

Pace Environmental Law Review

Volume 31

Issue 2 Spring 2014

Special Issue on Animal Law

Article 5

April 2014

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Elizabeth Bennett

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Recommended Citation

Elizabeth Bennett, *Animal Agriculture Laws on the Chopping Block: Comparing United States and Brazil*, 31 Pace Env'tl. L. Rev. 531 (2014)

Available at: <http://digitalcommons.pace.edu/pelr/vol31/iss2/5>

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ARTICLE

Animal Agriculture Laws on the Chopping Block: Comparing United States and Brazil

ELIZABETH BENNETT, ESQ.

I. INTRODUCTION

Brazil and the United States are among the largest producers and exporters of livestock in the world.¹ This raises important animal rights and environmental concerns. While many of the impacts of industrial animal agriculture are similar in Brazil and the United States, there are key differences in the effects on animals and the environment. The variations between Brazil and the United States are due to ecological, production method, and regulatory differences between the countries. Despite their dissimilarities, however, Brazil and the United States both largely fail to adequately protect farm animals and the environment from the impacts of large-scale animal agriculture. As the animal agriculture industry is profit-driven, economic considerations take precedent over environmental or ethical concerns. Because these two countries produce and export so much of the world's meat, effective regulation and enforcement in this area is essential.

Section II of this article discusses the animal welfare abuses and environmental degradation animal agriculture causes in the

¹ Elizabeth Bennett received a Juris Doctor degree from Pace University School of Law in 2011. She currently practices law in New York City. She gratefully acknowledges the guidance of David N. Cassuto, her past animal law professor and mentor, in laying the foundation for her animal law endeavors.

1. Cassandra Brooks, *Unintended Consequences of the Increased Global Meat Industry, Consumption on the Global Environment-- Trade in Virtual Water, Energy & Nutrients*, STANFORD WOODS INST. FOR THE ENV'T, <https://woods.stanford.edu/environmental-venture-projects/consequences-increased-global-meat-consumption-global-environment> (last visited Apr. 8, 2014).

United States and Brazil. Section III explains the regulatory schemes of both countries as they pertain to animal rights and environmental issues resulting from animal agriculture. Section IV compares the animal agriculture track records of Brazil and the United States relating to the animal welfare implications, resulting environmental degradation, and regulatory schemes of the countries. This section goes on to provide suggestions for the future of animal agriculture in each country. Lastly, Section V concludes with a brief summary and recommendations for the future.

II. ANIMAL WELFARE AND THE ENVIRONMENTAL IMPACTS OF LARGE SCALE ANIMAL AGRICULTURE

A. United States

a. Overview

The majority of animal products produced in the United States – beef, chicken, and pork – are produced at large-scale industrial farms.² This mode of production yields inexpensive meat and dairy at great cost to the environment and welfare of the subject farm animals. Many of the environmental problems and animal abuse issues associated with industrial food animal production operations stem from the fact that they are so intensely overcrowded. This overcrowding leads to a larger bulk of pollutants and uncomfortable and unnatural living conditions for the animals. The pollutants spewing from these industrial farms not only cause great harm to the environment, but also damage the habitats and health of wild animals. The intensive production design and the nature of raising animals necessitate high energy and resource (water and feed) consumption. Large scale, industrial food animal production is detrimental to the environment and raises serious animal welfare concerns that must be addressed.

² *Factory Farms*, FOOD & WATER WATCH, <http://www.foodandwaterwatch.org/food/factoryfarms/> (last visited Apr. 8, 2014).

b. Industrial Animal Agriculture Conditions

Characteristic conditions at industrial animal agriculture operations include: overly crowded and unsanitary living spaces for the animals, little access to outdoor areas, limited outlets through which animals can practice natural behaviors, such as rummaging or dust-bathing, and often-times workers who are physically and verbally abusive to the animals.³ Further, undercover investigations at industrial farms have revealed that animals are often not properly anesthetized when undergoing physical procedures or during the slaughtering process.⁴ These farms, in which the animals are kept in physically and psychologically unhealthy conditions, are highly injurious to the farm animals.

c. Impacts on Wild Animals

In addition to the horrific animal welfare abuses found within large-scale animal agriculture operations, wild animals suffer as a result of the pollution originating therein. As wild animals rely so heavily on their environment for survival (e.g., access to a food supply and habitat), the environmental impacts of industrial agriculture can have grave consequences for native, wild animal species. Factory farms produce immense amounts of hazardous pollution, due in large part to the concentrated living conditions.⁵ Water pollution problems caused by factory farm runoff include increased fecal coliform content, which is an indicator of dangerous pathogens such as *E. coli*, and exorbitant levels of nutrients from fertilizer such as nitrogen and phosphorus.⁶ This leads to the explosion of algae blooms, decreased dissolved oxygen content, denitrification, and fish kills.⁷ The increased algae and decreased oxygen levels choke out plants

3. See Belsandia, *Factory Farming Animal Cruelty - Standard Operating Procedure at the Expense of Animal Welfare*, BELSANDIA, <http://www.belsandia.com/factory-farming-animal-cruelty.html> (last visited Apr. 8, 2014).

4. *See id.*

5. CARRIE HRIBAR, NAT'L ASS'N OF LOCAL BDS. OF HEALTH, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 2 (2010), available at http://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf.

6. *See id.*

7. *See generally* MICHAEL L. MCKINNEY ET AL., ENVIRONMENTAL SCIENCE: SYSTEMS AND SOLUTIONS 416 (2007).

and animals that are important to the natural ecosystem, creating an imbalance and hindering the proper function of the plants and animals that once thrived there.⁸

d. Air Pollution and Global Warming Impacts

Industrial animal agriculture operations also cause air pollution in the form of methane, nitrous oxide, and gaseous ammonia, which contribute to global warming impacts and respiratory health problems.⁹ Agriculture and land-use changes related to crop and animal production cause an estimated one third of all greenhouse gases (“GHG”) caused by humans.¹⁰ Methane is a particularly strong GHG, as it traps heat in the atmosphere over twenty times more effectively than carbon dioxide over a 100-year period.¹¹ Ruminant livestock, such as cattle, produce approximately eighty million metric tons of methane per year globally.¹² This accounts for roughly twenty-eight percent of the total global methane emitted as a result of human-related activities.¹³ Among the livestock industries in the U.S., the cow-calf sector of the beef industry is responsible for the largest amount, fifty-eight percent, of methane emissions.¹⁴ Every adult cow emits between 176 to 242 pounds, or 80 to 110 kilograms, of methane every year, and each dairy cow emits more methane than those raised for beef.¹⁵

Factory farming plays an immense role in climate change.¹⁶ Thus, the environmental impacts of industrial animal agriculture

8. *See id.* at 412.

9. *See Air Quality*, GRACE COMM’NS FOUND., Sustainable Table, <http://www.sustainabletable.org/issues/airpollution/> (last visited Apr. 8, 2014).

10. Keith Paustian, et al., *Agriculture’s Role in Greenhouse Gas Mitigation*, PEW CTR. ON GLOBAL CLIMATE CHANGE, Sept. 2006), *available at*, <http://www.pewclimate.org/docUploads/Agriculture%27s%20Role%20in%20GHG%20Mitigation.pdf>.

11. *Methane Emissions*, EPA, <http://www.epa.gov/methane/index.html> (last visited Apr. 8, 2014).

12. *Ruminant Livestock*, EPA, <http://www.epa.gov/rlep/faq.html> (last visited Apr. 8, 2014) [hereinafter *Ruminant Livestock*].

13. *Id.*

14. *Id.*

15. *Id.*

¹⁶ *See* David Cassuto, *The CAFO Hothouse: Climate Change, Industrial Agriculture and the Law*, ANIMALS & SOCIETY INSTITUTE, July 21, 2010, *available at* <http://ssrn.com/abstract=1646484>.

are even more far-reaching than they appear at first glance. It is now well-established that climate change causes various environmental problems such as increased temperature, frequent extreme weather events, sea-level rise, ocean acidification, changes in the global water cycle, increased prevalence of invasive species that disturb ecosystems, and many more associated issues.¹⁷ This, in turn, affects animals in that their habitats are destroyed or lost, invasive species compete for and damage resources, and temperature changes alter the habitats on which animals rely—often causing them to lose the ability to survive.¹⁸ Certainly, the full impacts of climate change on humans, animals, and the environment are immeasurable.

e. Antibiotic Contamination

In addition to the environmental issues already discussed, antibiotic contamination is a major environmental and public health concern associated with large-scale animal agriculture. According to U.S. Food and Drug Administration data, approximately 29.9 million pounds of antibiotics were administered to food producing livestock in 2011.¹⁹ This makes up for nearly 80 percent of the nation's use of antibiotics.²⁰ Such antibiotics are used to encourage growth and to prevent disease in these overcrowded conditions where disease would otherwise flourish.²¹ The overuse of antibiotics has spurred the development of antibiotic-resistant bacteria, which end up in our

17. See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, WORKING GROUP I CONTRIBUTION TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2013), available at http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html.report/ar5/wg1/#.UtrjFvQo5Fk [hereinafter *2013 IPCC Report*].

18. See *Exposure to Pig Farms and Manure Fertilizers Associated with MRSA Infections*, JOHNS HOPKINS BLOOMBERG SCH. OF PUB. HEALTH (Sept. 16, 2013), <http://www.jhsph.edu/news/news-releases/2013/casey-schwartz-mrsa.html>.

19. See *Facts about Pollution from Livestock Farms*, NATURAL RES. DEF. COUNCIL, <http://www.nrdc.org/water/pollution/ffarms.asp> (last visited Jan. 28, 2014) [hereinafter *Facts About Pollution from Livestock Farms*]. See U.S. FOOD & DRUG ADMIN., SUMMARY REPORT ON ANTIMICROBIALS SOLD OR DISTRIBUTED FOR USE IN FOOD-PRODUCING ANIMALS (2011), available at <http://www.fda.gov/downloads/ForIndustry/UserFees/AnimalDrugUserFeeActADUFA/UCM338170.pdf>.

20. See *id.*

21. See Robert S. Lawrence, *The FDA Did Not Do Enough to Restrict Antibiotics Use in Animals*, THE ATLANTIC, Apr. 16, 2012, <http://www.theatlantic.com/health/archive/2012/04/the-fda-did-not-do-enough-to-restrict-antibiotics-use-in-animals/255878/>.

food and water system, thereby diminishing the effectiveness of these antibiotics in the treatment of disease in humans and other animals.²² Prophylactic, or preventative, antibiotic use in livestock has become a serious public health concern and the U.S. Food and Drug Administration (“FDA”) has issued voluntary guidelines on the proper use of antibiotics in farm animals.²³ While concern regarding the misuse of antibiotics in industrial agriculture has increased, the FDA’s guidance on the matter remains voluntary and targets the use of antibiotics as a means of increasing growth, while failing to address the importance of ending the prophylactic use of antibiotics on which the industry relies because of its poor production practices and treatment of the animals.

f. Hormone Contamination

Similarly, industrial animal farmers administer hormones to their livestock, specifically cattle, in an effort to increase productivity.²⁴ These hormones remain in the animal products we consume and also infiltrate our environment through manure, contaminating soil and water.²⁵ Such contamination has been shown to be particularly disruptive to aquatic ecosystems and development and reproduction in fish.²⁶ Likewise, hormone contamination has been linked to various health issues in

22. See BRENT F. KIM ET AL., JOHNS HOPKINS CTR. FOR A LIVABLE FUTURE, INDUSTRIAL FOOD ANIMAL PRODUCTION IN AMERICA: EXAMINING THE IMPACT OF THE PEW COMMISSION'S PRIORITY RECOMMENDATIONS 15 (Fall 2013), available at http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/CLF-PEW-for%20Web.pdf. See also *United States v. An Article of Drug Consisting of 4,680 Pails, More or Less, Each Pail Containing 60 Packets, Etc.*, 725 F.2d 976, 988 (5th Cir. Tex. Ct. App. 1984) (discussing the concern that arose from the use of subtherapeutic antibiotics on food-producing animals).

23. See U.S. DEP'T OF AGRIC., GUIDANCE FOR INDUSTRY: THE JUDICIOUS USE OF MEDICALLY IMPORTANT ANTIMICROBIAL DRUGS IN FOOD-PRODUCING ANIMALS (2012), available at <http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM216936.pdf>.

24. See AM. PUB. HEALTH ASS'N, OPPOSITION TO THE USE OF HORMONE GROWTH PROMOTERS IN BEEF AND DAIRY CATTLE PRODUCTION, POLICY NO. 20098 (2009), available at <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1379>.

25. *Hormones in Beef*, GRACE COMM'N. FOUND., <http://www.sustainabletable.org/258/hormones> (last visited Apr. 9, 2014).

26. Brian Bienkowski, *Hormones from Livestock May Skew Fish Gender Toward Males*, ENVIRONMENTAL HEALTH NEWS (Dec. 14, 2012), <http://www.environmentalhealthnews.org/ehs/news/2012/fish-sex-ratio>.

humans, such as increased prostate cancer rates.²⁷ Though studies have linked hormone contamination to human health impacts, widespread disagreement over the human health impacts remains.²⁸ The health impacts on the farm animals themselves, however, are most severe. The use of hormones in animal agriculture has been linked to various medical conditions in the animals, such as udder infection, birth disorders, diarrhea, and heat stress in cows.²⁹ These medical conditions, in turn, lead to additional antibiotic use in animals. Given the clear health implications for animals, ecosystem disruption, and possible human health impacts, continued hormone use in industrial animal agriculture in the name of profit alone is indefensible.

g. Resource Usage

The environmental impacts of factory farming grow exponentially once the resources required to produce meat and dairy are factored into the equation. Producing meat and dairy is a highly water intensive operation. For example, according to the Water Footprint Network, it takes an average of approximately 15,400 liters (4068.25 gallons) of water to produce 1 kilogram (2.2 pounds) of beef, depending on production method and feed, whereas it takes only 287 liters (75.8 gallons) to produce 1

27. See Brianna L. Ladapo, *Antibiotics in Agriculture: How Corporate Overuse is Putting You at Risk and Why the FDA and USDA Aren't Protecting You*, NATURAL HEALTH JOURNALS (May 22, 2009), <http://www.natural-health-journals.com/477/antibiotics-in-agriculture>.

28. *Compare, Steroid Hormone Implants Used for Growth in Food-Producing Animals*, U.S. FOOD AND DRUG ADMIN., <http://www.fda.gov/animalveterinary/safetyhealth/productsafetyinformation/ucm055436.htm> (last visited Jan. 18, 2014) (stating that the hormone levels in meat are safe for human consumption and would be expected to have no effect in humans) *with* 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 (1999), *available at* http://ec.europa.eu/food/fs/sc/scv/out21_en.pdf (concluding that there are numerous potential risks to human health associated with the consumption of meat containing hormone residues). *See also* Appellate Body Report, *European Communities - Measures Concerning Meat and Meat Products*, WT/DS26/AB/R, WT/DS48/AB/R (Jan. 16, 1998) (adopted Feb. 13, 1998), *available at* http://www.wto.org/english/tratope/dispu_e/cases_e/ds26_e.htm (regarding the dispute between the United States/Canada and the European Communities concerning hormone use in meat production and trade to the European Communities of such meat).

29. *See* AM. PUB. HEALTH ASS'N *supra* note 24.

kilogram (2.2 pounds) of potato.³⁰ For every one unit of soy protein produced, one unit of land, water, and fossil fuels is needed, versus 6 to 17 land units, 4.4 to 26 water units, and 6 to 20 fossil fuel units needed to produce one unit of animal protein.³¹ In addition to wasted water, up to ten times more grain is required to produce grain-fed beef in the United States than through direct human grain consumption.³² The average fossil fuel intensity for foods in the U.S. is a three to one ratio, while the ratio for industrially produced meat can be up to thirty-five to one.³³ These additional considerations demonstrate the detrimental environmental loading associated with meat and dairy production.

h. Conclusions Regarding Animal Welfare and Environmental Impacts of Meat Production in the U.S.

Industrial animal agriculture is one of the leading causes of pollution and animal welfare abuses in the United States, yet they remain largely unregulated.³⁴ The inhumane conditions at large-scale animal farming operations in the United States are oft overlooked.³⁵ The pollution from factory farms, which is largely exempted from many environmental laws, leads to contaminated land, air, and water, and damages the surrounding natural ecosystems, the animals found within them, and areas sensitive to climate change.³⁶ The intensive industrial agriculture model must be addressed and changed. Many laws attempt to address

30. See *Water Footprint Introduction*, WATER FOOTPRINT NETWORK, <http://www.waterfootprint.org/?page=files/home> (last visited Apr. 10, 2014).

31. Lucas Reijnders & Sam Soret, *Quantification of the Environmental Impact of Different Dietary Protein Choices*, 78 AM. J. CLINICAL NUTRITION 664S, 664S-68S (2003), available at <http://ajcn.nutrition.org/content/78/3/664S.full?sid=b1206fe1-f459-45ab-90a6-73ddf1fd0950>.

32. Mark Bittman, *Rethinking the Meat-Guzzler*, N.Y. TIMES, Jan. 27, 2008, at WK1, available at <http://www.nytimes.com/2008/01/27/weekinreview/27bittman.html>.

33. Leo Horrigan et al., *How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture*, 110 ENVTL. HEALTH PERSP. 445, 446 (2002).

34. See generally *Pollution from Giant Livestock Farms Threatens Public Health*, NAT. RES. DEF. COUNCIL, <http://www.nrdc.org/water/pollution/nspills.asp> (last updated Feb. 21, 2013) [hereinafter *Giant Livestock Farm Pollution*].

35. See BELSANDIA, *supra* note 3.

36. See *id.*

these problems, but fail to end the immense pollution and animal welfare abuses that result from the current industrial animal agriculture model.

B. Brazil

a. Overview

The environmental and animal welfare impacts of meat production in Brazil are similar in many ways to those found in the United States. As in the United States, raising meat for consumption in Brazil leads to methane emissions, animal waste contamination, excessive nutrient loadings in the surrounding area and waters, and intense resource use (e.g., water and energy), especially when produced in factory farm settings similar to those seen in the United States.³⁷ Cattle raised in Brazil are raised in both factory farm settings and outdoor, free-range settings.³⁸ Pigs are largely raised in factory farm settings resembling the production methods of the United States.³⁹ While some free-range outdoor pig farms still exist, this is a minority and much of the meat produced at these farms is sold domestically.⁴⁰ Chickens are also produced through two main methods: standard family-based industrial chicken operations, which mainly take place in Western Santa Catarina in Southern Brazil and standard industrial chicken operations, which only recently emerged and mainly take place in the Central-West of Brazil.⁴¹ As in the United States, there have been recent

37. Danilo Domingues Millen et al., *Current Outlook and Future Perspectives of Beef Production in Brazil*, ANIMAL FRONTIERS, Oct. 2011, at 46, available at <http://animalfrontiers.org/content/1/2/46.full.pdf+html>. See also David N. Cassuto & Sarah Saville, *Hot, Crowded, and Legal: A Look at Industrial Agriculture in the United States and Brazil*, 18 ANIMAL L. 185, 200-201 (2012) (discussing the recent rise of industrial agriculture in Brazil).

38. See Millen, *supra* note 37.

39. See JOSE HENRIQUE PIVA, AGROCERES, THE BRAZILIAN PIG INDUSTRY: HOW IT WILL CONTINUE TO GROW AND BECOME EVEN MORE IMPORTANT IN THE GLOBAL MARKETPLACE 1-2 (2007), available at, <http://www.prairieswine.com/pdf/2252.pdf>, (last visited Apr. 9, 2014).

40. See Martin Riordan, *Pig Production Across Continents: Brazil*, CURRENT IN PORK, <http://currentinpork.com/2010/03/07/pig-production-across-continents/>, (last visited Apr. 9, 2014).

41. See Vamilson Prudencio da Silva Jr. et al., *Brazilian Poultry: A Study of Production and Supply Chains for the Accomplishment of the LCA Study*, Presentation at The 6th

initiatives to decrease pollution from animal agriculture operations by capturing animal waste and methane and using it to produce electricity.⁴²

Due to the more common use of free-range methods of meat production, primarily for cattle, the fact that many of the crops that feed livestock in Brazil and abroad are produced in Brazil, and the vastly different ecological setting, there are some distinct impacts to consider. Among these impacts are deforestation, assaults on biodiverse areas where new species are still constantly being discovered, immense Carbon Dioxide (“CO₂”) emissions, and drought. Overall, the design and execution of meat production in Brazil appears to have a similarly high, and arguably greater impact on the environment, and slightly lesser impact on animal welfare than that of the United States due to the larger number of free range outdoor animal production operations. However, animal agriculture production methods in Brazil are steadily becoming more similar to those found in the U.S- more concentrated, confined, and technology-reliant.⁴³

b. Deforestation

Deforestation is a huge issue in Brazil. Cattle ranching causes approximately sixty-five to seventy percent of all deforestation in the Amazon, while both legal and illegal logging surprisingly only causes two to three percent of deforestation.⁴⁴ Much of the feed for farmed animals in Brazil and abroad is grown in Brazil.⁴⁵ Growing this feed, particularly soybeans that are used in animal feed, often requires the clearing of large swaths of land in the rainforest.⁴⁶ Furthermore, Brazilian meat, particularly beef, is largely produced on ranches where the

International Conference on Life Cycle Assessment in the Agri-Food Sector 2008 (Nov. 12-14, 2008).

42. See Steve Carpentier & Jean Francois Maurel, FRANCE 24, *Pig Farm Pioneer Program in Brazil*, YOUTUBE (Dec. 27, 2007), <http://www.youtube.com/watch?v=o73PqGOCp0Q> (Originally broadcast on television by France24).

⁴³ See Cassuto & Saville, *supra* note 37, at 201.

44. Rhett A. Butler, *Deforestation in the Amazon*, MONGABAY, <http://www.mongabay.com/brazil.html#cattle> (last updated May 20, 2012).

45. See Brooks, *supra* note 1, at 1 (discussing how the Netherlands and Japan both import grain from Brazil for livestock feed and thus the environmental impacts are outsourced to Brazil).

46. See *id.* at 2.

animals graze and are less confined than in typical factory farms in the United States.⁴⁷ Though there is a new trend in Brazil toward more intensive feedlot operations like those seen in the U.S., it remains that vast areas of the rainforest are often cleared for cattle ranching operations.⁴⁸ As a result, beef production remains the leading cause of deforestation in the Brazilian Amazon.⁴⁹

c. CO₂ Release

Not only is deforestation devastating because of the resulting loss of rainforest areas generally, deforestation also releases enormous amounts of carbon dioxide into the atmosphere.⁵⁰ This is further magnified by the lost opportunity for the forest to take in additional CO₂- an important global function known as carbon sequestration.⁵¹ Seventeen percent of all CO₂ emissions worldwide result from deforestation.⁵² The high CO₂ emissions are due, in part, to the CO₂ that is emitted when trees are burned or cut down, as this releases CO₂ and the trees act as carbon sinks when they are living, but no longer perform this function when dead.⁵³ Though only a small portion of the Brazilian beef exported was produced in the Amazon region, requiring deforestation, this small percentage is so CO₂ intensive that it renders the export as a whole much more carbon intensive than exports from other countries.⁵⁴ Many estimates of the amount of

47. See Tom Johnston, *Brazil beef farmers to boost output despite land constraints: World Meat Congress*, ASSOC. OF BRAZ. BEEF EXPORTERS (Sept. 30, 2010), http://www.abiec.com.br/eng/news_view.asp?id={F0E30D0A-EE2A-44C1-A7FA-8F4D34589519}.

48. See *id.*

49. *Brazilian Beef: Greater Impact on the Environment Than We Realize*, SCI. DAILY (Mar. 7, 2011), available at <http://www.sciencedaily.com/releases/2011/03/110304091504.htm>.

50. See *id.*

51. See Richard A. Betts, et al., *The Future of the Amazon: New Perspectives from Climate, Ecosystem and Social Sciences*, 363 PHIL. TRANS. ROYAL SOC'Y B 1729, 1729 (2008), available at <http://rstb.royalsocietypublishing.org/content/363/1498/1729.full.pdf+html>.

52. 2013 IPCC Report, *supra* note 17.

53. See SCI. DAILY, *supra* note 49.

54. See Christel Cederberg, et al., *Including Carbon Emissions from Deforestation in the Carbon Footprint of Brazilian Beef*, 45 ENVTL. SCI. & TECH. 1773, 1777 (2011), available at <http://pubs.acs.org/doi/pdfplus/10.1021/es103240z>.

CO₂ released (also known as “carbon footprint”) as a result of a given meat product are far less than the true carbon footprint because they fail to account for land use processes involved in production.⁵⁵

d. Wildlife Impacts

While many of the same assaults on wildlife that occur in the United States, such as phosphorus and nitrogen pollution, occur in Brazil, impacts caused by deforestation are of great concern. Deforestation is an assault on the wildlife whose habitats are consequently destroyed.⁵⁶ To make matters worse, the impacts on plant and animal species, science, and humanity are unknown to a great extent because of the potentially undiscovered species that may be lost.⁵⁷ Over a recent ten-year period, a new species was discovered in the Amazon biome every three days, thirty-nine of which were mammals.⁵⁸ The Amazon region is believed to possess approximately one quarter of the earth’s biodiversity.⁵⁹ Deforestation, often through burning, degrades biodiversity to a great extent.⁶⁰ Animals’ habitats are destroyed, often burned down completely, in the process of deforestation.⁶¹ This leads to animal deaths, injuries, displacement, increased resource competition, and many other disturbances, which clearly impact animal welfare.

e. Drought

Another major concern associated with deforestation resulting from animal agriculture is increased potential for

55. *See id.*

56. Helen Thompson et al., *Most of Amazon Rainforest's Species Extinctions Are Yet to Come*, SCI. AM. (July 13, 2012), <http://www.scientificamerican.com/article/most-amazon-rainforest-species-extinctions-yet-to-come/>.

57. *Why is the Amazon Rainforest Important?*, WORLD WILDLIFE FUND, http://wwf.panda.org/what_we_do/where_we_work/amazon/about_the_amazon/why_amazon_important/ (last visited Apr. 9, 2014).

58. Press Release, World Wildlife Fund, *Amazing Discoveries in the Amazon: New Species Found Every Three Days Over Last Decade* (Oct. 26, 2010), *available at* <http://worldwildlife.org/press-releases/amazing-discoveries-in-the-amazon-new-species-found-every-three-days-over-last-decade>.

59. Betts, *supra* note 51, at 1729.

60. *See id.* at 1730.

61. *See* SCI. DAILY, *supra* note 49.

drought in the Amazon. Believe it or not, there is a dry season in the Amazon.⁶² While there is generally a low risk of drought and resulting forest fire, deforestation and climate change increase the likelihood of these phenomena and could lead to redefined ecosystems and reduced biodiversity.⁶³ Precipitation levels decrease when the forest cover is reduced as a result of deforestation because the evaporation cycle and surface energy balance are altered.⁶⁴ Exacerbating this problem is desertification caused by overgrazing of cattle herds on cleared land, further reducing vegetation cover overall.⁶⁵ A major drought in the Amazon in 2005 had vast, far reaching negative impacts, including a corresponding increased temperature on the surface of the sea in the equatorial Pacific, which was associated with El Niño.⁶⁶ Continued drought leads to a complete breakdown in the structure of the forest.⁶⁷ Continued drought also increases the odds of fire leakage into unplanned areas when forests are burned to clear the land.⁶⁸ Thus, deforestation could lead to even greater loss of forests than expected, acceleration of climate change, and drought conditions in the Amazon.

f. Conclusion Regarding Animal Welfare and Environmental Impacts of Meat Production in Brazil

The environmental and animal rights implications of animal agriculture in Brazil are clear. While the living conditions for animals raised for food in Brazil – particularly cattle – are less deleterious than those found in the United States, there is arguably a greater environmental impact and undoubtedly a far greater impact on native animal species. The animal welfare implications for pigs and chickens are similar in Brazil and the United States, because these animals are largely raised in factory farm settings. While the grazing method of raising animals for food continues to be the primary means of cattle production in

62. See Betts, *supra* note 51, at 1730.

63. See *id.*

64. See *id.*

65. See *id.* at 1732.

66. See *id.* at 1730.

67. *Id.*

68. See Betts, *supra* note 51, at 1732.

Brazil, as this shifts more toward concentrated operations because of environmental, economical, and political pressures, the setup will further continue to resemble that found in the United States. As a result, the conditions for the farmed animals will grow increasingly crowded and mass production techniques that decrease the wellbeing of the farm animals will be used.⁶⁹ Conversely, this would lead to less environmental destruction and thus less negative impacts for the native species. Each method of production is wrought with different problems and one's preference for one system over another relies largely on his or her predilection for animal welfare or environmental concerns.⁷⁰

III. REGULATING THE MEAT INDUSTRY – ANIMAL RIGHTS AND ENVIRONMENTAL LAWS

A. United States

a. Overview

Though the United States has various animal protection and environmental laws, these laws largely fall short of protecting farmed animals and addressing industrial farm pollution.⁷¹ The animal laws—namely the Humane Slaughter Act and the Animal Welfare Act—neglect to provide for the safety, health, and proper treatment of animals farmed for food.⁷² Likewise, the environmental laws—namely the Clean Water Act (“CWA”), Clean Air Act (“CAA”), Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), and Emergency Planning and Community Right to Know Act (“EPCRA”)—do little to protect against the resulting pollution.⁷³ Overall, animals and the environment are not adequately protected in the United States when it comes to animal agriculture operations.

⁶⁹ See generally *Meat Production Begins to Rise*, WORLDWATCH INST., <http://www.worldwatch.org/node/5443> (last visited Apr. 9, 2014).

⁷⁰ See Cassuto & Saville, *supra* note 37, at 204 (discussing how environmental pressures in Brazil encourage industrialized farms).

⁷¹ See generally Cassuto & Saville, *supra* note 37.

⁷² See *id.*

⁷³ See *id.*

b. The Humane Slaughter Act's Failures

The Humane Slaughter Act of 1978 (“HSA”)⁷⁴ does not adequately protect animals produced for consumption in the United States. The HSA sets forth methods of humane slaughter,⁷⁵ authorizes the Secretary of Agriculture (the “Secretary”) to conduct further research and designate different methods of slaughter,⁷⁶ and provides an exemption for ritual slaughter.⁷⁷ The humane methods of slaughter provision does not define humane, but only lists two forms of slaughter that were found to be humane.⁷⁸ The first method includes, “in the case of cattle, calves, horses, mules, sheep, swine, and other livestock, all animals are rendered insensible to pain by a single blow or gunshot or an electrical, chemical, or other means that is rapid and effective, before being shackled, hoisted, thrown, cast, or cut.”⁷⁹ The second provision provides that:

[B]y slaughtering in accordance with the ritual requirements of the Jewish faith or any other religious faith that prescribes a method of slaughter whereby the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument and handling in connection with such slaughtering.⁸⁰

Thus, the HSA provides for killing when an animal is “rendered insensible to pain” or by cutting the carotid arteries to induce loss of consciousness.⁸¹

The first problem presented by this statute is that it is not properly enforced. The United States Department of Agriculture (“USDA”), led by the Secretary of Agriculture, is responsible for enforcing the HSA.⁸² However, the USDA opposed the enactment

74. 7 U.S.C. §§ 1901-1906 (2012).

75. *See id.* § 1902.

76. *See id.* § 1904 (a), (b).

77. *See id.* § 1906.

78. *See id.* § 1902.

79. *Id.* § 1902 (a).

80. 7 U.S.C. §§ 1901-1906; *see also* 7 U.S.C. § 1902 (b).

81. *See id.* § 1902, (a), (b).

82. *See* 21 U.S.C. § 603 (2012); *see also* Farm Security and Rural Investment Act of 2002, Pub. L. No. 107-171, § 10305, 116 Stat. 134, 493-94 (2002) (codified at 7 U.S.C. § 1901 (2012)).

of the HSA and many of its members do not strictly enforce the laws against the regulated slaughterhouses in the hopes that they may someday obtain high-paying industry jobs.⁸³ Enforcement agents are far from present in the industry, leaving many industry employees completely unaware of the HSA.⁸⁴ As a result, there are numerous accounts of animals being processed before they are actually rendered insensible to pain.⁸⁵

An example of improper enforcement by the USDA against reprehensible conditions at a slaughterhouse is the closure of Bushway Packing, Inc. This organically certified Vermont slaughterhouse was cited for mistreating animals three times in six months by the Department of Agriculture, but it was not until the Humane Society of the United States captured these abuses on tape in an undercover investigation that the plant was closed.⁸⁶ The Humane Society caught slaughterhouse employees kicking calves, excessively electrically prodding them, and not completely rendering them senseless to pain before slaughtering or skinning them.⁸⁷ The Humane Society even recorded a Department of Agriculture inspector advising employees on evading being shut down for violations and failing to stop an employee from cutting an animal that was not rendered insensible to pain.⁸⁸ Sadly, Bushway Packing provides a

83. Donna Mo, *Unhappy Cows and Unfair Competition: Using Unfair Competition Laws to Fight Farm Animal Abuse*, 52 UCLA L. REV. 1313, 1318-19 (2005) (citing GAIL A. EISNITZ, *SLAUGHTERHOUSE: THE SHOCKING STORY OF GREED, NEGLECT, AND INHUMANE TREATMENT INSIDE THE U.S. MEAT INDUSTRY* (Prometheus Books 1997)).

84. *Id.* at 1319.

85. Joby Warrick, *They Die Piece by Piece*, WASH. POST, Apr. 10, 2001, at A1, available at [https://www.uta.edu/philosophy/faculty/burgess-jackson/Warrick,%20They%20Die%20Piece%20by%20Piece%20\(2001\).pdf](https://www.uta.edu/philosophy/faculty/burgess-jackson/Warrick,%20They%20Die%20Piece%20by%20Piece%20(2001).pdf); see, e.g., *USDA Shuttters Calf Slaughter Plant in New Jersey in Wake of HSUS Investigation*, HUMANE SOC'Y OF THE U.S., (Jan. 27, 2014), http://www.humanesociety.org/news/pressreleases/2014/01/Catelli_investigation_012714.html#.Uu2XHPldXFg; Mercy for Animals, *Undercover Investigations: Exposing Animal Abuse*, <http://www.mercyforanimals.org/investigations.aspx> (last visited Apr. 10, 2014).

86. Dave Gram, *Vt. Slaughterhouse Closed for Inhumane Treatment of Calves (VIDEO)*, HUFFINGTON POST (Nov. 3, 2009, 4:31 AM), http://www.huffingtonposttimesfreepress.com/news/2009/11nov/03/vermont-slaughterhouse-cl_n_343934.html [hereinafter Gram].

87. *Abused Calves at Vermont Slaughter Plant*, HUMANE SOC'Y OF THE U.S. (Oct. 30, 2009), http://www.humanesociety.org/news/news/2009/10/calfinvestigation103009.html#.Uv6H9vldU2sUu2Zv_ldXFg.

88. See Gram, *supra* note 86.

representative example of how industry fails to comply and the Department of Agriculture fails to enforce the HSA.

Secondly, poultry, fish, and rabbits are not included in the HSA. Congress's failure to include chickens is particularly appalling because of the enormous number of chickens slaughtered for food every year. In the United States alone, over nine billion chickens were slaughtered for consumption in 2012.⁸⁹ The slaughter of these animals is not nationally regulated, nor is the slaughter of the unwanted male chicks eliminated through the culling process at egg production facilities.⁹⁰ Under the HSA, handlers are not required to stun these animals before they are processed and killed.⁹¹ Thus, even though the HSA sets out to protect animals slaughtered for human consumption, the exemptions and lack of enforcement render the Act insufficient to protect most farm animals in a meaningful way. For the HSA to even begin to protect farm animals adequately, another agency or entity would likely need to assume enforcement responsibilities and many key exemptions would need to be removed from the Act.

c. The 28 Hour Law is Rarely Enforced

Another law seeking to protect animals is the 28 Hour Law, which was originally enacted in 1873 and repealed and reenacted in 1994.⁹² This law forbids the confinement of animals for transport for greater than 28 hours without being unloaded for food, water, and rest.⁹³ While a 28-hour period seems lengthy to begin with, the limitation on the number of hours an animal may be confined for transport may be extended to 36 hours with written permission from the animal's owner.⁹⁴ Furthermore,

89. U.S. DEP'T OF AGRIC, NAT'L AGRIC. STATISTICS SERV., POULTRY SLAUGHTER 2012 ANNUAL SUMMARY 2 (2013), available at http://usda01.library.cornell.edu/usda/nass/LiveSlauSu/2000s/2008/LiveSlauSu-03-07-2008_revisioncurrent/PoulSlauSu/PoulSlauSu-02-25-2013.pdf.

90. Veronica Hirsch, *Legal Protections of the Domestic Chicken in the United States and Europe*, ANIMAL LEGAL & HISTORICAL CTR, <http://www.animallaw.info/articles/dduschick.html>.

91. See 7 U.S.C. §§ 1901-1906.

92. See 49 U.S.C. § 80502 (2012).

93. *Id.*

94. See *id.*

although the law does not specifically exempt birds, the USDA interprets the law so as to exempt birds, including chickens.⁹⁵ The USDA further posits that the law does not apply to animals transported in a vehicle that provides food, water, and the ability to rest.⁹⁶ Thus, the industry easily avoids regulation under this law that provides very little protection for farm animals at the outset.

d. Animal Welfare Act Excludes Agricultural Animals

The other main law dealing with the treatment of animals is the Animal Welfare Act (“AWA”).⁹⁷ The AWA regulates how animals are transported, handled, and sold.⁹⁸ However, the Act specifically does not regulate the treatment of farm animals produced for consumption.⁹⁹ Many animal welfare activists have argued that farm animals should be included under the provisions of the Animal Welfare Act.¹⁰⁰ If farm animals were included under this Act, and it was properly enforced, much of the unnecessary cruelty farm animals endure could be eliminated.

e. Environmental Laws

The Clean Water Act (“CWA”) includes regulations that specifically target factory farm pollution. Under the CWA, animal feeding operations (“AFO”) and concentrated animal feeding operations (“CAFO”) are subject to National Pollutant Discharge Elimination System (“NPDES”) permitting requirements and thus, in order to operate, they must obtain a NPDES permit that meets the requirements of the CWA.¹⁰¹ However, animal feeding operations must be extremely large to

95. See *Government and Professional Resources*, UNITED STATES DEP’T OF AGRIC., NAT’L AGRIC. LIBRARY, <http://awic.nal.usda.gov/government-and-professional-resources> (last visited Apr. 10 2014).

96. *Id.*

97. See 7 U.S.C. §§ 2131-2159 (2012).

98. See *id.*

99. See *id.* § 2132 (g); see also PETER SINGER, IN DEFENSE OF ANIMALS: THE SECOND WAVE 176 (Wiley-Blackwell 2005) (1991).

100. See generally Colin Kreuziger, *Dismembering the Meat Industry Piece by Piece: The Value of Federalism to Farm Animals*, 23 LAW & INEQ. 363, 363-64 (2005).

101. 40 C.F.R. § 122.23 (a) (2013).

fall under these regulations and thus only a limited number of facilities are regulated by these laws.¹⁰² Furthermore, the animal waste is often held in lagoons, which do not constitute "waters of the United States" under the CWA, thereby evading regulation.¹⁰³ Many environmental, animal welfare, and community groups are urging the Environmental Protection Agency ("EPA") to amend the CWA so that it more inclusively regulates factory farms.¹⁰⁴

The Clean Air Act ("CAA") is another mechanism that could be used to prevent the pollution associated with factory farms. Although the CAA does not specifically regulate factory farms now, there is a push for the EPA to include factory farms under the scope of this Act.¹⁰⁵ Public interest groups such as the Environmental Integrity Project and the Humane Society have petitioned the EPA on numerous occasions to include factory farm pollution in CAA regulations.¹⁰⁶ If factory farms were regulated under the CAA, the EPA or regulating state agency would have the right to enter these facilities for inspections and could also attempt to decrease crowding by enforcing against the resultant air pollution.

The EPA enacted a rule in 2010 titled, "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring

102. 40 C.F.R. § 122.23 (b)(1)(i), (ii), (b)(2) (2013).

¹⁰³ See 40 C.F.R. § 122.2 (2013) ("Waste treatment systems, including treatment ponds or lagoons ... are not waters of the United States."). See also Cassuto & Saville, *supra* note 37, at 196.

104. See Laura Beans, *EPA Sued for Abandoning Critical Factory Farm Rule Under Clean Water Act*, ECOWATCH (Aug. 28, 2013), <http://ecowatch.com/2013/08/28/epa-abandoning-critical-factory-farm-clean-water-act/>.

105. See *EPA Petitioned to Regulate Ammonia Pollution from Factory Farms*, SUSTAINABLE FOOD NEWS, Apr. 6, 2011, http://www.sustainablefoodnews.com/printstory.php?news_id=12346; *Groups Ask EPA to Regulate Air Pollution at Factory Farms*, ENVTL. LEADER, Sept. 23, 2009, <http://www.environmentalleader.com/2009/09/23/groups-ask-epa-to-regulate-air-pollution-at-factory-farms/>.

106. Environmental Integrity Project, et al. Petition for the Regulation of Ammonia as a Criteria Pollutant Under Clean Air Act Sections 108 and 109, *available at* <http://www.environmentalintegrity.org/documents/PetitiontoListAmmoniaasaCleanAirActCriteriaPollutant.pdf>; The Humane Society of the United States et al., Petition to List Concentrated Animal Feeding Operations Under Clean Air Act Section 111 (b)(1)(A) of the Clean Air Act, and to Promulgate Standards of Performance Under Clean Air Act Sections 111 (b)(1)(B) and 111 (d), *available at* <http://www.foe.org/sites/default/files/HSUS-et-al-v-EPA-CAFO-CAA-Petition.pdf>.

Rule” (“GHG Tailoring Rule”).¹⁰⁷ This final rule, which was published in the Federal Register on June 3, 2010, regulates six pollutants that EPA deemed to be GHGs.¹⁰⁸ Methane is among the six pollutants¹⁰⁹ and is a strong GHG that factory farms emit,¹¹⁰ as discussed in Section II above. Under the GHG Tailoring Rule, EPA sets forth criteria specific to GHG emitting sources that vary from the criteria set forth under the Prevention of Significant Deterioration (“PSD”) and Title V programs of the Clean Air Act for other pollutants.¹¹¹ Because the regulation of GHGs is a new concept, where GHGs had previously gone unregulated unless regulated for reasons other than their effect on climate change, the EPA is phasing in the applicability of these requirements.¹¹² The regulation of GHGs will first apply to the largest emitters and will slowly begin to apply to smaller sources.¹¹³ A variety of smaller sources are exempt from PSD and Title V permitting for GHG emissions until April 30, 2016 at the earliest.¹¹⁴ Agriculture, of course, is one of the industry groups to which EPA has granted this regulatory relief.¹¹⁵

Air pollution notification regulations for factory farms under CERCLA and EPCRA were largely exempted by the EPA during the recent Bush Administration.¹¹⁶ Included in this exemption were releases of hazardous substances to the air, originating from animal waste.¹¹⁷ Thus, regulating industrial agriculture through the use of the CWA or the GHG Tailoring Rule appear to be most promising, but still remain a distant reality.

107. *Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, EPA, available at <http://www.epa.gov/nsr/documents/20100413final.pdf> (last visited Apr. 8, 2014) [hereinafter *GHG Tailoring Rule*].

108. *Id.*

109. *Id.*

110. See generally *Ruminant Livestock*, *supra* note 12.

111. GHG Tailoring Rule, *supra* note 107.

112. See *id.*

113. *Id.*

114. *Id.*

115. See *id.*

116. See Press Release, Food and Water Watch, Bush Administration Exempts Factory Farms From Regulation (Dec. 12, 2008), available at <https://www.commondreams.org/newswire/2008/12/18-9>.

117. See U.S. De-Regulates Factory Farm Pollution, ORGANIC CONSUMERS ASS’N (Dec. 19, 2008), http://www.organicconsumers.org/articles/article_16223.cfm.

Despite the fact that waste from factory farms is regulated under the Clean Water Act and potentially could be regulated under the Clean Air Act and GHG Tailoring Rule, industrial animal agriculture is not effectively regulated. Under the CWA, agricultural operations that do not fall under the CAFO category are largely unregulated, as the waste from their facility is generally not classified as a point source.¹¹⁸ Even if a farm is deemed to be a CAFO, the agricultural storm water discharges from the facility are not considered a point source and are also largely unregulated.¹¹⁹ The pollution of groundwater is not considered pollution to waters of the United States for regulatory purposes under the CWA.¹²⁰ Clearly, these environmental laws do not adequately regulate factory farms, despite the fact that these regulations have the potential to strictly prohibit excessive pollution from factory farms, and in turn could decrease crowding and unsanitary living conditions for the animals at factory farms. Overall and in actuality, the laws purporting to protect animals and the environment from the impacts of factory farming in the United States are weak.

B. Brazil

a. Overview

Brazil's animal welfare and environmental laws are likewise largely ineffective at dealing with the issues posed by the animal agriculture industry.¹²¹ While Brazil has made a good deal of progress toward more comprehensive animal and environmental

118. See, e.g., *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486 (2d Cir. 2005) (holding that CAFOs must apply for NPDES permits or demonstrate why they are not required to and calling for further explanation of the CAFO Rule by the EPA); *Save the Valley, Inc. v. EPA*, 223 F. Supp. 2d 997 (S.D. Ind. 2002) (holding that Indiana had to submit for EPA approval a revised CAFO rule and require all CAFOs to apply for a NPDES permit); 40 C.F.R. §§ 122, 412 (2013).

119. See, e.g., 40 C.F.R. §§ 122.3, (2013); Scott Jerger, *EPA's New CAFO Land Application Requirements: An Exercise in Unsupervised Self-Monitoring*, 23 STAN. ENVTL. L.J. 91 (2004). (discussing the inadequate oversight of CAFOs).

120. James W. Hayman, *Regulating Point-Source Discharges to Groundwater Hydrologically Connected to Navigable Waters: An Unresolved Question of Environmental Protection Agency Authority Under the Clean Water Act*, 5 BARRY L. REV. 95 (2005). (discussing the CWA's treatment of discharges to groundwater).

¹²¹ See Cassuto & Saville, *supra* note 37, at 201-203.

laws, the animal agriculture industry is often exempted and the enforcement mechanisms are weak. In addition to the legal requirements discussed further below, Brazil does have voluntary standards known as Good Agricultural Practices, which recommend stringent animal welfare standards and are reportedly followed by many producers in the animal agriculture industry.¹²² Absent mandatory farm animal welfare standards and adequate enforcement, however, Brazil's animal agricultural industry continues to fail animals and the environment.

b. Constitution

Though Brazil enacted several laws protecting animals before the 1988 Constitution, it was the Constitution that laid the foundation for many of Brazil's current animal laws.¹²³ Brazil is a civil law country, so court decisions do not make law.¹²⁴ The 1988 Constitution provides that, "[a]ll people have the right to an ecologically balanced environment which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations."¹²⁵ This provision further explains that the Government must ensure that this right is effectuated and therefore must, "protect the fauna and flora, with prohibition, in the manner prescribed by law, of all practices which represent a risk to their ecological function, cause the extinction of a species or subjects an animal to cruelty."¹²⁶ Because Brazil's Constitution has immediate applicability in defining rights, this provision is powerful and has been used by courts to decide cases concerning the treatment of animals.¹²⁷ This provision also served as a launch pad for further legislation protecting animals.¹²⁸

¹²² *Id.*

¹²³ CONSTITUIÇÃO FEDERAL [FEDERAL CONSTITUTION] art. 225 (Braz.), available at <http://pdba.georgetown.edu/Constitutions/Brazil/english96.html> [hereinafter CONSTITUTION]; Tagore Trajano de Almeida Silva, *Brazilian Animal Law Overview: Balancing Human and Non-Human Interests*, 6 J. ANIMAL L. 81, 84 (2010).

¹²⁴ See Trajano, *supra* note 123, at 81.

¹²⁵ CONSTITUTION, *supra* note 114.

¹²⁶ *Id.*

¹²⁷ See Trajano, *supra* note 123, at 84.

¹²⁸ See *id.*

c. Environmental Crimes Act

Pertinent here is the Environmental Crimes Act, which Brazil enacted in 1998.¹²⁹ This federal law declares certain acts to be environmental felonies or misdemeanors, and includes provisions regarding animal cruelty.¹³⁰ According to Trajano, Article 32 of this law provides that, “[e]very person who shall abuse, mistreat, maim, or injure wild animals, domestic or domesticated, native or exotic . . . shall be punished by imprisonment of three (3) months not to exceed one (1) year and fined.”¹³¹ The law goes on to say that even if one’s actions are for educational or scientific purposes, if there are alternate options that could avoid cruelty or pain, that person will be punished the same as anyone who inflicts pain or treats an animal cruelly.¹³² The law also provides for increased penalties if the animal dies.¹³³ While this rule appears robust on the surface, it does not cover many important animal issues, including the slaughtering of animals used in agricultural production.¹³⁴ As this is the only federal law protecting domesticated animals, it is clear that farm animals are not adequately protected.

Despite its limited protections for domesticated animals in Brazil, those portions of the Environmental Crimes Act have come under attack.¹³⁵ Bill 4548/98 (the “Bill”), which seeks to decriminalize cruelty to domestic or domesticated animals, was brought before Brazil’s National Congress in 2010.¹³⁶ In part due to the strong response of the National and International community in Brazil, many politicians spoke out against the

129. *See id.* at 84-85.

130. *See id.* at 85.

131. Trajano, *supra* note 123, at 85 (citing Lei No. 9.605, de 12 de Fevereiro de 1998 (Braz.), available at <http://www.animallaw.info/nonus/statutes/stbrecl1999.htm>).

132. *Id.*

133. *See id.*

134. *See id.* at 86.

135. *See Brazil’s Animals are in Very Serious, Very Immediate Danger*, WORLD SOC’Y FOR THE PROT. OF ANIMALS, <http://e-activist.com/ea-campaign/clientcampaign.do?ea.client.id=24&ea.campaign.id=5827&ea.param.extras=Source:e-action> (last visited Apr. 10, 2014) [hereinafter WORLD SOC’Y]; *see also* *Brazilian Animals Need Your Help: Please Say No to PL 4548/98*, PETITION SITE (Apr. 15, 2011, 7:22 AM), <http://www.thepetitionsite.com/1/brazilian-animals-need-your-help-please-say-no-to-pl-454898/> (last visited Apr. 10, 2014) [hereinafter PETITION SITE].

136. *See* WORLD SOC’Y, *supra* note 135.

Bill.¹³⁷ However, the Bill was only put on hold for the transition of new representatives into office.¹³⁸ The new administration has not yet ruled on the Bill as the legislative branch does not have the required support to amend the law. While it is likely that this bill will remain on hold until the upcoming Representative and Presidential elections have concluded, if the legislature enacts the Bill, it will drastically decrease the rights of animals and supersede the Environmental Crimes Act.¹³⁹ Thus, the primary laws protecting domesticated animals currently hang by a thread in the hands of the new administration.

d. Environmental Laws

Though the Constitution of 1988 provided for environmental protection in addition to its animal-related provisions, Brazil has a wealth of additional environmental laws, some of which were enacted before the 1988 Constitution. In 1981, the federal government passed the National Environmental Policy Law, providing “general guidelines and mechanisms for the preservation, enhancement and remediation of the environment.”¹⁴⁰ Many of the most important changes took place in 1981, when the federal government passed a cohesive set of environmental laws in an effort to better control environmental protection.¹⁴¹ The creation of the National System for the Protection and Enforcement of the Environment contributed most to the laws as they remain today and included provisions for the following:

The National Environmental Council (“CONAMA”), which is tasked with researching and developing policy to suggest to the Ministry of the Environment;

The Ministry of the Environment, Water Resources and the Legal Amazon Region, which assists the President in making

137. See *Update: Bill 4548 on Hold in Brazil*, CARE2, <http://www.care2.com/c2c/groups/disc.html?gpp=19683&pst=1145974f> (last visited Apr. 10, 2014).

138. See *id.*

139. See THE PETITION SITE, *supra* note 135.

140. See Luiz Fernando Henry Sant'Anna, *General Overview of Brazilian Environmental Law*, 15 INT'L L. PRACTICUM 22, 23 (2002) (referencing Federal Law No. 6.938/81).

141. *Short-Rotation Eucalypt Plantations in Brazil: Social Issues, Policy, Education*, BIOENERGY FEEDSTOCK INFORMATION NETWORK, <http://bioenergy.ornl.gov/reports/euc-braz/eucaly3.html> (referencing Federal Law No. 510/66) [hereinafter *Eucalypt*].

policy and oversees the Institute of the Environment and Natural Renewable Resources (“IBAMA”);

IBAMA, which is in charge of licensing activities and projects that affect the environment and oversees state inspections and permitting;

State Environmental Agencies, which license and inspect activities that have environmental impacts; and

Municipal Agencies in large cities, which carry out licensing for municipal public projects.¹⁴²

In 1985, Brazil enacted the Law of the Public Civil Action under Federal Law Number 7.347/85, providing procedural tools for environmental protection.¹⁴³ Brazil also has various laws and mechanisms, such as the Green Protocol, that condition loans from various banks on assurance that the project will comply with environmental laws.¹⁴⁴ The 1998 Environmental Crimes Act allowed for criminal penalties for environmental violations, in addition to the animal law provisions discussed above.¹⁴⁵ The Environmental Crimes Act was later followed by a federal decree regulating enforcement and penalties under the Act.¹⁴⁶

Despite the seemingly robust set of environmental laws, the written laws and their enforcement leave much to be desired. Overall, the laws fail to create a comprehensive environmental protection scheme, and the laws that do exist are not adequately enforced, as discussed further below.¹⁴⁷ Thus, even though Brazil’s environmental laws may otherwise protect against environmental degradation caused by meat production to a limited extent, the lack of enforcement further hinders this effort.

e. Enforcement Issues

Brazil’s laws protecting farm animals and the environment are inadequate as written and there are additional enforcement concerns that could render even the strongest regulatory regime

142. *Id.*

143. See Sant’Anna, *supra* note 140, at 23 (referencing Federal Law No. 7.347./85).

144. See Eucalypt, *supra* note 141.

145. See Sant’Anna, *supra* note 140, at 23 (referencing LeiFederal Law No. 9.605/98).

146. Luiz Fernando Henry Sant’Anna et al., *Environment–Brazil*, LATIN LAWYER, <http://latinlawyer.com/reference/article/40585/brazil/> (Last visited Apr. 8, 2014).

147. See Janelle E. Kellman, *The Brazilian Legal Tradition and Environmental Protection: Friend or Foe*, 25 HASTINGS INT’L & COMP. L. REV. 145, 158-60 (Spring 2002).

impotent. The lack of enforcement of the laws on the books stems from a lack of funding, corruption, the vast size of Brazil, and conflicting goals of economic development.¹⁴⁸ Chiefly, the fact that many meat-producing farms in Brazil are informal and operate outside of regulations to begin with creates major obstacles in preserving animal and environmental integrity.¹⁴⁹ It is estimated that approximately forty percent of Brazil's meat market operates informally.¹⁵⁰ This means that a large portion of Brazil's animal agriculture industry is completely unregulated from the conditions the animals endure to slaughtering methods to the resulting pollution.¹⁵¹ While Brazilian authorities have tightened their regulation of deforestation, the problem remains that lands may be cleared and the illegal operation is often never found until the responsible parties have used and left the land, thus rendering enforcement even more difficult.¹⁵² With such a large percentage of meat production in Brazil taking place outside of the regulatory scheme, many producers freely degrade the environment and mistreat the animals.

IV. COMPARISON AND ANALYSIS

A. Comparing Laws Affecting Farmed Animals in United States and Brazil

Given the environmental and animal welfare impacts of animal agriculture in the production models of both countries and the lack of comprehensive, effective regulations, it is clear that the United States and Brazil should improve upon their laws concerning animal agriculture. While both Brazil and the United States maintain environmental and animal welfare laws, they largely exclude farm animals and lack effective enforcement

148. *See id.* at 158-59.

149. *See* Paulo F. Azevedo & Ferenc I. Bankuti, When Food Safety Concern Decreases Safety: Evidence from the Informal Meat Market (2003) (unpublished manuscript) (on file with author), available at http://www.fundacaofia.com.br/pensa/anexos/biblioteca/73200716331_.pdf#page=1&zoom=auto,0,792researchgate.net/publication/237457008_When_Food_Safety_Concern_Decreases_Safety_evidence_from_the_informal_meat_market1.

150. *Id.* at 2.

151. *See generally id.*

152. *See* Scott Wallace, *Farming the Amazon*, NATIONAL GEOGRAPHIC, <http://environment.nationalgeographic.com/environment/habitats/last-of-amazon.html#page=1> (last visited Apr. 9, 2014); *see also* Butler, *supra* note 44.

mechanisms. The animal laws dealing with agricultural animals are weaker than the environmental laws in each country. Enforcement is a large problem in both countries, but it is far more challenging in Brazil.¹⁵³ Livestock production in these countries is leading to significant environmental degradation that must be curbed. Likewise, the animal welfare abuses associated with animal agriculture in each country are grave, although seemingly worse in the United States, particularly for the cattle. However, the collateral impact on wild, native animals is greater in Brazil due to the deforestation resulting primarily from cattle and feed crop production. Given the unique issues associated with animal agriculture in each country, there is certainly no singular solution, but removing key exemptions for farm animals from legislation and improving enforcement efforts would benefit both systems.

Brazil and the United States each maintain relatively comprehensive environmental laws. The United States has more specific federal environmental legislation than Brazil and, though there are many enforcement issues in the United States, Brazil faces more challenging enforcement issues. The main issues with the United States' laws lie in political pressures and societal norms, government subsidy priorities, and industry lobbying power and influence. Brazil's main issues lie in the current practical impossibility of overseeing the entire country's threatened resources and a less established enforcement structure.¹⁵⁴ Though political pressures play into Brazil's regulations and lack of enforcement, Brazil's natural landscape and developing economy contribute to the subject environmental and animal welfare issues in a far more indelible manner.¹⁵⁵ The United States' exclusion of factory farms from environmental laws is due in large part to the powerful agricultural lobby that is able to control lawmaking procedures.¹⁵⁶ Because this lobby group has great resources and power over legislation, it is

153. See Kellman, *supra* note 147, at 158-160.

154. See *e.g.*, *id.* at 160.

155. *Id.*

156. See J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 *ECOLOGY L.Q.* 263, 265 (2000) (discussing the impacts of lobbying on environmental laws regulating CAFOs).

difficult to amend the institutionalized treatment of animals and the environment.

Animal welfare laws protecting farm animals also fall short in both Brazil and the United States. Brazil and the United States largely exempt farm animals from animal welfare laws.¹⁵⁷ The animal welfare implications of animal agriculture in Brazil are greater in their effect on wild animals, as deforestation in the course of meat production kills, stresses, and completely disrupts the lives of wild animals.¹⁵⁸ The animal welfare implications of beef production in Brazil are lesser in that cattle more commonly have the liberty to graze freely outdoors and lead a more “natural life.” Meanwhile, pig and chicken production largely mirrors the U.S. factory farming setup, which leads to the same animal welfare implications that are present in the U.S.¹⁵⁹ However, there are many unregulated meat production operations in Brazil, especially in the cattle industry, which operate without oversight. Nevertheless, the animal welfare implications concerning the treatment of farm animals in U.S. and Brazil are severe and are becoming increasingly similar as Brazil continues to transition to confined industrial agriculture.

As Brazil and the U.S. endeavor to improve the animal welfare and environmental impacts of industrial agriculture, they must balance these two interests. For instance, when the environmental laws are less stringent in Brazil, that, in a way, preserves better treatment of the farm animals because it supports free-range options, especially in the case of cattle farming. Yet, free-range systems require greater deforestation and thus greater impact on wild animals. The factory setting requires less space and may be seen as more efficient, but leads to deplorable conditions for the farm animals, concentrated sources of pollution, and greater antibiotic use. Therefore, solutions that address both environmental and animal welfare concerns are required.¹⁶⁰

¹⁵⁷ See Cassuto & Saville, *supra* note 37.

¹⁵⁸ *Id.*

¹⁵⁹ See *supra* Part I.B.i

¹⁶⁰ See Cassuto & Saville, *supra* note 37, at 201 (explaining that environmental pressures in Brazil encourage confined animal agriculture).

B. Suggestions

Brazil and the United States have great room and potential for lessening the animal welfare and environmental impacts of animal agriculture. There are movements in both countries to do so and the public is becoming more conscious of the implications of their decisions as consumers. In this way, improvement starts with public education on the impacts of animal agriculture. From there, more informed citizens can make choices as consumers and voters that improve industry standards. Comprehensive animal welfare and environmental regulation that does not exempt farm animals or factory farms from compliance is of the utmost importance in improving the way in which industrial animal agriculture functions; yet improved laws are futile without proper enforcement mechanisms. Thus, in order to improve conditions in industrial farms and lessen the impact on the environment, Brazilian and U.S. leadership must acknowledge the problems associated with such operations and address them from multiple angles.

Many, if not all, social welfare movements began with education and raising awareness for a cause. Due to social resistance, changing the public's outlook on animals, their worth, and the unfair treatment they endure is the first step toward achieving better regulation of factory farms. Educating the public- both domestically and internationally- of the perils of industrial animal agriculture is an important step in the improvement of the system. There is already greater awareness of the mistreatment of animals in factory farms than in the past.

Marketing, on which the animal agriculture industry strongly relies, should be used to further inform the public about the impacts of animal agriculture in both countries. Many consumers avoid Brazilian wood products harvested through illegal logging when such logging only contributes 2-3 percent of all Amazonian deforestation, while cattle ranching contributes approximately 65-70 percent of all Amazonian deforestation and that fact goes unrecognized.¹⁶¹ This demonstrates that the public has not been adequately exposed to information regarding the huge impact animal agriculture has on deforestation and other environmental issues in the Amazon region. Brazilian and U.S.

161. See Butler, *supra* note 44.

government officials will not lead this charge, as they benefit from animal agriculture profits. Thus, it is important for non-governmental organizations (“NGOs”) in both countries to focus on local, national, and international educational campaigns about the impact of animal agriculture on the environment and animals. This would hopefully lead to more responsible food consumption choices, thereby driving the market toward better production methods.

In regard to improved regulation, Matthew Scully argues that a Humane Farming Act should be enacted in the United States,¹⁶² which could decrease the current animal abuses at factory farms. A similar law could also be promulgated in Brazil or the existing discretionary guidance on Good Agricultural Practices could be made mandatory. Under the Humane Farming Act, Scully calls for provisions regulating the living conditions of farm animals and humane treatment where animals are not merely seen as a means to a profit.¹⁶³ Among other things, this Act would include specific regulations for animal feed ingredients, the amount of space each animal must be allotted, adequate enforcement funding requirements, and severe penalties for violations.¹⁶⁴ Amy Mosel also calls for a similar federal statute aimed at improving the living conditions of factory-farmed animals.¹⁶⁵

A Humane Farming Act is severely overdue in both countries, but even if passed, enforcement would remain an issue if the current methods are not overhauled. Legislators in Brazil and the United States could include more effectual enforcement methods within a Humane Farming Act, or could include this in a separate enforcement statute that applies to all existing environmental and animal laws. An important consideration in drafting enforcement legislation is the enforcer. If those tasked with enforcing the laws have reason to side with industry or overlook problems, enforcement will be weak and ineffectual.

162. See MATTHEW SCULLY, *DOMINION: THE POWER OF MAN, THE SUFFERING OF ANIMALS, AND THE CALL TO MERCY* 389, 391-93 (2003).

163. See *id.*

164. See *id.*

165. Amy Mosel, *What About Wilbur? Proposing a Federal Statute to Provide Minimum Humane Living Conditions for Farm Animals Raised for Food Production*, 27 U. DAYTON L. REV. 133, 140 (2001).

Further, if enforcement mechanisms lack funding, violations will go unnoticed. While there are greater hurdles to enforcement in Brazil due to the vast uncharted lands, a Humane Farming Act and improved enforcement would benefit both countries.

On top of governmental legislation and enforcement, citizen enforcement efforts must be permitted and increased. Current environmental and animal welfare laws should be expanded to ensure citizen participation in enforcement. One way to accomplish this could be through citizen suits or other lawsuits, such as public prosecutions in Brazil or mandamus actions, which aim to force the government to provide requisite protections for its citizens. The Ministério Público, which translates to “Public Ministry,” houses the public prosecutors in Brazil.¹⁶⁶ Though the public prosecutors operate under the federal government, they are virtually an independent agency tasked with enforcing compliance with the Constitution and other laws, often forcing the government itself to enforce its laws.¹⁶⁷ Though this sounds somewhat like the role of attorneys general in the United States,¹⁶⁸ it is more similar to the role individuals and non-governmental organizations (“NGOs”) play in bringing citizen suits, although it is much more powerful. Brazil’s current environmental laws are in large part the result of actions brought by the public prosecutors¹⁶⁹ and, given the power of the public prosecutors in enforcing compliance, they may be the key to improving the animal welfare and environmental plight resulting from animal agriculture in Brazil. A similar mechanism in the United States could prove powerful in combating environmental and animal welfare issues associated with industrial animal agriculture.

Ideally, international laws or treaties regulating the treatment and living conditions of animals, including farm animals produced for food, would be an effective way to decrease animal suffering inflicted at factory farms. For example, a treaty

166. See Colin Crawford, *Defending Public Prosecutors and Defining Brazil’s Environmental “Public Interest”: A Review of Lesley McAllister’s Making Law Matter: Environmental Protection and Legal Institutions in Brazil*, 40 GEO. WASH. INT’L L. REV. 619, 619-20 (2009.), available at <http://docs.law.gwu.edu/stdg/gwilr/PDFs/40-3/40-3-2-Crawford.pdf>.

167. See *id.*

168. See *id.*

169. See *id.*

or agreement, modeled after the Universal Declaration of Human Rights,¹⁷⁰ dealing with animal rights issues could be effective in setting international standards. International treaties and laws are often extremely difficult to agree upon and, given the societal and economic impact of regulations concerning the operation of animal agriculture, it is unlikely such an effort would succeed at this time. However, starting a running dialogue between countries and political leaders about factory farming issues could prove beneficial in accomplishing this goal as more people reject the legitimacy of the industrial agriculture system.

The more global the approach, the more protection against a “race to the bottom”, where the states or countries with the most lenient standards provide animal products at less expensive cost to a greater number of consumers. This phenomenon is already prevalent in the animal agriculture industry to a great extent- as industrial agriculture operations have largely decimated small, local farming operations. The enforcement of existing antitrust laws and more equitable government subsidies could provide smaller, more animal welfare- and environmentally-conscious farms, a better chance at competing with factory farms in both Brazil and the United States.

As the public health implications of antibiotic use in industrial agriculture continue to gain recognition, laws that limit the prophylactic use of antibiotics will gain strength. While some countries have laws against such antibiotic use, the U.S. currently only has guidance for industry, which is not required or enforceable. Brazil lacks formal national regulations against the use of prophylactic antibiotics as well.¹⁷¹ If prophylactic antibiotic use were to become illegal, the entire industrial agriculture system would need to change and farmers would need to provide larger, cleaner, and more natural living conditions for animals because the animals would not survive in the squalor in which they currently live. Given the fact that antimicrobial resistance is a human health issue, it has great potential in

¹⁷⁰ See generally Universal Declaration of Human Rights, G.A. Res. 217 (III) A, U.N. Doc. A/RES/217, at 810 (Dec. 10, 1948), available at <http://www.un.org/en/documents/udhr/index.shtml>.

¹⁷¹ Dina Fine Maron et al., *Restrictions on Antimicrobial Use in Food Animal Production: An International Regulatory and Economic Survey*, GLOBALIZATION AND HEALTH (Oct. 16, 2013), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3853314/>.

spurring change in the system, leading to the phasing out of intensive confinement.

Overall, both the United States and Brazil have room and options for improving the animal welfare and environmental implications of animal agriculture. As global population and meat demand continues to rise, the effective regulation of industrial animal agriculture is becoming increasingly crucial. Both the United States and Brazil could greatly improve upon their laws as they exist on paper and in reality by eliminating regulatory breaks for the industry, educating the public on the issues associated with animal agriculture, and improving funding and enforcement capabilities.

V. CONCLUSION

Current laws in Brazil and the United States largely fail to protect animals and the environment from the impacts of large scale industrial farming operations. The regulatory regimes of both countries exempt farm animals from many of their laws. Likewise, environmental regulations often exempt meat producers, and even when they do not, corruption, lack of funding, and inability or unwillingness to enforce prohibits proper regulation. While circumstance yields different implications of industrial agriculture in the United States and Brazil, the production methods and driving forces behind animal agriculture in both countries are similar in many ways - growing more similar as Brazil shifts further towards industrialized, confined animal agriculture. Until environmental and animal welfare issues become a priority over economic gain in Brazil and the United States, better laws will not guarantee better conditions for farmed animals, less pollutants, or the development of techniques that are less cruel and impactful on the environment. Given the incredible environmental and animal welfare implications of large-scale industrial animal agriculture, finding a solution must become a global priority.