CHEAP MEAT: HOW FACTORY FARMING IS HARMING OUR HEALTH, THE ENVIRONMENT, AND THE ECONOMY

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I. INTRODUCTION

The nature of food consumption in this country has drastically changed over time. We once relied on hunting skills and a little luck to eat meat. This progressed to a stage where families raised their own animals for food and grew their own crops to feed them. Today, it is much more common to simply stop by the grocery store, order out, or go to a drive-thru. Modern conveniences have not only impacted what we eat, but have drastically increased how much meat we consume. Americans now consume approximately 200 pounds of meat, fish, and poultry per year, "an increase of 50 pounds per person from 50 years ago."[1] At the same time, few consumers know or understand the origin of their meat, how it is processed, or how it is transported to their local grocery store or restaurant. Even fewer people understand the broad, negative effects of mass-produced meat. This article's purpose is to shed light on some of these issues.

Section II of this article provides a brief background on factory farming. Section III discusses the negative economic impact of mass meat production and Section IV discusses the environmental consequences of factory farming operations. Section V evaluates the many known and potential health consequences of factory farming and Section VI briefly discusses the ethical issues of factory farming. Finally, Section VII offers recommendations for lessening reliance on factory farmed meat.

II. BACKGROUND OF "FACTORY FARMING"

In the past 50 years, farming operations in the United States have gone from individualized production to mass production, commonly known as factory farming.[2] The impact of factory farming has been profound. For instance, many consumers might be surprised to learn that approximately

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[1] Mark Bittman, *Rethinking the Meat-Guzzler*, N.Y. TIMES (Jan. 27, 2008) http://www.nytimes.com/2008/01/27/weekinreview/27bittman.html.

[2] David Kirby, Animal Factory: The Looming Threat of Industrial Pig, Dairy, and Poultry Farms to Humans and the Environment xiv (St. Martin's Press, 2010).

80 % of cattle in the U.S. are dosed with steroid hormones to accelerate weight gain and milk production, a practice that has been banned in Europe since the 1980s due to the potential for adverse health effects in humans;[3] that raising cattle produces more greenhouse gases than automobiles;[4] that 2% of livestock facilities produce 40% of the meat consumed in this country;[5] that animals raised for food usually do not benefit from the protections afforded by animal cruelty laws;[6] or that the majority of the ten billion animals killed for food each year are forced to live in miserable, unhealthy conditions.[7]

Proponents of factory farming argue, in opposition, that aggregating production creates economies of scale, which allow massive amounts of meat to be produced at very low cost compared to older, more traditional livestock operations.[8] However, assuming that this is true, such economies have residual consequences. The goal of "cheap meat" cannot and should not be allowed to negatively impact the health and well being of humans, animals, the environment, and the economy. What is bad for animals is ultimately bad for people, regardless of how one feels about animal welfare. For instance, cramming thousands of animals into small, dark spaces not only creates unsuitable and inhumane living conditions for the animals, it also facilitates the need for antibiotics to fight the residual disease and bacteria which necessarily accompany such confined environments.[9] While such living conditions are not conventional, mass producers have been successful in marketing their meat products as "farm-fresh," "free-range," "natural," or a host of other misleading labels.[10] Regardless of the market-driven label attached, the reality is that 99% of

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[3] Janet Raloff, *Hormones: Here's the Beef, Environmental Concerns Reemerge Over Steroids Given to Livestock*, 161 SCIENCE NEWS 10 (Jan. 5, 2002), *available at* http://www.phschool.com/science/science_news/articles/hormones_beef.html; *See* Int'l Ctr. for Trade & Sustainable Dev., *New Issues Arise in EU-US Beef Trade Dispute*, vol. 9 no. 12 BRIDGES TRADE BIORES (June 26, 2009), *available at* http://ictsd.net/i/news/biores/49559/.

[4] *Rearing Cattle Produces More Greenhouse Gases than Driving Cars, UN Report Warns*, UN NEWS CENTRE (Nov. 29, 2006), http://www.un.org/apps/news/story.asp?newsID=20772&CR1=warning.

[5] KIRBY, *supra* note 2.

[6] Humane Soc'y U.S., *Guide to Vegetarian Eating* 2 (2005), *available at* http://www.humanesociety.org/assets/pdfs/farm/gve.pdf.

[7] *See id.* at 1

[8] JAMES MACDONALD & WILLIAM D. MCBRIDE, U.S. DEP'T OF AGRICULTURE, ECON. RESEARCH SERV., THE TRANSFORMATION OF U.S. LIVESTOCK AGRICULTURE, SCALE, EFFICIENCY, AND RISKS, 2 (Jan. 2009), *available at* www.ers.usda.gov/Publications/EIB43/EIB43.pdf.

[9] Nicholas D. Kristof, *When Food Kills*, N.Y. TIMES, (June 11, 2011), http://www.nytimes.com/2011/06/12/opinion/12kristof.html?_r=1&ref=opinion.

[10] *See Misleading Labels*, FOOD & WATER WATCH, http://www.foodandwaterwatch.org/food/consumer-labels/misleading-labels/ (last visited Oct. 31, 2011); *See Misleading Egg Labels*, CHICKEN OUT!, http://www.chickenout.ca/misleading.html (last visited Oct. 31, 2011).

animals raised for food consumption in the U.S. come from factory farms—a largely unregulated industry.[11]

Large-scale, mechanized megafarms, where hundreds of thousands of cows, pigs, chickens, and turkeys are fattened for market, are called "confined animal feeding operations" (CAFO), although they are more commonly referred to as "factory farms."[12] The Environmental Protection Agency (EPA) defines a CAFO as an "agricultural operation where animals are kept and raised in confined situations."[13] CAFOs are designated as either large or medium operations, depending on the number of cows, hogs, chickens, or turkeys that are housed.[14] Livestock are housed in a non-vegetated area for a minimum of 45 days per year; typically, this means they are confined to a feedlot or an enclosed building.[15] Less than one third of the farms in the U.S. that raise or keep livestock rely upon pastureland to feed their animals.[16]

The consolidation of the agriculture industry lead to the corporate ownership of most CAFOs, resulting in global firms owning virtually every aspect of the production, processing, and marketing of food.[17] For example, Cargill and ConAgra, two of the largest food processing corporations in the U.S., produce their own animal feed and process their own livestock.[18] This massive consolidation stands in stark contrast to traditional livestock production. Also, in 1950, 95% of poultry farmers were independent producers;[19] yet, by 1994, 99% of all poultry production in the U.S. was produced either through contracts with independent farmers or directly by corporate facilities.[20]

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[11] *See Factory Farming,* FARM FORWARD, http://www.farmforward.com/farming-forward/factory-farming#footnoteref3_3p1ladw (last visited Oct. 31, 2011).

[12] KIRBY, *supra* note 2.

[13] *National Pollutant Discharge Elimination System (NPDES): Animal Feeding Operations*, ENVTL. PROTECTION AGENCY, http://cfpub.epa.gov/npdes/home.cfm?program_id=7, (last updated Jan. 4, 2011).

[14] *Id.*; *see Regulatory Definitions of Large CAFOs, Medium CAFO, and Small CAFOs*, ENVTL. PROTECTION AGENCY, http://www.epa.gov/npdes/pubs/sector_table.pdf (last visited Oct. 31, 2011).

[15] *Facts About CAFOs*, SIERRA CLUB, MICHIGAN CHAPTER, http://michigan.sierraclub.org/issues/greatlakes/articles/cafofacts.html (last visited Oct. 31, 2011).

[16] OFFICE OF ENFORCEMENT & COMPLIANCE ASSURANCE, ENVTL. PROTECTION AGENCY, COMPLIANCE ASSURANCE IMPLEMENTATION PLAN FOR CONCENTRATED ANIMAL FEEDING OPERATIONS, 2 (Mar. 5, 1998), *available at* http://www.epa.gov/compliance/resources/policies/civil/cwa/cafostrat.pdf.

[17] *See* WILLIAM HEFFERNAN, REPORT TO THE NATIONAL FARMERS UNION, CONSOLIDATION IN THE FOOD AND AGRICULTURAL SYSTEM 1 (Feb. 5, 1999), *available at* http://www.foodcircles.missouri.edu/whstudy.pdf.

[18] *Id.* at 7.

[19] Brian Levy, *When the Farmer Makes the Rules*, NEW RULES J. 3, (Nov. 6, 2000), *available at* http://www.newrules.org/journal/nrfall00farmer.html.

[20] MICHAEL OLLINGER, JAMES MACDONALD & MILTON MADISON, U.S. DEP'T OF AGRICULTURE, ECON. RESEARCH SERV., STRUCTURAL CHANGE IN U.S. CHICKEN AND TURKEY SLAUGHTER at 13 (Sept. 2000), *available at* http://www.ers.usda.gov/publications/aer787/aer787.pdf.

Not surprisingly, increased production methods have spawned more, though not necessarily better, regulation. The regulation and protection of the country's food supply falls under the authority of numerous agencies within the United States Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA). The regulation of meat, poultry, and egg production in particular falls under the purview of Food Safety and Inspection Service (FSIS), an agency of the USDA.[21] The UDSA has jurisdiction to inspect and regulate meat and poultry production at all production stages.[22] The USDA is also responsible for, among other things, overseeing new plant construction, plant sanitation standards, and training inspection personnel.

Despite its regulation, livestock operations are not subject to the same stringent rules and regulations as other large industries, such as the steel, automotive, and coal industries.[23] This is due, in part, to the impact that industrial agricultural interests have on regulation. "We have an industrial farming system that is a marvel for producing cheap food, but its lobbyists block initiatives to make food safer."[24] As a practical matter, this means that many agricultural statutes have little effect on the factory farming industry. For instance, the Animal Welfare Act (AWA), enacted by Congress in 1966, provides protection for many vulnerable species of animals.[25] However, excluded from the list of protected species are farm animals.[26] This means that factory farming is not subject to significant federal legislation, leaving states as the sole enforcer of legislation protecting farm livestock.[27] Unfortunately, most states' anti-cruelty statutes are equally ineffective at protecting livestock due to exemptions for "customary" farming practices;[28] as evidenced by the fact that twenty-five states exempt farm animals from cruelty laws and in thirty states certain "normal" farm practices are exempted.[29]

At present, federal regulation of the treatment of farm animals is minimal, consisting of only two major laws. The first is the Twenty-Eight

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[21] *About FSIS,* FOOD SAFETY INSPECTION SERVICE, http://www.fsis.usda.gov/About_FSIS/index.asp (last modified Oct. 28, 2011).

[22] *Fact Sheets: Inspection & Grading of Meat and Poultry: What are the Differences*, U.S. DEPARTMENT OF AGRIC., http://www.fsis.usda.gov/Fact_Sheets/Inspection_&_Grading/index.asp (last visited Oct. 31, 2011).

[23] KIRBY, *supra* note 2, at xiv-xv.

[24] Kristof, *supra* note 9.

[25] 7 U.S.C.A. § 2131 (West 1995).

[26] *Id.*

[27] *See* David J. Wolfson, *Beyond the Law: Agribusiness and the Systematic Abuse of Animals Raised for Food Production*, 2 ANIMAL L. 123, 124-26 (1996).

[28] Lesley Peterson, *Talkin' 'Bout a Human Revolution: New Standards for Farming Practices and How They Could Change International Trade as We Know It*, 36 BROOK. J. INT'L L. 265, 267-68, (2010).

[29] THE PEW COMM'N ON INDUS. FARM ANIMAL PROD., PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA 38, www.ncifap.org/bin/e/j/PCIFAPFin.pdf (last visited Oct. 31, 2011).

Hour Law, passed in 1873, which requires that after twenty-eight hours of travel, livestock should be unloaded, fed, watered, and rested for at least five consecutive hours before resuming transport.[30] The second major federal law is the Humane Methods of Slaughter Act (HSA), which was passed in 1958 and requires that livestock be rendered insensible to pain before slaughter.[31] However, HSA does not regulate poultry; therefore, the slaughter of poultry—which accounts for more than 95 % of the animals slaughtered in this country—is not subject to USDA enforcement.[32] While the industrial farming community is undoubtedly one of the primary beneficiaries of this lack of regulation, the fast food industry has been and remains one of the major catalysts for cheap meat production in this country.[33]

III. ECONOMIC IMPACT

The relatively small and diversified farming operations, which historically dominated food production in this country, have been overtaken by governmental policy that encourages the consolidation of farms and farming operations. Not only does cheap meat result in staggering environmental and health costs, it is also directly influenced by subsidies that are given to those agricultural operators who can produce the most at the lowest cost.[34] These incentives to agricultural operators have promoted the consolidation and widespread use of the "industrial model" of agricultural production.[35] It is estimated that between 1997 and 2005, government subsidies to chicken, pork, beef, and corn producers were roughly $26.5 billion.[36] During this same timeframe, it is estimated that factory farms saved $3.9 billion per year in reduced feed costs.[37] The U.S. Farm Bill of 2002 provided even more subsidies to factory farmers, granting CAFO investors up to $450,000 of federal monies to address animal waste treatment practices.[38] These incentives provide factory

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[30] *Id.*

[31] *Id.*; 7 U.S.C.A. § 1901 (West 2005).

[32] David J. Wolfson & Mariann Sullivan, *Foxes in the Hen House*, *in* ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS 207-08 (Cass R. Sunstein & Martha C. Nussbaum eds., Oxford University Press 2004).

[33] *See* Watershed Media & the Found. for Deep Ecology, *3 Lies Big Food Wants You to Believe and the Truth Behind Factory-'Farmed' Meat*, ALTERNET, (Oct. 21, 2010), http://www.alternet.org/story/148542/3_lies_big_food_wants_you_to_believe_and_the_truth_behind_factory-'farmed'_meat?page=entire.

[34] *See* Michael Pollan, *Farmer in Chief*, N.Y. TIMES, (Oct. 9, 2008), *available at* http://www.nytimes.com/2008/10/12/magazine/12policy-t.html.

[35] *See* Watershed Media & the Found. for Deep Ecology, *supra* note 33.

[36] Tom Philpott, *Why Are We Propping up Corn Production, Again?*, GRIST, (Mar. 25, 2010), http://www.grist.org/article/2010-03-25-corn-ethanol-meat-hfcs.

[37] Watershed Media & the Found. for Deep Ecology, *supra* note 33.

[38] *Id.*

farmers with an economic advantage and leave small farms unable to compete.[39] As noted by one commentator,

> Without these feed discounts, amounting to a 5 to 15 % reduction in operating costs, it is unlikely that many of these industrial factory farms could remain profitable. By contrast, many small farms that produce much of their own forage receive no government money. Yet they are expected somehow to match the efficiency claims of the large, subsidized megafactory farms. On this uneven playing field, CAFOs may falsely appear to "outcompete" their smaller, diversified counterparts.[40]

Nevertheless, by 2007, 84% of agricultural output in this country was produced by large-scale family farms or non-family farms.[41] With governmental subsidies directly encouraging large-scale production, only 55 % of small, "primary occupation" farmers—those with less than $100,000 annual sales—report positive net-cash profit.[42]

Consequently, these economic subsidies have resulted in the "vertical integration" of the meat processing industry, a process in which companies own and/or control adjacent aspects of processing and production.[43] For cattle producers, this entails owning everything from the cattle to the processing plant to the feed mills.[44] Justifications given for vertical integration are that it reduces the risks associated with quantity and supply issues; it produces greater efficiencies in the production process; and it eliminates the need for outsourcing, thereby recapturing profits.[45]

Given these putative benefits, it is not surprising that vertical integration has become the norm in the industry. Another example is the pork industry. Today, the largest pork producers — those that produce over 50,000 hogs per year — make up only 1 % of all hog farms; yet they produce about 37 % of all hogs that go to market.[46] Such integration within

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[39] *Id.*

[40] *Id.*

[41] ROBERT A. HOPPE & DAVID E. BANKER, U.S. DEP'T OF AGRICULTURE, STRUCTURE AND FINANCES OF U.S. FAMILY FARMS: FAMILY FARM REPORT, 2010 EDITION iv (July 2010), *available at* http://www.ers.usda.gov/Publications/EIB66/EIB66.pdf.

[42] John Ikerd, *Farming for Profit and Quality of Life*, MISSOURI.EDU (Nov. 3, 2001), http://web.missouri.edu/~ikerdj/papers/SFTkeynote.html.

[43] *See* MARVIN HAYENGA, ET AL., AMERICAN MEAT INST., MEAT PACKER VERTICAL INTEGRATION AND CONTRACT LINKAGES IN THE BEEF AND PORK INDUSTRIES: AN ECONOMIC PERSPECTIVE 13 (May 22, 2000), *available at* http://www.agmanager.info/livestock/marketing/bulletins_2/industry/packer/AMIReport.pdf.

[44] *Id.* at 4.

[45] *Id.* at 1.

[46] Mark Drabenstott, *This Little Piggy Went to Market: Will the New Pork Industry Call the Heartland Home?*, ECON. REV., THIRD QUARTER, 1998 79, at 82 (1998).

the food industry is dangerous. Apart from the antitrust issues associated with potentially monopolizing meat production, "vertical integration gives processors control over producers' practices, which in turn forces small-scale producers out of the market, encourages the use of harmful farming methods, and hampers the development and use of better industry practices."[47]

Vertical integration within the meat industry also has troublesome social implications, such as the exploitation of human capital. According to a report issued by Human Rights Watch in 2004, "meat packing has become the most dangerous factory job in America."[48] The report concludes that the nation's meat packing industry's working conditions violate basic human rights.[49] Workers are prevented from organizing, and those who support unionization may be fired.[50] Even worse, "[n]early every worker interviewed for this report bore physical signs of a serious injury suffered from working in a meat or poultry plant."[51] "Meat and poultry industry employers set up the workplaces and practices that create these dangers, but they treat the resulting mayhem as a normal, natural part of the production process, not as what it is—repeated violations of international human rights standards."[52] The report indicated that many injured workers are pressured by employers not to file workers compensation claims as a way of saving the company money on medical bills and associated workers compensation benefits.[53]

Moreover, those individuals who are most vulnerable are usually the ones who suffer. According to the 2009 Congressional testimony of Jerry Kammer, Senior Research Fellow at the Center for Immigration Studies, the hiring of illegal immigrants in the meat packing industry over the past 40 years has seriously altered the landscape within the industry.[54] In addition to relocating meat packing plants to non-unionized areas, skilled butchers have been replaced with less skilled workers.[55] These less skilled workers increasingly consist of illegal immigrants from Mexico and other South American countries.[56] According to Kammer:

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[47] Note, *Challenging Concentration of Control in the American Meat Industry*, 117 HARV. L. REV. 2643, 2658 (2004).

[48] BLOOD, SWEAT, AND FEAR: WORKERS' RIGHTS IN U.S. MEAT AND POULTRY PLANTS, HUM. RTS. WATCH 14 (2004), *available at* http://www.hrw.org/sites/default/files/reports/usa0105.pdf.

[49] *Id.* at 1.

[50] *Id.* at 3

[51] *Id.* at 24.

[52] *Id.*

[53] *Id.* at 62.

[54] *See* Jerry Krammer, SENIOR RESEARCH FELLOW, CTR. FOR IMMIGRATION STUDIES, Labor Market Effects of Immigration Enforcement at Meatpacking Plants in Seven States, Congressional Testimony (Nov. 2009)(transcript available at http://www.cis.org/node/1577).

[55] *Id.*

[56] *Id.*

> Thus transformed, the industry employs a workforce whose standard of living has suffered severely. In 1960, meatpacking workers earned 15 % more than the average manufacturing wage in the U.S. By 2002, they were earning 25 % less than the average in manufacturing. Government data also show that between 1980 and 2007 real wages in the industry, adjusted for inflation, dropped by a staggering 45 %."[57]

In some slaughterhouse and packing plants, illegal immigrants make up nearly two-thirds of the employees.[58]

The economic impact of factory farming operations has consequences far beyond CAFOs. Residents living next to these facilities have a reason to be concerned too, due to the CAFO's long history of polluting the environment and omitting offensive odors that extend beyond the livestock facilities.[59] Studies confirm that property values decrease as proximity to CAFOs increase.[60] A report issued by the independent Pew Commission on Industrial Farm Animal Production found that:

> Industrialization of animal agriculture leads to the reduced enjoyment of property and the deterioration of the surrounding landscape, which are reflected in declining home values and lowering of property tax assessments. Recurrent strong odors, the degradation of water bodies, and increased populations of flies are among the problems caused by [CAFOs] that make it intolerable for neighbors and their guests to participate in normal outdoor recreational activities or normal social activities in and around their homes.[61]

In Iowa, a report found that a hog CAFO decreased neighboring property values by the following percentages: forty % within a half-mile; thirty % within one mile; twenty % within one and a half miles; and ten %

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[57] *Id.*

[58] Steven Greenhouse, *Meat Packing Industry Criticized on Human Rights Grounds,* N.Y. TIMES, (Jan. 25, 2005), http://www.nytimes.com/2005/01/25/business/25cnd-meat.html.

[59] PEW COMM'N ON INDUS. FARM ANIMAL PROD., COMMUNITY AND SOCIAL IMPACTS OF CONCENTRATED ANIMAL FEEDING OPERATIONS 31 (2008), *available at* http://www.ncifap.org/bin/s/m/212-8_PCIFAP_RuralCom_Finaltc.pdf.

[60] DOUG GURIAN-SHERMAN, UNION OF CONCERNED SCIENTISTS, CAFOS UNCOVERED: THE UNTOLD COSTS OF CONFINED ANIMAL FEEDING OPERATIONS 61 (Apr. 2008), *available at* http://www.ucsusa.org/assets/documents/food_and_agriculture/cafos-uncovered.pdf.

[61] COMMUNITY AND SOCIAL IMPACTS OF CONCENTRATED ANIMAL FEEDING OPERATIONS , *supra* note 60.

within two miles.[62] A 1999 study found that property in Missouri located within three miles of a CAFO suffered an average a $112/acre loss of land value.[63]

An international economic component exists as well since many European countries currently limit factory farming practices that are allowed in the United States, Canada, and elsewhere.[64] One of the most significant trade barriers concerns the European ban on chlorine-bathed poultry.[65] Traditionally, U.S. poultry producers have used a chlorine rinse to rid slaughtered poultry of harmful pathogens, which are usually contracted as a result of unsanitary slaughterhouse conditions.[66] The European Union (EU) has labeled such poultry as unfit to eat, however, causing American poultry producers to lose roughly $300 million in potential sales.[67] Such restrictions are likely to get even tougher as more member nations join the EU. Indeed, "the new Health and Consumer Policy Commissioner for the EU, John Dalli, has promised to pursue more stringent animal welfare labeling for meat sold in member nations."[68] These tighter restrictions—including the requirement for cruelty free labeling on meat products—will mean American producers will either have to adopt the new welfare standards or risk being shut out of the European marketplace altogether.[69]

IV. ENVIRONMENTAL IMPACT

When considering the economic benefits of cheap meat, the strain mass production has on the environment must be considered. Megafarms produce waste that pollutes ground water not only at the site but also in surrounding communities.[70] Odorous compounds from factory farming operations can seep into shingles, siding, and fabrics and then can be

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[62] WILLIAM J. WEIDA, GLOBAL RES. ACTION CTR. FOR THE ENV'T, THE CAFO: IMPLICATIONS FOR RURAL ECONOMIES IN THE U.S. 1 (Feb. 24, 2004), *available at* http://www.sustainabletable.org/issues/docs/YaleEconOnly_ND1.pdf.

[63] MUBARAK HAMED, THOMAS G. JOHNSON & KATHLEEN K. MILLER, CMTY. POLICY ANALYSIS CTR., UNIV. OF MO., THE IMPACTS OF ANIMAL FEEDING OPERATIONS ON RURAL LAND VALUES 2 (May 1999), *available at* http://growinginagriculture.com/images/stories/landvalues.pdf (finding that "there is a relationship between proximity to a CAFO and the value of property.").

[64] Brenda J. Lutz & James M. Lutz, *Factory Farming and Potential Problems in International Trade*, 9 GLOBAL ECON. J. iss. 3, art. 8, at 2 (2009), *available at* http://www.bepress.com/gej/vol9/iss3/8.

[65] Kristen Ridley, *American Factory Farms Threatened as EU Sets Higher Meat Standards*, CHANGE.ORG (July 5, 2010), http://news.change.org/stories/american-factory-farms-threatened-as-eu-sets-higher-meat-standards.

[66] *Id.*

[67] *Id.*

[68] *Id.*

[69] *Id.*

[70] *See* GURIAN-SHERMAN, supra note 61, at 3.

released in the heat of the day.[71] These compounds can also seep into the fatty tissue of humans and their clothing and remain trapped until the person and clothing are cleaned.[72]

The sheer magnitude of waste production from factory hog farms alone offers insight into this dilemma. Hog waste is twice as rich in nutrients as human waste, and hogs produce four times the amount of solid waste of humans.[73] To put these numbers in perspective, the hog farms in eastern North Carolina produce as much daily sewage as the entire human population of California.[74] The long-term seepage of hog waste into the ground and surface waters contaminates the rivers, aquifers, and sounds of our communities.[75]

The link between livestock production and water quality is well documented. In 1992, the National Water Quality Assessment "cited confined poultry and hog production in the Southeast as a reason for relatively high inputs of nitrogen and phosphorous from manure in this region."[76] Agriculture has been identified as the United States' largest source of nonpoint pollution by recent federal, state, and local studies finding that it contributes more than half of the pollutants that enter the nation's rivers and lakes.[77] The water quality problems associated with agricultural production intensify as operations are aggregated because as the operations become more confined, more waste is produced within that area.[78] This allows more waste to be discharged into surface and groundwater in concentrated amounts, which then evaporates in large amounts into the atmosphere and returns to the water supply as nitrogen-rich rain.[79]

Such contamination impacts the water quality and the species that live in the contaminated water bodies. A 1995 report by the environmental group Coast Alliance identified the alarming effect that environmental stresses, including agriculture, are having on North Carolina's fisheries:

> Eighteen of the state's 26 commercially important fish species are showing severe signs of overfishing or environmental distress. The N.C. Division of Marine

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[71] Eric Voogt, *Port, Pollution, and Pig Farming: The Truth about Corporate Hog Production in Kansas*, 5 KAN. J.L. & PUB. POL'Y 219, 224 (1996).

[72] *Id.*

[73] John Burns, Comment, *The Eight Million Little Pigs—A Cautionary Tale: Statutory and Regulatory Responses to Concentrated Hog Farming*, 31 WAKE FOREST L. REV. 851, 852 (1996).

[74] *Id.*

[75] *Id.* at 858-59.

[76] *Id.* at 860.

[77] *Id.*

[78] *See id.* at 860-61.

[79] Burns, *supra* note 74, at 861.

> Fisheries classifies 14 stocks of fish as either depressed or stressed.
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> Some species that have been particularly hard hit: Atlantic croaker-from a peak catch of 21 million pounds in 1980 to 3.3 million pounds in 1993; gray trout-16.9 million pounds in the 1980s to 4.3 million in 1993; river herring-23.7 million pounds in 1987 to 916,000 in 193; and summer flounder-12.5 million in 1984 to 3 million in 1993.[80]

Further, excess nitrate runoff, from factory farming and other sources, has also impacted the valuable eelgrass species, which is vital to a healthy and sustainable fish habitat.[81]

Additionally, livestock operations that concentrate a high number of animals in confined areas facilitate higher emissions of greenhouse gases.[82] According to the EPA, animal agriculture is the single largest source of methane emissions in the U.S.[83] A troubling fact because the U.S. is among the five worst greenhouse gas polluters in the world.[84] The U.S. contributes approximately two million tons of manure-based emissions annually.[85] These numbers could be lowered if livestock were spread out over larger geographic areas with smaller herds,[86] however this practice is not consistent with factory farming operations.[87] Instead, animal waste is congregated into what are called waste "lagoons" which harness and process the animal waste produced on the farm.[88] These lagoons become virtual greenhouse emission factories by producing substantially greater concentrations of emissions compared to the same number of animals being managed in a less confined area.[89] Reports show that "global emissions from all livestock operations account for 18 % of all anthropogenic greenhouse gas emissions on the planet, even more than cars, trucks, and planes."[90]

Even though these waste lagoons are intended to confine the massive waste produced, the reality is that spills frequently occur and often

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[80] *Id.* at 859.

[81] *See id.*

[82] KIRBY, *supra* note 2, at 73.

[83] *Fight Global Warming by Going Vegan*, PEOPLE FOR ETHICAL TREATMENT ANIMALS, http://www.peta.org/issues/animals-used-for-food/global-warming.aspx (last visited October 31, 2011).

[84] KIRBY, *supra* note 2, at 73.

[85] *Id.*

[86] *Id.*

[87] *Id.* at xiv.

[88] *The Issues: Water Pollution*, SUSTAINABLE TABLE, http://www.sustainabletable.org/issues/waterpollution/ (last visited Oct. 31, 2011).

[89] KIRBY, *supra* note 2, at 73.

[90] *Id.* at 407.

with drastic consequences. In 1998, a 100,000 gallon spill in Minnesota killed approximately 691,000 fish along a 19 mile stretch of a major stream.[91] One of the largest hog-waste spills on record occurred in 1995 in North Carolina.[92] There, a 25 million gallon hog waste spill killed an estimated 10 million fish and closed 364,000 acres of wetlands to shell fishing.[93] While the magnitude of such spills vary, they are common. According to a study by the Missouri Department of Natural Resources, 63 % of all factory farms, with more than 1000 "animal units," had spills between 1990 and 1994.[94] Not surprisingly, these spills have catastrophic effects beyond killing wildlife and aquatic plant species. They also pollute the groundwater of surrounding communities,[95] upon which 50 % of the U.S. population depends.[96]

The EPA is largely responsible for the regulation and monitoring of waste and runoff from factory farms, however, the federal Clean Water Act of 1977, which was designed to regulate runoff and protect the nation's waterways, has provided a virtual safe haven from enforcement.[97] Rather than the federal government issuing and monitoring permits to approximately two million farms, the role of issuing permits and enforcement has fallen on the states.[98] Unfortunately, states have generally chosen not to regulate the environmental hazards of large-scale animal operations, favoring instead the revenue that factory farms generate for the state.[99]

Recently, the EPA has been forced to take action to fill in the gaps left by states. Spurred by a lawsuit filed in 2009, by the Natural Resources Defense Council, Sierra Club, and Waterkeeper Alliance, over a rule that exempted thousands of factory farms water pollution controls, the EPA has agreed to identify and investigate the approximately 20,000 factory farms that have been flying under the radar and avoiding government regulation for water pollution due to animal waste.[100] The settlement agreement

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[91] Ted Williams, *Assembly Line Swine*, AUDUBON, Mar.-Apr. 1998, at 28.

[92] *Id.* at 27.

[93] *Id.*

[94] *Id.* at 28.

[95] *See id.* at 28.

[96] Erik Lichtenberg, *Agriculture and Nitrate Concentrations in Maryland Community Water System Wells*, 26 J. Envtl. Quality 145, 145-47 (1997).

[97] *See* Elanor Sarmer & Timothy A. Wise, *Living High on the Hog: Factory Farms, Federal Policy, and the Structural Transformation of Swine Production* 2, 15 (Global Dev. & Envt. Inst., Tufts Univ., Working Paper No. 07-14, 2007).

[98] SCOTT HENDRICK & DOUG FARQUHAR, CONCENTRATED ANIMAL FEEDING OPERATIONS: A SURVEY OF STATE POLICIES 1-2 (March 2008), *available at* http://www.ncifap.org/bin/k/w/CAFO_STATE_SURVEY_Introduction.pdf; *See* J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 295 (2000).

[99] J.B. Ruhl, *supra* note 99, at 266-67.

[100] *Animal Waste on Factory Farms Comes Under Closer EPA Scrutiny*, ENV'T NEWS SERVICE (June 1, 2010), http://www.ens-newswire.com/ens/jun2010/2010-06-01-093.html. (last visited Oct. 31, 2011).

reached by the EPA will lay the groundwork for a new national effort to identify factory farms operating without permits, determine if they need to be regulated, and set the stage for new Clean Water Act permitting measures.[101] While such action will not reverse the industry's history of bad behavior overnight, it is a step in the right direction because it improves the implementation and enforcement of existing water quality laws.

V. HEALTH EFFECTS

A. Antibiotics and Growth Hormones

Animals raised in CAFOs that are confined in dirt feedlots or in cramped indoor buildings are subject to disease.[102] The claimed purpose of such confinement is to avoid injury to the animals, make them easier to handle, produce animals of marketable weight in less time, and reduce the incidence of some diseases. However, the downside is that the animals are subject to a number of chronic and production-related diseases.[103] To counteract these unnatural and unsanitary living conditions, livestock are given copious amounts of antibiotics to ward off infection and disease and to promote growth.[104] In fact, up to 80 % of all antibiotics sold in the U.S. are used by factory farms largely as a preventative measure for their livestock.[105] That equates to twenty-five million pounds of antibiotics per year—almost eight times the amount used to treat human disease.[106] For instance, "[t]he single state of North Carolina uses more antibiotics for livestock than the entire country uses for humans."[107] The widespread use of antibiotics in livestock also contributes to other problems—namely a rise of drug-resistant bacteria that threaten human health.[108] According to one commentator,

> Bacteria exposed to continuous, low level antibiotics can become resistant. They then spawn new bacteria with the antibiotic resistance. For example, almost all strains of

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[101] *Id.*

[102] *See* Kristof, *supra* note 9.

[103] PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA, *supra* note 29, at 33.

[104] *Id.* at 15; *see also* Kristof, *supra* note 9.

[105] Kristof, *supra* note 9.

[106] *See* Union of Concerned Scientists, *Earth-friendly, Healthy Recipes from Top Chefs and Local Farmers*, GREEN CUISINE ISS. 2, http://www.ucsusa.org/food_and_agriculture/what_you_can_do/green_cuisine/issue-2-fall-2007/green-cuisine-issue-2.html (Last visited Nov. 5, 2011).

[107] Kristof, *supra* note 9.

[108] PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA, *supra* note 29, at 16.

> *Staphylococcal* (Staph) infections in the United States are resistant to penicillin, and many are resistant to newer drugs as well. The American Medical Association, American Public Health Association, and the National Institutes of Health all describe antibiotic resistance as a growing public health concern. European countries that banned the use of antibiotics in animal production have seen a decrease in resistance.[109]

Antibiotic resistance constitutes a major health concern as antibiotic-resistant infections kill more people each year in this country than AIDS[110] and cost the American healthcare system over twenty billion dollars per year.[111] Congresswoman Louise Slaughter, the only microbiologist in the United States House of Representatives, has been an outspoken critic of using antibiotics on livestock: "These statistics tell the tale of an industry that is rampantly misusing antibiotics in an attempt to cover up filthy, unsanitary living conditions among animals. . . . As they feed antibiotics to animals to keep them healthy, they are making our families sicker by spreading these deadly strains of bacteria."[112] Yet, as other countries move toward banning the use of antibiotics in livestock, the U.S. Congress has done little to regulate this practice. The reason, according to one commentator, is that "the agribusiness lobby still has a hold on Congress."[113] It is hard to argue this point since "few bills dealing with on-farm animal welfare regulation have been introduced in Congress and most have failed."[114]

Along with the widespread use of antibiotics, another major health risk stems from the use of growth hormones. Growth hormones are used to stimulate growth and improve production.[115] Estimates suggest that two-thirds of all cattle raised in the U.S. for human consumption are injected with growth hormones.[116] The prevalence of growth hormones, however,

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[109] *Fact Sheet: Food Safety Consequences of Factory Farms*, FOOD & WATER WATCH (Mar. 2007), *available at* http://documents.foodandwaterwatch.org/FoodSafetyFactoryFarms.pdf (footnotes omitted).

[110] *See* Kristof, *supra* note 9.

[111] Alliance for the Prudent Use of Antibiotics, *The Cost of Antibiotic Resistance to U.S. Families and the Health Care System* (Sept. 2010), *available at* http://www.tufts.edu/med/apua/consumers/personal_home_5_1451036133.pdf

[112] Kristof, *supra* note 9.

[113] *Id.*

[114] PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA , *supra* note 29, at 38.

[115] *Id.* at 15.

[116] Janet Raloff, *Hormones: Here's The Beef*, SCI. NEWS 10 (Jan. 5, 2002), *available at* http://www.phschool.com/science/science_news/articles/hormones_beef.html.

has been blamed for associated hormone imbalances in humans.[117] These imbalances may result in developmental problems, infertility, and even the development of breast, prostate or colon cancer.[118] The human cost associated with hormone use in animals led the EU to ban beef hormones and the import of beef injected with hormones.[119] The public attention brought to the mad cow disease problem, as well as other public discourse surrounding the beef hormone controversy in general, served to awaken the public's interest in the issue. Nevertheless, the FDA continues to allow the use of growth hormones in livestock and the beef industry heavily relies on their use.

B. The Business of Spreading Disease

Walk into any fast food chain restaurant and you are bound to see a "value" meal deal, but do you wonder how can fast food chains sell their meat products so cheap? They buy from CAFOs.[120] In turn, these mass producers cater to their largest clients by constantly striving for ways to produce more animals for less money.[121] McDonald's is by far the single largest beef purchaser in the U.S.[122] But, other popular fast food restaurants like Taco Bell are not far behind, as it proclaims on its website: "Taco Bell® is one of the largest beef purchasers in the U.S., which allows us to buy in bulk and secure lower prices, which we pass along to you."[123] At the same time, these mass food retailers fail to mention the hormones, chemicals, and other byproducts that also get passed along to consumers as part of the "value" provided.

Being one of the largest beef purchasers in the country can have consequences, as both Taco Bell and McDonald's food chains have discovered. In 2008, Maple Leaf Foods, one of Canada's largest CAFOs,[124] voluntarily recalled several meat products after an outbreak of Listeriosis, an infection caused by eating food contaminated with bacteria called

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[117] *See* EUROPEAN COMM'N, SCIENTIFIC COMM. ON VETERINARY MEASURES RELATING TO PUB. HEALTH, ASSESSMENT OF POTENTIAL RISKS TO HUMAN HEALTH FROM HORMONE RESIDUES IN BOVINE MEAT AND MEAT PRODUCTS 69 (1999) *available at* http://ec.europa.eu/food/fs/sc/scv/out21_en.pdf.

[118] *Id.* at 15-16.

[119] *Id.* at 1.

[120] *See Myth: Industrial Food is Cheap,* CAFO: THE TRAGEDY OF INDUS. ANIMAL FACTORIES, http://www.cafothebook.org/thebook_myths.htm#up (last visited Oct. 31, 2011).

[121] *See Sustainable vs. Industrial: a Comparison,* SUSTAINABLE TABLE, http://www.sustainabletable.org/intro/comparison/ (Last visited Oct. 31, 2011).

[122] Joe Roybal, *Big Beef Buyers,* BEEF (Feb. 1, 2007), http://beefmagazine.com/mag/beef_big_beef_buyers/.

[123] *Food FAQs: About Our Seasoned Beef,* TACO BELL, http://www.tacobell.com/BeefQuality (last visited Oct. 31, 2011).

[124] Martin Cash, *Maple Leaf Foods Plans Expansion,* WINNIPEG FREE PRESS (Oct. 20, 2011), *available at* http://www.winnipegfreepress.com/breakingnews/maple-leaf-plans-expansion-132223673.html.

Listeria.[125] Five people died from eating the contaminated meat.[126] One of the restaurants affected by this recall was McDonald's.[127] Also in 2008, Taco Bell acknowledged that it had purchased beef from the Westland/Hallmark Meat Packing Company, which recalled 143 million pounds of beef packed at its plant.[128] Ironically, at the time of the recall, Westland, a large CAFO with a packing facility located in Chino, California, was already under federal investigation for abusing "'downer' or crippled" cattle at its facility.[129] In 2010, Taco Bell restaurants were linked to a salmonella outbreak that sickened at least 155 people in 21 states.[130] The Centers for Disease Control and Prevention "estimates that foodborne diseases causes approximately 76 million illnesses, 325,000 hospitalizations, 5,000 deaths every year."[131] These types of large-scale outbreaks would likely not be possible without fast food companies and large food retailers that buy their infected meat from CAFOs and resell it to the consuming public.

C. Air and Odor Pollution

In rural areas, and some suburbs, "neighbors of huge [CAFOs] find themselves assaulted and frustrated by incessant odors, flies, and fears of deadly pathogens."[132] As the outdoor activities enjoyed by those living in rural areas are disrupted by the noxious odors of thousands of confined animals, their feelings of independence give way to a sense of isolation and infringement.[133] Aside from the offensive smell, particulate matter can cause physical danger because the odor compounds are composed of roughly 170 different chemicals, many of which have been linked to a multitude of health problems in humans, as well as environmental

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[125] *Canada Links Toronto Plant to Deadly Listeriosis Outbreak*, CNNHEALTH (Aug. 24, 2008), http://articles.cnn.com/2008-08-24/health/listeria.outbreak_1_listeriosis-cases-maple-leaf-foods-meat-plant?_s=PM:HEALTH.

[126] Bob Ewing, *Listeriosis Outbreak in Ontario Now Linked to Five Deaths*, DIGITAL J. (Aug. 21, 2008), http://www.digitaljournal.com/article/258873.

[127] *Id.*

[128] Nancy Luna & Dena Bunis, *Many More Received Recalled Beef*, ORANGE COUNTY REG. (Mar. 3, 2008), http://www.ocregister.com/articles/taco-15515-bell-list.html.

[129] *Id.*

[130] Misti Crane, *Taco Bell Linked to Salmonella Outbreak in Ohio*, COLUMBUS DISPATCH (Aug. 10, 2010), http://www.dispatch.com/live/content/local_news/stories/2010/08/10/taco-bell-linked-to-salmonella-outbreak-in-ohio.html; Nancy Luna, *Taco Bell Linked to 21-State Salmonella Outbreak*, ORANGE COUNTY REG. (Aug. 9, 2010), http://fastfood.ocregister.com/2010/08/09/taco-bell-linked-to-21-state-salmonella-outbreak/69725 ("The CDC [did] not link[] the outbreak to one specific food.").

[131] *Food Safety and Security: Fundamental Changes Needed to Ensure Safe Food: Testimony Before the Subcomm. on Oversight of Gov't Mgmt, Restructuring & D.C. of the S. Comm. on Governmental Affairs*, 107th Cong. 3 (2001) (statement of Robert A. Robinson, Managing Director, Natural Res. & Env't), *available at* http://www.gao.gov/new.items/d0247t.pdf.

[132] Richard H. Middleton, Jr. & Charles F. Speer, *A Big Stink*, 47 TRIAL 26, 28 (Mar. 2011).

[133] *Id.*

hazards.[134] The Pew Report has identified two types of adverse health effects from CAFO emissions—disease and neurobehavioral symptoms that result in impaired function.[135] The neurobehavioral problems include depression and an altered mood state, such as "anger, reduced vigor, fatigue, and confusion."[136]

Human health problems and environmental impacts related to agriculture are occurring both nationally and internationally. In the "Chicken Belt" of Northwest Arkansas, large chicken producers put arsenic in their chicken feed to promote growth and treat intestinal disease.[137] Local crop farmers then use the arsenic-laced chicken waste as fertilizer on their fields, which finds its way into the air and groundwater of neighboring communities.[138] Reports of staggering numbers of cancer cases are also showing up in a nearby town called Prairie Grove, Arkansas, including at least twenty in children.[139] Three teenage boys also developed the same rare form of testicular cancer.[140] Additionally, another important pollutant is ammonia, which contributes to acid rain.[141] According to a study conducted in the Netherlands, 94 % of all ammonia contributing to its "acid mist" problems was due to farming, and most of that was from manure applications, animal confinements, and waste lagoons.[142]

D. Nutritional Value

Just as a human's body composition will change based on diet, the same is true for animals. For instance, a bovine's stomach is designed to eat and digest grass, not grains.[143] As a result of the steady diet of grains cattle consume in factory farms, cattle develop in an unnatural and unhealthy manner. Grains sit in a bovine's stomach long enough to grow bacteria that consequently gets irradiated with antibiotics and chemicals.[144] Yet, switching a bovine to a grass diet eliminates up to 80 % of a fatal strain of

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[134] KIRBY, *supra* note 2, at xv.

[135] Middleton & Speer, *supra* note 133.

[136] *Id.*

[137] David Kirby, *From Homeland to Wasteland: How I Learned Firsthand About the Assault on Rural America*, ALL ANIMALS MAG.(July-Aug. 2010), *available at* http://www.humanesociety.org/news/magazines/2010/07-08/from_homeland_to_wasteland_1.html.

[138] *Id.*

[139] *Id.*

[140] *Id.*

[141] FOOD & AGRIC. ORG., LIVESTOCK, ENV'T & DEV. INITIATIVE, LIVESTOCK'S LONG SHADOW: ENVIRONMENTAL ISSUES AND OPTIONS xxi, *available at* http://www.fao.org/docrep/010/a0701e/a0701e00.htm.

[142] *See id.* at 114.

[143] *See The Issues: Feed*, SUSTAINABLE TABLE, http://www.sustainabletable.org/issues/feed/ (last visited Oct. 31, 2011).

[144] *Diet and Disease in Cattle: High-Grain Feed May Promote Illness and Harmful Bacteria*, SCI. DAILY (May 11, 2011), http://www.sciencedaily.com/releases/2001/05/010511074623.htm.

the E-coli bacteria after just a few days.[145] Grains also have a higher fat content than grass, meaning that factory farmed cattle have a higher fat content—the majority of which is saturated fat—than grass-fed beef.[146] This means that grass-fed beef is leaner than feedlot beef, which lowers the fat content and caloric level of grass-fed meat.[147] Studies show that a six-ounce steak of grain-fed beef has almost 100 total calories more than a six-ounce steak of grass-fed beef.[148] This higher fat content and "marbling" is why consumers perceive grain-fed beef to be juicier and more tender.[149]

In addition to being higher in saturated fat, grain-fed beef has fewer beneficial nutrients. According to a 2009 study conducted by researchers at Clemson University and the USDA, compared with grain-fed beef, grass-fed beef was:

1. Lower in total fat
2. Higher in beta-carotene
3. Higher in vitamin E (alpha-tocopherol)
4. Higher in the B-vitamins thiamin and riboflavin
5. Higher in the minerals calcium, magnesium, and potassium
6. Higher in total omega-3s
7. A healthier ratio of omega-6 to omega-3 fatty acids (1.65 vs 4.84)
8. Higher in CLA (cis-9 trans-11), a potential cancer fighter
9. Higher in vaccenic acid (which can be transformed into CLA)
10. Lower in the saturated fats linked with heart disease[150]

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[145] Karen Eisenbraun, *Corn-Fed Vs. Grass-Fed Beef,* HEALTHY THEORY (Jan. 22, 2010, 9:50 AM), http://www.healthytheory.com/corn-fed-vs-grass-fed-beef.

[146] *Contra id.*

[147] KATE CLANCY, UNION OF CONCERNED SCIENTISTS, GREENER PASTURES: HOW GRASS-FED BEEF AND MILK CONTRIBUTE TO HEALTHY EATING 1 (Mar. 2006), *available at* http://www.ucsusa.org/assets/documents/food_and_environment/greener-pastures.pdf; Jo Johnson, *The Health Benefits of Grass Farming,* AMERICANGRASSFEDBEEF.COM http://www.americangrassfedbeef.com/grass-fed-natural-beef.asp (last visited Oct. 31, 2011).

[148] Johnson, *supra* note 148.

[149] *See* M. Koohmaraie et al., U.S. Meat Animal Research Ctr., *Beef Tenderness: Regulation and Prediction* 2, *available at* http://www.ars.usda.gov/SP2UserFiles/Place/54380530/19950004A1.pdf (last visited Nov. 5, 2011).

[150] *See* S.K. Duckett et al., *Effects of Winter Stocker Growth Rate and Finishing System on: III. Tissue Proximate, Fatty Acid, Vitamin and Cholesterol Content.* J. ANIMAL SCI. 8-14 (June 5, 2009), *available at* http://jas.fass.org/content/early/2009/06/05/jas.2009-1850.full.pdf+html; Bob Cesca, *E. coli Beef Recall Update Raises More Concerns About Food Safety,* DAILYFINANCE (Jan. 2, 2010), http://www.dailyfinance.com/2010/01/02/e-coli-beef-recall-update-raises-more-concerns-about-food-safet/.

The conclusion drawn from this data is that the added nutritional benefits of grass-fed beef promote a healthier diet and lifestyle than feedlot beef.[151]

VI. ETHICAL ISSUES

The ethical issues associated with factory farming are perhaps the most controversial and heart wrenching aspect of the industry. CAFOs are constantly defending their practices against a barrage of criticism from animal activists, concerned scientists, and normal citizens. Factory farms are notorious for the poor living conditions in which the animals live. As mentioned above, birds raised for meat live in barren sheds and are given growth hormones to the point where their bodies "are on the verge of structural collapse."[152] The University of Arkansas Division of Agriculture offers this analogy: "If you grew as fast as a chicken, you'd weigh 349 pounds at age 2."[153] "As a result, 90 % of broiler chickens have painful leg problems and 26 % suffer chronic pain as a result of bone disease."[154] Chickens are also forced to live their lives in tiny wire cages, which are smaller than the area of a letter-sized sheet of paper, before being crammed into stackable crates for transport to the slaughterhouse, often without any food, water, or protection from extreme weather conditions.[155]

Other animals do not fare any better. Ducks and geese raised for a delicacy called pate de foie gras are force-fed to the point where their livers swell to over 10 times their normal size.[156] Additionally, calves are tethered to individual stalls so small that they cannot turn around until they are ready to be slaughtered for veal at just four months of age.[157]

Such extreme and inhumane conditions manifest themselves in many ways:

> Piglets are separated from their mothers when they are as young as 10 days old. Once her piglets are gone, the sow is impregnated again, and the cycle continues for three or four years before she is slaughtered. This intensive confinement produces stress-and boredom-related behavior, such as chewing on cage bars and obsessively pressing against water bottles. . . . In extremely crowded conditions, piglets are prone to stress-related behavior such as cannibalism and tail-biting, so farmers often chop off piglets' tails and

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[151] *See* Cesca, *supra* note 151.
[152] *Guide to Vegetarian Eating*, *supra* note 6, at 3.
[153] *Id.*
[154] *Id.*
[155] *Id.*
[156] *Id.*
[157] *Id.* at 6.

> use pliers to break off the ends of their teeth—without giving them any painkillers. For identification purposes, farmers also cut out chunks of the young animals' ears.[158]

Additionally, approximately 90 % of pregnant sows are kept in "gestation crates" so small that the animal is only able to stand up or lie down, but not turn around.[159] Even though this practice has been banned in many countries because of its cruel nature, sows in the U.S. pork industry are still kept in these crates for the duration of their pregnancies.[160]

Researchers have documented that animals including cattle, pigs, chickens, and turkeys share many of the same senses as humans. They have the ability to feel pain, fear, anxiety, frustration, and joy, as well as the abilities to form bonds and exhibit social behavior; they also have been shown to have high intelligence.[161] Still, factory farmers have very little incentive to treat their livestock humanely. After all, large corporations own approximately 72% of farms in the U.S.[162] and corporations live or die based on their bottom line. This mindset leads to the treatment of animals destined for slaughter as commodities to be exploited for profit rather than living, feeling creatures. For that reason, greed is the driving force behind factory farming ethics—or the lack thereof. It would be unthinkable, not to mention illegal, under most states' animal cruelty laws, for pet-owners to treat their pets with such disregard.

Another ethical consideration is the improper or illegal dumping of factory farm waste. Illegal dumping, separate and apart from waste spills, is a persistent problem in this country and some of the largest CAFOs are the culprits.[163] In 2003, Tyson Foods admitted to illegally dumping untreated wastewater from one of its poultry processing plants in Missouri.[164] The company pleaded guilty to 20 felony violations of the Clean Water Act and paid $7.5 million in fines.[165] Prior to that, in 1998,

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[158] *Pigs: Intelligent Animals Suffering in Factory Farms and Slaughterhouses*, PEOPLE FOR ETHICAL TREATMENT ANIMALS, http://www.peta.org/issues/animals-used-for-food/pigs-intelligent-animals-suffering-in-factory-farms-and-slaughterhouses.aspx (last visited Oct. 31, 2011).

[159] *Guide to Vegetarian Eating*, *supra* note 6, at 3.

[160] *Id.*

[161] *Id.* at 2-5.

[162] *Family Farms*, SUSTAINABLE TABLE, http://www.sustainabletable.org/issues/familyfarms/ (last visited Oct. 19, 2011).

[163] *See generally, CAFO News*, ENVIRONMENTALLY CONCERNED CITIZENS OF SOUTH CENTRAL MICH., http://www.nocafos.org/news.htm (last visited Nov. 5, 2011)(listing several instances of CAFO dumping in Michigan); *see generally Mark Martin, Attorney*, SIERRA CLUB, http://www.sierraclub.org/environmentallaw/heroes/mark_martin.aspx (last visited Nov. 5, 2011)(After being sued for illegally dumping hog waste into a tributary of the Tennessee river, Whitaker CAFO settled and agreed to stop illegally dumping hog waste).

[164] *Tyson Pleads Guilty to 20 Felonies and Agrees to Pay 7.5 Million for Clean Water Act Violations*, DEPARTMENT OF JUST. (June 25, 2003), *available at* http://www.justice.gov/opa/pr/2003/June/03_enrd_383.htm.

[165] *Id.*

Tyson made headlines for allegedly dumping thousands of gallons of poultry sludge in a field in Maryland.[166] Tyson continued the illegal dumping for two months after receiving a letter from the State of Maryland asking the company to stop the practice.[167]

In 1997, Smithfield Foods, Inc. of Virginia was hit with a $12.6 million fine for racking up 6,900 violations of the Clean Water Act over a five-year period.[168] Their crime was dumping excessive levels of hog waste into the Chesapeake Bay.[169] The former manager of the company's wastewater treatment plants was sentenced "to serve 30 months in prison for polluting waterways, destroying documents, and falsifying records."[170]

VII. RECOMMENDATIONS

This article has only scratched the surface of the negative aspects of large-scale factory farming. There are several detrimental effects for consumers, but only one benefit—cheap meat. Nevertheless, the mass meat production practices in the U.S. are not likely to change unless the demand for industrial meat decreases and legislation is passed that vastly changes the way meat is mass produced—including the elimination of or restriction of federal subsidies. Even if both of these events were to occur, conflict would surely ensue between the federal government and the states, whose goal of protecting tax revenue and jobs would be at odds. Even more monumental would be changing the expectations of U.S. consumers, who are used to paying a dollar or two for a double cheeseburger or chicken nuggets, regardless of how it was produced. Though effectuating such change any time soon will be difficult, it is the key to changing existing factory farm practices.

The first step in changing consumer behavior is education. Information on the Internet and the popularity of movies such as "Food, Inc." has made this task a little easier.[171] In contrast, labels such as "organic," "free-range," and "cage-free" are often confusing and deceptive for consumers trying to make better choices. For example, the term "free-range" is regulated by the USDA and only requires animals to have "access" to the outdoors rather than ensuring that animals actually spend

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[166] Tonya Tolchin, *Wasting Away: Big Agribusiness Factory Farms Make a Big Mess*, MULTINATIONAL MONITOR (June 1, 1998), *available at* http://www.thefreelibrary.com/Wasting+away%3A+big+agribusiness+factory+farms+make+a+big+mess.-a021089282.

[167] *Id.*

[168] *Id.*

[169] *Id.*

[170] *Id.*

[171] *See, e.g.*, Food, INC. (Magnolia Home Entertainment 2009).

time outdoors.[172] To eliminate confusion among consumers, many small farmers have started to refer to their animals as "pastured" or "pasture-raised." Nomenclature aside, the fact remains that raising animals in the open pasture as they were meant to be would eliminate many of the negative effects of factory farming, including the strains animal waste has put on the environment, the need for large quantities of antibiotics to kill disease and bacteria, allegations of animal cruelty, and the negative economic impact such farming activities have on nearby communities.

Convincing restaurants to sell pasture-raised meat would go a long way toward changing consumer preferences and it would have the added benefit of supporting small farmers. Chipotle Mexican Grill, a chain of fast-casual restaurants, has successfully made this transition through their "Food with Integrity" philosophy.[173] Chipotle believes that by increasing the demand for naturally raised meats, it can increase supply.[174] Its strategy has proven true, as Chipotle now buys 100 % of its pork and chicken, and 85 % of its beef from farmers who raise their animals naturally and humanely.[175] Chipotle's goal is to eventually source 100 % of its meat and dairy products in this manner.[176] Despite the higher food costs associated with raising animals in a natural, cruelty-free environment, Chipotle remains profitable and continues to grow, with annual revenue of approximately $1.8 billion in 2010.[177]

By far the greatest impact consumers can have on factory farm practices is to simply consume less meat. There are noted health benefits to doing so, even if only one or two days a week. It is well documented that a vegetable-based diet is best for long-term health and weight control. The American Dietetic Association says that "[v]egetarians have been reported to have lower body mass indices than nonvegetarians, as well as lower rates of death from ischemic heart disease; vegetarians also show lower blood cholesterol levels; lower blood pressure; and lower rates of hypertension, type 2 diabetes, and prostate and colon cancer."[178] Additionally, by consuming less meat, consumers will be sending a message to industrial meat producers that their practices are not acceptable. After all, there are

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[172] *Fact Sheets, Food Labeling, Meat and Poultry Labeling Terms*, U.S. DEPARTMENT OF AGRIC., http://www.fsis.usda.gov/factsheets/Meat_&_Poultry_Labeling_Terms/index.asp (last modified Apr. 12, 2011).

[173] *Food with Integrity*, CHIPOTLE, http://ra.chipotle.com/html/fwi.aspx (last visited Oct. 31, 2011).

[174] *See id.*

[175] *We Treat Them Like Animals*, CHIPOTLE, http://www.chipotle.com/en-US/fwi/animals/animals.aspx (last visited Oct. 31, 2011).

[176] *Food With Integrity, supra* note 174.

[177] *Chipolte Mexican Grill Inc.*, CNNMONEY (Oct. 19, 2011 4:02 PM), http://money.cnn.com/quote/quote.html?symb=CMG.

[178] *Guide to Vegetarian Eating, supra* note 6, at 6 (quoting 103(6) J. Am. Dietetic Ass,n 748-65 (June 2003)).

only two breasts per chicken, so that means two chickens are killed to feed a family of four for one meal. Eliminating wasteful consumer practices at restaurants can also decrease the amount of animals sent to slaughter, such as over-ordering and leaving uneaten portions. For those consumers who find the vegetarian lifestyle unappealing, they should consider purchasing their meat products from local, small-scale farmers who engage in cruelty-free farming practices. In addition to benefiting small producers, these consumers will not have a hand in the caustic practices of factory farming.

VIII. CONCLUSION

Consumers need to become more aware of where their food comes from and the impact of their food choices. The negative impacts of large-scale factory farming are compelling. In 1950, Americans spent approximately "4.5 % of their income on healthcare and 19 % on food."[179] Today, Americans spend 18 % of their income on healthcare and only 8 % on food.[180] Consumers cannot continue to take the "out of sight, out of mind" viewpoint. To be certain, "[t]he costs to rural America have been significant as communities that initially embraced industrial farming as a much-needed source of economic development have found themselves harmed by it instead."[181] If the demand for cheap, industrial meat keeps rising, factory farms may soon be in everyone's backyard.

Ultimately, it is the animals that bear the brunt of the burden of cheap meat. The decisions consumers make when they sit down to eat have immense implications for factory farm raised animals. Consumers are voting with their pocketbooks when they decide where to purchase their meat and even how much meat to eat. Most people in this country consider slaughtering of animals for food a part of the "American way of life." Even so, there is a right way and a wrong way to go about it and existing factory farming practices constitutes the wrong approach. Such practices are not only cruel and inhumane, they also present an unacceptable risk to public health, the environment, and the economy. Commonsense reform is needed. Stricter enforcement and/or modifications of existing environmental and animal cruelty laws should be undertaken. Loopholes should be closed. Simple reforms like these will foster an economically viable meat industry and simultaneously provide environmental protections that benefit meat producers and their surrounding neighbors.

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[179] Susan Pagani, *FARM, FIELD, AND STREAM: Paul Otten of Natura Farms*, HEAVY TABLE (Oct. 29, 2009), http://heavytable.com/paul-otten-of-natura-farms/.

[180] *Id.*

[181] Middleton & Speer, *supra* note 133.