Hot, Crowded, and Legal: A Look at Industrial Agriculture in the United States and Brazil

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SYMPOSIUM ARTICLES

HOT, CROWDED, AND LEGAL: A LOOK AT INDUSTRIAL AGRICULTURE IN THE UNITED STATES AND BRAZIL

By

David N. Cassuto & Sarah Saville*

Over the last sixty years, industrial agriculture has expanded in the United States and throughout the world, including in Brazil. Any benefit this expansion has brought comes at significant environmental and social costs. Industrial agriculture is a leading contributor to global climate change, air and water pollution, deforestation, and dangers in the workplace. This Article discusses the impact of industrial animal agriculture in the U.S. and Brazil. It also examines the laws pertaining to industrial agriculture in both countries and provides a comparative analysis of the two legal regimes. Finally, this Article concludes with the observation that although the price to the U.S. and Brazil of remediying these impacts are high, the costs to humans, animals, and the environment by failing to do so is immeasurable.

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I. INTRODUCTION

Industrial agriculture has been on the march in the United States and throughout the world for over sixty years.3 Although the industry boasts of the benefits of industrial agriculture,4 many of those alleged benefits come at significant cost. Industrial agriculture is a leading contributor to global climate change,3 air4 and water pollution,5 deforestation,6 and dangers in the workplace.7 Furthermore, the pollution it generates, as well as the dangers posed by consumption of industrially produced animal products, poses

7 Air Pollution, supra n. 4, at “Effects on Workers.”
significant health risks. Apart from dangers to the environment and humans, routine mistreatment and abuse of the animals raised for food (meat, dairy, and eggs) is perhaps the most infamous and viscerally disturbing aspect of the industry. Yet, increased public awareness and disapproval of industry practices have done little to stem the growth of industrial agriculture.

This Article examines the impacts of industrial animal agriculture in the U.S. and Brazil, surveys the regulatory environments in the two countries, and discusses how those regulatory regimes have enabled the spread of factory farming while taking little heed of its pernicious effects. It focuses on the U.S. and Brazil for several reasons. First, these two countries have the first and eighth largest economies in the world, respectively. Second, both countries have large agricultural sectors that play significant roles internationally. Third, both countries have begun addressing the issues raised by factory farming while having much work yet to do.

Part II of this Article provides an overview of industrial agriculture and its major impacts on the environment, animals, and people, including problems specific to the U.S. and Brazil. Part III examines the history and current state of industrial agriculture in the U.S. and the relevant laws pertaining to industrial agriculture. Part IV examines the history and current state of industrial agriculture in Brazil and the Brazilian laws, or lack thereof, that regulate it. Part V compares the legal regimes of the U.S. and Brazil. The Article concludes by noting that, in spite of the normalization of animal products as an everyday commodity, the U.S. and Brazil must still adapt their laws to address the costs of industrial agriculture to the environment, animals, and people.

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11 Here and throughout this Article, the authors use the terms factory farming and industrial agriculture interchangeably. Agribusiness also refers to the modern agricultural industry.


II. INDUSTRIAL AGRICULTURE

The U.S. is the architect of the factory farm model, however, the practice of industrial agriculture has expanded throughout the world. The overarching economic model driving industrial agriculture is that massive production weight is more important than a high attrition weight. This means that it is more profitable to frequently slaughter a large number of unhealthy animals than to slaughter fewer, healthier animals less often.

Global meat production is expected to rise from 233 million tons (as of the year 2000) to 300 million tons in 2020, and to double by 2050. By 2020, milk consumption will increase from 568 to 700 million tons, and egg consumption will increase by 30% over the same time period. Much of the growth has taken place in only a few countries, including Brazil. Even excluding China (one of the other economic success stories of recent decades) and Brazil, per capita meat consumption in developing countries rose from 11 to 15 kilograms from the mid-seventies to the mid-nineties. When China and Brazil are included, the number rises from 11 to 23 kilograms over the same period.

A. Impacts of Industrial Agriculture

In addition to its other deleterious effects, industrial agriculture is a major contributor to greenhouse gas emissions. This Section looks at the

15 See Matheny & Leahy, supra n. 1, at 327–28 (listing “several technologies”—the combination of which has been referred to as “factory farming”—that were introduced to animal farming after World War II); see also Christopher Leonard, Associated Press, Don Tyson Says Meat Company Seeks Global Growth, USA Today (Nov. 2, 2008) (available at http://www.usatoday.com/money/economy/2008-11-02-642704429_x.htm (accessed Apr. 7, 2012)) (explaining how Tyson foods “embodied a new mode of agriculture that emerged in Southern states after World War II” by absorbing all the local pieces of a small town economy and bringing them under one corporate roof).
16 See e.g. Leonard, supra n. 15 (discussing Tyson’s international growth: “Tyson bought two Brazilian poultry companies and acquired majority ownership in a third” and “announced three joint ventures in China”); see generally Jane Shepherd, The Self-Reliant Country: Sustainable Agricultural Policy for Australia?, in Global Food Insecurity: Rethinking Agricultural and Rural Development Paradigm and Policy 149, 151 (Mohamed Behnassi et al. eds., Springer 2011) (noting the impacts that “global expansion of large-scale industrial farming” has had on the world).
18 Id.
20 Speedy, supra n. 19, at 9.
21 Id.
22 Id.
23 Id.
often-overlooked role of industrial agriculture in global climate change.

1. Global Climate Change

Industrial agriculture is the single largest source of greenhouse gases, responsible for approximately one-third of all human-caused greenhouse gas production.\textsuperscript{24} Consuming just two pounds of beef is the equivalent of leaving a 100-watt light bulb turned on for twenty days continuously\textsuperscript{25} or driving about forty miles.\textsuperscript{26}

For example, methane can trap heat in the planet’s atmosphere twenty times more effectively than carbon dioxide\textsuperscript{27} and stays in the atmosphere for approximately nine to fifteen years.\textsuperscript{28} Ruminants (including cattle, sheep, and goats) are the largest animal emitters of methane, due to their unusual digestive system.\textsuperscript{29} A single adult cow emits 176 to 242 pounds of methane per year.\textsuperscript{30} Beef and dairy cattle accounted for 71% and 24% of methane emissions from livestock in 2009, respectively.\textsuperscript{31} Because of these methane emissions, as well as the significant amount of fossil fuel used in every aspect of factory farming,\textsuperscript{32} agriculture emits 18% of the world’s greenhouse gases.\textsuperscript{33} This is more than most industries, including transportation.\textsuperscript{34}

In addition to its direct impact on climate change, industrial agriculture creates a positive feedback loop that continuously amplifies its contributions. Increased global demand for meat spurs the conversion of forests to pastures and fields for growing feed crops for agricultural animals.\textsuperscript{35} The pastures and

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\textsuperscript{24} Keith Paustian et al., Agriculture’s Role in Greenhouse Gas Mitigation iii (Sept. 2006) (available at http://www.c2es.org/docUploads/Agriculture%27s%20Role%20in%20GHG%20Mitigation.pdf (accessed Apr. 7, 2012)).


\textsuperscript{28} Id.


\textsuperscript{31} Emissions and Sinks Inventory, supra n. 29, at 6-2.

\textsuperscript{32} See Sustainable Table, Eat Local, Buy Local, Be Local: What Is Local?, supra n. 19, at “Part IV” (discussing industrial food production’s heavy dependency on fossil fuels).

\textsuperscript{33} Livestock Impacts on the Environment, supra n. 5, at “Part IV” (describing livestock’s role in climate change).

\textsuperscript{34} Id.; Kevin A. Baumert et al., Navigating the Numbers: Greenhouse Gas Data and International Climate Policy 57 (World Resources Inst. 2005) (available at http://www.wri.org/publication/navigating-the-numbers (accessed Apr. 7, 2012)).

\textsuperscript{35} Cassuto, CAFO Hothouse, supra n. 19, at 1.
fields require fossil-fuel-based fertilizers and manure production, which exacerbates greenhouse gas emissions, and emissions accelerate climate change. Elevated temperatures negatively impact animal feed crops, facility climate control costs, and pesticide efficacy. These increased costs require more volume, which requires more demand, which then requires more conversion of forests to fields. Further, the land that goes to industrial agriculture could be used instead to sequester carbon in trees. Thus, utilization of land for carbon-intensive activities incurs opportunity costs as well.

2. Confinement of Animals

Industrial agriculture is infamous for its horrific abuses of animals. About 10% of all animals die while still on the farm. Cows in veal crates, pigs in gestation crates, and chickens in battery cages are so confined that they cannot turn around freely, if they can move at all. Many animals that are less confined are nevertheless so crowded together that they trample each other to death. Confinement also causes emotional stress arising from the animals being unable to engage in instinctive behaviors. That emotional stress leads to increased aggression, which can cause the animals to injure themselves and others. These stressful living conditions combine with the fact that animals are fed unnatural diets and sometimes treated with growth hormones. As a result, they grow disproportionately fast, leading to health problems and injuries, which in turn exacerbate the stresses of their living conditions.

3. Water Pollution

Water pollution is another threat posed by industrial agriculture.

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36 Id.
37 Id.
38 Id.
39 Id.
40 Id. at 9.
41 Stathopoulos, supra n. 17, at 412.
43 Stathopoulos, supra n. 17, at 411.
44 Id. at 412.
45 Id.
Virtually every facet of livestock production contributes to water pollution.\textsuperscript{48} For example, its runoff causes diseases in animals and people.\textsuperscript{49} Drinking water contaminated by animal agriculture has been linked to spontaneous abortions, blue-baby syndrome, and fatal bacterial outbreaks.\textsuperscript{50} Agricultural animals are fed unnaturally fatty diets, and sometimes growth hormones.\textsuperscript{55} Chickens and pigs often become so heavy that their legs cannot support their bodies to walk to food and water, and cattle are fattened with a diet of hormones, rich grains, and government-subsidized corn.\textsuperscript{58} Cows' natural digestive systems are specialized to feed on grass. The corn-based diet causes severe health problems, including chronic digestive pains, intestinal ulcers, and fatal liver abscesses.\textsuperscript{59}

B. Problems in the United States

The U.S. introduced industrial agriculture to the world. Industrial agriculture has become so prevalent in the U.S. that small family farms have become something of a rarity.\textsuperscript{54} This Section looks at the domestic impacts of the spread of factory farming.

1. Animal Illnesses Caused by Feed

Agricultural animals are fed unnaturally fatty diets, and sometimes growth hormones.\textsuperscript{55} Chickens and pigs often become so heavy that their legs cannot support their bodies to walk to food and water,\textsuperscript{56} and cattle are fattened with a diet of hormones, rich grains,\textsuperscript{57} and government-subsidized corn.\textsuperscript{58} Cows' natural digestive systems are specialized to feed on grass. The corn-based diet causes severe health problems, including chronic digestive pains, intestinal ulcers, and fatal liver abscesses.\textsuperscript{59}

2. Antibiotics

Industrial agriculture’s excessive use of antibiotics poses threats to
human and animal health. Approximately 80% of America’s 29 million pounds of antibiotic consumption is used to hasten livestock growth. Large amounts of antibiotics pass through the animals and end up in the ecosystem. This contributes to antibiotic resistance in bacteria, which makes it harder to treat human illnesses.

3. Human Health Risks

Industrial agriculture also creates a health risk for agricultural workers and people in surrounding communities. One study estimates that as many as 70% of people working on confined animal feed lots (CAFOs) suffer from bronchitis. Some of the gases produced in industrial animal agriculture can be fatal in high concentrations, and there have been at least eleven work-related deaths by asphyxiation in sewage lagoons. Emissions from hog farms have also resulted in flu-like symptoms, brain damage, and death in as many as nineteen persons. Because it is produced in such large volumes, animal waste is also expensive to transport, hard to store, and quite toxic; the result is an ongoing disposal problem.

C. Problems in Brazil

As a rapidly developing country and an emerging world power, Brazil has also had to contend with the swift spread of industrial agriculture. This Section discusses some of the challenges Brazil has faced as a result.

1. Deforestation

Cattle ranching has contributed significantly to deforestation in the Amazon. Deforestation directly contributes to climate change through the release of greenhouse gases during the act of clearing lands and burning trees, and indirectly through the elimination of carbon sinks.

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60 Nat. Resources Def. Council, supra n. 50.
61 Walker et al., supra n. 8 at 352.
62 Nat. Resources Def. Council, supra n. 50.
63 Air Pollution, supra n. 4.
66 Nat. Resources Def. Council, supra n. 50.
67 Walker et al., supra n. 8 at 352.
68 See e.g. id. (stating that waste in storage pits leaks into groundwater and streams, and can pollute the air and water).
In Brazil, the extent of deforestation in the Amazon has grown significantly since the 1970s, peaking in 1995 and again in 2004. Although the rate of deforestation has since slowed, Brazil still loses more rainforest per year than any other country in the world.

2. Loss of Biodiversity

A corollary concern to deforestation is biodiversity loss. One-fourth of the planet’s biodiversity lives in the Amazon basin, where new species are discovered almost every day. Sixty percent of the Amazon rainforest is located in Brazil. As animal agriculture in Brazil increases, native species of plants and animals lose their habitat or are killed to make room for livestock. The conversion of native habitat to pasture has also resulted in a loss of biodiversity in the Cerrado grasslands—the “most biologically diverse savannah in the world.”

Experts predict that if current rates of loss continue, the Cerrado grasslands will be gone by 2050.
3. Cultural Displacement

The spread of industrial agriculture also threatens indigenous cultures.\textsuperscript{82} For example, members of communities in the Cerrado grasslands are forced to move as their traditional homelands are converted to pasture.\textsuperscript{83} Amazonian indigenous cultures also face threats from industrial agriculture. A vast majority of land federally demarcated in Brazil for indigenous cultures is located in the Amazon.\textsuperscript{84} While this land is protected from deforestation, the correlating loss of biodiversity has long-lasting negative consequences on their religious, cultural, and everyday practices.\textsuperscript{85}

III. THE UNITED STATES AND INDUSTRIAL AGRICULTURE

The impact of industrial agriculture is perhaps most keenly visible in the U.S., where it has existed the longest. This Part examines the rise and spread of industrial agriculture, and the legal regime that enabled it.

A. History of Industrial Agriculture in the United States

As recently as a century ago, a farm consisted of many crops and lots of different animals.\textsuperscript{86} Industrial agriculture changed all that. With the advent of synthetic fertilizers, crops no longer required rotation or manure, and farmers began focusing on corn and soy.\textsuperscript{87} As part of the New Deal, corn became heavily subsidized.\textsuperscript{88} Those subsidies resulted in a trend of major producers focusing on growing or raising only one agricultural product instead of the traditional, polycultural family farm.\textsuperscript{89} By 2003, 82% of cattle and 50% of chickens were controlled by only four industrial producers.\textsuperscript{90}

B. Current State of Industrial Agriculture in the United States

The U.S. accounts for only 5% of the world’s population while consuming

\textsuperscript{82} Id.
\textsuperscript{83} Id. (noting that industrial agriculture continues to expand deeper into the Cerrado grasslands because it is easier to turn new lands into pastures than to reuse degraded land).
\textsuperscript{84} Judith Wise, \textit{Hunger and Thieves: Anticipating the Impact of WTO Subsidies Reform on Land and Survival in Brazil}, 31 Am. Indian L. Rev. 531, 540 (2006–2007) (noting that approximately 98.6% of land in the Amazon is demarcated for the indigenous population).
\textsuperscript{86} Cassuto, \textit{CAFO Hothouse, supra} n. 19, at 3.
\textsuperscript{87} Id.
\textsuperscript{88} Id.
\textsuperscript{89} Id. at 3–4.
\textsuperscript{90} Id. at 3.
15% of the world’s animals. Roughly 10 billion animals are slaughtered every year in the U.S., which translates to roughly 1 million animals per hour. Americans consume over 200 pounds of meat per year, per person. This amounts to a daily intake of over a half-pound, or 75 grams, of protein per person. This rate of protein consumption is one-and-a-half times the federal government’s recommended daily allowance (RDA). On average, Americans consume 67% of their protein from animal sources, while the world average is 34%.

High levels of meat consumption are associated with obesity, cardiovascular disease, stroke, diabetes, and some cancers. Costs associated with treating these disorders exceed $33 billion per year. Nevertheless, meat consumption remains on the rise. This is partly due to government subsidies, which lower the retail cost of animal products. Neal Barnard notes that “subsidies for the production of meat and cheese reduce the costs of serving up fast food and pizza, and commodity programs send these foods into schools and hospitals.” The government also heavily subsidizes corn growers who provide the feed that enables factory farming. Such subsidies lower production costs by 7 to 10%.

As discussed previously, the factory-farm model is based on the theory that the production rate, or the rate at which meat is produced, should exceed the attrition rate, or the rate at which healthy animals are slaughtered. To sustain this model, the U.S. relies on five key characteristics: minimal space...
per animal, cheap and fatty food, growth hormones, antibiotics, and waste lagoons.\footnote{109}{Id. at 413–20.}

Minimal space per animal, achieved through intensive confinement, is the essence of modern industrial agriculture.\footnote{110}{Id. at 410.} Cheap, fatty foods and growth hormones significantly increase the rate of animal growth, thus shortening the amount of time before animals reach optimal slaughter weight.\footnote{111}{Id. at 416–17.} Antibiotics are necessary to prevent diseases from spreading rapidly in such heavy confinement,\footnote{112}{Id. at 418–19.} and also because of the health ailments (suffered by the animals) associated with this dietary regime.\footnote{113}{Id. at 417.} Waste lagoons are necessary because they enable factory farms to stay mostly out of reach of the Clean Water Act (CWA).\footnote{114}{33 C.F.R. § 328.3 (1998) (“Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA…are not waters of the United States.”); see also James W. Hayman, Regulating Point-Source Dischargers 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, 95–96 (2005) (noting that groundwater discharges from CAFOs are not subject to EPA regulation).}

The massive profit margins posted by industrial producers do not account for these externalized environmental and social costs, or the subsidies.\footnote{115}{See supra pt. II (discussing environmental and social costs of industrial food production and how subsidies help the industry).} Water consumption alone exemplifies the cost/subsidy cycle. For instance, it takes 23 gallons of water to produce one pound of tomatoes, but 5,214 gallons to produce one pound of beef.\footnote{116}{Id. at 413.} Further, contaminants from agribusiness account for more water pollution than all other industrial and municipal water sources combined.\footnote{117}{PETA, Meat Production Wastes Natural Resources, http://www.peta.org/issues/animals-used-for-food/meat-wastes-natural-resources.aspx (accessed Apr. 7, 2012). Although some dispute these statistics, the fact remains that even with room for discrepancy, the numbers are hugely skewed.} In short, industrial agriculture consumes more water than anything else and pollutes what it does not use.\footnote{118}{Cassuto, CAFO Hothouse, supra n. 19, at 9.}

C. The Legal Regime in the United States

The legal regime in the U.S. does not adequately regulate industrial agriculture. The two agencies primarily responsible for its regulation are the Food and Drug Administration (FDA) and the Department of Agriculture (USDA).\footnote{119}{John Robbins, Our Food, Our Future: Facts and Figures from The Food Revolution, http://www.vegsource.com/articles/factoids.htm (accessed Apr. 7, 2012). Although some dispute these statistics, the fact remains that even with room for discrepancy, the numbers are hugely skewed.} The Environmental Protection Agency (EPA) also retains some authority under the CWA, which requires permits for CAFOs to discharge into waters of the U.S.\footnote{120}{40 C.F.R. § 122.23 (2011). There is also a push for the EPA to regulate industrial}
groundwater that they can pollute are not "waters of the United States" and thus fall outside the regulatory scope of the CWA.\textsuperscript{121}

The FDA has authority to regulate animal feed.\textsuperscript{122} For example, the Mad Cow Disease scare led the FDA to ban feeding ruminants mammalian tissue.\textsuperscript{123} However, all non-ruminants, including non-mammals, can still consume mammalian tissue, and ruminants can still consume non-mammals.\textsuperscript{124} So, although a cow cannot directly eat cow tissue, it may still eat parts of a chicken that has been fed cow tissue.

The Food, Drug, and Cosmetic Act also approves the use of growth hormones in cattle, even though it bans growth hormones for poultry and pigs.\textsuperscript{125} While it might seem significant that hormones are limited to cattle, the reason is that poultry and pigs can be profitably slaughtered in a matter of weeks or months without hormones, thus rendering hormones economically unnecessary.\textsuperscript{126} Cattle, however, would require several years to grow to slaughter weight without hormones.\textsuperscript{127}

The FDA and USDA can also regulate antibiotics, but they use that
authority only sparingly.\textsuperscript{128} The FDA sets thresholds for antibiotic levels in animals but measures only residue limits in animals at the time of slaughter.\textsuperscript{129} Therefore, to bring their animals into compliance, producers withhold antibiotics from the animals prior to slaughter.\textsuperscript{130} The agency is aware of and cooperates with this process, even recommending time limits for “withdrawing” the animals.\textsuperscript{131}

The USDA regulates industrial agriculture under the Humane Methods of Slaughter Act (HMSA) and Twenty-Eight Hour Law, and by setting practice guidelines and standards. The HMSA\textsuperscript{132} controls how mammals are slaughtered, declaring four express reasons for requiring humane slaughter:

[to] prevent[ ] needless suffering; result[] in safer and better working conditions for persons engaged in the slaughtering industry; bring[] about improvement of products and economies in slaughtering operations; and produce[] other benefits for producers, processors, and consumers which tend to expedite an orderly flow of livestock and livestock products . . . .\textsuperscript{133}

Three of the four principle rationales for the law aim to benefit people, not animals. In reality, the law offers precious little in the way of animal welfare, and what little it provides comes only at the end of the animals’ lives. Further, because the HMSA excludes birds and fish, the Act protects only 1\% of farmed animals.\textsuperscript{134}

The Twenty-Eight Hour Law controls how mammals are transported.\textsuperscript{135} Like HMSA, this law only covers mammals.\textsuperscript{136} Until recently, the USDA interpreted the Twenty-Eight Hour Law not to apply to trucks.\textsuperscript{137} However, in 2006, upon petition from several animal groups, the USDA changed its regulation to include trucks within the purview of the Twenty-Eight Hour Law.\textsuperscript{138} Despite this seeming victory, the Twenty-Eight Hour Law continues to accomplish very little. Poultry is still excluded,\textsuperscript{139} and the last known


\textsuperscript{130} Id.

\textsuperscript{131} Id.


\textsuperscript{133} Id. at § 1901.

\textsuperscript{134} Matheny & Leahy, supra n. 1, at 334–35.


\textsuperscript{136} Matheny & Leahy, supra n. 1, at 335.

\textsuperscript{137} Id.

\textsuperscript{138} Id.

\textsuperscript{139} Id.
enforcement action was in 1960. Further, the penalty is only between $100 and $500 per shipment (not per animal) and thus so minimal as to pose little or no deterrent.

The USDA also requires “good” commercial practices. However, those practices permit the industry to maintain the status quo. For instance, the Poultry Best Commercial Practices permit the trimming of beaks in breeder chickens and turkeys to keep animals from hurting one another in their confinements. Similarly, USDA standards for sewage lagoons are mostly structural and focused on preventing leakage rather than addressing the groundwater contamination and air pollution problems (among other issues) caused by the waste repositories.

Other environmental laws could potentially serve to regulate industrial agriculture but in practice have little effect. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (commonly known as Superfund), and the Emergency Planning and Community Right-to-Know Act (EPCRA) require industries to report the release of hazardous substances to federal authorities. CERCLA defines the term “hazardous substance” to include Clean Air Act hazardous air pollutants. However, the air pollution notification regulations under CERCLA and EPCRA exempt factory farms. Perhaps most significantly, these exemptions apply to releases originating from animal waste.

IV. BRAZIL AND INDUSTRIAL AGRICULTURE

The rise of industrial agriculture is a comparatively recent development in Brazil, but it has grown quickly in power and scope. This Part looks at the history of industrial agriculture in Brazil and the accompanying legal regime.

140 Id. at 335–36.
141 Id. at 336.
142 See e.g. Treatment of Live Poultry Before Slaughter, 70 Fed. Reg. 56624 (Sept. 28, 2005) (stating that “live poultry must be handled in a manner that is consistent with good commercial practices”).
146 Id. at §§ 11001, 11004.
147 Id. at § 9603(14)(E).
148 See 33 C.F.R. § 328.3 (excluding waste lagoons from waters covered by the CWA); 40 C.F.R. § 122.23 (regulating factory farms, but allowing for discharge of pollutants); 33 C.F.R. § 328.3 (excluding waste lagoons from waters covered by the Clean Water Act); 40 C.F.R. §§ 302, 355 (2011) (exempting all but very large factory farms from notification requirements).
A. History of Industrial Agriculture in Brazil

Industrial agriculture began to boom in Brazil in the late 1980s with the adoption of laissez-faire policies.\(^\text{150}\) Prior to the 1980s, the Brazilian government was heavily involved in agriculture.\(^\text{151}\) However, with changing policies and a period of increased urbanization and foreign investments, agribusiness began to dominate agricultural markets.\(^\text{152}\) Indeed, the growth of Brazil’s industrial agriculture is largely dependent on the country’s ability to export its products.\(^\text{153}\)

B. Current State of Industrial Agriculture in Brazil

Brazil has a population of 200 million people and is the world’s eighth largest economy and growing.\(^\text{154}\) It is also the world’s leading exporter of cattle and chicken.\(^\text{155}\) Brazil’s rise in status in the world of industrial agriculture is evidenced by shifts in the global market. Tyson Foods, an American company and one of the world’s largest processors and marketers of meats,\(^\text{156}\) plans to make Brazil its center for global exports.\(^\text{157}\) Part of the reason for that decision is Brazil’s already enormous agriculture sector: it has the largest cattle herd in the world with over 205 million head of cattle.\(^\text{158}\) Measured in U.S. dollars, Brazil is the fifth largest producer of pig meat, fourth in turkey meat, third in chicken meat, and the second largest producer of cattle meat.\(^\text{159}\) It exports over 650,000 live head of cattle and slaughters 43 million head for export every year.\(^\text{160}\)

Between 2007 and 2009, the Brazilian National Developmental Bank invested $2.65 billion dollars in the three largest beef suppliers in exchange for company shares.\(^\text{161}\) In June 2010, the Agriculture and Livestock Plan doubled the available credits for the industry.\(^\text{162}\) Amidst this exponential

\(^{150}\) Gibson, supra n. 13, at 851.


\(^{152}\) Id. at 85, 86, 89.

\(^{153}\) Id at 85.


\(^{155}\) Gibson, supra n. 13, at 855.


\(^{157}\) Leonard, supra n. 15.


\(^{161}\) MacDonald & Simon, supra n. 52, at 5.

\(^{162}\) Id.
growth, Brazilian agriculture has also shifted toward the confinement model.\textsuperscript{163}

From 1995 to 2010, Brazil’s cattle herd increased 27\%, national beef production increased 38\%, and the county’s exports jumped by 731\%.\textsuperscript{164} “But, as result of high technology combined with the integration of livestock-agriculture-forestry, [Brazil’s] pasture area decreased 2\%.”\textsuperscript{165} Though its environmental and animal welfare laws are comparatively progressive, Brazil’s regulatory regime has failed to curb the rise of industrial agriculture and the concomitant harms it brings.\textsuperscript{166}

\textbf{C. Brazil’s Legal Regime}

The legal constructs governing Brazil’s animal welfare date to 1934, when President Getulio Vargas established measures to prevent animal cruelty.\textsuperscript{167} Brazil’s animal welfare law states that it is actionably cruel to

- maintain animals in anti-hygienic places or where they cannot breathe properly, move or rest, or are deprived of light . . .
- abandon [an] animal that is ill, hurt, worn out or mutilated, and also not giv[e] to it everything that is possible, including veterinary assistance . . . [or]
- not giv[e] quick death, without long suffering, for an animal [for] which extermination is necessary for consumption or not . . .\textsuperscript{168}

Animal and environmental welfare were also established in Brazil’s Constitution of 1988. The Constitution provides a 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.”\textsuperscript{169} The state is further tasked with “protect[ing] 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 subject an animal to cruelty.”\textsuperscript{170} This provision forms the platform for the country’s environmental laws.

Possibly the most important federal animal protection law is the Environmental Crimes Act. Enacted in 1998, the Act is considered “one of the most modern and comprehensive legal texts focusing on environmental

\textsuperscript{163} Id. at 1.
\textsuperscript{164} Id.
\textsuperscript{165} Id.
\textsuperscript{166} Id.
\textsuperscript{168} Id.
\textsuperscript{169} Constituição Federal de 1988, artigo 225.
\textsuperscript{170} Id. at art. 225, ¶ VII.
crime."171 Amongst other prohibitions, it criminalizes abuse, mistreatment, injury, and mutilation of domestic animals.172 It is the only federal law that directly addresses cruelty to domestic animals.173

As in the U.S., Brazilian law largely does not address animal welfare or cruelty as an issue with respect to agriculture.174 Although Brazil, unlike the U.S., has laws specific to humane slaughter of poultry as well as mammals, the laws on transporting or exporting livestock exclude poultry, just as in the U.S.175 Furthermore, neither of these laws affect animal welfare pre-transport and slaughter.176

The Brazilian government has worked with the agriculture industry to codify commercial practices known as Good Agricultural Practices.177 The Good Agricultural Practices recommend animal welfare practices that apply throughout the lifetime of the animal.178 The agricultural industry, not the government, is at the forefront of designing and implementing these programs.179 Although they are voluntary,180 many Brazilian producers willingly participate.181 The standards meet or exceed the welfare standards of the European Union.182 Voluntary compliance with the more stringent

173 See Animal Leg. & Historical Ctr., Introduction to Brazilian Animal Law, http://www.animallaw.info/nonus/articles/ovbrazil.htm (accessed Apr. 7, 2012) (noting that “definitions of abuse and mistreatment against animals” can be found in two federal sources, the Environmental Crimes Act and another bill that has yet to be adopted).
174 See Wageningen UR Livestock Research, supra n. 14, at 7 (noting that besides animal density “Brazil does not have legislation on chicken welfare on the farm or transport”).
175 See Decreto 945.554, de 24.07.1987 (addressing standards for housing and slaughter of commercial animals): Portaria 85, de 18.11.1988 (concerning standards for general conditions of operation for small and averaged-sized slaughter houses); Instrução Normativa 3, de 17.01.2000 (addressing minimum requirements for humane slaughter); Portaria 711, de 01.11.1995 (addressing standardization of swine processing).
176 See Instrução Normativa 16, de 02.04.2008 (concerning exported animal products).
178 Id. at slide 23.
179 Id. at slides 19–21, 27 (discussing organizations’ involvement with the Brazilian government in implementing Good Agricultural Practices).
180 Id. at slide 8.
181 Id. at slide 27 (listing the Brazilian Poultry Association and the Brazilian Association of Swine Breeders as ministerial partners).
182 See Wageningen UR Livestock Research, supra n. 14, at 6, 7 (explaining the need for meat exporters to improve animal welfare standards to comply with EU import requirements, and noting animal density as an example where Brazil’s standards are higher than the EU’s).
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standards is at least partially due to the fact that the Brazilian market is heavily dependent on exports and needs these high standards to be competitive in the EU market.

In spite of the widespread compliance with EU standards, animal mistreatment is still common in Brazilian factory farms. For instance, battery cages and gestation crates are still used by the millions. With growing awareness of the gaps in Brazil’s regulatory regime, the Ministry of Agriculture created the Permanent Technical Committee on Animal Welfare in 2001 to explore and analyze animal welfare issues. The Committee’s expressed goal is to establish technical guidelines and standards for animal welfare.

V. NEITHER COUNTRY REGULATES INDUSTRIAL AGRICULTURE EFFECTIVELY

Industrial agriculture is ineffectively regulated in the U.S. and Brazil. In both countries, almost all federal welfare laws applied to animal agriculture focus on slaughter and transport, while ignoring the most egregious environmental impacts and abuse of animals. First, existing U.S. regulations are too specific and narrow to address the myriad of problems caused by factory farming. This is partly due to a permissive regulatory environment and partly to a lack of teeth in the enabling statutes.

Second, Brazil has a more encompassing regulatory regime. Fewer animals are exempted, and generally the protections are more stringent, even if only slightly, than in the U.S. But other environmental pressures in Brazil—such as deforestation caused by grazing—encourage confined agriculture. Regulations specific to issues posed by industrial factory farming are still being developed, and it remains to be seen where Brazil will go from here.

VI. CONCLUSION

The inhumane treatment of animals has come to be viewed as the inevitable byproduct of efficient agriculture. As a result, industrial agriculture has flourished and become interwoven with the global economy. Now, as the flaws in the industrial model become increasingly clear, so do the risks

183 Chaddad & Jank, supra n. 151, at 85.
184 Wageningen UR Live stock Research, supra n. 14, at 6.
187 Id.
188 See e.g. 40 C.F.R. §§ 302, 355 (listing penalties that include provisions that shield reporters of hazardous waste spillage from criminal prosecution).
Industrial agriculture has grown globally ascendant because its drawbacks have been deliberately obscured. This strategy has allowed the public to embrace ignorance and to assume that the proliferation of factory farms was both safe and desirable. But, as Aldo Leopold once observed, “too much safety seems to yield only danger in the long run.”

Society has grown to depend on and expect cheap, mass-produced meat, which in turn requires enormous amounts of soy and corn and then requires government subsidies, inhumane confinement agriculture, and antibiotics. The model is not efficient by any metric, and the environmental and ethical consequences are catastrophic. As factory farming continues its global spread, the U.S. and Brazil have separate yet linked responsibilities. The U.S., with consumption patterns that have set a dubious and unsustainable standard for the world, must come to terms with its legacy and the future that legacy has wrought. Brazil, for its part, faces the burden of emerging as a global power in a time of unprecedented global environmental and economic crisis. Both challenges are daunting and the costs dear. But the costs of failure—to humans, animals, and the environment—are incalculable.

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