

Factory Farming

and its Environmental Impact



“a system of large-scale industrialized and intensive agriculture that is focused on profit with animals kept indoors and restricted in mobility”

Webster's New Millennium

WHAT *IS* FACTORY FARMING?

Factory farms hold large numbers of animals, typically cows, pigs, turkeys, or chickens, often indoors, typically at high densities. The aim of the operation is to produce as much meat, eggs, or milk at the lowest possible cost. Food is supplied in place, and a wide variety of artificial methods are employed to maintain animal health and improve production, such as the use of antimicrobial agents, vitamin supplements, and growth hormones. Physical restraints are used to control movement or actions regarded as undesirable. Breeding programs are used to produce animals more suited to the confined conditions and able to provide a consistent food product.

-Wikipedia

A BRIEF HISTORY

- Agricultural and Industrial Revolutions led to intensive methods of agriculture in conjunction with similar developments in mass production for other industries
- 1920s: Discovery of the role of vitamins in animal growth and nutrition led to raising of chickens indoors – followed by the introduction of antibiotics and vaccines to do so safely; this was the beginning of factory farming
- 1947: UK adopts factory farming in search of higher agricultural outputs; provided government subsidies to farmers that adopted new factory farming technologies to raise poultry
- 1960s: American pigs and cows began to be raised on factory farms, which quickly spread to Western Europe
- 1990: Factory farming accounts for 30% of world meat production
- 2005: Factory framing accounts for 40% of world meat production

The Scope of Factory Farming

Factory farms account for a majority of livestock production in the world

- **U.S. National Pork Producers Council:** 80 million of 95 million pigs slaughtered annually in the United States are produced on factory farms
- **Hudson Institute:** World pig population in 1997 = 900 million pigs.
Estimate for 2050 = 2.5 billion pigs
This will increase the spread and necessity of factory farms
- **Worldwatch Institute** (an environmental research organization based in Washington D.C.) – Factory farms account for the following proportions of livestock production:
 - **Poultry (Hens, turkeys, geese, etc.) – 74 percent of world production**
 - **Beef – 43 percent of world production**
 - **Eggs – 68 percent of world production**

Benefits of Factory Farming

- Low cost meats for consumers
- Standardized/consistent output of products (decreased variation)
- Economic growth for rural and agricultural areas
- Increased regulation over food safety (small numbers of concentrated facilities make oversight easier)
- Large farms have the economic capacity to hire specialists to maintain animal health (small farms have difficulty doing so)

THE CONCERNS

- Disease: Concentration of animals makes the spread of harmful diseases amongst livestock easier, and viruses become more resistant to vaccines
- Loss of biodiversity: Mono-culture animals are chosen for their high yields, but the loss of bio-diversity makes them more susceptible to disease
- Ethics: Cruelty to farmed animals includes crowding, drugging, poorly performed surgery, debeaking, physical health problems such as osteoporosis, psychological problems, and much more

Focus of this presentation will be on pollution resulting from factory farming

FACTORY FARMING IN AN ENVIRONMENTAL CONTEXT

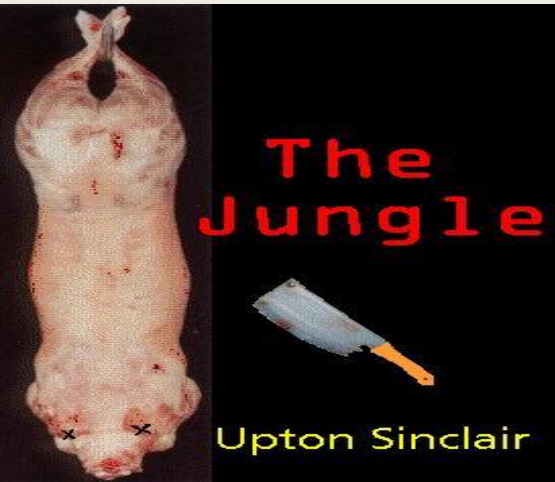
Tragedy of the Commons

-Aristotle: “What is common to the greatest number has the least care bestowed upon it.”

Because our food consumption is dependent on mass production, factory farms can be considered a common and a very unique common because of the industry’s ability to affect natural commons/resources (air, land, and water).

It is difficult to find a solution to such an interdependent system, but some cases have challenged the processes of factory farms with varying results.

POLITICAL HISTORY OF FACTORY FARMS IN U.S.



Published in 1906, Upton Sinclair's novel, *The Jungle*, was one of the first instances in which food-factories were exposed to the public. Sinclair's intent was to show how inhumane the factories were but the book was most effective in revealing the nature of food production and the unsanitary processes of the factories. Sinclair said, "I aimed at the public's heart, and by accident I hit it in the stomach." Public outrage from the novel made a call to the federal government to inspect the quality of meat being produced by factories.

This resulted in the Meat Inspection Act and the Pure Food and Drug Act of 1906- paving the way for the formation Food and Drug Administration.

Today, factory farms are criticized less for the quality of their product and more for the processes by which their product is obtained.

FDA, etc.

- Meat Inspection Act- The main objective of this act was to prevent adulterated or misbranded livestock and products from being sold as food, and to ensure that meat and meat products (as well as poultry) are slaughtered and processed under sanitary conditions.
- Pure Food and Drug Act- provided federal inspection of meat products and forbade the manufacture, sale, or transportation of adulterated food products and poisonous patent medicines.
- Today, the FDA regulates more than \$1 trillion worth of consumer goods, about 25% of consumer expenditures in the United States. This includes \$466 billion in food sales, \$275 billion in drugs, \$60 billion in cosmetics and \$18 billion in vitamin supplements.

How Factory Farms Work



WASTE

What to do with WASTE?

- In the past, the chicken farmers have always been responsible for disposal and have used it as fertilizer. Although the waste is an effective fertilizer, the chemicals used to raise the chickens are detrimental to our natural resources. For the farmers, disposing of the waste as fertilizer is the cheapest and most efficient way to dispose of the waste, so this is what they do- TRAGEDY OF THE COMMONS.

THE FACTS

- On a daily basis, the Arkansas poultry industry dumps 300 pounds of arsenic, and urine/feces equal to the daily waste of 8 million people, all absent treatment or regulation.
- In Arkansas, the poultry industry is the largest single buyer of every commodity in the state, from paper clips to eighteen wheelers.
- From 1971 to 1990, the total farm value of Arkansas poultry and egg production increased 493%.
- The waste generated from animal production is land-applied (fertilizer), so it has the potential for affecting both surface and groundwaters.
- The nitrate levels measured from northeastern Oklahoma to northwest Arkansas are very high and few, if any streams, consistently meet the primary contact recreation standard.
- **REGULATION NEEDED?**

Oklahoma v. Tyson Foods (2008)

- Oklahoma Attorney General, Drew Edmondson, brought forth a case against Tyson Foods claiming that the company was responsible for polluting the Illinois Watershed and other areas in northeastern Oklahoma.
- To no avail, Edmondson argued that Oklahoma only needed to prove that the waste “may” cause damage.
- The decision of the case was that Oklahoma and Edmondson had not proven “irreparable harm” to the rivers and this was needed in order to block poultry companies from dumping their waste.

Possible Solutions

- Pigouvian Taxes- In this case, government would tax corporations like Tyson so that they will be forced to internalize the cost of harm to public good. Oklahoma v. Tyson decided against this.
- Coasian Solution- might not be completely applicable because as of yet, most businesses in the area do not have a significant interest in protecting public good.
- Permits Policy- If farmers are permitted to use x amount of fertilizer, then they would have to internalize cost of total waste – x for whichever form of disposal is most environmentally friendly. Simply, farmers do not have the money to do this, so can you expect them to pay for this? Can you expect Tyson to pay for this?

FACTORY FARMING WITHIN EU MEMBER STATES

- Factory farming accounts for a large degree of meat production in Europe, but mostly deals with poultry and swine
- Cows are not raised on factory farms in Western Europe as they are in the United States. Instead of 'feedlots', they are allowed to graze on grass freely, however recent plans in the UK to incorporate dairy farms have sparked controversy (Ford)
- Western corporations have a heavy influence on farming in Europe:
 - Cargill Meats Europe has intensive poultry farming operations in France, the United Kingdom, and the Netherlands (Cargill)
 - Smithfield Farms now operates heavily in Romania and Poland, replacing a significant amount of eastern Europe's local swine producers (Carvajal and Castle)

SIMILAR POLLUTION PROBLEMS WITHIN THE EU

Primary Concern: Soil and Water Pollution

Soil pollution from swine and poultry/egg farming is noticeable throughout farmed lands in Europe as well. Animal waste often has high concentrations of nitrates, which can seep into the soil and contaminate the land and water.

- U.K. Industrial Farms produce over 80 million tons of waste annually
- Brittany, France: Industrial farms here produce 55% of French pork and 40% of chicken/eggs, yet it occupies merely 6% of agricultural lands. Nitrate levels are above legal maximums and plague the water and soil (Usher)

EU SOLUTIONS TO FARM POLLUTION

EU's "*Nitrates Directive*" Dec. 1991

Designed to protect European water and soil from nitrogen pollution by doing the following:

- Forcing member states to identify areas vulnerable to pollution, and capping nitrate concentration in groundwater and surface water to 50mg/L
- Member states must implement action programs to combat problems in vulnerable zones with responsible farming techniques, which are implemented by farmers on a voluntary basis
- Limiting the application of nitrogenous fertilizers to the soil
- Limiting the spread of livestock manure

SUCCESSSES AND LIMITATIONS OF EU SOLUTIONS

EU's "*Nitrates Directive*" Dec. 1991

Commission report of 19 March 2007 on implementation of the *Nitrates Directive* between 2000-2003:

The Commission notes an improvement in the quality of monitoring and the completeness of the reports submitted by Member States (before the 2004 enlargement). There is a trend towards improvement or stabilization of groundwater quality. However, increased levels of pollution were recorded in 36% of monitoring stations, and 17% of the sites assessed had nitrate concentrations **above** the 50 mg/l limit.

Surface-water quality also continued to improve or stabilize at most of the sites (86% of monitoring stations), which confirms the trend observed in the previous reporting period. Furthermore, progress was noted in designating vulnerable zones, but there are still gaps which need to be filled. The Commission also stresses the progress made in the quality of the action programs.

WHAT NEEDS TO BE DONE?

The EU's "Nitrates Directive has similar shortcomings as environmental protections in the United States:

- Lack of oversight: The number of inspectors is critically low. In 1999 there were 70 inspectors responsible for overseeing millions of animals. (Usher)
- Regulations are not stringent enough: Inspectors have to announce their arrival a month in advance, so environmentally degrading practices could be dealt with solely when inspectors were coming
- Weak enforcement: Participation in these programs is essentially voluntary, and failures to meet guidelines or limits results in no sanctioning

References *(in order of appearance)*:

- 1) Scully, Matthew. Dominion, St. Martin's Griffin, p. 29.
- 2) Avery, Dennis. "Big Hog Farms Help the Environment," Des Moines Register, December 7, 1997, cited in Scully, Matthew. Dominion, St. Martin's Griffin, p. 30.
- 3) "State of the World 2006," Worldwatch Institute, p. 26
- 4) http://en.wikipedia.org/wiki/The_Jungle
- 5) Hollerman, John T. "In Arkansas, Which Comes First, the Chicken or the Environment?" Tulane Environmental Law Journal, Tulane Law School, 1992.
- 6) Mega-dairies: Farming solution or big problem? By Matt Ford (CNN.com) March 16, 2010
- 7) Cargill Meats Europe
- 8) A U.S. Hog Giant Transforms Eastern Europe by Doreen Carvajal and Stephen Castle (NYTimes.com) May 5, 2009
- 9) europa.eu (Official website of the European Union)