

# YOU ARE WHAT YOUR FOOD EATS: HOW REGULATION OF FACTORY FARM CONDITIONS COULD IMPROVE HUMAN HEALTH AND ANIMAL WELFARE ALIKE

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INTRODUCTION

The typical American diet focuses heavily on animal products. Despite the United States Department of Agriculture’s (USDA) dietary guidelines emphasizing fruits, vegetables, and whole grains,<sup>1</sup> the average American consumes an excessive one-half pound of meat per day<sup>2</sup> as well as almost one pound of dairy per day.<sup>3</sup> Studies have found that the animal product-heavy American diet leads to a dangerous level of saturated fat intake<sup>4</sup> and is associated with the country’s rising levels of obesity and disease.<sup>5</sup>

1. See U.S. Dep’t of Agric., Dietary Guidelines, <http://mypyramid.gov/guidelines/index.html> (last visited Jan. 31, 2010); U.S. DEP’T OF HEALTH AND HUMAN SERVS. & U.S. DEP’T OF AGRIC., DIETARY GUIDELINES FOR AMERICANS viii (2005), available at <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2005/2005DGPolicyDocument.pdf>.

2. The average American consumes approximately two hundred pounds of meat, poultry, or fish per year. This is twice the global average of one hundred pounds and represents a substantial increase from past years—Americans today eat fifty more pounds of meat per year than they did fifty years ago. Mark Bittman, *Rethinking the Meat-Guzzler*, N.Y. TIMES, Jan. 27, 2008, at WK1. This level of meat consumption exceeds the USDA-recommended amount by twenty-one percent. U.S. Dep’t of Agric. Econ. Research Serv., Diet Quality and Food Consumption: Dietary Trends from Food and Nutrient Availability Data, <http://www.ers.usda.gov/Briefing/DietQuality/Availability.htm> (last visited Jan. 31, 2010).

3. The average American consumed over 1.6 cups of dairy per day in 2007, which is the equivalent of 0.9 pounds. U.S. DEP’T OF AGRIC. ECON. RESEARCH SERV., LOSS-ADJUSTED FOOD AVAILABILITY DATA (2009), <http://www.ers.usda.gov/Data/FoodConsumption/spreadsheets/foodloss/Dairy.xls>.

4. Animal products are the main source of saturated fats, so the sheer quantity of meat being consumed by most Americans today leads to an average daily saturated fat intake of 27.9 grams per day, which is nearly double the maximum intake of sixteen grams recommended by the American Heart Association. See Am. Heart Assoc., Saturated Fats, <http://www.americanheart.org/presenter.jhtml?identifier=3045790> (last visited Jan. 31, 2010); AM. HEART ASSOC., NUTRITION AND CARDIOVASCULAR DISEASES—STATISTICS 2, <http://www.americanheart.org/downloadable/heart/1111612169698FS24NUT5.REVdoc.doc> (last visited Jan. 31, 2010).

5. See, e.g., Youfa Wang & May A. Beydoun, *Meat Consumption is Associated with Obesity and Central Obesity Among U.S. Adults*, 33 INT’L J. OF OBESITY 621, 624 (2009), available at <http://www.nature.com/ijo/journal/v33/n6/abs/ijo200945a.html> (finding a positive association between meat consumption and risk for obesity); *Study: Lots of Red Meat Increases Mortality*, USA TODAY, Mar. 24, 2009, available at [http://www.usatoday.com/news/health/2009-03-24-red-meat-mortality-study\\_N.htm?csp=34](http://www.usatoday.com/news/health/2009-03-24-red-meat-mortality-study_N.htm?csp=34) (finding that eating even half of the average daily amount of red meat—beef or pork—consumed by Americans today significantly increases the risk of dying

The negative health consequences of America's meat and dairy-centric diet are exacerbated when one considers how such large quantities of food are produced. In order to produce this enormous amount of meat and dairy for consumption in the United States, ten billion animals must be raised and slaughtered<sup>6</sup> and over nine million dairy cows must be milked each year.<sup>7</sup> In order to house this volume of animals at the least cost to the producer, intensive confinement systems called "factory farms" have been created.<sup>8</sup> Economies of scale and concentration of control have allowed such large operations to flourish and to widely overtake and displace the small farm.<sup>9</sup>

As factory farms have found ways to cut costs and drive out competitors, it has come at the expense of the animals' welfare and the consumers' health.<sup>10</sup> For instance, increasing the number of animals per square foot—in order to maximize efficiency and profits—increases disease and contamination, as well as animal suffering.<sup>11</sup> The widespread use of antibiotics that are employed to prevent the illnesses inherent in such crowded and unsanitary conditions results in antibiotic-resistant bacteria that threaten the efficacy of antibiotics used to treat humans.<sup>12</sup> Dangerous growth hormones and unnatural feed that are used to artificially speed up the animals' growth process and increase output sicken not only the animals but also the humans who consume them.<sup>13</sup>

Given that meat and dairy are such a substantial part of the American diet, comprehensive agency regulation of the safety and quality of these food products should start at the farm level. Since what farmed animals are fed, what drugs they are given, and the conditions under which they are raised all have a significant impact on the health of the humans who eat them, the agencies responsible for the safety of these food products, namely the USDA and the Food and Drug Administration (FDA), should have the authority to regulate

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from cancer or heart disease); *see also Obesity Rates Climbing in Nearly All States*, MSNBC.COM, Aug. 24, 2005, <http://www.msnbc.msn.com/id/9048817> (discussing the rising levels of obesity in the U.S.).

6. THE HUMANE SOC'Y OF THE U.S., AN HSUS REPORT: THE WELFARE OF ANIMALS IN THE MEAT, EGG, AND DAIRY INDUSTRIES 1, *available at* [http://www.hsus.org/web-files/PDF/farm/welfare\\_overview.pdf](http://www.hsus.org/web-files/PDF/farm/welfare_overview.pdf) (last visited Jan. 31, 2010).

7. *Id.* at 3.

8. Note, *Challenging Concentration of Control in the American Meat Industry*, 117 HARV. L. REV. 2643, 2643–44 (2004).

9. *Id.*

10. *Id.*

11. *See infra* Parts I.A–B, II.C, II.E.

12. *See infra* Parts I.D.1, II.A.

13. *See infra* Parts I.C, I.D.2, II.B, II.D, II.F.

farm conditions in order to take preventative measures to protect public health. Currently, the USDA has no statutory authority to regulate the safety of food products at the farm level nor to promulgate regulations to improve animal welfare.<sup>14</sup> However, the FDA arguably already has the authority to regulate certain on-farm activities in order to prevent unsafe food products and the spread of communicable diseases.<sup>15</sup> The FDA should use this authority or, alternatively, the USDA's authority should be expanded, to eliminate dangerous farming practices in order to improve the quality of meat and dairy products and reduce public health risks.

Part I of this Note discusses the current conditions on factory farms, including the suffering endured by the animals, the unsanitary and crowded conditions, the unwholesome contents of animal feed, and the drugs regularly administered to the animals. Part II describes how those conditions pose significant health risks for humans who consume factory-farmed meat and dairy products, including threats of antibiotic resistance, bacterial infections, cancer, heart disease, animal-origin influenza, and mad cow disease. Finally, Part III proposes six specific on-farm regulations that could drastically reduce such risks and explores whether the proposed regulations could be enacted by the FDA under the existing regulatory scheme.

## I.

### CURRENT CONDITIONS ON FACTORY FARMS

Animals involved in large scale food production live in conditions that more closely resemble fetid prisons than farms. In order to cut costs and maximize efficiency, factory farms intensively confine the animals in unsanitary warehouses, take dangerous shortcuts in the disposal of animal waste, serve cheap, unwholesome feed containing harmful substances, and regularly administer antibiotics and growth hormones to the animals. These conditions under which the animals are raised present serious concerns for both animal welfare and human health.

#### A. *Farmed Animal Welfare*

The short lives of animals raised for human consumption in the United States are full of physical pain and mental suffering. As a consequence of the rise of factory farming and its goal of increasing quantity and efficiency at all costs, farmed animals have become com-

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14. See *infra* Part III.A.1.

15. See *infra* Part III.A.2.

modities. The economic model of factory farming presumes a “high attrition rate outweighed by a massive production rate.”<sup>16</sup> This means that the industry makes more money by mistreating animals and losing a substantial percentage of them due to illness and death than they do by raising fewer healthy animals.<sup>17</sup> Thus, factory farmers are economically indifferent to the welfare of their animals since their focus is on the bottom line: plumping up the greatest number of animals to slaughter-weight as quickly and cheaply as possible.

Since animals raised for food production receive virtually no protection under federal law and only ineffective protection under state anti-cruelty laws,<sup>18</sup> the regulation of their treatment is left to the farm industry itself. In general, the animals are treated without any regard for their ability to feel pain or to experience a wide range of complex emotions. The tortured lives of these beings can be summarized by the following:

The vast majority never experience sunshine, grass, trees, fresh air, unfettered movement, sex, or many other things that make up most of what we think of as the ordinary pattern of life on earth. They are castrated without anesthesia, on occasion deliberately starved, live in conditions of extreme and unrelieved crowding, and suffer physical deformities as a result of genetic manipulation.<sup>19</sup>

This brief description raises a number of the key animal welfare concerns that are associated with factory farming. For example, in order for factory farms to produce the most meat using the smallest amount of land and resources, the animals are generally kept indoors in extreme confinement for their entire lives. Smithfield Foods, the world’s largest pork producer, produces six billion pounds of pork annually by confining its pigs in “astonishing, unprecedented concentrations.”<sup>20</sup> Thus, the company’s pigs “live by the hundreds or thousands in warehouse-like barns, in rows of wall-to-wall pens. . . . Forty fully grown 250-pound male hogs often occupy a pen the size of a tiny apartment. They trample each other to death. There is no sunlight, straw, fresh air, or earth.”<sup>21</sup>

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16. Note, *supra* note 8, at 2652 (quoting MATTHEW SCULLY, *DOMINION: THE POWER OF MAN, THE SUFFERING OF ANIMALS, AND THE CALL TO MERCY* 271 (2002)).

17. *Id.*

18. See *infra* notes 209–12 and accompanying text.

19. David J. Wolfson & Mariann Sullivan, *Foxes in the Henhouse – Animals, Agribusiness, and the Law: A Modern American Fable*, in *ANIMAL RIGHTS*, 205, 217 (Cass R. Sunstein & Martha C. Nussbaum, eds., 2004).

20. Jeff Tietz, *Boss Hog*, *ROLLING STONE*, Dec. 14, 2006, at 89.

21. *Id.*

Three common industry practices that present the most extreme cases of confinement are the gestation crate, the veal crate, and battery cages.<sup>22</sup> Gestation crates are metal stalls with concrete floors that are used to confine pregnant pigs. The space allotted to the sow in a gestation crate is so small that the animal cannot turn around.<sup>23</sup> Veal crates are small wooden crates used to confine young calves and similarly restrict their ability to move.<sup>24</sup> Battery cages are wire cages used to confine egg-laying hens that are stacked on top of one another.<sup>25</sup> Eight hens are stuffed into one cage the size of a sheet of paper and are unable to spread their wings or turn around.<sup>26</sup> Hens that get pushed to the back of the cage are often unable to access food.<sup>27</sup> In stark contrast to the vast majority of states in the United States that still allow the unrestricted use of such confinement systems, the entire European Union has banned or is in the process of phasing out these practices in order to better protect animal welfare.<sup>28</sup>

Concerns about the welfare of farmed animals that are kept in confinement abound. Not only does keeping a large quantity of animals in one small pen pose the risk of the animals being trampled or starved to death, it also creates health problems for the animals. These health problems include lameness, leg and joint disorders, and illness from exposure to high levels of toxins due to the concentration of waste from so many animals in such a small area.<sup>29</sup> Accordingly, farmed animals in intensive confinement have high on-farm death rates: approximately ten percent generally, ranging from four percent for cattle, twelve percent for turkeys, fourteen percent for pigs, and up to twenty-eight percent for some types of chickens.<sup>30</sup>

In addition to the physical harms posed by such close quarters, confinement also causes the animals great emotional distress. The inability to engage in instinctive behaviors like grazing for cows, dig-

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22. Wolfson & Sullivan, *supra* note 19, at 217.

23. *Id.* at 218.

24. *Id.* at 218–19.

25. *Id.* at 218.

26. *Id.*

27. *Id.*

28. *Id.* at 219, 222.

29. David J. Wolfson, *Beyond the Law: Agribusiness and the Systemic Abuse of Animals Raised for Food or Food Production*, 2 ANIMAL L. 123, 134 (1996); see Sustainable Table, Animal Welfare, [http://www.sustainabletable.org/issues/animal\\_welfare](http://www.sustainabletable.org/issues/animal_welfare) (last visited Jan. 31, 2010); Farm Sanctuary, Say No to Veal, <http://www.noveal.org/> (last visited Jan. 31, 2010).

30. Robyn Mallon, *The Deplorable Standard of Living Faced by Farm Animals in America's Meat Industry and How to Improve Conditions by Eliminating the Corporate Farm*, 9 MICH. STATE U. J. MED. & L. 389, 404 (2005).

ging in dirt and straw for pigs, and pecking, nesting, dust bathing and foraging for chickens produces “visible signs of stress and aggression” in the animals.<sup>31</sup> Factory-farmed animals often display abnormal and violent pecking, kicking, scratching, and chewing behaviors that are not seen in pasture-raised animals.<sup>32</sup> To prevent the animals from pecking and chewing at each other’s tails, the factory farm industry subjects the animals to various painful procedures—without anesthetic—to remove their beaks, in the case of chickens, or to snip off their tails, in the case of cows and pigs, called “tail docking.”<sup>33</sup> As a result, the animals are left with constantly sore stubs that may easily become infected.<sup>34</sup> They are also thought to suffer great emotional distress without the use of these appendages: chickens rely on their beaks to peck and explore their surroundings, cows rely on their long tails to swat away flies, and pigs use their tails to communicate, much like dogs do.<sup>35</sup>

### B. Sanitation Issues on Factory Farms

Factory farms are unsanitary environments where infectious diseases thrive and spread. There are two main contributing factors to this situation. First, the enormous amount of animal waste produced, which is highly toxic and laden with bacteria, is not properly disposed of and treated. Second, the extreme confinement of the animals compromises their immune systems and enables the rapid transmission of disease amongst the animals.

#### 1. Animal Waste and Unsanitary Conditions

One unavoidable byproduct of keeping thousands of animals in a concentrated area is the tremendous amount of waste that is produced. For instance, a dairy farm with 2,500 cows generates as much feces and urine as a city of 411,000 people.<sup>36</sup> One 500,000 hog operation run by Smithfield Foods produces more waste than the 1.5 million

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31. Sustainable Table, Animal Welfare, *supra* note 29.

32. See, e.g., Nicholette H. Niman, Op-Ed., *The Unkindest Cut*, N.Y. TIMES, Mar. 7, 2005, available at <http://www.nytimes.com/2005/03/07/opinion/07niman.html>; Farm Sanctuary, *supra* note 29.

33. Wolfson & Sullivan, *supra* note 19, at 218; Niman, *supra* note 32.

34. Niman, *supra* note 32.

35. *Id.*; Wolfson & Sullivan, *supra* note 19, at 218.

36. FOOD & WATER WATCH, FOOD SAFETY CONSEQUENCES OF FACTORY FARMS 3 (2007) (citing EUROPEAN COMMISSION, THE SCIENTIFIC COMMITTEE ON VETERINARY MEASURES RELATING TO PUBLIC HEALTH, ASSESSMENT OF POTENTIAL RISKS TO HUMAN HEALTH FROM HORMONE RESIDUES IN BOVINE MEAT AND MEAT PRODUCTS 16–22 (1999), available at [http://ec.europa.eu/food/fs/sc/scv/out21\\_en.pdf](http://ec.europa.eu/food/fs/sc/scv/out21_en.pdf)), available at <http://documents.foodandwaterwatch.org/FoodSafetyFactoryFarms.pdf>.

residents of Manhattan, which is enough to fill four Yankee Stadiums.<sup>37</sup>

While cities are equipped with sewage treatment facilities to deal with waste, factory farms are not. Confined animals stand in their own waste until it falls through slats in the floor or until it is washed or transported away.<sup>38</sup> Proper treatment of industrial animal waste is extremely important since, “[o]n a continuum of pollutants, it is probably closer to radioactive waste than to organic manure.”<sup>39</sup> For instance, a testing of the waste from factory-farmed pigs revealed various toxic substances, including ammonia, methane, hydrogen sulfide, carbon monoxide, cyanide, phosphorous, nitrates, and heavy metals, in addition to the drugs that had been administered to the pigs and over one hundred types of illness-causing pathogens.<sup>40</sup>

Factory farms do not properly treat the large quantities of animal waste they produce. Instead, waste is poured into enormous cesspools that are euphemistically called “lagoons.”<sup>41</sup> In Jeff Tietz’s *Rolling Stone* exposé, Smithfield Foods’ lagoons are described as pervasive and highly toxic:

[The lagoons] cover as much as 120,000 square feet. The area around a single slaughterhouse can contain hundreds of lagoons, some of which run thirty feet deep. The liquid in them is not brown. The interactions between the bacteria and blood and afterbirths and stillborn piglets and urine and excrement and chemicals and drugs turn the lagoons pink . . . . The lagoons themselves are so vicious and venomous that if someone falls in it is foolish to try to save him.<sup>42</sup>

The pollution from these lagoons can be disastrous for the environment and for the health of the residents of the rural communities nearby. Studies show that lagoons like Smithfield Foods’ release hundreds of noxious gases into the air, such as ammonia, methane, carbon dioxide, and hydrogen sulfide.<sup>43</sup> Epidemiological studies have found that breathing this air may result in asthma, bronchitis, diarrhea, heart palpitations, headaches, depression, nosebleeds, and brain damage.<sup>44</sup>

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37. Tietz, *supra* note 20.

38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.*

44. *Id.*

Additionally, leaks, spills, and run-off from these toxic cesspools inevitably pollute the nearby groundwater, rivers, and streams.<sup>45</sup> Rainfall, hurricanes, and ruptures in the lagoons' liners can lead to lagoon waste being washed into rivers, destroying marine ecosystems and tainting water that is used to irrigate crops.<sup>46</sup> For instance, in 1995, the largest lagoon spill in history spewed 25.8 million gallons of lagoon waste into North Carolina's New River, killing millions of fish and making the river so toxic that it would burn one's skin.<sup>47</sup> Factory farms such as Smithfield Foods often spray the toxic pink liquid from their lagoons onto their fields in an effort to "fertilize" the crops and to rid themselves of waste.<sup>48</sup> These contaminated crops are then fed back to the animals.<sup>49</sup>

## 2. *Spread of Disease*

The crowded, filthy conditions on factory farms are breeding grounds for bacteria, viruses, and fungi to grow and spread from one animal to another.<sup>50</sup> First, the combination of intense confinement, stress, poor nutrition, and the noxious environment of factory farms work together to seriously compromise the animals' immune systems.<sup>51</sup> As the USDA Agricultural Research Service's studies confirm, "when livestock are unduly stressed, they undergo physiological changes that can increase their chances of catching and spreading diseases."<sup>52</sup> Second, once one animal is sick, the close quarters in which the animals are kept on a factory farm make it extremely easy for the illness to spread to the entire animal population.<sup>53</sup> Furthermore, cer-

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45. See FOOD & WATER WATCH, *supra* note 36, at 1; Tietz, *supra* note 20.

46. Tietz, *supra* note 20.

47. *Id.*

48. *Id.*

49. *Id.*

50. See, e.g., Sustainable Table, Antibiotics, <http://www.sustainabletable.org/issues/antibiotics/> (last visited Jan. 31, 2010).

51. See, e.g., Tietz, *supra* note 20; Deirdre Imus, *Beyond Swine Flu—Could Factory Farms Be the Cause of the Next Man-Made Pandemic?*, HUFFINGTON POST, June 24, 2009, [http://www.huffingtonpost.com/deirdre-imus/beyond-swine-flu---could\\_b\\_219887.html](http://www.huffingtonpost.com/deirdre-imus/beyond-swine-flu---could_b_219887.html); Tom Philpott, *Symptom: Swine Flu. Diagnosis: Industrial Agriculture?*, GRIST, Apr. 28, 2009, <http://www.grist.org/article/2009-04-28-more-smithfield-swine/>; Leslie Hatfield, *Doth Smithfield Protest Too Much? Swine Flu Brings Focus to Factory Farm Practices*, HUFFINGTON POST, May 1, 2009, [http://www.huffingtonpost.com/leslie-hatfield/doth-smithfield-protest-t\\_b\\_194861.html](http://www.huffingtonpost.com/leslie-hatfield/doth-smithfield-protest-t_b_194861.html).

52. Lewis W. Smith, U.S. Dep't of Agric., Agricultural Research Serv., *Forum – Helping Industry Ensure Animal Well-Being*, AGRICULTURAL RESEARCH, Mar. 2005, at 2, available at <http://www.ars.usda.gov/is/AR/archive/mar05/form0305.pdf>.

53. See, e.g., Imus, *supra* note 51; Tietz, *supra* note 20.

tain illnesses can be spread from the animals to humans, infecting the farm workers or traveling in the air or water.<sup>54</sup>

Whereas animals in their natural state do not easily become infected or diseased, factory-farmed animals that live in such tenuous conditions often have such weakened immune systems that they “remain in a state of dying until they’re slaughtered.”<sup>55</sup> The air inside animal confinement warehouses can be so polluted with the fumes from waste and chemicals that the exhaust fans “function like the ventilators of terminal patients: If they break down for any length of time, [the animals] start dying.”<sup>56</sup> Not surprisingly, approximately ten to fourteen percent of factory-farmed pigs die of illness before they can even reach the usual slaughter age of about six months old.<sup>57</sup>

### C. *Farmed Animal Feed*

Another danger for factory-farmed animals is the diet they are fed. In the interest of keeping production costs as low as possible, factory farmers feed their animals cheap diets of corn, soy, and additives that are not fit for consumption, such as animal waste and arsenic. Additionally, most of these naturally herbivorous animals are fed rendered animal parts that they would not eat in nature. The unhealthy and unnatural nature of these diets increases the animals’ risk of illness and disease and requires the administration of a constant supply of preventative antibiotics.

#### 1. *Corn, Soy, and Additives*

In nature, cows and other ruminants eat grass.<sup>58</sup> Pigs and chickens in the wild eat mainly grass, worms, and insects.<sup>59</sup> Factory-farmed animals, however, are fed an excessive and unnatural diet consisting mostly of cheap, genetically-modified corn and soy, as well as unsavory additives and byproducts.<sup>60</sup> The industry feeds this diet to cattle because it cuts costs, fattens up beef cattle in a shorter period of

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54. *See infra* Part II.E; *see also* Jay P. Graham, et al., *The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment*, 123 PUB. HEALTH REP. 282, 290 (2008); Laura Sayre, *The Hidden Link Between Factory Farms and Human Illness*, MOTHER EARTH NEWS, Feb.–Mar. 2009, at 76.

55. Tietz, *supra* note 20.

56. *Id.*

57. *Id.*; Mallon, *supra* note 30, at 404.

58. Sustainable Table, *Feed*, <http://www.sustainabletable.org/issues/feed/> (last visited Jan. 31, 2010).

59. *Id.*

60. *See id.*; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, [http://www.ucsusa.org/food\\_and\\_agriculture/science\\_and\\_impacts/](http://www.ucsusa.org/food_and_agriculture/science_and_impacts/)

time, makes the beef more tender, and increases milk production in dairy cattle.<sup>61</sup> Most importantly for farmers, since this diet does not require the cattle to be sent outdoors to pasture, it enables efficiency through mass confinement.<sup>62</sup> The corn and soy diet is especially unhealthy for cattle since the animals' digestive systems are specifically designed to digest grass.<sup>63</sup> When forced to digest the animal feed served at factory farms, cattle commonly develop painful diseases and health problems, including acidosis and liver abscesses.<sup>64</sup> To prevent these conditions, factory farmers must administer a constant supply of chemical additives and antibiotics.<sup>65</sup>

Also omnipresent in animal feed are dangerous carcinogens and byproducts more appropriately labeled "waste" than "feed." For example, it is common practice to sweep up whatever refuse is found on the floor of chicken coops, called "poultry litter," and feed it to cattle.<sup>66</sup> Additionally, numerous inedible things can be found in animal feed, including manure, dirt, rocks, sand, clay, wood, feathers, plastic, and arsenic.<sup>67</sup> Plastic pellets are used as a form of roughage to advance the food through the animals' digestive tracts in order to make up for the lack of sufficient natural fiber in feed.<sup>68</sup> Similarly, an anti-microbial that is commonly fed to chickens and turkeys to fight parasites and foster growth contains arsenic, which is known to be carcinogenic to humans.<sup>69</sup>

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impacts\_industrial\_agriculture/they-eat-what-the-reality-of.html (last visited Jan. 31, 2010).

61. FOOD & WATER WATCH, *supra* note 36, at 2; KATE CLANCY, UNION OF CONCERNED SCIENTISTS, GREENER PASTURES: HOW GRASS-FED BEEF AND MILK CONTRIBUTE TO HEALTH EATING 8 (2006), available at [http://www.ucsusa.org/assets/documents/food\\_and\\_agriculture/greener-pastures.pdf](http://www.ucsusa.org/assets/documents/food_and_agriculture/greener-pastures.pdf).

62. Bittman, *supra* note 2.

63. *Id.*

64. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60; CLANCY, *supra* note 61, at 12.

65. *See infra* Part I.D.1.

66. FOOD & WATER WATCH, *supra* note 36, at 2.

67. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60; ConsumerReports.org, Food Safety: You Are What They Eat (July 2007), <http://www.consumerreports.org/cro/food/food-safety/animal-feed-and-food/animal-feed-and-the-food-supply-105/overview/index.htm>.

68. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60; ConsumerReports.org, *supra* note 67.

69. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60.

## 2. *Animal Parts*

Another insidious component of factory-farmed animal feed is the animals themselves. In the 1970s, factory farmers found a cheap way to both increase protein consumption in their cattle, pigs, and poultry and to make use of their dead, dying, disabled or diseased animals: they would simply grind them up and render them into animal feed.<sup>70</sup> These rendered parts of other animals, labeled “animal protein products,” often include feathers, hair, skin, hooves, blood, intestines, road kill, dead horses, and even euthanized cats and dogs.<sup>71</sup> The inclusion of animal proteins often results in cannibalism; parts of chickens are routinely fed back to chickens and parts of pigs are routinely fed back to pigs.<sup>72</sup> While the practice of feeding parts of cattle to other cattle is more tightly regulated, there are still some ways in which factory farmers may legally feed cattle parts back to cattle, such as by feeding them waste that contains poultry feed made with cattle parts.<sup>73</sup> Feeding animal proteins to farmed animals is an especially dangerous practice since it increases the risk of mad cow disease in cattle, which leads to an invariably fatal condition in humans who consume diseased beef.<sup>74</sup>

### *D. Drug Administered to Farmed Animals*

Factory-farmed animals are dosed with increasing amounts of drugs in order to compensate for the intensively confined and unsanitary conditions in which they are raised. Antibiotics are routinely administered as a precautionary measure to keep the animals alive until slaughter. Additionally, growth hormones are given to the vast majority of cattle in order to maximize growth and milk production, without regard for the painful health problems that it causes the cattle.

#### *1. Antibiotics*

One major downside to raising animals in extreme confinement, from the perspective of industrial agriculture, is that the animals have an abnormally high risk of illness.<sup>75</sup> In order to combat this self-created problem, factory farmers mix low doses of antibiotics into the

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70. *Id.*

71. *Id.*; ConsumerReports.org, *supra* note 67.

72. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60.

73. *See infra* Part II.F.

74. *See infra* Part II.F.

75. *See, e.g.,* Mallon, *supra* note 30, at 396.

animals' feed and water as a precautionary measure.<sup>76</sup> Without these antibiotics, the animals would likely die from disease before they could be slaughtered.<sup>77</sup> The industry also uses the practice to promote the growth of the animals, since intense confinement does not allow the animals to grow to the size that they would if raised outdoors and allowed sunlight and exercise.<sup>78</sup>

Long gone are the days when antibiotics could only be prescribed by a veterinarian to legitimately sick animals.<sup>79</sup> Today, the practice of lacing animal feed with antibiotics is so common that approximately seventy percent of the total antibiotics used in the United States, or 25 million pounds, are given to farmed animals.<sup>80</sup> One problem created by the routine administration of antibiotics is that it raises the animals' tolerance level, requiring more and more antibiotics to effectuate the same results.<sup>81</sup> Thus, increasing amounts of antibiotics are given to livestock from year to year, which, in turn, has led to the rising problem of antibiotic resistance and has threatened the efficacy of antibiotics that are used to treat human illnesses.<sup>82</sup>

## 2. Growth Hormones

Approximately eighty percent of cattle in the United States are given growth hormones to either increase their body mass or their milk production.<sup>83</sup> This practice allows the industry to maximize the amount of profit generated per cattle. While the FDA does not allow farmers to administer hormones to chickens or pigs, it continues to approve the use of hormones in dairy and beef cattle.<sup>84</sup> For beef production, six different hormones may be used, three of which are artificial and three of which occur naturally.<sup>85</sup>

In 1993, the FDA controversially approved a genetically-engineered hormone for dairy production created by the Monsanto Corpo-

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76. See, e.g., Sustainable Table, Antibiotics, *supra* note 50.

77. Tietz, *supra* note 20.

78. Mallon, *supra* note 30, at 399.

79. *Id.*

80. FOOD & WATER WATCH, *supra* note 36, at 1.

81. Mallon, *supra* note 30, at 399.

82. See *infra* Part II.A; see also Mallon, *supra* note 30, at 400.

83. See, e.g., Center for Food Safety, Other Hormones, <http://truefoodnow.org/campaigns/rbgh-and-hormones/other-hormones> (last visited Jan. 31, 2010); Sustainable Table, Artificial Hormones, <http://www.sustainabletable.org/issues/hormones> (last visited Jan. 31, 2010).

84. Center for Food Safety, Other Hormones, *supra* note 83.

85. *Id.*

ration: recombinant bovine growth hormone (rBGH).<sup>86</sup> Dairy cows given rBGH have extended lactation periods, up to three times longer than they would be naturally, and produce ten to fifteen percent more milk.<sup>87</sup> The stress caused by rBGH-induced milk production has serious animal welfare implications. Studies have found that cows treated with rBGH are significantly more likely to develop crippling health problems, including lameness, udder infections, and reproductive issues such as infertility and birth defects.<sup>88</sup> Reflecting the cyclical nature of unhealthy farm practices, the increased rate of udder infections from hormone treatment has led dairy farmers to respond by increasing their use of antibiotics.<sup>89</sup>

## II.

### HOW CURRENT FARM CONDITIONS IMPACT HUMAN HEALTH

Certainly, the aforementioned factory farm practices have a direct impact on the health and well-being of the animals involved. But these practices also have a significant effect on human health. Below are six major public health concerns for humans who consume factory-farmed animal products, all of which stem from the conditions under which the animals are raised.

#### A. Antibiotic Resistance

The widespread, increasing administration of antibiotics to factory-farmed animals poses an enormous threat to the efficacy of antibiotics in humans.<sup>90</sup> Continuous exposure to low levels of an antibiotic can cause bacteria to develop resistance to it through genetic mutation and natural selection.<sup>91</sup> Once a bacterial strain is antibiotic-resistant, it can no longer be easily cured with that particular drug and new treatments must be found.<sup>92</sup> Certain bacterial infections have already become or are on their way to becoming untreatable in humans,

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86. Center for Food Safety, rBGH, <http://truefoodnow.org/campaigns/rbgh-and-hormones/> (last visited Jan. 31, 2010). Recombinant bovine growth hormone (rBGH) is also called recombinant bovine somatotropin (rBST). *Id.*

87. Chris Bedford, Animal Welfare Institute, *rBGH Reconsidered*, AWI QUARTERLY (2000), available at <http://www.awionline.org/ht/d/ContentDetails/id/2291/pid/2536>.

88. Center for Food Safety, rBGH, *supra* note 86.

89. *Id.*

90. Bittman, *supra* note 2.

91. FOOD & WATER WATCH, *supra* note 36, at 1; Centers for Disease Control and Prevention, Antibiotic Resistance Questions & Answers, <http://www.cdc.gov/getsmart/antibiotic-use/antibiotic-resistance-faqs.html> (last visited Mar. 28, 2010).

92. *Id.*

making this a particularly pressing public health concern.<sup>93</sup> For instance, most strains of *Staphylococcus aureus* (Staph) infections are now resistant to penicillin as well as most other new antibiotics, such as methicillin.<sup>94</sup> Antibiotic-resistant Staph infections result in the deaths of over 18,000 Americans per year.<sup>95</sup> Combined, antibiotic-resistant infections kill 90,000 Americans per year.<sup>96</sup> The most vulnerable members of the population, such as children, the elderly, and those with weakened immune systems, are the most affected by the perils of antibiotic resistance.<sup>97</sup>

Scientists believe that the overuse of antibiotics in animal feed has largely contributed to the rise of antibiotic-resistant bacteria, especially in relation to food- and water-borne bacteria such as *Salmonella Enteritidis* (Salmonella), *Escherichia coli* (E. coli), and Staph.<sup>98</sup> For example, one antibiotic-resistant strain of bacteria called methicillin-resistant *Staphylococcus aureus* (MRSA) originated on pig farms and now kills more Americans per year than HIV/AIDS.<sup>99</sup> MRSA has been found in groundwater and in a number of pork products that are sold to consumers.<sup>100</sup> One study found that five out of ninety samples of pork sold in Louisiana contained the deadly strain.<sup>101</sup> The decrease in antibiotic resistance following the European ban on the use of antibiotics in food animals is further suggestive of the correlation between antibiotic use on the farm and human health.<sup>102</sup>

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93. American Public Health Assoc., Antibiotic Resistance Fact Sheet, <http://www.apha.org/advocacy/reports/facts/advocacyfactantibiotic.htm> (last visited Jan. 31, 2010); Centers for Disease Control and Prevention, Antibiotic Resistance Questions & Answers, *supra* note 91.

94. Nicholas D. Kristof, *Pathogens in Our Pork*, N.Y. TIMES, Mar. 14, 2009, at WK13; FOOD & WATER WATCH, *supra* note 36, at 1.

95. *Id.*

96. HUMANE SOC'Y OF THE UNITED STATES, AN HSUS REPORT: HUMAN HEALTH IMPLICATIONS OF NON-THERAPEUTIC ANTIBIOTIC USE IN ANIMAL AGRICULTURE 5, available at <http://www.hsus.org/web-files/PDF/farm/HSUS-Human-Health-Report-on-Antibiotics-in-Animal-Agriculture.pdf> (last visited Jan. 31, 2010).

97. Union of Concerned Scientists, Preservation of Antibiotics for Medical Treatment Act, [http://www.ucsusa.org/food\\_and\\_agriculture/solutions/wise\\_antibiotics/pamta.html](http://www.ucsusa.org/food_and_agriculture/solutions/wise_antibiotics/pamta.html) (last visited Jan. 31, 2010).

98. American Public Health Assoc., *supra* note 93; National Institute of Allergy and Infectious Diseases, Antimicrobial (Drug) Resistance, <http://www3.niaid.nih.gov/topics/antimicrobialResistance/Understanding/causes.htm> (last visited Jan. 31, 2010).

99. Union of Concerned Scientists, Preservation of Antibiotics for Medical Treatment Act, *supra* note 97.

100. Kristof, *supra* note 94.

101. *Id.*

102. FOOD & WATER WATCH, *supra* note 36, at 1.

### B. Cancer

Although the FDA claims that the use of growth hormones in beef and dairy cattle is non-carcinogenic and safe for human consumption, independent research has found otherwise. Studies have suggested that the risk of cancer in humans increases when they consume dairy products from cows that have been treated with rBGH.<sup>103</sup> Recent research indicates that rBGH-containing milk has elevated levels of a hormone called “insulin-like growth factor-1” (IGF-1), which has a carcinogenic effect.<sup>104</sup> IGF-1 is a hormone that regulates cell growth, division, and differentiation.<sup>105</sup> Not only does this hormone survive digestion and absorb into the bloodstream when rBGH-containing milk is consumed, but it has also been shown to increase the risk of breast, prostate, and colon cancer.<sup>106</sup>

Additionally, once dairy cows treated with rBGH can no longer produce milk, they are slaughtered for their meat and rBGH residue enters the beef supply.<sup>107</sup> Growth hormone residue in beef products also increases the risk of cancer.<sup>108</sup> A study conducted by the European Union’s Scientific Committee on Veterinary Measures Relating to Public Health concluded that the six growth hormones commonly used in the United States posed serious risks of breast, prostate, and colon cancer in beef consumers.<sup>109</sup> In addition, the study suggested that when humans consume these hormone residues in beef, it disrupts their own hormone balances, leading to developmental and reproductive problems.<sup>110</sup>

In response to such research, the European Union has banned the use of growth hormones in domestic cattle and the importation of beef and dairy from the United States.<sup>111</sup> Additionally, Canada, Japan,

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103. Food & Water Watch, Bovine Growth Hormone, <http://www.foodandwaterwatch.org/food/foodsafety/dairy> (last visited Jan. 31, 2010).

104. Center for Food Safety, rBGH, *supra* note 86; Sustainable Table, Artificial Hormones, *supra* note 83; Samuel S. Epstein, *A Needless New Risk of Breast Cancer*, L.A. TIMES, Mar. 20, 1994, available at [http://www.preventcancer.com/press/editorials/march20\\_94.htm](http://www.preventcancer.com/press/editorials/march20_94.htm).

105. Epstein, *supra* note 104.

106. *Id.*; Center for Food Safety, rBGH, *supra* note 86.

107. Stephen J. Hedges, *Use of Spent Dairy Cows in Beef Production Raises Questions*, CHI. TRIB., Mar. 2, 2008, at 1. Spent dairy cows comprise approximately seventeen percent of beef produced in the United States. *Id.*

108. See, e.g., EUROPEAN COMMISSION, THE SCIENTIFIC COMMITTEE ON VETERINARY MEASURES RELATING TO PUBLIC HEALTH, ASSESSMENT OF POTENTIAL RISKS TO HUMAN HEALTH FROM HORMONE RESIDUES IN BOVINE MEAT AND MEAT PRODUCTS 16–22 (1999), available at [http://ec.europa.eu/food/fs/sc/scv/out21\\_en.pdf](http://ec.europa.eu/food/fs/sc/scv/out21_en.pdf).

109. *Id.*

110. *Id.*

111. Center for Food Safety, Other Hormones, *supra* note 83.

Australia, and New Zealand all specifically ban the use of rBGH.<sup>112</sup> The United Nation's food safety agency, the Codex Alimentarius Commission, has repeatedly refused to recognize rBGH as safe.<sup>113</sup> In fact, the United Nations has ruled unanimously in support of the European ban on rBGH, forcing the United States to drop its challenge against the ban in front of the World Trade Organization.<sup>114</sup>

In addition to the cancer risks associated with growth hormones in cattle, another common husbandry practice that poses a cancer risk to humans is the use of arsenic-containing antimicrobials on poultry farms.<sup>115</sup> Arsenic is a poisonous substance that is known to cause cancer in humans as well as contribute to a host of other diseases, including heart disease and diabetes.<sup>116</sup> Nonetheless, a derivative of arsenic called roxarsone is still FDA-approved and widely used to kill parasites and foster growth in chickens and turkeys.<sup>117</sup> As a result, arsenic can be found in most poultry meat and in human water supplies due to runoff from factory farms.<sup>118</sup> In one study, over fifty-five percent of chicken products purchased from supermarkets contained detectable levels of arsenic.<sup>119</sup> Although the FDA has deemed arsenic safe to eat at the level of 0.5 parts per million in poultry muscle,<sup>120</sup> many experts contend that no level of arsenic should be considered

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112. Sustainable Table, rBGH-Free Dairy Map, <http://www.sustainabletable.org/shop/dairymap/> (last visited Jan. 31, 2010).

113. FOOD & WATER WATCH, SAY NO TO RBGH! 1 (2007), <http://sustainabletable.com/issues/docs/SayNoToRBGH-fww07.pdf>.

114. Samuel S. Epstein, *Monsanto's rBGH (BGH) Genetically Modified Milk Ruled Unsafe by the United Nations*, PR NEWswire, Aug. 18, 1999, available at <http://www.mindfully.org/GE/Monsanto-rBGH-BGH-Unsafe-UN18aug99.htm>; Sustainable Table, Artificial Hormones, *supra* note 83.

115. Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60.

116. See, e.g., Marian Burros, *Chicken with Arsenic? Is That O.K.?*, N.Y. TIMES, Apr. 5, 2006, available at <http://www.nytimes.com/2006/04/05/dining/05well.html>.

117. Karen Kaplan, *Pass the Turkey, Hold the Arsenic*, Booster Shots, L.A. TIMES [http://latimesblogs.latimes.com/booster\\_shots/2009/11/thanksgiving-turkey-arsenic-roxarsone.html](http://latimesblogs.latimes.com/booster_shots/2009/11/thanksgiving-turkey-arsenic-roxarsone.html) (Nov. 29, 2009, 13:32 PST); Burros, *supra* note 116; see also U.S. FOOD AND DRUG ADMIN., ANADA 200-080 SACOX, 3-NITRO, ROXARSONE, FLAVOMYCIN - ORIGINAL APPROVAL, available at <http://www.fda.gov/AnimalVeterinary/Products/ApprovedAnimalDrugProducts/FOIADrugSummaries/ucm118133.htm> (indicating that roxarsone was approved by the FDA for use as an animal drug on March 8, 1994).

118. Kaplan, *supra* note 117; Burros, *supra* note 116.

119. INSTITUTE FOR AGRICULTURE AND TRADE POLICY, PLAYING CHICKEN: AVOIDING ARSENIC IN YOUR MEAT 6 (2006) available at <http://www.iatp.org/iatp/publications.cfm?accountID=421&refID=80529>.

120. U.S. FOOD AND DRUG ADMIN, *supra* note 116 ("Tolerances of arsenic (from roxarsone) are established at 0.5 ppm in muscle.").

safe for consumption.<sup>121</sup> A recent USDA study has questioned what was previously recognized as a safe level of arsenic in poultry, in light of the high concentrations of arsenic being detected as well as increasing chicken consumption.<sup>122</sup>

### C. *E. Coli* Infection

Sanitation issues and mistreatment of animal waste increase the risk that *E. coli* bacteria, which live in the intestines of animals and are commonly found in feces, will contaminate food.<sup>123</sup> Consuming *E. coli*-contaminated food products can be extremely dangerous, especially for the young and the elderly.<sup>124</sup> In the majority of cases, *E. coli* causes symptoms that generally resolve themselves, such as bloody diarrhea, vomiting, and dehydration.<sup>125</sup> However, about five to ten percent of infected people develop a condition called hemolytic uremic syndrome.<sup>126</sup> In those cases, the *E. coli* bacteria ravage the victim's renal, vascular, and nervous system, leading to kidney failure, seizures, paralysis, or death.<sup>127</sup>

Due to the extremely rapid pace of the evisceration and hide removal processes in slaughterhouses, meat that is packaged for consumption is frequently contaminated with fecal matter.<sup>128</sup> However, the problem of *E. coli* contamination begins even before the slaughterhouse, originating with the diet and sanitation practices on factory farms. The feces of cattle fed unnatural corn- and soy-based diets contain significantly higher levels of *E. coli* than cattle which are fed grass or hay.<sup>129</sup> A grain-based diet provides the ideal intestinal habitat for *E. coli* bacteria to grow and mutate into more virulent strains; in contrast, the bacteria cannot survive long in grass-fed cattle.<sup>130</sup> Addi-

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121. Burros, *supra* note 116.

122. *Id.*

123. Mallon, *supra* note 30, at 391; FOOD & WATER WATCH, *supra* note 36, at 2.

124. Mallon, *supra* note 30, at 392; *Nearly 96,000 Pounds of Ground Beef Products Recalled*, CNN.COM, May 21, 2009, <http://www.cnn.com/2009/HEALTH/05/21/recalled.beef/>.

125. *See, e.g., Nearly 96,000 Pounds of Ground Beef Products Recalled*, *supra* note 124; S.T.O.P. Safe Tables Our Priority, *E. coli* O157:H7, [http://www.safetables.org/fb\\_illnesses/display.cfm?id=9](http://www.safetables.org/fb_illnesses/display.cfm?id=9) (last visited Jan. 31, 2010); Michael Moss, *E. Coli Path Shows Flaws in Beef Inspection*, N.Y. TIMES, Oct. 3, 2009, at A1.

126. *See, e.g., Moss, supra* note 125.

127. *See, e.g., Nearly 96,000 Pounds of Ground Beef Products Recalled*, *supra* note 124; S.T.O.P. Safe Tables Our Priority, *supra* note 125; Moss, *supra* note 125.

128. *See, e.g., Moss, supra* note 125; Mallon, *supra* note 30, at 391; FOOD & WATER WATCH, *supra* note 36.

129. FOOD & WATER WATCH, *supra* note 36, at 2; Michael Pollan, *The Vegetable-Industrial Complex*, N.Y. TIMES, Oct. 25, 2006 (Magazine), at 17.

130. Pollan, *supra* note 129.

tionally, improper disposal of the vast amounts of animal waste that accumulate on factory farms can contaminate the water used to irrigate or clean crops with this bacteria.<sup>131</sup> For example, the FDA's massive recall of spinach in 2006 due to *E. coli* was linked to contamination of the water supply due to runoff of animal waste from industrial livestock operations.<sup>132</sup>

Considering the unhealthy diets and unsanitary practices of factory farms, it is not surprising that the risk that food will be contaminated by *E. coli* is quite high in the United States. Since the USDA relies on a mere 15,000 spot checks per year to test for *E. coli* at thousands of meat plants,<sup>133</sup> it has become commonplace for the USDA to recall thousands of pounds of meat products due to high-risk contamination.<sup>134</sup> For instance, the summer of 2009 saw the recall of beef from nearly 3,000 grocery stores across the country.<sup>135</sup> Even with these extensive recalls, 76 million Americans fall ill from food borne illnesses each year, while 325,000 are hospitalized, and 5,000 die.<sup>136</sup>

The most common source of *E. coli* infection is ground beef products. Contaminated ground beef has been traced to sixteen outbreaks in the United States in the past three years.<sup>137</sup> In 1994, four children died from an outbreak linked to hamburgers from the Jack in the Box restaurant chain.<sup>138</sup> In 2007, boxes of frozen Cargill-brand hamburger patties containing a particularly virulent strain of *E. coli*

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131. FOOD & WATER WATCH, *supra* note 36, at 2.

132. *See, e.g.*, Marla Cone, *E. Coli Pervades Harvest Area*, L.A. TIMES, Sept. 21, 2006, available at <http://articles.latimes.com/2006/sep/21/local/me-water21>.

133. Moss, *supra* note 125.

134. *See, e.g.*, *Colorado Beef Company Expands Recall Due to Possible E. coli*, CNN.COM, June 30, 2009, <http://www.cnn.com/2009/HEALTH/06/29/US.beef.recall/>; *Nearly 96,000 Pounds of Ground Beef Products Recalled*, *supra* note 124; Mitchell Blumenthal, *E. Coli Illnesses Prompt Beef Recall*, N.Y. TIMES, July 3, 2008, available at <http://www.nytimes.com/2008/07/03/us/03recallnd.html>; *Meat Recall Expands Again on E. coli Fears—Up to 5.7 Million Pounds of Beef in 11 States May Be Contaminated*, MSNBC.COM, June 9, 2007, <http://www.msnbc.msn.com/id/19092079/>.

135. Moss, *supra* note 125.

136. Mallon, *supra* note 30, at 391.

137. Moss, *supra* note 125. Part of the problem with ground beef products is that hamburger is a blend of various animal parts, fatty trimmings, and unsavory scraps that came from numerous different cows who were killed at various slaughterhouses before being sent to a grinding plant. Any one instance of *E. coli* contamination at any stage of the hamburger-making process can lead to an outbreak. *Id.*

138. *Id.*

were widely distributed and sickened over 940 people across the country.<sup>139</sup>

#### D. Heart Disease

The unnatural diet and stressful environment that cattle experience on factory feedlots is not only an issue for the health and welfare of the animal, but also for the health of the vast majority of Americans who consume beef and dairy. Scientists at the USDA Agricultural Research Service have found evidence linking animal stress to the production of lower quality food.<sup>140</sup> Additionally, studies show that when cattle are pasture-raised and grass-fed, their beef naturally has lower levels of total fat than feedlot-raised and corn-fed cattle.<sup>141</sup> This finding is important because research consistently shows a strong correlation between diets high in total fat and saturated fat and an elevated risk of heart disease.<sup>142</sup> Saturated fat in particular raises the level of low-density lipoprotein, the artery-clogging type of cholesterol, in the blood, which may lead to coronary heart disease.<sup>143</sup> Saturated fat is also linked to diabetes, cancer, and a host of other diseases.<sup>144</sup> The main sources of unhealthy saturated fats in the American diet are from beef, cheese, and milk.<sup>145</sup>

In addition to containing lower levels of unhealthy fats, grass-fed cattle produce beef with higher levels of healthy fats, such as omega-3 fatty acids.<sup>146</sup> Mounting research indicates that these types of fats have numerous human health benefits.<sup>147</sup> Of the beneficial fatty acids, there are three families of fats touted for disease prevention: (1) omega-6 fatty acids, such as linoleic acid (LA), a heart-healthy fat that is produced by plants and is vital to human life; (2) omega-3 fatty acids, such as alpha-linoleic acid (ALA), which is produced by plants,

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139. *Id.* Among the victims of the 2007 outbreak was one healthy twenty-two-year-old woman who experienced seizures, a nine-month long coma, and eventual paralysis from the waist down after eating one hamburger. *Id.*

140. Smith, *supra* note 52.

141. See CLANCY, *supra* note 61, at 2.

142. *Id.* at 20; see also *Study: Lots of Red Meat Increases Mortality*, *supra* note 5 (linking consumption of red meat with increased risk of heart disease).

143. See Am. Heart Assoc., *Saturated Fats*, *supra* note 4 (finding that eating foods high in saturated fat can raise the level of cholesterol in the blood); CLANCY, *supra* note 61, at 20 (noting the consistency of studies finding a link between diets high in saturated fat and risk of coronary heart disease).

144. *More Reasons to Cut Back on Saturated Fats*, MSNBC.COM, July 5, 2006, <http://www.msnbc.msn.com/id/12867692/>.

145. See, e.g., Am. Heart Assoc., *Fat*, <http://www.americanheart.org/presenter.jhtml?identifier=4582> (last visited Feb. 27, 2010).

146. CLANCY, *supra* note 61, at 2.

147. *Id.* at 27.

icosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), the latter two of which are found predominately in algae-eating fish; and (3) conjugated linoleic acid (CLA), an omega-7 fatty acid that is converted from LA or ALA in the stomachs of ruminant animals from grasses.<sup>148</sup> Thus, humans ingest these essential fatty acids from eating plant life or animals that have consumed plant life. Numerous laboratory animal studies, human clinical trials, and epidemiological studies confirm the importance of these fatty acids in the human diet, especially for preventing heart disease.<sup>149</sup>

When cattle are confined indoors and fed the traditional corn-based factory farm diet, they are prevented from grazing on the grasses that constitute the only source of many of these fatty acids, resulting in beef and dairy with much lower levels of these essential healthy nutrients. The Union of Concerned Scientists concluded that pasture-raised cattle tend to produce milk containing higher levels of ALA and CLA fatty acids per serving.<sup>150</sup> With respect to beef, the comparison studies indicate that grass-fed cattle tend to produce steaks that contain higher levels of ALA and EPA/DHA, as well as a lower ratio of omega-6 to omega-3 fatty acids per serving.<sup>151</sup> Studies show that consuming a lower ratio of omega-6 to omega-3 has a “near significant” association with a lower incidence of heart disease and death.<sup>152</sup>

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148. *Id.* at 20–23.

149. *See id.* at 24. Studies find that LA is an important factor in the prevention of heart disease. *Id.* There is also strong evidence that EPA and DHA reduce the risk of heart disease, lower blood pressure, decrease artery-clogging triglyceride levels, have an anti-arrhythmic effect, aid in neural development, and control inflammation and immune reactions, such as rheumatoid arthritis. *Id.* at 24. Likewise, studies show that ALA reduces the risk of heart disease and the incidence of fatal and acute heart attacks. *Id.* at 24–27. While animal studies have found that CLA may have anti-carcinogenic and anti-atherosclerotic effects, there is insufficient research to support a finding of the same health benefits in humans. *Id.* at 2.

150. *Id.* at 40–42.

151. *See id.* at 43–45 (finding that steaks from grass-fed cattle “likely” contain higher levels of ALA, “sometimes” contain higher levels of EPA/DHA, and “consistently and significantly” lower ratio of omega-6 to omega-3 fatty acids).

152. *Id.* at 24–25. The ratio of omega-6 to omega-3 has increased exponentially since the Industrial Revolution, when vegetable oils became commonplace and animals began to be mass-produced on diets of corn and grain instead of grasses. Our hunter-gatherer ancestors, whose diet was composed of wild animals, plants, and fish, consumed a healthy 1:1 or 2:1 ratio of omega-6 to omega-3. Today, the Western diet contains an unhealthy, omega-6-heavy ratio of over 10:1. *Id.*

### E. Influenza

In the words of Hans-Gerhard Wagner, a senior officer of the United Nation's Food and Agriculture Organization, factory farms are an "opportunity for emerging disease."<sup>153</sup> The overcrowded, filthy conditions on factory farms are the ideal breeding grounds for viruses and for the rapid spread of disease amongst the animals.<sup>154</sup> In turn, these conditions present an opportunity for animal viruses that originated on factory farms to be transmitted to rats, flies, and farm workers.<sup>155</sup> In some cases, these animal-origin viruses can lead to deadly, worldwide influenza pandemics.<sup>156</sup> For instance, the recent, highly publicized outbreaks of avian flu and swine flu have both been linked to factory farms.

The conditions under which chickens are kept in factory farms make it easy for the avian flu, or bird flu, to rapidly spread not only amongst the birds themselves but also to their human handlers. Once one bird is infected, the virus quickly spreads to the other birds on the same farm via the infected bird's secretions and droppings.<sup>157</sup> According to the World Health Organization (WHO), the use of battery cages is at least partly to blame for the rapid transmission of the disease on factory farms: when chickens are "[p]iled one on top of the other in cramped cages, the birds easily pass the disease on with their dirty droppings."<sup>158</sup> In addition, battery cages make it easier for the virus to spread to humans; whereas free-range chickens keep their distance from humans, "jailed" birds on factory farms come in close contact with their handlers.<sup>159</sup>

In 1996, the bird flu was first spotted in birds on commercial poultry farms in Asia.<sup>160</sup> By 1997, the disease had already spread to the human population.<sup>161</sup> From 2003, at the peak of the bird flu pandemic, through the present, 438 people have been infected with the

153. Hatfield, *supra* note 51.

154. *See, e.g.*, Sustainable Table, Antibiotics, *supra* note 50.

155. *See, e.g.*, Graham, *supra* note 54, at 290–91.

156. Hatfield, *supra* note 51.

157. *Key Facts About Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus*, CENTERS FOR DISEASE CONTROL AND PREVENTION, June 31, 2006, at 1, available at [http://www.cdc.gov/flu/avian/gen-info/pdf/avian\\_facts.pdf](http://www.cdc.gov/flu/avian/gen-info/pdf/avian_facts.pdf).

158. F. William Engdahl, *Bird Flu and Chicken Factory Farms: Profit Bonanza for U.S. Agribusiness*, GLOBAL RESEARCH, Nov. 27, 2005, available at <http://www.globalresearch.ca/index.php?context=VA&aid=1333>.

159. *Id.*

160. *H5N1 Avian Influenza: Timeline of Major Events*, WORLD HEALTH ORGANIZATION, July 29, 2009, at 1, available at [http://www.who.int/csr/disease/avian\\_influenza/Timeline090727.pdf](http://www.who.int/csr/disease/avian_influenza/Timeline090727.pdf).

161. *Id.*

bird flu and 262 have died.<sup>162</sup> The bird flu continues to be a worldwide health crisis, with new instances of bird flu continuously arising in humans—mainly in young children—in new locations all the time.<sup>163</sup>

Additionally, in April 2009, another animal-origin virus called H<sub>1</sub>N<sub>1</sub>, or swine flu, reached global pandemic status and continues to threaten the human population.<sup>164</sup> Health officials believe that millions of Americans have already been infected by the swine flu, with the vast majority of them recovering after suffering from relatively mild symptoms similar to the seasonal influenza virus.<sup>165</sup> However, the swine flu has the potential to cause severe illness and death.<sup>166</sup> The Centers for Disease Control estimates that from April 2009 to January 2010 there were between forty-one and eighty-one million cases of swine flu, between 183,000 and 378,000 related hospitalizations, and between 8,330 and 17,160 related deaths in the United States alone.<sup>167</sup>

Although the origin of the swine flu has not been conclusively determined, experts believe that the likely cause was the crowding of pigs and the huge manure lagoons on factory farms.<sup>168</sup> In particular, researchers have linked the earliest known case of swine flu to one of Smithfield Foods' hog production facilities located in the state of Veracruz in Mexico.<sup>169</sup> Supporting this theory are the facts that, first, untreated animal waste can contain various pathogens, including the

162. World Health Organization, Cumulative Number of Human Cases of Avian Influenza A / (H5N1) Reported to WHO (Aug. 11, 2009), [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2009\\_08\\_11/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_08_11/en/index.html).

163. *H5N1 Avian Influenza: Timeline of Major Events*, *supra* note 160. The most recent outbreak of human infections was reported in Egypt, which confirmed its eighty-first human case of the virus in July 2009. *Id.*

164. World Health Organization, Preparing for the Second Wave: Lessons from Current Outbreaks (Aug. 28, 2009), [http://www.who.int/csr/disease/swineflu/notes/h1n1\\_second\\_wave\\_20090828/en/index.html](http://www.who.int/csr/disease/swineflu/notes/h1n1_second_wave_20090828/en/index.html).

165. FLU.gov, Symptoms of H1N1 Flu, <http://www.flu.gov/individualfamily/about/h1n1/index.html> (last visited Mar. 21, 2010).

166. Mike Stobbe, *CDC: 76 Children Dead of Swine Flu as Cases Rise*, Oct. 9, 2009, ABC NEWS, available at <http://abcnews.go.com/Health/wireStory?id=8791624>.

167. Centers for Disease Control and Prevention, CDC Estimates of 2009 H1N1 Influenza Cases, Hospitalizations and Deaths in the United States, April 2009—January 16, 2010 (Feb. 12, 2010), [http://www.cdc.gov/h1n1flu/estimates\\_2009\\_h1n1.htm](http://www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm).

168. See, e.g., Michael Greger, *CDC Confirms Ties to Virus First Discovered in U.S. Pig Factories*, THE HUMANE SOCIETY OF THE U.S., Aug. 26, 2009, [http://www.humanesociety.org/news/news/2009/04/swine\\_flu\\_virus\\_origin\\_1998\\_042909.html](http://www.humanesociety.org/news/news/2009/04/swine_flu_virus_origin_1998_042909.html); Philpott, *supra* note 51.

169. See, e.g., Philpott, *supra* note 51; Hatfield, *supra* note 51; Heather Moore, *Humans are Responsible for Swine Flu*, PHYSORG.COM, May 1, 2009, <http://www.physorg.com/news/160386820.html>.

flu virus.<sup>170</sup> Viruses in particular can live in such conditions for three to six months.<sup>171</sup> Second, these viruses can be transported from the lagoons to the human population through the swarms of flies that flock to such lagoons and through the farm workers who are in charge of transporting animal waste.<sup>172</sup> The workers, who are not afforded much protection from exposure, can easily become infected through inhalation of or skin contact with waste particles.<sup>173</sup> In fact, factory farm workers at poultry and hog operations and their families are known to be at an increased risk for bacterial and viral infections.<sup>174</sup> Thus, even if Smithfield Foods' operation in Veracruz, Mexico was not ground zero of the current swine flu pandemic, the fact remains that current factory farming practices create a breeding ground for infectious disease and a prime opportunity for the transfer of pathogens from animals to humans that may create an even worse pandemic in the future.

#### F. Mad Cow Disease

A final concern for the American consumer of factory-farmed beef in particular is "mad cow disease." Mad cow disease, another name for bovine spongiform encephalopathy (BSE), is caused by the industry practice of feeding cattle, which are natural herbivores, rendered parts of other cattle.<sup>175</sup> The disease is spread when cattle eat the nervous system tissue, such as the brains or spinal cord, from other cattle who suffer from mad cow disease.<sup>176</sup> The name "mad cow disease" is derived from the way BSE destroys the brain of an afflicted cow; it slowly creates holes throughout the brain until it becomes sponge-like, causing the cow act erratically.<sup>177</sup> Over time, the cow becomes increasingly unable to walk or function and ultimately dies.<sup>178</sup>

Humans who eat the meat of a cow infected with mad cow disease are at risk of developing an invariably fatal condition called vari-

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170. Philpott, *supra* note 51.

171. *Id.*

172. *Id.*; Graham, *supra* note 54, at 289.

173. Graham, *supra* note 54, at 288.

174. *Id.* at 291.

175. FOOD & WATER WATCH, *supra* note 36, at 1–2.

176. *Id.*; Union of Concerned Scientists, They Eat What? The Reality of Feed at Animal Factories, *supra* note 60.

177. Michael B. Abramson, *Mad Cow Disease: An Approach to Its Containment*, 7 J. HEALTH CARE L. & POL'Y 316, 324 (2004); *Alabama Cow Tests Positive for Mad Cow Disease*, MSNBC.COM, Mar. 14, 2006, <http://www.msnbc.msn.com/id/11809760/>.

178. Abramson, *supra* note 177, at 24.

ant Creutzfeldt-Jakob disease (vCJD).<sup>179</sup> This condition affects humans similar to the way that BSE affects cattle. Due to a long incubation period, it may take several years or even decades for symptoms of vCJD to present.<sup>180</sup> According to the WHO, once symptomatic, persons suffering from vCJD experience psychosis, dementia, loss of motor skills, and involuntary movements as the disease progressively destroys their brain tissue, until finally, “by the time of death, patients become completely immobile and mute.”<sup>181</sup> Since there is no known cure or treatment, vCJD patients die within about thirteen months of onset of symptoms.<sup>182</sup> Beef-eating consumers are left without any way to protect themselves, as no amount of cooking beef before eating it can prevent the consumer from contracting vCJD.<sup>183</sup>

Until 1997, American factory farmers could feed ground-up cattle meat to their cattle without any government restrictions. However, after mad cow disease received international attention in 1996 for its prevalence in the United Kingdom,<sup>184</sup> the FDA implemented a feed ban prohibiting “[t]he use or intended use in ruminant feed of any material that contains protein derived from mammalian tissues . . . .”<sup>185</sup> Despite this ban, there have been three cases of mad cow disease documented in cattle located in the United States since 2003.<sup>186</sup> In late 2003, this finding sparked a flurry of bans on the

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179. World Health Organization, Variant Creutzfeldt-Jakob Disease (Nov. 2002), <http://www.who.int/mediacentre/factsheets/fs180/en/>.

180. Mallon, *supra* note 30, at 393.

181. World Health Organization, *supra* note 179.

182. Mallon, *supra* note 30, at 393.

183. FOOD & WATER WATCH, *supra* note 36, at 2.

184. *See, e.g.*, Centers for Disease Control and Prevention, Fact Sheet: Variant Creutzfeldt-Jakob Disease (Jan. 4, 2007), [http://www.cdc.gov/ncidod/dvrd/vcjd/factsheet\\_nvcjd.htm](http://www.cdc.gov/ncidod/dvrd/vcjd/factsheet_nvcjd.htm). The United Kingdom, where BSE was first discovered in 1986, has been faced with the highest number of instances of vCJD: 170 human cases have been reported to date following the country’s highly-publicized outbreak of mad cow disease in 1996. *Id.*; World Health Organization, *supra* note 179.

185. *See* 21 C.F.R. § 589.2000–2001 (2009).

186. *Alabama Cow Tests Positive for Mad Cow Disease*, *supra* note 177. There have been three reported American victims of vCJD who contracted the disease years earlier by eating contaminated beef in either the United Kingdom or Saudi Arabia before returning to the United States and developing symptoms. Centers for Disease Control and Prevention, Fact Sheet: Variant Creutzfeldt-Jakob Disease, *supra* note 184. However, this cannot be taken to mean that domestically-raised cattle has never caused or will never cause vCJD. Some experts warn that in reality, “the disease has a long incubation period and few dementia-related deaths in the U.S. are investigated.” Jed Seltzer & Elinor M. Abreu, *US Mad Cow Link Questioned in Creutzfeldt-Jakob Cases*, REUTERS, Dec. 27, 2003, available at <http://www.commondreams.org/headlines03/1227-01.htm>.

importation of American beef products by over forty other countries for fear of a possible mad cow disease epidemic.<sup>187</sup>

There are numerous reasons to question the sufficiency of the FDA's current feed ban.<sup>188</sup> For one, enforcement of the ban among animal feed manufacturers has been limited and violations of the ban are prevalent. For example, in 2004, the FDA found close to one hundred American companies violating the 1997 mad cow feed regulations, either by maintaining poor manufacturing practices that could result in mixing cattle parts into cattle feed or by failing to label feed containing cattle parts with the required warning "Do Not Feed to Cattle or Other Ruminants."<sup>189</sup>

Moreover, even assuming that animal feed manufacturers are in perfect compliance with the FDA's rules, there are at least three loopholes that could lead to an outbreak of mad cow disease in cattle and vCJD in humans.<sup>190</sup> First, factory farmers are still legally allowed to feed cow's blood to calves; in fact, cow's blood is a common ingredient in the formula calves receive in lieu of their mother's milk.<sup>191</sup> Second, the ban covers only the feed of cattle and other ruminants; pigs, chickens, turkeys, and other farmed animals can still legally be fed rendered cattle meat.<sup>192</sup> Moreover, these pigs, chickens, and turkeys that have been fed rendered cattle meat can themselves be rendered and fed to cattle, providing another way for farmers to feed cattle parts to cattle, despite the ban.<sup>193</sup> The European Union bans the practice of feeding mammalian proteins to farmed animals outright, recognizing the risk that it poses for the transmission of mad cow disease.<sup>194</sup> In contrast, the United States, through the FDA in 2008, has

187. See Abramson, *supra* note 177, at 317; *Alabama Cow Tests Positive for Mad Cow Disease*, *supra* note 177; *Japan Says Banned Part Found in U.S. Beef*, Apr. 23, 2008, USA TODAY, available at [http://www.usatoday.com/news/world/2008-04-23-us-beef\\_N.htm](http://www.usatoday.com/news/world/2008-04-23-us-beef_N.htm).

188. See *Alabama Cow Tests Positive for Mad Cow Disease*, *supra* note 177.

189. *FDA Lists Violators of Mad Cow Feed Rules*, MSNBC.COM, Apr. 27, 2004, [http://www.msnbc.msn.com/id/4846765/ns/business-mad\\_cow\\_in\\_the\\_us/](http://www.msnbc.msn.com/id/4846765/ns/business-mad_cow_in_the_us/); 21 C.F.R. § 589.2000(a)(7)(c)(i) (2009).

190. FOOD & WATER WATCH, *supra* note 36, at 2; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, *supra* note 60.

191. See 21 C.F.R. § 589.2000(a) (2009) (excluding blood and blood products from the types of animal proteins prohibited in animal feed); FOOD & WATER WATCH, *supra* note 36, at 2; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, *supra* note 60.

192. See 21 C.F.R. § 589.2000–2001 (2009).

193. FOOD & WATER WATCH, *supra* note 36, at 2; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, *supra* note 60.

194. World Health Organization, *Bovine Spongiform Encephalopathy*, <http://www.who.int/mediacentre/factsheets/fs113/en/> (last visited Jan. 31, 2010).

opted for a much weaker ban on the use of cattle tissue in animal feed *only* when it comes from cattle older than thirty months, who are considered to be more at risk for BSE.<sup>195</sup> Third, factory farmers are also allowed to feed cattle waste products that may contain banned cattle parts. In particular, the industry often feeds leftover restaurant scraps called “plate waste” and waste found on the floor of chicken and turkey barns called “poultry litter” to their cattle.<sup>196</sup> The FDA estimates that farmers feed one to two million tons of poultry litter to cattle every year.<sup>197</sup> Since poultry litter includes chicken feces and spilled poultry feed, both of which contain cattle tissue, this provides yet another way for BSE-causing agents to infect cattle.<sup>198</sup>

Although the FDA proposed rules in July 2004 that would eliminate the 1997 ban’s exemptions for cattle blood, plate waste, and poultry litter, it ultimately decided not to enact these regulations following the notice-and-comment period.<sup>199</sup> Additionally, the USDA scaled back testing of slaughtered cattle for BSE to only 110 cows per day, citing a low incidence of mad cow disease in the United States.<sup>200</sup> Considering there are thirty five million cattle slaughtered per year, this is an extremely low rate of testing.<sup>201</sup> In contrast, the European Union tests one hundred percent of their slaughtered cattle.<sup>202</sup>

### III.

#### PROPOSED REGULATIONS TO IMPROVE HUMAN HEALTH (AND ANIMAL WELFARE)

The aforementioned human health risks could be greatly alleviated if federal agencies set standards of care for the raising of farmed animals while they are on the farm. There are two main federal agencies that ensure that meat and dairy products are safe for human consumption: (1) the Food Safety and Inspection Service (FSIS) branch of

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195. See 21 C.F.R. §589.2001 (2009).

196. FOOD & WATER WATCH, *supra* note 36, at 2; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, *supra* note 60.

197. Jerry Hirsch, *FDA Urged to Ban Feeding of Chicken Feces to Cattle*, Oct. 31, 2009, L.A. TIMES, available at <http://articles.latimes.com/2009/oct/31/business/fi-feed-31>.

198. *Id.*; FOOD & WATER WATCH, *supra* note 36, at 2; Union of Concerned Scientists, *They Eat What? The Reality of Feed at Animal Factories*, *supra* note 60.

199. Press Release, U.S. Food and Drug Admin., *FDA Proposes Additional “Mad Cow” Safeguards* (Oct. 4, 2005), available at <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2005/ucm108496.htm>.

200. *U.S. to Reduce Mad Cow Testing by 90 Percent*, MSNBC.COM, July 21, 2006, [http://www.msnbc.msn.com/id/13970287/ns/health-mad\\_cow\\_in\\_the\\_us/](http://www.msnbc.msn.com/id/13970287/ns/health-mad_cow_in_the_us/).

201. *Id.*

202. *Id.*

the USDA, which is generally responsible for the safety of meat, poultry, and certain egg products,<sup>203</sup> and (2) the FDA branch of the Department of Health and Human Services, which is responsible for the safety of all other food products and has jurisdiction over the contents of animal feed, the drugs administered to farmed animals, and the prevention of communicable diseases.<sup>204</sup>

The agencies' current *post hoc* approach towards regulating farmed animals focuses mainly on inspection of slaughterhouses and processing plants.<sup>205</sup> However, if the agencies took a prospective approach by setting affirmative standards of care at the farm level that would ensure the animals are healthier, drug-free, and fed wholesome feed, the meat and dairy produced would be of higher quality and human health risks would be reduced. As an additional benefit, such on-farm regulations would greatly improve the welfare of farmed animals.

### A. Current Statutory Authority

One issue with proposing food safety regulations at the farm level is whether or not there is statutory authority for a federal agency to promulgate such regulations. Unfortunately, the USDA has no authority to regulate on-farm activities on behalf of animal welfare or food safety. However, the FDA, by virtue of its authority to regulate the contents of animal feed, drugs, and to prevent the spread of communicable diseases, arguably does have regulatory power over the conditions on factory farms.

#### 1. *The USDA Currently Has No Authority to Effectuate Animal Welfare or Food Safety Measures at the Farm Level*

If factory farmers were required to treat their animals in accordance with humane standards of care, the on-farm practices that lead to the greatest human health risks—extreme overcrowding and confinement, mistreatment of animal waste, unhealthy feed, antibiotics, and growth hormones—would all likely be prohibited. However, farmed animals receive virtually no federal protection against cru-

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203. See *infra* Part III.A.1; see also U.S. DEP'T OF AGRIC., FOOD SAFETY 1, available at [http://www.usda.gov/documents/FOOD\\_SAFETY.doc](http://www.usda.gov/documents/FOOD_SAFETY.doc) (last visited Jan. 31, 2010).

204. See *infra* Part III.A.2; see also Food Drug and Cosmetic Act, 21 U.S.C. §§ 331(a), 342(a)(1)–(2) (2006); Public Health Service Act, 42 U.S.C. § 264(a) (2006).

205. See, e.g., Michael R. Taylor, *Preparing America's Food Safety System for the Twenty-First Century*, RESOURCES, Spring 1997, at 15, available at [http://www.rff.org/Documents/Resources/Resources-127\\_Taylor.pdf](http://www.rff.org/Documents/Resources/Resources-127_Taylor.pdf).

elty.<sup>206</sup> While Congress granted the USDA the authority to promulgate humane standards for animal care with the Animal Welfare Act, this legislation simply exempted farmed animals,<sup>207</sup> which represent ninety-eight percent of all animals in the United States.<sup>208</sup> Thus, the USDA has no statutory authority to regulate the welfare of animals on factory farms.<sup>209</sup>

The only relevant authority that the USDA has is to ensure that certain food products made by or from farmed animals are safe for human consumption through the FSIS. The FSIS derives its regulatory authority from the Federal Meat Inspection Act (FMIA),<sup>210</sup> the Poultry Products Inspection Act (PPIA),<sup>211</sup> and the Egg Products Inspection Act (EPIA).<sup>212</sup> Pursuant to these statutes, the Secretary of Agriculture can regulate the sanitary conditions of slaughtering and

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206. The only federal statutes which apply to farmed animals are two narrow and weakly enforced statutes, the Humane Slaughter Act and the Twenty-Eight Hour Law, which deal with slaughter and the unlikely scenario of transport by railcar, respectively. See Humane Slaughter Act, 7 U.S.C. §§ 1901–07 (2006); Twenty-Eight Hour Law, 49 U.S.C. § 80502 (2006); see also Wolfson & Sullivan, *supra* note 19, at 207–8. While the Humane Slaughter Act does seek to prevent “needless suffering” for farmed animals during slaughter, regulations enacted pursuant to the Act exempt from its coverage all poultry, which comprises ninety-five percent of all farmed animals. Wolfson & Sullivan, *supra* note 19, at 208. Moreover, neither of these limited statutes protects animals against cruelty during their lives on the farm. *Id.* There are anticruelty statutes at the state level that allow criminal prosecution of those who subject animals to unnecessary suffering. See, e.g., N.Y. AGRIC. & MKTS. § 353 (2009); see also Wolfson & Sullivan, *supra* note 19, at 211–13. However, pressure from the farmed animal industry led the majority of states to amend their anticruelty statutes to exempt “customary farming practices” from criminal prosecution. *Id.* at 212. Under this exemption, virtually any practice used by factory farmers is deemed “customary,” and thus immune to criminal prosecution. *Id.* at 212–13. In the few states where factory farms are still vulnerable to criminal prosecution, enforcement is generally limited to the infrequent imposition of low fines. *Id.* at 210. Moreover, anticruelty statutes are largely an ineffective means of regulating the farmed animal industry because they are retroactive rather than proactive; they do not allow state agencies to promulgate regulations requiring factory farms to take affirmative steps to ensure animal welfare going forward. *Id.* at 209–10.

207. Animal Welfare Act, 7 U.S.C. § 2132(g) (2006) (excluding specifically “farm animals. . . used or intended for use as food” from the protection of the Animal Welfare Act).

208. Wolfson & Sullivan, *supra* note 19, at 206.

209. *Id.* at 207. By contrast, the USDA does specify standards to ensure humane treatment, clean living conditions, adequate food and water, and regular exercise for other warm-blooded animals that are not raised for food, such as cats, dogs, horses, primates, hamsters, guinea pigs and rabbits. See, e.g., 9 C.F.R. §§ 3.1–3.6 (2009) (setting the standards of care and conditions of facilities for warm-blooded mammals protected by the Animal Welfare Act).

210. See Federal Meat Inspection Act, 21 U.S.C. §§ 601–95 (2006).

211. See Poultry Products Inspection Act, 21 U.S.C. §§ 451–72 (2006).

212. See Egg Products Inspection Act, 21 U.S.C. §§ 1031–56 (2006).

processing plants and inspect the meat, poultry, and egg products produced there.<sup>213</sup> However, none of these statutes are aimed at regulating practices that affect food quality at the *farm* level. Rather, the FMIA and the PPIA only encompass regulation and inspection from the time period just before slaughter (to ensure that no unfit animals are allowed into the slaughterhouse)<sup>214</sup> through the completion of the finished food product (to ensure that no food products that are unfit for human consumption enter the chain of interstate commerce).<sup>215</sup> Likewise, the EPIA is aimed at regulating the processing of “egg products,” which means only food products that are made of eggs that have been removed from their shells, and does not extend to the conditions under which eggs are produced on the farm.<sup>216</sup> Thus, the USDA currently has no authority to regulate and inspect the living conditions of the farms on which cattle, swine, and poultry are raised under the existing statutes.

## 2. *The FDA May Have the Authority to Effectuate Certain Food Safety Measures at the Farm Level*

The FDA, on the other hand, derives its statutory authority from the Food, Drug, and Cosmetic Act (FDCA)<sup>217</sup> and the Public Health Service Act (PHSA).<sup>218</sup> The FDCA allows the FDA to promulgate regulations that will prohibit the introduction of “adulterated” food

213. *See supra* notes 210–12.

214. 21 U.S.C. § 603 (granting the USDA authority to examine and inspect “all cattle, sheep, swine, goats, horses, mules, or other equines” and to make such inspections “before [such animals may] be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment, in which they are to be slaughtered and the meat and meat food products thereof are to be used in commerce,” pursuant to “the rules and regulations to be prescribed by the Secretary . . .”) (emphasis added); 21 U.S.C. § 455(a) (granting the USDA authority to perform “*ante mortem* inspection of poultry in each official establishment processing poultry or poultry products for commerce,” with the stated goal of “preventing the entry into or flow or movement in commerce of . . . any poultry product which is capable of use as human food and is adulterated”) (emphasis added). Furthermore, “processed” poultry is defined as “slaughtered, canned, salted, stuffed, rendered, boned, cut up, or otherwise manufactured or processed.” *Id.* § 453(w).

215. *See* 21 U.S.C. § 604–8 (granting the USDA authority to conduct post mortem inspections of carcasses and finished food products and to promulgate regulations for sanitation, labeling, and packaging).

216. 21 U.S.C. § 1034(a) (granting the USDA authority to regulate and inspect the processing of “egg products” at processing plants); 21 U.S.C. § 1033(f) (defining “egg products” as “dried, frozen, or liquid eggs”); *see also* U.S. Dep’t of Agric., Food Safety and Inspection Serv., Egg Products Preparation: Shell Eggs From Farm to Table, [http://www.fsis.usda.gov/factsheets/Focus\\_On\\_Shell\\_Eggs/index.asp](http://www.fsis.usda.gov/factsheets/Focus_On_Shell_Eggs/index.asp) (last visited Jan. 31, 2010).

217. *See* Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301–399a (2006).

218. *See* Public Health Service Act, 42 U.S.C. §§ 201–300ff-72 (2006).

products into the stream of commerce, which includes foods containing substances that render the food “injurious to health.”<sup>219</sup> Meanwhile, the PHSA focuses on preventing the spread of infectious diseases, granting the FDA authority to regulate as “necessary to prevent the introduction, transmission, or spread of communicable diseases” between states.<sup>220</sup> Pursuant to the FDCA, the FDA has the authority to, and does already regulate, most of the contents of animal feed and the drugs that may be administered to farmed animals.<sup>221</sup>

The question of whether the FDA has the authority to regulate the unsanitary and crowded conditions of factory farms is less clear. Arguably, such oversight could fall within the FDA’s regulatory purview. A Congressional Research Service Report commissioned in 2008 to explore the reach of FDA authority concluded that “[t]he FDA appears to have authority under the FDCA and the PHSA to regulate at least some on-farm activities.”<sup>222</sup> Although the FDA has not exercised its full potential to regulate at the farm level, an analysis of the text, legislative history, and the tendency of courts to interpret the scope of the statutes broadly according to their purpose, indicates that the FDA has some on-farm authority.<sup>223</sup>

In order to enforce the PHSA, the FDA is expressly permitted to provide for inspection, disinfection, and sanitation measures, and to order the “destruction” of infected animals that pose a threat to human health.<sup>224</sup> Although the PHSA could be narrowly construed as applying only to the post-farm slaughter and preparation of food products that may spread disease, the Supreme Court and federal courts of appeal have consistently held that remedial legislation to protect public

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219. 21 U.S.C. §§ 331(a), 342(a)(1)–(2), 701.

220. 42 U.S.C. § 264(a).

221. See 21 U.S.C. § 342(a)(2)(C)(i)–(ii); see also, U.S. FOOD AND DRUG ADMIN., FOURTH DRAFT: FRAMEWORK OF THE FDA ANIMAL FEED SAFETY SYSTEM (2010), available at <http://www.fda.gov/AnimalVeterinary/SafetyHealth/AnimalFeedSafetySystemAFSS/default.htm> (creating the framework by which the FDA exercises its authority to regulate animal feed).

222. Vanessa K. Burrows, CONG. RESEARCH SERV., FDA AUTHORITY TO REGULATE ON-FARM ACTIVITY 3 (2008), available at <http://www.producesafetyproject.org/admin/assets/files/0022.pdf>.

223. *Id.* at 3–6.

224. 42 U.S.C. § 264(a) (granting the Surgeon General the authority “to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases from . . . one State or possession into any other State or possession. For purposes of carrying out and enforcing such regulations, the Surgeon General may provide for such inspection, fumigation, disinfection, sanitation, pest extermination, destruction of animals or articles found to be so infected or contaminated as to be sources of dangerous infection to human beings, and other measures, as in his judgment may be necessary.”).

health should be liberally construed according to its purpose so as not to limit agency rule-making authority.<sup>225</sup> Accordingly, the FDA presumed that this provision grants it on-farm authority when it recently proposed a rule that would contain “on-farm prevention measures,” including mandating the “cleaning and disinfection of poultry houses” that have tested positive for Salmonella, in order to decrease the risk of infection from shell eggs.<sup>226</sup> Thus, similar regulations that require more comprehensive on-farm sanitation measures could be enacted by the FDA without expanding agency authority.

Notwithstanding the FDA’s existing authority, it still may be desirable to extend the USDA’s statutory authority by amending the FMIA, PPIA, and EPIA to include on-farm practices. The USDA would then be able to regulate the use of sanitary practices on farms in the same way that they require sanitation for slaughtering and processing plants under the three inspection acts,<sup>227</sup> and for animals covered by the Animal Welfare Act.<sup>228</sup> While the latter option would require amending the existing statutory scheme, it has been argued that, practically speaking, the USDA is better suited to create on-farm regulations than the FDA:

While the FDA has an extensive knowledge base regarding the science of food processing, the agency has neither the expertise nor the resources to tell farmers how to farm. . . . The USDA has a much better understanding of how farming works in the real world. With the resources at its disposal, the USDA is in a position to work directly with food producers to help them develop production

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225. *See, e.g.*, *United States v. Bacto-Unidisk*, 394 U.S. 784, 798 (1969) (stating that “remedial legislation such as the Food, Drug, and Cosmetic Act is to be given a liberal construction consistent with the Act’s overriding purpose to protect the public health . . .”); *Nutraceutical Corp. v. Von Eschenbach*, 459 F.3d 1033, 1039 (10th Cir. 2006) (“The FDCA should not be read too restrictively but in manner consistent with the statute’s overriding purpose to protect public health.”); *United States v. Nova Scotia Food Prods. Corp.*, 568 F.2d 240, 246 (2d Cir. 1977) (“When agency rulemaking serves the purposes of the statute, courts should refuse to adopt a narrow construction of the enabling legislation which would undercut the agency’s authority to promulgate such rules.” (citing *United States v. Midwest Video Corp.*, 406 U.S. 649 (1972))).

226. *Prevention of Salmonella Enteritidis in Shell Eggs During Production, Storage, and Transportation*, 74 Fed. Reg. 33,030 (July 9, 2009) (to be codified at 21 C.F.R. pt. 16, 118).

227. *See* Federal Meat Inspection Act, 21 U.S.C. § 608 (2006) (granting the USDA authority to regulate the sanitary conditions of slaughtering, processing, and packaging plants for meat products); Poultry Products Inspection Act, 21 U.S.C. § 456(a) (2006) (granting the USDA authority to regulate the use of sanitary practices at “each official establishment slaughtering poultry or processing poultry products for commerce.”); Egg Products Inspection Act, 21 U.S.C. § 1035(a) (2006) (granting the USDA authority to regulate the use of sanitary practices at egg processing plants).

228. *See, e.g.*, 9 C.F.R. § 3.11 (2009).

methods that not only enhance farm efficiency, but also further improve food safety and quality for the benefit of American consumers.<sup>229</sup>

However, one must also consider that the USDA's conflicting goals of promoting the interests of industrial agriculture and of improving health and nutrition<sup>230</sup> would make it difficult for the agency to impose objective regulations on factory farm conditions. Thus, there is no clear answer as to *how* factory farms should be regulated, only the knowledge that they must be regulated in order to protect public health.

### B. Proposed Regulations

To lower the human health risks associated with factory farming, I propose that the following regulations be enacted at the farm level: (1) setting a standard for clean living conditions on farms and proper disposal of animal waste; (2) eliminating extreme confinement systems, such as battery cages, and overcrowding; (3) requiring that all animal feed be vegetarian and free of arsenic; (4) prohibiting the prophylactic administration of antibiotics to animals, unless they are prescribed by a veterinarian to treat an actual illness; (5) prohibiting the administration of growth hormones to cattle; and (6) requiring that cattle be grass-fed. The vast majority of these proposed regulations could be effectuated under the current regulatory scheme, while the sixth regulation would require an amendment that would expand the scope of agency authority on the farm.

First, the FDA should promulgate regulations that require animals farmed for food production to be raised in a clean environment that includes the proper disposal and treatment of animal waste. In particular, the regulation should mandate that any indoor premises where animals are kept be well-ventilated to remove airborne diseases and regularly cleaned with a disinfectant to remove surface contamination. It should also require the regular removal of animal waste from the area to prevent fecal-oral transmission of infections, and proper treatment of that waste—as it is in human sewage treatment facilities—instead of the use of lagoons. This type of regulation would help prevent the spread of *E. coli* and other bacterial contamination, as well as infectious diseases such as animal-origin influ-

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229. Bob Goodlatte, *Keep FDA Authority Out of Farm Practices*, THE HILL, June 4, 2009, <http://thehill.com/special-reports/agriculture-and-food-safety-june-2009/8189-keep-fda-authority-out-of-farm-practices>.

230. U.S. DEP'T OF AGRIC., STRATEGIC PLAN FOR FY 2005–2010 ii (2006), available at <http://www.ocfo.usda.gov/usdasp/sp2005/sp2005.pdf>.

enza.<sup>231</sup> The FDA arguably already has the authority to enact this regulation under the PHSA since it relates to preventing the introduction of communicable diseases that could spread amongst humans.<sup>232</sup>

Second, severe overcrowding and extreme confinement systems should be prohibited on farms. In particular, the FDA should define a maximum number of animals allowed per unit of area in group housing, depending on the type of animal, so that the animals are given enough freedom of movement to turn around and extend their limbs without touching another animal. Additionally, the FDA should proscribe the use of battery cages, gestation crates, veal crates, and any other caging system that allows the animals to be kept in extremely close proximity to one another and to their waste. By limiting the animals' contact with other animals, waste, and human handlers, this regulation would greatly reduce the spread of communicable diseases, such as animal-origin influenza, amongst the animals and to humans.<sup>233</sup>

Although the industry has vehemently opposed ballot initiatives proposing similar regulations, claiming higher costs of production and lower profits would drive them out of business,<sup>234</sup> these claims have not been borne out by economic studies. For instance, a switch from battery-caged to cage-free hens is estimated to cost less than a penny more per egg and might be partly offset by increased hen productivity.<sup>235</sup> Likewise, a switch from gestation crates to group housing for sows leads to only a marginal increase in costs that is offset by increased sow productivity from lower rates of injury, disease, stillborns, and death.<sup>236</sup> Similar to the first proposed regulation, the link to prevention of communicable diseases may give the FDA authority to enact such a rule pursuant to the PHSA.

231. See *supra* Parts II.C, E.

232. See *supra* Part III.A.2.

233. See *supra* Part II.E.

234. See, e.g., Wayne Pacelle, *High Price of Caging Progress*, THE HUMANE SOCIETY OF THE UNITED STATES: A HUMANE NATION, <http://hsus.typepad.com/wayne/2008/09/proposition-2.html> (Sept. 9, 2008, 15:30 EST).

235. See HUMANE SOC'Y OF THE UNITED STATES, AN HSUS REPORT: THE ECONOMICS OF ADOPTING ALTERNATIVE PRODUCTION SYSTEMS TO BATTERY CAGES 1 (2005), available at [http://www.hsus.org/web-files/PDF/farm/econ\\_battery\\_1.pdf](http://www.hsus.org/web-files/PDF/farm/econ_battery_1.pdf), at 1; Wayne Pacelle, *Prop 2 Double Talk by Egg Industry*, THE HUMANE SOCIETY OF THE UNITED STATES: A HUMANE NATION, <http://hsus.typepad.com/wayne/2009/06/prop-2.html> (June 18, 2009, 14:59 EST).

236. HUMANE SOC'Y OF THE UNITED STATES, AN HSUS REPORT: THE ECONOMICS OF ADOPTING ALTERNATIVE PRODUCTION SYSTEMS TO GESTATION CRATES 1, available at [http://www.abolitionistapproach.com/media/pdf/econ\\_gestation.pdf](http://www.abolitionistapproach.com/media/pdf/econ_gestation.pdf) (last visited Jan. 31, 2010).

Third, the FDA or USDA should require that all animal feed be vegetarian and free of arsenic. This proposed regulation aims to address three separate health concerns: mad cow disease, E. coli, and cancer. First, by proscribing the feeding of cattle blood, rendered cattle meat, plate waste, and poultry litter to farmed animals, this regulation would eliminate the present loopholes that could potentially result in BSE-infected food products entering the market.<sup>237</sup> In its existing regulations designed to prevent mad cow disease, the FDA derived its statutory authority from the provision of the FDCA allowing them to regulate “any food additive that is unsafe.”<sup>238</sup> Surely the FDA’s authority must extend to the animal-derived additives at issue here. The FDA could therefore take its current regulations a step further by banning all animal-derived additives from feed or, at least, by removing all cattle tissue from the animal feed system. Preventing BSE-contaminated beef from entering the food supply should be of utmost concern to federal regulators since consumers have no way of protecting themselves short of ceasing beef consumption altogether.<sup>239</sup> Despite industry claims that eliminating these cheap practices will decrease their profitability, in one survey, seventy-seven percent of beef consumers indicated that they would pay more for beef that was guaranteed free of mad cow disease.<sup>240</sup>

Next, vegetarian feed would also lower the levels of E. coli present in the feces of cattle, thereby reducing the risk of contamination in the slaughterhouse.<sup>241</sup> In this case, the FDA would again have authority under the FDCA food additive provision and, since the goal is to prevent a communicable disease, possibly also under the PHSA.<sup>242</sup> Finally, this regulation would also proscribe the use of carcinogenic arsenic in animal feed, using the FDA’s authority under the FDCA to regulate unsafe food additives and things “otherwise unfit for food.”<sup>243</sup>

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237. See *supra* Part II.F.

238. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 342(a)(2)(C)(i) (2006) (declaring that a food shall be deemed to be adulterated if it bears or contains “any food additive that is unsafe”).

239. See *supra* note 183 and accompanying text.

240. ConsumerReports.org, *supra* note 67.

241. See *supra* Part II.C.

242. 21 U.S.C. § 342(a)(2)(C)(i); see *supra* Part III.A.2.

243. 21 U.S.C. §§ 342(a)(2)(C)(i), (a)(3) (2006) (declaring that a food shall be deemed to be adulterated “if it is otherwise unfit for food”). Recently, a bill was introduced in the House of Representatives called the Poison-Free Poultry Act, which would amend the FDCA to expressly ban the use of arsenic-containing food additives—such as roxarsone—in poultry feed. See H.R. 3624, 111th Cong. (2009). If this bill is enacted, it would be an important step in eliminating one known cancer risk

Fourth, the prophylactic, non-therapeutic administration of antibiotics to animals should be prohibited, unless prescribed by a veterinarian to treat an actual illness.<sup>244</sup> This regulation would help prevent the growing problem of antibiotic resistance in humans,<sup>245</sup> which currently costs the United States \$30 billion and 90,000 lives per year.<sup>246</sup> It would also give factory farms the economic incentive to provide more sanitary and less crowded conditions since, without the aid of antibiotics, that would be the only way to prevent the animals from becoming sick and dying before slaughter. The FDA has the authority to regulate drugs administered to animals and drugs used in animal feed under the FDCA.<sup>247</sup>

Fifth, the administration of growth hormones, such as rBGH, to cattle should be prohibited. This regulation would protect beef and dairy consumers against a proven increased risk of cancer.<sup>248</sup> The total economic costs of cancer in the United States were estimated at over \$209.9 billion per year in 2005 and continue to rise.<sup>249</sup> The FDA

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from animal food products. However, the bill faces serious opposition from the egg and poultry industry and currently has no co-sponsors in Congress. Helena Bottemiller, *Bill Introduced to Ban Arsenic Antibiotics in Feed*, FOOD SAFETY NEWS, Sept. 26, 2009, available at <http://www.foodsafetynews.com/2009/09/bill-introduced-to-ban-arsenic-antibiotics-in-feed/>; Kaplan, *supra* note 117.

244. There is currently a bill before Congress called the Preservation of Antibiotics for Medical Treatment Act which would amend the FDCA to require the FDA to withdraw approval for and ban animal farmers from using seven types of antibiotics which are important for treating human illnesses. See H.R. 1549, 111th Cong. (2009); S. 619, 111th Cong. (2009); see also Gardiner Harris, *Administration Seeks to Restrict Antibiotics in Livestock*, N.Y. TIMES, July 14, 2009, at A18. Other types of antibiotics would be restricted to legitimate therapeutic uses in sick animals. H.R. 1549, 111th Cong. (2009); S. 619, 111th Cong. (2009). This bill faces strong opposition from the farm industry, which claims that the bill will increase production costs and thereby increase the consumer prices of poultry by one to two cents per pound and the price of beef or pork by three to six cents per pound. Harris, *supra* note 244; HUMANE SOCIETY OF THE UNITED STATES, AN HSUS REPORT: HUMAN HEALTH IMPLICATIONS OF NON-THERAPEUTIC ANTIBIOTIC USE IN ANIMAL AGRICULTURE, *supra* note 96, at 5–6. However, researchers have found that the benefits of antibiotic use to farmers in terms of production costs do not outweigh the costs of the antibiotics themselves. *Id.* at 6.

245. See *supra* Part II.A.

246. HUMANE SOCIETY OF THE UNITED STATES, AN HSUS REPORT: HUMAN HEALTH IMPLICATIONS OF NON-THERAPEUTIC ANTIBIOTIC USE IN ANIMAL AGRICULTURE, *supra* note 96, at 5.

247. 21 U.S.C. § 342(a)(2)(C)(ii) (2006) (declaring a food to be deemed adulterated if it bears or contains “a new animal drug. . .that is unsafe”); *Id.* § 321(v) (defining “new animal drug” as “any drug intended for use for animals other than man, including any drug intended for use in animal feed” except for drugs used in animal feed that are not generally recognized as safe).

248. See *supra* Part II.B.

249. AM. CANCER SOCIETY, CANCER FACTS & FIGURES 3 (2006), available at <http://www.cancer.org/downloads/STT/CAFF2006PWSecured.pdf>.

has the authority to ban growth hormones under the FDCA as unsafe animal drugs.<sup>250</sup> Of course, this regulation would be met with substantial opposition from the drugs' manufacturers and the farm industry. However, given the strong global consensus that growth hormones are unsafe for human consumption, surely public health should take priority over economic interests in this area.

Sixth, all cattle should be grass-fed, thus prohibiting the conventional corn- and soy-based diets typical of factory farms. Given the unique dietary needs of cattle, this regulation would produce healthier meat and dairy products with lower levels of disease-causing fats and higher levels of disease-preventing fats. It would also lower the levels of *E. coli* present in cattle feces, thereby reducing the risk of contamination of beef in the slaughterhouse. Although beef and dairy producers claim this would decrease their profitability, researchers contend that pasture-raised cattle could yield more profit per animal for producers than conventionally-fed cattle, suggesting that such a switch could be economically feasible.<sup>251</sup> However, neither the FDA nor the USDA currently has statutory authority to promulgate this rule. The FDA does not have authority under the PHS Act because the diseases at issue are not communicable and the FDCA only prohibits harmful substances that have not been *added* to a food product if they are of such quantity that it ordinarily renders the food product injurious to health.<sup>252</sup> Thus, an amendment would be required to extend the authority to enact such a regulation to the FDA, USDA, or both.

Although reducing cheap meat production in favor of food safety and quality is a politically unpopular idea, recent consumer trends and increasing societal consciousness about health and the environment provide a hopeful outlook. As one journalist has observed, “[i]f those trends continue, meat may become a treat rather than a routine. It won’t be uncommon, but just as surely as the S.U.V. will yield to the hybrid, the half-pound-a-day meat era will end.”<sup>253</sup> Indeed, if these

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250. Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 342(a)(2)(C)(ii) (2006) (declaring a food to be deemed adulterated if it bears or contains “a new animal drug. . .that is unsafe”).

251. See, e.g., CLANCY, *supra* note 61, at 57.

252. 21 U.S.C. § 342(a)(1) (the FDA may regulate a food product “[i]f it bears or contains any. . .deleterious substance which may render it injurious to health. . . .”). Although this provision might include saturated fat, there is an exception for non-added substances where the “quantity of such substance in such food does not ordinarily render it injurious to health.” *Id.* Thus, given that it is the cumulative effect of eating numerous foods containing high-levels of saturated fat over the years that leads to heart disease, the amount found in any one product is not in itself injurious to health.

253. Bittman, *supra* note 2.

proposed regulations were in place, factory farmers would have to shift their focus from quantity to quality. While the industry will oppose such regulations for fear they will decrease their profitability, focusing on quality will not inevitably harm their bottom-line. For instance, with food safety regulations that meet the standards of the European Union and other countries, American producers may be able to sell their meat and dairy products internationally, thus expanding their market.<sup>254</sup> Furthermore, in recent years, the organic food market has expanded considerably and American consumers have shown that they are willing to pay higher prices for better quality meat and dairy that do not contain antibiotics or hormones and that have greater food safety and animal welfare guarantees.<sup>255</sup>

#### CONCLUSION

Using the FDA's existing statutory authority or amending the USDA's authority in order to regulate factory farm conditions and practices would greatly alleviate some of the most serious health problems faced by Americans today, including antibiotic resistance, cancer, E. coli infection, heart disease, animal-origin influenza, and mad cow disease. The public health purposes of the FDCA, PHS, FMIA, PPIA, and EPIA would all be better served by enacting more proactive and preventative measures at the farm level to regulate sanitation, overcrowding, animal feed, and the problematic drugs administered to farmed animals. In addition, if these unsafe practices were prohibited, fewer animals would be raised for food production and those that were would no longer suffer from painful health problems and extreme confinement. In this way, the proposed regulations would promote human health and animal welfare alike.

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254. See *supra* notes 111–14 and accompanying text.

255. See, e.g., Bittman, *supra* note 2; HUMANE SOC'Y OF THE UNITED STATES, AN HSUS REPORT: THE ECONOMICS OF ADOPTING ALTERNATIVE PRODUCTION SYSTEMS TO BATTERY CAGES, *supra* note 235, at 1; ConsumerReports.org, *supra* note 67.