOs. That strategy consisted of multiple elements and was based on a national performance expectation that all AFO owners and operators would develop and implement site-specific Comprehensive Nutrient Management Plans by 2009 to protect water quality and public health.

The importance of relationships between air quality and agriculture has received increased recognition at USDA in recent years. One direct result was enactment of a provision in the 1996 Federal Agriculture Improvement and Reform Act (P.L. 104127), the farm bill, requiring USDA to create an Agricultural Air Quality Task Force. One finding in Section 391 of the statute stated that USDA should lead efforts to determine accurate

measures of agriculture's role in air pollution and in the development of cost-effective approaches to reduce pollution. Several provisions of the 2002 farm bill (the Farm Security and Rural Investment Act, P.L. 107-171) specifically addressed air quality issues in the context of USDA conservation programs.

The Agricultural Air Quality Task Force is an advisor to the Secretary of Agriculture. Its chairman is the chief of the NRCS, and its members represent USDA, EPA, industry, and basic and applied science. It is charged with ensuring sound data quality and interpretation, so that policy recommendations made by federal or state agencies to address air pollution problems related to agriculture are based on accurate scientific findings, peer review, and economic feasibility.

In 2000, the task force issued a white paper on air quality and CAFOs. It recommended a program of accelerated research, education, technology transfer, technical training, and financial assistance to address CAFO air quality problems. According to the white paper, current funding levels for air quality research are "elusive" and cannot be separately identified from all animal waste-related research. It recommended that USDA and EPA develop enhanced long-term funding packages and programs for agricultural air quality research and technology transfer that specifically address CAFOs. The task force recommended that at least \$12.8 million per year be spent by USDA (NRCS, ARS, and CSREES) for coordinated, integrated research and technical assistance programs for animal agriculture air quality.<sup>37</sup> In FY2006, ARS supported four projects to assess emissions from beef cattle feedlots, dairy operations and poultry operations and to evaluate swine wastewater treatment systems. CSREES administers a National Research Initiative on Air Quality, funded at \$5 million in FY2006, which supports about a dozen projects on various topics intended to better understand the environmental fate of agricultural atmospheric emissions, increase farm adoption of best management practices to reduce agricultural emissions, and establish scientifically sound emissions targets.

## **RESEARCH PRIORITIES**

In debates over controversial and complex public policy questions, stakeholders who hold differing perspectives at times may find little common ground. Sometimes the only point of agreement is the need for more and better research to resolve key questions — and each side hopes that research findings will support its own perspectives on the issues at hand. With regard to questions about AFO emissions and the possible need to implement control strategies, there is little dispute about the need for more research. Research on a wide range of topics currently is being supported by federal agencies, a number of individual states, academic institutions, and industry, but there is no apparent coordination or unified strategy. The monitoring study that EPA proposes as part of the Air Compliance Agreement is intended to answer some questions. However, in view of criticism of the study, doubts exist about the study's utility. Some critics of the Air Compliance Agreement fault EPA for planning only to measure emissions, but not also using the monitoring study as an opportunity to research mitigation techniques.

In its 2003 report, the National Research Council addressed these issues and recommended "substantial research efforts in both the short term and the long term."



Research in the short term (four to five years), the NRC said, can significantly improve the capability of scientifically sound modeling approaches for measuring and estimating air emissions, especially for process-based modeling that the NRC recommends be developed by EPA and USDA. A long-term research program (2030 years) that encompasses overall impacts of animal production on the environment can have substantial results in decreasing overall impacts on the environment, while sustaining production at a high level. For the long term, coordinated research is needed to determine which emissions are most harmful to the environment and human health and to develop technologies to decrease their releases into the environment.<sup>38</sup>

Priority research needs identified by the NRC, USDA's Agricultural Air Quality Task Force,<sup>39</sup> and others fall into two broad categories: fundamental research to estimate, measure, and characterize emissions; and technology research (including technology transfer).

- Foremost is the need to produce scientifically sound, standardized methodology as a basis for measuring and estimating gaseous and particulate emissions and odor, from AFOs on local, regional, and national scales. The science for estimating air emissions from individual AFOs should be strengthened, along with models to understand the totality of AFO processes, including dispersion, transformation, and deposition of emissions. This information is needed in order to assess relationships between emissions, potential health indicators, and candidate regulatory and management programs.
- A related concern is that much more needs to be understood about community-level impacts from exposure to AFO emissions. Occupational health studies have documented adverse health effects among AFO workers, such as acute and chronic respiratory diseases, but experts agree that occupational health risks cannot be extrapolated to community health risks. Peer reviewed studies of health impacts on residents in the vicinity of livestock operations are limited. These findings support a conclusion that AFO air emissions constitute a public health hazard, deserving of public health precautions as well as larger, well controlled, population-based studies to more fully ascertain adverse health outcomes and their impact on community health.<sup>40</sup>
- With regard to technology, there is a need to develop standardized measurement technologies for pollutants and odorous compounds emitted by AFOs and effective, practical, and economically feasible technologies to reduce and control odors and pollutants. Experts believe that there is a need to develop and evaluate innovative treatment processes for each of the major sources of AFO emissions, confinement buildings, manure storage areas, and land application. Research further should include programs to provide for transfer of economically viable technologies to all producers.

In its 2003 report, the National Research Council observed that EPA and USDA have not devoted the necessary technical or financial resources to estimate air emissions and develop mitigation technologies, and it criticized both for failing to address this deficiency in defining high-priority research programs. The report said, "Each has pursued its regulatory and farm management programs under the assumption that the best currently available information can

be used to implement its program goals.” It concluded that a change in research priorities in both agencies is needed if air emissions are to be addressed with an adequate base of scientific information.<sup>41</sup>

Congressional attention to the issues discussed in this report has been limited, with the result that developments are proceeding largely by administrative and some judicial actions, not through legislative policymaking. As described previously, one aspect that has attracted some congressional interest is questions about the applicability of Superfund and EPCRA to livestock and poultry operations. That interest has been especially apparent in the context of appropriations legislation and, more recently, in legislation to amend Superfund to clarify that manure is not a hazardous substance (H.R. 4341 and S. 3681 in the 109<sup>th</sup> Congress; these bills were not passed, but similar legislation — H.R. 1398 and S. 807 — has been introduced in the 110<sup>th</sup> Congress). A House subcommittee held a hearing on these issues in November 2005. Finally, there appears to be wide agreement among stakeholder groups on the need for more research on a large number of related issues, but congressional interest in supporting or funding more federal participation in research activities is unclear.

## ENDNOTES

- <sup>1</sup> This report focuses on the animal production segment of agriculture. Other types of production agriculture also can generate air emissions, such as land preparation and crop harvest activities, prescribed burning, and other farming practices, or emissions associated with storage and use of mobile source fuels and operation of farm vehicles, engines, and equipment. While some of these types of emissions may contribute to air quality problems, especially in agriculture-dominated regions, they are outside the scope of this report.
- <sup>2</sup> The following discussion is drawn primarily from National Research Council, *Air Emissions from Animal Feeding Operations, Current Knowledge, Future Needs*, 2003, pp. 65-71 (hereafter cited as NRC 2003 AFO Report); and David R. Schmidt et al., National Center for Manure and Animal Waste Management, North Carolina State University, *Air Quality and Emissions from Livestock and Poultry Production/Waste Management Systems*, Aug. 12, 2002.
- <sup>3</sup> NRC 2003 AFO Report, pp. 46-47.
- <sup>4</sup> Iowa State University and The University of Iowa Study Group, *Iowa Concentrated Animal Feeding Operations Air Quality Study, Final Report*, February 2002, p. 203. (Hereafter cited as *Iowa CAFO Air Quality Study*.)
- <sup>5</sup> *Ibid.*, p. 207.
- <sup>6</sup> For example, the California Air Pollution Control Officers Association maintains a website to assist agricultural operators, local air districts, and others with information on air pollution reduction techniques. See [<http://www.capcoa.org/agclearinghouse.shtml>].
- <sup>7</sup> *Ibid.*, p. 209.
- <sup>8</sup> For additional information, see CRS Report RL33325, *Livestock Marketing and Competition Issues*, by Geoffrey S. Becker.

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- <sup>9</sup> Marc Ribaldo et. al, U.S. Department of Agriculture, Economic Research Service, *Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land*, June 2003, Agricultural Economic Report 824, 87 pp.
- <sup>10</sup> U.S. Department of Agriculture, Natural Resources Conservation Service, *Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States*, Publication no. nps00-0579, Dec. 2000, p. 18. (Hereafter cited as USDA 2000 Manure Nutrients report.)
- <sup>11</sup> J. B. Ruhl, "Farms, Their Environmental Harms, and Environmental Law," *Ecology Law Quarterly*, vol. 27, no. 2 (2000), p. 265.
- <sup>12</sup> For additional information on the Clean Water Act, see CRS Report RL30798, *Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency*, by Susan Fletcher, coordinator.
- <sup>13</sup> U.S. Environmental Protection Agency, *National Water Quality Inventory, 2000 Report*, Aug. 2002, EPA-841-R-02-001, 1 vol.
- <sup>14</sup> For additional information, see CRS Report RL31851, *Animal Waste and Water Quality: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs)*, by Claudia Copeland.
- <sup>15</sup> For additional information, see CRS Report RL33656, *Animal Waste and Water Quality: EPA's Response to the "Waterkeeper Alliance" Court Decision on Regulation of CAFOs*.
- <sup>16</sup> Marcel Aillery, Noel Gollehon, Robert Johansson, Jonathan Kaplan, Nigel Key, Marc Ribaldo, *Managing Manure to Improve Air and Water Quality*, U.S. Department of Agriculture, Economic Research Report 9, September 2005.
- <sup>17</sup> For additional information on the Clean Air Act, see CRS Report RL30798, *Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency*, by Susan Fletcher, coordinator.
- <sup>18</sup> Under the act, EPA establishes primary ambient air quality standards at a level sufficient to protect the public health. EPA also is authorized to establish secondary ambient air quality standards designed to protect the public welfare.
- <sup>19</sup> For additional information,, see CRS Report RL33254, *Air Quality: EPA's 2006 Changes to the Particulate Matter (PM) Standard*, by Robert Esworthy and James E. McCarthy.
- <sup>20</sup> For additional information, see CRS Report 97-670, *Agriculture and EPA's New Air Quality Standards for Ozone and Particulates*, by James E. McCarthy and Jeffrey A. Zinn.
- <sup>21</sup> Lloyd L. Eagan (President of State and Territorial Air Pollution Program Administrators) and Ellen Garvey (President of Association of Local Air Pollution Control Officials), letter to Christine Todd Whitman (EPA Administrator), Apr. 7, 2003, p. 2.
- <sup>22</sup> Ten areas of the state have been designated in nonattainment for the one-hour federal ozone standard.
- <sup>23</sup> State of California, California Environmental Protection Agency, Air Resources Board, *Staff Report: Initial Statement of Reasons for Rulemaking, Public Hearing to Consider the Large Confined Animal Facility Definition*, May 6, 2005, 102 pp.
- <sup>24</sup> *Association of Irrigated Residents, et al, v. Fred Schakel Dairy*, E.D. Ca., No. 05-707, filed June 1, 2005.
- <sup>25</sup> USDA 2000 Manure Nutrients report, pp. 28-29.

- <sup>26</sup> Jody M. Endres and Margaret Rosso Grossman, “Air Emissions from Animal Feeding Operations: Can State Rules Help?” *Pennsylvania State Environmental Law Review*, vol. 13, fall 2004, pp. 1-51.
- <sup>27</sup> Iowa CAFO Air Quality Study, p. 189.
- <sup>28</sup> For additional information, see CRS Report RL33691, *Animal Waste and Hazardous Substances: Current Laws and Legislative Issues*, by Claudia Copeland.
- <sup>29</sup> For additional information on CERCLA and EPCRA, see CRS Report RL30798, *Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency*, coordinated by Susan Fletcher.
- <sup>30</sup> In 1998, EPA granted an administrative exemption from release reporting requirements for certain radionuclide releases. EPA cited authority in CERCLA Sections 102(a), 103, and 115 for granting administrative reporting exemptions where “releases of hazardous substances that pose little or no risk or to which a Federal response is infeasible or inappropriate.” See 63 *Federal Register* 13461 (March 19, 1998).
- <sup>31</sup> National Association of Clean Air Agencies, letter to the Honorable Barbara Boxer, chairman, Senate Environment and Public Works Committee, March 20, 2007.
- <sup>32</sup> U.S. Congress, House Committee on Appropriations, *Report accompanying H.R. 2361, Department of the Interior, Environment, and Related Agencies Appropriation Bill, 2006*, H.Rept. 109-80, 109<sup>th</sup> Cong., 1<sup>st</sup> sess., p. 87.
- <sup>33</sup> Nitrification and denitrification are biological processes that, respectively, oxidize ammonia to nitric acid, nitrous acid, or any nitrate or nitrite; and reduce nitrates or nitrites to nitrogen-containing gases.
- <sup>34</sup> National Research Council, *The Scientific Basis for Estimating Air Emissions from Animal Feeding Operations, Interim Report* (Washington, D.C.: National Academies Press, 2002).
- <sup>35</sup> U.S. Environmental Protection Agency, *Emissions from Animal Feeding Operations (Draft)*, EPA Contract No. 68-D6-0011, Washington, D.C., Aug. 15, 2001, 414 pp.
- <sup>36</sup> NRC 2003 AFO Report.
- <sup>37</sup> USDA Agricultural Air Quality Task Force, *Air Quality Research and Technology Transfer White Paper and Recommendations for Concentrated Animal Feeding Operations*, July 19, 2000. (Hereafter cited as AAQTF CAFO White Paper.)
- <sup>38</sup> NRC 2003 AFO Report, pp. 11, 174-175.
- <sup>39</sup> AAQTF CAFO White Paper, p. 5.
- <sup>40</sup> *Iowa CAFO Air Quality Study*, p. 138.
- <sup>41</sup> NRC 2003 AFO Report, pp. 13, 153.

*Chapter 2*

## **AIR QUALITY ISSUES AND ANIMAL AGRICULTURE: EPA'S AIR COMPLIANCE AGREEMENT\***

*Claudia Copeland*

### **ABSTRACT**

From an environmental quality standpoint, much of the interest in animal agriculture has focused on impacts on water resources, because animal waste, if not properly managed, can harm water quality through surface runoff, direct discharges, spills, and leaching into soil and groundwater. A more recent issue is the contribution of emissions from animal feeding operations (AFO), enterprises where animals are raised in confinement, to air pollution. AFOs can affect air quality through emissions of gases such as ammonia and hydrogen sulfide, particulate matter, volatile organic compounds, hazardous air pollutants, and odor. These pollutants and compounds have a number of environmental and human health effects.

Agricultural operations that emit large quantities of air pollutants may be subject to Clean Air Act regulation. Further, some livestock operations also may be regulated under the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) and the Emergency Planning and Community Right-to-Know Act. Questions about the applicability of these laws to livestock and poultry operations have been controversial and have drawn congressional attention.

Enforcement of these federal environmental laws requires accurate measurement of emissions to determine whether regulated pollutants are emitted in quantities that exceed specified thresholds. Yet experts believe that existing data provide a poor basis for regulating and managing air emissions from AFOs. In an effort to collect scientifically credible data, in January 2005 the Environmental Protection Agency (EPA) announced a plan that had been negotiated with segments of the animal agriculture industry. Called the Air Compliance Agreement, it is intended to produce air quality monitoring data on AFO emissions during a two-year study, while at the same time protecting participants through

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\* Excerpted from CRS Report RL32947, dated June 19, 2007.

a “safe harbor” from liability under certain provisions of federal environmental laws. Many producer groups support the agreement as essential to gathering valid data that are needed for decision making. However, critics, including environmentalists and state and local air quality officials, say that the Air Compliance Agreement will grant all participating animal producers a sweeping retrospective and prospective liability shield for violations of environmental laws, yet because fewer than 30 farms will be monitored, it is too limited in scope to yield scientifically credible estimates of AFO emissions. Some industry groups have their own questions and reservations. Nearly 2,700 AFOs, representing more than 6,700 farms, signed up to participate in the agreement. In August 2006, EPA finished approving agreements with 2,568 AFOs. Monitoring, involving 24 farms in 10 states, will begin in mid-2007.

## **AIR QUALITY ISSUES AND ANIMAL AGRICULTURE: EPA’S AIR COMPLIANCE AGREEMENT**

### **Introduction**

From an environmental quality standpoint, much of the public and policy interest in animal agriculture has focused on impacts on water resources, because animal waste, if not properly managed, can adversely impact water quality through surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, and leaching into soil and groundwater. However, animal feeding operations (AFO), enterprises where animals are kept and raised in confinement, can also result in emissions to the air of particles and gases such as ammonia, hydrogen sulfide, and volatile organic chemicals. At issue today are questions about the contribution of AFOs to total air pollution and corresponding ecological and possible public health effects.

The Environmental Protection Agency (EPA) has authority to address AFO air emissions under several laws — the Clean Air Act, Comprehensive Environmental Response, Compensation, and Liability Act, and the Emergency Planning and Community Right-to-Know Act. Implementation and enforcement of these laws requires scientifically credible data on air emissions and accurate measurement of emissions to determine whether regulated pollutants are emitted in quantities that exceed specified thresholds.

This chapter discusses a plan announced by EPA in January 2005, called the Air Compliance Agreement, that would produce air quality monitoring data on animal agriculture emissions from a small number of farms, while at the same time protecting all participants (including farms where no monitoring takes place) through a “safe harbor” from liability under certain provisions of federal environmental laws. Some industry sectors involved in negotiating the agreement, notably pork and egg producers, strongly support it, but other industry groups that were not involved in the discussions have concerns and reservations. State and local air quality officials and environmental groups oppose the agreement, as discussed below.

A separate report, CRS Report RL32948, provides general background information on air emissions from poultry and livestock operations, their sources and health and environmental

effects, relevant federal environmental statutes and regulations, congressional interest in these issues, state activities, and research needs.

## BACKGROUND<sup>1</sup>

AFOs can affect air quality through emissions of gases (ammonia and hydrogen sulfide), particulate matter, volatile organic compounds, hazardous air pollutants, microorganisms, and odor. AFOs also produce gases (carbon dioxide and methane) that are associated with climate change. The generation rates of odor, manure, gases, particulates and other constituents vary with weather, time, animal species, type of housing, manure handling system, feed type, and management system (storage, handling, and stabilization).

Emission sources include barns, feedlot surfaces, manure storage and treatment units, silage piles, animal composting structures, and other smaller sources, but air emissions come mostly from the microbial breakdown of manure stored in pits or lagoons and spread on fields. Pollutants associated with AFOs have a number of environmental and human health impacts. Most of the concern with possible health effects focuses on ammonia, hydrogen sulfide, and particulate matter, while major ecological effects are associated with ammonia, particulates, methane, and oxides of nitrogen.

The animal sector of agriculture has undergone major changes in the last several decades, a fact that has drawn the attention of policymakers and the public. In the United States there are an estimated 238,000 animal feeding operations where livestock and poultry are confined, reared, and fed, according to the U.S. Department of Agriculture's 1997 Census of Agriculture.

Organizational changes within the industry to enhance economic efficiency have resulted in larger confined production facilities that often are geographically concentrated.<sup>2</sup> The driving forces behind structural change in livestock and poultry production are no different than those that affect many other industries: technological innovation and economies of scale.<sup>3</sup> From 1982 to 1997, the total number of U.S. operations with confined livestock fell by 27%. At the same time, the number of animals raised at large feedlots (generally confining 300 animals or more) increased by 88%, and the number of large feedlots increased by more than 50%.<sup>4</sup> The traditional image of small farms, located in isolated, rural locales, has given way to very large farming operations, some on the scale of industrial activities. Increased facility size and regional concentration of livestock and poultry operations have, in turn, given rise to concerns over the management of animal wastes from these facilities and potential impacts on environmental quality.

Agricultural operations often have been treated differently from other types of businesses under numerous federal and state laws. Some laws specifically exempt agriculture from regulatory provisions, and some are structured in such a way that farms escape most, if not all, of the regulatory impact. Moreover, in implementing environmental laws, federal and state regulators have traditionally focused most effort on controlling the largest and most visible sources of pollution to the water, air, and land — factories, waste treatment plants, motor vehicles — rather than smaller and more dispersed sources such as farms.

Nevertheless, certain large animal feeding operations are subject to environmental regulation. The primary regulatory focus has been on protecting water resources and has

occurred under the Clean Water Act. While air emissions from farms typically do not exceed thresholds specified in the Clean Air Act (CAA) and thus generally escape most CAA regulatory programs, facilities that emit large quantities of air pollutants may be regulated under the act and state programs which implement the CAA. A number of state air quality programs supplement federal CAA requirements with facility construction and operation permits, air quality standards for odor and certain AFO pollutants, monitoring, inspection, and testing. Some observers believe that increased federal and state attention to air emissions from AFOs, precipitated in part by structural changes in animal production and public concern, will likely lead to stricter federal regulation.<sup>5</sup>

Some livestock operations may also be subject to the release reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, the Superfund law) and the Emergency Planning and Community Right-to-Know Act (EPCRA). The reporting requirements of these laws are triggered when large quantities of certain substances are released to the environment, including ambient air. Livestock facilities emit hydrogen sulfide and ammonia, which are reportable substances under these laws. There has been little enforcement of these provisions against livestock operations, but in lawsuits brought by citizen groups, federal courts in two circuits have found AFOs in violation of the reporting requirement provisions of the laws. Applicability of other provisions of CERCLA to agriculture (provisions concerning liability for costs of cleanup of hazardous substance releases and recovery for damages of releases to natural resources) also have drawn attention. The net result is growing concern by the agriculture community that other legal actions will be brought, thus potentially exposing more of these operations to enforcement under federal law.

## **EPA'S AIR COMPLIANCE AGREEMENT WITH INDUSTRY**

Enforcement of applicable provisions of federal environmental laws such as the Clean Air Act requires accurate measurement of emissions to determine whether facilities and operations emit regulated pollutants in quantities that exceed specified thresholds. Monitoring air emissions from feedlots, waste lagoons, animal confinement buildings and other components of livestock facilities is complex and has been controversial. Resolving questions about AFOs' contribution to total air pollution and corresponding ecological and possible public health effects is hindered by a lack of adequate, accurate, scientifically credible data on air emissions. At the same time, increasing public concern about AFO emissions and a growing number of enforcement actions brought against large AFOs seeking compliance with environmental laws, have led to efforts to gather more and better data.

Early in 2002, representatives of some agriculture industry groups — especially pork and egg producers — approached EPA officials with a proposal to negotiate a voluntary agreement that would produce air quality monitoring data on emissions from animal feedlot operations. Discussions between EPA and the industry groups continued for more than two years and eventually led to a plan, called the Air Compliance Agreement, that EPA announced in January 2005. It was published in the *Federal Register* on January 31, 2005, thus triggering a period during which AFOs could sign up to participate in the agreement.<sup>6</sup> Concurrently, EPA solicited public comments, but comments were not expected to lead to



changes to the agreement. The signup period, originally set to last for 90 days, was subsequently extended for an additional 60 days, until July 1, 2005, and the public comment period (originally set to end on April 1) was extended until May 2, 2005.<sup>7</sup> On June 23 and again on August 3, EPA further extended the deadline for signup, first to July 12 and then to August 12, 2005, in order to provide more time for AFO operators to make decisions about participation. The public comment period was not extended.

The agreement is intended to enable scientists to collect and analyze emissions data and create tools that AFOs could use to estimate their emissions, for purposes of regulatory compliance, while at the same time protecting participating AFOs under a “safe harbor” in which EPA covenants not to sue and releases participants from EPA liability for failing to comply with certain provisions of the Clean Air Act, CERCLA, and EPCRA. EPA retains the authority to respond to an imminent and substantial endangerment to public health or the environment, and participants are not protected against liability for criminal violations of environmental laws.

The agreement applies to AFOs in the egg, broiler chicken, turkey, dairy cattle, and swine industries. (It does not address AFOs that only have open-air feedlots, such as cattle feedlots.) Those that sign up to participate will pay a civil penalty ranging from \$200 to \$1,000, depending on the number of animals at the AFO, and will contribute \$2,500 per farm to implement a nationwide air monitoring program for AFOs. EPA estimated that as many as 4,000 AFOs might sign up to participate in the agreement. Of those that sign agreements with EPA, a small number — perhaps no more than three dozen representative farms nationwide — will be selected to participate in on-farm monitoring, but all who sign up will be protected by EPA’s covenant not to sue. EPA reserved the right to decide not to go forward with the agreement and monitoring study if, for example, an insufficient number of AFOs signs up to generate the \$10 to \$12 million estimated to be needed for the study, or if some individual animal groups were under-represented. EPA also could decline to enter into agreement with an individual AFO if, for example, it is the subject of ongoing federal, state or local environmental enforcement.

EPA expected that within 30 days after the end of the sign-up period (August 12, 2005), agency officials would decide whether to proceed with all, part, or none of the monitoring study and sign the Air Compliance Agreements submitted by industry participants. (As described in the following section, this process took longer than was anticipated.) Signed agreements would then be forwarded to the agency’s Environmental Appeals Board (EAB) for final approval. Unlike civil enforcement actions that are resolved by judicially approved consent decrees, the Air Compliance Agreements are administrative agreements. Among other responsibilities, the EAB is the final EPA decision maker on administrative appeals under all major environmental statutes that the agency administers.

Monies collected from participants will go to a nonprofit organization (NPO) set up by the AFOs, called the Agricultural Air Research Council.<sup>8</sup> The NPO, in turn, will subcontract with a science advisor and independent monitoring contractor to run the monitoring study, including recommending facilities to be monitored. EPA’s role will be to review and approve the contractor’s study plan and, later, to use and analyze the data generated by the study. EPA also collaborated with industry and other stakeholders to develop protocols for the study, which were published with the January 2005 *Notice* of the agreement. Emissions at the facilities will be monitored at both buildings and waste lagoons and will include ammonia, hydrogen sulfide, particulate matter, carbon dioxide, and VOCs.

EPA expected that monitoring would begin in 2006 and continue for two years. EPA will use the data and other relevant, available data to develop methodologies for estimating annual emissions. Within 18 months after the nationwide monitoring study concludes (i.e., early 2008 or possibly some time in 2009), EPA expects to publish emission-estimating methodologies for AFOs in the eligible animal groups. Once the methodologies are published, an AFO will have 120 days to apply the methodologies to its facilities, apply for all applicable air permits and comply with permit conditions, and report any qualifying releases of ammonia and hydrogen sulfide as required by CERCLA and EPCRA. The EPA covenant not to sue and waiver from liability will cover an AFO's liability for failing to comply with certain provisions of CERCLA, EPCRA, and the CAA retroactively and from the start of the agreement up to the time it reports releases and applies for and receives CAA permits (i.e., 120 days after publication of estimating methodologies) or December 31, 2011, whichever ever is earlier. This time period can be extended by mutual agreement of EPA and participants, without limit to how long such an extension might last.<sup>9</sup>

## **Status**

The signup period for participating in the agreement closed on August 12, 2005, and EPA then began compiling and evaluating responses. Ultimately, 2,681 AFOS, representing more than 6,700 farms, signed up to participate. In November 2005, an initial group of agreements was forwarded to the Agency's Environmental Appeals Board for approval. The EAB approved the first 20 agreements on January 31, 2006, consisting of 10 swine and 10 egg-laying operations in 11 states. The EAB approved larger groups of agreements in April, May, and July, and approved a final group in August 2006. With that final action, the board ratified a total of 2,568 agreements, representing 6,267 farms in 42 states. The total consists of 1,856 swine, 468 dairy, 204 egg-laying, and 40 broiler operations. According to EPA, the EAB's determination that the agreements are consistent with applicable statutes and CAA regulations allows the monitoring study to officially begin developing quality assurance and site-specific monitoring plans for those livestock sectors.

On June 14, 2007, EPA announced that the two-year air monitoring study is ready to proceed. The study will involve 24 swine, dairy, and poultry farms in 10 states.<sup>10</sup> EPA worked with Purdue University, which will be in charge of the study, to review the research plan for the study. Researchers from Purdue and seven other universities will carry out the actual monitoring.

## **Critiques of the Safe Harbor Agreement**

In comments submitted to EPA, many livestock and poultry groups and individual producers supported the Air Compliance Agreement — especially those expected to participate in it. In their view, comprehensive, valid data are needed to develop appropriate public policy regarding emissions from animal agriculture operations. The air monitoring study linked to the agreement is an important effort to establish the criteria that farmers and regulators need to correctly interpret agricultural compliance requirements. Supporters

believe that data from the study will enable EPA to produce charts that livestock and poultry producers can use to know whether their farms are subject to federal environmental laws.

Additionally, supporters said that producers need the protection provided by the agreement in order to volunteer their farms for participation in the study. Without this protection, there is no incentive for producers to participate in the research, because the potential penalties for alleged past violations are so great. Many among those who support the agreement believe that livestock operations should be entirely exempt from CERCLA and EPCRA reporting requirements because, in their view, Congress did not intend for these laws to apply to animal agriculture. Several

groups, including cattle feedlots (even though they are not included in the compliance agreement) and chicken and turkey producers, have for some time requested that EPA resolve the issue for producers through a finding or guidance to clarify that animal agriculture facilities are not subject to CERCLA and EPCRA. They fear that, barring statutory change or some clarification from EPA, the courts will continue to rule that the laws do apply to animal agriculture. Thus, they view the monitoring study, and the legal protection provided under it, as an incentive to participants that will provide the data needed to determine on a national scale which farms are subject to compliance with regulatory requirements.

State and local air quality officials and members of the environmental advocacy community strongly objected to the agreement, which some characterized as a grant of “retrospective and prospective immunity from liability” for every AFO in the United States, a sweeping liability shield to the entire industry.<sup>11</sup> Environmental groups and air program administrators were not included in EPA-industry negotiations on the agreement, but several draft versions of the agreement document were publicly circulated throughout the period of its development. Letters to EPA objecting to the proposal were sent by both,<sup>12</sup> and environmental groups unsuccessfully attempted to halt the plan with a September 2003 lawsuit alleging that EPA had violated the Freedom of Information Act by failing to disclose documents about the proposed agreement. A legal challenge to the Air Compliance Agreement, brought by several environmental advocacy groups after publication of the agreement in January 2005, is pending in the U.S. Court of Appeals for the District of Columbia.<sup>13</sup>

Not all industry groups were fully supportive of the agreement, for a number of reasons. Some agriculture industry groups that did not participate in negotiating the compliance agreement had a number of their own concerns. Issues presented in critical comments submitted on the January 2005 publication of the agreement addressed a number of points.<sup>14</sup>

### ***Environmental Advocates and Air Program Administrators***

Environmental critics argued that the agreement unlawfully exempts AFOs from requirements of the Clean Air Act, CERCLA, and EPCRA. They argued that EPA has no authority to defer a major stationary source’s or a facility’s compliance with these laws, through permit deferrals or requirements. These opponents argued that the broad liability shield provided by the agreement is not justified by contending that there is a lack of data. They pointed to research that has been conducted for quite some time by academic and government researchers (including USDA) that has documented emissions and adverse health and environmental effects from AFO emissions. Further, they argued that EPA has authority under CAA Section 114 to require that AFOs provide emission monitoring data, without the need to provide an industry-wide exemption. In the view of environmentalists, the penalties

required under the agreement (averaging \$500 per farm) are a “payment to pollute,” especially compared with penalties available to EPA under those laws (\$27,500 for each civil violation). EPA’s position is that the agreement is the quickest and most effective way to address the current uncertainties regarding air emissions and to bring the entire AFO industry into compliance with the CAA, CERCLA, and EPCRA, in contrast to lengthy litigation and case-by-case enforcement of the laws.<sup>15</sup>

Environmental critics also were concerned that the agreement does not require AFOs to reduce pollution. EPA’s publication of emission-estimating methodologies will trigger the obligation of participating AFOs to determine their emissions and to comply with all applicable CAA requirements (including permits) and CERCLA and EPCRA reporting requirements. Critics said, however, that it does not guarantee air pollution controls at any AFO or even require participants to test technologies or management practices to reduce their emissions, although all AFOs are eligible to secure a lengthy, perhaps indefinite CAA amnesty. At the end of the study EPA could make regulatory or policy decisions that would leave AFO emissions unregulated, they said, even if monitoring indicates there are emissions in amounts that would be of concern. In addition, they were critical of the open-ended timelines in the agreement (especially the 18 months after monitoring when EPA expects to publish emission-estimating methodologies): if EPA fails to issue the methodologies, the waiver could last indefinitely, they said.

A number of commenters criticized the small number of sites that EPA expected would be monitored — fewer than three dozen, according to EPA’s early indications. As noted above, in June EPA announced that the study will include 24 farms in 10 states. Such a small number, critics said, will be insufficient to develop emission-estimating methodologies for all of the covered animal sectors and possible farm configurations and geographic locations. In response, EPA said that its technical experts believe that the monitoring protocol will provide sufficient data to get a valid representative sample. Moreover, significantly increasing the number of farms to be monitored would be prohibitively expensive and would not add substantially to the value of the data collected, according to EPA.<sup>16</sup> Critics also said that the small sample size for monitoring is inconsistent with recommendations made by the National Research Council calling for a process-based rather than a model farm approach to estimate emissions.<sup>17</sup> EPA said that developing a process-based model of emissions is part of the agency’s long-term strategy but will take a period of years.

Other critics said that the monitoring protocol under the agreement lacks adequate peer review and involvement of qualified, independent scientists who were not involved in its formulation. To assure the scientific rigor of the monitoring program, some commenters recommended an independent peer review process using reviewers with no active ties to the livestock industry. In June 2007, when EPA announced that the study is ready to proceed, agency officials said that Purdue and the other participating universities developed 2,000 pages of protocol for the design of the study and that it was peer-reviewed by EPA and its contractors, as well as by outside research groups. Still, some critics complained that the public had not been notified or involved in the external review process.

State and local air quality officials said that the agreement interferes with their ability to attain air quality standards and enforce air pollution control laws. In their view, several of the agreement’s provisions are unclear and could be interpreted to limit the ability of states and localities to enforce air laws. These groups, along with environmentalists, were greatly concerned that the broad waiver of liability will curtail state or local and citizen enforcement,

or, at the very least, create a very high hurdle for enforcement. The agreement says that it is not intended to affect the ability of states or citizens to enforce applicable state laws. However, these critics contended that, by saying that the agreement resolves an AFO's civil liability for certain potential violations, it seriously raises the bar for state or citizen enforcement, since a participating AFO might claim in an enforcement action that the agreement provides immunity from state laws or local ordinances. EPA's position is that the agreement does not undermine state or local enforcement authorities and has no impact on the most important state enforcement tools, including zoning classification, state permits, nuisance actions, workplace regulations, and health and safety laws. Further, the agreement does not affect the ability of regulators to bring an action under emergency provisions of the Clean Air Act and other statutes in order to prevent an imminent and substantial endangerment to public health, welfare, or the environment.

EPA also was criticized for failing to resolve two important definitional issues. In the *Notice* announcing the agreement, EPA said that after the monitoring study is complete, it will issue guidance or a rule on whether to treat emissions from different areas at AFOs as fugitive or nonfugitive emissions. Fugitive emissions are not counted for purposes of determining whether under the Clean Air Act a source is major or minor and, thus, subject to pollution controls. Critics said that EPA should clarify this important issue quickly, should do so in consultation with states and localities, and should take any action through a formal rulemaking, not a guidance document.

Similarly, EPA said that at the end of the monitoring study, it will issue guidance on the scope of the term "source" as it relates to animal agriculture and farm activities.<sup>18</sup> State and local air quality officials were concerned that, like the fugitive emissions issue, EPA could define "source" in such a way that emissions from AFOs do not rise to a threshold of regulatory concern. In their view, this would be contrary to federal court rulings in cases concerning applicability of CERCLA and EPCRA reporting requirements to AFOs. States and localities believe that the laws should be interpreted liberally to accomplish goals of cleaning up and maintaining clean air.

### ***Other Animal Producers***

Critical comments on the agreement also were submitted by some industry groups that did not participate in negotiations with EPA to develop the program, but might be expected to participate in the agreement. A number of commenters from the dairy farming and broiler and turkey producer industries noted confusion about many details of the agreement, especially for small farmers, resulting in uncertainty about implications and costs to them of participating in it (actual costs and transaction costs). Several asked EPA to review public comments on the agreement, make suggested changes where appropriate, and allow producers and processors additional time to sign up, once a final agreement was published. Extending the signup period would allow groups that are less familiar with the agreement the time that they need to assess it, they said. As noted previously, based partly on requests for additional time, EPA did extend the signup deadline until August 12, 2005, but the agreement remained unchanged from what was published in January 2005.

A number of industry commenters objected that the agreement requires an admission of liability and that the term "civil penalty," which participants must pay, carries negative connotations that imply guilt. Some companies objected to having to pay to resolve unproven violations. EPA responded that, by voluntarily signing the agreement, farmers are not

admitting any liability or any sort of wrongdoing. Payment of a penalty is part of the process to obtain a release from liability for possible violations, according to EPA, and is not intended to be used for any purposes other than this agreement. In EPA's view, signing the agreement is not an admission that participating agricultural operations have been operated negligently or improperly or in violation of any federal, state, or local law or rule.<sup>19</sup>

Some dairy farmers also raised concerns that the agreement could jeopardize their role in farm programs, bank loans, and insurance policies. In response, the Secretary of Agriculture informed Members of Congress that the department had concluded that "voluntary participation in the AQCA by a producer or processor will not cause the producer or processor to be ineligible for USDA programs."<sup>20</sup>

Both poultry producer groups (sometimes called the meat-bird sector, in contrast to the egg-laying segment of poultry) and dairy groups said that they would prefer to work with a nonprofit organization of their own choosing to manage their participation (handling funding, monitoring facilities, presenting the data), rather than a single organization selected to represent all of the industry. Purdue University was selected to manage the study. The dairy industry preferred to work with its own Dairy Environmental Task Force, which already is addressing dairy air quality issues, and poultry and egg producers preferred to work with researchers that they believe are more familiar with their operations, such as scientists from the University of Georgia.

Producers in the poultry and dairy sectors also objected to the small number of sites that EPA plans to monitor (for example, the protocol calls for monitoring only four dairy farms and two broiler operations across the country), saying that the proposed monitoring program is too limited and that the data will not accurately reflect the variation or range of climatic, geographic, and operational factors that influence emissions from facilities. Whereas the environmentalists' concerns about the small number of sites to be monitored is that the majority of producers will benefit from the safe harbor without having to do anything, industry groups have different concerns. They fear that EPA will impose future requirements that will be both costly and scientifically inappropriate, because the limited monitoring under the protocol will not adequately reflect different types of operations within specific sectors or for all segments of animal agriculture. One commenter noted as follows:

[A]n insufficient number of farms are included in the monitoring to allow for the development of models to estimate emissions from individual AFOs.... It is unclear how the very limited number of representative farms selected, and the resulting emission estimating methodologies, will result in data capable of accounting for the various differences in management styles, feed regimes, water control and numerous other factors that can affect emissions.<sup>21</sup>

Comments from poultry and dairy groups raised other concerns, including financial obstacles to participating in the agreement. Dairy farmers noted that while some animal producers are able to use funds from national check-off programs to pay for the study so that individual producers do not have to pay the costs out-of-pocket (e.g., the National Pork Board has committed \$6 million of check-off funds for pork producers' participation), the national dairy check-off program may not be used to fund production-oriented research at the farm level.<sup>22</sup> Thus, there is no central mechanism to fund dairy farmers' participation in the monitoring study.

A group of pork producers who operate small farms, called the Campaign for Family Farms, and several individual hog farmers objected to use of mandatory pork check-off funds to support producers' participation in the EPA Air Compliance Agreement. In May 2005 they petitioned the Secretary of Agriculture to halt pork check-off commitments for expenses related to the agreement. In their view, the EPA study is beyond the type of research and promotion that is permissible under the Pork Promotion, Research, and Consumer Information Act, which authorizes the check-off. According to the petitioners, the proposed use of pork check-off funds is a means for large CAFOs to buy legal immunity from environmental laws that will not benefit those producers who are too small to be subject to the CAA, CERCLA, or EPCRA.<sup>23</sup> Despite this challenge, which is proceeding, USDA has approved use of the pork check-off funds for the study.

Congressional attention to the issues discussed in this report has been limited, with the result that developments have proceeded largely by administrative and some judicial actions, not through legislative policymaking. No legislation regarding the Air Compliance Agreement was introduced during the 109<sup>th</sup> Congress. Prior to release of the agreement in January 2005, some individual Members wrote letters to EPA objecting to the pending plan. More formal attention — for example, through oversight hearings — has not occurred.

## ENDNOTES

- <sup>1</sup> For more extensive discussion, see CRS Report RL32948, *Air Quality Issues and Animal Agriculture: A Primer*, by Claudia Copeland.
- <sup>2</sup> For additional information, see CRS Report RL33325, *Livestock Marketing and Competition Issues*, by Geoffrey S. Becker.
- <sup>3</sup> Marc Ribaud et al., U.S. Department of Agriculture, Economic Research Service, *Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land*, June 2003, Agricultural Economic Report 824, 87 pp.
- <sup>4</sup> U.S. Department of Agriculture, Natural Resources Conservation Service, *Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States*, Publication no. nps00-0579, December 2000, p. 18.
- <sup>5</sup> Jody M. Endres and Margaret Rosso Grossman, "Air Emissions from Animal Feeding Operations: Can State Rules Help?" *Pennsylvania State Environmental Law Review*, vol. 13, fall 2004, p. 5.
- <sup>6</sup> U.S. Environmental Protection Agency, "Animal Feeding Operations Consent Agreement and Final Order," *70 Federal Register* 4958, January 31, 2005.
- <sup>7</sup> *70 Federal Register* 16266, March 30, 2005.
- <sup>8</sup> *70 Federal Register* 4970, January 31, 2005.
- <sup>9</sup> *70 Federal Register* 4964, January 31, 2005.
- <sup>10</sup> California, Indiana, Iowa, Kentucky, New York, North Carolina, Oklahoma, Oregon, Texas, and Wisconsin.
- <sup>11</sup> Brent Newell et al. (representatives of six environmental organizations), letter to Christine Todd Whitman (EPA Administrator), May 5, 2003, pp. 4-5.

- <sup>12</sup> See, for example, Lloyd L. Eagan (President of State and Territorial Air Pollution Program Administrators) and Ellen Garvey (President of Association of Local Air Pollution Control Officials), letter to Christine Todd Whitman (EPA Administrator), April 7, 2003; Shelley Kaderly, STAPPA Agriculture Committee Chair) and Doug Quetin (ALAPCO Agriculture Committee Chair), letter to Robert Kaplan (EPA Office of Enforcement and Compliance Assistance), February 18, 2004; and Brent Newell et al. (representatives of six environmental organizations), letter to Christine Todd Whitman, May 5, 2003.
- <sup>13</sup> *Association of Irrigated Residents et al., v. U.S. Environmental Protection Agency*, D.C. Cir., No. 05-1177, filed May 26, 2005.
- <sup>14</sup> Materials included in the EPA docket, No. OAR-2004-0237, can be found at [<http://www.regulations.gov/fdmspublic/component/main>].
- <sup>15</sup> 70 *Federal Register* 4958, January 31, 2005.
- <sup>16</sup> 70 *Federal Register* 4960, January 31, 2005.
- <sup>17</sup> In 2001 EPA asked the National Research Council of the National Academy of Sciences for a report evaluating the current scientific knowledge base and approaches for estimating air emissions from AFOs. Two NRC reports prepared in response to this request are discussed in CRS Report RL32948, *Air Quality Issues and Animal Agriculture: A Primer*, by Claudia Copeland.
- <sup>18</sup> 70 *Federal Register* 4959, January 31, 2005.
- <sup>19</sup> U.S. Environmental Protection Agency, “Response to Public Comments on the Animal Feeding Operation Air Agreement,” June 23, 2005. Available at [<http://www.epa.gov/compliance/resources/agreements/caa/cafo-agr-response-com.html>].
- <sup>20</sup> Mike Johanns, Secretary, USDA, Letter to the Honorable Robin Hayes, August 11, 2005.
- <sup>21</sup> Comments of C. M. Williams, F. J. Humenik, directors of the Animal and Poultry Waste Management Center and the National Center for Manure and Animal Waste Management, on EPA Docket ID: OAR-2004-0237, March 2, 2005, p. 11.
- <sup>22</sup> For background information on national check-off programs for promotion and research of crop and livestock commodities, see CRS Report 95-353, *Federal Farm Promotion (“Check-Off”) Programs*, by Geoffrey S. Becker.
- <sup>23</sup> Mark McDowell et al., and the Campaign for Family Farms, “Petition before the Secretary of Agriculture,” AMA PPRCIA Docket No. 05-0001, May 5, 2005, p. 8.



*Chapter 3*

## **ANIMAL AGRICULTURE: 2007 FARM BILL ISSUES\***

*Geoffrey S. Becker*

### **ABSTRACT**

With a few exceptions (such as milk), the products of animal agriculture are not eligible for the price and income supports that Congress historically has written into farm bills for major row crops such as grains, cotton, and oilseeds. However, the meat and poultry industries do look to the federal government for leadership and support in promoting their exports, resolving trade disputes, and reassuring markets that their products are safe, of high quality, and disease-free. Farm bills can contain policy guidance and resources to help achieve these objectives.

Animal producers closely follow the development of farm bills because of their potential impact on production and marketing costs. For example, policies promoting crop-based alternative fuels like ethanol already have raised the prices of corn and soybeans, both important animal feedstuffs. Where additional biofuels policy incentives are being considered for inclusion in a 2007 farm bill, cattle, hog, and poultry producers have been urging restraint and/or encouraging more use of non-feed crops like grasses and field wastes. Other potential farm bill issues of interest include proposals from animal welfare groups to regulate on-farm care of animals; and from some farmer-rancher coalitions to address perceived anti-competitive market behavior by large meat and poultry processing companies.

In the 110<sup>th</sup> Congress, the chairman of the Senate Agriculture Committee has introduced wide-ranging legislation (S. 622) to be the basis for a new “competition” title in the next farm bill; it would strengthen producer rights when contracting with meat and poultry processors; expand the U.S. Department of Agriculture’s (USDA’s) responsibilities to enforce competitive behavior; and extend to many crop markets some of the antitrust rules that now apply to meat packers. A companion House bill

(H.R. 2135) was introduced by the chairman of the House Agriculture Subcommittee on Livestock, Dairy, and Poultry. He did not include most elements of H.R. 2135 in the draft bill his panel marked up and forwarded to the full committee on May 24, 2007,

although the draft did contain several animal agriculture related provisions. Among other pending bills, H.R. 2231, S. 305, S. 221, and S. 786 also propose new regulations for various farm animal buyers and/or processors.

Other bills would require USDA to implement mandatory country-of-origin labeling on meats by September 30, 2007, instead of the currently set deadline of September 30, 2008 (H.R. 357; S. 404); prohibit USDA from carrying out a mandatory animal identification (ID) program (H.R. 1018); establish a producer-run animal ID program (H.R. 2301); require USDA to set up a farm-to-fork meat and poultry traceability system (S. 1292); ban the slaughter of horses for food (H.R. 503, S. 311); require that non ambulatory livestock be euthanized and/or not used for food (H.R. 661, H.R. 2678, S. 394); and impose animal care standards on suppliers of food to the federal government (H.R. 1726). Some of these also might be offered for consideration in a new farm bill.

## INTRODUCTION

Most of the products of animal agriculture are not eligible for the price and income support programs that Congress has written into farm bills for major crops such as grains, cotton, and oil seeds.<sup>1</sup> Nor have meat and poultry producers generally sought such assistance, except *ad hoc* aid to recover losses caused by natural disasters such as droughts and hurricanes.<sup>2</sup> They also do not qualify for federal crop insurance, which covers a portion of the value of production lost to natural disasters. Some cattle and hog producers in a limited number of states do participate in livestock revenue insurance programs being administered by USDA's Risk Management Agency (RMA), which provides protection from revenue losses whether due to natural causes or economic conditions.

Animal agriculture looks to the federal government to resolve trade disputes, establish transparent, science-based rules for importing and exporting animal products, and reassure domestic and foreign buyers alike that these products are safe, of high quality, and disease-free. Omnibus farm legislation can contain policy guidance and resources related to these objectives.

A number of animal-related provisions, some potentially quite significant for producers and agribusinesses, have been debated during Congress's initial deliberations on a 2007 farm bill. However, except for several elements of a draft bill marked up recently by a House Agriculture subcommittee, none of these proposals had advanced past the introduction and discussion stages as of late June.

## ECONOMIC BACKDROP

Much is at stake economically: the farm value of animal production was more than \$105 billion in 2002, more than half the total value of all U.S. agricultural production (2002 Census of Agriculture). Approximately 1.1 million of the nation's more than 2.1 million farms were classified by the 2002 Census as primarily animal production operations (see Table 1).

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\* Excerpted from CRS Report RL33958, dated June 21, 2007.

**Table 1. U.S. Animal Production, 2002**

U.S. Farms by Primary Classification		Value of U.S. Sales
	Number <sup>a</sup>	\$1,000 <sup>b</sup>
Total farms	2,128,982	200,646,355
Total crop farms	986,625	95,151,954
Total animal farms	1,142,357	105,494,401
<i>Beef cattle ranches and farms</i> <i>Cattle feedlots Cattle and calves</i>	664,431 55,472	45,115,184 <sup>c</sup>
<i>Dairy farms Milk and products</i>	72,537	20,281,166
<i>Hogs and pigs</i>	33,655	12,400,977
<i>Poultry meat and eggs</i>	44,219	23,972,333
<i>Sheep and goats</i>	43,891	541,745
<i>Horses and other equines</i>	174,441	1,328,733
<i>Other animal production</i>	53,711	1,854,262

Source: U.S. Census of Agriculture, 2002.

<sup>a</sup> Based on North American Industry Classification System (NAICS).

<sup>b</sup> Market value of agricultural products sold (and government payments) from all farms regardless of primary (i.e., NAICS) classification.

<sup>c</sup> Represents sales of beef cattle (including from feedlots, farms, and ranches) and of dairy cattle.

Producers face much pressure to become larger, more specialized, and more cost-efficient, in order to compete in the increasingly global marketplace. Transactions today are moving away from live cash markets and toward contractual relationships that can provide a guaranteed supply of live animals at predetermined prices and consistent qualities. More of these animals are being supplied to feeding operations and meat slaughtering/processing plants by Canada (beef cattle, sows and pigs) and Mexico (beef calves), as the beef, pork, and poultry industries of the three North American countries have become more economically integrated over the past two decades.<sup>3</sup>

These trends are occurring at a time when feed costs have begun to rise significantly due largely to the government's promotion of ethanol (now primarily corn-based) as an alternative fuel. Other longstanding public policy concerns include animal agriculture's obligations with respect to environmental protection, food safety, and animal welfare.

## IMPORTANCE OF TRADE

The United States is a world leader in the production, consumption, and export of meat and poultry products. One indicator of the increasing reliance of the animal sector on international trade is the share of U.S. domestic production that is exported, a figure that has increased significantly over the past 35 years.

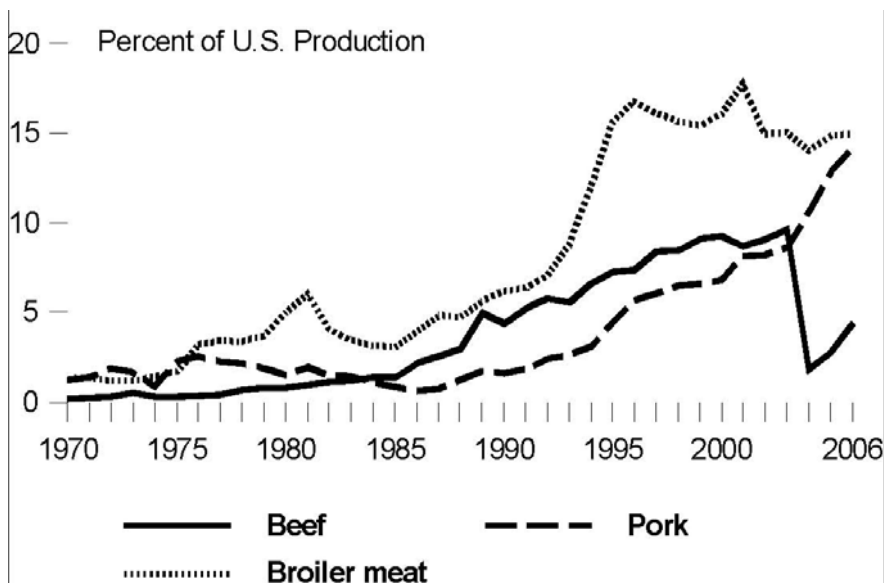
Broiler meat exports have grown from 1.3% of production in 1970 to 14.9% of production in 2006. Pork exports climbed from 1.3% to 14.2% over the same period (see Figure 1). Beef exports also climbed, from 0.2% of domestic production in 1970 to 9.6% in 2003. When most countries were closed to U.S. beef after a Canadian-born cow with bovine spongiform encephalopathy (BSE) was discovered in Washington state late in 2003, exports

dropped precipitously to 1.9% of production in 2004. Two more BSE cases subsequently were found in U.S.-born cattle under a more intensive surveillance program, but beef exports are again rebuilding gradually.

The United States has long been a dominant world player, but increasing reliance on exports also has brought new challenges. Other countries are competing vigorously for the same country markets. Table 2 on the following page discusses the relative position of the United States in world trade of beef and veal, pork, broilers, and turkey.

Many years of effort to build export sales can be reversed abruptly due to an animal disease outbreak. When other countries restrict U.S. meat or poultry products, whether due to the discovery of BSE, an outbreak of avian influenza, or other problems, it often takes many additional years for the United States to regain those markets, as has occurred in Japan and Korea, the first and third most important destinations, respectively, for U.S. beef prior to the occurrence of BSE here.

Sometimes a country may impose sanitary or phytosanitary (SPS) standards that affect U.S. imports and that the United States contends are not based on scientific principles or otherwise violate international trade rules. Examples include Japan's and Korea's years of delays in reopening their borders to U.S. beef even though the United States follows what it argues are internationally recognized safeguards. Another example has been the European Union's (EU's) refusal to accept U.S. beef treated with approved growth hormones, despite an international panel siding with the United States when it determined that the EU position was scientifically indefensible. Most animal agriculture organizations expect U.S. agricultural and trade agency officials to lead efforts in resolving such problems and in trying to ensure that they do not arise unexpectedly.<sup>4</sup>



Source: Various USDA data series.

Figure 1. Selected Meat and Poultry Exports.

**Table 2. U.S. Role in Selected Meat and Poultry Trade**

	<b>United States Rank (2006)</b>	<b>The Competition</b>
<b>Beef and veal</b>	No. 1 producer, consumer, and importer; dropped from no. 2 exporter to no. 8 after 2003 BSE case. Is a net importer.	Australia, long the leading exporter, was surpassed in 2004 by Brazil.
<b>Pork</b>	No. 3 producer, consumer, and importer; no. 2 exporter. Is a net exporter.	EU-25 and Canada also in top 3 exporters. Brazil is no. 4.
<b>Broiler meat</b>	No. 1 producer and consumer; no. 2 exporter. Few imports.	Brazil overtook U.S. as no. 1 exporter in 2004.
<b>Turkey</b>	No. 1 producer, consumer, exporter. Few imports.	No. 2 exporter Brazil is gaining market share.

Source: USDA, FAS, Livestock and Poultry: World Markets and Trade, March 2006.

## PROSPECTIVE ISSUES AND OPTIONS

### Feed Prices

#### *Background*

Feed is the single largest cost for cattle feeders and dairy, hog, and poultry producers, who are wary of government policies that can raise feed prices. These include crop supply control programs to bolster farm prices (rarely used now) and conservation programs like the Conservation Reserve Program (CRP), which pays landowners to retire environmentally sensitive cropland for long periods.

More recently, strong energy prices and a variety of government incentives have fostered rapid expansion of the U.S. ethanol industry, with national production increasing from 1.8 billion gallons in 2001 to 4.9 billion gallons in 2006. Corn accounts for about 98% of the feed stocks currently used in ethanol production in the United States. USDA estimated earlier in 2007 that 2.15 billion bushels of corn (or 20% of the 2006 corn crop) will be used to produce ethanol during the September 2006 to August 2007 corn marketing year.<sup>5</sup>

The ethanol-driven surge in corn demand contributed to a sharp rise in corn prices. For example, the futures contract for March 2007 corn on the Chicago Board of Trade rose from \$2.50 per bushel in September 2006 to a contract high of over \$4.16 per bushel in January 2007 (a rise of 66%). The rapid growth in ethanol capacity has been fueled by a federal tax credit of 51 cents per gallon of ethanol blended with gasoline; a Renewable Fuel Standard (RFS) that mandates a renewable fuels blending requirement for gasoline suppliers that grows annually from 4 billion gallons in 2006 to 7.5 billion gallons in 2012; and a 54-cent per gallon duty on most imported ethanol.<sup>6</sup>

Prolonged higher corn prices could have significant consequences for traditional feed markets and the livestock industries that depend on those markets. Corn has traditionally represented about 57% of feed concentrates and processed feedstuffs fed to animals in the United States.<sup>7</sup> As corn-based ethanol production increases, so do total corn demand and corn prices. Dedicating an increasing share of the U.S. corn harvest to ethanol production could

lead to higher prices for all grains and oilseeds that compete for the same land, resulting in higher feed costs for cattle, hog, and poultry producers.

In addition, supply distortions could develop in protein-meal markets related to expanding production of the ethanol processing by-product distiller's dried grains (DDG), which averages about 30% protein content and can substitute in certain feed and meal markets. While DDG use would substitute for some of the lost feed value of corn used in ethanol processing, about 66% of the original weight of corn is consumed in producing ethanol and is no longer available for feed. Further, not all livestock species are well adapted to dramatically increased consumption of DDG in their rations — dairy cattle appear to be best suited to expanding DDG's share in feed rations; poultry and pork are much less able to adapt. DDG must be dried before it can be transported long distances, adding to feed costs. There may be some potential for large-scale livestock producers to relocate near new feed sources, but such relocations would likely have important regional economic effects.

A Tufts University study has offered another perspective on feed prices, noting: "Any discussion of today's high prices should take into account the extent to which these same firms [i.e., leading U.S. meat companies] have benefitted from many years of feed that was priced well below what it cost to produce. In the nine years that followed the passage of the 1996 Farm Bill [including the first several years of the 2002 farm bill] (1997-2005), corn was priced 23% below average production costs, while soybean prices were 15% below farmers' costs," the authors of the study concluded. This resulted in substantial savings to the poultry and hog industries, and an implicit subsidy over the nine years of \$11.5 billion to the broiler industry and \$8.5 billion to what the authors termed "industrial" hog operations. Thus, "the leading firms gained a great deal during those years from U.S. agricultural policies that helped lower the prices for many agricultural commodities."<sup>8</sup>

### ***Congressional Consideration***

The House Agriculture Subcommittee on Livestock, Dairy, and Poultry held a hearing to review the impact of feed costs on March 8, 2007. Among recommendations by livestock industry witnesses were: allowing the 51-cent ethanol tax credit for blenders to expire after 2010 and the 54cent tariff on imported ethanol to expire after 2008; increasing incentives such as research funds for other types of renewable fuels like cellulosic based biofuels and methane recapture; and bringing some CRP acres back into crop production.

Numerous bills and resolutions relating to renewable energy had been introduced in the first half of 2007. Among those referred to the Agriculture Committees are H.Con.Res. 26/S.Con.Res. 3, H.R. 80, H.R. 1551, H.R. 1766, H.R. 2037, H.R. 2038, H.R. 2154, H.R. 2218, H.R. 2261, H.R. 2337, H.R. 2428, H.R. 2635, H.R. 2752, S. 828, S. 1242, S. 1346, and S. 1403. Not all would necessarily impact feed prices. The chairman of the House Agriculture Committee has noted that a 2007 farm bill could conceivably address research and conservation-related policy options, but that other panels have jurisdiction over tax and tariff policies.

**Table 3. Selected U.S. Livestock Data**

	1980	2005
<b>Beef:</b>		
Total cattle marketed	23.2 million	25.8 million
Beef cow farms & ranches	1,032,592 <sup>a</sup>	770,170
<i>Pct. with 500 or more head</i>	<1%	<1%
U.S. beef cow inventory	35.2 million	33.8 million
<i>Pct. on operations with 500 or more head</i>	14%	15%
Cattle feedlots	113,326	88,198
<i>Pct. with 1,000 or more head</i>	2.1%	2.5%
<i>Pct. marketed from operations with 1,000 or more head</i>	70%	86%
<b>Hogs/pigs:</b>		
U.S. hog/pig inventory	62.3 million	60.7 million
Hog/pig farms	667,000	67,000
<i>Average no. of head per farm</i>	93	906

Source: Various USDA data reports. Data on farm numbers differ from those shown in Table 1 due to use of differing years and farm classifications.

<sup>a</sup> 1978 data.

## Market Competition and Packer Concentration

### Background

The past several decades have seen rapid changes in the structure and business methods of animal agriculture (see Table 3). Production and marketing have been moving toward fewer and larger operations, although the pace of these changes has varied widely across the sectors.

### Beef

For example, smaller (i.e., fewer than 100-head) cow-calf operations (where beef cows are bred and born) represent a majority of such operations and hold nearly half of all U.S. cattle. On the other hand, larger (i.e., 1,000-head plus capacity) feedlots, which fatten cattle to slaughter weight, represent a small fraction of total U.S. feedlots but market the majority of fed cattle.<sup>9</sup> Cattle feeding is now concentrated in the middle part of the country, where five states marketed 75% of all fed cattle: Kansas, Nebraska, Texas, Oklahoma, and Colorado. Although more widely dispersed, 75% of all U.S. beef cows also reside in the middle states, stretching, approximately, west to east from Colorado and Utah to Kentucky and Tennessee, and from the Canadian to the Mexican borders.<sup>10</sup>

### Pork

Live hog production has seen sweeping changes over the past 25 years. The number of U.S. farms with hogs declined from 667,000 in 1980 to 67,000 in 2005; those remaining have become much larger and less diversified. Operations with at least 10,000 hogs now represent less than 1% of all producers but more than half of total U.S. hog output, USDA

reports. The average 1980 farm with hogs had less than 100 head and likely raised them from birth to slaughter weight as part of a more diversified crop-livestock operation. In 2005, the average hog farm had more than 900 head and might typically specialize in a single stage of hog production, such as finishing, according to USDA. In fact, the hog production segment of the industry now has about 30 key firms, plus several hundred additional “significant” operators.<sup>11</sup> Much of the U.S. hog population is in Iowa, southern Minnesota, and North Carolina.

### ***Meat Packing***

Cattle and hog producers now sell to fewer packers as well (see Table 4). Recent concentration numbers approach those of the early 1900s when 50% to 70% of the market was dominated by five firms which slaughtered several different species of livestock.<sup>12</sup>

### ***Vertical Marketing Relationships***

Ownership or tight control of multiple production and marketing steps by a single firm (known as vertical integration or vertical coordination, respectively) is more common in the livestock and poultry sectors today than in the past. A 2001 article described this characteristic as “supply chains — tightly orchestrated production, processing, and marketing arrangements stretching from genetics to grocery. Supply chains bypass traditional commodity markets and rely on contractual arrangements among the chain participants to manage the transformation of livestock on the farm to meat in the cooler.”<sup>13</sup>

This business model was pioneered in agriculture by the poultry industry, which began to integrate shortly after World War II. Poultry producers were “the clear leader” in delivering nutritional and convenient products to consumers while at the same time sharply controlling costs, according to Barkema. The hog industry has been following poultry’s footsteps. Now typical are contract production arrangements with large integrators who may provide the genetics, piglets and other inputs, and a contracting producer (farmer) who provides facilities and labor.

For those who raise livestock, all of these changes have meant fewer cash transactions at auction barns or other open markets, and more frequent, often longer-term business arrangements with buyers and/or processors. Often these arrangements take the form of agricultural contracts, which USDA defines as agreements between farmers and their commodity buyers that are reached before the completion of production. Other alternative marketing arrangements also are used by producers and processors (see “GIPSA Study,” below).

**Table 4. Red Meat Packer Concentration, 1985 and 2005**

Type	Percent Slaughtered by Top 4 Firms	
	1985	2005
Hogs	32%	63%
Steers & Heifers	50%	80%
All Cattle	39%	71%

Source: USDA and Cattle Buyers Weekly.



In 2003, contracts (production or marketing) covered 47% of all livestock production value, up from 33% in 1991-93. This compares with 31% of all crop production in 2003 and 25% in 1991-93, according to USDA.

### ***GIPSA Study***

A comprehensive study of livestock transaction methods, funded through USDA's Grain Inspection, Packers and Stockyards Administration (GIPSA), describes a number of "alternative marketing arrangements" (AMAs). The study defines AMAs as all alternatives to the cash market, including forward contracts, marketing agreements, procurement or marketing contracts, production contracts, packer ownership, custom feeding, and custom slaughter. By contrast, cash transactions are those that occur immediately or "on the spot."

The study, conducted by the private contracting firm RTI International, determined that all types of AMAs accounted for an estimated 38% of fed (slaughter ready) beef cattle volume, 89% of finished hog volume, and 44% of lamb volume sold to packers between October 2002 and March 2005, the period studied. Within the beef sector, the 29 largest beef packing plants had obtained 62% of their cattle on the cash or spot market; 29% through marketing agreements; 4.5% through forward contracts; and 5% through packer ownership or other unknown methods. The use of one type of AMA — that is, packer ownership of the livestock they intend to slaughter — accounted for 5% or less of all beef and lamb transactions, but 20% to 30% of all pork transactions, the study found.<sup>14</sup>

However, the report observed: "Cash market transactions serve an important purpose in the industry, particularly for small producers and small packers." Reported cash prices also are frequently used as the base for formula pricing for cash market and AMA purchases of livestock and meat, RTI reported.

Critics assert that these types of trends in consolidation and vertical control have enabled a relative handful of industry players to dominate markets and have undermined the traditional U.S. system of smaller-scale, independent, family-based farming. Farmers and ranchers now have weakened negotiating power, lower prices, and no choice but to "get larger or get out" of agriculture, they add. Others counter that structural changes in animal agriculture, processing, and marketing are a desirable outgrowth of factors such as technological and managerial improvements, changing consumer demand for a wider range of low-cost, convenient products, and expanding international trade.

### ***Federal Competition Laws***

A number of federal laws and agencies are responsible for ensuring that markets are open and competitive. For example, the *Packers and Stockyards Act* (P&S Act) of 1921, as amended (7 U.S.C. §181 *et seq.*) prohibits meat packers and poultry dealers from a variety of anti-competitive and antitrust practices such as engaging in any unfair, unjustly discriminatory or deceptive marketing; or apportioning supplies or manipulating prices to create a monopoly. GIPSA administers the P&S Act. The *Agricultural Fair Practices Act* (AFPA; 7 U.S.C. 2301 *et seq.*) was enacted in 1967 to protect farmers from retaliation by handlers (buyers of their products) because the farmers are members of a cooperative. The act, administered by USDA's Agricultural Marketing Service (AMS), permits farmers, if they believe their rights under the law have been violated, to file complaints with USDA, which can then institute court proceedings.

The *Sherman Act* (15 U.S.C. §§1-8) and *Clayton Act* (15 U.S.C. §12 *et seq.*), which cover but are not specific to agriculture, prohibit certain activities such as mergers and acquisitions that may restrict market access or suppress competition. The U.S. Department of Justice and Federal Trade Commission are primarily responsible for administration of these laws. The *Capper-Volstead Act* (7 U.S.C. §§291-292) confers limited exemption for antitrust liability to farmer cooperatives.

### ***Congressional Consideration***

Small farm advocates have brought several closely-watched lawsuits, under the P&S Act and several other laws, challenging the contracting and marketing practices of larger packers and/or integrators. These efforts generally have not been successful in the courts, adding impetus to calls for including a so-called competition title in an omnibus 2007 farm bill. Advocates want lawmakers to strengthen existing antitrust authorities, to impose more mandates on the executive branch to enforce these authorities, and to provide new contract protections for farmers, among other options.

Some of these options have been considered previously. In legislative activity leading to enactment of the last major (2002) farm bill, the Senate Agriculture Committee voted in November 2001 to delete a competition title from the omnibus farm bill (S. 1628) proposed by its chairman, Senator Harkin. During subsequent floor action on the bill, the Senate did approve a number of individual “competition” amendments. Two such amendments were retained by House-Senate conferees in early 2002 in the final version of the bill (H.Rept. 107-424). One gives producers the right to discuss their contracts with family members and advisors. The other extends some new P&S Act protections to swine producers with production contracts.

Early in the 110<sup>th</sup> Congress, Senator Harkin introduced a wide-ranging bill (S. 622) that, he said, would be “the basis for developing a proposed competition title in the new farm bill this year.”<sup>15</sup> S. 622 contains provisions establishing a new Office of Special Counsel at USDA to investigate and prosecute violations of competition laws; making it easier for producers to prove unfair treatment under the P&S Act; strengthening P&S Act enforcement in the poultry industry; and rewriting the AFPA to provide many crop producers with P&S Act-type protections and to set new requirements for contracts between producers and processors. The Senate committee had not taken up the farm bill as of late June 2007.

Representative Boswell, chairman of the House Agriculture Subcommittee on Dairy, Livestock, and Poultry, introduced the House version as H.R. 2135. However, with the exception of a provision on arbitration clauses in contracts, he did not include elements of H.R. 2135 in the draft bill his panel marked up and forwarded to the full committee on May 24, 2007. Full committee action was pending in late June.

### ***Packer Ownership/Captive Supply***

Producers facing fewer buyers for their livestock frequently express concerns about “captive supply,” a reference to animals that are either owned by, or committed to, a meat packer except for just before slaughter. When packers buy fewer animals on the spot (open cash) market, reported prices may no longer accurately reflect the preponderance of prices paid, it is argued. Reduced transparency (i.e., prices and terms that all market players can view equally) works to the disadvantage of the far larger number of producers trying to sell their livestock to the relatively few packers who buy them, it is argued.

Senator Grassley has introduced a bill (S. 305) in the 110<sup>th</sup> Congress, amending the P&S Act to prohibit meat packers from owning or feeding livestock “directly, through a subsidiary, or through an arrangement that gives the packer operational, managerial, or supervisory control over the livestock, or over the farming operation that produces the livestock, to such an extent that the producer is no longer materially participating in the management of the operation...” Exceptions would be for arrangements made within seven days before slaughter; for producer-owned cooperatives that also slaughter their livestock; for packers that either slaughter only at one plant or that fall below a specified size.

On the House side, Representative Herseth Sandlin has introduced legislation (H.R. 2213) amending the P&S Act with respect to livestock producer-packer forward contracts, which would (1) require the inclusion of fixed dollar amount base pricing and public bidding; (2) prohibit formula pricing; (3) limit individual contract size; and (4) exclude from the definition of “formula price” futures-based prices and base adjustments resulting from factors outside packer control.

Opponents of restrictions on packer ownership or control of animals counter that evidence of price manipulation is lacking, that a ban could reverse many of the efficiency gains made by the livestock industry in recent years through closer packer-producer alliances, and that it would limit producers’ marketing options. They also cite the results of the recently-released RTI study of marketing practices (see above).

### ***Changes to the Agricultural Fair Practices Act***

Several bills in the 110<sup>th</sup> Congress would amend the AFPA to address what their sponsors view as inequities in contracting between agricultural producers and those who buy their commodities. The Harkin and Boswell bills (S. 622, H.R. 2135) would prohibit the use of confidentiality clauses in contracts; require them to more clearly spell out producer obligations; give the producer three days to review or cancel a contract; and limit a processor’s right to terminate a contract where the producer had made a capital investment of \$100,000 or more in order to satisfy contract requirements. S. 622, H.R. 2135, and a separate Grassley bill (S. 221) would allow the use of arbitration to settle contract disputes only if both parties consent to it in writing. Sponsors have argued that such amendments to the AFPA are needed because agricultural consolidation has left producers with so few processor-buyers that some of these processor-buyers can and do impose unfavorable contract terms on the producers, forcing them to either accept them or go out of business.

The arbitration language was included in the draft bill cleared by the House Subcommittee on Livestock, Dairy, and Poultry on May 24, 2007. S. 221 was ordered to be reportedly favorably by the Senate Judiciary Committee on May 17, 2007.

Opponents of the various P&S Act and AFPA proposals have asserted that buyers use these and other contracting arrangements to ensure a steady supply of animals (or other agricultural commodities) to keep high-capacity plants operating efficiently; such arrangements also allow for necessary price adjustments for quality, grade, or other market-prescribed factors. The recent proposals would hurt producers too, because many of them use contracts or other marketing agreements with packers to limit their own exposure to price volatility and to obtain capital, opponents added, again citing the result of the recent RTI study.

The Harkin and Boswell bills (S. 622, H.R. 2135) also would significantly alter the AFPA so that it would cover many crops in much the same way livestock is covered under

the P&S Act. More specifically, it would be unlawful under the AFPA for any covered person (i.e., a dealer, handler, contractor, processor or commission merchant) to engage in “[a]ny unfair, unjustly discriminatory, or deceptive act, device, or anti-competitive practice in or affecting the marketing, receiving, purchasing, sale, or contracting for the production of any agricultural commodity.” Many of the same types of individual practices now cited under the P&S Act as unlawful for livestock buyers would also be explicitly cited as unlawful for crop buyers, under the proposed new AFPA.<sup>16</sup>

### ***Enhanced USDA Enforcement and Management***

S. 622 and H.R. 2135 would require a new USDA Office of Special Counsel for Competition Matters to investigate and prosecute violations of the AFPA and of the P&S Act. The new Special Counsel, who would have to be confirmed by the Senate, also would have to consult with the Department of Justice and the Federal Trade Commission on competition matters affecting food and agriculture. S. 622 and H.R. 2135 also contain language intended to make it easier for producers to prove in a court of law that they were treated unfairly by packers.

Supporters of these proposals say that stronger enforcement authorities are needed in part because GIPSA officials have largely failed to enforce existing laws. They point to a recent report by the Department’s Office of Inspector General (OIG), which concluded that GIPSA has not adequately overseen and managed its investigative activities. GIPSA had difficulties defining and tracking investigations, planning and conducting complex investigations, and making agency policy, OIG found. USDA’s general counsel had not filed an administrative complaint on anti-competitive practices since 1999, due to GIPSA’s failure to refer cases, although agency staff were considering dozens of investigations at the time, OIG concluded.<sup>17</sup>

## **Livestock Mandatory Price Reporting**

### ***Background***

Under the Agricultural Marketing Act of 1946 (7 U.S.C. 1621-1627), AMS has long collected livestock and meat price and related market information (along with data on commodities such as grains, dairy, and produce). Under the voluntary program, this information has been disseminated by AMS through hundreds of daily, weekly, monthly, and annual written and electronic reports. The goal has been to provide all buyers and sellers with accurate and objective market information.

In 1999, Congress passed the Livestock Mandatory Price Reporting (LMPR) Act as Title IX of USDA’s FY2000 appropriations act (P.L. 106-78). Its aim was to address some livestock producers’ concerns that this voluntary system was no longer working, at a time when animals were more frequently being sold under private marketing arrangements, with prices not publicly disclosed or reported. These producers had asserted that such arrangements made it difficult or impossible for them to determine “fair” market prices. Other producers, and many firms who bought their animals, at first had opposed a mandatory law, arguing that it would impose costly new reporting burdens on the industry and could cause the release of confidential company information, among other concerns. Nonetheless, they eventually accepted a new “consensus” law and generally have supported its continuation.

LMPR contains a variety of reporting requirements. For example, detailed market information must be reported to AMS by packers, processors and importers who annually slaughter an average of at least 125,000 cattle, 100,000 hogs, or 75,000 lambs, and by importers with average annual imports of at least 2,500 metric tons of lamb meat (Reportedly a total of more than 100 packers or importers are covered.) There are penalties for not reporting. The program has received some 500,000 pieces of data each day; USDA in turn has made the data public through more than 100 daily, weekly, or monthly reports. The program has captured information from 85-90% of the boxed beef market, 75% of the lamb meat market, 75-80% of the steer and heifer cattle market, 60% of the lamb market, and 95% of the hog market, USDA officials testified in 2005.

The original authority had lapsed several times — but the “mandatory” program continued on a “voluntary” basis” — until the Senate, in September 2006, agreed to a House-passed version (H.R. 3408) extending LMPR with relatively minor changes through September 30, 2010. This measure was signed into law (P.L. 109-296) on October 5, 2006. Some Senators had wanted a shorter extension in order to consider more substantive amendments to the law.<sup>18</sup>

### ***Congressional Consideration***

A few Members of Congress have indicated the need for further changes in LMPR; these could be debated in the context of the farm bill. Meanwhile, Senator Grassley has introduced S. 786, which would amend the Agricultural Marketing Act of 1946 to require certain meat packers to obtain at least 25 percent of the animals they slaughter each day from the spot (cash) market. Packers that would have to comply are those now covered by LMPR (see above).

## **Country-of-Origin Labeling**

### ***Background***

Under §304 of the Tariff Act of 1930 as amended (19 U.S.C. 1304), every imported item must be conspicuously and indelibly marked in English to indicate to the “ultimate purchaser” its country of origin. Some types of products have long been exempted from this requirement, including raw agricultural products such as live animals, meat, poultry, fruits and vegetables, for example — although their outer containers must contain such labeling.

Title X of the 2002 farm bill was to change this, by requiring retailers to provide country-of-origin labeling for fresh beef, pork, and lamb (Section 10816 of Subtitle I).<sup>19</sup> First adopted on the Senate floor in late 2001, mandatory country-of-origin labeling (COOL) for meat was to be in place on September 30, 2004, but language in the FY2004 consolidated appropriations act (P.L. 108-199) delayed implementation for meats, produce and peanuts, but not seafood, for two years, until September 30, 2006. Debate over COOL carried into the 109<sup>th</sup> Congress, which (in USDA’s FY2006 appropriation, P.L. 109-97) postponed implementation for an additional two years, until September 30, 2008. This highly contentious program could again be on the farm bill agenda of the 110<sup>th</sup> Congress.<sup>20</sup>

The delays reflect the continuing divergence of opinion among lawmakers over whether a federally-mandated labeling program is needed. Some contend that mandatory COOL will

provide U.S. products with a competitive advantage over foreign products because U.S. consumers, if offered a clear choice, prefer fresh foods of domestic origin, thereby strengthening demand and prices for them. Moreover, proponents — including producer groups like the National Farmers Union and RCALF USA (Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America), and consumer advocacy organizations — argue that U.S. consumers have a right to know the origin of their food, particularly at a time when U.S. food imports are increasing, and whenever particular health and safety problems arise. They cite, as one prominent example, concerns about the safety of some foreign beef arising from the discoveries of BSE in a number of Canadian-born cows (and two U.S. cows) since 2003. Supporters of the COOL law argue that it is unfair to exempt meats and produce from the longstanding country labeling already required of almost all other imported consumer products, from automobiles to most other foods. They also note that many foreign countries already impose their own country-of-origin labeling.

Opponents of mandatory COOL — which include the American Meat Institute representing many in the packing industry, the Food Marketing Institute representing many retail stores, and producer groups like the National Cattlemen's Beef Association and National Pork Producers Council — counter that studies do not provide evidence that consumers want such labeling. They believe COOL is a thinly disguised trade barrier intended to increase importers' costs and to foster the unfounded perception that imports may be inherently less safe (or of lower quality) than U.S. products. Some argue that food safety problems can as likely originate in domestic supplies as in imports, as evidenced by the more than 30 recalls of U.S. meat and poultry products announced by USDA in 2006 alone. Opponents point out that all food imports already must meet equivalent U.S. safety standards, which are enforced by U.S. officials at the border and overseas; scientific principles, not geography, must be the arbiter of safety. Industry implementation and recordkeeping costs, estimated by USDA to be as high as \$3.9 billion in the first year and \$458 million per year after that, would far outweigh any economic benefits, critics add, noting that the law does not cover red meats that are processed or sold in restaurants, or any type of poultry, a competing product.<sup>21</sup> (COOL proponents assert that USDA exaggerated the implementation costs.)

### ***Congressional Consideration***

Bills in the 109<sup>th</sup> Congress would have made COOL voluntary for meats (including H.R. 2068, S. 1300, and S. 1333). Still others (e.g., S. 135, S. 1331) would have expanded COOL requirements and/or accelerated its current implementation date. None was adopted by Congress.

In the 110<sup>th</sup> Congress, supporters have introduced bills (H.R. 357; S. 404) to mandate COOL by September 30, 2007. The House Agriculture Committee Chairman reportedly has stated that an acceleration of the current implementation date may not be feasible and that some changes in the mandatory program should be considered — although not necessarily in the farm bill. He has also speculated on whether COOL and a universal animal identification system, the latter to address animal health problems, might be combined into a single program (see next section).<sup>22</sup>

The draft bill cleared by the House Agriculture Subcommittee on Dairy, Livestock, and Poultry includes a provision (Section 121) that would permit USDA to use existing certification systems as a model for a system to certify the country of origin of a covered commodity.

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## **Animal Identification for Health Protection**

### ***Background***

One aspect of the COOL debate has been whether animal producers would have to keep detailed records on their animals' identity and whereabouts so that the government or retailers could properly verify country of origin. Many producers do not believe that USDA should extend such requirements to the farm level, arguing they are intrusive, costly, and unnecessary in meeting the intent of the law.<sup>23</sup> At the same time, a growing number of producers seems to agree that some type of universal animal identification (ID) program would be a beneficial tool in addressing animal disease problems.

Outbreaks of animal diseases like avian influenza (AI), foot and mouth disease (FMD), brucellosis, and tuberculosis are seen as perhaps the greatest potential threats to animal production. Even where U.S. cases have been few (as with BSE) or quickly contained (as with various strains of AI), the impacts can be devastating economically, causing production losses, the closure of export markets, and a decline in consumer confidence. Some like AI and BSE have the potential to harm humans.

USDA's Animal and Plant Health Inspection Service (APHIS) has lead responsibility on matters of animal health, including animal ID. APHIS has been working on such a program, indicating that it has the legislative authority to implement an animal ID program under the comprehensive Animal Health Protection Act, which was adopted as Subtitle E of Title X of the 2002 farm bill. This subtitle updated and consolidated a number of longstanding statutes that had been used to monitor, control, and eradicate animal diseases.<sup>24</sup>

Despite several years of effort on the part of USDA, as well as industry groups, and states — and public funding totaling an anticipated \$118 million through FY2007 — a universal U.S. system is not expected to be in place for some time, as policymakers attempt to resolve numerous questions about its design and purpose.

Should animal ID be mandated? (USDA currently envisions a voluntary universal system.) What types of information should be collected, on what animal species, and who should hold it, government or private entities? To what extent should producer records be shielded from the public and other government agencies? Should animal ID be expanded to traceability of meat and poultry products from farm to the consumer, or used for other purposes such as food safety or certification of labeling claims? How much will it cost, and who should pay?

### ***Congressional Consideration***

Proposals to establish differing animal health-oriented ID systems, and others to require more extensive systems tracing products through the marketing chain, have been introduced in the 110<sup>th</sup> Congress, and could be considered in a new farm bill. As of late June 2007, the following bills were pending. H.R. 1018 would prohibit USDA from carrying out a mandatory animal ID program and also would seek to protect the privacy of producer information under a voluntary system. H.R. 2301 would establish an animal ID system administered by a board of livestock, poultry and meat industry representatives. S. 1292 would require USDA to implement a more extensive ID and traceability system "for all stages of production, processing, and distribution of meat and meat food products" that are covered by federal meat and poultry inspection laws.

## **Animal Welfare**

### ***Background***

Farm animals are not covered by the Animal Welfare Act (AWA; 9 U.S.C. §2131 *et seq.*), which requires minimum care standards for most types of warm-blooded animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. The Animal Care Division of APHIS has primary responsibility for enforcing the AWA and several other animal welfare statutes, including the Horse Protection Act (15 U.S.C. §1821 *et seq.*)

Farm animals are subject to the Humane Methods of Slaughter Act (7 U.S.C. 1901 *et seq.*), enforced by USDA's Food Safety and Inspection Service (FSIS). The act governs the humane slaughter and handling of livestock (but not poultry) at packing plants. Also, under the so-called Twenty-Eight Hour Law (49 U.S.C. 80502, last amended in 1994), commercial carriers may not confine animals in a vehicle or vessel for more than 28 consecutive hours without unloading the animals for feeding, water, and rest.

Generally, many members of the House and Senate Agriculture Committees have expressed a preference for voluntary approaches to humane methods of farm animal care. They state that major food industry players have been developing humane animal care guidelines, and imposing them on their suppliers, in response to a growing number of customers who ask about animal treatment. They cite such changes at McDonald's and Burger King, for example. In January 2007, Smithfield, the nation's largest pork producer, announced that its Murphy-Brown subsidiary would phase out over a 10-year period the use of individual gestation stalls for sows, replacing them with group housing.<sup>25</sup>

Animal activists have continued to challenge current production practices. They periodically seek new legislation that would further regulate on-farm or other animal activities, such as bills to prohibit the slaughter of horses for human food (which passed the House as H.R. 503 in September 2006); to require the federal government to purchase products derived from animals only if they were raised according to specified care standards; and to prohibit the slaughter for food of disabled livestock, among others. Agricultural interests recognize that animal welfare advocacy organizations, like the Humane Society of the United States and others, have large constituencies in many Members' districts, and these organizations have claimed some successes in recent years in winning animal care initiatives in several states and in several lawsuits.

### ***Congressional Consideration***

Animal welfare provisions are, on occasion, placed in farm bills. Title XVII, Subtitle F of the 1985 farm bill (P.L. 99-198) directed the Secretary to set new minimum standards of (nonfarm animal) care for handling, housing, feeding, water, sanitation, ventilation, and so forth; and increase penalties for AWA violations, among other things. Section 2503 of the 1990 farm bill (P.L. 101-624) extended certain pet protections. The amendments also increased civil and criminal penalties for AWA violations. Title X of the 2002 farm bill (P.L. 107-171): called on USDA to fully enforce the Humane Methods of Slaughter Act (§10305); excluded birds, rats and mice, and horses not used for research, from AWA coverage (§10301); delineated prohibitions on interstate movement of animals for fighting (§1302); and required USDA to report on the humane treatment of non ambulatory livestock (§10815).



Pending in the 110<sup>th</sup> Congress are companion bills (H.R. 503, S. 311) to ban the slaughter of horses for food, which was being done here primarily for export markets. Court actions by advocates already have forced the closure of the two foreign-owned plants in Texas, and a new state law has threatened the closure of the remaining one in Illinois (a court decision on the legality of the Illinois law was pending in mid-June 2007).

Meanwhile, animal welfare advocates are protesting a provision in the draft bill approved by the House Agriculture Subcommittee on Livestock, Dairy, and Poultry, which they assert would prevent state or local governments from enacting their own laws affecting the production of meat animals, including those banning horse slaughter. More specifically, Section 123 would prohibit such entities from passing “any law prohibiting the use in commerce of an article that the Secretary of Agriculture has — (1) inspected and passed; or (2) determined to be of non-regulated status.”<sup>26</sup>

Also pending are bills (S. 394 and H.R. 661) that would require that all non ambulatory livestock (i.e., those that are unable to stand up and walk) be humanely euthanized and banned from food use. Relatedly, H.R. 2678 would effectively prohibit the processing of non ambulatory livestock for human consumption. USDA now prohibits, but by regulation, the slaughter for food of non ambulatory cattle only, as a safeguard against the possibility of introducing BSE into the food supply.

Another bill (H.R. 1726) would require those who supply meat, dairy products, or eggs to federal programs like the military, school lunch and federal prisons to meet basic animal welfare requirements, including housing standards. Whether these or other legislative proposals might be offered during debate on a new farm bill remains to be seen, but such action would be more likely to occur on the House and Senate floors than in the Agriculture Committees.

## **Environmental Issues**

### ***Background***

Questions about the applicability of federal environmental laws to livestock and poultry operations have drawn congressional attention. As animal agriculture increasingly concentrates into larger, more intensive production units, interest arises about impacts on the environment, including surface water, groundwater, soil, and air. Some environmental laws specifically exempt agriculture from regulatory provisions, and some are designed so that farms escape most, if not all, of the regulatory impact. The primary regulatory focus for large feedlots is the Clean Water Act (33 U.S.C. §1251 *et seq.*), since contaminants from manure, if not properly managed, also affect both water quality and human health. Operations that emit large quantities of air pollutants may be subject to Clean Air Act (42 U.S.C. §§7401-7671q) regulation. In addition, concerns about applicability of Superfund (the Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund law, 42 U.S.C. §§9601-9675) to livestock and poultry operations are of growing interest.

### ***Congressional Consideration***

Bills (S. 807; H.R. 1398) to exempt animal manure from federal Superfund requirements have re-emerged in the 110<sup>th</sup> Congress. These bills were referred, respectively, to the Senate

Committee on Environment and Public Works, and the House Committees on Energy and Commerce and on Transportation and Infrastructure. The House and Senate Agriculture Committees do not have direct jurisdiction over federal environmental law, but they do have a role in the issue. For example, under the conservation title of recent farm bills, the Environmental Quality Incentives Program (EQIP) has provided financial and technical assistance to farmers to protect surrounding resources; livestock receives 60% of the funds. It is also conceivable that supporters of S. 807 and H.R. 1398, or similar measures, could seek their inclusion in either an omnibus farm bill or other agricultural bill in the 110<sup>th</sup> Congress.

## ENDNOTES

- <sup>1</sup> Milk, honey, and wool are notable exceptions. See CRS Report RL33037, *Previewing a 2007 Farm Bill*, by Jasper Womach et al.
- <sup>2</sup> For example, agricultural disaster provisions in the FY2007 Iraq war supplemental (P.L. 110-28) include \$1.23 billion in assistance for livestock growers for losses caused by certain natural disasters in 2005, 2006, or early 2007. See CRS Report RS21212, *Agricultural Disaster Assistance*, by Ralph M. Chite.
- <sup>3</sup> See William F. Hahn et al., *Market Integration of the North American Animal Products Complex* (LDP-M-131-01), USDA, Economic Research Service, May 2005.
- <sup>4</sup> For more information see CRS Report RL33472, *Sanitary and Phytosanitary (SPS) Concerns in Agricultural Trade*, by Geoffrey S. Becker.
- <sup>5</sup> USDA, World Agricultural Outlook Board, where monthly supply and demand reports are available at [<http://www.usda.gov/oce/>].
- <sup>6</sup> Much of this section is adapted from CRS Report RL33928, *Ethanol and Biofuels: Agriculture, Infrastructure, and Market Constraints Related to Expanded Production*, by Brent D. Yacobucci and Randy Schnepf. For more information on incentives (both tax and non-tax) for ethanol, see also CRS Report RL33572, *Biofuels Incentives: A Summary of Federal Programs*, by Brent D. Yacobucci. For a detailed economic analysis of the impacts of projected U.S. ethanol production, see Tokgos, Simla, et al., *Emerging Biofuels: Outlook of Effects on U.S. Grain, Oilseed, and Livestock Markets*, May 2007 (07-SR 101), Center for Rural and Agricultural Development, Iowa State University, which can be accessed on the Internet at [<http://www.card.iastate.edu/publications/synopsis.aspx?id=1050>].
- <sup>7</sup> USDA, ERS, *Feed Situation and Outlook Yearbook*, FDS-2003, April 2003.
- <sup>8</sup> Wise, Timothy A., and Elanor Starmer, *Industrial Livestock Companies' Gains from Low Feed Prices, 1997-2005*, Tufts University, Global Development and Environmental Institute, Feb. 26, 2007, at [<http://ase.tufts.edu/gdae>]. Bracketed text was added by CRS for clarification.
- <sup>9</sup> *Animal Production and Marketing Issues: Questions and Answers*, USDA, Economic Research Service Briefing Rooms, at [<http://www.ers.usda.gov/Briefing/AnimalProducts/questions.htm#question2>].
- <sup>10</sup> *Cattle-Fax Update*, Dec. 15, 2006.
- <sup>11</sup> Informa Economics, *Special Report: The Changing U.S. Pork industry*, November 1, 2004, at [<http://www.informaecon.com/LVNov1.pdf>].

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- <sup>12</sup> USDA, ERS. *U.S. Beef Industry: Cattle Cycles, Price Spreads, and Packer Concentration*. Technical Bulletin No. 1874, April 1999.
- <sup>13</sup> Barkema, Alan, and others, "The New U.S. Meat Industry," *Economic Review* of the Federal Reserve Bank of Kansas City, Second Quarter 2001.
- <sup>14</sup> GIPSA, "Livestock and Meat Marketing Study," accessed April 9, 2007, at [<http://www.gipsa.usda.gov/GIPSA/webapp?area=home&subject=Imp&topic=ir-mms>]. The study was funded by a \$4.5 million provision in the consolidated appropriations measure for FY2003 (P.L. 108-7).
- <sup>15</sup> Senator Harkin's statement on S. 622 is in the Feb. 15, 2007, *Congressional Record*, pp. S2052-S2053.
- <sup>16</sup> S. 622 would not cover crops regulated under the Perishable Agricultural Commodities Act (7 U.S.C. 499a *et seq.*), i.e., fresh and fresh frozen fruits and vegetables.
- <sup>17</sup> *Grain Inspection, Packers and Stockyards Administration's Management and Oversight of the Packers and Stockyards Programs*, OIG Audit Rept. No. 30601-01-Hy, January 2006.
- <sup>18</sup> Voluntary reporting continues, until USDA-AMS can promulgate new implementing rules.
- <sup>19</sup> The mandatory COOL provision also covers seafood, fruits and vegetables, and peanuts.
- <sup>20</sup> AMS, which is responsible for implementing the rules, announced it was reopening the comment period on mandatory COOL for all covered commodities for an additional 60 days. The official posting appeared in the June 20, 2007 *Federal Register*. AMS maintains an extensive website on COOL (at [<http://www.ams.usda.gov/cool/>]), with links to voluntary COOL guidelines, the seafood rule, the proposed mandatory rule for the other covered commodities, and a cost-benefit analysis.
- <sup>21</sup> USDA's cost estimates are from 68 *Federal Register* 61955-61974.
- <sup>22</sup> See for example "Mandatory Country-of-Origin Labels May Have to Wait a Year After All," *The Webster Agricultural Letter*, Mar. 16, 2007; "Does animal ID + COOL = marriage made in heaven?" *Food Chemical News*, Mar. 26, 2007. Also see CRS Report 97-508, *Country-of-Origin Labeling for Foods*, by Geoffrey S. Becker.
- <sup>23</sup> The mandatory COOL law prohibits mandatory animal ID for COOL purposes, although, as noted above, a provision in the House subcommittee's draft legislation could potentially ease this prohibition.
- <sup>24</sup> See CRS Report RL32012, *Animal Identification and Meat Traceability*, by Geoffrey S. Becker.
- <sup>25</sup> "Smithfield Foods Makes Landmark Decision Regarding Animal Management," January 25, 2007 press release, at [[http://www.smithfieldfoods.com/Enviro/Press/press\\_view.asp?ID=394](http://www.smithfieldfoods.com/Enviro/Press/press_view.asp?ID=394)].
- <sup>26</sup> The phrase "non-regulated status" appears to apply to the products of biotechnology.



*Chapter 4*

## **GRAZING REGULATIONS: CHANGES BY THE BUREAU OF LAND MANAGEMENT\***

*Carol Hardy Vincent*

### **ABSTRACT**

The Bureau of Land Management (BLM) issued changes to grazing regulations (43 C.F.R. Part 4100) on August 11, 2006, after a three year review. Some portions of the regulations have been enjoined. The previous major revision of grazing rules, which took effect in 1995, was highly controversial. The 2006 changes addressed many of the same issues, and received mixed reviews. BLM asserted that the 2006 changes were needed to increase flexibility for grazing managers and permittees, to improve rangeland management and grazing permit administration, to promote conservation, and to comply with court decisions. Critics contend that a need for change was not justified and that changes adopted removed important environmental protections and opportunities for public comment.

Under the 2006 changes, the BLM and a permittee could share title to structural range improvements, such as a fence. Permittees could acquire water rights for grazing, consistent with state law. The occasions on which BLM would be required to get input from the public on grazing decisions were reduced. The administrative appeals process on grazing decisions was modified and the extent to which grazing could continue in the face of an appeal or stay of a decision was delineated. The definition of *grazing preference* was broadened to include a quantitative meaning — forage on public land. Changes were made to the timeframe and procedures for changing grazing management after a determination that grazing is a significant factor in failing to achieve rangeland health standards. The three-year limit on temporary nonuse of a permit was removed, and permittees are able to apply for nonuse of a permit for up to one year at a time. Conservation use grazing permits were eliminated. Changes that have been enjoined relate primarily to public participation, sharing title to range improvements, and

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\* Excerpted from CRS Report RL32244, dated 15 March, 2007.

fundamentals of rangeland health. BLM also considered, but did not propose, certain changes due to adverse public reaction or other considerations.

On June 17, 2005, BLM had issued a final environmental impact statement (FEIS) analyzing the potential impact of proposed changes in the regulations, an alternative, and the status quo. On March 31, 2006, BLM published an addendum to the FEIS addressing public comment received after the closing date of March 2, 2004, primarily from the Fish and Wildlife Service. Final regulatory changes took effect August 11, 2006.

BLM also considered, but did not make, changes to its grazing policies, which the agency had believed could be carried out under existing rules. Potential changes that were examined included the establishment of reserve common allotments to serve as backup forage when permittees' regular allotments are unavailable; conservation partnerships between the BLM and permittees whereby permittees work to improve environmental health in return for certain benefits; voluntary allotment restructuring to allow multiple permittees to merge allotments; conservation easement acquisition to preserve open space; and landscape habitat improvement to promote species conservation and facilitate consultations under the Endangered Species Act.

## HISTORY

On August 11, 2006, revised grazing regulations of the Bureau of Land Management (BLM) took effect (43 C.F.R. Part 4100).<sup>1</sup> Some of the regulations have been enjoined.<sup>2</sup> The agency also considered related policy changes, but it appears that policy changes are no longer being considered. The previous revision of grazing regulations culminated in comprehensive changes effective August 21, 1995. The 1995 changes were the result of a several-year process of evaluating ideas and shaping alternatives, and occurred in the midst of a decades-long dispute over the ownership, management, and use of federal rangelands.

The 1995 changes were highly controversial, with criticism from many ranching interests that those new rules weakened grazing privileges and would reduce livestock grazing on federal lands, and from environmental organizations that the changes did not go far enough in protecting public lands. Supporters saw the changes as improving resource and range management and broadening participation in public land decision making. Congress considered many of the 1995 changes as part of legislative proposals or committee oversight. Congress also has examined the development of the 2006 regulatory changes and related policy options through committee oversight.

Among the changes made in 1995, many of which were reexamined by BLM during the development of the 2006 regulatory changes, are those that:

- separated grazing *preference* from *permitted use*, so that a permittee's<sup>3</sup> preference for receiving a grazing permit was not tied to a specific amount of grazing based on historic levels (described as *Animal Unit Months*, or *AUMs*);<sup>4</sup>
- allowed permittees up to three years of nonuse of their permits;
- authorized suspending or canceling a permit if a permittee is convicted of violating certain state or federal environmental laws;
- eliminated the express requirement that a permittee be engaged in the livestock business;

- replaced the term *affected interest* with *interested public*;
- allowed *conservation use* for the term of a grazing permit, thereby excluding livestock grazing from all or a portion of an allotment;
- required title of permanent structural improvements to be held in the name of the United States;
- required that water rights for livestock grazing be held in the name of the United States, to the extent allowed by state law;
- imposed a surcharge on a permittee who allows livestock not owned by the permittee or the permittee's children to graze on public land;
- eliminated Grazing Advisory Boards and replaced them with the broader interest Resource Advisory Councils; and
- adopted rangeland management standards called *Fundamentals of Rangeland Health*.

In issuing these changes, the Secretary of the Interior dropped the most contentious proposal — to increase the grazing fee — due to the rancor this issue generated.<sup>5</sup> However, dissatisfaction with the 1995 changes among ranching interests led to a lawsuit ultimately decided by the U.S. Supreme Court.<sup>6</sup> The regulations, challenged on their face, were upheld by the courts as not exceeding the authority of the Secretary, with one exception. The court struck down the rule pertaining to conservation use for the term of a permit on the grounds that a grazing permit was for grazing and the Secretary could more appropriately accomplish conservation use through the land use planning process.

## RECENT EFFORTS TO CHANGE GRAZING RULES AND POLICIES

BLM took a two-pronged approach to the 2003-2006 iteration of grazing reform on public lands, by issuing changes to grazing regulations and considering changes to grazing policies. Under this *Sustaining Working Landscapes* initiative, first announced in March 2003, BLM sought to create *working landscapes* that are both economically productive and environmentally healthy. Changes to grazing regulations and/or policies could affect more than 18,000 grazing permits on 162 million acres of BLM land. The specific regulatory changes that were adopted and the policy alternatives that were considered are discussed under separate headings below.

Conflict over livestock grazing on public lands has become common. Critics of the latest reform effort asserted that the 1995 regulations were not in effect long enough to assess their effectiveness and that the policy issues were too vague to assess their potential effects. They also contended that BLM had not justified a need for regulatory and policy changes and that the changes adopted remove important environmental protections and opportunities for public comment. One concern voiced by environmentalists was that the changes would require more monitoring than would be feasible, thus possibly preventing changes in grazing practices. Another was that BLM and the Forest Service did not develop joint rules, advocated because many BLM and Forest Service lands are similar and adjoining and permittees often have permits for livestock grazing on both agencies' lands. There was also some disappointment among environmentalists that the reform effort did not encompass certain important issues

such as altering grazing fees, controlling noxious weeds, retiring grazing permits, and establishing processes for identifying lands suitable for grazing.

Regulatory changes have been supported by some livestock organizations and range professionals as helping both ranchers and the range. BLM asserted that regulatory changes were needed to increase flexibility for grazing managers and permittees, to improve BLM's relationship with ranchers, to improve rangeland management and permit administration, to promote conservation, and to comply with court decisions. According to the agency, the changes are based on lessons learned in implementing the 1995 regulations and thus improve upon those earlier regulations. Further, the final rule recognizes the benefits of grazing, including the economic and social benefits to rural communities and the preservation of open space, according to BLM.

## **Overview of Regulatory Process**

BLM proposed changes to its grazing regulations on December 8, 2003 (68 *Fed. Reg.* 68451), and on January 2, 2004, issued a draft environmental impact statement (DEIS) analyzing the potential impact of the proposed changes. The DEIS also assessed the impacts of a slightly different alternative and of keeping the existing grazing rules. Prior to proposing the changes, BLM reviewed more than 8,000 public comments on regulatory issues that were submitted in response to a March 3, 2003 advanced notice of proposed rulemaking.

In late January and early February of 2004, BLM held public meetings in the West and in Washington, DC, to gather public comments on the regulatory proposal and DEIS. The proposal and DEIS were open for public comment through March 2, 2004, during which time the agency received more than 18,000 comments. The BLM considered these comments, and on June 17, 2005, issued a final environmental impact statement (FEIS) on proposed changes and alternatives.<sup>7</sup>

The proposed revisions in the FEIS met with mixed reaction, like those in the earlier DEIS. A number of the key proposals, which were adopted, are discussed under "Changes to Grazing Regulations" below. With regard to the environmental effects of the preferred alternative, the FEIS stated (p. ES-5) that "most of the proposed regulatory changes have little or no adverse effects on the human environment. Some short-term adverse effects may not be avoided because of increases in timeframes associated with several components of this proposed rulemaking." This statement fueled concerns among environmentalists that the proposed changes could eliminate public land protections and lead to unsustainable grazing practices. The FEIS stated that to minimize the potential for adverse affects in the short-term, the BLM could "curtail grazing if resources on the public lands require immediate protection or if continued grazing use poses an imminent likelihood of significant resource damage." Further, the BLM asserted that the long-term outcome of the proposed changes would be better and more sustainable grazing decisions, and that the changes "would be beneficial to rangeland health."

A particular controversy surfaced over assertions by two members of the draft EIS team, a BLM hydrologist and a BLM biologist (both now retired), that their scientific conclusions were reversed by BLM because they did not support the new rules. Those conclusions apparently had asserted that the proposed new rules could harm water quality and wildlife, including endangered species. A BLM official is reported to have called the changes to the



views of the two scientists a part of the standard editing and review process.<sup>8</sup> Further, a statement by the BLM contended that the EIS team found their work to be “seriously lacking in the quality expected from each contributor to the environmental impact analysis.” The statement alleged that the conclusions of the two team members were “based on personal opinion and unsubstantiated assertions rather than sound environmental analysis. As a result, the work submitted by the two former BLM employees was rewritten.”<sup>9</sup>

BLM initially intended to publish a final grazing rule in the *Federal Register* in July 2005, with an effective date in August 2005. However, on August 9, 2005, BLM announced its intent to prepare a supplement to the FEIS. The delay was intended to allow the agency to address public comment received after the comment period ended on March 2, 2004, primarily the views of the Fish and Wildlife Service (FWS). On March 31, 2006, BLM issued an addendum to the FEIS that addressed the FWS and other public comment and made relatively minor changes to its proposed rules.<sup>10</sup>

In its comment to the BLM, the FWS asserted that the proposed changes would “fundamentally change the way BLM lands are managed temporally, spatially, and philosophically. These changes could have profound impacts on wildlife resources.”<sup>11</sup> The FWS expressed overall concern that the proposed revisions would make grazing a priority over other land uses, which could be detrimental to fish and wildlife habitats and populations, for instance, management of sage-grouse habitat. The agency further contended that the proposed changes could “constrain biologists and range conservationists from recommending and implementing management changes based on their best professional judgment in response to conditions that may compromise the long-term health and sustainability of rangeland resources.”<sup>12</sup>

In its addendum, BLM disagreed with the FWS assertion that the proposed rule would fundamentally change BLM management of rangelands and that there could be profound impacts on wildlife. BLM contended that the changes are primarily administrative and do not secure the dominance of grazing over other land uses. BLM also rejected the assertion that its proposals would constrain specialists from recommending changes, noting that changes can be made through varied means, including modification of the terms and conditions of grazing permits.

While supporting some of the proposed grazing changes, the FWS identified a number of areas of particular concern. They included potential effects of administrative inconsistencies between BLM and the Forest Service on their management of fish and wildlife resources across boundaries;<sup>13</sup> diminished requirements for public consultation on site-specific actions, which have the greatest potential for impacts to fish and wildlife; a phase-in of decreases (or increases) in livestock use that are greater than 10%, which may not be immediate enough to prevent irreversible harm to vegetation and wildlife; including a quantity of forage in the definition of grazing preference, which may not account for other range attributes;<sup>14</sup> allowing shared title to range improvements, which could make it more difficult to reallocate land use, such as to provide quality habitat for wildlife; sharing of water rights, as water is the most important resource for fish and wildlife; and requiring monitoring of rangeland standards, which has not been achievable due to BLM funding and staffing limitations.

In response, BLM stated in its addendum that while it will coordinate with the Forest Service, consistency of grazing regulations is not necessary and inconsistencies stem from the agencies’ different statutory requirements. With regard to diminished public consultation, BLM responded that most if not all of the site-specific actions on grazing allotments that

would affect fish and wildlife are included in allotment management planning and the planning of range improvements. Such planning requires public consultation. While the phase-in of reduced livestock use may affect special status species outside those federally listed, any adverse effects are expected to be limited to few grazing allotments, according to BLM. Changes can be made in a shorter time period or even immediately; for instance, to protect sensitive species or other resources. Further, a permittee's preference does not necessarily have the highest priority in evaluating possible uses of available vegetation, and shared title to range improvements does not diminish BLM's ability to redirect or reallocate land uses. With regard to sharing of water rights, BLM stated that water will benefit multiple uses and that rights for wildlife (and other uses) will usually be held in the name of the United States. The BLM does not anticipate that monitoring will overwhelm its capacity, in part because only about 15% of allotments evaluated were not meeting land health standards, due in significant part to livestock grazing.

Final grazing regulations were published on July 12, 2006, and took effect on August 11, 2006. The regulatory changes are summarized in the following section. Some of these changes have been enjoined, as described below in the "Litigation" section.

## **Changes to Grazing Regulations**

BLM had asserted that some of the regulatory changes would be substantive while others were clarifications, but it was not clear which changes the agency believed would fall within each category. This added to the uncertainty over which proposals were intended to, and likely to, make major changes in public lands grazing. There had been a difference of opinion as to the extent to which the regulatory effort should reinstate pre-1995 grazing provisions or substantially modify other provisions of regulations. There continues to be disagreement as to the extent of the environmental impact of the final changes and whether that impact would be primarily beneficial or damaging in both the short- and long-terms.

Some of the key changes in the new regulations involve ownership of range improvements and water rights, and opportunities for public input and appeals. Other changes pertain to terms and conditions of permits and rangeland health. These areas were among the most controversial among affected interests. These and some of the other key regulatory changes are discussed below.

### ***Share Title to Range Improvements***

The regulations reestablish a pre-1995 rule whereby title to a structural range improvement, such as a fence, well, or pipeline, is to be shared by the BLM and a permittee (or others) if it is constructed under a Cooperative Range Improvement Agreement. Title would be shared in proportion to each party's contribution to the cost of the improvement. The regulations also continue to require documentation of a permittee's contributions to improvements and compensation if a permit is cancelled or passes to another. However, some advocated that ranchers should receive more direct compensation for improvements, would be encouraged to undertake and maintain improvements if they get title, and should be able to include improvements as assets to secure loans for grazing. Opponents charged that shared title would create private rights on public land and could hinder action to correct grazing abuses. They contended that the government should hold title to improvements as they

typically are important for other uses, such as recreation and wildlife habitat. Still others believed that improvements for grazing do not necessarily benefit other land uses, and thus permittees should not be rewarded with title.

### ***Acquire Private Water Rights***

The new regulations allow permittees to acquire water rights, consistent with state law. Previous rules required the federal government to follow state procedural and substantive law regarding livestock watering rights, but directed that title to the rights be held by the United States to the extent state law permitted. Before 1995, practices as to water rights for livestock grazing varied and in some states could be acquired in the name of the permittee. Language allowing private individuals to hold water rights was supported by some as providing an incentive for private water development on public land, and protecting permittees from being denied water. It was opposed by others who believed water rights should be in federal ownership to facilitate multiple uses and to preclude private claims for compensation for water rights, and because states typically do not allow grazing permittees on state lands to obtain water rights. Still others were concerned that public resources will be given away at no cost.

### ***Reduce Requirements for Public Involvement***

BLM reduced the occasions on which it is required to involve the public in its decisions. For instance, the agency is no longer required to get input from the public regarding designation and adjustment of grazing allotment boundaries, the issuance or renewal of grazing permits, or modification of the terms and conditions of permits that are not meeting management objectives or the fundamentals of rangeland health. The agency also modified the definition of “interested public” so that only individuals, groups, and organizations who participate in the decision making process on management of a specific allotment are maintained on the list of interested publics. Supporters maintained that the changes would prevent delays and facilitate timely decisions. Also, the agency viewed additional consultation as redundant, because the public already has opportunities to participate during the planning processes and reviews under the National Environmental Policy Act of 1969 (NEPA).<sup>15</sup> The changes were criticized as restricting public input which could lead to ill-considered decisions. They were further opposed on the grounds that decisions at the planning level are too general and broad to allow specific evaluation and comment. Still others contended that environmental reviews under NEPA are not required for some grazing decisions and where required are backlogged, and as a result public participation under NEPA often is delayed.

### ***Modify the Administrative Appeals Process***

The agency modified the administrative appeals process on grazing decisions and defined the extent to which grazing should continue in the face of an appeal or stay of a decision. For instance, the new rule provides that when a stay is granted on appeals to decisions involving renewing, modifying, suspending, or canceling a permit or on transferring preference, the affected permittee usually would continue grazing under the immediately preceding grazing authorization. The changes were sought to provide permittees with continuity of operations when a decision affecting their operations is appealed. They were opposed by some as

limiting the ability of the public to participate in grazing decisions, reducing the flexibility of land managers to take certain actions based on what is best for resource conditions, and potentially continuing damaging grazing practices.

### ***Broaden the Definition of Grazing Preference***

Another rule change broadened the definition of *grazing preference* to include a quantitative meaning — forage on public lands, measured in AUMs — tied to a permittee's base property of land or water. The definition continues to include a qualitative meaning — a superior or priority position to obtain a permit. The revised definition, which is similar to pre-1995 rule language, was intended to link forage allocations to base property, give ranchers certainty as to the size of operations, and eliminate confusion as to the meaning of *preference*. Further, preference includes both *active use*, defined as use currently available for livestock grazing based on livestock carrying capacity and resource conditions, and *suspended use*, which is use that has been allocated for livestock grazing in the past but is currently unavailable. The new definition was opposed as infringing on the discretion of land managers to determine the extent of grazing that should be allowed.

### ***Remedy Rangeland Health Problems***

The new rules require both assessments and monitoring of resource conditions to support agency determinations that grazing practices or levels of use are significant factors in failing to achieve rangeland health standards or conform with guidelines on an allotment. They amend the timeframe and procedures for changing grazing management after a determination that grazing practices or levels are significant factors in failing to achieve standards or conform with guidelines. One change allows a maximum of 24 months, rather than the current 12-month limit, for developing remedial changes in grazing practices. However, BLM could extend the deadline if responsibilities of another agency prevent completion within 24 months. Further, a change would phase in grazing increases or decreases of more than 10% over a five-year period, unless the changes must be made sooner under law (e.g., the Endangered Species Act<sup>16</sup>) or the permittee agrees to a shorter period. BLM maintained that these changes would provide a sound basis for agency determinations and give the agency more time and flexibility in working with permittees who are not meeting the standards. For instance, by allowing permittees to make gradual reductions in grazing, adverse economic impacts would be minimized. The changes were opposed as potentially allowing damaging practices to continue and requiring excessive documentation even when damage is obvious. Opponents also claimed that BLM lacks staff and funds to collect the necessary information formally.

### ***Remove Limit on Permit Nonuse***

The final rule removed the three-year limit on temporary nonuse of a permit by allowing permittees to apply for nonuse of all or part of a permit for up to one year at a time, for as many years as needed. The change was promoted as allowing for recovery of the land and providing flexibility to ranchers who may not be able to graze for reasons including financial hardship, drought, or overgrazing. Critics argued that the change did not address the underlying problem — permitting grazing that exceeds the capacity of allotments. Others were concerned that conservationists will obtain grazing permits and opt for extended nonuse.

However, temporary nonuse is allowed only if authorized by BLM and for no longer than one year at a time.

### ***Eliminate Conservation Use Grazing Permits***

Regulations allowing BLM to issue long-term *conservation use* grazing permits were eliminated to comply with court decisions that permits should be issued for grazing and that conservation needs should be met through alternatives. Advocates of conservation use observed that the practice allowed overgrazed land to be rested and that BLM should develop a legal alternative to the conservation use language.

### ***Other Changes***

Other changes include:

- restricting BLM to taking action against a permittee convicted of breaking laws while engaged in grazing only if the violation occurred on the permittee's allotment;
- emphasizing that reviews under NEPA will consider the social, economic, and cultural impacts of proposed changes in grazing preference, in addition to the ecological impacts;
- increasing administrative fees for livestock crossing permits, billings, and preference transfers;
- providing that a biological assessment or evaluation by BLM under the ESA is not an agency decision for purposes of protests and appeals;
- specifying that BLM will cooperate with state, tribal, local, and county grazing boards in reviewing range improvements and allotment management plans on public lands;
- stating that the temporary changes that BLM can make within the terms and conditions of permits involve the number of livestock and period of use that would result in temporary nonuse and/or forage removal; and
- requiring BLM to document observations supporting a reduction in grazing intensity, and providing that reductions will be made through temporary suspensions of active use rather than through permanent reductions.

### ***Litigation***<sup>17</sup>

Two lawsuits were filed to stop implementation of portions of the grazing regulations. Both cases were filed in the U.S. District Court for the District of Idaho. Two different claims were made: first, that the proposed regulations thwarted public participation,<sup>18</sup> and second, that portions of the regulations were adopted despite an inadequate review under NEPA.<sup>19</sup> On August 11, 2006, the district court ruled in favor of the plaintiffs in both lawsuits regarding the public comment disputes but rejected the other claims pertaining to NEPA.<sup>20</sup> One of the two plaintiffs filed a renewed motion addressing the NEPA claims.<sup>21</sup> On September 25, 2006, the district court stayed other regulations based on the plaintiff's NEPA claims.<sup>22</sup> Those other regulations pertained to the fundamentals of rangeland health, including standards and guidelines, and ownership of range improvement.

Because of these lawsuits, BLM cannot use the 2006 regulations that were enjoined. Instead, the 1995 regulations apply in these areas. BLM issued an Instruction Memorandum

to its field offices explaining BLM procedure as a result of the injunctions.<sup>23</sup> An attachment to the memorandum shows what changes were made to the final regulations as a result of the injunctions.<sup>24</sup>

### ***Changes not Proposed***

BLM considered but did not propose many other changes to grazing regulations, according to the proposed rule and FEIS. For instance, the agency considered adopting rule language to support establishing and operating a new type of grazing unit, called a *reserve common allotment*, but did not do so because of negative public reaction to the idea. The BLM also considered the issue of forage reserves as part of its consideration of policy changes. (See below under “Grazing Policy Changes Considered” for a discussion of reserve common allotments.) The agency also considered allowing permit holders to temporarily lock gates on public lands, for instance to protect private property by preventing cattle from leaving grazing allotments and to minimize disturbances during lambing and calving seasons. The idea was opposed as preventing access by other land users, such as hunters and recreationists; giving a special privilege to permittees; and being currently prohibited by law.

BLM also did not propose altering the existing provisions under which a grazing fee surcharge is placed on permittees who allow livestock neither they nor their children own to graze on public land. The current surcharge provision was incorporated in 1995 to address concerns regarding the potential for a permittee to make a substantial profit when subleasing grazing privileges. BLM asserted that the current surcharge provision is equitable and that it did not want to address fee-related issues as part of the reform effort.

## **Overview of Grazing Policy Process**

The BLM originally had expected to address final grazing policy changes when the rulemaking process was “substantially completed,” according to the agency. However, it appears that policy changes are no longer being actively considered because some policy issues were discussed during the regulatory process and there are competing priorities and resources.

On March 25, 2003, BLM first announced possible grazing policy changes as a complement to the regulatory changes that were being considered.<sup>25</sup> According to BLM, the focus was on policy changes that could be carried out under existing rules. The agency was seeking policy reforms to promote citizen stewardship of public lands, provide flexibility to managers of livestock grazing, and increase innovative partnerships. Policy changes considered included conservation partnerships, voluntary allotment restructuring, conservation easement acquisition, endangered species mitigation/landscape habitat improvement, and reserve common allotments (RCAs).<sup>26</sup> RCAs would serve as livestock forage for permittees while their normal allotments undergo rest or improvements, and might be used for unplanned needs. BLM also examined the establishment of RCAs as a regulatory change, but did not propose rule language in this area. Some had asserted that other policy options under consideration might have necessitated the adoption of new rules, which would require opportunities for public comment. The distinction between policies and regulations is not always clear, and when an agency must take action through formal rulemaking can be an issue.<sup>27</sup>

BLM solicited public feedback on the policy options it considered through a series of public workshops. While some support for policy changes was expressed, many members of the public asserted that available information was inadequate to assess the policy changes, raised concerns about the outlined options, or viewed the initial schedule for considering policy and rules changes as too short. In response, BLM announced that it had extended the timeframe for developing policy changes, but did not issue a schedule for completing actions. The agency also developed and published on its website more detailed information on RCAs, conservation partnerships, and voluntary allotment restructuring. It noted that conservation easements were no longer being pursued as a major policy tool, and that the concept of endangered species mitigation had evolved to the broader notion of *landscape habitat improvement*. As part of its consideration of policy reforms, BLM reviewed the advice and recommendations of its Resource Advisory Councils.<sup>28</sup> Key policy changes that had been considered are discussed below.

## **Grazing Policy Changes Considered**

### ***Reserve Common Allotments (RCAs)***

RCAs would be created to provide livestock forage to permittees whose allotments undergo rest or improvements, and might be used when drought, fire, flood, or other unplanned needs make normal allotments unusable. BLM asserted that existing regulations allow the creation of RCAs but with impediments. RCAs were supported as encouraging improvements (such as prescribed burning) and recovery from heavy grazing, and necessary in emergencies so that ranchers would not have to reduce herd size or sell out for lack of forage. Conservationists were concerned that this approach did not address what they view as the fundamental issue — overstocking or grazing unsuitable lands — and that RCAs would benefit ranchers who mismanaged their allotments. Livestock groups feared a reduction in grazing and loss of water rights through nonuse, coercion to participate, and use of RCAs as a subterfuge for conservation use. Key issues for both supporters and critics included how much land, and which lands, would become part of RCAs (e.g., vacant allotments, areas of nonuse); what would trigger their use; their term; how many permittees would be allowed to graze simultaneously; and how forage would be allocated.

### ***Conservation Partnerships***

The goal of conservation partnerships between permit holders and the BLM would be to improve environmental health. A permittee could enter into a performance-based contract with BLM to undertake projects to restore streambanks, wetlands, and riparian areas; enhance water quantity and quality; improve wildlife or fisheries habitat; support the recovery of threatened or endangered species; and other actions. In return, the permittee could receive management flexibility, increased livestock grazing, and stewardship grants to pay for investments in conservation practices. Advocates noted that these arrangements would give permittees credit for improvements they have been making, encourage and reward good stewardship, and enhance the role of permittees in managing grazing allotments. Opponents contended that private property rights could be impaired, the amount of available funding was unclear, the extent of resource improvement was uncertain, permittees might receive benefits

for little or no resource improvement, and partnerships may not be entirely voluntary. Differences of opinion existed as to a role for third parties, rewards for permittees, and dealing with intermingled private land.

### ***Voluntary Allotment Restructuring***

Voluntary allotment restructuring would allow two or more grazing permittees to merge allotments. One or more of the permittees would not graze temporarily, while the others grazed over the entire area, to achieve lighter grazing. Such restructuring was supported as improving range conditions while maintaining the economic viability of permittees. Concerns included that restructuring would reduce grazing and could already occur informally, operator to operator. Issues involved when restructuring would be used and whether and how to compensate ranchers who give up grazing privileges.

### ***Conservation Easements***

Conservation easements — land use restrictions — were being considered to preserve open space. Under this arrangement, BLM would place conservation easements on its land identified for disposal. Permittees would similarly restrict development on their private land in exchange for acquiring the BLM lands with the easements. These easements were advocated as benefitting the land, land managers, and permittees. However, BLM subsequently asserted that because they are limited in their ability to use conservation easements, such easements were not currently a major policy option. Easements have been opposed as reducing land values, limiting the management discretion of private landowners, not necessarily providing a public benefit, and encumbering land disposal.

### ***Endangered Species Act Mitigation***

BLM viewed the policy options listed above as providing opportunities to mitigate the effects of livestock grazing on species listed under the ESA. Mitigation banks also were contemplated to preserve or create habitat for listed species in exchange for mitigation credits. Such credits could be sold to other land users to offset the impacts of development on listed species. This idea raised concerns among livestock groups that grazing would be subordinated to conservation and private property rights could be weakened, and among environmentalists that permittees would be compensated for something the BLM already is obligated to protect. This concept was later considered as *Landscape Habitat Improvement*, to promote species conservation and facilitate ESA consultations. Habitat management would be pursued on a landscape basis, perhaps involving lands under various ownerships, which presumes a larger geographic area than a grazing allotment. Grazing permittees could form partnerships to promote species conservation and maintain or improve habitat while continuing to graze public lands.

## **CONCLUSION**

BLM pursued grazing reform for more than three years after notifying the public in 2003 of its consideration of changes under its *Sustaining Working Landscapes* initiative. During that time, evaluations of possible regulatory and policy changes proceeded on separate tracks.



Changes to regulations became effective August 11, 2006, although some of the changes were subsequently enjoined. No policy changes were made as a result of this effort, and it appears that there is no longer an initiative to review and revise grazing policies.

Many of the key regulatory changes contained in the final rule deal with provisions that took effect in 1995, during the previous revision of grazing rules.

Among them are changes to allow shared title to range improvements, allow private acquisition of water rights, reduce requirements for public involvement, modify the administrative appeals process, broaden the definition of grazing preference, change the timeframe and procedures for remedying rangeland health problems, remove the limit on permit nonuse, and eliminate conservation use grazing permits. The changes met with mixed reaction. The revisiting of issues dealt with a decade ago, together with other changes, was generally supported by livestock organizations and some range professionals who see benefits both to the range and those grazing on public land. By contrast, many environmental organizations and other range experts opposed the changes on the grounds that a need for change had not been demonstrated and the particular changes could harm the environment.

Public comment on the proposed regulatory changes, together with the DEIS assessing their impact, was accepted through March 2, 2004. BLM evaluated the comments over many months, before publishing an FEIS on June 17, 2005. The agency postponed developing a final grazing rule to consider public comment received after the closing date, particularly from the Fish and Wildlife Service. The BLM addressed this comment in an addendum issued March 31, 2006. Final grazing regulations were published on July 12, 2006, and took effect a month later. Some of the new regulations are not being implemented as a result of lawsuits, primarily changes regarding public participation, sharing title to range improvements, and fundamentals of rangeland health.

BLM had expected to focus on final policy changes after the completion of the rulemaking process, but it appears that policy changes are no longer under consideration. Public feedback on possible policy changes had shaped the proposals that were examined and extended the timeframe for considering changes. Key policy issues that were considered related to RCAs, conservation partnerships, voluntary allotment restructuring, conservation easement acquisition, and landscape habitat improvement.

## ENDNOTES

<sup>1</sup> 71 *Fed. Reg.* 39402, July 12, 2006.

<sup>2</sup> See “Litigation” section below.

<sup>3</sup> The term permittee is used throughout to refer to both permittees and lessees, and permit refers to both permits and leases.

<sup>4</sup> An AUM is defined as the amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.

<sup>5</sup> For more information on grazing fees, see CRS Report RS21232, *Grazing Fees: An Overview and Current Issues*, by Carol Hardy Vincent.

<sup>6</sup> For more information on the legal challenge to the 1995 regulations on livestock grazing, see CRS Report RS20453, *Federal Grazing Regulations: Public Lands Council v. Babbitt*, by Pamela Baldwin.

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- <sup>7</sup> The FEIS is available on the BLM website at [<http://www.blm.gov/grazing/>], visited on March 12, 2007.
- <sup>8</sup> Julie Cart, "Land Study on Grazing Denounced; Two Retired Specialists Say Interior Excised their Warnings on the Effects on Wildlife and Water," *Los Angeles Times* (June 18, 2005), sec. A, p. 1.
- <sup>9</sup> U.S. Dept. of the Interior, Bureau of Land Management, *Statement of the Bureau of Land Management re: Los Angeles Times Article of June 18, 2005*, unpublished draft received from BLM, Aug. 12, 2005.
- <sup>10</sup> The addendum is available on the website of the BLM at [<http://www.blm.gov/grazing/>], visited on March 12, 2007.
- <sup>11</sup> U.S. Dept. of the Interior, Fish and Wildlife Service, *Comments on (1) Proposed Rule for Grazing Administration-Exclusive of Alaska (EC03/0049), and (2) Draft Environmental Impact Statement for the Proposed Revisions to Grazing Regulations for the Public Lands (EC04/0003)*, unpublished draft received from BLM, Aug. 12, 2005, p. 12.
- <sup>12</sup> *Ibid.*, p. 1.
- <sup>13</sup> A goal of the 1995 regulatory reform was to increase consistency of BLM and Forest Service grazing administration, perhaps reducing administrative costs. The FWS expressed concern that the 2006 regulatory reform effort, in pertaining exclusively to BLM, could lead to inconsistencies between the BLM and the Forest Service in several areas.
- <sup>14</sup> Under then-existing BLM regulations, grazing preference was defined as having a superior or priority position against others for the purpose of receiving a grazing permit. The FWS expressed opposition to adding a quantity of forage to that definition without consideration of other features of range resources that are not quantifiable in terms of forage, such as species diversity and soil condition.
- <sup>15</sup> P.L. 91-190; 42 U.S.C. §§ 4321-4347.
- <sup>16</sup> P.L. 93-205; 16 U.S.C. §§ 1531-1540.
- <sup>17</sup> This section was prepared by Kristina Alexander (7-8597) of the CRS American Law Division.
- <sup>18</sup> The public participation aspects of the following regulations were enjoined: 43 C.F.R. §§ 4100.0-5 (definitions); 4110.2-4 (allotments); 4110.3-3 (implementing changes in active use); 4130.2 (grazing permits or leases); 4130.3-3 (modification of permits or leases); 4130.6-2 (nonrenewable grazing permits and leases). Also, BLM was enjoined from issuing nonrenewable grazing permits or leases.
- <sup>19</sup> The regulations challenged on the basis of an inadequate NEPA, which were subsequently enjoined, are 43 CFR 4120.3-2(b) (cooperative range improvement agreements); 43 CFR 4180.1 (fundamentals of rangeland health); and 43 CFR 4180.2(b)&(c) (standards and guidelines for grazing administration).
- <sup>20</sup> *Western Watersheds Project v. Kraayenbrink*, No. CV-05-297-E-BLW, 2006 WL 2348080 (D. Idaho Aug. 11, 2006); *Maughan v. Rosenkrance*, No. CV-06-275-E-BLW, 2006 WL 2348077 (D. Idaho Aug. 11, 2006). The court issued nearly identical opinions in these cases.
- <sup>21</sup> *Western Watersheds*, but not *Maughan*, filed a renewed motion for an injunction on the NEPA claims.
- <sup>22</sup> *Western Watersheds Project v. Kraayenbrink*, No. CV-05-297-E-BLW, 2006 WL 2735772 (D. Idaho Sept. 25, 2006).

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- <sup>23</sup> BLM Instruction Memorandum No. 2007-004 (Oct. 10, 2006), [<http://www.blm.gov/nhp/efoia/wo/fy07/im2007-004.htm>].
- <sup>24</sup> The attachment is available online at [<http://www.blm.gov/nhp/efoia/wo/fy07/im2007004attach1.pdf>].
- <sup>25</sup> The announcement took the form of a press release, now contained on the BLM website at [[http://www.blm.gov/nhp/news/releases/pages/2003/pr030325\\_grazing.htm](http://www.blm.gov/nhp/news/releases/pages/2003/pr030325_grazing.htm)], visited on March 12, 2007.
- <sup>26</sup> For more information on policy options, see the BLM website at [<http://www.blm.gov/nhp/efoia/wo/fy03/im2003-214ch1.htm>] and [<http://www.blm.gov/nhp/efoia/wo/fy03/im2003-214.htm>], visited on March 12, 2007.
- <sup>27</sup> See 5 U.S.C. § 551(4).
- <sup>28</sup> BLM has two dozen Resource Advisory Councils (RACs) in western states to provide the agency advice on managing public lands. Each RAC consists of some 12-15 citizens representing diverse interests, including ranchers, environmental groups, tribes, academia, and state and local governments.



*Chapter 5*

## **ANIMAL WASTE AND HAZARDOUS SUBSTANCES: CURRENT LAWS AND LEGISLATIVE ISSUES\***

*Claudia Copeland*

### **ABSTRACT**

The animal sector of agriculture has undergone major changes in the last several decades: organizational changes within the industry to enhance economic efficiency have resulted in larger confined production facilities that often are geographically concentrated. These changes, in turn, have given rise to concerns over the management of animal wastes and potential impacts on environmental quality.

Federal environmental law does not regulate all agricultural activities, but certain large animal feeding operations (AFOs) where animals are housed and raised in confinement are subject to regulation. The issue of applicability of these laws to livestock and poultry operations — especially the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, the Superfund law) and the Emergency Planning and Community Right-to-Know Act (EPCRA) — has been controversial and recently has drawn congressional attention.

Both Superfund and EPCRA have reporting requirements that are triggered when specified quantities of certain substances are released to the environment. In addition, Superfund authorizes federal cleanup of releases of hazardous substances, pollutants, or contaminants and imposes strict liability for cleanup and injuries to natural resources from releases of hazardous substances.

Superfund and EPCRA include citizen suit provisions that have been used to sue poultry producers and swine operations for violations of those laws. In two cases, environmental advocates claimed that AFO operators had failed to report ammonia emissions, in violation of Superfund and EPCRA. In both cases, federal courts supported broad interpretation of key terms defining applicability of the laws' reporting requirements. Three other cases in federal courts, while not specifically dealing with reporting violations, also have attracted attention, in part because they have raised the

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\* Excerpted from CRS Report RL33691, dated April 11, 2007.

question of whether animal wastes that contain phosphorus are hazardous substances that can create cleanup and natural resource damage liability under Superfund. Two of these latter cases were settled; the third, brought by the Oklahoma Attorney General against poultry operations in Arkansas, is pending.

These lawsuits testing the applicability of Superfund and EPCRA to poultry and livestock operations have led to congressional interest in these issues. In the 109<sup>th</sup> Congress, legislation was introduced that would have amended CERCLA to clarify that manure is not a hazardous substance, pollutant, or contaminant under that act and that the laws' notification requirements would not apply to releases of manure. Proponents argued that Congress did not intend that either of these laws apply to agriculture and that enforcement and regulatory mechanisms under other laws are adequate to address environmental releases from animal agriculture. Opponents responded that enacting an exemption would severely hamper the ability of government and citizens to know about and respond to releases of hazardous substances caused by an animal agriculture operation. Congress did not act on the legislation, but similar bills have been introduced in the 110<sup>th</sup> Congress (H.R. 1398 and S. 807).

## INTRODUCTION

The animal sector of agriculture has undergone major changes in the last several decades, a fact that has drawn the attention of policymakers and the public. In particular, organizational changes within the industry to enhance economic efficiency have resulted in larger confined production facilities that often are geographically concentrated.<sup>1</sup> Increased facility size and regional concentration of livestock and poultry operations have, in turn, given rise to concerns over the management of animal wastes from these facilities and potential impacts on environmental quality, public health and welfare.

Animal manure can be and frequently is used beneficially on farms to fertilize crops and add or restore nutrients to soil. However, animal waste, if not properly managed, can adversely impact water quality through surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, and leaching into soil and ground. It can also result in emission to the air of particles and gases such as ammonia, hydrogen sulfide, and volatile organic chemicals. According to the U.S. Department of Agriculture (USDA), in 1997, 66,000 operations had farm-level excess nitrogen (an imbalance between the quantity of manure nutrients produced on the farm and assimilative capacity of the soil on that farm), and 89,000 had farm-level excess phosphorus.<sup>2</sup> USDA believes that where manure nutrients exceed the assimilative capacity of a region, the potential is high for runoff, leaching of nutrients, and other environmental problems. Geographically, areas with excess farm-level nutrients correspond to areas with increasing numbers of confined animals.

Federal environmental law does not regulate all agricultural activities. Some laws specifically exempt agriculture from regulatory provisions, and others are structured so that farms escape most, if not all, of the regulatory impact. Still, certain large animal feeding operations (AFOs) where animals are kept and raised in confinement are subject to environmental regulation. The primary regulatory focus on environmental impacts has been on protecting water resources and has occurred under the Clean Water Act. In addition, facilities that emit large quantities of air pollutants may be regulated under the Clean Air Act.

Some livestock operations also may be subject to requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, the Superfund law) and the Emergency Planning and Community Right-to-Know Act (EPCRA).<sup>3</sup> The issue of applicability of these laws to livestock and poultry operations — especially CERCLA and EPCRA — has been controversial and has drawn congressional attention.

This chapter describes the provisions of Superfund and EPCRA, and enforcement actions under these laws that have increasingly been receiving attention. Congressional scrutiny in the form of legislative proposals and a House hearing in the 109<sup>th</sup> Congress are discussed. Bills intended to exempt animal manure from the requirements of Superfund and EPCRA were introduced in the 109<sup>th</sup> Congress, but no legislation was enacted. Similar bills have been introduced in the 110<sup>th</sup> Congress (H.R. 1398 and S. 807). Issues raised by the legislation are analyzed.

## CERCLA AND EPCRA

Both the Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund law, 42 U.S.C. §§9601-9675) and the Emergency Planning and Community Right-to-Know Act (42 U.S.C. §§11001-11050) have reporting requirements that are triggered when specified quantities of certain substances are released to the environment.<sup>4</sup> Both laws, which are administered by the Environmental Protection Agency (EPA), utilize information disclosure in order to increase the information available to government and citizens about the sources and magnitude of chemical releases to the environment. In addition to reporting requirements, CERCLA includes provisions authorizing federal cleanup of releases of hazardous substances, pollutants, or contaminants that may present an imminent and substantial danger to the public health or welfare (Section 104), and imposing strict liability for cleanup and damages for injury to, destruction of, or loss of natural resources resulting from releases of hazardous substances (Section 107). At issue today is how the reporting requirements and other provisions of these laws apply to poultry and livestock operations.

Superfund authorizes programs to remediate uncontrolled or abandoned hazardous waste sites and assigns liability for the associated costs of cleanup. Section 103(a) of CERCLA requires that the person in charge of a facility (as defined in Section 101(9)) that releases a “reportable quantity” of certain hazardous substances must provide notification of the release to the National Response Center.

EPCRA establishes requirements for emergency planning and notification for storage and release of hazardous and toxic chemicals. Section 304(a)(1) of EPCRA requires the owner or operator of a facility (as defined in Section 329(4)) to report to state and local authorities any releases greater than the reportable quantity of substances deemed hazardous under Superfund or extremely hazardous under EPCRA. Under Superfund, the term “release” (Section 101(22)) includes discharges of substances to water and land and emissions to the air from “spilling, leaking, pumping, pouring, emitting, emptying, discharging, injection, escaping, leaching, dumping, or disposing into the environment.” Under EPCRA, the term “release” (Section 329(8)) includes emitting any hazardous chemical or extremely hazardous substance into the environment. Superfund excludes the “normal application of fertilizer” from the definition of release, and EPCRA excludes from the definition of hazardous chemicals any

substance that is “used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.”

The CERCLA definition of “hazardous substance” (Section 101(14)) triggers reporting under both laws. Among the reportable substances that may be released by livestock facilities are hydrogen sulfide, ammonia, and phosphorus. The reportable quantity (RQ) for both hydrogen sulfide and ammonia is 100 pounds per day, or 18.3 tons per year; the RQ for phosphorus is 1 pound per day. Section 109 of Superfund and Section 325 of EPCRA authorize EPA to assess civil penalties for failure to report releases of hazardous substances that equal or exceed their reportable quantities (up to \$27,500 per day under CERCLA and \$27,500 per violation under EPCRA).

## ENFORCEMENT AGAINST AFOS

EPA has enforced the Superfund and EPCRA reporting requirements against AFO release of hazardous pollutants in two separate cases. The first involved the nation’s second largest pork producer, Premium Standard Farms (PSF) and Continental Grain Company. In November 2001, EPA and the Department of Justice announced an agreement resolving numerous claims against PSF concerning principally the Clean Water Act, but also the Clean Air Act, Superfund, and EPCRA. More recently, in September 2006, the Department announced settlement of claims against Seaboard Foods — a large pork producer with more than 200 farms in Oklahoma, Kansas, Texas, and Colorado — and PIC USA, the former owner and operator of several Oklahoma farms now operated by Seaboard. Like the earlier PSF case, the government had brought complaints for violations of several environmental laws, including failure to comply with the release reporting requirements of CERCLA and EPCRA.

Both Superfund and EPCRA include citizen suit provisions that have been used to sue poultry producers and swine operations for violations of the laws (Section 310 of CERCLA and Section 326 of EPCRA). In two cases, environmental advocates claimed that AFO operators had failed to report ammonia emissions, putting them in violation of Superfund and EPCRA. In both cases, federal courts supported broad interpretation of key terms defining applicability of the laws’ reporting requirements.

In the first of these cases, a federal district court in Oklahoma initially ruled in 2002 that a farm’s individual barns, lagoons, and land application areas are separate “facilities” for purposes of CERCLA reporting requirements, rather than aggregating multiple emissions of pollutants across the entire site. This court held that Superfund’s reporting requirements would only apply if emissions for *each individual facility* exceed 100 pounds per day. However, the district court’s ruling was reversed on appeal (*Sierra Club v. Seaboard Farms Inc.*, 387 F.3d 1167 (10<sup>th</sup> Cir. 2004)). The court of appeals ruled that the whole farm site is the proper entity to be assessed for purposes of CERCLA reporting and determining if emissions of covered hazardous substances meet minimum thresholds.

In the second case, a federal district court in Kentucky similarly ruled in 2003 that the term “facility” should be interpreted broadly to include facilities operated together for a single purpose at one site, and that the whole farm site is the proper entity to be assessed for purposes of the Superfund and EPCRA reporting requirements (*Sierra Club v. Tyson Foods*,



*Inc.*, 299 F. Supp. 2d 693 (W.D. Ky. 2003)). While Superfund provides that a continuous release is subject to reduced reporting requirements, and EPCRA provides an exemption for reporting releases when the covered substance is used in routine agricultural operations or is used on other farms for fertilizer, the court found that these exemptions did not apply to the facts of this case. The ruling was not appealed.

EPA was not a party in either of these lawsuits. The U.S. Court of Appeals for the 10<sup>th</sup> Circuit invited EPA to file an amicus brief in the *Seaboard Farms* case in order to clarify the government's position on the issues, but EPA declined to do so within the time frame specified by the court.

Three other cases in federal courts, while they do not include reporting violations, also have drawn attention, in part because they raised the question of whether animal wastes that contain phosphorus are hazardous substances that can create cleanup and natural resource injury liability under Superfund.<sup>5</sup> Animal wastes typically contain low levels of phosphorus, and animal wastes are beneficially used as fertilizer on farms. Over the long term, however, the application of animal waste fertilizers may result in phosphorus buildup in soils which may be released to watersheds through surface runoff. In 2003, a federal court in Oklahoma held that phosphorus contained in poultry litter in the form of phosphate is a hazardous substance under Superfund and thus could subject poultry litter releases to provisions of that law (*City of Tulsa v. Tyson Foods, Inc.*, 258 F. Supp. 2d 1263, (N.D. Okla. 2003)). This ruling was later vacated as part of a settlement agreement, but some observers believe that the court's reasoning may still be persuasive with other courts. The second case, *City of Waco v. Schouten* (W.D. Tex., No. W-04-CA-118, filed April 29, 2004), was a suit by the city against 14 dairies alleging various causes of action based on disposal of wastes from those operations. It was resolved by a settlement agreement early in 2006.

The third case, *State of Oklahoma v. Tyson Foods, Inc.* (N.D. Okla, No. 4:05-cv00329, filed June 13, 2005), is still pending. This suit, brought by the Oklahoma Attorney General, asserts various claims based on the disposal of waste from 14 poultry operations in the Illinois River Watershed. The state principally seeks its past and present response costs and natural resource injuries under CERCLA due to release of wastes from these facilities.

The net result of these lawsuits is growing concern by the agriculture community that other legal actions will be brought and that the courts will continue to hold that the Superfund and EPCRA reporting requirements and other provisions apply to whole farm sites, thus potentially exposing more of these operations to enforcement under federal law.

In 2005, a group of poultry producers petitioned EPA for an exemption from EPCRA and CERCLA emergency release reporting requirements, arguing that releases from poultry growing operations pose little or no risk to public health, while reporting imposes an undue burden on the regulated community and government responders.<sup>6</sup> While the agency has not formally responded to this petition, early in 2007 EPA formed an internal workgroup to review information on animal waste as it relates to CERCLA and to possible exemptions from emissions reporting. Further, EPA Administrator Stephen Johnson told congressional committees that the agency will propose a rule to exempt routine animal waste air releases from emergency notification requirements. He did not provide details on how broad a waiver might be proposed. While such a regulatory exemption might satisfy many agriculture industry groups, environmental advocates and others oppose the exemption. Some argue that an exemption is premature, since EPA is moving forward with research on emissions levels (see CRS Report RL32947, *Air Quality Issues and Animal Agriculture: EPA's Air*

*Compliance Agreement*). State air quality officials have said that they oppose blanket regulatory or legislative exemptions, and they have recommended that if the agency considers any action, it should only be a narrow exemption, such as one based on a size threshold for farms.<sup>7</sup>

## CONGRESSIONAL INTEREST

The court cases testing the applicability of Superfund and EPCRA to poultry and livestock operations have led to congressional interest in these issues. In March 2004, a number of senators wrote to the EPA Administrator to ask the agency to clarify the reporting requirements of the two laws so as to limit their impact on poultry operations. The senators' letter said that because of unclear regulations and a lack of scientific information about emissions, poultry and livestock producers are uncertain about the laws' requirements and are vulnerable to enforcement actions.<sup>8</sup> In report language accompanying EPA's FY2006 appropriations, the House Appropriations Committee urged EPA to address the issues.

The Committee continues to be concerned that unclear regulations, conflicting court decisions, and inadequate scientific information are creating confusion about the extent to which reporting requirements in [CERCLA] and [EPCRA] cover emissions from poultry, dairy, or livestock operations. Producers want to meet their environmental obligations but need clarification from the Environmental Protection Agency on whether these laws apply to their operations. The committee believes that an expeditious resolution of this matter is warranted.<sup>9</sup>

Also in 2004, some in Congress considered proposing legislation that would amend the definition of "release" in Superfund (Section 101(22); 42 USC §9601(22)) to clarify that the reporting requirements do not apply to releases from biological processes in agricultural operations and to amend EPCRA to exclude releases of hazardous chemicals produced through biological processes in routine agricultural operations. For some time, there were indications that an amendment containing these statutory changes would be offered during debate on FY2005 consolidated appropriations legislation, but this did not occur.<sup>10</sup>

Some Members sought to amend the FY2006 Agriculture appropriations bill, H.R. 2744, with a provision exempting releases of livestock manure from CERCLA and EPCRA. The proposal was promoted by Senate conferees on the bill, but it was not accepted by House conferees. Proponents, including Senator Larry Craig, contended that the proposed language was consistent with current law, because in their view CERCLA and EPCRA were never intended to apply to agriculture. Environmentalists objected to the language, arguing that it could prevent public health authorities from responding to hazardous substance releases from AFOs, would block citizen suits against agriculture companies for violations of reporting requirements, and would create an exemption from Superfund liability for natural resource injuries that might result from a large manure spill. EPA's congressional affairs office released an unofficial analysis criticizing the bill. It argued that, by eliminating federal liability for manure releases under Superfund and EPCRA, the provision could interfere with EPA's Air Compliance Agreement, because companies would have much less incentive to participate in the agreement. The agreement is a plan that EPA announced in January 2005 to

collect air quality monitoring data on animal agriculture emissions.<sup>11</sup> The House and Senate gave final approval to H.R. 2744 in November 2005 (P.L. 109-97), without the language that Senate conferees had proposed.

Also in November 2005, legislation was introduced that would amend CERCLA to clarify that manure is not a hazardous substance, pollutant, or contaminant under that act and that CERCLA's notification requirements would not apply to releases of manure (H.R. 4341). The bill was similar to the legislative language that Senator Craig had proposed to conferees as a provision of the FY2006 Agriculture appropriations bill with a broad definition of "manure" that includes, for example, bedding commingled with animal waste.

H.R. 4341 was introduced the same day that a House Energy and Commerce subcommittee held a hearing on animal agriculture and Superfund. The Subcommittee on Environment and Hazardous Materials heard from agriculture industry witnesses who urged Congress to provide policy direction on the issue that has developed as a result of recent and potential litigation. Other witnesses testified that the reporting and notification requirements of Superfund and EPCRA provide a safety net for making information on releases available to government and citizens, and that other environmental laws, such as the Clean Air Act, cannot function in that manner. An EPA witness said that the agency is considering ways to reduce the paperwork burdens for large AFOs to report their emissions, but has not yet formalized a proposal. Similar legislation was introduced in the Senate (S. 3681). No further action occurred on either bill. Similar legislation has been introduced in the 110<sup>th</sup> Congress (H.R. 1398 and S. 807).

## POLICY ISSUES

Supporters and opponents of the 109<sup>th</sup> Congress and 110<sup>th</sup> Congress legislation have raised a number of arguments for and against the proposals. For example, proponents of the exemption proposed in these bills, representing the agriculture industry, especially livestock and poultry producers, say that animal manure has been safely used as a fertilizer and soil amendment by many cultures all over the world for centuries and thus should not be considered a hazardous substance. Opponents — including environmental activists, public health advocates, and state and local governments — agree that when properly managed, manure has beneficial uses. Superfund's reporting and cost recovery requirements do not threaten responsible operators who manage manure as a valuable fertilizer, they say. However, these groups say that when improperly managed and in the massive amounts produced at today's large feedlot operations, animal waste can release a number of polluting substances to the environment. Releases to surface water, groundwater, and the atmosphere may include nutrients, organic matter, solids, pathogens, volatile compounds, particulate matter, antibiotics, pesticides, hormones, gases that are associated with climate change (carbon dioxide and methane), and odor.

Proponents of the legislation argue that neither Superfund nor EPCRA was intended by Congress to apply to agriculture and that the pending legislation would simply clarify congressional intent. CERCLA exempts "normal application of fertilizer" from the definition of "release" and also exempts releases of "naturally occurring organic substances." Animal waste arguably was intended to be covered by these existing exemptions, they say. Opponents

respond that there is little firm evidence either way on this point, as there is limited legislative history concerning this language. The exemption for “normal application of fertilizer,” enacted in CERCLA in 1980, applies to application of fertilizer on crops or cropland for beneficial use, but does not mean dumping or disposal of larger amounts or concentrations than are beneficial to crops.<sup>12</sup>

EPA has not issued guidance to interpret what constitutes “normal application of fertilizer,” and the only court decision so far addressing this issue (the vacated 2003 *City of Tulsa* case discussed above) held that neither plaintiffs nor defendants in that case had presented evidence sufficient for a fact-based determination of what constitutes “normal application.” Opponents of the legislation also argue that animal manure consists of a number of substances that are nutritional and pharmaceutical elements of the feed provided to animals (trace elements, antibiotics, nutrients), and releases are the result of inadequate waste disposal, not “naturally occurring” substances and activities.

Proponents argue that enforcement and regulatory mechanisms exist under the Clean Water Act (CWA) and other media-specific statutes, such as the Clean Air Act (CAA), making it unnecessary to rely on Superfund or EPCRA for enforcement or remediation. In particular, both the Clean Water Act and Clean Air Act require that regulated facilities obtain permits that authorize discharges or emissions of pollutants. Enforcement of permit requirements has been an important tool for government and citizens to address environmental concerns of animal agriculture activities.

Opponents respond that enforcement under Superfund fills critical gaps in these other environmental laws, because not all pollutants are covered by other laws. For example, releases of ammonia and hydrogen sulfide are listed under CERCLA but are not currently regulated as hazardous pollutants under the CAA. Clean Water Act AFO permits primarily address discharges of nutrients, but not other components of manure waste (e.g., trace elements, metals, pesticides, pathogens). Moreover, neither of these laws provides for recovery of costs for responding to or remediating releases, nor for natural resource injuries. Opponents also argue that, while “federally permitted releases” are exempt from CERCLA’s reporting requirements, CWA and CAA permit requirements apply only to facilities that meet specified regulatory thresholds (for example, CWA permit rules apply to about 14,000 large AFOs, less than 6% of all AFOs in the United States).<sup>13</sup>

Finally, proponents of the legislation argue that if animal manure is considered to be a hazardous substance under Superfund, farm operations both large and small potentially could be exposed to costly liabilities and penalties. Opponents note that the purpose of release reporting is to keep federal, state, and local entities informed and to alert appropriate first responders of emergencies that might necessitate response, such as release of hazardous chemicals that could endanger public health in a community. The exemption proposed in pending legislation, they point out, U.S. Environmental Protection Agency, “National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs); Final Rule,” 68 *Federal Register* 7179, February 12, 2003. would apply not only to CERCLA and EPCRA reporting requirements but also to other provisions (such as Superfund’s authority for federal cleanup of releases, cleanup liability, and liability for natural resource injuries).

According to states and some other interest groups, liability, which arises when manure is applied in amounts that exceed what is beneficial to support crops, is necessary to bring about improvements in waste handling practices of large AFOs. Enacting an exemption would

severely hamper the ability of government to appropriately respond to releases of hazardous substances and pollution caused by an animal agriculture operation, they argue. On the issue of penalties, opponents note that penalties are not available under Superfund for removal or remedial actions (except for failure to comply with information gathering and access related to a response action), regardless of whether initiated by government or a private party. CERCLA does authorize civil penalties for violation of the Section 103 reporting requirements (up to \$27,500 per day), but neither of the two key citizen suit cases decided thus far (*Sierra Club v. Tyson Foods, Inc.*, and *Sierra Club v. Seaboard Farms Inc.*) involved penalties for failure to report releases.

## CONCLUSION

Issues concerning the applicability of Superfund and EPCRA to animal agriculture activities have been controversial and have drawn considerable attention. Bills in the 109<sup>th</sup> Congress gained much support (when the 109<sup>th</sup> Congress adjourned in December 2006, H.R. 4341 had 191 co-sponsors, and S. 3681 had 35 co-sponsors), but were not enacted. They also drew opposition from environmental advocacy groups and state and local governments. The Bush Administration did not present an official position on the legislation. Continuing interest in the issue is evident from the fact that similar legislation has been introduced in the 110<sup>th</sup> Congress.

## ENDNOTES

- <sup>1</sup> For additional information, see CRS Report RL33325, *Livestock Marketing and Competition Issues*, by Geoffrey S. Becker.
- <sup>2</sup> U.S. Department of Agriculture, Natural Resources Conservation Service, “Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States,” Publication no. nps00-579, December 2000, p. 85.
- <sup>3</sup> For additional information, see CRS Report RL32948, *Air Quality Issues and Animal Agriculture: A Primer*, by Claudia Copeland.
- <sup>4</sup> For additional information on Superfund and EPCRA, see CRS Report RL30798, *Environmental Laws: Summaries of Statutes Administered by the Environmental Protection Agency*, coordinated by Susan Fletcher, and CRS Report RL33426, *Superfund: Overview and Selected Issues*, by Jonathan Ramseur and Mark Reisch.
- <sup>5</sup> Unlike the citizen suit cases discussed above, these lawsuits do not address what is a “facility,” for purposes of determining whether a release has occurred. EPA also is not a party in any of these cases.
- <sup>6</sup> In 1998, EPA granted an administrative exemption from release reporting requirements for certain radionuclide releases. EPA cited authority in CERCLA sections 102(a), 103, and 115 for granting administrative reporting exemptions where “releases of hazardous substances that pose little or no risk or to which a Federal response is infeasible or inappropriate.” See 63 *Federal Register* 13461 (March 19, 1998).

- <sup>7</sup> National Association of Clean Air Agencies, letter to the Honorable Barbara Boxer, chairman, Senate Environment and Public Works Committee, March 20, 2007.
- <sup>8</sup> Senator Blanche L. Lincoln et al., letter to Michael Leavitt, EPA Administrator, March 12, 2004.
- <sup>9</sup> U.S. Congress, House Committee on Appropriations, *Report accompanying H.R. 2361, Department of the Interior, Environment, and Related Agencies Appropriation Bill, 2006*, H.Rept. 109-80, 109<sup>th</sup> Cong., 1<sup>st</sup> sess., p. 87.
- <sup>10</sup> “Spending Bill Excludes Proposal for Farms; Craig Plans Separate Legislation Next Year,” *Daily Environment Report*, Nov. 23, 2004, p. A-10.
- <sup>11</sup> For information, see CRS Report RL32947, *Air Quality Issues and Animal Agriculture: EPA’s Air Compliance Agreement*, by Claudia Copeland.
- <sup>12</sup> U.S. Senate, Committee on Environment and Public Works, *Environmental Emergency Response Act, Report to Accompany S. 1480*, 96<sup>th</sup> Cong., 2<sup>nd</sup> sess., S.Rept. 96-848, p. 46.

*Chapter 6*

## **HUMANE TREATMENT OF FARM ANIMALS: OVERVIEW AND ISSUES\***

*Geoffrey S. Becker*

### **ABSTRACT**

Animal protection activists in the United States have long sought legislation to modify or curtail some practices considered by U.S. agriculture to be both acceptable and necessary to animal health. Members of Congress over the years have offered various bills that would affect animal care on the farm, during transport, or at slaughter; in 2007 these include H.R. 503, S. 311, H.R. 661, S. 394, and H.R. 1726. Members of the House and Senate Agriculture Committees generally have expressed a preference for voluntary rather than regulatory approaches to humane methods of care.

### **INTRODUCTION**

USDA's Animal and Plant Health Inspection Service (APHIS) is responsible for enforcing the Animal Welfare Act (AWA; 7 U.S.C. 2131 *et seq.*), which requires minimum standards of care for certain warm-blooded animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. However, the act excludes farm animals raised for food and fiber from coverage.

The Humane Methods of Slaughter Act (7 U.S.C. 1901 *et seq.*), enforced by USDA's Food Safety and Inspection Service (FSIS), governs the humane slaughter and handling of livestock (but not poultry) at packing plants. Also, under the so-called Twenty-Eight Hour Law (49 U.S.C. 80502, last amended in 1994), many types of carriers "may not confine animals in a vehicle or vessel for more than 28 consecutive hours without unloading the animals for feeding, water, and rest."<sup>1</sup>

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\* Excerpted from CRS Report RS21978, dated April 18, 2007.

At the state level, laws to prevent deliberate animal cruelty sometimes apply to farm animals, but few states have prescribed on-farm treatment standards. Florida voters in 2002 approved a ballot measure outlawing gestation crates for breeding pigs; Arizona voters did the same, along with a veal stall ban, in 2006. Bills proposing similar bans reportedly were pending in a number of other state legislatures in early 2007.

## **Criticisms of Animal Agriculture Practices**

Many animal protection groups assert that today's intensive farming systems perpetuate standard practices that in their view are harmful to animals' well-being. Examples include:

- Rearing large numbers of livestock or poultry in close confinement with little or no room for natural movement and activity (e.g., housing sows in small gestation crates);
- Isolating veal calves in small crates;
- Performing surgery such as docking hog tails, dehorning cattle, and trimming poultry beaks (so that confined animals do not hurt each other);
- Permitting commercial movement of nonambulatory livestock ("downers") that are disabled due to sickness or injury;
- Not fully stunning poultry (which are not covered by the Humane Slaughter Act) and, sometimes, livestock (most of which are covered) before slaughter;
- Slaughtering horses and other equines for human food.

Some of these groups link intensive animal agriculture with soil and water pollution, food safety problems (e.g., misuse of animal drugs, and foodborne bacterial illnesses), and the decline of smaller-scale, "family" farms. They also believe that if regulators approve future applications of biotechnology — such as animal cloning, genetic alterations to improve productivity, and the use of livestock as "factories" for pharmaceuticals and human organs — animal well-being will be compromised. Some animal rights groups advance the more controversial argument that humans have no right to use animals for any purpose, including for food.

## **Defense of Animal Agriculture Practices**

Farmers and ranchers maintain that they understand their animals' welfare needs and address them adequately. They express concern that efforts by poorly informed critics could lead to the imposition of costly and counterproductive regulations harmful to their industry and the animals alike. Agricultural, food processing, and a number of animal science groups have argued that support for science, education, and voluntary guidelines are more effective ways of assuring animal welfare.

Recognizing that a growing number of customers are concerned about animal treatment, some within the food industry are developing humane animal care guidelines and requiring suppliers to adhere to them. Chains such as McDonald's, Burger King, and Wendy's in the



late 1990s began requiring meat and poultry suppliers to meet certain care standards. In 2001 the Food Marketing Institute, which represents supermarkets, and the National Council of Chain Restaurants began an animal welfare audit program to develop, in cooperation with animal producer groups and animal scientists, more data on animal welfare on farms and in slaughterhouses, and to help their members use it to implement standards of care, with third-party compliance audits. In January 2007, Smithfield Farms, the largest U.S. pork producer, announced that it would require its hog producers to phase out over 10 years the use of sow gestation crates, which, activists have long argued, provide far too little room for an animal to move. Some animal welfare groups contend that the industry standards are not strong or specific enough, and/or are not enforceable.

## IN CONGRESS

Members of Congress have offered various proposals to require changes in the treatment of animals on the farm, during transport, or at slaughter. Members of the House and Senate Agriculture Committees, which generally have jurisdiction over such bills, have held hearings on various farm animal welfare issues, but they generally express a preference for voluntary rather than regulatory approaches to improving animal care.

### Horse Slaughter

Three foreign-owned plants in Texas and Illinois slaughtered nearly 105,000 U.S. horses for human food in 2006, all for export. During respective floor debates on USDA's FY2006 appropriation (H.R. 2744; P.L. 109-97), the House and Senate approved amendments to ban use of appropriated funds to pay for the inspection of these horses. Although conferees retained the funding ban, they added language, not in either floor amendment, delaying its effective date until 120 days following enactment.

The presumption was that since inspection is required for any meat to enter the human food supply, a ban on inspection funding would halt the practice. However, the final House-Senate conference report states: "It is the understanding of the conferees that the Department is obliged under existing statutes to provide for the inspection of meat intended for human consumption (domestic and exported). The conferees recognize that the funding limitation in Section 794 prohibits the use of appropriations only for payment of salaries or expenses of personnel to inspect horses." Subsequently, the three plants petitioned USDA for voluntary ante-mortem inspection services, as authorized by the Agricultural Marketing Act of 1946, with the ante-mortem portion funded by user fees. USDA agreed to this plan, which took effect in early 2006.

Several court decisions in early 2007 reportedly have ended horse slaughter (for human food) in the three plants, at least for the present. On January 19, a federal appeals court panel declared a Texas law banning commerce in horsemeat to be enforceable, effectively closing the two plants there. On March 28, a U.S. district judge ruled that USDA had not followed proper rulemaking procedures in implementing the fee-for-service program (above), and the Illinois plant then also ceased food slaughter operations.<sup>2</sup>

Horse protection groups have sought a legislated ban (which would prevent the plants from reopening) for many years, including bills now pending in the 110<sup>th</sup> Congress (H.R. 503; S. 311). Policy issues focus on the acceptability of the practice and on how to dispose of or care for unwanted horses if such slaughter were no longer permitted.

## **Downers**

In 2005, the Senate-passed version of H.R. 2744 also had included a floor amendment, sponsored by Senator Akaka, to prohibit nonambulatory livestock (also called “downers”) from being used for human food. The Akaka amendment would have applied not only to cattle, but also to any sheep, swine, goats, horses, mules or other equines unable to stand or walk unassisted at inspection. The House version lacked such a ban, and conferees removed the Senate language prior to final passage. The proposal has re-emerged in the 110<sup>th</sup> Congress as S. 394 and H.R. 661. The bills also would require that all nonambulatory livestock be humanely euthanized rather than slaughtered.

Elsewhere, after a cow with bovine spongiform encephalopathy (BSE or “mad cow” disease) was found in December 2003 in Washington State, the Secretary of Agriculture, among other things, administratively invoked an immediate ban on all nonambulatory cattle (considered to be at higher risk for BSE) from slaughter establishments. The number of such animals at the time was estimated by the Secretary to be 150,000-200,000 out of the 35 million U.S. cattle slaughtered yearly. Officials did note that animals can become unable to walk for non-BSE reasons such as broken bones, and they are not necessarily hazardous to the food supply.<sup>3</sup>

Some officials had argued that a downer ban could be deleterious both to food safety and to animal disease prevention. This argument has contended that euthanizing and removing downed animals before arrival at a federally inspected slaughterhouse could deny USDA veterinarians the opportunity to see and evaluate them for safety and disease purposes. In response, USDA officials said they have been working more closely with the industry to collect samples on the farm, at rendering facilities, and other places. Meanwhile, many animal protection advocates believe a legislated downer ban is still necessary to attain animal welfare benefits — not only for cattle but for other farm-raised livestock not covered by the Secretary’s BSE-related ban.

## **Humane Slaughter**

With FSIS under criticism for what some said was lax enforcement of the humane slaughter act, lawmakers included, in the 2002 farm law (P.L. 107-171, Section 10305), a resolution urging USDA to fully enforce the act and to report the number of violations to Congress annually. Since then, committee reports accompanying several annual USDA appropriations measures have earmarked millions of dollars to FSIS for full-time inspectors to oversee compliance, and for incorporation of a humane activities tracking system into the agency’s field computer systems. In the 102<sup>nd</sup> through 104<sup>th</sup> Congresses, legislative proposals were introduced to include poultry under the humane slaughter act, but no action was taken on them.

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## Federal Procurement Standards

A proposal in 2006 that did not pass but has been reintroduced into the 110<sup>th</sup> Congress as H.R. 1726 would have required the federal government to purchase products derived from animals only if they were raised according to humane standards (i.e., had adequate shelter with sufficient space to walk and move around with limbs fully extended, had adequate food and water with no starvation or force-feeding, and had adequate veterinary care).

## Animal Enterprise Terrorism Act

The President signed a bill, passed late in the 109<sup>th</sup> Congress, creating stronger penalties for both violent and non-violent “terrorist” actions against animal enterprises, including ranching and farming (P.L. 109-374).

## ENDNOTES

- <sup>1</sup> See also CRS Report RS22493, *The Animal Welfare Act: Background and Selected Legislation*, by Geoffrey S. Becker; CRS Report 94-731, *Brief Summaries of Federal Animal Protection Statutes*, by Henry Cohen; and the USDA’s Animal Welfare Information Center, [[http://riley.nal.usda.gov/nal\\_display/index.php?tax\\_level=1&info\\_center=3&tax\\_subject=170](http://riley.nal.usda.gov/nal_display/index.php?tax_level=1&info_center=3&tax_subject=170)].
- <sup>2</sup> “Ruling effectively bans slaughtering horses for export,” *The Courier-Journal*, Louisville, KY, March 31, 2007. USDA’s Food Safety and Inspection Service confirmed in an April 9, 2007, e-mail that the three plants are no longer slaughtering horses for human consumption. See also CRS Report RS21842, *Horse Slaughter Prevention Bills and Issues*, by Geoffrey S. Becker.
- <sup>3</sup> See also CRS Report RL33037, *Bovine Spongiform Encephalopathy (BSE or “Mad Cow Disease”): Current and Proposed Safeguards*, by Sarah A. Lister and Geoffrey S. Becker.



*Chapter 7*

## **ANIMAL IDENTIFICATION AND MEAT TRACEABILITY\***

*Geoffrey S. Becker*

### **ABSTRACT**

Many animal producers support establishment of a nationwide identification (ID) system capable of quickly tracking animals from birth to slaughter. While they believe such a system is needed to better deal with animal diseases or meet foreign market specifications, some consumer groups and others believe it also would be useful for food safety or retail informational purposes — and that the program should be able to trace meat products through processing and consumption.

However, despite years of effort on at least an animal ID program for disease purposes, many contentious issues remain unresolved. For example, should it be mandatory or voluntary? What types of information should be collected, on what animal species, and who should hold it, government or private entities? How much will it cost, and who should pay?

Following the first U.S. report of a cow with BSE (bovine spongiform encephalopathy or “mad cow disease”) in late December 2003, the Secretary of Agriculture promised to take the lead in implementing an animal ID program capable of identifying all animals of interest within 48 hours of a disease discovery (BSE or other). The U.S. Department of Agriculture (USDA) has committed, through FY2006, \$85 million to this effort, and all states now have systems for registering animal premises.

Some industry groups and lawmakers have criticized USDA for moving too slowly and/or not providing a clearer path toward a universal ID program. Others believe that USDA’s progress to date simply reflects the deep divisions among producers and other interests over the many unresolved questions. A few livestock producers oppose any effort to establish broader programs, fearing they will be costly and intrusive.

The 109<sup>th</sup> Congress was asked to address these issues. A provision in the House-passed USDA appropriation for FY2007 (H.R. 5384) would have conditioned another

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\* Excerpted from CRS Report RL32012, dated January 18, 2007.

\$33 million in spending for animal ID on publication in the *Federal Register* of a “complete and detailed plan” for the program, “including, but not limited to, proposed legislative changes, cost estimates, and means of program evaluation.” However, a House floor amendment to prohibit all ID program funding was defeated by a wide margin. A final FY2007 appropriation had not been passed by mid-January 2007, and USDA programs were operating under a continuing resolution.

Other bills included H.R. 1254, the National Farm Animal Identification and Records Act, H.R. 1256, to limit animal ID information disclosure, and H.R. 3170, creating a private Livestock Identification Board to oversee the program. The continuing differences over animal ID make it more likely that the topic will be part of the 2007 debate over a new omnibus farm bill.

## OVERVIEW

U.S. animal agriculture wants to improve its ability to trace the movement of livestock from their birthplace to slaughter. Some advocates also want such traceability to reach all the way to the final consumer. Is a national system needed? Should it be mandatory? What would it cost, and who pays?

The livestock and meat industries have discussed these questions for some time, and an industry-government working group was developing a national animal identification (ID) plan for livestock disease tracking purposes. The group stated that the health of U.S. herds was “the most urgent issue” and “the most significant focus” of its proposed plan.<sup>1</sup>

National interest intensified in the wake of such developments as the discovery in 2003 of bovine spongiform encephalopathy (BSE or “mad cow disease”) in North America, and ongoing concerns about bioterrorism. Debate over a law requiring retail country-of-origin labeling (COOL) for meats and other products also has fueled interest in increased animal ID capabilities (but was not a focus of the industry-government working group). In 2007, the need for, and design of, an animal ID program will be a topic during debate on a new omnibus farm bill.

This chapter covers animal ID and, to a lesser extent, meat traceability. However, traceability, and the somewhat different but related concepts of “identity preservation” and “product segregation,” also pertain to other agricultural products (e.g., grains) and issues (e.g., genetically modified, or GM, crops; the labeling of GM foods; and the production and labeling of organic foods). Several sources cited below, including the U.S. Department of Agriculture’s (USDA’s) Economic Research Service (ERS) and *Choices* articles (see footnote 1) and a 2002 Sparks study (see footnote 5), cover traceability in more breadth.

## WHAT ARE ANIMAL IDENTIFICATION AND MEAT TRACEABILITY?

*Animal ID* refers to the marking of individual farm animals, or a group or lot of animals, so that they can be tracked from place of birth to slaughter. Many producers already know, and keep records on, the identities of each animal. In addition, many animals have been identified as part of official disease eradication or control programs. However, no nationwide

U.S. marking system, backed by universal numbering and a central data registry, is in place yet.

Animal ID is one component of *meat traceability*. Traceability is the more comprehensive concept of tracking the movement of identifiable products through the marketing chain. An extensive form of meat traceability is the ability to follow products forward from their source animal (i.e., birth or ancestry), through growth and feeding, slaughter, processing, and distribution, to the point of sale or consumption (or backward from the consumer to the source animal). Traceability can be used to convey information about a product, such as what it contains, how it was produced, and every place it has been.

Animal ID and meat traceability are not themselves food safety, animal disease prevention, quality assurance, or country-of-origin labeling programs. However, they may be important components of such programs.

## **REASONS FOR ANIMAL IDENTIFICATION AND MEAT TRACEABILITY**

### **Commercial Production and Marketing Functions**

Animal producers and food suppliers already have at least some capacity for tracing products. Many farmers and ranchers keep track of individual animals and how they are being raised. Traceability can help them to identify and exploit desirable production characteristics, such as animals that can grow more rapidly on less feed or that yield a better cut of meat. Universal bar codes on processed food, including many meats, are widely used for tracking. Traceability helps to coordinate shipments, manage inventories, and monitor consumer behavior. Some consumers prefer meat (or eggs or milk) from animals raised according to specified organic, humane treatment, or environmental standards. Traceability can help firms to separate, and keep records on, these unique products to verify production methods. However, in the commercial market, producers benefit (and will provide such products) only to the extent that demand exists.

### **Animal Health**

Animal ID can help to track down more quickly the source of diseases in U.S. herds (or flocks) in order to determine their origin and cause, eradicate them, and prevent their spread. In the growing global marketplace, surveillance and containment, aided by a traceability system, can both reassure foreign buyers about the health of U.S. animals and help to satisfy other countries' sanitary and phytosanitary (SPS) import requirements. When used in animal health programs, ID and tracing systems are likely to have both commercial and regulatory dimensions. USDA's Animal and Plant Health Inspection Service (APHIS) is the lead federal agency charged with protecting U.S. animal populations from diseases and pests. APHIS works cooperatively with foreign and state animal health authorities and with the private sector in such efforts.

## Food Safety

USDA's Food Safety and Inspection Service (FSIS) is responsible for protecting the public against unsafe meat and poultry. The Food and Drug Administration (FDA) oversees the safety of all other foods and also regulates animal feeds. Both collaborate with APHIS and other federal and state agencies to protect the food supply from the introduction, through animals, of threats to human health, such as tuberculosis; the four major bacterial foodborne illnesses, *Campylobacter*, *Salmonella*, *Listeria*, and *E. coli* O157:H7; and the human form of BSE, a very rare but fatal one known as variant Creutzfeldt-Jakob Disease (vCJD). Generally, when local health officials can link an illness to a particular product, firms and their regulators have been able to trace that product back to the processor and/or slaughter facility. It is more difficult and costly, though technically feasible, to determine which particular animals, herds, or flocks were the source of the problem. A rigorous traceback and animal ID system would not prevent safety problems (process controls, testing, and other science-based food safety regimes are intended to do that), but it could facilitate recalls, possibly contain the spread of an illness, and help authorities stem future incidents, according to some analysts. Besides building public confidence in the U.S. food safety system, improved traceability may enable firms to limit their legal and financial liabilities, it has been argued. Thus food safety also has both commercial and regulatory dimensions.<sup>2</sup>

## Country-of-Origin Labeling

Section 10816 of the 2002 farm bill (P.L. 107171) requires many retailers to provide country-of-origin information on a number of raw products, including fresh and ground beef, pork, and lamb (produce, seafood, and peanuts also are covered). USDA was to implement the requirement by September 30, 2004; until then COOL was voluntary. However, the consolidated FY2004 omnibus appropriation (P.L. 108-199) postponed mandatory COOL for two years for all covered commodities, except farmed fish and wild fish, to September 30, 2006. Congress postponed it again, until September 30, 2008, in the FY2006 agriculture appropriation (P.L. 109-97).

Once the 2002 COOL law is implemented, meats labeled as U.S. origin would have to come from animals that are born, raised, and slaughtered in the United States. The COOL law prohibits USDA from establishing a mandatory ID system to verify country of origin, but it does permit USDA to require persons supplying covered commodities to maintain a "verifiable audit trail" to document compliance. Some analysts have concluded, therefore, that COOL could spur efforts to trace red meats back to their birth animals. (Poultry is not covered by the COOL law.)<sup>3</sup>

## EXISTING U.S. PROGRAMS

Animal ID dates back at least to the 1800s, when hot iron brands were used throughout the West to indicate ownership. The methods of (and reasons for) identifying and tracking animals and their products have evolved since then and, as noted, are employed for both commercial and regulatory purposes.



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## **Animal Health**

By the mid-1900s, APHIS and its predecessor agencies were using tags, tattoos and brands more widely, mainly to identify, track, and remove animals affected by disease outbreaks. Current ID methods include ear, back, and tail tags; neck chains, freeze brands, and leg bands. Some producers use radio frequency ID (RFID) transponders with information that is read by scanners and fed into computer databases. For interstate swine movements, mandatory ID requirements have been in place since 1988 for disease control purposes. Most hogs are tracked by group, not individually, and most slaughter plants can identify the owners of the animals under this system. Sheep moved across state lines also are required to be identified.

Brucellosis is a highly contagious and costly disease mainly affecting cattle, bison, and swine. Once it was common in the United States, and uniquely numbered brucellosis ID tags were routinely found on animals, with information that they had been vaccinated and/or tested. Today brucellosis has largely been eradicated in commercial U.S. herds. APHIS also has eradication or control programs for tuberculosis, scrapie in sheep, pseudorabies in swine, Texas fever and scabies in cattle, and several poultry diseases, including Exotic Newcastle Disease (END). In each of these programs, APHIS has established rules and procedures to identify and track animals, herds, or flocks back to their origin, if necessary.

## **Marketing**

Government-coordinated programs have been established for other purposes besides animal health. For example, a voluntary process verification program operated by USDA's Agricultural Marketing Service (AMS) "provides livestock and meat producers an opportunity to assure customers of their ability to provide consistent quality products by having their written manufacturing processes confirmed through independent, third party audits," according to AMS. USDA Process Verified suppliers can have marketing claims such as breeds, feeding practices, or other claims verified by USDA and marketed as "USDA Process Verified." Other programs employing varying levels and types of traceability include the domestic origin requirement of all suppliers of USDA-purchased commodities and products used in such programs as school lunch and food distribution to needy families and institutions, and the national organic certification program.<sup>4</sup>

## **NEED FOR IMPROVED ID CAPABILITIES**

Together, the above activities might be viewed as a national ID system, but there are significant gaps. Generally, as disease programs succeed, fewer animals receive tags. The animal ID working group reported that fewer than 4 million U.S. calves (about 10% of the total) were being vaccinated for brucellosis and tagged (only female calves are vaccinated). Also, existing ID programs may provide only limited information — for example, not all of an animal's movements between the farm and slaughterhouse may be documented.<sup>5</sup> None of the programs were set up to denote place of birth, analysts say.

Although U.S. regulators and producers usually can locate where a product was processed or the movements of many farm animals, it can be tedious and time-consuming, taking weeks or months in some situations. That's because the different animal ID and traceability systems now in place have been implemented independently of each other, may be "paper trails" which take time to follow, have divergent and sometimes conflicting purposes, and collect disparate types of information, according to industry experts.

The limitations of existing animal ID were tested after several U.S. cases of BSE emerged. The first case, in December 2003, was a Holstein dairy cow with a metal ear tag containing an identifying number. That helped authorities to more quickly trace its likely movements and origin, to a herd in Alberta, Canada. Dairy farmers often have more extensive information about individual animals for milk production, breeding, feeding, and related purposes.

However, six weeks later, U.S. authorities announced that they had ended their BSE field investigation after identifying only 28 of 80 cows that had entered the United States from Canada with the BSE cow. An international expert panel, asked by USDA to review its handling of this first U.S. BSE case, warned that USDA's failure to find every animal "is a problem faced by all countries which do not have an effective animal traceability system." It encouraged "the implementation of a national identification system that is appropriate to North American farming."<sup>6</sup>

Announcing the end of an investigation into the second U.S. BSE case (in a Texas-born cow that died in November 2004), Secretary Johanns again lamented the lack of a national ID system: the investigation "would have taken far less than two months" if a system were in place, a significant matter "because a number of trading partners have been reluctant to make decisions until the investigation is complete."<sup>7</sup> Investigators also were unable to trace back earlier locations and herd mates of a third BSE case, an Alabama beef cow found in February 2006, at a time of delicate market-reopening discussions with both the Japanese and Koreans.

## **DEVELOPMENT OF A NATIONAL PLAN**

Work toward a coordinated national animal ID system began in earnest in the early 2000s with the formation of the National Food Animal Identification Task Force, facilitated by the National Institute for Animal Agriculture (NIAA). This evolved into a larger, joint industry-government-professional effort whose principal goal was the ability to trace animals of interest within 48 hours of an animal disease problem.

USDA eventually assumed the lead in planning the system, and has provided funding toward its establishment. Despite — some say because of — USDA's direction, some livestock producers and their organizations complained that the Department was beset by indecision, progressed much too slowly, and/or had sown considerable confusion about what type of program was evolving.<sup>8</sup> On the other hand, USDA's actions may simply have been reflecting the continuing divergence of opinion within animal agriculture itself over the best policy approach. A number of producers also were becoming more vocal about what they viewed as a threat to the privacy of their farm and financial records, particularly out of concern that participation in animal ID could become mandatory.

## Early Steps

The NIAA-facilitated work by the National Food Animal Identification Task Force led to a draft plan presented to, and accepted by, the U.S. Animal Health Association (USAHA, representing state veterinarians and allied industry groups) in October 2002. USAHA next asked APHIS to organize a government-industry team (named the National Identification Development Team) to develop a more detailed animal ID system, using the work plan as a guide, including a timetable, for presentation at and approval by the USAHA meeting in October 2003. The task force utilized more than 100 professionals from approximately 70 agencies and organizations, led by an eight-person steering committee.

A “U.S. Animal Identification Plan (USAIP)” published in December 2003 stated in part: “Maintaining the health of the U.S. animal herd is the most urgent issue for the industry and is the focus of the plan.” A key goal has been the ability to identify all animals and premises potentially exposed to a foreign animal disease within 48 hours of its discovery. The plan called for recording the movement of individual animals or groups of animals in a central database or in a “seamlessly linked” database infrastructure. APHIS roles would be to allocate premises and animal numbers, and to coordinate data collection, to be used for animal disease purposes only.

The proposed work plan envisioned by USAIP had first called for all states to have a premises identification system by July 2004. Such a system could identify individual animal premises (e.g., farm, feedlot, auction barn, assembly point, processing plant) and provide each with a unique ID number. Among other steps in the plan, all cattle, swine, and small ruminants were to possess individual or group/lot identification for interstate movement by July 2005. All animals of the remaining species/industries were to be in similar compliance by July 2006. USAIP stated that animal ID should be available for “all animals that will benefit from having a system to facilitate rapid traceback/traceout in the event of disease concern.”

## USDA Takes the Lead

As this last draft USAIP was being published, BSE was discovered in a Washington state cow. Then-Secretary of Agriculture Veneman announced, on December 30, 2003, a series of initiatives aimed at restoring public and foreign confidence in the safety of U.S. beef and cattle. One of these initiatives was to be the accelerated implementation of a verifiable system of national animal identification.

In April 2004, USDA announced its “framework” for a national system, and then transferred \$18.8 million from its Commodity Credit Corporation account to APHIS to begin implementation. On June 16, 2004, USDA provided nearly \$12 million of the total for cooperative agreements with states and tribal governments, to begin registering premises and to conduct research and data collection.<sup>9</sup>

USDA asked Congress for, and received, approximately \$33 million for its animal ID activities in each of FY2005 and FY2006. Another \$33 million request for FY2007 was pending in late November 2006 (see “Legislation” at the end of this report).

By August 2005, all states had the capability of registering animal premises; by late November 2006, they had registered more than 332,000 premises, out of an estimated 1.4 million sites with livestock and/or poultry, according to USDA.

The Department's National Animal Identification System (NAIS) "builds upon aspects of the USAIP and is the program that USDA is moving forward with in implementing national animal and premises identification. USDA will continue to seek industry input as the NAIS progresses," it declared.

### **USDA's First Draft Strategic Plan**

On May 5, 2005, USDA had released for public comment a draft strategic plan, including timelines, for achieving a nationwide program. For example, the draft had proposed requiring stakeholders to identify premises and animals according to NAIS standards by January 2008, and requiring full recording of defined animal movements by January 2009. USDA stressed, however, that formal rulemaking would precede any mandatory program if it became necessary.

### **USDA's Animal ID "Guiding Principles"**

With criticism mounting over the pace and direction of USDA's efforts, officials apparently modified their thinking on a national program. On August 30, 2005, Secretary Johanns announced four "guiding principles" for a national ID system:

- It must be able to allow tracking of animals from point of origin to processing within 48 hours without unnecessary burden to producers and other stakeholders.
- Its architecture must be developed without unduly increasing the size and role of government.
- It must be flexible enough to utilize existing technologies and incorporate new identification technologies as they are developed.
- Animal movement data should be maintained in a private system that can be readily accessed when necessary by state and federal animal health authorities.

This latter point was perhaps the most significant. It appeared to signal USDA's awareness of growing concerns among many producers regarding the collection and use of what they view as their private production information. Subsequently, federal officials revealed that they were now contemplating not a single tracking system, but rather "a metadata repository that USDA would develop and maintain; this potentially will allow us to work with multiple databases collecting information on animal movement."<sup>10</sup> In the event of a disease incident, APHIS would send inquiries only to those databases with relevant information on those particular animals, officials explained.

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## USDA's April 2006 Implementation Plan<sup>11</sup>

On April 6, 2006, Secretary Johanns unveiled a plan outlining what he characterized as an “aggressive timeline for ensuring full implementation of the NAIS by 2009.” The timeline included “benchmarks for incrementally accomplishing the remaining implementation goals to enable NAIS to be operational by 2007,” the Secretary noted. As he had indicated in the past, the national system would be a series of state or privately held databases that USDA could tap in the event of an animal disease event.

## USDA's Current Thinking

In November 2006, USDA distributed a draft “user guide,” which, it stated, is “the most current plan for the NAIS and replaces all previously published program documents, including the 2005 Draft Strategic Plan and Draft Program Standards and the 2006 Implementation Strategies.”<sup>12</sup> The document seeks to assure producers that USDA will not require them to participate in the program, and that it is bound by law to protect individuals’ private and confidential business information. The draft user guide describes three successively greater steps toward full participation, if a producer chooses to do so:

- Premises registration, which can be done through state (or tribal) animal health authorities;
- Animal identification, accomplished by obtaining USDA-recognized numbering tags or devices from representatives of authorized manufacturers;
- Selection of an animal tracking database (ATB) that the producer will use to report animal movements.

Among other noteworthy aspects of the evolving NAIS, as described by the guide:

- Animal species to be covered will include cattle and bison; poultry; swine; sheep and goats; cervids such as deer and elk; horses and other equines; and camelids (e.g., llamas and alpacas). Household pets and other animals not listed here are excluded from NAIS.
- Animals that typically are moved in groups or lots — such as hogs and poultry — would not have to be individually identified.
- Only animals that enter commerce or that commingle with animals at other premises (like sales barns, state or national fairs or exhibits) would be identified.
- The ATBs will be privately held and managed.
- Producers do not have to pay for premises registration, but they would be responsible for the cost of ID devices.

## **Status of Premises Registration**

As of mid-January 2007, APHIS reported that approximately 348,000 premises with animals had been registered in one of the available databases. This represented nearly a fourth of the estimated 1.4 million livestock and poultry farms in the United States (based on 2002 Census of Agriculture data). Registration rates vary widely among states: in December 2006, for example, Idaho was at more than 95% and Indiana was at more than 70%, while Kansas was at 11% and Texas was at 12%.<sup>13</sup>

## **Private Sector Plan?**

The National Cattlemen's Beef Association (NCBA) in 2005 had announced that it would take the lead on a privately-held ID system that could track cattle and other animal species. The United States Animal Identification Organization (USAIO) formed under NCBA auspices in January 2006. USAIO is "... managing the industry-led animal movement database in accordance with the NAIS and is working with every segment of the animal industry and animal health authorities to provide an effective, efficient, and inexpensive database for the NAIS."<sup>14</sup> Some Members of the House Agriculture Committee also called on USDA to implement a private sector-based system. Complaining that the department had so far failed to consider a private system, these members noted: "This is unfortunate because experience suggests that private-based systems have allowed other nations to implement ID systems swiftly and inexpensively while still maximizing the benefit to producers and the utility for government regulators."<sup>15</sup>

Not everyone has endorsed the private approach. R-CALF United Stockgrowers of America, representing some cattle producers, issued an August 31, 2005, statement asserting that protecting U.S. animal health has national security and public accountability dimensions that should not be ceded to the private sector.

## **OTHER SELECTED ISSUES**

### **Mandatory or Voluntary?**

The original USAIP draft plan did not explicitly call for a mandatory program. The USAIP website had stated in part: "Ultimately there needs to be full compliance for the system to work as effectively as it should." Until recently, USDA's approach had been to first work on a voluntary system and then reassess the need for making some or all aspects of it mandatory. However, according to the Department's latest thinking on the NAIS (see above), "Participation in NAIS is voluntary at the Federal level.... The NAIS does not need to be mandatory to be effective."

Others, including many state animal health officials, reportedly disagree. At meetings in October 2006, the National Assembly of State Animal Health Officials and the U.S. Animal Health Association's livestock committee each approved a recommendation that, as a step toward a national system, USDA make animal ID mandatory for all U.S. breeding cattle.<sup>16</sup>

The Center for Science in the Public Interest (CSPI), a consumer advocacy group, also has pressed for a mandatory national system and criticized USDA for its “lack of commitment to getting a viable system in place.”<sup>17</sup>

## Costs and Who Pays

An animal ID system will incur a variety of costs, such as for tags or other identifying devices and their application; data systems to track animals; and any government administrative expenses. To date, cost estimates of a national system have varied broadly — and are not directly comparable. This disparity is a reflection of estimators’ differing assumptions and of the varying designs of the programs being considered.

For example, the earlier USAIP draft estimated that once a national ID program is fully in place, costs might approximate \$122 million annually, with ID tags accounting for nearly \$100 million of that amount. In the earlier years of the plan during the implementation phases, system development costs would be higher, but ID tag expenses lower.<sup>18</sup> These estimates apparently are for the cost of a multi-species plan. Elsewhere, the “National FAIR Fact Sheet” estimates that its cattle program would cost \$540 million over a five-year period. This would include the costs of initial tagging of all newborn bovines and subsequent tagging of animals as movements warrant. The first-year cost would be \$175 million, FAIR also estimated.<sup>19</sup>

As the extent of traceability increases, so do likely costs. Animal ID *prior* to slaughter, and product tracking *after* slaughter and processing, generally are available (and are often used), industry observers agree. However, the meat industry essentially has argued, notably in the context of COOL, that linking the two systems will be difficult and costly. Industry officials said new costs will be incurred in identifying and segregating animals, physically reconfiguring plants and processing lines, and labeling and tracking the final products.

Several studies have estimated total industry COOL costs for the cattle and beef sectors alone at between \$1-\$3 billion; others have estimates above and below this range.<sup>20</sup> One company estimated a minimum investment of \$20-25 million per plant to ensure compliance.<sup>21</sup> Others challenge these costs; a recent study estimated COOL recordkeeping costs for all covered commodities (produce, seafood, and peanuts as well as meats) at \$70-\$193 million annually — less than one-tenth of a cent per pound based on U.S. consumption.<sup>22</sup>

A related policy question is who should pay. Producer groups suggest that government should share costs with industry. Without at least some public support, the burden could be passed to farmers and ranchers in the form of lower prices for their animals, and/or forward to consumers in the form of higher meat prices, they argue, adding that the industry would become less competitive. USAIP observed:

It is well acknowledged that costs associated with the USAIP will be substantial and that a public/private funding plan is justified. Significant state and federal costs will be incurred in overseeing, maintaining, updating, and improving necessary infrastructure. Continued efforts will be required to seek federal and state financial support for this integral component of safeguarding animal health in protecting American animal agriculture.<sup>23</sup>

It could be argued, on the other hand, that the need to control federal spending should take precedence over public funding for an animal ID program, and that the industry, a primary beneficiary, should shoulder most if not all of the costs. Certain animal ID bills introduced into the 108<sup>th</sup> and 109<sup>th</sup> Congress proposed appropriations for a program; some also proposed financial assistance to producers to help them comply.

USDA's November 2006 draft user guide (see above) calls for shared expenses among the federal government, states, and industry, with producers paying for ID devices themselves. It estimated the cost to be \$1 for each visual ID tag, \$2-\$3 for devices with radio frequency transponders, and \$15-\$20 for electronic ID devices that are injectable (e.g., for horses). USDA did not provide cost estimates for participating in the tracking databases. It said that these costs could vary depending partly upon whether producers chose to use these privately maintained databases for additional services. (An example might be birth/age/process verification which some buyers might request to back a labeling or marketing claim.)

In Canada, which has far fewer cattle than the United States, the cattle ID program was developed and implemented for less than \$4 million (Canadian dollars), according to an official there. The total annual cost of the program since then has been approximately C\$1 million per year, including database management, communications, and other administrative costs. Producers buy the tags from retailers of farm supplies, veterinarians, and other industry organizations, and pay for their own tagging and recordkeeping. The cost of bar-coded ID tags ranged from C\$0.80 to C\$1.60 each. Canada is now moving to an RFID system, with an estimated cost of approximately C\$2.00 per animal.<sup>24</sup>

## **Liability and Confidentiality of Records**

Some producers are concerned they will be held liable for contamination or other problems over which they believe they have little control once the animal leaves the farm. On the other hand, documentation of management practices, including animal health programs, can help to protect against liability because they can prove where animals came from and how they were raised.<sup>25</sup>

Another issue is whether producers can and should be protected from public scrutiny of their records. The federal Freedom of Information Act (FOIA) entitles members of the public to obtain records held by federal agencies. Some producers are concerned, for example, that animal rights extremists might use FOIA to gain information collected by USDA to find and damage animal facilities. However, the law exempts from FOIA access to certain types of business information, such as trade secrets, commercial or financial information, or other confidential material that might harm the private provider of that information.

The evolving ID system would limit government's role to obtaining disease information only. "Animal movement records will be securely held in animal tracking databases owned, managed, and controlled by the private sector or the States," USDA's November 2006 draft user guide states. "Animal health officials will only request animal movement information from these databases when there is a risk to animal health — such as an outbreak of avian influenza, brucellosis, or tuberculosis."

Still, some in the industry worry about government intrusion into their business practices generally. That is why they prefer the use of a private third party, rather than USDA, to



collect and maintain animal data (and why others want no new program). Any agreement between USDA and a private entity would have to clearly stipulate the conditions for use of the information, they assert. Several proposed bills have called for more explicitly shielding animal ID data from public scrutiny.<sup>26</sup>

## Industry Structure

How might traceability costs affect the industry's ability to produce an economically competitive product, and which segments could bear most of the costs? It has been argued that, as more tracing requirements are imposed, large retailers and meat packers will exercise market power to shift compliance costs backward to farms and ranches, making it even more difficult for the smaller, independent ones to remain in business. Larger, more vertically integrated operations are more likely to have the resources and scale economies to survive, some have argued. On the other hand, if traceability costs forced big meat plants to reduce line speeds, "... smaller plants with slower fabrication speeds may be better equipped to implement traceability to the retail level and may find niche market opportunities," Clemens and Babcock wrote.

## Foreign Trade Concerns

Improved traceability is viewed as important for maintaining foreign market access. According to the November 2002 version of the *National Identification Work Plan*, "Other countries are rapidly developing systems that are already being used as technical barriers to trade. These systems are rapidly becoming the world standard. To avoid the loss of international markets, the United States needs to be consistent with the animal tracking systems of our international trading partners... . As our export potential grows, the need to quickly trace suspected foreign or emerging diseases will be more important than ever."

When Canada in May 2003 discovered BSE in one of its cattle (but before the United States found its own case seven months later), Japanese officials said they would require proof that beef shipped from the United States was not of Canadian origin. Japan had been the United States' number one foreign market, purchasing 36%-37% of all U.S. beef exports in recent years (USDA data). (Japan also has been the top importer of U.S. pork.) This Japanese requirement had complicated U.S. deliberations on whether and when to reopen its own border to Canadian beef and/or cattle and other ruminants.

Hoping to satisfy Japanese demands for verification of origin, the department unveiled in August 2003 a new "Beef Export Verification" (BEV) program as a voluntary, user-fee funded service. Exporters desiring to sell beef to Japan could request certification from AMS.<sup>27</sup> However, after the December 23, 2003, USDA announcement of a U.S. BSE cow, Japan was among the many countries suspending imports of U.S. cattle, beef, and related products.

After two years of often difficult negotiations, the Japanese market briefly reopened in late 2005 for some U.S. beef, if it was from plants meeting special Japanese requirements and so certified by AMS.<sup>28</sup> The agency also widely offered such export verification (EV) services to U.S. plants seeking to meet the import specifications of other countries besides Japan, and

this EV continues. The Japanese in January 2006 again blocked all U.S. beef after finding some ineligible beef products (i.e., veal with bone) from one of the EV certified plants. Exports of some beef products to Japan again resumed later in 2006 (the Koreans in late 2006 ostensibly opened their market to some U.S. beef as well).<sup>29</sup>

Separately, an international team that had examined Canada's BSE response emphasized the need for mandatory ID, and the team observed that the lack of such a system prior to Canada's adoption of one in 2001 "contributed to the need for extended [herd] depopulations." Some 2,800 animals there were killed.

The *European Union (EU)*, where BSE cases have been concentrated (most in the United Kingdom), now has extensive mandatory programs.<sup>30</sup> All cattle born or moved across EU state lines as of 1998 must be tagged with a unique registration number. EU states must maintain computerized databases that note births, movements, and deaths, among other information. As of January 1, 2002, all EU beef products must have labels indicating the country or countries where the animal was born, raised, and processed, including reference numbers tying the meat to an animal or group of animals, and to individual slaughterhouses.

Other obstacles already keep most U.S. beef out of Europe. However, other beef importers and exporters are moving toward national ID, and some toward meat traceability, generally starting with cattle. *Japan* instituted full traceability for its domestic beef industry, largely in response to its first BSE cases. In December 2001, Japan began tagging all beef and dairy cattle and developed a database to track each animal's birth and movement.

*Canada* can identify most individual cattle. Although Canadian cattle movements per se do not have to be documented, each animal must receive a unique tag when it leaves its herd of origin, which is collected at slaughter. The compulsory animal ID program, which applies to all bovine and bison, began in 2001. Officials assert that their program provided much of the information on Canadian cattle movements in both the Canadian and U.S. BSE investigations (although some critics argued that data gaps made the program less effective than it could have been in identifying all suspect animals).<sup>31</sup>

*Australia*, like Canada another major U.S. export competitor, has a system to identify all cattle, and uses carcass and boxed meat labeling procedures that, it claims, can trace meat back to the animal's origin. Australia has been moving toward a fully integrated program linking animal electronic ID devices, product barcoding, and a central electronic database. *New Zealand* has implemented cattle ID.

## LEGISLATION

USDA has claimed broad authority, under the Animal Health Protection Act (AHPA; 7 U.S.C. 8301 *et seq.*) to implement an animal ID program, presumably making new legislation unnecessary. Some, however, believe that the AHPA might limit USDA's options. For example, does it empower the Department to require producers to report data to a private entity?

Several bills have been offered in recent years aimed at clarifying USDA's authority and/or spelling out what type of program should be established. Congress also has played an important role by providing funding for animal ID and placing conditions on use of that funding.

A number of policy options, possibly including legislative alternatives introduced in the past, are expected to be discussed in the *110<sup>th</sup> Congress*. A likely venue for these discussions is House and Senate Agriculture Committee work in 2007 on a new omnibus farm bill. The new chairman of the House Agriculture Committee, for example, has been the chief sponsor of legislation (including H.R. 1254 in the 109<sup>th</sup> Congress) to mandate a program.

In the *109<sup>th</sup> Congress*, several animal ID bills were offered. H.R. 1254 would have amended the AHPA to require USDA to establish a mandatory program for all farm-raised animals, and authorized federal appropriations to fund it. Another bill (H.R. 1256) would have amended the AHPA to exempt certain information collected under an animal ID program from FOIA disclosure. Meanwhile, H.R. 3170 would have established a privately governed Livestock Identification Board to create and implement a mandatory system.

With regard to funding, both the Senate-reported and House-passed versions of the USDA appropriation for FY2007 (H.R. 5384) would have funded the Administration's budget request for another \$33 million for animal ID development. However, the House version conditioned use of the money on the Secretary first providing the House Appropriations Committee with a "complete and detailed plan" for the program, "including, but not limited to, proposed legislative changes, cost estimates, and means of program evaluation, and such plan is published as an Advanced Notice of Proposed Rulemaking in the *Federal Register* for comment by interested parties." The accompanying House report (H.Rept. 109-463) expressed concern about the ID program's progress and transparency. The accompanying Senate report (S.Rept. 109-266) asked the Government Accountability Office to review USDA's steps toward establishment of a program, and it also emphasized that the Department should work with private industry on animal ID. The House and/or Senate reports also directed that various amounts be allocated to a number of specified ongoing ID pilot programs. Final action was uncertain as of mid-January 2007; USDA and its programs were operating under a continuing resolution at that time.

During the full House's consideration of H.R. 5384, a floor amendment by Representative Paul to prohibit all funding for the animal ID program was defeated by a vote of 34 to 389. Withdrawn, on a point of order, was a King amendment to create a mandatory but privately administered animal ID system. The amendment paralleled his bill (H.R. 3170) to do the same.

In the *108<sup>th</sup> Congress*, a number of proposals to establish animal ID programs were introduced but not passed, including S. 1202/H.R. 3546, the Meat and Poultry Products Traceability and Safety Act of 2003; S. 2007/H.R. 3714 [Section 5(b)], the Ruminant Identification Program; S. 2008, the National Farm Animal Identification and Records Act; H.R. 3787, also titled the National Farm Animal Identification and Records Act; H.R. 3822, the National Livestock Identification Act; and S. 2070/H.R. 3961, the United States Animal Identification Plan Implementation Act.

In the *107<sup>th</sup> Congress* and the *first session of the 108<sup>th</sup> Congress*, much of the debate over the costs and benefits of expanded animal ID and meat traceability occurred within the context of COOL. Panels of both the House and Senate Agriculture Committees held hearings on COOL implementation. In reviewing the COOL issues, lawmakers learned more about how animal ID systems could be used for other purposes, most notably to find and eradicate animal diseases like BSE. They also were exposed to more of the trade implications surrounding animal ID in particular and meat traceability in general. The agriculture committees also have held hearings on animal ID specifically.<sup>32</sup>

Although most animal industry lobbyists generally appear to agree in concept on the need for a national plan, a consensus on its key elements is still evolving. New developments regarding the BSE situation, unforeseen outbreaks of some other potentially devastating animal disease, or some act of bioterrorism are examples of events that might propel further action.

## ENDNOTES

- <sup>1</sup> National Identification Development Team, *U.S. Animal Identification Plan*, December 23, 2003, p. 2. Other sources for this section include USDA Economic Research Service (ERS), “Traceability for Food Marketing & Food Safety: What’s the Next Step?” in the January-February 2002 *Agricultural Outlook*; Elise Golan and others, “Traceability in the U.S. Food Supply: Dead End or Superhighway?” in the June 2003 *Choices* magazine; and interviews with various USDA and animal industry officials.
- <sup>2</sup> See CRS Report RL32922, *Meat and Poultry Inspection: Background and Selected Issues*, by Geoffrey S. Becker; and CRS Report RL32199, *Bovine Spongiform Encephalopathy (BSE, or “Mad Cow Disease”): Current and Proposed Safeguards*, by Sarah A. Lister and Geoffrey S. Becker.
- <sup>3</sup> See CRS Report 97-508, *Country-of-Origin Labeling for Foods*, by Geoffrey S. Becker.
- <sup>4</sup> For more information, see the AMS website at [<http://www.ams.usda.gov/>].
- <sup>5</sup> *National Identification Work Plan* (November 2002 version). Also see Sparks Companies, Inc., *Linking the Food Chain: Sharing Information and Verifying Sources, Materials, and Processes Across Traditional Boundaries*, November 2002 multi-client study.
- <sup>6</sup> Secretary’s Foreign Animal and Poultry Disease Advisory Committee’s Subcommittee. *Report on Measures Relating to Bovine Spongiform Encephalopathy (BSE) in the United States*. February 2, 2004. Animal ID was one of a number of its policy recommendations.
- <sup>7</sup> Transcript of August 30, 2005, technical briefing with Agriculture Secretary Mike Johanns and others, accessed at [<http://www.aphis.usda.gov/lpa/issues/bse/bse.html>].
- <sup>8</sup> See for example: *Food Chemical News*, February 13, 2006; *Food Traceability Report*, February 2006; and *Cattle Buyers Weekly*, January 23, 2006, and December 5, 2005.
- <sup>9</sup> USDA in fact had been funding animal ID pilot projects for several years. For example, the National Farm Animal Identification and Records (FAIR) Program, administered by the Holstein Association USA, Inc., developed a database identifying animals on thousands of dairy and livestock farms, most of them in Michigan. USDA also was funding ID pilots in Michigan for cattle tuberculosis; in Wisconsin for the Animal Identification and Information System (“A-II”) for all species; and in several other states.
- <sup>10</sup> Clifford, John R., APHIS Deputy Administrator, Announcement to National Animal Identification System Stakeholders, January 26, 2006. This announcement references an October 16, 2005, stakeholder meeting held in Kansas City, Missouri.
- <sup>11</sup> The Secretary’s comments, and a copy of the plan, *National Animal Identification System (NAIS): Strategies for the Implementation of NAIS*, April 2006, was formerly posted at the APHIS website on animal ID.
- <sup>12</sup> APHIS was accepting comments on the draft user guide until January 22, 2007; it was posted at its NAIS website: [<http://animalid.aphis.usda.gov/nais/index.shtml>].

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- <sup>13</sup> Premises registration data is updated regularly on the APHIS animal ID website.
- <sup>14</sup> NCBA, [<http://www.beefusa.org/NEWSAnimalIDTalkingPoints25023.aspx>].
- <sup>15</sup> July 20, 2005, letter to Secretary Johanns signed by Representative Goodlatte, then Chairman of the House Agriculture Committee, and six other Committee Members.
- <sup>16</sup> “USDA Urged to Move on Mandatory Animal ID,” *Food Traceability Report*, November 2006.
- <sup>17</sup> *Food Chemical News*, February 13, 2006.
- <sup>18</sup> *USAIP*, December 23, 2003, table, p. 45.
- <sup>19</sup> Communication to CRS, March 30, 2004.
- <sup>20</sup> Testimony of Keith Collins, USDA Chief Economist, before the House Agriculture Committee, June 26, 2003.
- <sup>21</sup> Testimony of Ken Bull, Vice President for Cattle Procurement, Excel Corporation, before the House Agriculture Committee, June 26, 2003.
- <sup>22</sup> VanSickle, J., and others, *Country of Origin Labeling: A Legal and Economic Analysis*, International Agricultural and Trade Policy Center, University of Florida, May 2003. However, the analysis assumed that documentation only of imported products is required by COOL; domestic products would be presumed to be of U.S. origin.
- <sup>23</sup> *USAIP*, December 23, 2003, p. 2. As noted, the Administration requested and received \$33 million to work on animal ID in both FY2005 and FY2006. A request for the same amount in FY2007 was pending in Congress in July 2006.
- <sup>24</sup> Personal communication with Julie Stitt, Canadian Cattle Identification Agency, January 12, 2004. At a September 15, 2005 House Agriculture subcommittee hearing, Ms. Stitt stated that the RFID tags were costing \$2.20 to \$3 (Canadian dollars). House Committee on Agriculture, Subcommittee on Livestock and Horticulture, National Animal Identification Systems, 109<sup>th</sup> Cong., 1<sup>st</sup> sess., Serial No. 109-16. Canada had about 16.3 million cattle and calves in July 2006, compared with about 105.7 million in the United States.
- <sup>25</sup> Clemens and Babcock.
- <sup>26</sup> For more discussion of the liability and confidentiality issues, see The National Agricultural Law Center, *Animal Identification — An Overview*, A National AgLaw Center Reading Room, at [<http://www.nationalaglawcenter.org/readingrooms/animalid/>].
- <sup>27</sup> For details, see [<http://www.ams.usda.gov/bevprocedures.pdf>].
- <sup>28</sup> For example, one of the requirements is that only beef from cattle of 20 months or younger is shipped. Roughly 70% of the 32-35 million U.S. cattle each year have been 20 months of age or younger, although verifiable age records may only be available for anywhere from 10% to 25% of cattle, according to estimates by USDA and others.
- <sup>29</sup> As noted, EV is considered voluntary, even though it has been widely viewed as a minimum prerequisite for access to the Japanese and other foreign markets.
- <sup>30</sup> Sources for this section: Roxanne Clemens and Bruce Babcock, “Meat Traceability: Its Effect on Trade,” in the *Iowa Ag Review*, winter 2002; and Sparks, *Linking the Food Chain*.
- <sup>31</sup> The program is administered by the Canadian Cattle Identification Agency, a nonprofit industry agency, with oversight by the Canadian Food Inspection Agency. Website: [<http://www.canadaid.com/>]. A Canadian Sheep ID Program began January 1, 2004. Canadian and Australian officials testified extensively on their respective ID systems at the House hearing on September 15, 2005.

- <sup>32</sup> See, for example, Senate Committee on Agriculture, Nutrition, and Forestry, *Development of a National Animal Identification Plan*, 108<sup>th</sup> Cong., 2<sup>nd</sup> sess., S.Hrg. 108-606; and House Committee on Agriculture and the Subcommittee on Livestock and Horticulture, *The Development of USDA's National Animal Identification Program*, 108<sup>th</sup> Cong., 2<sup>nd</sup> sess., Serial No. 108-24.

*Chapter 8*

## **ANIMAL IDENTIFICATION: OVERVIEW AND ISSUES\***

*Geoffrey S. Becker*

### **ABSTRACT**

Livestock industry groups, animal health officials, and the U.S. Department of Agriculture (USDA) have been working to establish a nationwide identification (ID) system capable of quickly tracking animals from birth to slaughter, in order to combat a serious animal disease and/or to satisfy foreign market specifications. Some consumer groups are among those who believe ID also would be useful for food safety or retail labeling purposes. Some producers oppose new programs, fearing they will be costly and intrusive. In the 110<sup>th</sup> Congress as of April 2007, one related bill (H.R. 1018) had been introduced; it would prohibit a mandatory program. Lawmakers could be asked to consider this or other measures on the topic, possibly as part of a 2007 farm bill.

### **WHAT IS ANIMAL ID AND WHY IS IT USED?**

Animal ID refers to keeping records on farm animals or groups (e.g., flocks; herds) so that they can be more easily tracked from birth to slaughter. Use of animal ID dates back at least to the 1800s, when hot iron brands were used throughout the U.S. West to indicate ownership. ID methods today include ear, back, and tail tags; neck chains, freeze (as opposed to hot iron) brands, and leg bands. Some producers use radio frequency ID transponders with information that is read by scanners and fed into computer databases. The reasons for identifying and tracking animals and their products also have evolved.

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\* Excerpted from CRS Report RS22653, dated April 26, 2007.

## **Animal Health**

Animal ID can help to identify the source of dangerous and costly animal diseases and to contain them. In the global marketplace, animal disease programs, aided by traceability systems, are used both to reassure buyers about the health of U.S. animals and to satisfy foreign veterinary and/or food safety requirements. USDA's Animal and Plant Health Inspection Service (APHIS) oversees animal health in consultation with state veterinary authorities, and some of its disease eradication and control efforts effectively require ID and tracking. For example, for brucellosis, a highly contagious and costly disease mainly affecting cattle, bison, and swine (once common here), uniquely numbered brucellosis ID tags were routinely attached to animals, which noted that they had been vaccinated or tested. Today, however, brucellosis has largely been eradicated from U.S. commercial herds, so such ID is no longer widespread.

Examples of other official disease programs include pseudo rabies in swine and scrapie in sheep, where swine and sheep, respectively, must be officially identified before entering interstate commerce. Often state laws or breed association rules require animals of these and other species, like cattle and horses, to be identified to participate in shows or races.

Still, no universal system captures the locations and movements of all farm animals across all states. The existing programs, even where mandated by a state or other entity, are not designed to work in concert with one another, slowing disease response times and/or leaving informational gaps, according to USDA. U.S. limitations were demonstrated after bovine spongiform encephalopathy (BSE, or mad cow disease) was discovered in the United States (in a Canadian-born dairy cow) in December 2003. A number of trading partners that had quickly closed their borders to U.S. beef reportedly were reluctant to reopen them, due in part to U.S. difficulties in tracing the whereabouts of other cattle that had entered the United States with the BSE-infected cow; similar difficulties arose in determining the whereabouts and/or herdmates of the two later U.S.-born BSE cases.<sup>1</sup>

## **Commercial Production and Marketing**

Many farmers and ranchers already keep track of individual animals and how they are being raised, in order to identify and exploit desirable production characteristics. Universal bar codes on processed food, including many meats, are widely used by processors and retailers to manage inventories, add value to products, and monitor consumer buying. When consumers seek meat, eggs, or milk from animals raised according to specified organic, humane treatment, or environmental standards, ID and traceability can help firms verify production methods.

Government-coordinated programs also have been established for these purposes. For example, a process verification program operated by USDA's Agricultural Marketing Service (AMS) "provides livestock and meat producers an opportunity to assure customers of their ability to provide consistent quality products by having their written manufacturing processes confirmed through independent, third party audits," according to AMS. USDA "Process Verified" suppliers can have marketing claims such as breeds and feeding practices, and so label them, under this voluntary, fee-for-service program.



After BSE appeared in North America in 2003, AMS developed an export verification (EV) program for U.S. plants seeking to meet the differing beef import specifications of various countries like Japan, once the number-one foreign market for U.S. beef. AMS establishes the standards that U.S. suppliers must follow if they want to ship beef to these countries, and certifies that the proper procedures are in place. While EV is “voluntary,” it is also a prerequisite for access to the Japanese and other foreign markets. Other programs employing varying levels and types of traceability include the domestic origin requirement for USDA-purchased commodities used in domestic feeding programs; and the national organic certification program, which AMS also oversees.<sup>2</sup>

## **Food Safety**

Federal and state food safety agencies collaborate with APHIS to protect the food supply from the introduction, through animals, of threats to human health, such as tuberculosis; and foodborne illnesses from bacteria like *Salmonella* and *E. coli* O157:H7. Generally, when local health officials can link an illness to a particular product, firms and their regulators have been able to trace that product back to the processor and/or slaughter facility. It is more difficult and costly to determine which particular animals, herds, or flocks were involved. Some believe that a more rigorous traceback and animal ID system could facilitate food recalls, possibly contain the spread of a foodborne illness, and help authorities stem future incidents. Others, particularly many within the food industry, strongly disagree, countering that such a system would not be based on sound science, and would be technically unworkable and extremely costly.<sup>3</sup>

## **DEVELOPMENT OF A NATIONAL PLAN**

### **Early Private-Public Efforts**

Work toward a coordinated national animal ID system began in earnest in the early 2000s and evolved into a joint industry-government-professional effort whose principal goal was the ability to trace animals of interest within 48 hours of an animal disease problem. A draft “U.S. Animal Identification Plan (USAIP)” published in December 2003 called for recording the movement of individual animals or animal groups in a central database or in a “seamlessly linked” database infrastructure. APHIS roles would be to allocate premises (e.g., farms, feedlots, auction barns, processing plants) and animal numbers and to coordinate data collection. The work plan envisioned by the USAIP had first called for all states to have an animal premises ID system by July 2004, with farm animals of all major species identified by July 2006.

## **USDA Takes the Lead<sup>4</sup>**

As the draft USAIP was being published in December 2003, the first U.S. BSE case emerged. Among the initiatives USDA quickly announced to shore up confidence in the beef supply was accelerated implementation of animal ID. Since early 2004, the Department has committed, with Congress's approval, an estimated \$118 million to its development, providing many of the funds to states and tribal organizations for research, database systems, and startup of premises registration.

USDA first announced a "framework" for its national animal identification system (NAIS) in April 2004 and has been periodically revising the outlines of the program since then. It issued a "draft strategic plan" in May 2005, announced a new set of "guiding principles" in August 2005, and unveiled, in April 2006, a new plan setting a timeline for full implementation by 2009. In November 2006, USDA distributed a draft "user guide," which, it stated, is "the most current plan for the NAIS and replaces all previously published program documents, including the 2005 Draft Strategic Plan and Draft Program Standards and the 2006 Implementation Strategies." The document seeks to assure producers that USDA will not require them to participate in the program, and that it is bound by law to protect individuals' private and confidential business information. The draft user guide describes three successively greater steps toward full participation, if a producer chooses to do so:

- Premises registration, done through one of the state (or tribal) animal health authorities (the goal is to register all premises by 2009);
- Animal ID, accomplished by obtaining USDA-recognized numbering tags or devices from representatives of authorized manufacturers (producers are to be responsible for the cost of the devices);
- Selection by the producer of one of the NAIS-compliant animal tracking databases to which the producer can report animal movements.

On this last point, USDA continues to envision a universal system as a series of state or privately held databases which the Department could tap only in the event of an animal disease outbreak, with the goal of tracing animals from point of origin to processing within 48 hours. Its user guide anticipates that the NAIS will cover the following species: cattle and bison; poultry; swine; sheep and goats; cervids such as deer and elk; horses and other equines; and camelids (e.g., llamas and alpacas). Household pets and other animals not listed here are to be excluded from NAIS. Only animals that enter commerce or that commingle with animals at other premises (like sales barns, state or national fairs, or exhibits) are to be identified. Also, animals that typically are moved in groups — such as hogs and poultry — could be identified as part of their group rather than individually.

## **Status of Premises Registration**

As of mid-April 2007, APHIS reported that approximately 385,000 animal premises had been registered in one of the available databases. This represented approximately one-fourth of the estimated 1.4 million livestock and poultry farms in the United States (2002 Census of

Agriculture data). Registration rates vary widely among states, depending partly upon the level of industry interest and economic activity in each, and whether a state is implementing either mandatory or voluntary participation, for example.<sup>5</sup>

## SELECTED ISSUES

Those who worked on earlier versions of an animal ID system assert that one is needed to maintain U.S. competitiveness in the global marketplace, where other major meat-exporting countries have been rapidly developing their own ID programs, in part to meet importing countries' demands for such traceability. Some animal ID program supporters have criticized USDA for moving too slowly and/or not setting a clearer path toward universal ID. Others believe that USDA's progress to date simply reflects the deep divisions among producers and other interests over the many unresolved questions. Some livestock producers say they are not convinced that any new program, mandatory or voluntary, will improve animal health oversight, and they fear that it will only impose costly and intrusive regulations on their operations without adding any significant value to their animals. Some reportedly are working within individual states to block mandatory and/or voluntary programs there.

### Mandatory or Voluntary?

According to the Department's latest thinking on the NAIS (see above), "Participation in NAIS is voluntary at the Federal level.... The NAIS does not need to be mandatory to be effective." Others, including many state animal health officials, reportedly disagree. At meetings in October 2006, the National Assembly of State Animal Health Officials and the U.S. Animal Health Association's livestock committee each approved a recommendation that, as a step toward a national system, USDA make animal ID mandatory for all U.S. breeding cattle. Consumer advocacy groups also have pressed for a mandatory national system.<sup>6</sup>

### Costs and Who Pays

An animal ID system will impose a variety of costs, such as for tags or other identifying devices and their application, and data systems to track animals. Cost estimates of a national system have varied broadly — and are not directly comparable, a reflection of estimators' differing assumptions and the varying designs of the programs that have been proposed. As the extent of traceability increases, so do likely costs. Animal ID *prior* to slaughter, and product tracking *after* slaughter and processing, generally are available (and are often used), industry observers agree. However, linking the two systems could be difficult and costly, according to meat industry officials who say it involves identifying and segregating animals, physically reconfiguring plants and processing lines, and labeling and tracking the final products.

A related policy question is who should pay. USDA's November 2006 draft user guide (see above) calls for shared expenses among the federal government, states, and industry,

with producers paying for ID devices themselves. It estimated the cost to be \$1 for each visual ID tag, \$2-\$3 for devices with radio frequency transponders, and \$15-\$20 for electronic ID devices that are injectable (e.g., for horses). USDA did not provide cost estimates for participating in the tracking databases. It said that these costs could vary depending partly upon whether producers chose to use these non-USDA maintained databases for additional services such as verification of labeling or marketing claims. Past bills have proposed appropriations for a national program, including financial assistance to producers to help them participate.

## **Liability and Confidentiality of Records**

Some producers are concerned they will be held liable for contamination or other problems over which they believe they have little control after the animal leaves the farm. On the other hand, documentation of management practices, including animal health programs, can help to protect against liability because they can prove where animals came from and how they were raised.<sup>7</sup>

Also at issue is whether producers can and should be protected from public scrutiny of their records. The federal Freedom of Information Act (FOIA) entitles members of the public to obtain records held by federal agencies. Some producers are concerned, for example, that animal rights extremists might misuse information gained through FOIA, or that the data collection might reveal proprietary information. However, FOIA exempts access to certain types of business information, such as trade secrets, commercial or financial information, or other confidential material that might harm the provider.

“Animal movement records will be securely held in animal tracking databases owned, managed, and controlled by the private sector or the States,” USDA’s November 2006 draft user guide states. “Animal health officials will only request animal movement information from these databases when there is a risk to animal health — such as an outbreak of avian influenza, brucellosis, or tuberculosis.” Still, some in the industry worry about government intrusion into their business practices generally. That is why they prefer the use of a private third party, rather than USDA, to collect and maintain animal data (and why others want no new program). Any agreement between USDA and a private entity would have to clearly stipulate the conditions for use of the information, they assert. Several bills introduced into previous congresses had proposed to more explicitly shield animal ID data from public scrutiny.<sup>8</sup>

## **Industry Structure**

How might traceability costs affect the industry’s ability to produce an economically competitive product, and which segments could bear most of the costs? It has been argued that, as more tracing requirements are imposed, large retailers and meat packers will exercise market power to shift compliance costs backward to farms and ranches, making it even more difficult for the smaller, independent ones to remain in business. Larger, more vertically integrated operations are more likely to have the resources and scale economies to survive, some have argued. On the other hand, if traceability costs forced big meat plants to reduce

line speeds, “smaller plants with slower fabrication speeds may be better equipped to implement traceability to the retail level and may find niche market opportunities,” Clemens and Babcock wrote.

## CONSIDERATION IN THE 110<sup>TH</sup> CONGRESS

USDA has claimed broad authority, under the Animal Health Protection Act (7 U.S.C. 8301 *et seq.*), to implement an animal ID program. Several bills have been offered in recent Congresses aimed at clarifying USDA’s authority and/or spelling out what type of program should be established. Congress also has played an important role by providing funding and direction for animal ID, through annual appropriations.

A number of policy options, possibly including legislative alternatives introduced in the past that either promoted or discouraged establishment of mandatory animal ID, could be discussed in the 110<sup>th</sup> Congress. As of mid-April 2007, one bill, H.R. 1018, had been introduced; it would prohibit USDA from carrying out a mandatory program and also would seek to protect the privacy of producer information under a voluntary system.

A likely venue for animal ID in 2007 is a new omnibus farm bill. The chairman of the House Agriculture Committee, for example, has been chief sponsor of past legislation (including H.R. 1254 in the 109<sup>th</sup> Congress) to mandate and fund a program. More recently, he reportedly has expressed interest in combining an animal ID program with aspects of mandatory retail country-of-origin labeling (COOL), to be required for fresh red meats (among other commodities) by September 30, 2008, under Section 10816 of P.L. 107-171, the 2002 farm bill, as amended.<sup>9</sup>

## ENDNOTES

<sup>1</sup> August 30, 2005, technical briefing with Agriculture Secretary Mike Johanns. See also CRS Report RL32199, *Bovine Spongiform Encephalopathy (BSE, or “Mad Cow Disease”): Current and Proposed Safeguards*, by Sarah A. Lister and Geoffrey S. Becker.

<sup>2</sup> For more information, see the AMS website at [<http://www.ams.usda.gov/>].

<sup>3</sup> See also CRS Report RL32922, *Meat and Poultry Inspection: Background and Selected Issues*, by Geoffrey S. Becker.

<sup>4</sup> This section is based primarily on current and archived materials found at APHIS’s animal ID website at [<http://animalid.aphis.usda.gov/nais/index.shtml>].

<sup>5</sup> Updated premises registration data, including by state, is on the APHIS animal ID website.

<sup>6</sup> “USDA Urged to Move on Mandatory Animal ID,” *Food Traceability Report*, November 2006; also, *Food Chemical News*, February 13, 2006.

<sup>7</sup> Roxanne Clemens and Bruce Babcock, “Meat Traceability: Its Effect on Trade,” in the *Iowa Ag Review*, winter 2002.

<sup>8</sup> For more discussion of the liability and confidentiality issues, see National Agricultural Law Center, *Animal Identification — An Overview*, National AgLaw Center Reading Room, at [<http://www.nationalaglawcenter.org/readingrooms/animalid/>].

<sup>9</sup> See CRS Report 97-508, *Country-of-Origin Labeling for Foods*, by Geoffrey S. Becker.



*Chapter 9*

**ANIMAL AGRICULTURE: SELECTED ISSUES  
FOR CONGRESS\***

*Geoffrey S. Becker*

**ABSTRACT**

The value of animal production on the 1.3 million U.S. dairy, livestock, and poultry farms (2002 Census of Agriculture) averages about \$124 billion annually, more than half the total value of all U.S. agricultural production. The United States produces — and consumes — more beef/veal, pork, poultry, and milk than almost any other single country (China leads in pork). U.S. exports have grown rapidly in recent decades, as has integration of U.S. meat production and processing with that of Mexico and Canada.

Farming, processing, and marketing have all trended toward larger and fewer operations (often called consolidation). Increasingly, many phases of production and marketing may be managed or controlled by a single entity (sometimes called vertical integration). Complying with environmental and food safety regulations, and addressing changing consumer preferences about how food is produced, have added to costs and operational complexities for producers and processors alike.

In Congress, policy debate has revolved around impacts of the sector's structural and technological changes on farm prices, on the traditional system of smaller-sized, independent farms and ranches, and on rural communities and workers. Also at issue are implications for consumers, the environment, and trade. Inherent in these questions, which could be addressed during consideration of a new farm bill in 2007, is the appropriate role of government in intervening in or assisting the livestock, meat, and poultry industries.

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\* Excerpted from CRS Report RS22526, dated March 15, 2007.

## COMMODITY SUPPORT PROGRAMS AND FEED PRICES

Feed is the single largest input cost for cattle feeders, dairy, hog, and poultry producers, who are wary of government policies that can raise feed prices. These include commodity support or conservation programs that take cropland out of production, or ethanol incentives that bid up the price of corn, a key feed ingredient. Such incentives have already helped to boost significantly the portion of the total U.S. corn crop going to ethanol; a possible energy title in the next (2007) farm bill could further bolster feed grain demand and prices, animal producers worry.

Unlike major crops such as grains, cotton, and oilseeds, animal products are not recipients of commodity price and income support program benefits. An exception is milk, where producers benefit from a combination of administered pricing under federal milk marketing orders, surplus dairy product purchases, and milk income loss payments. Also, some cattle and hog producers in a limited number of states are participating in livestock revenue insurance programs being administered by the U.S. Department of Agriculture's (USDA's) Risk Management Agency (RMA). A new farm bill likely will continue some form of milk price and/or income support and possibly could continue or even expand revenue insurance for livestock producers. Also see:

- CRS Report RL32712, *Agriculture-Based Renewable Energy Production*
- CRS Report RS21999, *Farm Commodity Policy: Programs and Issues for Congress*
- CRS Report RL33475, *Dairy Policy Issues*
- CRS Report RL33037, *Previewing a 2007 Farm Bill*

## DISASTER PAYMENTS

Animal producers who do not raise crops commercially lack access to federally subsidized crop insurance. Congress or the Administration has periodically made animal producers in declared disaster areas eligible for ad hoc federal payments, mainly to help defray the cost of purchasing off-farm feed following a disaster affecting on-farm feed production, or permitted producers to use conservation lands for haying and grazing. Issues include whether the government should assume more of livestock and poultry producers' disaster risks as they have for crop farmers, and whether Congress should establish a "permanent" aid program automatically triggered in times of disasters, in lieu of ad hoc legislation in virtually every recent year. Also see:

- CRS Report RS21212, *Agricultural Disaster Assistance*
- CRS Report RL31095, *Emergency Funding for Agriculture: A Brief History of Supplemental Appropriations, FY1989-FY2006*



## MARKET COMPETITION

Changes in the structure and business methods of the livestock and meat sectors appear to be rapidly transforming U.S. animal agriculture. Animal farms continue to diminish in number and expand in average size. A relative handful of large firms process animal products, and these firms increasingly seek to control or at least better coordinate all phases of production and marketing, often to meet the specific requirements of large retail chains that want to satisfy consumer demand for a range of lower-cost products.

Critics assert that these trends have undermined the traditional U.S. system of smaller-scale, independent, family-based farms and ranches, by eroding farmers' negotiating power, lowering farm prices, and forcing all but the largest operators out of business. Others counter that the sector's structural changes are a desirable outgrowth of factors such as technological and managerial improvements, changing consumer demand, and more international competition.

In 2007, various bills have been proposed to address perceived "competition" problems. Among them are proposals to regulate meat packer ownership or acquisitions of cattle (S. 305; S. 786); to give farmers more options to dispute provisions in contracts with processors (in 2007, S. 221); and to broaden protections under, and strengthen administration, of the Packers and Stockyards Act and other antitrust laws (S. 622). These or other so-called competition options could become the basis for a proposed competition title in a new 2007 farm bill. See also:

- CRS Report RL33325, *Livestock Marketing and Competition Issues*

## ANIMAL DISEASE AND ANIMAL IDENTIFICATION

Outbreaks of animal diseases like avian influenza (AI), foot and mouth disease (FMD), BSE, brucellosis, and tuberculosis are seen as perhaps the greatest potential threats to animal production. Even where U.S. cases have been few (as with BSE) or quickly contained (as with various strains of AI), the impacts can be economically devastating, causing production losses, closed export markets, and a decline in consumer confidence. Some animal diseases, like AI and BSE, have the potential to harm humans.

Cattle producers, meat processors, and the feed industry are anticipating an upcoming decision by the U.S. Food and Drug Administration (FDA) on whether to finalize or amend a proposed rule that would prohibit the use of higher-risk cattle parts (i.e., those more likely to harbor the BSE agent) in all animal feeds. The proposal would be more restrictive than the FDA's rule that now bans most mammalian parts from cattle feed only, as a way to prevent BSE's spread through animal feeding. However, the industry believes the economic costs of the proposed rule could be extremely high.

Many producers appear to agree that a nationwide animal identification (ID) system that can trace animals from birth to slaughter is a critical tool for quickly finding and controlling future animal diseases. More foreign markets are demanding animal traceability, and other meat-exporting countries are adopting ID programs, it is noted. Despite several years of USDA effort and public funding totaling an anticipated \$118 million through FY2007, a

universal U.S. system is not expected to be in place for some time, as policy makers debate numerous questions about its design and purpose.

Should animal ID be mandated? What data should be collected and who should hold it, government or private entities? To what extent should producer records be shielded from the public and government agencies? Should traceability be expanded to follow meat and poultry products from farm to consumer, and/or used for other purposes such as food safety or certification of labeling claims? How much will it cost, and who should pay? In the 110<sup>th</sup> Congress, H.R. 1018 would prohibit mandatory ID and address privacy concerns. Other bills intended to address many of these questions could emerge, possibly as farm bill items. Also see:

- CRS Report RL32199, *Bovine Spongiform Encephalopathy (BSE, or 'Mad Cow Disease'): Current and Proposed Safeguards*
- CRS Report RL32012, *Animal Identification and Meat Traceability*

## **COUNTRY OF ORIGIN LABELING**

Another possible, and somewhat related, item is country-of-origin labeling (COOL), which the 2002 farm bill required of many retailers of fresh produce, red meats, seafood, and peanuts. Although the seafood labeling rules are in place, Congress has delayed implementation for red meats, produce, and peanuts until September 30, 2008, while lawmakers continue to debate the need for, and anticipated costs and benefits of, COOL. In the 110<sup>th</sup> Congress, bills (H.R. 357; S. 404) have been introduced that would require implementation by September 30, 2007. See also:

- CRS Report 97-508, *Country-of-Origin Labeling for Foods*

## **MEAT AND POULTRY TRADE**

The United States is one of the leading exporters of livestock and poultry products, which have been among its fastest-growing categories of agricultural exports. However, U.S. market share is being challenged, and for some products surpassed, by highly competitive foreign exporters such as Brazil, Australia, India, Argentina, and New Zealand in beef/veal, Canada and Brazil in pork, and Brazil in poultry. U.S. exporters also face foreign trade barriers such as high import tariffs and divergent foreign food safety and animal health measures (sometimes regarded as baseless by the exporters). Examples of recent problems include Russia's restrictions on U.S. beef and pork exports, purportedly over animal disease concerns, Japan's and Korea's slowness in ramping up U.S. beef imports due to a limited number of cases here of bovine spongiform encephalopathy (BSE or mad cow disease), and a longstanding European Union ban on importation of meat from animals treated with growth hormones approved for use here.

Trade Promotion Authority (TPA), which permits the President to negotiate trade deals and present them to Congress for an up or down vote without amendment, expires on June 30,

2007, making renewal a topic in the 110<sup>th</sup> Congress. The Administration has used TPA to pursue an ambitious series of bilateral and regional free trade agreements (FTAs) as well as to participate in negotiations for new multilateral trade rules under the World Trade Organization (WTO). U.S. interests seek assurances that any new agreements will not favor foreign over U.S. animal products. Many farmers and ranchers also are wary of signing new agreements when, in their view, some countries have not fulfilled obligations under existing agreements to lower tariffs and/or non-tariff barriers that have blocked meat and poultry exports. Also see:

- CRS Report RL33144, WTO Doha Round: The Agricultural Negotiations
- CRS Report RL33463, Trade Negotiations During the 109th Congress
- CRS Report RL33472, Sanitary and Phytosanitary (SPS) Concerns in Agricultural Trade

## ENVIRONMENTAL ISSUES

Questions about the applicability of federal environmental laws to livestock and poultry operations have been controversial and have drawn congressional attention. As animal agriculture increasingly concentrates into larger, more intensive production units, concerns arise about impacts on the environment, including surface water, groundwater, soil, and air. Some environmental laws specifically exempt agriculture from regulatory provisions, and some are designed so that farms escape most, if not all, of the regulatory impact. The primary regulatory focus for large feedlots is the Clean Water Act, since contaminants from manure, if not properly managed, also affect both water quality and human health. Operations that emit large quantities of air pollutants may be subject to Clean Air Act regulation. In addition, concerns about applicability of Superfund to livestock and poultry operations are of growing interest.

Bills to exempt animal manure from federal Superfund requirements have been introduced in the past and could re-emerge in the 110<sup>th</sup> Congress. The House and Senate Agriculture Committees do not have direct jurisdiction over federal environmental law, but they do have a role in the issue. For example, under the conservation title of recent farm bills, the Environmental Quality Incentives Program (EQIP) has provided financial and technical assistance to farmers to protect surrounding resources; livestock receives 60% of the funds. Also see the following reports:

- CRS Report RL31851, Animal Waste and the Environment: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs)
- CRS Report RL32948, Air Quality Issues and Animal Agriculture: A Primer
- CRS Report RL33691, Animal Waste and Hazardous Substances: Current Laws and Legislative Issues
- CRS Report RS22040, Environmental Quality Incentives Program (EQIP): Status and Issues

## FOOD SAFETY

USDA's Food Safety and Inspection Service (FSIS) is responsible for inspecting most meat, poultry, and processed egg products for safety and proper labeling. The Food and Drug Administration (FDA) is responsible for ensuring the safety of all other foods, including seafood, and also regulates animal feed ingredients. For years Congress has monitored the efforts of FSIS and industry to address the problem of microbial contamination, which has caused outbreaks of severe and sometimes fatal foodborne illness. A long-standing issue is the effectiveness of these efforts and the need, if any, for policy changes (such as increased FSIS resources or more efficient ways of assigning existing resources to the highest risk plants or products).

Another concern is the use of antibiotics to control disease, promote growth, and address well-being in food-producing animals. Some argue that antibiotic overuse in animal production can lead to resistance to related drugs used in humans, and that FDA should discontinue unnecessary animal uses. Others counter that such assertions have not been scientifically proven and that restrictions would raise production costs by millions of dollars and harm the quality of animal products.

Various proposals related to meat safety have been offered in recent years, including proposals to clarify USDA's use of microbial performance standards; to allow state-inspected meat and poultry products to be sold outside the state (to which they are currently restricted); to give USDA more authority to recall suspect meat and poultry products; to tighten controls on imports; and to restrict nontherapeutic use of medically important antibiotics in livestock (e.g., H.R. 962 and S. 549 in the 110<sup>th</sup> Congress). Some would reorganize federal food safety responsibilities, possibly within a single new agency (e.g., H.R. 1148, S. 654). See also:

- CRS Report RL32922, Meat and Poultry Inspection: Background and Selected Issues

## BIOTECHNOLOGY

Biotechnology — a term often used as a synonym for such technologies as genetic engineering, genetic modification, transgenics, recombinant DNA techniques, and cloning — has been promoted as a way to improve animal productivity and quality; to introduce new food, fiber, and medical products; and to protect the environment. Criticisms range from food safety and social resistance to potential negative impacts on animal welfare and on ecosystems. In the 110<sup>th</sup> Congress, early interest focuses on FDA's publication in the January 3, 2007 *Federal Register* of a long-awaited draft risk assessment which finds that meat and milk from cloned cattle, pigs, and goats and their offspring are as safe to eat as those of conventionally bred animals, although animal health problems may be more frequent than in other assisted reproductive technologies. Members may be asked to review the benefits and costs of cloning and other biotechnologies, and to refine existing laws to ensure adequate oversight. S. 414 and H.R. 992, for example, would require the labeling of foods from cloned animals or their offspring; H.R. 1396 and S. 536 would not permit organically labeled foods to be derived from such animals. Also see:

- CRS Report RL33334, *Biotechnology in Animal Agriculture: Status and Current Issues*

## **ANIMAL WELFARE**

Farm animals are not covered by the Animal Welfare Act, which requires minimum care standards for many other types of warm-blooded animals. Farm animals are covered by federal laws addressing humane transport and slaughter, however. Animal activists periodically seek new legislation that would further regulate on-farm or other animal activities, such as bills to prohibit the slaughter of horses for human food (one passed the House but not the Senate in September 2006; another has been introduced in the 110<sup>th</sup> Congress as H.R. 503/S. 311), to require the federal government to purchase products derived from animals only if they were raised according to specified care standards, and to prohibit the slaughter for food of disabled livestock (introduced in 2007 as H.R. 661 and S. 394), among others. Members of the House and Senate Agriculture Committees generally express a preference for voluntary approaches to humane methods of care. For example, Smithfield Farms, the largest U.S. pork producer, recently announced that it would require its producers to phase out the use of gestation crates, which many animal welfare advocates believe provide far too little room for hogs to move around. See:

- CRS Report RS21978, *Humane Treatment of Farm Animals: Overview and Issues*
- CRS Report RS21842, *Horse Slaughter Prevention Bills and Issues*
- CRS Report RS22493, *The Animal Welfare Act: Background and Selected Legislation*



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