

# **Factory Farming in America**

**The True Cost of Animal Agribusiness for  
Rural Communities, Public Health, Families, Farmers,  
the Environment, and Animals**



**THE HUMANE SOCIETY  
OF THE UNITED STATES**

The Humane Society of the United States is the nation's largest animal protection organization—backed by 10 million Americans, or one of every 30. For more than a half-century, The HSUS has been fighting for the protection of all animals through advocacy, education, and hands-on programs. Celebrating animals and confronting cruelty. On the Web at [www.humanesociety.org](http://www.humanesociety.org).

**Swarms of black flies keeping  
children indoors. Families cancelling  
Sunday picnics. Property values  
falling when factory farms are close to  
homes. Asthma, headaches, sore  
throats, diarrhea, and burning eyes.  
Our land, air, and water polluted by  
manure, chemicals, and toxins.  
Workers put at risk. Farmers forced  
into corporate contracts or out of  
business altogether. Animals  
languishing in filthy, cramped cages,  
crates, pens, and sheds.**

**One of the most important issues confronting agricultural communities in the United States—perhaps the most important issue—is the future structure of the livestock industry. The issue is whether animals will be raised on diversified, sustainable family farms or produced in large, energy- and capital-intensive confinement facilities such as factory farms that concentrate the animals and their wastes in vast quantities and concentrate economic control in the hands of absentee investors.**

**At stake is the prosperity and health of rural communities, access to economic opportunity for farm and rural families, the future of this country’s rural environment and far-reaching questions of food safety and affordability. Family farmers and other rural residents are upset, angry and fighting back as factory farms pollute air, water and soil; uproot social structures; drive farmers out of business; and threaten the quality of life.**

Excerpted from Brad Trom’s opinion-editorial entitled, “Say no to factory farms: health and prosperity of rural communities at stake,” printed on February 28, 2005, in *The Grand Forks Herald*.

# introduction.

The landscape of American agriculture has changed dramatically since the 1950s. Across the country, independent, family farms have been pushed aside by industrial animal agribusiness corporations that intensively confine tens if not hundreds of thousands—even millions—of animals. Factory farms not only jeopardize the welfare of the animals, but damage communities, public health, the environment, and livelihoods—all for cheap meat, eggs, and milk.

But what is the true cost of today’s animal agribusiness? And who is really paying for it?

\$3.78 for 2 pounds of chicken thighs, \$1.49 for a pound of ground beef, \$3.99 for a gallon of milk, \$2.59 for a carton of eggs, \$3.50 for ½ pound of Atlantic cod, and \$2.49 for 1 pound of pork chops.<sup>1</sup> These supermarket prices may seem like a bargain to some consumers, but these prices don’t include the high costs exacted by the many systematic abuses of industrial animal production.<sup>2</sup>

Increasingly, opponents of factory farms are speaking out—locally, state-wide, nationally, and around the world. They include organizations advocating for family farms, environmental preservation, public health, food safety, and farm animal welfare, as well as individuals and families who have been forced to live near these animal factories and are taking a stand, collectively and independently, to say, “Enough!”

**When Tom Greene agreed to grow chickens for ConAgra, Inc. eleven years ago, he thought it would be the fulfillment of a longtime fantasy to make his living working his own land. He and his wife, Ruth, had just bought the 90-acre farm they had dreamed about as a young couple 20 years before....**

**The chicken contract is an MBA's dream: the suppliers' costs are more or less fixed, while farmers assume the risks—disease, weather, and nature—related to raising the birds. Some people refer to the farmers as animal babysitters. “They are merely company employees...but without benefits.”**

**“It's like being a gerbil in a cage,” says Rickey Gray, an assistant to Mississippi Agriculture Commissioner, Lester Spell, Jr. “The growers are going as fast as they can, but they're not getting anywhere. All in all, it's like a modern day sharecropping system.”**

Excerpted from Karen Charman's article entitled, “Down on the farm: modern day sharecroppers—the dismal future of farming,” published on January 23, 2002.  
[www.tompaine.com/Archive/scontent/5036.html](http://www.tompaine.com/Archive/scontent/5036.html)

## **from farms to factories.**

Across the United States, nearly 10 billion land animals are raised and killed each year for meat, eggs, and milk.<sup>3,4</sup> More than half of all confined farm animals by weight—54%—are concentrated in just 5% of the country's industrial animal production farms.<sup>5</sup>

The realities of today's animal agribusiness practices are a far cry from the ones embraced by the small, family farms that once supplied the marketplace. Industrialization and raising unprecedented numbers of farm animals have resulted in the intensive confinement of these chickens, pigs, turkeys, cattle, and other animals—and the intensive problems faced by those who must contend with the impacts of factory farming.

### **Replacing Family Farms**

Factory farms have made it increasingly difficult, if not impossible, for independent family farmers to survive as they are unable to compete against these massive corporate operations. Many once-independent farmers are resorting to contractual arrangements with large agribusiness corporations,<sup>6</sup> raising the companies' animals until slaughter. "Contract growing" now makes up much of the factory farming industry, particularly in the pig and poultry sectors.<sup>6</sup> By 1999, contract production accounted for more than 60% of U.S. pig production and 35% of cattle production.<sup>7</sup> Today, poultry production is now almost entirely contract-based.<sup>6</sup>

Among sociologists and those who advocate for the rights of contract growers, a great deal of attention is devoted to "the general well-being of contractees (operators) and their families given their asymmetrical relationship in bargaining power with agribusiness firms" and "the bargaining power of external agribusiness is likely to result in a greater of share of risks and costs of production borne by contractees and their families."<sup>8</sup>

The corporations supply company-owned animals, feed, and transportation, but the growers, who likely own the land, must construct company-approved buildings in which they might invest hundreds of thousands of dollars.<sup>9,10</sup> They are also typically responsible for managing the animals' waste, so the companies may have no financial obligation to control or rectify pollution from these facilities that are set up according to the corporations' own specifications.<sup>11,12</sup> This transformation from traditional animal agriculture to a corporate system places farmers "in a food-production chain that, on both sides... involves some of the world's most powerful and concentrated industries."<sup>13</sup>

Robert Taylor, an agricultural economist at Auburn University, has reportedly found that chicken grower contracts are predominantly deceptive. The contract's base pay, for example, may be much higher than the

## what is a factory farm?

Although the terms “factory farm,” “concentrated animal feeding operation (CAFO),” and “animal feeding operation (AFO)” are often used interchangeably, “factory farm” is a general term that refers to industrial animal production facilities, while “AFO” and “CAFO” have precise legal definitions. An AFO is a facility in which crops and vegetation are not sustained during the normal growing season, and land animals are confined for 45 days or more within a 12-month period.<sup>28,29</sup> As described by the U.S. Environmental Protection Agency (EPA), “AFOs congregate animals, feed, manure and urine, dead animals, and production operations on a small land area.”<sup>30</sup> The EPA estimates that there are approximately 450,000 AFOs in the United States.<sup>31</sup>

An AFO may be designated as a CAFO in one of three ways: (1) by meeting the definitional requirements for a “large” CAFO;<sup>32</sup> (2) by meeting the definitional requirements for a “medium” CAFO;<sup>32</sup> and (3) through special designation by the relevant EPA Regional Administrator or State Director upon determining “that it is a significant contributor of pollutants to waters of the United States.”<sup>33</sup>

The definitional requirements of both large and medium CAFOs include minimum numbers of confined animals. A partial list of these numbers appears in Table 1. To qualify as a medium CAFO, a facility must also discharge pollutants into U.S. waters “through a man-made ditch, flushing system, or other similar man-made device” or directly into U.S. waters “which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.”<sup>34</sup>

actual pay most contract growers will earn over the life of the agreement, with the contract’s proffered net income failing to account for economic depreciation or other costs.<sup>14</sup> A 2005 *Fort Worth Star-Telegram* article stated: “Critics like Wes Sims, president of the Waco-based Texas Farmers Union, say that predictions of [contract] growers’ earnings are overstated, that they risk being cut off from fresh flocks for refusing costly upgrades demanded by companies, and that their heavy farm debt ensures that they renew unfair contracts, creating a system akin to modern-day serfdom.”<sup>15</sup>

Financial considerations are indeed significant concerns in the contract grower system. A 2001 study commissioned by the U.S. Department of Agriculture (USDA) and completed by Farmers’ Legal Action Group found that 75% of those surveyed felt that entering broiler chicken production had been a good decision, yet only 35% said they would recommend the same decision to others.<sup>16</sup> According to the United Food and Commercial Workers Union (UFCW), more than 71% of all contract chicken growers earn below poverty-level wages.<sup>17</sup> An August 2007 article in the *Arkansas Democrat-Gazette* notes, “A modern chicken house with 20,000 chickens could gross about \$5,000 per house per flock... But all the expenses from the business are taken out of that gross income, and for older chicken houses that don’t convert energy as efficiently as newer ones, turning a net profit is increasingly difficult. That’s particularly significant now that the price of propane, natural gas and electricity—all used to control the fledgling chicks’ environment—has skyrocketed.”<sup>18</sup>

In 2005, an article in the *The Texas Observer* described how great the pressures exerted by agribusiness corporations on farmers can be. One couple was reportedly only given a single afternoon to accept or reject the terms of a contract—after having constructed four chicken sheds and assuming more than \$900,000 of debt.<sup>19</sup> According to the couple, “Once they have those houses built, they’ve got you... They’re in control.”<sup>19</sup> After interviewing 11 growers who had entered into contracts with Sanderson Farms, the journalist

concluded:

Many were fearful of retribution; those still under contract talked only on the condition that their names and identifying details not be published. All, however, described the same scenario: The company, working closely with five local banks, requires prospective contractors to obtain loans, often in excess of \$400,000, to finance construction of chicken houses. Contractors put up their farms as collateral to secure loans. With their land at stake, they are then subject to total company control. They tell of low pay for long hours, intimidation, manipulation of wages, and health problems that some blame on exposure to additives in the chicken feed.<sup>19</sup>

Contract growers may also lose their contracts despite holding up their end of the agreement. After borrowing loans in excess of \$12,000 to make improvements to their chicken sheds and receiving numerous letters of commendation from Perdue for two years, one family's contract was suddenly terminated with company officials reportedly blaming a slow economy.<sup>20</sup>

Despite these consistent accounts of problems plaguing the contract grower system, Laura Klauke of Rural Advancement Foundation International (RAFI) has reportedly noted that the "strong language of the confidentiality clauses [in grower contracts] has left growers voiceless and perpetuates a public lack of information about the unfairness embedded in the poultry contract relationship."<sup>20</sup>

Writes journalist Karen Charman: "Most chicken growers are reluctant to talk publicly for fear of reprisals... They say the corporations that control the chicken industry hook new growers on the promise of making a good, steady income at home. Instead, growers find themselves trapped in debt-laden relationships that turn them into serfs at the mercy of the companies that make a fortune on their backs... Nobody knows how many poultry growers have lost their contracts because only the companies have that information, says Mary Clouse, who [formerly ran]... the Contract Agriculture/Poultry Project at the Rural Advancement Foundation International (RAFI). Poultry companies say the number is very low."<sup>21</sup>

RAFI's efforts to improve the contract grower system include distribution of its publication, *Questions to Ask Before Signing a Poultry Contract*,<sup>22</sup> and working with Hmong farmers<sup>23</sup> who emigrated from Southeast Asia. The director of the Hmong American Community, Chukou Thao, states, "Farming is an important part of Hmong culture... It is a source of community pride and self-esteem, and a way to make a living."<sup>24</sup> Unfortunately, like other farmers in the United States, the Hmong have encountered the pitfalls of the contract grower system.

According to a 2004 article in *The Wall Street Journal*, "Profits so far have been slim, Hmong farmers say. Mr. Lee says a flock of broilers typically brings in \$40,000 to his farm. But after costs such as utilities, heat and the mortgage, a paycheck for two months might register at \$5,000, he says, so 'you barely survive.'"<sup>25</sup> Describing another family's experience, the newspaper *Hmong Today* reported in 2005: "One couple who had been considering investing their retirement savings in a chicken farm decided to look for other opportunities when they learned they would not really be independent after signing a poultry growing contract. They learned that the company would decide when they would get chicks, how many chicks they would get, and what they should feed the chicks. It was the fact that the company could change the contract, or simply stop bringing new chicks, that convinced these elders to look for a less risky retirement investment."<sup>26</sup>

For individuals in the community, concern over the decline in independent family farms—coupled with the pressures of reduced quality of life and potential resultant socioeconomic disadvantages when factory farms move in—can even contribute to CAFO-related post-traumatic stress disorder symptoms.<sup>27</sup>

**According to the  
U.S. Environmental  
Protection Agency,  
in June 2006,  
there were  
approximately  
18,800 CAFOs in  
the United States.<sup>37</sup>**

## “Units of Production”

As industrial animal production facilities displace the independent family farmers who once raised most of the nation’s farm animals, animal agribusiness has also lost the traditional U.S. farmer’s connection to—and compassion for—the animals. Rather than regarding animals as sentient individuals, today’s animal agribusiness industries treat them as “production units,” denying the billions of animals raised for food in the United States most of their natural behaviors and subjecting them to selective breeding for overproduction, overuse of antibiotics, overcrowding, intensive confinement, and physical mutilations including castration, dehorning, and beak-trimming—all performed without painkillers.\*

No federal law protects animals from cruelty on the farm, and the majority of states exempt customary agricultural practices—no matter how abusive—from the scope of their animal cruelty statutes. As a result, agribusiness corporations are permitted to disregard the well-being of animals for the sake of their economic interests, making larger profits by intensively confining animals and breeding them for rapid growth with little regard for the amount of suffering the animals endure. If the same abuses were inflicted upon dogs or cats, cruelty to animal charges may be warranted in all 50 states.

**Table 1: Definitions by the Numbers**

	<b>Large Concentrated Animal Feeding Operations<sup>35</sup></b>	<b>Medium Concentrated Animal Feeding Operations<sup>36</sup></b>
<b>Chickens raised for meat</b>	<ul style="list-style-type: none"> <li>• 30,000 for facilities using liquid manure handling systems</li> <li>• 125,000 for other facilities</li> </ul>	<ul style="list-style-type: none"> <li>• 9,000-29,999 for facilities using liquid manure handling systems</li> <li>• 37,500-124,999 for other facilities</li> </ul>
<b>Egg-laying chickens</b>	<ul style="list-style-type: none"> <li>• 30,000 for facilities using liquid manure handling systems</li> <li>• 82,000 for other facilities</li> </ul>	<ul style="list-style-type: none"> <li>• 9,000-29,999 for facilities using liquid manure handling systems</li> <li>• 25,000-81,999 for other facilities</li> </ul>
<b>Pigs</b>	<ul style="list-style-type: none"> <li>• 2,500 if each animal weighs 55 pounds or more</li> <li>• 10,000 if each animal weighs less than 55 pounds</li> </ul>	<ul style="list-style-type: none"> <li>• 750-2,499 if each animal weighs 55 pounds or more</li> <li>• 3,000-9,999 if each animal weighs less than 55 pounds</li> </ul>
<b>Cattle</b>	<ul style="list-style-type: none"> <li>• 700 mature dairy cows</li> <li>• 1,000 calves raised for veal</li> <li>• 1,000 other cattle</li> </ul>	<ul style="list-style-type: none"> <li>• 200-699 mature dairy cows</li> <li>• 300-999 calves raised for veal</li> <li>• 300-999 other cattle</li> </ul>

\* For more information, visit the Farm Animal Welfare research library at [www.humanesociety.org/farm/resources/research](http://www.humanesociety.org/farm/resources/research).



**[A]s environmental science has advanced, it has become apparent that the...[animal agriculture sector] is a driving force behind virtually every major category of environmental damage now threatening the human future—deforestation, erosion, fresh water scarcity, air and water pollution, climate change, biodiversity loss, social injustice, the destabilization of communities, and the spread of disease.**

Excerpted from “Meat: now, it’s not personal!” printed in the July/August 2004 issue of *Worldwatch*, published by the Worldwatch Institute

# **toxic land, polluted water, unbearable stench, and global warming.**

“[F]amily farms have tended to exhibit a sense of stewardship concerning the land they occupy, at least in an effort at self-preservation,” concluded one literature review. “Today’s corporate producers, with boardrooms in distant cities (sometimes overseas), are less impelled to be sensitive to changes in the land caused by innovative production techniques.”<sup>38</sup>

## **Waste (Mis)Management**

According to data from the U.S. Department of Agriculture (USDA) and the EPA, animal feeding operations produce approximately 500 million tons of manure every year,<sup>39</sup> with CAFOs generating 47<sup>40</sup>-60%<sup>37</sup> of this excrement. The EPA has estimated that “all confined animals generate 3 times more raw waste than is generated by humans in the U.S.”<sup>39</sup>

It should come as no surprise that much of the environmental harm caused by factory farms comes from the volume of waste that must be stored and disposed of when continuously confining so many animals indoors, with some operations producing as much waste as an entire city.<sup>41</sup> Over the past two decades, shifts in animal agribusiness have exacerbated existing waste management problems, with more animals being intensively confined in fewer, but larger, operations.<sup>42,43</sup>

The USDA’s Natural Resources Conservation Service (NRCS) and the EPA outline the changes as including:

- the move toward intensive confinement;
- the steady replacement of small- and medium-sized operations with large confinement operations;
- the continued consolidation of all aspects of production;
- the increase in numbers of confined animals per operation; and
- the spatial concentration of operations in high production areas.<sup>42,43</sup>

These developments have resulted in industrial animal agribusiness operations producing more manure than can be assimilated by available land, particularly in high production areas.<sup>42,43</sup>

When applied to crops at a rate that the soil is able to absorb, animal waste serves as a useful fertilizer; however, a salient feature of factory farms is their lack of any direct tie to the land and local natural resources,<sup>44</sup> making them “landless” as opposed to land-based like traditional farms.<sup>45</sup>

On traditional mixed (or diversified) farms, farmers balance the number of animals with the land’s ability to absorb the nutrients in their manure. On factory farms, this recycling of nutrients to replenish the soil and fertilize crops is absent<sup>45</sup> because, rather than raise animals and crops together, animals are housed in close confinement indoors and there is typically not enough land available to spread all of the manure.<sup>46</sup> The increased volume of waste in CAFOs threatens water quality<sup>47</sup> and, “as operations become more numerous and concentrated on limited land bases, there is an increased risk for deterioration of water quality.”<sup>48</sup> Transporting the waste to fields in need of fertilizer is expensive,<sup>44</sup> so it is customarily applied to fields near the operation.<sup>49</sup>

When animal waste is overapplied to land, thus exceeding the capacity of soil and crops to assimilate its nutrients, it can contaminate water supplies<sup>50</sup> and emit harmful gases into the atmosphere.<sup>46</sup> Because there is no requirement that factory farm manure be treated before it is applied,<sup>51</sup> its disposal poses additional risks to public health.<sup>52</sup> Of particular concern are pathogens that may end up in surface water, heavy metals, and nutrients such as nitrogen and phosphorous that can leach into groundwater, run off fields where manure has been applied, and, in the case of nitrogen, volatilize into ammonia emissions.<sup>40,53,54</sup>

According to the USDA’s Economic Research Service (ERS), in 1997, confinement operations produced approximately 1.23 million tons of nitrogen from manure for spreading on fields; however, cropland and pasture owned by these operations only had the capacity to assimilate 38% of this nitrogen.<sup>55</sup> The cost of moving farm animal waste gives factory farms an incentive to overapply manure to nearby land,<sup>40</sup> resulting in approximately 90% of animal manure not leaving the area in which it was produced.<sup>56</sup> This exacerbates the problem of concentrating such an abundance of nutrients in a particular locale.<sup>57</sup> For example, in 1997, the Southern Seaboard region, home to many pig and poultry operations, produced the largest quantity of recoverable nitrogen from manure and had among the fewest acres of land per animal unit (figure based on animal weight)<sup>46</sup> on which to apply manure. As such, the ERS reported that this region accounted for 27% of all excess nitrogen produced nationally by confinement operations.<sup>55</sup>

## **Tainted Water**

Water quality issues arising from factory farm-generated waste include contamination of surface water and ground water. This can be caused by overapplication of manure to available land, storage tanks and lagoons overflowing or leaking, and pollutants that had been released into the air redepositing into waterways.<sup>58</sup>

According to the EPA, the agricultural sector is “the leading contributor to identified water quality impairments in the nation’s rivers and streams, lakes, ponds, and reservoirs.”<sup>59</sup> In particular, the agency has noted that water quality concerns are most pronounced in areas “where crops are intensively cultivated and where livestock operations are concentrated.”<sup>59</sup>

For example, in 2003, California’s Chino basin estimated that it would spend more than \$1 million per year to remove nitrates from its drinking water due to the abundance of local dairies and the relatively rapid transformation of nitrogen in manure into nitrates, which were ultimately transported into the community’s drinking water supply.<sup>60</sup> In February 2008, a group of Tulare County, California, residents filed a lawsuit over pollution permits the state water quality control board had issued to 1,600 dairies in the area,<sup>61</sup> which has the country’s highest concentration of cows used for the dairy industry.<sup>62</sup> Testing had revealed that wells and public water systems in the county contained unsafe amounts of nitrates. According to one civic leader, “We’re talking about poor communities who are paying for water they can’t drink.”<sup>61</sup>

When manure is overapplied to land, it deposits excess nutrients that can end up in waterways.<sup>46</sup> As noted in a 2007 Congressional Research Service report, “USDA believes that where manure nutrients exceed the assimilative capacity of a region, the potential is high for runoff and leaching of nutrients and subsequent water

quality problems.”<sup>63</sup> According to the USDA, the problem of excess nutrients is most pronounced in poultry operations, which produce 52% of the excess phosphorous and 64% of the excess nitrogen created by farm animal waste.<sup>64</sup> Phosphorous and nitrogen in waterways can cause eutrophication, in which an increase in nutrients depletes the water of oxygen, threatening aquatic life.<sup>65</sup> When ammonia reaches surface waters, it can cause algae blooms and fish kills.<sup>51</sup>

Chicken waste poses the greatest risk of polluting water after it has been applied to land,<sup>66</sup> a problem the Chesapeake Bay has faced for years. An editorial in an October 2007 edition of *The Baltimore Sun* commented, “For too long, the poultry industry in this state has wielded economic and political clout to escape responsibility for its primary role in the slow, steady poisoning of the Chesapeake Bay... No longer should the poultry industry, because it provides so many jobs in a relatively poor corner of the state, get a pass on bay pollution. It has severely damaged Maryland’s seafood industry and threatens the recreational boating and water sports industries as well. What about those jobs?”<sup>67</sup>

In contrast to chicken factory farms, pig and dairy factories typically liquefy the manure and store it on-site until it is applied to land. Two customary manure storage systems used in factory farms confining pigs or cows are the slurry system and the liquid lagoon system.<sup>40,68</sup> In a slurry system, liquefied manure is stored either under the building or outdoors in a cement pit, which is only emptied once or twice a year.<sup>51</sup> The stored slurry is later sprayed on fields, incorporated into the soil with a chisel plow, or injected directly into the soil using a drag hose.<sup>40</sup> Both the storage and land application of farm animal manure lead to ammonia emissions.<sup>69,70</sup>

In a lagoon system, liquefied manure is stored in an outdoor, open-air pit that can hold as much as 20-45 million gallons of waste<sup>71</sup> and emit pollutants into the air, including methane, a gas implicated in climate change.<sup>72</sup> The stored liquid manure is ultimately sprayed onto fields.<sup>40</sup> Lagoons decrease the amount of nutrients that must be applied to land, in part because much of the nitrogen content is volatilized into ammonia emissions from the lagoon itself.<sup>73</sup> Additionally, recoverable nitrogen from lagoon liquid is 70% lower from uncovered lagoons than covered lagoons.<sup>40</sup> For this reason, facilities subject to field application limits for nitrogen benefit from storing manure in uncovered lagoons at the expense of neighbors who may suffer from the high levels of ammonia emitted from these open-air manure pits.

Manure lagoons pose the additional risk of leakage, poisoning both surface and groundwater.<sup>74,75</sup> Major manure lagoon spills or leaks have been documented in several states, including Iowa, Minnesota, Nebraska, and Ohio.<sup>76</sup> Between 1995 and 1998, factory farms were responsible for 1,000 spills or other instances of pollution in ten states.<sup>77</sup> In one incident, more than 20 million gallons of slurry spilled from a manure lagoon on a pig factory farm into a nearby river in North Carolina, causing a massive fish kill.<sup>78</sup> In 2005, a manure lagoon at an upstate New York dairy farm burst, polluting the nearby Black River with millions of gallons of manure and killing more than 375,000 fish.<sup>79</sup>

Although it takes no more than a single factory farm to cause a spill or leak, the trend toward concentrating factory farms within discrete geographical areas raises concerns over the ability to maintain water quality for residents within a particular watershed.<sup>80</sup> As the Congressional Research Service has noted, “[g]eographically, areas with excess farm-level nutrients correspond to areas with increasing numbers of confined animals,” adding that “[c]ounties with potential animal waste problems tend to be grouped together.”<sup>63</sup>

As part of its October 2007 series of articles on food and farming, the online environmental magazine *Grist* published a piece contrasting two Iowa counties—one with numerous factory farms and one with policies in place to encourage the growth of more sustainable farms in the area. One resident of Hardin County, “the state’s CAFO capital,” described the geographical concentration of factory farms in the area as such: “From a high spot on our land, we can see a good 100 hog operations within a four-mile radius.”<sup>81</sup>

A 2002 article in *The American Prospect* highlights how the location of one corporate facility in the production chain can spur the creation of multiple factory farms in a single county.

Halfway out the flat and arid Oklahoma panhandle, Texas County used to raise wheat, hay, cattle, and some—not many—hogs. In 1995 Seaboard Farms moved in to set up a giant pork slaughterhouse with more than \$60 million in direct subsidies and tax breaks. To supply the plant, Seaboard set up hundreds of giant metal barns, each containing nearly 1,000 hogs. Texas County now raises more than a million hogs annually. Seaboard produces as much sewage as the city of Philadelphia, and it sits in open-air lagoons, some as large as 14 acres and as deep as 25 feet. Neighbors complain of intolerable stench, and everybody worries about water pollution.<sup>13</sup>

In Oklahoma, between 2006 and 2007, the EPA levied more than \$7 million in fines against companies operating in the state, primarily factory farms. “If the waste from those facilities aren’t [sic] managed properly, you get significant nutrient problems in ground and surface water,” says John Blevins, director of the EPA’s Compliance Assurance and Enforcement Division for the region that includes Oklahoma.<sup>82</sup> He also notes that four of the states under his jurisdiction—Arkansas, New Mexico, Oklahoma, and Texas—“have some of the biggest CAFOs in the nation.”<sup>82</sup>

In North Carolina, Waterkeeper Alliance and Neuse Riverkeeper reached a settlement with Smithfield Foods, the world’s largest pig producer,<sup>83</sup> five years after filing their lawsuit.<sup>84</sup> Among the terms of the settlement, which will affect more than 275 pig production facilities in North Carolina, the company must reduce the possibility of runoff by installing a mechanized weather alert system so that facilities do not spray liquid pig waste when rainstorms are imminent.<sup>84</sup>

When manure is overapplied to land or applied during certain types of inclement weather, such as temperatures at which the ground is frozen or before rainstorms, it can result in polluted runoff, a type of “non-point source” pollution that infects waterways, seeps into groundwater, and contaminates drinking water supplies.<sup>11</sup> Epidemiological studies have linked farm animal waste to several outbreaks involving pathogens such as *Campylobacter*, *Salmonella*, *Listeria monocytogenes*, *Helicobacter pylori*, and *E. coli* 0157:H7, as well as the protozoa *Cryptosporidium parvum* found in drinking water sources, which can result from runoff into surface waters.<sup>52</sup>

When natural disasters strike, the latent environmental hazards posed by factory farming can be unleashed. In 1999, North Carolina was struck by Hurricane Floyd and widespread flooding led to the dispersal of waste from manure lagoons. The ensuing pollution, including the spread of pathogens, increased the risk of disease.<sup>85</sup> Director of Public Affairs for the North Carolina Department of Environment and Natural Resources, Donald Reuter, attributed the majority of the environmental damage caused by the industry to pig farms and the massive amounts of liquid waste stored on site.<sup>85</sup>

## Noxious Air

Factory farms are notorious for the air pollution and odors<sup>86,87</sup> produced by the microbial breakdown of organic carbon and nitrogen compounds in manure.<sup>43</sup> During decomposition, noxious levels of gases are emitted, putting workers and nearby residents at risk of developing a number of acute and chronic illnesses. Waste storage and land application lead to emissions of fine particulates, carbon dioxide, hydrogen sulfide, ammonia, and methane.<sup>88</sup>

The most odiferous of the chemicals emitted by factory farms are ammonia, hydrogen sulfide, and volatile organic compounds.<sup>89</sup> Viney Aneja, a professor in the Department of Marine, Earth, and Atmospheric Sciences at North Carolina State University and a member of the EPA’s Science Advisory Board Staff,<sup>90</sup> has reportedly noted that while some ammonia can end up in waterways as far as 50 miles away, the rest is transported in an airborne form and can reach areas that are hundreds of miles away.<sup>91</sup> In one North Carolina county, during an 11-year period of significant expansion in the pig farming industry, the amount of ammonia in the rain doubled.<sup>91</sup> In 2003, a Buckeye Egg facility in Ohio reported emissions of 1.6 million pounds of ammonia, approximately 44 times the health-related reporting threshold set by the Environmental Protection Agency.<sup>77</sup> In

## who should pay for pollution?

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or “Superfund” as it is commonly known, provides federal authority “to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.”<sup>106</sup> The focus of CERCLA is hazardous wastes from industrial plants. The Emergency Planning and Community Right-to-Know Act (EPCRA) establishes emergency planning and reporting requirements for hazardous and toxic chemicals, which “help increase the public’s knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment.”<sup>107</sup>

As of June 2008, a bill was pending in Congress that would exempt farm animal manure from federal pollution laws for industrial sources. This proffered amendment to CERCLA and EPCRA specifies that manure would not be considered a hazardous substance or pollutant subject to federal reporting and clean-up requirements.<sup>77</sup> It would also eliminate notification and reporting requirements under both CERCLA and EPCRA for all releases related to manure, including emissions of hydrogen sulfide and ammonia.<sup>108</sup> Although CERCLA already provides an exemption for the “normal application of fertilizer,”<sup>109</sup> agribusiness is lobbying for the passage of this legislation.

To address these and other issues, the U.S. Senate Committee on Environment and Public Works (EPW) held a hearing in September 2007 entitled “An Examination of the Potential Human Health, Water Quality, and Other Impacts of the Confined Animal Feeding Operation Industry.”<sup>110</sup> Committee Chairman Barbara Boxer noted that “rollbacks on environmental reporting and ‘polluter-pays’ requirements will greatly increase the risk that these facilities can pose to local communities.”<sup>111</sup> The National Association of Clean Air Agencies, which represents air pollution control agencies across the country and is opposed to deregulation of CAFOs, concluded in its testimony at the EPW hearing that “CAFOs, like every other major industry in this country, should be expected, and required, to accept their obligations and comply in full with environmental laws.”<sup>112</sup>

2004, a Premium Standard Farms pig factory farm in Missouri emitted 3 million pounds of ammonia into the air, which amounted to five times that generated by all industrial sources in the state.<sup>77</sup>

As with water pollution, geographical concentration also plays a role in air pollution. Commenting on the difference between small, independent farms and factory farms in this regard, an October 2007 article entitled “Something stinks in Iowa” states: “The factory farms have mostly replaced smaller family operations, which were scattered enough to limit their unavoidable stench... The operations typically set up shop near small, rural towns, where land is cheap and officials are eager for any new business that offers jobs and increased tax revenue.”<sup>92</sup>

Neighbors aren’t the only ones who suffer from factory farm gases. Of all the gaseous byproducts of farm animal manure decomposition, hydrogen sulfide is regarded as the most dangerous, creating a risk of both

## the epa's regulation of cafos

Despite its mission “to protect human health and the environment,”<sup>113</sup> the EPA’s regulation of CAFOs has been woefully inadequate. The U.S. Government Accountability Office (GAO) identified two key flaws in the EPA’s regulation of CAFOs in a 2003 report. First, the GAO found that the agency was allowing approximately 60% of AFOs—three out of five—to proceed unregulated. Second, it found a lack of federal oversight of state governments tasked with enforcing federal regulations that apply to CAFOs.<sup>114</sup>

The National Pollutant Discharge Elimination System (NPDES), authorized by the Clean Water Act, regulates CAFOs and other “point sources” that discharge pollutants into U.S. waters.<sup>115</sup> To discharge pollutants into a waterway, regulated facilities must have an NPDES permit, which prescribes limits on the facility’s discharges and requirements for monitoring and reporting.<sup>116</sup>

Those who violate permit requirements may face administrative orders requiring corrective actions and assessing monetary penalties, as well as civil and criminal actions, including mandatory injunctions, penalties, and jail sentences for those who willfully violate permit requirements and endanger the environment and public health.<sup>116</sup> Members of the public may enforce NPDES permits by viewing facility monitoring reports, which are public documents, and initiating a legal action if the facility is in violation of its permit.<sup>116</sup>

The EPA is in the process of revising NPDES permitting requirements for CAFOs following a federal court’s decision in *Waterkeeper Alliance et al. v. EPA*.<sup>117,118</sup> The EPA has proposed a new rule and, as of this printing, was reviewing comments on its proposal submitted by the public.

Interestingly, the agency’s new proposal would result in approximately 25% fewer CAFOs receiving permits than under the previous rule—despite a 22% increase in CAFOs between 2002 and 2005 “due to industry expansion and the trend toward larger, more concentrated facilities.”<sup>119</sup> As the EPA itself has noted, “it would be the CAFO’s responsibility to decide whether or not to seek permit coverage based on whether they discharge or propose to discharge.”<sup>120</sup>

The agency’s approach to addressing air pollution from these operations is also questionable. Despite existing knowledge about air pollution caused by factory farms, agribusiness has benefited from an offer extended by the EPA in 2005. Claiming it lacked “sufficient air emissions data to determine potential regulatory requirements for AFOs under the Clean Air Act,” the EPA enlisted 6,267 farms to participate in an “industry-led monitoring survey” known as the Air Quality Compliance Agreement.<sup>121</sup>

Participating facilities must pay a nominal fee of up to \$2,500 and a one-time penalty of \$200-\$100,000, depending on their size. In exchange for participating, the EPA has offered amnesty for certain past violations of 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).<sup>122</sup> As an attorney with Sierra Club stated, “The EPA decided to give them blanket amnesty in the form of, ‘You send us a check ...and we’ll guarantee that no one will sue you.’”<sup>123</sup>

unconsciousness and death for those who work in manure pits.<sup>93</sup>

The National Institute for Occupational Safety and Health (NIOSH) has deemed hydrogen sulfide to be “a leading cause of sudden death in the workplace.”<sup>94</sup>

A number of reports on the NIOSH website document worker fatalities caused by exposure to the chemicals in manure pits.<sup>95-98</sup> The agency even issued an alert in 1990 entitled *Preventing Deaths of Farm Workers in Manure Pits*,<sup>99</sup> which covers the harmful effects of the chemicals commonly found in these holding tanks. In July 2007, five people died in a manure pit on a Virginia dairy farm from methane emissions. The county sheriff explained that “when these fumes hit you, it takes a matter of seconds, and it’s my guesstimate that these people were dead before they actually hit the floor.”<sup>100</sup>

## Climate Change

Global warming and climate change are not just distant threats to the future of the planet, animals, and humanity—we are already seeing evidence of these phenomena occurring today. Polar bears in the Arctic have been losing sea ice from premature melting, threatening their ability to hunt and survive.<sup>101</sup> Global warming has also disrupted the biological clocks of some migratory birds who need discrete habitats for breeding, wintering, and resting, preventing them from migrating at the correct times.<sup>102</sup>

Experts also regard global warming as a driving force in current and future conflicts over resources. United Nations Secretary-General Ban Ki-moon has stated that “the danger posed by war to all of humanity—and to our planet—is at least matched by

the climate crisis and global warming,” noting that global warming can lead to natural disasters, trigger droughts, and cause other changes that “are likely to become a major driver of war and conflict.”<sup>103</sup>

Industrial animal agribusiness has wreaked havoc on our planet, devastating the environmental integrity of our land, clean air, and fresh water. The environmental toll exacted by animal agriculture goes far beyond local, state, and even national boundaries. Indeed, the problem has reached such a critical juncture that, in 2006, the Food and Agriculture Organization (FAO) of the United Nations published its landmark report, *Livestock’s Long Shadow: Environmental Issues and Options*, to assess the overall impacts of animal agriculture.

The FAO concluded that “the livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global.”<sup>104</sup> With global meat and milk production expected to double within the next 50 years, the FAO cautions that the “environmental impact per unit of livestock production must be cut by half, just to avoid increasing the level of damage beyond its present level.”<sup>104</sup>

The most publicized finding in the FAO’s report has been the role animal agriculture plays in climate change. With all of the attention typically reserved for cars, trucks, and SUVs, it surprised many to learn that, in fact, the animal agriculture sector is responsible for a greater percentage of greenhouse gas emissions, measured in carbon dioxide-equivalent, than transportation.<sup>105</sup>

**The National Commission on Industrial Farm Animal Production will take testimony today on the impact of concentrated animal feeding operations on the environment, public health and rural communities....**

**One of those allotted time to speak is Dwayne “Bill” Miller, of Neosho.**

**“I am going to talk about water quality and the high levels of bacteria in our water,” he said. “I am going to speak on behalf of those who still want to go to a creek and go swimming, but can’t because there is too much E. coli in it.”**

Excerpted from Wally Kennedy’s article entitled, “CAFO concerns about to be aired,” printed on February 13, 2007, in *The Joplin Globe*.

## public health at risk.

The wealth of information linking factory farms with illness led the world's largest association of public health professionals to evaluate the issue. In 2003, the American Public Health Association issued a policy statement urging federal, state, and local governments and public health agencies to impose a moratorium on the construction of new factory farms "until additional scientific data on the attendant risks to public health have been collected and uncertainties resolved."<sup>52</sup>

Indeed, factory farm waste contains a number of byproducts of concern to human health, including heavy metals, pathogen bacteria, and volatile gases.<sup>52</sup> Numerous studies have found such respiratory problems among factory farm workers as chronic bronchitis, occupational asthma, and Organic Dust Toxic Syndrome.<sup>124</sup>

However, those inside industrialized animal factories aren't the only ones at risk. Studies published in 2006 that focused on children found that kids who attend schools nearby suffer elevated incidences of asthma symptoms.<sup>125,126</sup> Other studies have documented the problems factory farms create for the health of those who live close to them. In one study, researchers compared physical health symptoms of residents in three communities in North Carolina—two near factory farms housing either pigs or cattle and one in another rural area without any agricultural operations using liquid waste management systems.<sup>127</sup> Residents near the pig factory farm reported more frequent occurrences of "headache, runny nose, sore throat, excessive coughing, diarrhea, and burning eyes."<sup>127</sup> Researchers in another study found that neighbors of a pig factory farm also suffered from respiratory problems, nausea, weakness, and chest tightness.<sup>128</sup>

A third study evaluated the way odors affected the moods of individuals living near a pig factory farm since negative mood can affect immunity.<sup>129</sup> The gaseous emissions from factory farms emanate from the buildings where animals are confined, waste storage systems, and land application of waste,<sup>48</sup> and odors are produced by decomposing feces, spilled feed, and urine.<sup>129</sup> Compared to the control group, individuals living near the factory farm who encountered the odors had "significantly more tension, more depression, more anger, less vigor, more fatigue, and more confusion."<sup>129</sup> Determined a 2002 report released by Iowa State University and the University of Iowa, hydrogen sulfide and ammonia emissions from factory farms can pose a health risk to humans.<sup>48</sup>

In addition to threatening public health with water and air pollution, factory farms may also contribute to the spread of antibiotic-resistant bacteria in the surrounding environment and in food products<sup>49</sup> as well as antibiotic-resistance in humans.<sup>130</sup> When used therapeutically to treat and prevent disease, antibiotics may be dispensed to an entire group of animals via their food and water.<sup>131</sup> Used non-therapeutically, antibiotics can be added to food in low doses to enhance feed efficiency and to promote growth.<sup>131,132</sup>

Factory farms, in particular, may depend on antibiotics in animal feed to counteract the health challenges presented by the overcrowded, unsanitary, and stressful living conditions within these facilities.<sup>132</sup> The Workgroup on the Potential Role of CAFOs in Infectious Disease Epidemics and Antibiotic Resistance convened in 2004 for the “Environmental Health Impacts of Concentrated Animal Feeding Operations: Anticipating Hazards—Searching for Solutions” conference<sup>133</sup> and noted that “[a]nimal crowding, CAFO hygiene, temperature and ventilation control, and stress all have an impact on growth rate and the ability of animals to resist disease.”<sup>134</sup>

The intensive confinement and immense quantities of waste typical of industrial animal agriculture may exacerbate the spread of antibiotic-resistant bacteria.<sup>131,135</sup> When factory farm waste is applied to land, any water that is contaminated by this waste can facilitate the spread of these antibiotic-resistant bacteria<sup>131</sup> and, ultimately, may transmit them to humans.<sup>136</sup>

The antibiotics themselves may be spread via contaminated water and crops grown in fields where factory farm waste has been applied, since up to 75% of an antibiotic can pass undigested through animals and become part of their waste.<sup>137,138</sup> This may contribute to antibiotic resistance in humans, as the antibiotics routinely fed to farm animals are drugs typically prescribed to humans, such as bacitracin, erythromycin, penicillin, and tetracycline.<sup>132,139</sup> “The reason we’re seeing an increase in antibiotic resistance in foodborne diseases,” explains an official with the Centers for Disease Control, “is because of antibiotic use on the farm.”<sup>130</sup>

When antibiotics are overused in industrialized animal agriculture or over-prescribed in humans, the bacteria they are designed to kill become resistant to these drugs.<sup>134</sup> Despite this fact, the Union of Concerned Scientists reports that 24.6 million pounds, approximately 70%, of such drugs produced in the United States are added to the feed of animals who are not sick.<sup>139</sup> According to the group’s estimates, up to 84% of all antibiotic use is for animal agriculture while only 13% is for humans.<sup>140</sup>

While Europe banned the use of many medically important antibiotics as farm animal growth promoters years ago,<sup>141</sup> no such step has yet taken place in the United States. The American Medical Association, the Infectious Diseases Society of America, and the American Academy of Pediatrics are among the 350 organizations nationwide that have endorsed efforts to phase out the use of antibiotics important to human medicine as animal feed additives.<sup>142</sup>



**To the Bears, the crisis...began...when the first birds arrived at the new Buckeye [egg factory farm] plant behind their house....The following February, the ugly aspects of living near an egg farm became real. Their garage filled with flies eager to get into the house, and the air became heavy with the stench of chicken manure. Their well went down 17 feet, and in time, manure spills signaled the need to test the well regularly for bacteria and nitrates....**

**During the Bear family reunion on June 27, 1999, Rosie passed out fly swatters so guests could work on fly control.**

**Robert filmed the picnic, panning slowly to show flies covering everything in sight—the deck, charcoal grill, siding, pant legs, shoes and toys.**

**On April 15, 2002, when Rosie was a substitute teacher at Marseilles Elementary School down the road, she spent the whole day fighting flies....**

Excerpted from Fran Henry's article entitled, "State rules still short of ideal, some say," printed on June 2, 2003, in *The Plain Dealer*.

## **diminishing quality of life for rural communities.**

In 2002, Dan Perkins spoke with reporters from the *Dayton Daily News*:<sup>143</sup>

Dan Perkins, 75, said he didn't get to watch his grandsons ride the tractors on his Licking County farm this year.

"They wouldn't come out anymore," said Perkins, whose property borders a Buckeye Egg farm. "This year, the flies were the worst they have ever been. I've put out all kinds of traps and fly strips, thinking I could stop them there, but they covered the garage."

Neighbors of factory farms tell painful tales of what life is like for them and their families.

"It's a very unpleasant situation, from the odor and the big black flies and the runoff from the spraying of the fields that gets into the creek and tributary," said one neighbor of an Alabama pig factory farm. "The water is dark brown to black. It doesn't look healthy at all."<sup>144</sup>

Describing the odors that emanate from pig factory farms, one Illinoisan said, "I could be out in the gardens, and you have to run for the house if the wind switches direction... One night the smell was so bad, I said to my wife, 'I don't even know if it's safe to go to sleep.'"<sup>145</sup>

"I am not anti-dairy and I am not against a dairy on Mr. Woodbury's property," testified an Idaho resident living near an anticipated factory farm site. "But we would like to go on record that we do oppose the size, the unacceptable access road to the site, the runoff and other issues."<sup>146</sup>

In an opinion editorial, a representative of an Indiana community group fighting factory farms wrote, "CAFOs have the benefit of providing inexpensive meat and dairy products to the market due to their enormous size and economies of scale. However, they are also notorious across the Midwest for the contamination of local water supplies, extremely foul-smelling air, the drying up of local wells and the degradation of local roads and bridges."<sup>147</sup>

Factory farms haven't only impacted the daily lives of rural Americans. In an April 2007 editorial published in Findlay, Ohio's *Courier*, newspaper staff summed up the financial impact for factory farm neighbors: "[I]t's a fact that when megafarms move in, property values plummet."<sup>148</sup>

Indeed, based on the harms factory farms inflict on water, air, and public health in their vicinity, it is not surprising that they also impact local property values. Studies have shown that property values can decline substantially when residences are in close proximity to a CAFO.<sup>149-151</sup>

According to an article in the journal of The Appraisal Institute, an international association of professional real estate appraisers, case studies demonstrate that "diminished marketability, loss of use and enjoyment, and loss of exclusivity can result in a diminishment ranging from 50% to nearly 90% of otherwise unimpaired value."<sup>149</sup> Researchers in Pennsylvania have found that neighboring house prices decrease once the total live weight of confined animals exceeds 200,000 pounds.<sup>152</sup>

A study conducted in five counties in North-Central Iowa found that nearby residences downwind of a confinement operation may suffer a 10% drop in property value.<sup>151</sup> Thus, longtime residents of the community are left to suffer these consequences for the financial benefit of the company that has contracted with an individual to operate the facility.

Looking more broadly, Brad Trom's opinion-editorial reported that "[f]actory farm proponents (commodity groups, industry officials and politicians) have promoted industrialized livestock production as a more efficient way of raising animals and creating economic development. Some bankers are using this rhetoric to refuse credit to hog producers unless they sign a contract to raise thousands of hogs for a corporation."<sup>153</sup> However, studies have documented the beneficial impacts independent farms can have on communities, as well as the costs that accompany the increase in factory farms.

A 1994 University of Missouri study suggested that one "logical strategy for increasing employment in hog production is to support beginning hog farmers who might choose 'low-investment,' pasture production systems... In terms of hog farm employment, ten low-investment units would produce 12,000 feeder pig[s] per year and create 8 full-time positions. A single contract farrowing unit producing about the same number of pigs but [sic] would employ only 2.5 people."<sup>154</sup> According to a 1996 University of Iowa study, "an important reason for advocating industrial scale hog production is its touted efficiency—it reduces the amount of labor required per unit of production. If intensive industrial swine facilities are indeed more efficient, then the number of jobs will be reduced. Industry cannot have it both ways."<sup>155</sup> The study also found that "[w]here large scale operations are present there are fewer farms and fewer hog farms. In rural areas, where there are fewer small-to-moderate hog operations, there are declines in economic well-being as reflected in increased food stamp usage."<sup>155</sup>

A 2000 Illinois State University study concluded, "Contrary to mainstream positions in the agricultural economics literature, the results reject the hypothesis that large hog farming units contribute to the vitality of local economies. Instead, the several models developed here consistently suggest that large hog farms tend to hinder economic growth in rural communities."<sup>156</sup> A 2007 review article found that "[e]conomic concentration of agricultural operations tends to remove a higher percentage of money from rural communities than when the industry is dominated by smaller farm operations, which tend to circulate money within the community."<sup>6</sup>

The devastating effects of industrialized animal agriculture don't only jeopardize our nation's family farmers, the environment, our health, and the animals themselves. Factory farms are ruining the quality of life and economies in rural communities—both at the individual and family level and community-wide.



**One opponent of CAFOs had this to say: “I suppose some see me as a radical, because I strongly disagree with what is happening to our county. I think that, as a group, we are concerned about serious health issues associated with these individual CAFOs, as well as CAFOs collectively. The hog producers are trying to basically wrap their argument and point of view up in the farming/ag industry, but this is not traditional agriculture. This is industrial agriculture, and there are serious differences.”<sup>166</sup>**

***enough!***

The authors of a 2007 book entitled Environmental Management of Concentrated Animal Feeding Operations (CAFOs) sum up the strain imposed on communities:

“Corporate livestock factory owners and management tout themselves as ‘saviors’ to the rural communities they target. Everyone is promised salvation: job creation for local inhabitants, increased tax revenues for local coffers, expanded markets for family farmers, and increased purchasing power for hometown businesses, with high-tech production for consumers... However, the facts of the industry paint a different picture. Corporate livestock factories actually disable community development with self-serving contracts and tax breaks, market-monopolizing strategy, and few local purchases... While communities naturally want to attract jobs, wealth, and capital for investment, transferring... [farm animal] production from local families to corporations facilitates and accelerates the extraction of wealth and capital from rural areas.”<sup>157</sup>

Industrial animal agribusiness is not good business—unsustainable, environmentally dangerous, abusive, and adverse to our health—but its business acumen is highly developed in terms of knowing where and under what circumstances to set up shop. An editorial in a July 2007 issue of *The New York Times* describes this phenomenon: “Wherever it appears, factory farming has two notable effects. It threatens the environment, because of huge concentrations of animal manure and lax regulation. And it threatens local political control. Residents who want a say over whether and where factory farms, whose stench can be overwhelming, can be built find their voices drowned out by the industry’s cash and lobbying clout.”<sup>158</sup>

Factory farms tend to cluster in geographic locales where their vertically integrated infrastructure is well developed and input costs are lower.<sup>159</sup> Further, as presented in Environmental Management of Concentrated Animal Feeding Operations (CAFOs), “regulations and legislation have fallen behind CAFO creation and operation, enforcement of existing regulations is spotty, and problems associated with CAFOs are still being identified—although you can be sure those who neighbor CAFOs can identify some big issues, both environmental and social.”<sup>160</sup>

Two oft-cited examples of geographic concentration are the states of North Carolina and Iowa. In 1988, North Carolina produced 2.6 million pigs per year. Today, the Tar Heel State raises almost 10 million pigs annually.<sup>161</sup> Over a 20-year period, Iowans saw an approximately 84% decrease in the state’s total number of farms that raise pigs, while, at the same time, the average number of pigs *per farm* skyrocketed from 252 to 1,428,<sup>162</sup> an almost

## the pew commission on industrial farm animal production

In April 2008, the Pew Commission on Industrial Farm Animal Production (PCIFAP) released the results of a 2½-year investigation<sup>167</sup> into the problems associated with AFOs and CAFOs. The Commission focused on the impacts of industrial farm animal production on animal welfare, the environment, public health, and the vitality of rural communities<sup>168</sup> and determined that industrial farm animal production “often poses unacceptable risks to public health, the environment and the welfare of the animals themselves.”<sup>167</sup>

Commissioners—possessing expertise in animal agriculture, animal health, ethics, medicine, public health, public policy, and rural sociology—included former Kansas governor John Carlin; former U.S. Secretary of Agriculture Dan Glickman; former Assistant Surgeon General Michael Blackwell; Mary Wilson, associate professor at both Harvard Medical School and the Harvard School of Public Health; Frederick Kirschenmann, Distinguished Fellow at the Leopold Center for Sustainable Agriculture; Niman Ranch founder and rancher Bill Niman; author and professor Marion Nestle; and Colorado State University Distinguished Professor of Philosophy Bernard Rollin, among others.<sup>168</sup>

In his preface to PCIFAP’s report, Executive Director Robert Martin noted some of the challenges faced by the Commission. Specifically, Martin writes that “while some industrial agriculture representatives were recommending potential authors for the technical reports to Commission staff, other industrial agriculture representatives were discouraging those same authors from assisting us by threatening to withhold research funding for their college or university. We found significant influence by the industry at every turn: in academic research, agriculture policy development, government regulation, and enforcement.”<sup>168</sup>

The Commission’s extensive and detailed recommendations include the following:<sup>168</sup>

- A ten-year phase-out of “the most intensive and inhumane production practices,” including battery cages for egg-laying hens, gestation crates for pregnant sows, and tethering and/or individually housing calves to produce veal.
- A phase-out and ultimate ban on the non-therapeutic use of antibiotics in farm animal production.
- Increased research on the public health impacts of AFOs and CAFOs on workers and people living near these operations, as well as consideration of these findings in a new siting and regulation system.
- Improved enforcement of existing federal, state, and local regulations to improve siting and to protect the health of those who live near these operations.
- Local control and public input for the siting of new facilities, as well as access to redress for neighbors when these operations fail to comply with standards.
- Development and implementation of “a new system to deal with farm waste (that will replace the inflexible and broken system that exists today) to protect Americans from the adverse environmental and human health hazards of improperly handled IFAP [industrial farm animal production] waste.”

six-fold increase. A 2003 survey of rural Iowans indicated that pig CAFOs were less desirable development activities than prisons, solid waste landfills, slaughter plants, and sewage treatment plants.<sup>163</sup>

Factory farms are less likely to move into communities and states with the most stringent regulations. These tend to be found in areas with existing environmental problems, the greatest number of potentially harmful production systems, or nearby towns and counties inhabited by citizens concerned about the local environment.<sup>50</sup>

Concerns about the welfare of farm animals have also prompted citizens and lawmakers to take action against some of the worst factory farming practices. In 2002, a landmark ballot measure banning the use of gestation crates for pregnant sows made Florida the first state to outlaw a standard factory farming practice on animal welfare grounds. Arizona followed in 2006, overwhelmingly supporting a ballot initiative to prohibit the intensive confinement of pregnant sows in gestation crates and calves in veal crates. Oregon became the first state to ban gestation crates through its state legislature in 2007.<sup>164</sup> In May 2008, Colorado became the first state to ban both gestation crates and veal crates through its state legislature.<sup>165</sup>

To respond to “the explosive growth of livestock production,” globally,

effective public policies must involve all levels of government and various stakeholders, including local decision makers, producers, consumers, and nearby communities.<sup>45</sup> Absent effective policies, “many of the hidden costs of increased livestock production are eventually charged to governments and the public to clean up the environment, expand safety nets and economic opportunities for poor traditional livestock owners, and fend off threats to veterinary and human public health.”<sup>45</sup>

What does this mean for our communities? Each one of us can—and must—speak out against the expansion of factory farms in our own backyards and across the country, and no longer let industrial animal agribusiness exact such a massive toll on the environment, public health, animals, workers, farmers, and families.

Please see the appendices for sample letters to newspaper editors and comments to local decision makers, as well as resources to help you voice your opposition to factory farms.

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# **Factory Farming in America**

**Appendices**



## Appendix A

# Research Library

The HSUS Farm Animal Welfare Research Library provides comprehensive reports on the toll factory farming takes on farm animal welfare, the environment, and public health.

Please visit us online at [www.FarmAnimalWelfare.org](http://www.FarmAnimalWelfare.org) or contact us to obtain copies of these reports.

The Humane Society of the United States  
Farm Animal Welfare  
2100 L St., NW  
Washington, DC 20037  
Phone: 202-452-1100

## Appendix B

# Sample Letters to the Editor

### Sample #1:

Dear Letters Editor:

Thank you for the informative article about the proposed pig factory farm in Sample County (“Agribusiness Corporation coming to town,” September 22). I live a few miles from the anticipated site and am very concerned about the effects this animal factory will have on our community.

Besides harming the environment, public health, and property values, industrialized animal production facilities are notorious for abusing those animals intensively confined inside barren warehouse-like sheds. Most pigs used for breeding spend nearly their entire pregnancies inside metal crates so small that they cannot even turn around, while those raised for meat are overcrowded in filthy pens, never able to go outside.

I strongly urge other concerned residents to get the facts so we can work together to persuade our local decision makers that factory farms are bad for the animals, the environment, our health, our property, and our community.

Name  
City, State

### Sample #2:

Dear Letters Editor:

I’m happy to hear our County Commission is considering a health ordinance that would regulate factory farms like the proposed dairy factory (“Ordinance could help CAFO neighbors,” April 20).

The American Public Health Association, the world’s largest organization of public health professionals, has urged officials nationwide to adopt a moratorium on factory farms, as their neighbors suffer so many ailments as a result of living near these facilities.

The animals inside are also treated horribly. Cows in dairy factory farms are impregnated every year, often pumped full of hormones, and milked for 10 out of 12 months. When they are no longer productive, they’re slaughtered at a fraction of their natural age.

It is crucial that our local decision makers factor in the industry’s damage to air, water, health, neighboring property values, quality of life, independent farmers, and animals to calculate the true costs of factory farming.

Name  
City, State

## Appendix C

# Sample Letter to a County Board

July 1, 2008

Anytown County Board of Commissioners  
Anytown County Building  
100 Main St.  
Anytown, USA

Dear Members of the Anytown County Board of Commissioners:

We, the undersigned residents of Anytown, are extremely concerned about the impacts the many concentrated animal feeding operations (CAFOs, or factory farms) in the area are having on our community. We strongly urge the Board of Commissioners to consider the following data relating to animal welfare, water and air quality, public health, and property value diminution as it considers allowing another CAFO to be [built/expanded] in our county.

### **Animal Welfare**

Industrialized animal production facilities continue to displace the independent family farms that once provided much of our food. Rather than regarding animals as sentient individuals, today's animal agribusiness industries treat them as "production units," denying the billions of animals raised for food in the United States most of their natural behaviors and subjecting them to selective breeding for overproduction, overuse of antibiotics, overcrowding, intensive confinement, and physical mutilations including castration, dehorning, and beak-trimming—all performed without painkillers.<sup>†</sup>

No federal law protects animals from cruelty on the farm, and the majority of states exempt customary agricultural practices—no matter how abusive—from the scope of their animal cruelty statutes. As a result, agribusiness corporations are permitted to disregard the well-being of animals for the sake of their economic interests, making larger profits by intensively confining animals and breeding them for rapid growth with little regard for the amount of suffering the animals endure. If the same abuses were inflicted upon dogs or cats, cruelty to animal charges may be warranted in all 50 states.

### **Water and Air Quality**

Intensive confinement does not only adversely affect animals. It causes a wide range of problems for water and air quality. These environmental harms typically result from the volume of waste created, with some CAFOs producing as much waste as an entire city.<sup>1</sup> The U.S. Department of Agriculture (USDA) has estimated that animal feeding operations produce approximately 500 million tons of manure every year,<sup>2</sup> with CAFOs generating more than 47 percent of this amount.<sup>3</sup> The EPA has estimated that "all confined animals generate 3 times more raw waste than is generated by humans in the U.S."<sup>2</sup>

Over the past two decades, agribusiness trends have exacerbated existing waste management problems, with more animals being intensively confined in fewer—but larger—operations.<sup>4,5</sup> The storage and disposal of this waste can—and does—lead to seepage from manure storage lagoons and runoff that pollutes our waterways, groundwater, and drinking water supplies.<sup>6,7</sup> Phosphorous and nitrogen in waterways can also threaten aquatic

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<sup>†</sup> For more information, visit the Farm Animal Welfare research library at [www.humanesociety.org/farm/resources/research](http://www.humanesociety.org/farm/resources/research).

life by causing eutrophication, a process by which an increase in mineral and organic nutrients depletes water of oxygen.<sup>8</sup>

Manure storage lagoons can hold as much as 20 to 45 million gallons of waste.<sup>9</sup> When these open-air pits leak, they can poison both surface and groundwater.<sup>10</sup> In recent years, major manure lagoon spills or leaks have been documented in various states, including Iowa, Minnesota, Nebraska, and Ohio.<sup>11</sup> Although it takes no more than a single manure storage facility to cause such a spill or leak, the trend toward concentrating CAFOs within discrete geographical areas raises concerns over the ability to maintain water quality for residents within a particular watershed.<sup>12</sup>

When manure is overapplied to land, it can result in polluted runoff, a type of “non-point source” pollution that infects waterways, seeps into groundwater, and contaminates drinking water supplies.<sup>6</sup> The process of transporting manure to other fields for application is expensive, so much so that a reported 90 percent does not leave the vicinity in which it was produced.<sup>13</sup>

Air quality is also threatened by the microbial breakdown of organic carbon and nitrogen compounds in these immense quantities of manure.<sup>5</sup> During decomposition, noxious levels of gases are emitted, putting workers and nearby residents at risk of developing a number of acute and chronic illnesses. Waste storage and land application lead to emissions of fine particulates, carbon dioxide, hydrogen sulfide, ammonia, and methane.<sup>14</sup>

The most odiferous of the chemicals emitted by CAFOs are ammonia, hydrogen sulfide, and volatile organic compounds.<sup>15</sup> Viney Aneja, a professor in the Department of Marine, Earth, and Atmospheric Sciences at North Carolina State University and a member of the EPA’s Science Advisory Board Staff,<sup>16</sup> has reportedly noted that while some ammonia can end up in waterways as far as 50 miles away, the rest is transported in an airborne form and can reach areas that are hundreds of miles away.<sup>17</sup> Residents of one North Carolina county saw the amount of ammonia in the rain double during a period of significant local expansion of the pork industry.<sup>17</sup> Hydrogen sulfide can build up to toxic levels in underground manure storage pits, creating a risk of both unconsciousness and death for those who work in these conditions.<sup>18</sup> Hydrogen sulfide has been deemed “a leading cause of sudden death in the workplace” by the National Institute for Occupational Safety and Health.<sup>19</sup>

## Public Health

The wealth of information linking CAFOs with illness in nearby communities led the largest association of public health professionals to evaluate the issue. In 2003, the American Public Health Association resolved to urge federal, state, and local governments and public health agencies to impose a moratorium on the construction of new CAFOs “until additional scientific data on the attendant risks to public health have been collected and uncertainties resolved.”<sup>20</sup>

Studies have found that neighbors of pig CAFOs report more frequent occurrences of “headache, runny nose, sore throat, excessive coughing, diarrhea, and burning eyes”<sup>21</sup> as well as respiratory problems, nausea, weakness, and chest tightness.<sup>22</sup> A 2002 report released by Iowa State University and the University of Iowa asserted that hydrogen sulfide and ammonia emissions from CAFOs can pose a health risk to humans.<sup>23</sup> Furthermore, negative mood, which can result from the odors emanating from these operations, can affect the immunity of those who live nearby.<sup>24</sup> One study found that individuals living near a confinement operation had “significantly more tension, more depression, more anger, less vigor, more fatigue, and more confusion.”<sup>24</sup>

Recent studies focused on children have found that children who attend schools near pig CAFOs suffer elevated incidences of asthma symptoms.<sup>25,26</sup>

In addition to threatening public health with water and air pollution, factory farms may also contribute to the spread of antibiotic-resistant bacteria in the surrounding environment and in food products,<sup>27</sup> as well as antibiotic-resistance in humans.<sup>28</sup> Used non-therapeutically, antibiotics can be added to food in low doses to enhance feed efficiency and to promote growth.<sup>29,30</sup>

CAFOs, in particular, may depend on antibiotics in animal feed to counteract the health challenges presented by the overcrowded, unsanitary, and stressful living conditions within these facilities.<sup>30</sup> The Workgroup on the Potential Role of CAFOs in Infectious Disease Epidemics and Antibiotic Resistance convened in 2004 for the “Environmental Health Impacts of Concentrated Animal Feeding Operations: Anticipating Hazards—Searching for Solutions” conference<sup>31</sup> and noted that “[a]nimal crowding, CAFO hygiene, temperature and ventilation control, and stress all have an impact on growth rate and the ability of animals to resist disease.”<sup>32</sup>

When antibiotics are overused in CAFOs or over-prescribed in humans, the bacteria they are designed to kill become resistant to these drugs.<sup>32</sup> Despite this fact, the Union of Concerned Scientists reported in 2001 that 24.6 million pounds, approximately 70%, of such drugs produced in the United States are added to the feed of animals who are not sick.<sup>33</sup> This figure amounts to almost eight times the quantity of antibiotics and related drugs given to humans to treat illness.<sup>34</sup> Furthermore, the antibiotics routinely fed to farm animals are drugs typically prescribed to humans, such as bacitracin, erythromycin, penicillin, and tetracycline.<sup>30,33</sup> “The reason we’re seeing an increase in antibiotic resistance in foodborne diseases,” explains an official with the Centers for Disease Control, “is because of antibiotic use on the farm.”<sup>28</sup>

### **Property Value Diminution**

Studies have shown that property values can decline substantially when residences are in close proximity to a CAFO.<sup>35-37</sup> According to an article in the journal of The Appraisal Institute, an international association of professional real estate appraisers, case studies demonstrate that “diminished marketability, loss of use and enjoyment, and loss of exclusivity can result in a diminishment ranging from 50% to nearly 90% of otherwise unimpaired value.”<sup>35</sup> Researchers in Pennsylvania have found that neighboring house prices decrease once the total live weight of confined animals exceeds 200,000 pounds.<sup>38</sup> A study conducted in five counties in North-Central Iowa found that nearby residences downwind of a confinement operation may suffer a 10% drop in property value.<sup>37</sup> Thus, longtime residents of the community are left to suffer these consequences for the financial benefit of the company that has contracted with an individual to operate the facility.

### **Conclusion**

We ask that the Board of Commissioners consider the above data while debating the merits and details of the proposed CAFO ordinance. The most encouraging step to take for the animals, the environment, public health, and the community would be to enact a moratorium on new and expanded industrialized animal production facilities within Anytown County.

Thank you for your consideration.

Sincerely,

Name  
City, State

Name  
City, State

Name  
City, State

Name  
City, State

## Appendix D

# “On Being a Second-Class Iowa Citizen: A Frustrated Resident Speaks Out”



Originally published on October 17, 2007 and available at [www.grist.org/feature/2007/10/17/CAFO\\_letter/](http://www.grist.org/feature/2007/10/17/CAFO_letter/). Reprinted with permission from Grist ([www.grist.org](http://www.grist.org)). For more on the eco-politics behind your food, check out *Sow What?*, a special series on food and farming at [www.grist.org/sowwhat](http://www.grist.org/sowwhat).

*The following letter was mailed anonymously to Marian Kuper, whom we featured in last week's "[A Tale of Two Counties](#)." She shared it with Tom Philpott so we could give readers a sense of the frustrations brewing in CAFO country. We welcome responses from other perspectives.*

I know that others still believe the United States and Iowa are sound democracies. I cannot be one of those. For about a dozen years I have fought for what I thought were my rights to a life without health hazards from vertically integrated confined-animal feeding operations (CAFOs), a life where my property rights were respected, a life where I knew my neighbors who talked to me and shared their ongoing decisions with me, or a life where I felt safe and secure. I have none of that—I am a second-class citizen who is constantly being told there is nothing anyone can do to help me. There can be no democracy when no politician will act in your interests. Meanwhile, 80 percent of the pork raised in the United States comes from just 10 percent of the producers—the CAFO hog owners, whoever they be.

It starts at the construction phase—you might get informed now with a permit application notice. In the past, you got informed when the bulldozer started tearing apart what was a crop field—possibly with the seedling crop still there. There was no warning that some unknown entity was moving in down the road. No one knows who it is. A trip to the county courthouse might provide a name—some limited liability corporation from who knows where representing who knows what investors. There might be some rumors that it was one of the big producers—but nowhere on the application does it ask who will own the hogs at that site. No one stops at your door to explain what is happening.

There is a process involving the county supervisors and the state Department of Natural Resources. It seems, though, that they rubber stamp everything, because only one application in a hundred ever seems to become controversial, and less than that are ever denied. Some people have spent money and time fighting this—only to lose. (If you know of anyone who won, I'd love to know that story.)

Most of us who tried to do something have come away disheartened, disillusioned, and downright angry. We learn we have no rights—the state gave these unknown corporate entities the right to foul our air, our water, and our lives. We have no legal means of redress. Oh, maybe you could sue as a nuisance—but it has to be up and running and causing problems; it takes money and the consent of all your neighbors; and so much energy to organize all that. Meanwhile so many of the people around you keep chanting that there is nothing you can do, that you are wasting your time and their time. No one helps you. There is no rural community spirit. There is little compassion for your plight as so many others have gone before and hit this brick wall and stopped and thus believe no one is capable of going further. Many just physically move elsewhere. So much for century farms or lifelong living space. There are other states that seem to actually protect their people but Iowa is not one of those.

Once in operation, the reality of the CAFOs hits. The most obvious are the putrid smells on some summer evenings. Plumes of air from these sites holding several thousand hogs and their accumulated wastes for the past year fan out across the countryside. They enter open windows, affect outside work, and may invade indoor areas. They also come in the fall when the pits are emptied onto fields at rates far above crop needs but allowed by a state who knows the wastes have to go somewhere. The CAFO is kept operating by the state regardless of its misdeeds or the consequences to surrounding people or to future water needs. The DNR requires useless paperwork which is impossible to monitor by neighbors who have no access to it nor no means to actually measure whatever numbers might be on that useless paper trail called a manure management plan.

The other consequences of CAFOs may be more insidious. You no longer know who your neighbor is—there is no one to ask about electrical outages, to consult about fencelines, to ask to a community meeting. You no longer have a legal system to turn to when problems arise—the sheriff refers you to DNR who may or may not at their discretion investigate your claim, and has no duty to tell you what they find. If money corrupts our political process, the CAFOs have contributed far beyond your means and the actual name of the hog owner of each CAFO is kept secret from the public. You listen to paid commercials on your television or radio daily touting livestock farmers but again the identity of who are those livestock farmers is kept secret. You have no social network as so many of your neighbors are living with their own scenarios that they do not care about yours. You are left alone and in trouble where you develop a deep distrust of all government which seems never to be there for you while always protecting these corporate vertically integrated CAFOs owned by who knows whom, with who knows whose pigs in them. These secret hog owners win and you lose.

So enjoy your CAFO pork while numerous unwilling neighbors are consigned to permanent second-class citizenry. These neighbors are prone to dropping out of all civic activities as none of those have ever helped them. I do not call this a democracy worth forcing on the rest of the planet.

A helpless, hopeless resigned Iowa citizen  
October 2007

## Appendix E

# Resources

### Guides for Communities

- **Guide to Confronting a Factory Farm**

A detailed guide prepared by the Socially Responsible Agricultural Project provides information on the impacts of factory farms as well as tips about “what you need to know, where to find this information, and how to use this information to successfully protect your community.” The guide is accessible online at [www.sraproject.org/wp-content/uploads/2007/12/srap-cafo-guide-1207.pdf](http://www.sraproject.org/wp-content/uploads/2007/12/srap-cafo-guide-1207.pdf). In addition, the Socially Responsible Agricultural Project provides free, professional assistance to communities facing factory farms. You can reach its Help Hotline at 208-315-4836 or [info@sraproject.org](mailto:info@sraproject.org).

- **When a Factory Farm Comes to Town: Protecting Your Township from Unwanted Development**

While this guide was created for residents of Minnesota, it includes information and insights that may be useful to other communities as well. The guide is accessible online at [www.landstewardshipproject.org/pdf/township\\_manual06.pdf](http://www.landstewardshipproject.org/pdf/township_manual06.pdf). You can reach the Land Stewardship Project at 651-653-0618.

- **[www.FactoryFarmMap.org](http://www.FactoryFarmMap.org)**

Created by Food & Water Watch, this web site provides the first map to chart the geographical distribution of factory farms in the U.S. A companion report, *Turning Farms Into Factories*, explains the forces driving factory farms, as well as the environmental, public health, and economic consequences of factory farming. The report is accessible online at [www.foodandwaterwatch.org/food/pubs/reports/turning-farms-into-factories](http://www.foodandwaterwatch.org/food/pubs/reports/turning-farms-into-factories). You can reach Food & Water Watch at 202-683-2500.

### Short Documentaries

- **Through Farmers’ Eyes: Impacts of Industrial Agriculture**

This 22-minute documentary follows nine farmers from around the world as they visit hog and dairy factory farms, as well as family farms, in Iowa and Wisconsin. To obtain a copy, please contact Food & Water Watch at [foodandwater@fwwatch.org](mailto:foodandwater@fwwatch.org) or 202-797-6550.

- **Living a Nightmare: Animal Factories in Michigan**

This 24-minute documentary recounts the plight of those who live in communities with numerous CAFOs. To obtain a copy, please contact the Michigan Sierra Club at [mackinac.chapter@sierraclub.org](mailto:mackinac.chapter@sierraclub.org) or 517-484-2372. This documentary can also be viewed on Google Video.

### Organizations | National

- **Center on Race, Poverty & the Environment**

450 Geary St., Suite 500, San Francisco, CA 94102 | 415-346-4179 | [www.crpe-ej.org](http://www.crpe-ej.org)

- **Environmental Integrity Project**

1920 L St., NW, Suite 800, Washington, DC 20036 | 202-296-8800 | [www.environmentalintegrity.org](http://www.environmentalintegrity.org)

- **Natural Resources Defense Council**

40 W. 20th St., New York, NY 10011 | 212-727-2700 | [www.nrdc.org](http://www.nrdc.org)

- **Sustainable Agriculture Coalition**

110 Maryland Ave., NE, Washington, DC 20002 | 202-547-5754 | [www.sustainableagriculturecoalition.org](http://www.sustainableagriculturecoalition.org)

- **Union of Concerned Scientists**

1825 K St., NW, Suite 800, Washington, DC 20006-1232 | 202-223-6133 | [www.ucsusa.org](http://www.ucsusa.org)

- **Waterkeeper Alliance**

50 S. Buckhout, Suite 302, Irvington, NY 10533 | 914-674-0622 | [www.waterkeeper.org](http://www.waterkeeper.org)

## **Organizations | State and Local**

- **Iowa Citizens for Community Improvement**  
2001 Forest Ave., Des Moines, IA 50311 | 515-282-0484 | [www.iowacci.org](http://www.iowacci.org)
- **Michigan Sierra Club**  
109 E. Grand River Ave., Lansing, MI 48906 | 517-484-2372 | [www.michigan.sierraclub.org](http://www.michigan.sierraclub.org)
- **Ohio Environmental Council**  
1207 Grandview Ave., Suite 201, Columbus, OH 43212-3449 | 614-487-7506 | [www.theoec.org](http://www.theoec.org)

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