

# FARMS AS FACTORIES



Issues in Animal Welfare, Environmental  
Protection, and Public Health



**THE HUMANE SOCIETY**  
OF THE UNITED STATES

## Issues in Animal Welfare, Environmental Protection, and Public Health

## Table of Contents

|   |    |
|---|----|
| The HSUS Position .....                                   | 2  |
| Farm Animals in the U.S.: The Big Picture.....            | 5  |
| How Does Factory Farming Affect Animals? .....            | 9  |
| Chickens .....  | 10 |
| Pigs .....  | 22 |
| Cattle .....  | 29 |
| Transportation & Slaughter .....                          | 36 |
| Are There Laws to Protect Farm Animals? .....             | 43 |
| How Does Factory Farming Affect the Environment?<br>..... | 46 |
| Become a Humane Consumer .....                            | 52 |
| Definitions .....   | 57 |
| References .....  | 59 |

Editorial Directors .....Heidi O'Brien  
Cathy Vincenti  
Editor/Designer ..... Jennifer McGuinness  
Reviewers .....Gowri Koneswaran  
Paul Shapiro  
Sarah Uhlemann  
Dorothy Weller

© 2008 Humane Society Youth. All rights reserved. | [humanesociety.org/youth](http://humanesociety.org/youth)  
A division of The Humane Society of the United States



**A**re you interested in learning about how animals are raised in today's farms? Do you want to know more about the impacts of animal agribusiness on the well-being of animals, people, and the environment? Are you wondering how you can help improve animal welfare and the environment?



Agricultural Research Service

Educating yourself about animal protection issues is one of the most important steps you can take to help animals. **Farms as Factories** will help you better understand the effects of industrialized animal agribusiness on animals, human health, and the environment, while also providing background on the few laws governing animal agribusiness and the many ways that you can make a difference.

As you read this booklet, we encourage you to review the questions and activities that appear throughout. They'll help you think through the issues and suggest ways for you to become meaningfully involved. **Think About It** urges you to clarify your own views and exercise your critical-thinking skills, while **Questions and Issues for Discussion** offers topics for classroom discussion or debate. **Explore the Issues** guides you in researching such topics as your state's animal agribusiness laws and public health concerns related to the production of meat, eggs and dairy. **Take Action** provides ideas for citizenship projects, public awareness campaigns, ways to support better farming practices, and other activities you can do on your own or with friends or classmates.

**COVER:** Female pigs used for breeding (called 'breeding sows' by the industry) are confined most of their lives in gestation crates which are so small that they cannot even turn around. The pigs' basic needs are denied, and they experience severe physical and psychological disorders. Photo credit: Farm Sanctuary.

# The HSUS Position

The largest animal protection organization in the United States, backed by 1 in 30 Americans, The Humane Society of the United States publishes detailed policy statements to guide its educational, legislative, and investigative efforts. The statement below describes The HSUS' stance on farm animal issues. We'll discuss the issues addressed in the statement in greater detail throughout this guide.

## Statement on Farm Animals and Eating with Conscience

The HSUS is deeply concerned about the ways in which farm animals are treated in modern agricultural systems. The total sum of suffering of these animals greatly exceeds that of any other category of domestic animals. The vast majority of meat, eggs, and dairy products sold in American grocery chains and restaurants come from animals raised in **intensive-confinement systems** (so-called "factory farms") that do not provide for many of the animals' most basic behavioral needs and that impose significant stress on the animals in pursuit of efficiency. The result is that living creatures are being treated as biological "machines."

The HSUS is also concerned about commercial fishing and fish production practices. The proliferation of



HSUS

## Think About It



Carefully read The HSUS policy statement. With which parts do you agree the most? Why? With which parts do you disagree? Why?

## Take Action



Looking for a social studies or science project? Conduct a survey of family members, classmates, and friends to determine their views on farm animal issues. Before-hand, formulate a few hypotheses about what you expect. For example, do you think age, gender or occupation will play a role in people's attitudes about animals? If so, how?

Possible questions to ask in your survey include: How often do you eat meat, eggs, or dairy products? Do you think about where those products come from? When you think of a farm, what comes to mind? Do you believe farm animals are treated humanely? Should farm animals be given enough room to engage in their natural behaviors? Do you believe that companion animals, such as cats and dogs, are different from farm animals in terms of intelligence or ability to experience pain and pleasure? If so, how? Do you think wild animals or companion animals should be raised for meat?

See if you can come up with other questions to ask. After you've completed the survey, analyze your data. Can you accept or reject your hypotheses? Ask your teacher if you may present your findings to your class.



massive fish farms raises basic questions about their welfare. And commercial fishing practices continue to deplete many fish populations in dramatic ways and result in the by-catch of extraordinary numbers of non-target animals, including marine mammals, birds, and other fish.

Accordingly, The HSUS pursues the reduction of animal suffering in the raising, housing, care, transportation, and slaughter of animals raised or caught for food. Furthermore, we seek to ensure that animal production systems are humane, sustainable, and environmentally sensitive.

The HSUS supports those farmers and ranchers who give proper care to their animals, act in accordance with the basic ethic of compassion to sentient creatures under their control, and practice and promote humane and environmentally sustainable agriculture.

Furthermore, the use of plant crops to support the rearing of food animals and the use of fish meal in the intensive “farming” of carnivorous fish, and the subsequent inefficient conversion of plant protein to animal protein, are wasteful uses of limited resources. Research has also indicated that eating excessive quantities of meat, eggs, and dairy can be detrimental to human health.

### Questions and Issues for Discussion



Some animal protection issues, such as endangered wildlife and responsible care of companion animals, receive significant attention in the media and school curriculums. The subject of farm animals seems to get less publicity. Why do you suppose that's so?



Considering the foregoing abuses of animals, degradation of the environment, and detriment to human health, The HSUS promotes eating with conscience and embracing the **Three Rs**—**reducing** the consumption of meat and other animal-based foods; **refining** the diet by eating products only from animals who have been raised, transported, and slaughtered in a system of humane, sustainable agriculture that does not abuse the animals; and **replacing** meat and other animal-based foods in the diet with plant-based foods.

## Religious Slaughter

While religious practices and beliefs should be respected, this must not lead to disregard for the welfare of animals in our care. It has sometimes been the practice to shackle and hoist conscious animals for ritual slaughter. This procedure causes immense animal suffering, but it forms no part of the requirements of any religious faith. Rather, it is a high-speed packinghouse technique invented by packers to comply with the U.S. Department of Agriculture's sanitary requirements and to expedite production. The HSUS opposes preparation of animals for slaughter by means of this procedure. It is our position that animals can be prepared for slaughter consistent with ritual requirements by better alternatives such as the use of restraining pens. Ritual sacrifice of animals performed outside of regulated slaughterhouses is invariably cruel, and should be prosecuted as such.

## Explore the Issues



Write or call various animal protection organizations for their policy statements regarding farm animals. You can find the addresses and phone numbers of many organizations online at **animalconcerns.org**.

How are other animal protection organizations' policies similar to the policies of The HSUS'? How do they differ? Do you think publishing such statements is necessary for animal protection organizations? Why or why not? Which statement most closely represents your own views?

Write your own personal policy statement about the use of animals for food before you read the rest of this booklet. After you've read the booklet, review your statement. Have your views changed? If so, update your statement to reflect those changes.



## Farm Animals in the U.S.: The Big Picture

What comes to mind when you think of a farm? For many of us, the word “farm” conjures up images of Old MacDonald’s farm and animals in peaceful, rural settings. Since most people are far removed from the realities of modern farm life, such images may lead us to believe that most farm animals are humanely raised on “storybook” farms.



Hallway family farm in New York.

USDA

### Farms as Factories

In fact, the vast majority of today’s farm animals are raised in massive production facilities, known as factory farms. To increase profits, factory farm operators (also called “producers”) rely on technology and automation in the raising, transportation, and slaughter of farm animals. In this fast-paced business environment, farm animals are viewed as units of production.



Modern factory farm

HSUS



## Think About It



The way farm animals are raised has economic consequences for producers and consumers alike. Food prices are usually cheaper in the U.S. than abroad. For example, in 2005, the average cost of chicken per pound in the U.S. was \$1.67.<sup>1</sup> Research what the cost of chicken per pound is today in the U.S. and in other countries and compare.

Then, take this statement into consideration: U.S. consumers often demand cheap animal products (which generally contributes to poor welfare). Do you agree or disagree with this statement? To what extent should money enter into decisions about the way farm animals are raised? Would you and your family be willing to pay 10 percent to 20 percent more for products that come from animals raised in better conditions?

Keep in mind that the lower prices for factory-farmed animal products do not include the costs and social impacts associated with environmental pollution, threats to public health for workers and rural communities, and a reduction in the number of independent family farmers who can afford to stay in business.

It is important to note that selected items may not be commonly eaten in some countries and may contribute to higher prices in those countries. For example, milk, cheese, and beef are not eaten as much in Japan as they are in the U.S. Since those items are not produced in mass quantities there, they are likely to be very expensive compared to items with similar nutritional content (such as tofu) that are staples in Japan. How would you develop a fairer system for comparing the costs of food in countries that have different diets and cultures?



One of the major ways factory farm operators save money is through **intensive confinement**, a system in which large numbers of animals are housed in the smallest possible space. Crowding animals requires less land and fewer buildings. And since animals on factory farms are often mechanically fed, watered, and medicated, factory farms generally have low labor costs. The economic benefits of factory farming—and the federal subsidies for the crops fed to farm animals—are passed down to consumers in at least one way: Americans pay some of the lowest prices in the industrialized world for animal products.

## The Price of Big Business


In 1920, the U.S. was home to 6.5 million farms; in 1950, there were 5.6 million farms averaging 213 acres each.<sup>2</sup> In 2005, there were 2.1 million farms,<sup>3</sup> averaging 437 acres per farm,<sup>4</sup> according to the U.S. Department of Agriculture



(USDA). Although some small family farms still exist, their contribution to the marketplace continues to dwindle as large corporations dominate animal agribusiness. As the world population climbs and the global market for animal products continues to expand, so will the number of factory farms.

How Many Animals?

More than 10 billion animals per year are killed for meat, egg, and milk<sup>5,6</sup> production in the U.S. This far exceeds the numbers of animals used by humans for any other purpose. The numbers of animals killed for other reasons—by trappers and hunters; in classrooms, research laboratories, and animal shelters; on fur farms; and those animals raised as companions or used for entertainment by circuses and zoos—collectively only make up 2 percent of the animals in some relationship with humans.<sup>7</sup>



**Farm Animal Statistics:  
Slaughter Totals, 2006\***

|                  |                                |
|------------------|--------------------------------|
| chickens:        | 8,968,916,000                  |
| turkeys:         | 255,323,000                    |
| pigs:            | 104,845,000                    |
| cattle:          | 33,850,000                     |
| ducks:           | 28,081,000                     |
| sheep and lambs: | 2,768,000                      |
| <hr/>            |                                |
| Total:           | <b>9.4 billion<br/>animals</b> |

Source: USDA, National Agricultural Statistics Service<sup>8</sup>

\* Note: These data do not include statistics on the slaughter of fish, crustaceans, rabbits and other farmed animals for whom the USDA does not provide information.

Keep in mind that the statistics are not meant to shock you. Rather, they're intended to give you an idea of the magnitude of animal agribusiness in our country. And although these statistics draw attention to large numbers and portray animals as commodities, it's important to remember that the numbers represent individual animals—each with his or her own feelings, traits, and experiences.

Of course, animals are not raised only for meat. In 2006, approximately 9.1 million cows were raised for milk production<sup>9</sup> and nearly 300 million hens were raised for egg production.<sup>10</sup> Sheep are raised for wool and eventually killed for their meat, while ducks and geese are raised for meat, down, and foie gras, "fatty livers" produced through force-feeding these birds. (Find out more about foie gras on page 20.) Food production also involves the captive rearing and breeding of wild animals such as emus, ostriches, alligators, and deer.

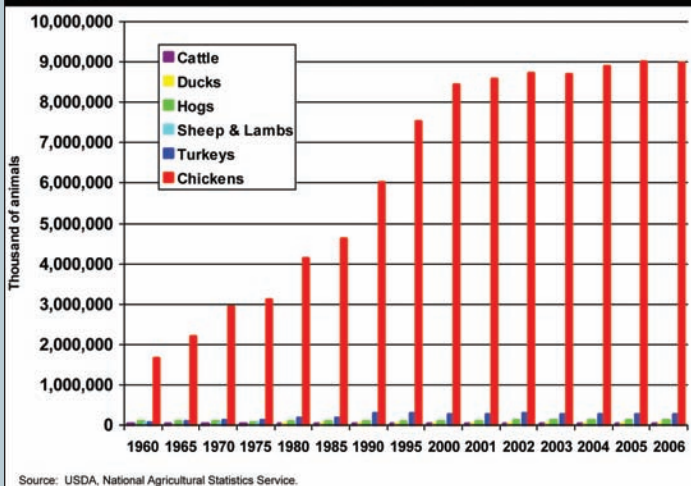
## Think About It



Why do you think it might be important for animal protection organizations to include up-to-date statistics on animals killed for food from reliable sources in their public education materials?

Take a close look at the chart at right. What three animal species make up the largest percentage of animals slaughtered? What factors do you think account for the vast differences in the numbers?

**US Slaughter Totals, by Species**  
1960 – 2006



## Questions and Issues for Discussion



How much do numbers matter? The number of individuals harmed by a human action can be an important factor when judging whether that action is right or wrong. For example, if there were a practice that affected fewer animals than intensive animal agribusiness does, but caused suffering that was more intense or of a longer duration, which issue would be more pressing?

Should wild animals—such as emus, ostriches, alligators, and deer—be raised for meat? Should companion animals like dogs and cats be used for food? Why or why not? Do you think there are any ethical differences between farming domestic and wild animals? Explain.

## Explore the Issues



The statistics cited in “Farm Animal Statistics: Slaughter Totals, 2006” come from the USDA, the government agency responsible for regulating and promoting American agriculture, including animal **agribusiness**. Familiarize yourself with the USDA’s library of statistics, available at **nass.usda.gov**. Compare 2006’s statistics with figures from previous years. Has the number of animals killed or raised for food increased or decreased? If so, by how much? Can you come up with any theories to explain the difference?

## Take Action



Form an animal protection club at your school to educate your classmates and act on behalf of farmed and other animals. Check out Mission: Humane at **humanesociety.org/teens** to learn more.

# How Does Factory Farming Affect Animals?

In order to fully understand the impact of factory farming, it's necessary to take a close look at how specific animals are treated. We will look at three of the species that make up the bulk of U.S. animal agriculture: chickens, pigs, and cows.



Jupiterimages Corporation

Red junglefowl.

## Understanding Chickens

Like their ancestors, the Red Junglefowl, domestic chickens are highly sociable animals who live in organized family groups. They can recognize up to 100 individual flock members, and they communicate both visually and by calling to one another. Researchers have identified at least 12 different chick calls and 22 different adult calls. Chickens use their beaks to explore their surroundings. The beaks are their primary means of touching and feeling, and used to pick up objects.

At the head of the flock is a rooster, who protects the hens from possible enemies. A rooster crows to establish his territory and warn other roosters to stay away. He can recognize the crow of at least 30 other roosters. When a hen is ready to lay her eggs, the rooster helps her find a suitable nesting site. Together, they build a nest of grass, hay, sticks, and loose dirt.

Once her eggs are laid, a mother hen carefully rotates them up to 30 times a day to ensure even temperature and proper ventilation. Hens are protective mothers who develop close bonds with their young. They bravely defend their chicks against much larger predators and teach them how to drink and scratch in the dirt for insects and worms. Chickens also enjoy sunning themselves, taking frequent **dust baths** to clean and fluff their feathers. When sleeping, they perch off the ground in trees to keep away from predators.

Chickens are raised for two different purposes on factory farms: as "broilers" for meat or "layers" for their eggs.



istockphoto.com/Andsem



HSUS

## Broiler Chickens

The U.S. is the world's largest poultry producer and second-largest exporter of poultry meat. U.S. poultry meat production totals over 40 billion pounds annually; four-fifths is broiler meat, most of the remainder is turkey meat, and a small fraction is other chicken meat, according to the USDA.<sup>11</sup>

Of the 10 billion land animals killed annually in the U.S., 95 percent are birds. The overwhelming majority are "broiler" chickens, raised for meat. Approximately one million are killed every hour.<sup>12</sup>

Almost all broiler chickens in the U.S. are raised by **contract growers**—individual farmers who provide the land, buildings, equipment, utilities, and labor needed to raise the birds. Large corporations supply the chickens, feed, medication, and transportation. According to the United Food and Commercial Workers (UFCW), more than 71 percent of contract poultry growers' earnings are below poverty level wages.<sup>13</sup>



USDA

### Top Five Broiler States, 2005

|                     |               |
|---------------------|---------------|
| 1. Georgia —        | 1,403,434,000 |
| 2. Arkansas —       | 1,271,691,000 |
| 3. Alabama —        | 1,109,148,000 |
| 4. Mississippi —    | 878,268,000   |
| 5. North Carolina — | 775,031,000   |
| <hr/>               |               |
| U.S. —              | 9,062,173,000 |

Source: USDA, National Agricultural Statistics Service.<sup>14</sup>





USDA

Baskets of day-old chicks are delivered to a broiler house. The chicks will be tended to until they are large enough to be processed into whole broilers and broiler parts.

According to the USDA, 9 billion chickens are raised for human consumption each year in the U.S.<sup>15</sup> Chickens are among the most intensively confined of all farm animals.

In industrial broiler chicken systems, 20,000 to 30,000 chickens live on a floor topped with coarse wood shavings or other litter material in an otherwise barren shed.<sup>16</sup> This stocking density gives each bird approximately 130



Compassion Over Killing

This broiler chick suffers from leg deformities.

square inches of space.<sup>17</sup> Such densities make it difficult for most birds to carry out normal behaviors. For example, a chicken requires 138 square inches just to stretch her wings, 178 square inches to **preen**, 197 square to turn around, and 291 square inches to flap her wings.<sup>18</sup>

Today's broiler chickens have been genetically altered to produce bigger, leaner birds. Due to **selective breeding** for fast growth, these birds often suffer both acute and chronic pain, as well as disabilities and illnesses caused by their unnaturally rapid bone growth.

## Can Factory Farms Help Create Bird Flu?

Practices typical of factory farms have been shown to help the emergence and spread of diseases. One of great concern is the avian influenza virus H5N1, also known as Bird Flu. Why the fears? Back in 1918, a flu **pandemic** killed 50 million people. It is believed that the 1918 flu virus was likely a bird flu virus. That virus made more than a quarter of all Americans ill and killed more people in 25 weeks than AIDS has killed in 25 years.<sup>33</sup>

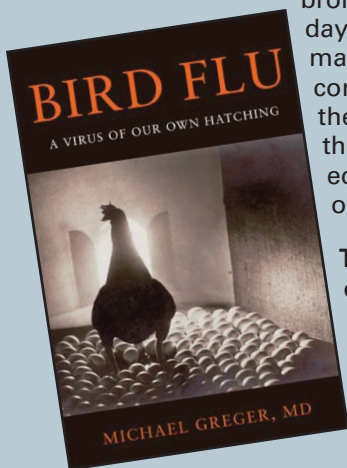
Today, scientists fear that H5N1 could cause another **pandemic**. When H5N1 broke out in China in 1997, outbreaks were tied to areas with the greatest numbers of chickens per square mile.<sup>34</sup> The virus spread from birds to humans when people handled dead chickens or raw poultry meat infected with the virus.<sup>35</sup> In addition, in Southeast Asia, it was found that people who participated in cockfighting—where blood from a contaminated bird can spread to other chickens and people—died from H5N1.<sup>36</sup> According to Michael Greger, MD, “H5N1 took its first human life in Hong Kong in 1997 and has since rampaged west to Russia, the Middle East, Africa, and Europe. It remains almost exclusively a disease of birds, but as the virus has spread, it has continued to mutate.”



Farm Sanctuary

H5N1 has become such a threat among chickens “only because of the conditions under which the animals are kept—cramped together in cages, packed into giant warehouses.”<sup>37</sup> Because the birds are stressed, it is harder for the birds to fight off disease.<sup>38</sup> Europe’s Scientific Veterinary Committee reported that one reason Europe is phasing out **battery cages** for egg-laying hens (by 2012) is that evidence suggests caged chickens may have higher rates of infections “as the stresses from being caged compromise immune function.”<sup>39</sup>

Dirty conditions on chicken farms can also help the spread of diseases. A 20,000-bird broiler chicken flock produces more than a ton of droppings every day.<sup>40</sup> According to the USDA, a single gram of manure (approximately the weight of a paper clip) from an infected chicken can contain “enough virus to infect 1 million birds.”<sup>41</sup> Worse yet— in the U.S., after a broiler chicken shed has been cleared of birds, the building may not be cleaned before a new flock is deposited—so chicks are placed directly on the manure from the previous flock.<sup>42</sup>



To learn more about H5N1, visit **BirdFluBook.com**, where you can read the book “Bird Flu: A Virus of Our Own Hatching” by Michael Greger, M.D.

These include leg disorders, crippling lameness, organ failure, and heart disease.

At six weeks, broiler chickens have difficulty supporting their abnormally heavy bodies. They spend 76 percent to 86 percent of their time lying down.<sup>19</sup> This leads to breast blisters, hock burns and foot pad dermatitis.<sup>20</sup> They are forced to stand in their own waste, since the sheds are not cleaned until several flocks have been reared. This leads to burning skin and infectious skin sores.<sup>21</sup> As a result, chickens are constantly inhaling harmful bacteria.<sup>22</sup>

Some birds (one to two percent<sup>26</sup>) will die if their severe leg deformities prevent them from reaching food or water.<sup>27</sup> One study estimated that 30 to 49 percent of broilers suffer from tibial dyschondroplasia,<sup>28</sup> a crippling leg disorder associated with rapid leg growth. Modern broiler strains experience 40 times the incidence than slower-growing broiler strains suffered in the 1950s, when housed in identical conditions.<sup>29</sup>

The birds can also suffer from respiratory disease, big liver and spleen disease, **acute death syndrome**, **ascites** and heart failure.<sup>30</sup> Heart failure has even been viewed by agribusiness as a sign of optimal production. As one chicken farmer wrote, "Aside from the stupendous rate of growth...the sign of a good meat flock is the number of birds dying from heart attacks."<sup>31</sup> Broilers selected for faster growth also suffer from a weakened immune system. This makes them more susceptible to disease.<sup>32</sup>

Chickens who are not lost to disease or injury are slaughtered when they are six to eight weeks old (about 45 days). The birds are caught by the legs and stuffed or thrown into crates. Catching teams load crates at a rate of 1,000 to 1,500 birds per hour. Many chickens are injured in this process — suffering from dislocated and broken hips, legs, and wings — or die from internal bleeding.<sup>43,44</sup> Once the crates are packed onto trucks, the chickens are transported to the slaughter plant. They are denied food, water and shelter from extreme temperatures.<sup>45</sup> Many chickens die during the trip due to extreme temperatures or heart failure due to the stress of being caught and transported.<sup>46,47</sup>

### Think About It



In the 1950s, it took **84** days to raise a five-pound chicken. Now it takes an average of only **45** days.<sup>23, 24</sup>



Let's put that in perspective. If you grew as fast as one of these chickens, you'd weigh **349 pounds** at age 2.<sup>25</sup>



# Laying Hens and the Egg Industry

The U.S. is the world's second-largest egg producer with nearly 350 million laying hens. U.S. egg operations produce close to 100 billion eggs annually, according to the USDA.<sup>50</sup> Over three-fourths of egg production is for human consumption. Much of the remainder is for the hatching market.<sup>51</sup> These eggs are hatched to provide replacement birds for the egg-laying flocks and to produce broiler chicks for



**growout operations.**<sup>52</sup> The USDA states that the U.S. per capita consumption of eggs and egg products is about 250-260 eggs per person.<sup>53</sup>

In 2005, 98 percent<sup>54</sup> of the country's approximately 300 million laying hens<sup>55</sup> were confined in **battery cages**, a practice that can result in 100,000 hens being confined in a single building. This setup is very cost effective for farm operators because it uses little land, few buildings, and minimal labor.

**Battery cages** are stacked in tiers and lined up in rows by the hundreds. According to industry voluntary guidelines, each hen may be allowed just four inches of "feeder space" within a cage. Depending on the operation, anywhere from three to ten laying hens may be confined in a single cage. The average space allowance is 67 square inches per bird, which is far less than the size of a single-sheet of letter-sized paper.<sup>57</sup> One study showed that hens need an average of 72 square inches just to

*'The worst torture to which a battery hen is exposed is the inability to retire somewhere for the laying act. For the person who knows something about animals, it is truly heart-rending to watch how a chicken tries again and again to crawl beneath her fellow cage mates to search there in vain for cover.'*

*—Dr. Konrad Lorenz, Nobel Prize winner, author, and noted father of modern ethology.<sup>64</sup>*

## Top Five States for Laying Hens, 2005\*

|                   |             |
|-------------------|-------------|
| 1. Iowa —         | 47,979,000  |
| 2. Ohio —         | 27,839,000  |
| 3. Pennsylvania — | 23,920,000  |
| 4. Indiana —      | 23,501,000  |
| 5. Georgia —      | 20,123,000  |
| U.S. —            | 345,618,000 |

Source: USDA, National Agriculture Statistics Service.<sup>56</sup>





Farm Sanctuary

A debeaked hen poking her head through the wire of a battery cage in an egg factory.

stand freely, 178 inches to **preen**, 197 square inches to turn around, and 291 square inches to flap their wings.<sup>58</sup> Hens in **battery cages** find it very difficult, if not impossible, to perform these behaviors. They also can't **perch, dust bathe**, or nest.

Since most hens today do not have adequate room for movement, they often scrape themselves on their cages' wire mesh, which can result in body sores

and feather loss. Battery hens never see sunlight since they are kept in environment-controlled houses. Vitamin D is necessary for the absorption of calcium, and its production is triggered by sunlight.<sup>59</sup> Chickens need calcium in order produce shells for their eggs. Although hens are fed supplementary Vitamin D, they may still suffer from bone weakness and breakage (one study found 89% did).<sup>60</sup>

Hens on factory farms are denied straw or other materials to make nests and are forced to lay their eggs among other birds on a cage floor. The inability of hens to nest in **battery cages** is the greatest source of frustration for these caring mothers.<sup>61</sup> Modern strains of hens lay an average of 260 eggs per year, many more than the 25 of their ancestors, Red Junglefowl.<sup>62</sup> The hens are also stressed by the use of artificial lighting to increase egg production.

*'When crowded together... the hens appear to be in a chronic state of social stress, perpetually trying to get away from their cagemates, not able to express dominance relations by means of spacing and not even able to resolve social conflict by means of aggression.'*

– Dr. Michael Baxter, formerly with the Agricultural Engineering Unit, Scottish Agricultural College.<sup>63</sup>

As with broiler chickens, **intensive confinement** of laying hens causes stress and frustration that result in abnormal behavior. Because chickens, like most animals, have a natural need for personal space, raising them in such large numbers and unnatural proximity often causes behavior problems. Chickens in crowded conditions may injure or even kill one another by aggressively pecking and clawing. In order to prevent feather-pecking and cannibalism, laying hens have parts of their beaks cut off as chicks. This is performed without anesthetics or pain relief. Because chickens' beaks have sensitive nerve endings, it has been shown that this results in acute pain.<sup>66,67</sup>

Natural molting is triggered by hormonal changes following a shortening of

day length. The birds reduce their food intake but do not stop eating. Their feathers are gradually replaced over most of their body surface.<sup>68</sup> Their bodies regenerate in preparation for another laying cycle.

To ensure a steady supply of eggs, egg producers commonly practice **forced molting**. Egg producers speed up this process by shocking laying hens into earlier molts of shorter duration. Such forced molts can be triggered by starving the birds<sup>69</sup> or greatly reducing the caloric content of their feed. In the United States, it is still legal to take away the food from the birds for many days. This type of forced molting has been banned in most European countries because it is considered cruel to the birds.<sup>70</sup> Starvation-induced forced molting causes mortality rates in birds to increase; mortality doubles in the first week of food deprivation and doubles again in the second week. Behavioral evidence suggests the birds suffer immensely.<sup>71</sup>

Factory farm operators use **forced molting** as a way of boosting egg production. Animal advocates argue that not only is forced molting inhumane, it has also been shown by USDA research to increase the incidence of *Salmonella enteritidis*,<sup>72,73,74</sup> which is potentially harmful to humans.<sup>75</sup>

Many types of **battery cages** are poorly designed for hen removal, and limbs

## Think About It



### Think About It

Countries in the European Union are phasing out the use of battery cages, and some countries have already banned their use.<sup>65</sup> Alternative systems include barn systems and free-range systems.

In proposing legislation to ban battery cages in the U.S., should animal advocates base their recommendations on European standards?



Farm Sanctuary

A group of rescued egg laying hens, malnourished and suffering from feather loss, are pictured here shortly after being rescued from battery cages.

## Petition for Poultry

In the U.S., federal law requires that farm animals be rendered insensible to pain in a way “that is rapid and effective, before being shackled, hoisted, thrown, cast, or cut”<sup>48</sup> in slaughterhouses. The USDA does not interpret the law as extending to birds. This means poultry is excluded from the protections of the **Humane Methods of Slaughter Act**.



Broilers are inspected by officials.

As a result, these birds have no federal legal protection from being hung upside-down in shackles, electrocuted, cut with mechanical blades, and even immersed in scalding water, all while fully conscious.<sup>49</sup>

Fortunately, there is a less painful way. With a process called **Controlled Atmosphere Stunning (CAS)**, birds can be made unconscious or killed before they're even removed from transport crates, reducing both the handling of live birds and the potential for abuse by employees.

While The HSUS is working diligently to accelerate the poultry industry's move away from the most inhumane slaughter methods, you can help by signing the Petition for Poultry ([hsus.org/farm/camp/p4p/](https://hsus.org/farm/camp/p4p/)) to tell Congress that birds should be protected under the law.

and appendages are often torn when the birds are removed.<sup>76</sup> Because only a few processing plants in the U.S. accept spent hens, the birds often must endure long journeys.<sup>77</sup>

Hens in the center of the transport trucks tend to overheat, while birds on the outside are unprotected from the elements.<sup>78</sup> Some hens die, usually from congestive heart failure due to the stresses of handling and transport.<sup>79</sup>

Another welfare issue in the egg industry is the disposal of male chicks. Since they do not lay eggs and are of different breeds than those raised for meat, male chicks have no economic value to the egg industry. They are therefore considered an unwanted by-product of egg production and are killed shortly after hatching. In 1998, 219 million chicks were killed by the commercial egg industry.<sup>80</sup> They are typically ground up alive, gassed, or thrown into a dump-



Farm Sanctuary

Unwanted male chicks struggle to survive amid egg shells and garbage in a dumpster behind a hatchery for laying hens.

ster to suffocate or dehydrate.<sup>81,82</sup>

## Wind of Change

There's no need for cruel cages. These folks know it!

- ◆ Due to animal welfare concerns, countries such as Germany, Switzerland, and Austria have banned **battery cages**. The entire European Union is phasing out conventional cages by 2012.<sup>83</sup>
- ◆ Whole Foods Market and Wild Oats Natural Marketplace, as well as a number of regional grocery chains, now sell only eggs from hens who aren't confined to cages.
- ◆ AOL and Google have switched to cage-free eggs in their employee cafeterias. Ben & Jerry's is phasing out battery-cage eggs used in its ice cream.
- ◆ More than 160 schools have enacted policies to eliminate or greatly decrease their use of eggs from caged hens, including Dartmouth College, University of California-Berkley, University of New Hampshire, University of Wisconsin-Madison, Tufts University, and Georgetown University.
- ◆ Numerous city councils in Florida, Maryland and California have passed resolutions opposing the confinement of egg-laying hens. Resolutions encourage consumers not to purchase battery cage eggs.

## Question and Issues for Discussion



How could the killing of male chicks in the egg industry be avoided? What responsibilities do egg producers and consumers have when it comes to the treatment of male chicks?

## Take Action



Download *Hens Need a Hand* at [humanesociety.org/teens](http://humanesociety.org/teens) – a fact sheet on **battery cages** and what teens can do to help. Print and hand them out to your friends and classmates and at events in your community.



- ◆ In March 2007, Burger King began purchasing 2 percent of its eggs from producers that do not confine laying hens in **battery cages**. It promised to more than double the percentage of cage-free eggs it's using to 5 percent by the end of 2007. It also implemented a purchasing preference for cage-free eggs.
- ◆ Also in 2007, chef and restaurant owner Wolfgang Puck said he will no longer use eggs from caged hens.

## Explore the Issues



In January 2007, the West Hollywood City Council in California unanimously passed a resolution opposing the intensive confinement of egg-laying hens in battery cages. The resolution states that the council "opposes battery cage egg production, based on the inherent cruelty of confining egg-laying hens in battery cages," and further "encourages consumers of eggs not to purchase eggs produced by caged hens." The bill is the first of its kind in California condemning the confinement of egg-laying hens in battery cages as cruel and inhumane.<sup>84</sup>

Imagine you work on your city council and need to draft an ordinance regarding the treatment of laying hens. Here are some questions to consider: **What type of housing should laying hens have? What natural behaviors, if any, should they be given an opportunity to engage in? Should debeaking be permitted and, if so, under what circumstances?**

## Take Action

Try the *Friends for Hens* Mission: Humane project. See if you can get your school cafeteria to stop using conventional battery cage eggs in favor of better alternatives. Learn more at [humanesociety.org/teens](http://humanesociety.org/teens).

Visit your local grocery store and look for poultry products labeled "certified organic," "pasture raised" or "free range." Although these labels do not necessarily mean the product is "cruelty-free," in some ways, these animals received better treatment than their conventionally raised counterparts. If you don't find such products, ask the store manager about making them available.

Write a letter to your local grocery store manager explaining some of the problems associated with eggs and meat produced on factory farms. Encourage him or her to offer a selection of better food choices, such as cage-free eggs, egg-replacement products, and vegetarian alternatives.



## Pass by Pâté

Poultry production isn't limited to chickens. Ducks and geese are also commonly raised for meat and pâté de foie gras ("fatty liver").

France is the world's largest supplier of foie gras. In the United States, there are three facilities producing liver for foie gras, slaughtering a total of 500,000 birds annually.<sup>85</sup>

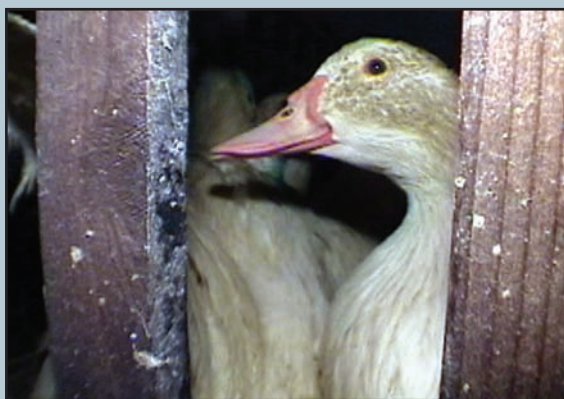
Considered a delicacy by some consumers, pâté de foie gras is a paste made from the livers of ducks and some geese. The birds are force-fed large amounts of high-calorie corn mash through a metal tube placed down their throats and into their stomachs two or three times each day. At the first feeding, 0.4 pounds of food is forced into the animal. The amount is increased to approximately 1 pound injected in as little as 2 seconds<sup>86</sup> before the bird is slaughtered.<sup>87</sup> This is obviously more food than the birds eat voluntarily.<sup>88</sup> If this corn mash (made from corn, oil, water and salt) were given under natural conditions, the birds would refuse it.<sup>89</sup> After force-feeding, birds pant intensely to vent the excess heat generated by their over-consumption of grain.<sup>90</sup>

*'Proportional to body weight, it is the equivalent of a human adult being forced to eat 45 pounds of pasta per day.'*

— Report in British Poultry Science, 2001.<sup>91</sup>

Not surprisingly, force-feeding results in myriad health problems for ducks and geese. It swells an animal's liver up to ten times its normal size, making it hard for them to move or walk.<sup>92</sup> It can cause heart disease and liver cirrhosis. The force-feeding can also cause painful bruising, lacerations, sores, and even organ rupture.<sup>93</sup> Birds also suffer from the fear and distress of frequent handling.

These birds, who naturally live near bodies of water, are sometimes restricted to small pens<sup>94</sup> to keep them from burning off fat. A group cage holds four to five ducks or three geese. They are unable to forage for food and are denied water in which to swim and clean their plumage. In some factory farms, the birds are housed in near darkness, in an attempt to keep them



Farm Sanctuary



Force fed ducks' engorged livers push against their internal organs, making it difficult to walk.

Farm Sanctuary



iStockphoto.com/Esemelive

calmer.<sup>95</sup> This prevents normal exploratory and social behaviors and reduces physical exercise.<sup>96</sup>

### Wind of Change

- ◆ Due to animal welfare concerns, more than a dozen countries—including the United Kingdom, Denmark, Finland, Germany, Israel (formerly the world's fourth-largest foie gras producing nation), Norway, Poland, Sweden and Switzerland—have prohibited the production of foie gras.<sup>97,98,99</sup>
- ◆ Here in the U.S., California became the first U.S. state to ban force-feeding of birds and the sale of foie gras produced from force-fed birds, effective 2012. And in 2006, Chicago banned the sale of foie gras.
- ◆ A 2004 Zogby poll found that 77 percent of U.S. adults believe the process of force-feeding ducks and geese to provide foie gras should be banned.<sup>100</sup>
- ◆ In 2007, chef and restaurant owner Wolfgang Puck implemented a corporate-wide ban on foie gras.

If you know someone who eats foie gras, encourage him or her to try vegetable pâté instead. Increasing consumer awareness of cruelty behind foie gras is key to ending the suffering of ducks and geese used for its production in the U.S. and abroad.



## Understanding Pigs

Descended from European wild boars, domestic pigs engage in many of their wild ancestors' natural behaviors when given the opportunity. Like wild boars, pigs are social animals. They prefer to live in close family groups and, using teamwork, build communal nests for sleeping. They constantly communicate with one another; about twenty different pig vocalizations have been identified by animal scientists.

Highly intelligent, pigs are often said to be smarter than dogs. They are also very curious and spend much of their time exploring with their powerful yet sensitive snouts. Pigs will spend six to seven hours a day foraging for a wide variety of foods, including plants and insects. And although the common perception is that pigs are dirty, the truth is that they are clean animals. Because pigs lack sweat glands, they will wallow in mud to cool off—but they prefer fresh water for this purpose when given the choice.

Female pigs, called sows, are caring mothers who carefully select suitable nest sites. After digging a depression in the ground, sows line their nests with grass, straw, and other materials before giving birth. A sow and her family members protect and defend newborns. Weaning in nature occurs when piglets are about three months old, but young pigs remain with their mothers in a family group. A wild pig's life span is typically 12 to 15 years.



JupiterImages Corporation

European wild boar.

### Think About It

Should an animal's intelligence be a factor in how the animal is treated? Why or why not?



Agricultural Research Service



## Life in a Pig Factory Farm

According to the USDA, pigs are produced in three types of enterprises:

- ◆ **Farrow-to-finish operations** raise hogs from birth to slaughter weight, about 240 to 270 pounds.
- ◆ **Feeder pig producers** raise pigs from birth to about 10-60 pounds, and generally sell them for **finishing** (raising to the weight at which they are slaughtered).
- ◆ **Feeder pig finishers** buy feeder pigs and grow them to slaughter weight.<sup>101</sup>



Farm Sanctuary

Pigs raised on factory farms are confined in metal and concrete pens with hard slatted flooring. They live here until they reach the slaughter weight of 250 pounds at six months old.

In 2007, there were more than 67,000 pig operations in the United States compared with nearly 3 million in the 1950s. Farms have grown in size; 53 percent of them now produce 5,000 or more pigs per year.<sup>102</sup> The largest pig-producing region in the U.S. is the Midwest.<sup>103</sup> However, most large operations are located in the Southeast, particularly in North Carolina.<sup>104</sup>

Often called “hog factories” or “swine CAFOs (concentrated animal feeding operations),” **intensive-confinement** pig farms provide pigs little opportunity to engage in their natural behaviors. In 2006, over 104 million pigs were slaughtered in the U.S.<sup>105</sup> It is not uncommon for thousands of pigs to be

kept in a single building. As mentioned earlier, such confinement reduces factory farm operators' land and building costs. It also reduces labor costs by allowing farmers to mechanically feed, water and medicate their pigs.

Breeding sows are often confined in gestation crates, metal pens measuring 2 feet wide by 7 feet long. The crates are just slightly larger than the animal,<sup>106</sup> preventing the animals from even turning around. The sows are only able to stand up or lie down. A pig's pregnancy lasts for four months and 60 percent to 70 percent of breeding sows are kept in gestation crates.<sup>107</sup>

Such continuous confinement can lead frustrated sows to develop abnormal behaviors, including gnawing the crate bars, head-weaving, pressing their drinkers without drinking, and making chewing motions with an empty mouth, called sham or vacuum chewing.<sup>108</sup> To save on cleanup time and money, factory farm operators do not provide hay or straw for sows to build nests. Instead, sows give birth on the concrete or metal-slatted floors of their crates.



Female pigs used for breeding are confined to gestation crates for most of their lives. These crates are so small that they cannot even turn around.

Farm Sanctuary



Farm Sanctuary

*'The premise is that housing intelligent, sentient beings for months in a space too small to turn around in constitutes cruelty, and I would have to agree. Most veterinarians decry the warehousing of small animals in puppy mill operations, so tell me how is the extreme confinement of other sentient animals any more acceptable to the veterinary community?'*

— Dr. Brenda K. Forsythe, in a letter to the editor published in the *Journal of the American Veterinary Medical Association*.<sup>111</sup>

A female pig attempts to escape from an inhumane gestation crate. Abrasions are visible near her eyes—caused by constantly rubbing against the crate's metal bars.

A 1997 report from the European Union Scientific Veterinary Committee (SVC) criticized the size of gestation crates.<sup>109</sup> Due to animal welfare concerns, the entire European Union has instituted a ban on gestation crates beginning in 2013.<sup>110</sup>

Right before giving birth, the sows are moved into equally restrictive “farrowing crates,” which separate them from their piglets and allow little physical contact beyond nursing.<sup>113</sup>



Sows nurse their young at this farm in North Carolina.

Factory farmed piglets are prematurely weaned and taken away from their mothers at three weeks old (between 10-20 pounds).<sup>114</sup> This way, their mothers can be bred again as soon as possible. A single sow usually has, on average, 2.1 to 2.5 litters a year,<sup>115</sup> about 20 piglets in all. After two or three years of continual impregnation, sows are no longer able to have enough babies to satisfy production demands. They are then slaughtered for meat.



Factory farm pigs are typically raised in small pens with slatted or concrete floors and metal bars.

Soon after birth, piglets undergo a number of surgical procedures performed without anesthetics,<sup>116</sup> including ear notching (for identification), tail-docking, and teeth clipping. Like sows, intensively confined piglets exhibit abnormal or aggressive behaviors and may attack one another or chew each others’ tails.



Tail-docking and teeth clipping are used to lessen the chance of injury or infection. In addition, male piglets are castrated, also without anesthetics, for two reasons: to make the animals more docile and to halt the development of certain natural chemicals in their bodies. The latter is believed to give the pigs' meat an unpleasant odor.

After outgrowing nursery pens, pigs are crowded into small pens or cages (often called "grower" or "finishing" pens). To ensure maximum growth, pigs receive a regimented diet of feed and antibiotics. Having spent their entire lives closely confined, pigs are sent to slaughter at six months old, when they reach an acceptable market weight of, on average, 266 pounds.<sup>117</sup>

### Wind of Change

While the use of gestation crates remains a customary practice in the U.S., Americans are beginning to rethink their use.

*'I have personally witnessed ordinary people's response to their first experience of these crates, and have seen eminent academics emerge from a sow barn unabashedly in tears.'*

*— Dr. Bernard E. Rollin, professor and director of Bioethical Planning at Colorado State University.<sup>112</sup>*

- ◆ In 2002, a landmark ballot initiative banning the use of gestation crates was passed in the state of Florida. This was the first time that a standard factory farming practice was outlawed by a state on animal welfare grounds.
- ◆ On Election Day 2006, Arizona voters overwhelmingly passed a historic initiative to prohibit the confinement of sows in gestation crates.
- ◆ In January 2007, Smithfield, the nation's largest pork producer, made a landmark announcement that it will phase out the confinement of pigs in gestation crates over the next decade.
- ◆ Less than one week after Smithfield made its announcement, Canada's largest pig producer, Maple Leaf Foods, stated that it too would phase out the use of gestation crates over the next decade.
- ◆ In February 2007, Cargill, the nation's eighth largest pig producer, sent a letter to





The HSUS stating that it has been moving away from gestation crates in its operations and that more than half of its sows are no longer confined in them.

- ◆ In March 2007, Burger King began to purchase 10 percent of its pork from producers who do not confine breeding pigs in gestation crates. The company planned to double that figure to 20 percent by the end of 2007. It also implemented a purchasing preference for pork from producers who do not use gestation crates.
- ◆ In June 2007, Oregon became the first state to ban gestation crates through a law passed by its state legislature. A number of other state legislatures are also considering bills to ban the use of these cruel crates.

In July 2007, Wendy's pledged to buy 20 percent of its pork from gestation crate-free producers by the end of 2008.

- ◆ In 2007, chef and restaurant owner Wolfgang Puck stated that he will no longer serve pork from producers who use gestation crates.

- ◆ Restaurant and grocery chains like Chipotle Mexican Grill, Panera Bread and New Seasons Market have begun using pork from pigs not confined in crates. Chipotle CEO Steve Ells calls it "giving the animals a chance to live a decent life."

## Questions and Issues for Discussion



In terms of intelligence and capacity for affection, pigs are similar to dogs. Why do you think some domestic animals in this country are kept as pets and others are eaten? In some cultures, eating dogs or cats is an acceptable practice. Do you think companion animals should be excluded from slaughter for human consumption? Why or why not?

## Explore the Issues



Factory farm operators often say that their animals will not produce meat, milk or eggs if they are not happy and well cared for. Therefore, they claim, since their facilities turn out such a plentiful supply of animal products, their animals must be healthy and content.

It's worth noting that animals in modern confinement systems are not good producers for very long. The productive lives of factory farmed dairy cows and sows, for example, is only a few years, when their natural productive life span is much longer. Thus, it has been argued that longevity can be a better sign of good welfare than productivity.

Hold a classroom debate on the "production myth." One side should argue from the **agribusiness** point of view; the other from the animal protection position. Prior to the debate, each side should consult at least two sources (**agribusiness** associations or animal protection organizations) for more information on animal agriculture production.

Suggestions for **agribusiness** sources include the National Pork Producers Council, **nppc.org**, and the National Cattleman's Beef Association, **beef.org**. Animal protection sources include The HSUS, **humansociety.org**, and Farm Sanctuary, **farmsanctuary.org**.



USDA NRCS

A confined cattle operation in Arizona.

## Kicking the Drug Habit

To promote quicker growth and help stop the spread of animal-to-animal disease, most animals raised on factory farms receive routine doses of antibiotics through feed and water additives or injections. The majority of the antibiotics produced in the world are not used for human medicine; instead they are used on farms.<sup>118</sup> According to the Centers for Disease Control and Prevention (CDC), at least 17 classes of antimicrobials are approved for farm animal growth promotion in the United States,<sup>119</sup> including many families of antibiotics, such as penicillin, tetracycline, and erythromycin, that are critical for treating human disease.<sup>120</sup>

Some scientists and critics argue that the use of antibiotics in intensive farming may be contributing to the rise in antibiotic resistance in people.

The FDA estimates that 5,000 people per year have had their illness prolonged due to the use of a certain antibiotic in flocks of poultry.<sup>121</sup> As recommended by the World Health Organization, the European Union has banned the practice of giving farm animals any antibiotics also used to treat people.<sup>122</sup>

For more information about the connection between antibiotic use in animal agriculture and antibiotic resistance in people, visit the Web sites of Center for Science in the Public Interest at [cspinet.org](http://cspinet.org) and Union of Concerned Scientists at [ucsusa.org](http://ucsusa.org).



istockphoto.com/Juan Vicente Canto Roig

### Take Action

Sign up for the HumaneTeen e-newsletter at [humanesociety.org/teens](http://humanesociety.org/teens). Click on News and Updates to join. You can also join The HSUS's online community and Humane Action Network at [humanesociety.org](http://humanesociety.org). These will help keep you up-to-date on developments in farm animal protection, including laws relating to [agribusiness](http://agribusiness).





iStockphoto.com/Jean Bruns

## Understanding Cattle

As herd animals, cattle are highly social and sensitive. They communicate using a variety of vocalizations and visual cues, such as body movements, and become distressed when separated from their herd members.

Scientists have discovered that cattle have the mental capabilities to nurture friendships. Cattle in a small herd, for instance, will join with up to three other animals to form a small group of friends. The animals in the group will spend most of their time together, frequently grooming and licking each other. Cattle also experience strong emotions such as pain, fear, and anxiety.

Although they are generally timid, cattle are curious about their surroundings and investigate their environment thoroughly. They have a sharp sense of hearing and perceive higher and lower frequencies better than humans do. In some ways, their eyes are also powerful tools. Cattle possess 320-degree panoramic vision, which enables them to see in almost every direction—except directly behind them—without moving their heads.



These social animals communicate with each other in a number of ways. Vocalizations or “calls” can indicate excitement, frustration, interest, pleasure or



stress. Cattle may also use a call to regain contact with a companion after they've been separated; as a prime example, when newly born calves are removed from their mothers, the cow will call to her child for days. Odors are also important to their communication and behavior, and cattle can detect smells up to five miles away.

Cattle live in hierarchically ranked groups and begin to order themselves within the group at a young age. Physical communication and grooming help to establish this social ranking. What may appear to be a game, such as head-butting or shoving, is actually a method of determining which animals within the group are dominant.

Contrary to popular myth, female cattle do not spontaneously produce milk. Like human mothers, cows have a nine-month pregnancy and begin producing milk to feed their newborn offspring. In the wild, cows isolate themselves before giving birth and may even keep their calves hidden for a few days before returning to the herd. Cows are caring, protective mothers who often join their calves at play. A calf's recreation includes kicking, pawing, prancing, running, snorting, and mounting others. This play may begin with just two calves and quickly evolve into a group activity.

Calves normally suckle from their mothers about 16 times a day and maintain a close bond with them even after weaning. Cows within a herd babysit for one another's calves while the mothers graze. On an average day, cattle eat for six hours and ruminate—chew their **cud**—for about eight hours.

In the U.S., cattle are primarily raised for dairy products, veal, and beef.

## Dairy Cows

At any given time, there are almost 9 million dairy cows in the U.S.<sup>123</sup> Although some live in small herds on family farms, the majority are raised in **intensive confinement** systems, where they are mechanically fed, watered and milked. Dairy cows are often confined entirely indoors or kept in densely populated drylots, enclosures devoid of grass. This lack of access to pasture can lead to hoof health problems for the animals.<sup>124,125</sup>

Significant amounts of grains—such as corn—are substituted for grasses or other plants that cattle usually eat. Because corn is high in starch, it doesn't take long to increase milk yield in dairy cows.



Holstein dairy cattle in the "milking parlor."

USDA



Dairy cows are fed about 600 million bushels of corn every year.<sup>126</sup> Because cows' digestive tracts are suited for roughage (such as grass), a grain-rich diet can cause of a number of health problems.<sup>127</sup>

Cows produce milk only when they have given birth, after which they can be milked for about ten months. Under natural circumstances, cows produce just enough milk to feed their calves. Calves on typical modern farms are usually separated from their mothers within three days of birth, according to the USDA.<sup>128</sup> Females will likely join the dairy line, while some males are sold to veal farmers. Most U.S. dairy cows today are of the Holstein breed. Even though the U.S. has fewer dairy cows than in the past, these cows are concentrated into larger herds.<sup>129</sup>

### Think About It



It is interesting to note that, contrary to industry claims that milk is "natural," humans are the only mammals who drink milk beyond infancy. They are also the only mammals to drink the milk of another species. Do you think knowing these facts would motivate some people to reconsider their milk consumption? Why or why not?

Dairy cows endure annual cycles of giving birth and mechanized milking for 10 out of 12 months.<sup>130</sup> The cows are routinely given hormones to get the highest milk production possible. This is a lot of work for the animals.

According to one animal scientist, in order to achieve the same work rate a



USDA

cow's body performs during the peak milking period, a human would have to jog for 6 hours a day, every day.<sup>131</sup> This rigorous cycle overburdens the cows, who are considered "productive" for only two years.<sup>132</sup> Since 1970, the amount of milk that each cow produces has doubled from 9,700 to 19,000 pounds a year.<sup>133</sup>

Although they have life spans of about 20 years, after the milk industry is

Above, Holstein cows in "milking parlor." Left, the machinery used to milk cows.

finished with them, they are sold to processors to be made into hamburger.<sup>134</sup>

The dairy industry has been criticized for its use of rBGH (Recombinant Bovine Growth Hormone), a genetically engineered hormone that is similar to the natural growth hormones of cows. (Sometimes it is referred to as rBST, or bovine somatotropin.) This hormone is a tool for dairy factory farms to make cows produce more milk.<sup>135</sup>



istockphoto.com/Naphtalina



Holstein cow in head stall at the Horizon Organic Dairy Farm in Maryland.

Regularly injected into dairy cows, rBGH artificially induces them to produce 5 percent to 15 percent more milk.<sup>136</sup> rBGH was approved in November 1993 by the FDA, despite widespread criticism. The United Nations food safety organization has declined to declare the drug safe three times.<sup>137</sup> All 25 nations of the European Union have banned rBGH, as well as Canada, Australia, New Zealand and Japan. In the U.S., approximately 22 percent of dairy cows are injected with the hormone.<sup>138</sup>

The hormone has been associated with higher rates of reproductive disorders, infection, and lameness in cows. Use of rBGH on dairy cows also increases the rate of mastitis, a painful bacterial udder infection, by 25 percent. Mastitis leads to an increased use of antibiotics, including ones used to treat humans, like penicillin. This over-

use of antibiotics is already a serious problem in meat and milk production, creating new strains of “superbugs” that are strongly linked to antibiotic resistance in people.<sup>139</sup> (Read more on page 28.) The FDA does not require dairy products from cows treated with rBGH to be labeled as such.<sup>140</sup>

Companies are beginning to listen to consumers who do not want rBGH in milk. For example, almost all dairy products in Maine are rBGH free.<sup>141</sup>

Dairy cows may also have their tails docked or cut off to about two-thirds of their adult length—which is usually performed without anesthetics.<sup>142</sup> Some farm operators say that helps keep cows and the milk supply cleaner;<sup>143</sup> animal advocates argue that tail-docking, which is performed without anesthetics, is inhumane, unnecessary and deprives a cow of her natural means of swatting flies.

At four years old, dairy cows unable to maintain such high milk production are sent to slaughter.

### Take Action



If they purchase cow's milk, encourage family and friends to purchase only dairy products that are labeled “rBGH-free,” “rBST-free,” or “organic.” Be sure to tell your supermarket, preferred dairy brand, and school district that you want dairy products that were not made with rBGH. Try non-dairy milk alternatives like soy milk, rice milk, and almond milk.

## Veal Calves

Simply put, the veal industry is a by-product of the dairy industry. According to a 2006 USDA fact sheet, "Male dairy calves are used in the veal industry. Dairy cows must give birth to continue producing milk, but male dairy calves are of little or no value to the dairy farmer."<sup>144</sup>

Calves are separated from dairy cows shortly after birth.<sup>145</sup> Some females are kept to replace older dairy cows; the males are often sold as veal calves, but are also used as beef cattle. One million calves are raised and slaughtered for veal every year in the United States.<sup>146</sup>



A male dairy calf chained to a crate.

Farm Sanctuary

There are three types of veal. "Bob veal," meat produced from calves up to three weeks old or at a weight of 150 pounds,<sup>147</sup> is often used in frozen dinners. **Non-formula-fed** veal calves are allowed to eat solid foods and may or

may not be confined to crates. The worst fate is reserved for the third group, formula-fed or "milk-fed" veal calves. The typical justification for why calves are crated is "that it reduces housing costs and blood hemoglobin levels." However, group housing for calves does not cost significantly more. And, while low hemoglobin leads to paler meat, it also leads to poor health among calves.<sup>148</sup>



A male dairy calf.

Farm Sanctuary

In addition, the calves are kept in narrow wooden crates where they are unable to walk, turn around, groom themselves, or lie down comfortably.<sup>149</sup> They are tethered by the neck in these small stalls.<sup>150</sup> Separated from one another by partitions, they cannot fulfill their natural instinct to play and socialize.

As with other **intensive confinement** sys-



tems, veal-calf crating causes abnormal behavior. Because milk-fed calves are denied natural behaviors, they often engage in “tongue-rolling,”<sup>151</sup> a purposeless oral activity brought about by stress or frustration. Veal calves are slaughtered when they are between 16 and 18 weeks old, weighing up to 450 pounds.<sup>152</sup>

## Wind of Change

- ◆ According to the USDA’s Economic Research Service, in 2004, Americans consumed only .41 pounds of veal per person yearly. Veal consumption is down from 1988, when it topped one pound per person.<sup>153</sup>
- ◆ Due to animal welfare concerns, the entire European Union has already banned veal crates.
- ◆ In 2006, Arizona voters overwhelmingly passed a historic initiative to prohibit the confinement of calves in veal crates.
- ◆ In January 2007, two of the country’s largest veal producers committed to phasing out the use of crates to confine veal calves. Strauss Veal, the leading U.S. veal producer, and Marcho Farms both pledged to convert their operations to crate-free group housing systems within two to three years.
- ◆ In 2007, chef and restaurant owner Wolfgang Puck said he will not serve veal from producers who confine calves in veal crates.
- ◆ In August 2007, the American Veal Association recommended that the confinement of calves in crates should come to an end over a ten-year phaseout period.

### Questions and Issues for Discussion

The average amount of veal consumed in the U.S. has dropped from 8.6 pounds per person in 1944 to less than half a pound (.41 pounds) in 2004.<sup>160</sup> This is due in large part to a wide-spread effort by animal-protection organizations to inform the public of the cruelty involved in veal production. Why do you think people were so responsive to the anti-veal campaign? Do you think they would be as responsive to a public awareness campaign that focused on laying hens or dairy cows? Why or why not?



### Take Action

Conduct a public awareness campaign about the veal industry, on your own or as an animal-protection club activity. Here are some ways you can spread the word about veal.

- ◆ Create and display informational posters and hand out flyers in your school and community. Be sure to get permission if necessary.
- ◆ Write letters to newspaper editors and to restaurants that serve veal. In your letters, include some of the facts about how veal calves are raised and encourage restaurant owners to adopt more animal-friendly menus and consumers more humane eating habits.







USDA

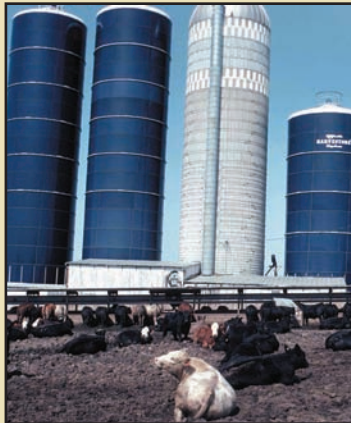
Beef cattle at a feed lot.

# Beef Cattle

Thirty five million cattle are raised for beef in the U.S. each year.<sup>154</sup> Most beef cattle are castrated (in the case of males), de-horned, and branded<sup>155</sup>—painful procedures performed without any anesthesia.<sup>156</sup>

For seven months, calves graze on the range before they are transported to feedlots.<sup>157</sup> There, they are fattened for slaughter with an unnaturally rich diet and with the use of hormones to encourage growth. While cattle on pasture do not routinely get sick, those confined to feedlots and fed high-grain diets are prone to disease. Most feedlot operators routinely feed antibiotics to prevent illness and to accelerate growth. This increases the risk of antibiotic resistance in humans.<sup>158</sup>

The dusty feedlots are usually crowded with thousands of cows. Within six months, the animals reach market weight of 1,200 pounds<sup>159</sup> and are trucked to slaughter. They are not given food, water, or protection from the weather on the way to the slaughterhouse.



USDA NRCS

## Think About It



Reread the section above on **Understanding Cattle**. Keeping in mind a cow's natural behaviors, instincts, and personality, what are some of the ways in which the beef, dairy, and veal industries could improve conditions for cattle?

## Explore the Issues



Promoted by the dairy industry as a healthy, efficient source of calcium and other vitamins, milk has long been a staple of the American diet. Some groups, however, question its nutritional value and prominent role in the food pyramid. Explore various organizations' claims and write a paper comparing them. Based on your research, include your opinion on the milk debate.

For materials advocating milk's nutritional value, check out the National Dairy Council (NDC) at [dairyinfo.com](http://dairyinfo.com). You can find several campaigns at this Web site. You might also want to check out Britain's National Dairy Council Web site at [milk.co.uk](http://milk.co.uk).

For information disputing milk's nutritional value, visit The Vegetarian Resource Group's web site at [vrg.org](http://vrg.org) or the Physicians Committee for Responsible Medicine at [pcrm.org](http://pcrm.org).



Jupiterimages Corporation

A cow enters a production line.

## How Are Animals Treated During Transportation?

Farm animals are often transported long distances from farms to auctions, feedlots, or the slaughterhouses where they are killed. During transport, it is relatively common for animals to be injured or to die as a result of stress-induced illness, fatigue, fighting, and adverse weather conditions. In extremely cold weather, for example, animals sometimes freeze to death before reaching their destination. Approximately 420,000 pigs are crippled and approximately 170,000 die during transport each year, according to the National Pork Board in 2002 in **National Hog Farmer**.<sup>161</sup> Besides adding to the suffering these animals endure, these losses cost **agribusiness** millions of dollars annually, but are still economically acceptable to the industry because of the cost-savings entailed in crowding animals and transporting them through all weather conditions.

In addition, animals are sometimes handled inhumanely in preparation for, or following, transport. When placing chickens in crates, for example, handlers often grab the birds' legs too roughly, causing broken bones and other injuries.

## Downed Animals

One of the most important animal welfare issues related to the transportation of farm animals is the problem of **downers**. Downed animals, who are often dairy cows, calves, and pigs stressed from long journeys, are too sick or



Farm Sanctuary

A downed cow.

injured to stand or walk on their own. Because farmers make more money on live animals brought to market, every attempt is made to move downed animals.

Methods for moving them include kicking, dragging with chains, being pushed with tractors and forklifts and using electric shocks.<sup>162,163</sup> Downers who cannot be moved readily may lie on the ground for days without food, water or veterinary

care before dying. Such animals are rarely **euthanized**. Many stockyards now have policies forbidding the acceptance of downed animals and the USDA restricts the slaughter of some downer cattle.<sup>164</sup>

The HSUS and other animal protection groups continue to work on passing a federal Downed Animal and Food Safety Protection Act. Passage of this bill would make it unlawful for any stockyard owner or dealer to transfer or accept downed animals. Such legislation would have many benefits. First, it would help alleviate the suffering of downed animals by making it illegal for people to move them inhumanely. Second, with no financial incentive to bring downed animals to market, factory farm operators might make more of an effort to improve animal care and handling. Finally, the Downed Animal and Food Safety Protection Act would improve food safety by helping to keep the flesh of injured and diseased animals out of the food supply.

### Take Action

Ask your Congress person to pass the Downed Animal and Food Safety Protection Act. Learn more at [hsus.org/farm/news/pressrel/hsus-urges-congress-ban-downer-slaughter.html](https://www.hsus.org/farm/news/pressrel/hsus-urges-congress-ban-downer-slaughter.html).





## How are Farm Animals Slaughtered?

Today's highly automated slaughterhouses are designed to control costs and maximize profits by enabling operators to kill as many animals as possible, as quickly as possible.

**The Humane Methods of Slaughter Act of 1958** requires that animals be rendered insensible to pain in a way "that is rapid and effective, before being shackled, hoisted, thrown, cast, or cut"<sup>165</sup> in slaughterhouses. Because the USDA excludes chickens and other birds from the protections afforded by this law, birds are hung upside down by their feet on moving shackles

before being rendered insensible to pain. The fast-moving overhead conveyor then drags the animals' heads through a trough of electrified water,<sup>166</sup> or "stunbath." If the birds are effectively stunned, the procedure can render chickens unconscious and insensitive to pain. However, improper stunning occurs when chickens' heads do not reach the water or when the electrical current in the water is too low or inconsistent to stun every bird who passes through.

As slaughter lines run at rapid speeds (up to 8,400 chickens per hour), mistakes are common and some birds are still conscious as they enter tanks of scalding water intended to loosen their feathers.<sup>167</sup> Controlled atmosphere killing (CAK) of meat, egg, and breeding birds is an alternative to electrical stunning. It has been adopted by many European processors.<sup>168</sup> (See page 17 for more information on CAK and the Petition for Poultry.)

Unlike birds, cattle and pigs are usually stunned before being shackled. According to the **Humane Methods of Slaughter Act**, these animals should be



A poultry production line.

HSUS



Chickens being transported.

Farm Sanctuary

“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.”<sup>169</sup> When done properly, stunning can make cattle and pigs unconscious. After stunning, the animals are shackled by their ankles and hoisted to a moving conveyor belt. The line moves rapidly to an area where the animal’s necks are manually cut, causing the animals to bleed to death. Cows are then skinned for their hides. Pigs are submerged in a scalding tank to remove fine hairs from their bodies.

If workers are poorly trained, equipment is ill-maintained, or line speeds are too fast for employees to keep pace, animals may not be stunned properly. Improper stunning may mean animals are shackled and hoisted while fully conscious, resulting in extreme fear and pain. They may be fully conscious when their throats are cut or when they’re submerged in a scalding tank—violations of the **Humane Methods of Slaughter Act**.

### Think About It



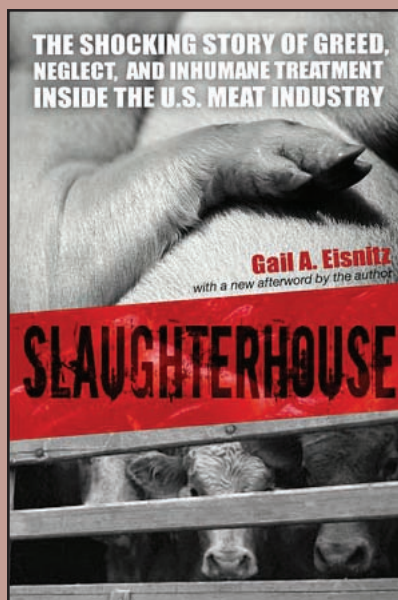
How might excessive line speeds during shackling, stunning, slaughtering, and carcass inspection procedures jeopardize employee safety and public health? Why might slaughterhouse operators be reluctant to reduce line speeds?

## Working at the Slaughterhouse

While—unlike the animals—they are expected to leave alive, conditions at slaughterhouses are tough on workers. Human Rights Watch, the largest U.S.-based human rights organization,<sup>170</sup> characterizes slaughterhouse jobs as “the most dangerous factory jobs in the country.”<sup>171</sup> As line speeds increase, so do the number of employee injuries. Typical injuries include carpal-tunnel syndrome (from performing the same action over and over again), “claw hand” (in which the injured fingers lock in a curled position)<sup>172</sup> head and back injuries, burns, hernias and knife wounds.

The injury rate in 2001 was 20 injuries per 100 workers. This is comparable to figures in 1996, where the American Meat Institute reported 21.5 injuries per 100 workers. In 2002, the Occupational Safety and Health Administration (OSHA) revised its requirements for recording occupational injuries and illnesses. Therefore new figures can not be accurately compared to findings prior to 2002.<sup>173</sup> Meat packing plants have the highest rate of musculoskeletal disorders (MSDs), seven times the average incidence in manufacturing.<sup>174</sup>

If you’re interested in learning about the history of slaughterhouse conditions and their effect on employees, read Gail Eisnitz’s exposé ***Slaughterhouse***.



## Ritual Slaughter

Slaughter performed according to guidelines set forth by religions such as Islam or Judaism is referred to as ritual slaughter and does not need to comply with the **Humane Methods of Slaughter Act**. Animals slaughtered consistent with the traditions of Kosher slaughter, for example, must be handled according to the laws of the Jewish faith. This states that kosher meat must come from animals slaughtered by a rabbi or a trained representative. Since Jewish law also requires that animals be injury-free prior to slaughter, animals who undergo kosher slaughter must be fully conscious when their throats are cut.<sup>175</sup>



Chickens being transported.

Farm Sanctuary

For sanitary reasons, the USDA forbids an animal's cut flesh to come into contact with a slaughterhouse floor. Thus, kosher practitioners may shackle and hoist conscious animals, which can cause stress and painful injuries,<sup>176</sup> such as dislocated limbs. This is called inverted kosher slaughter. In 2002, about 10% of large cattle were being shackled and hoisted but 50% of veal calves and 100% of sheep and lamb were still being shackled and hoisted.<sup>177</sup>

One method of ritual slaughter that satisfies both USDA and kosher requirements entails the use of an upright restrainer, which keeps animals off the floor even after their throats have been slit. This method is considered less painful than standard kosher slaughter, as it does not require the shackling and hoisting of conscious animals. In 2002, about 90% of cattle were slaughtered by being restrained in upright pens.<sup>178</sup>

In Halal ritual slaughter, guidelines followed in the Islam faith, a short knife is used. Head-only electrical stunning is used in many Halal slaughter plants.<sup>179,180</sup>



## **Better Treatment Reduces Animal Suffering and Can Be Economic**

Better handling not only reduces the fear and pain endured by the animals, but can sometimes be better for a company's bottom line as well. Rough handling of farm animals frequently leads to lower quality meat and a subsequent loss in profits. One example of this occurs when animals are unduly stressed by electric prods, extreme temperatures, fatigue, close confinement or poorly designed facilities. Stressed animals' bodies secrete high levels of adrenaline and other hormones, resulting in such problems as "dark cutting" and Pale Soft Exudative (PSE) meat. Dark cutting means an animal's flesh has become dark, and therefore of a less desirable quality to consumers. PSE occurs when a pig's flesh is soft or mushy.

Some animal care experts, most notably Temple Grandin, Ph.D., are working with meatpackers and handlers to improve transportation and slaughter conditions for animals. By studying animals' natural behaviors, they have developed strategies for reducing stress, fear and pain. For example, handlers are discouraged from shouting or physically abusing animals to force them to move; such abuse compounds the problem by creating a domino effect of tension among the surrounding animals. Instead, handlers are advised to separate frightened or aggressive animals from the herd as quickly as possible. Animal care experts also recommend that slaughterhouses, transportation vehicles, farm animal markets, and feedlots be upgraded to include simple changes, such as non-slip flooring, noise reduction and better lighting, among many others.<sup>181</sup> Such renovations, along with trained employees, could help relieve some of the animals' mental and physical suffering during transport and slaughter.<sup>182</sup>

## **Are Farm Animals... Animals?**

The federal Animal Welfare Act (AWA), passed in 1966, extends various levels of protection to some animals used in research, testing, experimentation, exhibition, and entertainment. But you may be surprised to learn that, in the words of the AWA, "the term 'animal' ... excludes horses not used for research purposes and other farm animals, such as, but not limited to, livestock or

## **A Leader for Animal Welfare Improvements**

Temple Grandin, Ph.D., a world-renowned animal scientist and consultant to animal agribusiness industries, is dedicated to reducing the suffering of farm animals during the slaughter process. Dr. Grandin has had a significant impact on the beef industry; almost half the cattle killed in the U.S. are handled in facilities she designed.

What makes Dr. Grandin's story even more remarkable is that she suffers from autism, a serious neurological disorder characterized by hypersensitivity to touch and sound. Dr. Grandin claims her own problems with autism have enabled her to better understand how cattle react to strange sights, smells, sounds and experiences. To learn more about Dr. Grandin and her extensive work on farm animal transportation and slaughter, visit her Web site at [grandin.com](http://grandin.com).



poultry, used or intended for use as food or fiber, or livestock or poultry used or intended for improving animal nutrition, breeding, management or production efficiency, or for improving the quality of food or fiber.” As such, the AWA extends no protection to the billions of farm animals raised for food in the U.S. each year.

## Questions and Issues for Discussion

What do you think about animal protection advocates and **agribusiness** working together on issues of common ground to improve animal welfare? Animal care experts? Scientists? What other people or groups should producers and slaughterhouse operators work with to reduce animal suffering?



## Explore the Issues

Use your library and the Internet to research the history of animal slaughter in the U.S. What changes in methods and systems have occurred? What were the driving forces behind the changes? What are the advantages and disadvantages of current practices compared with methods used in the past?



Do you think animals should be slaughtered for food at all, regardless of what their treatment in the slaughterhouse was like?

## Take Action

To keep up-to-date on The HSUS' campaigns to alleviate the suffering of farm and other animals, visit **[humanesociety.org/teens](http://humanesociety.org/teens)**. There, you'll find simple suggestions on how you can be an activist for farm animals.



## Think About It

Farm animals are excluded from the Animal Welfare Act. In addition, the AWA doesn't extend any protection to birds, mice and rats—species that make up more than 90 percent of all vertebrate animals used in experimentation. Do you think the AWA should be modified to include farm animals, birds, mice and rats? Why or why not? What do you think might be some obstacles for changing the law? What can be done to overcome them?



## Are There Laws to Protect Farm Animals?

Most of us assume that some laws exist to protect animals from cruelty. As you learn about factory farming, you may be wondering if it's legal for farm animals to be treated so inhumanely. In most cases, the answer is yes. Despite the routine abuses they endure, no federal law protects animals from cruelty while on the farm, and the majority of states exempt customary agricultural practices—no matter how abusive—from the scope of their animal cruelty statutes.

There are, however, two federal laws that regulate the transportation and slaughter of some farm animals. The USDA is the government agency responsible for enforcing these laws.

### The Twenty-Eight Hour Law

**The Twenty-Eight Hour Law of 1873** is a federal law that prohibits railroads and shipping companies from confining animals for longer than 28 consecutive hours without unloading them for rest, water and feeding. Because this law was passed before trucks became the most common means of transporting animals, trucks were not specifically named in the law. For many decades, the USDA did not interpret the **Twenty-Eight Hour Law** to include modern-day truck transport.

But in September 2006, the USDA publicly declared that some farm animals transported by truck are protected under the nation's first federal animal welfare law.<sup>183</sup> The agency's decision to require trucks to adhere to the **Twenty-Eight Hour Law** marks a change in the agency's treatment of long-distance farm animal transport, even though it still does not extend the law to poultry.

As described in the legal petition that challenged the loophole in the original law, more than 50 million of the nearly 10 billion farm animals transported by truck every year endured trips far in excess of 28 hours without food, water or rest. A 2005 undercover investigation of long-distance pig transport found numerous cruelties, including dead animals left on trucks with live animals for more than 30 hours, animals enduring extreme heat without food or water, and animals suffering from a variety of injuries, including bruises, abrasions, and bleeding lacerations on their bodies, legs and ears.<sup>184</sup>



A pig inside a pen.

Farm Sanctuary



## The Humane Methods of Slaughter Act

Passed in 1958 and amended in 1978, the Federal **Humane Methods of Slaughter Act**

requires that slaughterhouses handle and slaughter animals according to certain requirements. Furthermore, meat imported to the U.S. must come from animals slaughtered in accordance with the **Humane Methods of Slaughter Act**.



Cows at a slaughterhouse.

Farm Sanctuary

Some of the regulations of the **Humane Methods of Slaughter Act** are:

- ◆ Before being shackled, hoisted, thrown, cast, or cut, animals must be rendered insensible to pain by carbon dioxide, bolt guns, gunshot, or electric stunners.
- ◆ Animals at meatpacking plants must have access to water at all times. If they are held longer than 24 hours, they must have access to feed as well. Animals kept in pens overnight must have enough room to lie down.
- ◆ Animals must be handled in ways that do not cause them stress.

As mentioned earlier on page 38, the USDA does not extend the protections of the **Humane Methods of Slaughter Act** to birds. The law does not require that animals killed according to ritual slaughter requirements be rendered insensible to pain before slaughter and also exempts animals killed in state-inspected or small custom slaughterhouses. About half of U.S. states have state Humane Methods of Slaughter Acts based on the federal law.

In addition to the **Humane Methods of Slaughter Act**, the Federal Meat Inspection Act, amended in 1978, also gives USDA inspectors the authority to stop slaughterhouse production lines if they witness inhumane handling of animals, although lines are very rarely stopped.

## How Effective Are Existing Farm Animal Protection Laws?

The federal laws that currently regulate transportation and slaughter are an important first step toward creating better conditions for farm animals. Like all legislation, however, farm animal protection laws are useful only if they're enforced. Both animal protection advocates and slaughterhouse employees acknowledge that these laws are rarely enforced. Increasingly rapid line speeds have led to more violations of the **Humane Methods of Slaughter Act** while serious problems, such as too few USDA inspectors, may contribute to lax enforcement.

While some state anti-cruelty statutes extend protections to farm animals, most do not address farming practices considered "customary" agricultural practices. For example, although battery cages for egg laying hens are increasingly considered inhumane, the practice is still so commonplace that it is typically exempted from state anti-cruelty laws. Needless to say, such subjective standards lead to little or no protection for farm animals and essentially allow animal agribusiness industries to decide what practices are legal.

### Explore the Issues



What impact does animal **agribusiness** have in your state?

Complete a profile of your state's animal **agribusiness** industries by visiting its Department of Agriculture Web site at [usda.gov](http://usda.gov). Here are some things to include in your profile:

- ◆ statistical data on farm animals. Include numbers of animals raised for meat, dairy, and eggs, as well as the average number of animals per farm, if available;
- ◆ revenue generated from animal agriculture;
- ◆ public health laws concerning the sale of animal products in your state;
- ◆ state laws and regulations concerning the treatment of farm animals.

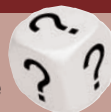
Keep in mind that although some states' Web sites are not as comprehensive as others, you can always find that information you're looking for by contacting the education department within a state's Department of Agriculture. (Use the phone numbers and addresses provided on your state's Web site.)

### Take Action



Almost every citizen is represented at the federal level by one member of the U.S. House of Representatives and two members of the U.S. Senate, and at the state level by representatives and senators in the state legislature. Contact your legislators to voice your support of or opposition to current state and federal bills relating to farm animals. Learn about current legislation at [humanesociety.org/teens](http://humanesociety.org/teens). Find out who represents you at [humanesociety.org/leglookup](http://humanesociety.org/leglookup). Keep in mind that legislators are public servants paid to represent your views! Want to learn more about **lobbying**? Check out our *Speak Up For Animals!* guide available at [humanesociety.org/teens](http://humanesociety.org/teens).

### Questions and Issues for Discussion



Imagine that **agribusiness** in the U.S. is as humane as possible: farm animals experience little pain, discomfort, or distress on farms, during transportation or in slaughterhouses. Even under such conditions, do you think killing animals for food is morally acceptable? If so, why and under what circumstances? If not, why not?



USDA NRCS

Runoff from this livestock yard may enter a nearby stream and degrade the water quality.

## How Does Factory Farming Affect the Environment?

When small family farms were the source of most animal products, animal agriculture had less of an effect on the environment than it does today. Typically, animals on small farms were well-integrated into the surrounding environment. The animals' manure was often used as fertilizer for nearby crops, and grazing areas were frequently rotated to prevent long-lasting damage.

Today's massive factory farms, on the other hand, have caused widespread environmental problems, mostly because too many animals are concentrated into too small an area. Simply put, the water, land and air surrounding factory farms cannot support such dense populations of farm animals and such enormous amounts of manure. Industrial-sized factory farms generate industrial-scale, toxic pollution that can—and does—contaminate nearby streams, lakes, and local water bodies, threatening drinking water supplies with dangerous bacteria, chemicals, and antibiotics added to feed.

A November 2006 report by the Food and Agriculture Organization of the United Nations details the overwhelming environmental destruction posed by animal agriculture. The report, "Livestock's Long Shadow: Environmental Issues and Options," examines how animal **agriculture** causes massive land and water degradation on a global scale and concludes that farm animal pro-



duction is a greater contributor to global warming than cars and other modes of transport, including SUVs. (You can read the full UN report at [fao.org/newsroom/en/news/2006/1000448/index.html](http://fao.org/newsroom/en/news/2006/1000448/index.html).)

In addition, over half of the water used in the U.S. goes to beef production. It takes an average of 2,500 gallons of water to produce a single pound of red meat. That is equal to the amount of water a family (in the U.S.) uses in a month.<sup>185</sup>

Specifically, it takes five times more water to supply 10 grams of protein from beef than from rice. It takes nearly 20 times more water to supply 500 calories from beef than from rice. The average U.S. diet, which includes meat, egg, and dairy products, requires 5.4 cubic meters of water per person per day—twice as much as an equally (or more) nutritious vegetarian diet. (Read more on page 55.) A partial shift away from animal products would make a great difference in the availability of water. For example, cutting the intake of animal products in half and replacing them with highly nutritious vegetable products would reduce the water intensity of the U.S. diet by 37 percent. If this change occurred by 2025, when the U.S. population is projected to total more than 350 million people, it would lower the nation's dietary water requirements by 256 billion cubic meters per year—a savings equal to the annual flow of 14 Colorado Rivers.<sup>186</sup>

## Water Pollution

The main source of water pollution in rivers and lakes, according to the Environmental Protection Agency (EPA), is runoff from farms.<sup>187</sup> Factory farms contribute to this problem when too much farm animal manure is applied to the soil, preventing the ground from absorbing its nutrients. This then causes runoff that pollutes rivers, lakes, wetlands and ground water.<sup>188</sup> Much of that pollution is due to the quantities of waste produced by factory farms. How much waste? A pig can produce two to four times more waste than a human,



Manure overflows this storage area and threatens nearby streams with degraded water quality.

### Think About It



Do you think factory farm operators should be held financially responsible for environmental damage caused by their operating practices? If so, to whom should any fines be paid, and what should the money be used for?



USDA NRCS

Above, a lagoon waste management system for a hog farm. At right, a typical animal waste lagoon in North Carolina.

and a cow 23 times more. Confined farm animals generate approximately 500 million tons of manure annually, three times more raw waste than generated by Americans.<sup>189</sup>



USDA NRCS

Waste from pig and dairy factory farms is often stored in enormous outdoor pits, artificial “lagoons” up to three stories deep. Some are covered, but most—open-air lagoons—are not. When the lagoons are over-filled or inadequately designed, or when they accidentally leak, animal waste can seep into the ground and pollute groundwater with toxic levels of nutrients and disease-causing bacteria.<sup>190,191</sup>

One common way factory farms dispose of animal waste is by spraying it onto surrounding fields as fertilizer, known as “land application.” When the soil cannot support the vast amounts of waste applied to it, the overflow can run off into nearby lakes, streams, and other waterways.<sup>192</sup>

Water pollution caused by animal agribusiness is linked to the disruption of aquatic ecosystems, including the deaths of wildlife and aquatic plants, and public health problems such as “blue-baby syndrome,” an illness caused by high nitrate concentration in water wells.<sup>193</sup>

In 2006, the state of Oklahoma sued several poultry factory farms for releasing into the Illinois River phosphorus and nitrogen compounds, arsenic, zinc, and copper. All these substances are deemed “hazardous” under federal environmental laws. Also in 2006, the City of Waco, Texas, spent tens of millions of dollars to clean up algae pollution in its drinking water supply caused by excessive phosphorous from industrial dairy operations in the watershed. As the city upgrades its equipment and facilities to address various water quality problems, city officials estimated that the cost of dealing with pollution from factory farms was approximately \$40 million.<sup>194</sup>

**Air Pollution**

**Intensive confinement** buildings and waste lagoons also contribute to air pollution. When farm animal manure decomposes, noxious levels of gases are



USDA NRCS

Liquid manure from a hog feeding operation in northeast Iowa is being pumped onto cropland.



USDA NRCS

An aerial view of a waste management lagoon in Kansas.



emitted, putting workers and nearby residents at risk of developing a number of acute and chronic illnesses. The open-air manure lagoons typical of pig and dairy factory farms may release over 400 volatile chemicals.<sup>195,196,197</sup>

Employees in such operations may suffer from respiratory illness, including bronchitis and pneumonia. In pig operations, employees have died from breathing in hydrogen sulfide, a toxic fume generated by animal waste. Waste lagoons and animal confinement buildings, particularly those in the pig industry, also create significant odor problems for surrounding communities. For people living downwind of factory farms, odors from excessive amounts of ammonia, phenol, and fatty acids released into the air can result in depression, anger, tension, fatigue, confusion,<sup>198</sup> nausea and vomiting.

In the late 1990s, the EPA said it did not have sufficient data to regulate air emissions from animal feeding operations (AFOs). To gather data, the EPA sought the participation of AFOs in its Air Compliance Agreement, an “industry-led monitoring survey” with over 6,000 facilities.<sup>199</sup> One component of the agreement is the agency’s assurance that it will not sue these facilities for certain current and past violations of environmental laws.<sup>200</sup>

But that’s not all. Factory farms also contribute to rising greenhouse gas emissions. The EPA has attributed recent increases in methane emissions to the shift towards confining greater numbers of pigs and cows used for the dairy industry in larger facilities that use anaerobic manure lagoons.<sup>201</sup> The EPA has attributed recent increases in nitrous oxide emissions, in part, to an overall increase in the U.S. poultry population.<sup>202</sup>

## The High Price of a Fast-Food Burger



Jupiterimages Corporation

The western U.S. is not the only piece of the planet harmed by overgrazing; approximately two-thirds of Central American rain forests have been cleared or severely degraded by cattle ranching. Some of the beef produced on those pastures is imported into the U.S. as a cheap source of, pet foods, fast-food hamburgers and frozen meat products.<sup>203</sup>

In the early 1980s, environmentalist Norman Myers said deforestation in Central America was due to making forests into cattle pastures. This in turn supplied cheap beef for North America’s fast food industry. He labeled this process the “hamburger connection,” showing the international links of environmental decline.<sup>204</sup> In Brazil alone, between 1990 and 2000, the country lost an area of forest twice the size of Portugal to deforestation, most of which later became pasture for cattle.<sup>205</sup>

For perspective, for every quarter-pound fast-food hamburger made from Central American beef, an estimated 55 square feet of rain forest are destroyed.<sup>206</sup> To learn more about the connection between rain forest destruction and cattle ranching, visit the Rainforest Action Network’s at [ran.org](http://ran.org).

## Questions and Issues for Discussion



In response to farmers' complaints that predators are harming their business, U.S. Wildlife Services kill thousands of wild animals each year. Most of those animals—coyotes, black bears and prairie dogs, among others—live on publicly owned land that is leased to ranchers at reduced costs.

Critics of such predator-control programs object to taxpayers' money being used to

kill wild animals on public property. They argue that wild animals "belong" to the public, and further, that ranchers—not taxpayers—should be financially responsible for protecting their own farm animals. Who do you think should be responsible for protecting farm animals from wildlife on public lands? Why? What other ways could ranchers protect their farm animals from wildlife?

## Explore the Issues

In the past few years, much attention has been paid to the booming pig industry of North Carolina. More than 10 million pigs are raised there.<sup>207</sup> A 10,000-hog operation produces as much waste in a single day as a town of 25,000 people.<sup>208</sup> That helps put into perspective how much waste is produced by 10 million pigs.



Hog operations in North Carolina discharge more ammonia into the air than all other state livestock and industrial sources combined.<sup>209</sup> Studies in the North Carolina region where hog factories are located show that ammonia measured in rain has doubled in the last

decade.<sup>210</sup> This is the same period during which large hog operations grew dramatically in North Carolina.<sup>211</sup> In 1995 at a North Carolina hog facility, the manure lagoon spilled 25 million gallons

of manure into the New River— more than twice the amount of oil spilled by the Exxon Valdez— killing 10 million fish and contaminating 350,000 acres of coastal shellfish habitat.<sup>212</sup>

Research North Carolina's pig industry and its impact on the environment. Check out Environmental Defense's web page about this issue at [environmentaldefense.org/article.cfm?contentID=5078](http://environmentaldefense.org/article.cfm?contentID=5078).

## Think About It



One argument in favor of vegetarian eating is that a meat-based diet is a misuse of resources. Approximately 40 percent of global grain production goes toward feeding farm animals. When we feed these grain crops to farm animals rather than to people directly, a significant amount of energy is lost in converting these grain calories into meat calories.<sup>213</sup>

## Take Action



Demand that factory farms be held accountable for the pollution they create by asking the Environmental Protection Agency and Congress to impose stricter standards and penalties. To learn how, visit the Natural Resources Defense Council at [nrdc.org](http://nrdc.org), Waterkeeper Alliance at [waterkeeper.org](http://waterkeeper.org), and Environmental Integrity Project at [environmentalintegrity.org](http://environmentalintegrity.org).

## Become a More Humane Consumer

By learning more about the problems associated with factory farms, you've taken a big step toward helping animals and the environment.

And in this guide's **Take Action** sections, we've given you some suggestions on how you can turn the knowledge you've gained into tangible differences for farm animals.

Another effective way of reducing the problems caused by industrial animal agriculture is by becoming a more humane consumer.

Apply the three "R's"—refine, reduce, and replace—to your diet.



JupiterImages Corporation

Apply the three "R's" to your diet.

### Refine

If you do continue to eat animal products, remember that not all animal products are equal when it comes to animal welfare. Each industry has its own abusive practices, and some are much crueler than others. And a growing number of producers are raising animals without **intensive confinement**. It's better, for example, to choose cage-free eggs instead of the conventional battery cage eggs that fill most supermarket shelves.

### Reduce

Every hour in the United States, one million animals are killed for human consumption. If each one of us cuts back on our animal consumption by only 10 percent, approximately one billion animals would be spared a lifetime of suffering each year.

### Replace

Each one of us can help prevent animals from suffering in factory farms simply by choosing vegetarian options. It's never been easier to replace animal products with readily available vegetarian alter-



natives. According to the U.S. Department of Agriculture, “Vegetarian diets can meet all the recommendations for nutrients.” The American Dietetic Association goes even further to state that vegetarian diets “provide health benefits in the prevention and treatment of certain diseases.”

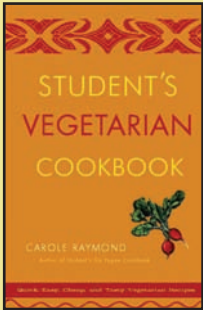
As consumer demand for vegetarian options increases, so do the variety and availability of food choices, from veggie burgers and soy hot dogs to replacements for eggs and cheese. Most grocery store chains stock these foods.

Whether you’re reducing your intake or completely eliminating animal products from your diet—make sure you’re eating a balanced diet. Check out The HSUS Guide to Vegetarian Eating at [humanesociety.org/farm/resources/pubs/gve/](http://humanesociety.org/farm/resources/pubs/gve/).

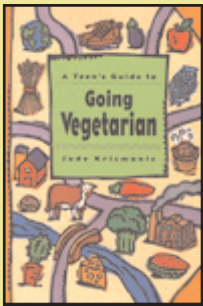
Check out these recommended books if you want to learn more:



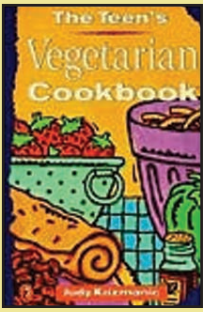
**“OK, So Now You’re a Vegetarian: Advice & 100 Recipes from One Vegetarian to Another.”**  
By Lauren Butts (New York: Random House, 2000).  
When 16-year-old author Lauren Butts decided to cut animal products out of her diet, she still wanted to eat her favorite foods—chili, lasagna, burgers, tacos—without the meat. In this book, she compiled the best recipes she found, along with a complete guide to proper nutrition for teen vegetarians by nutritionist Donna Shields. Also included are helpful tips for those just learning to cook.



**“Student’s Vegetarian Cookbook, Revised: Quick, Easy, Cheap, and Tasty Vegetarian Recipes.”**  
By Carole Raymond (New York: Random House, 2003).  
Perfect for beginner vegetarians just learning their way around the kitchen, this book is full of easy recipes (142 of them), as well as a guide to vegetarian grocery shopping, a cooking glossary and how-to’s, and an explanation of why a vegetarian lifestyle is good for you, good for animals, and good for the planet. (Disclaimer: This book includes a brief section titled “Beer and Vegetarianism” which is aimed at readers 21 and older.)



**“A Teen’s Guide to Going Vegetarian.”**  
By Judy Krizmanic (New York: Puffin, 1994).  
All the facts about vegetarianism, the different types of vegetarians, and how to make the transition, plus nutritional information and a few recipes to get you started.



**“The Teen’s Vegetarian Cookbook.”** By Judy Krizmanic (New York: Puffin, 1999). This book includes a few of the basics from Krizmanic’s **A Teen’s Guide to Going Vegetarian** along with a “How-To-Get-Your-Nutrients Substitution Chart” and a lot more recipes, ranging from Aztec casserole to Zesty BBQ burgers.

You can also check out **VegetarianTeen.com** and the Vegetarian Resource Group at **vrg.org** for news, resources, recipes and other information.

Whether you switch to animal products from farms which raise animals in better-than-normal conditions, reduce your consumption of animal products, or eliminate them entirely from your diet, you are making a difference for farm animals.

## Organic and Free-Range

“Organic” animal agriculture limits the use of synthetic **pesticides**, **herbicides** or veterinary drugs except to treat specific illnesses in certain animals. The goal of organic agriculture is to produce food while maintaining healthy soil, crops and animals.

“Free-range” products generally come from animals allowed freedom of movement and access to the outdoors. “Free-roaming” usually refers to animals allowed freedom of movement in indoor housing. The amount of space in either situation may or may not be limited. To learn more about what package labels mean, visit [humanesociety.org/farm/resources/pubs/meat\\_and\\_dairy\\_labels.html](http://humanesociety.org/farm/resources/pubs/meat_and_dairy_labels.html) and [humanesociety.org/farm/resources/pubs/animal\\_welfare\\_claims\\_on\\_egg\\_cartons.html](http://humanesociety.org/farm/resources/pubs/animal_welfare_claims_on_egg_cartons.html).

Although animal products labeled organic or free range aren’t necessarily cruelty-free, they’re often a better choice than conventional animal products. An animal product without such a label most likely comes from a factory farm.

## Think About It



As you learned from your exploration of various organizations’ policies, there are many different approaches to tackling the problem of farm animal suffering. Some groups take what is known as an abolitionist stance. They argue that not eating animal products is the best way to reduce as much suffering as possible and that animal consumption cannot be defended morally. Consequently, they argue that vegetarianism or veganism is the most ethical option. (Vegetarians consume no meat, including poultry and fish. Vegans avoid animal products altogether, including meat, dairy and eggs.)

Others adopt a reformist position. Reformists urge people to choose products that come from farms that treat animals better than the industry norm. They stop short, however, of saying that eating animals is inherently wrong.

Still others fall somewhere in between, adopting a strategy that has both abolitionist and reformist elements. For example, they may argue that not eating animals is the best option, but still push for industry reforms as a means of reducing the suffering of animals who are being used for food production. What do you think the strengths of each strategy are? The weaknesses? Which approach, if any, do you favor and why?

# The Human Health Argument

Reducing or replacing animal products in your diet can be beneficial to your health. People in the United States eat a large amount of beef. Even though Americans make up less than 5 percent of the world's population, Americans consume 25 percent of the world's beef. Medical studies have found that eating too much red meat can cause health problems.<sup>214</sup> The World Cancer Research Fund (WCRF) also found that reducing the amount of red meat in one's diet can help prevent cancer. Among their ten recommendations, the WCRF said consumers should avoid "processed meats such as bacon, ham, salami, corned beef and some sausages."<sup>215,216</sup>

Some animal products contain large amounts of saturated fat and cholesterol, all of which have been linked to health problems, including heart disease, stroke, diabetes and cancer. Chicken meat is one such example. It has more cholesterol per calorie than beef and the same amount of fat. Even when the chicken's skin is removed, the dark meat is thrown away, and a nonfat cooking method is used, chicken is still 23 percent fat. It can also contain large levels of arsenic, which the poultry industry feeds to the birds to make them grow faster. A bucket of chicken from a typical fast-food restaurant would be expected to have up to almost 50 times the amount of arsenic allowed in a glass of water.<sup>217</sup>

According to nutrition experts, most Americans could substantially reduce their risk of developing these diseases by eating a diet lower in saturated fat and cholesterol and higher in fruits, vegetables and whole grains.

The USDA developed the Food Pyramid in 1992, and it was used as an educational tool to help Americans select healthful diets. Today, a vegetarian food pyramid exists for people who wish to avoid eating meat. In this pyramid, food is grouped as follows: grains; vegetables and fruits; legumes, nuts and other protein-rich foods; fats; and calcium-rich foods. The calcium-rich foods are placed next to the other food groups to emphasize that calcium needs can be met by choosing a variety of foods from across the food groups.<sup>218</sup> According to a 2006 poll, vegans (people who abstain from eating meat, egg, and dairy products) account for as much as one-third to one-half of the vegetarian population.<sup>219</sup>

## Take Action

For one week, keep a journal of all the food you consume. Then divide everything into categories: fruits/vegetables, bread/grains, meat, dairy, legumes (beans, peas, nuts) and junk food/sweets. What percentage of your diet consists of animal products? How can you apply the three R's—reduce, refine and replace—to your diet?





## Take Action

If you're interested in switching from conventional animal products to those labeled organic or free-range, consider visiting the farms they came from to see how the animals are raised. Look at the label on the product to find out how to contact the manufacturer. Contact the company and explain that you would like to visit the farm that supplies its products before you make a purchase. Ask if you

can schedule a time and date for your visit. Pass on your findings to your grocery stores and others in your community. Or, simply visit a farmers' market to start getting to know the people who produce the foods you eat. Ask the farmer when you can visit his/her farm to see it for yourself. You can find farmers' markets in your area by visiting [localharvest.org](http://localharvest.org).

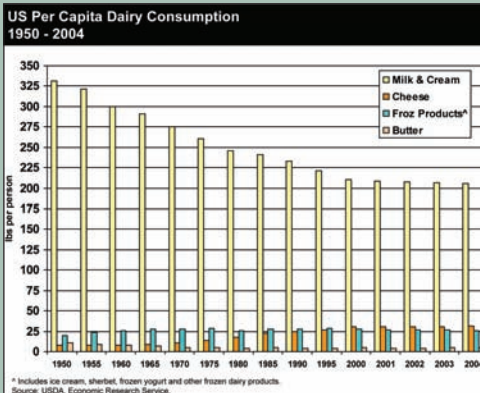


## Questions and Issues for Discussion

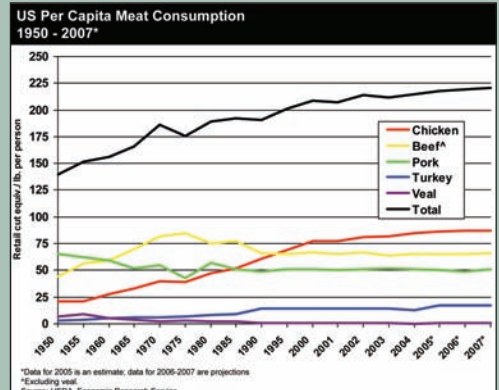
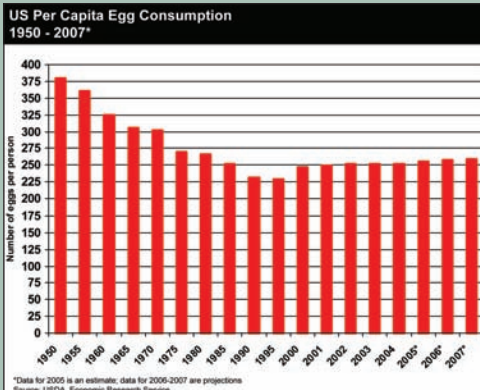
Some people argue that organic and free-range systems do not adequately address all the health, environmental, and animal welfare issues raised by animal agribusiness. They claim that since it's not necessary for us to eat animals, raising and killing them for food—regardless of how they're treated—is unethical. Becoming a vegan or vegetarian, they contend, is the only effective solution to these problems. Explain why you think that argument is or is not convincing.



## Think About It



Look over the statistics in the following graphs. What do you think might be some reasons why veal, milk and egg consumption decreased, and chicken and beef consumption increased?



## DEFINITIONS:

**Acute Death Syndrome:** A condition in which chickens suddenly lose their balance, violently flap their wings, go into spasms and die. Between 1 percent to 4 percent of broiler chickens die this way.

**Agribusiness:** Farming engaged in as a large-scale business operation including the production, processing, and distribution of agricultural products and the manufacture of farm machinery, equipment, and supplies.

**Artificial insemination:** The impregnation of a female by other than natural means. This procedure is commonly used in dairy, turkey and breeding sow operations.

**Ascites:** A condition in which the heart and lungs do not have sufficient capacity to support an overgrown body.<sup>220</sup> It is characterized by hypertrophy and dilation of the heart, changes in liver function, pulmonary insufficiency, hypoxemia, and the accumulation of fluid in the abdominal cavity.<sup>221</sup> It is responsible for 5 percent to 12 percent mortality in broiler chickens.<sup>222</sup>

**Battery cages:** Tiny, barren wire enclosures stacked one on top of another in long rows that are often used to permanently confine egg-laying hens.

**Controlled Atmosphere Stunning (CAS):** Process in which birds are made unconscious or killed before they're shackled at the slaughter plant. CAS reduces the amount of handling of live birds and has been shown to cause significantly less suffering than the conventional methods of slaughter.

**Cud:** A combination of semi-digested food and bile that must be further broken down before the plant fibers are digestible for the animal.

**Contract growers:** Individual farmers who provide the land, buildings, equipment, utilities, and labor needed to raise farm animals.

**Debeaking or beak trimming:** Procedure in which part of the beak of a young chick is sliced off with a hot blade. It is performed without anesthesia or pain relief. After their beaks are trimmed, chicks exhibit difficulty in grasping and swallowing feed. Debeaking is banned in some European countries.

**Desertification:** The gradual transformation of habitable land into desert; is usually caused by climate change or by destructive use of the land.

**Downers:** Animals too sick or injured to stand or walk.

**Dust baths:** A natural behavior of chickens where dust is brought through their feathers to keep the feathers in good condition and to regulate body temperature. A dust bath helps clean debris out of birds' feathers and soothes their skin. Birds get the most use from dust in the summer when pests are at their worst.

**Euthanasia:** A humane means of ending the life of an animal in physical distress.

**Forced molting.** Process of speeding up the egg-laying cycle by shocking hens into earlier molts (natural resting periods) of shorter duration. Forced molts are commonly triggered by starving birds or dramatically lowering the caloric content of their food.

**Growout operations:** Area where animals are confined until they reach a certain market weight.

**Herbicide:** A substance or preparation for killing plants, especially weeds.

**Humane Methods of Slaughter Act of 1958:** Law that requires that livestock be rendered insensible to pain in a way "that is rapid and effective, before being shackled, hoisted, thrown, cast, or cut"<sup>223</sup> in slaughterhouses. The U.S. Department of Agriculture does not apply the law to poultry or to rabbits.



Photo Disc Inc.

**Intensive confinement:** A system in which large numbers of animals are housed in the smallest possible space.

**Lobbying:** To try to urge the passage of a bill, or influence the actions of public officials, especially legislators.

**Non-formula-fed:** Type of young calves allowed to eat solid foods; may or may not be confined to crates.

**Pandemic:** A disease that is spread over a large geographic area—for example, a continent or even worldwide—and affects a large portion of the population.

**Perch:** To settle or rest in some elevated position

**Pesticide:** A chemical preparation for destroying plant, fungal, or animal pests.

**Preen:** To smooth or clean (feathers) with the beak or bill.

**Selective breeding:** Focusing on desired traits in parent animals, so that offspring will be born with the same conditions and/or traits.

**The Twenty-Eight Hour Law of 1873:** A federal law that prohibits railroads and shipping companies from confining animals for longer than 28 consecutive hours without unloading them for rest, water and feeding. It is also referred to as the Live Stock Transportation Act and also as the Cruelty to Animals Act, Twenty-Eight Hour Law, and Food and Rest Law. The U.S. Department of Agriculture does not apply the law to poultry.



Photo Disc Inc.



- <sup>1</sup> United States Department of Agriculture. Economic Research Service. Retail Scanner Prices. <http://www.irmc.info/meatscanner/meatscanner.shtml>. Accessed August 29, 2007.
- <sup>2</sup> United States Department of Agriculture. National Agriculture Statistics Service. Land in Farms. [http://www.nass.usda.gov/Statistics\\_by\\_State/Washington/Historic\\_Data/economics/landinfrm.pdf](http://www.nass.usda.gov/Statistics_by_State/Washington/Historic_Data/economics/landinfrm.pdf). Accessed July 26, 2007.
- <sup>3</sup> U.S. Department of Agriculture Economic Research Service. Agricultural Resource Management Survey (ARMS). Accessible via [ers.usda.gov/Data/ARMS/app/Farm.aspx](http://ers.usda.gov/Data/ARMS/app/Farm.aspx). Accessed May 3, 2007.
- <sup>4</sup> U.S. Department of Agriculture Economic Research Service. Agricultural Resource Management Survey (ARMS). Ibid.
- <sup>5</sup> U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Poultry slaughter: 2005 annual summary. [usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2006.pdf](http://usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2006.pdf).
- <sup>6</sup> U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Livestock slaughter: 2005 summary, op cit.
- <sup>7</sup> Wolfson DJ and Sullivan M. 2004. Foxes in the hen house—animals, agribusiness, and the law: a modern American fable. In: Sunstein CR and Nussbaum MC (eds.), *Animal Rights: Current Debates and New Directions* (New York, N.Y.: Oxford University Press, pp. 206-7).
- <sup>8</sup> United States Department of Agriculture, National Agricultural Statistics Service. Updated June 8, 2007. Accessed June 20, 2007 via [http://www.hsus.org/farm/resources/pubs/stats\\_slaughter\\_totals.html](http://www.hsus.org/farm/resources/pubs/stats_slaughter_totals.html)
- <sup>9</sup> U.S. Department of Agriculture National Agricultural Statistics Service. 2007. Milk cows and production: national statistics. Accessible via [www.nass.usda.gov/QuickStats/indexbysubject.jsp?Pass\\_name=&Pass\\_group=Livestock+%26+Animals&Pass\\_subgroup=Dairy%20top](http://www.nass.usda.gov/QuickStats/indexbysubject.jsp?Pass_name=&Pass_group=Livestock+%26+Animals&Pass_subgroup=Dairy%20top). Accessed May 3, 2007.
- <sup>10</sup> U.S. Department of Agriculture National Agricultural Statistics Service. 2007. Chickens and eggs: 2006 summary. February. [usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf](http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf). Accessed April 25, 2007.
- <sup>11</sup> United States Department of Agriculture Economic Research Service. Poultry and Eggs: Background. <http://www.ers.usda.gov/Briefing/Poultry/Background.htm>. Accessed April 12, 2007.
- <sup>12</sup> The Humane Society of the United States. An HSUS Report: The Welfare of Animals in the Broiler Chicken Industry. [http://www.hsus.org/farm/resources/research/welfare/broiler\\_industry.html](http://www.hsus.org/farm/resources/research/welfare/broiler_industry.html)
- <sup>13</sup> United Food and Commercial Workers. 2007. Injury and injustice – America's poultry industry. [www.ufcw.org/press\\_room/fact\\_sheets\\_and\\_background/poultryindustry\\_cfm](http://www.ufcw.org/press_room/fact_sheets_and_background/poultryindustry_cfm). Accessed May 3, 2007.
- <sup>14</sup> United States Department of Agriculture. Farm Animal Statistics: Top Five States & U.S. [http://www.hsus.org/farm/resources/pubs/stats\\_top\\_states.html](http://www.hsus.org/farm/resources/pubs/stats_top_states.html). Accessed April 12, 2007.
- <sup>15</sup> U.S. Department of Agriculture National Agricultural Statistics Service. 2007. Poultry slaughter: 2006 annual summary. [usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2007.pdf](http://usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2007.pdf). Accessed June 28, 2007.
- <sup>16</sup> Hugh-Jones ME, Hubbert WT, and Hagsad HV. 1995. *Zoonoses: Recognition, Control, and Prevention* (Ames, IA: Iowa State University Press).
- <sup>17</sup> Ernst RA. 1995. University of California Cooperative Extension, Poultry Fact Sheet No. 20, June 1995, [animalscience.ucdavis.edu/Avian/pfs20.htm](http://animalscience.ucdavis.edu/Avian/pfs20.htm).
- <sup>18</sup> Dawkins MS and Hardie S. 1989. Space needs of laying hens. *British Poultry Science* 30:413-6.
- <sup>19</sup> Weeks CA, Danbury TD, Davies HC, Hunt P, and Kestin SC. 2000. The behaviour of broiler chickens and its modification by lameness. *Applied Animal Behaviour Science* 67:111-25.
- <sup>20</sup> Estevez I. 2002. Poultry welfare issues. *Poultry Digest Online* 3:No.2.
- <sup>21</sup> Calnek BW, Barnes HJ, Beard CW, McDougald LR, and Saif YM (eds.). 1991. *Diseases of Poultry*, 9th Edition (Ames, Iowa: Iowa State University Press, pp. 293-9).
- <sup>22</sup> Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? *Journal of Applied Animal Welfare Science* 4:207-21.
- <sup>23</sup> Duncan IJH. 2001. Welfare problems of meat-type chickens. *Farmed Animal Well-Being Conference at the University of California-Davis*, June 28-29.
- <sup>24</sup> HSUS personal correspondence with Stephen Pretanik, director of Science and Technology, National Chicken Council, Washington D.C.,



Photo Disc Inc.

- January 14, 2004.
- <sup>25</sup> University of Arkansas Division of Agriculture Cooperative Extension Service. Top ten facts about chickens, [kidsarous.org/kids\\_go4it/growit/raiseit/chickens.htm](http://kidsarous.org/kids_go4it/growit/raiseit/chickens.htm).
- <sup>26</sup> Riddell C and Springer R. 1984. An epizootiological study of acute death syndrome and leg weakness in broiler chickens in Western Canada. *Avian Diseases* 29:90-102.
- <sup>27</sup> Sørensen P, Su G, and Kestin SC. 1999. The effect of photoperiod: scotoperiod on leg weakness in broiler chickens. *Poultry Science* 78:336-42.
- <sup>28</sup> Tablante NL, Estevez I, and Russek-Cohen E. 2003. Effect of perches and stocking density on tibial dyschondroplasia and bone mineralization as measured by bone ash in broiler chickens. *Journal of Applied Poultry Research* 12:53-9.
- <sup>29</sup> Havenstein GB, Ferket PR, and Qureshi MA. 2003. Growth, livability, and feed conversion of 1957 versus 2001 broilers when fed representative 1957 and 2001 broiler diets. *Poultry Science* 82:1500-8.
- <sup>30</sup> Bartlett B. 1988. Performance problems in growing broilers. *Poultry Digest* 17.
- <sup>31</sup> Baskin C. 1978. Confessions of a Chicken Farmer. *Country Journal* April:38.
- <sup>32</sup> Rauw WM, Kanis E, Noordhuizen-Stassen EN, and Grommers FJ. 1998. Undesirable side effects of selection for high production efficiency in farm animals: a review. *Livestock Production Science* 56:15-33.
- <sup>33</sup> Greger, Michael MD. Bird Flu: A Virus of Our Own Hatching. November 2006. <http://birdflubook.com/a.php?id=114> Accessed June 27, 2007.
- <sup>34</sup> Food and Agriculture Organization of the United Nations. 2004. Emergency prevention system transboundary animal diseases, Bulletin No. 25 January-June. <http://ftp.fao.org/docrep/fao/007/y5537e/y5537e00.pdf>. Accessed February 2, 2007.
- <sup>35</sup> Greger, op cit.
- <sup>36</sup> Greger, op cit.
- <sup>37</sup> Orent W. 2005. Chicken flu is no big peril: fear sick people, not poultry. *Los Angeles Times*, February 28, p. 9.
- <sup>38</sup> El-Lethey H, Huber-Eicher B, and Jungi TW. 2003. Exploration of stress-induced immunosuppression in chickens reveals both stress-resistant and stress-susceptible antigen responses. *Veterinary Immunology and Immunopathology* 95:91-101.
- <sup>39</sup> European Commission Scientific Veterinary Committee. 1996. Report on the Welfare of Laying Hens (Brussels, Belgium: Scientific Veterinary Committee).
- <sup>40</sup> Wilson WO. 1966. Poultry production. *Scientific American* 215(1):56-64.
- <sup>41</sup> U.S. Department of Agriculture, Animal and Plant Health Inspection Service. 2004. Highly pathogenic avian influenza: a threat to U.S. poultry. Program Aid No. 1704. March.
- <sup>42</sup> The Humane Society of the United States. An HSUS Report: Human Health Implications of Intensive Poultry Production and Avian Influenza, [http://www.hsus.org/farm/resources/research/pubhealth/public\\_health\\_avian\\_influenza.html](http://www.hsus.org/farm/resources/research/pubhealth/public_health_avian_influenza.html).
- <sup>43</sup> Duncan IJH. 1989. The assessment of welfare during the handling and transport of broilers. In: JM Faure and AD Mills (eds.), *Proceedings of the Third European Symposium on Poultry Welfare* (Tours, France: French Branch of the World Poultry Science Association, pp. 79-91).

- 44 Gregory NG and Wilkins LJ. 1992. Skeletal damage and bone defects during catching and processing. In: Whitehead CC (ed.), Bone Biology and Skeletal Disorders in Poultry (Abingdon, England: Carfax Publishing).
- 45 Weeks CA and Nicol C. 2000. Poultry handling and transport. In: Grandin T (ed.), Livestock Handling and Transport (Wallingford, England: CABI Publishing, pp. 363-84).
- 46 Gregory NG and Austin SD. 1992. Causes of trauma in broilers arriving in poultry processing plants. *Veterinary Record* 131:501-3.
- 47 Weeks CA. 2001. Temperature stress in poultry during transport: welfare issues and solutions. *ASWELVA Newsletter* 5 No. 1.
- 48 7 U.S.C. § 1902.
- 49 Wolfson D. 1999. Beyond the Law: Agribusiness and the Systemic Abuse of Animals Raised for Food or Food Production (Farm Sanctuary, Inc., p. 14).
- 50 United States Department of Agriculture. Briefing Room: Poultry and Eggs: Background. <http://www.ers.usda.gov/Briefing/Poultry/Background.htm>. Accessed on April 12, 2007.
- 51 United States Department of Agriculture, Ibid.
- 52 United States Department of Agriculture, Ibid.
- 53 United States Department of Agriculture, Ibid.
- 54 United Egg Producers. 2005. United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2005 Edition (Alpharetta, Ga.: United Egg Producers). [www.uepcertified.com/docs/2005\\_UEPanimal\\_welfare\\_guidelines.pdf](http://www.uepcertified.com/docs/2005_UEPanimal_welfare_guidelines.pdf). Accessed May 3, 2007.
- 55 U.S. Department of Agriculture National Agricultural Statistics Service. 2007. Chickens and eggs: 2006 summary. February. [usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf](http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf). Accessed April 25, 2007.
- 56 United States Department of Agriculture, National Agriculture Statistics Service. November 30, 2006. Accessed April 12, 2007 via [http://www.hsus.org/farm/resources/pubs/stats\\_top\\_stats.html](http://www.hsus.org/farm/resources/pubs/stats_top_stats.html)
- 57 United Egg Producers. 2006. United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2006 Edition (Alpharetta, GA: United Egg Producers, p. 15). [www.uepcertified.com/docs/2006\\_UEP\\_animal\\_welfare\\_guidelines.pdf](http://www.uepcertified.com/docs/2006_UEP_animal_welfare_guidelines.pdf). Accessed February 2, 2007.
- 58 Dawkins MS and Hardie S. 1989. Space needs of laying hens. *British Poultry Science* 30:413-6.
- 59 Linus Pauling Institute Micronutrient Information Center. Vitamin D. [lpi.oregonstate.edu/infocenter/vitamins/vitaminD/index.html](http://lpi.oregonstate.edu/infocenter/vitamins/vitaminD/index.html).
- 60 Webster AB. 2004. Welfare implications of avian osteoporosis. *Poultry Science* 83:184-92.
- 61 Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? *Journal of Applied Animal Welfare Science* 4:207-21.
- 62 Arshad M. 1999. An ecological study of red junglefowl (*Gallus gallus spadiceus*) in agricultural areas. Universiti Putri Malaysia.
- 63 Baxter M. 1994. The welfare problems of laying hens in battery cages. *The Veterinary Record* 134:618.
- 64 Lorenz K. 1980. Animals are sentient beings: Konrad Lorenz on instinct and modern factory farming. *Der Spiegel*. November 17, 1980, Volume 34, No. 47, p. 264.
- 65 BBC News. 1999. Battery hen cages to be outlawed. June 15. [news.bbc.co.uk/1/hi/world/europe/369555.stm](http://news.bbc.co.uk/1/hi/world/europe/369555.stm). Accessed February 2, 2007.
- 66 Mench J. 1992. The welfare of poultry in modern production systems. *Poultry Science Review* 4:112.
- 67 Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? *Journal of Applied Animal Welfare Science* 4:207-21.
- 68 Duncan IJH. 2002. Letter to The Editor: Disagrees with AVMA's Position on Induced Molting. *JAVMA* 221:5.
- 69 Beckoff, Marc. *Encyclopedia of Animal Rights and Animal Welfare*. Westport, CT: Greenwood Press, 1998. p. 102.
- 70 Duncan IJH. op cit.
- 71 Duncan IJH. op cit.
- 72 McReynolds, J.L., Kubena, L.F., Byrd II, J.A., Anderson, R.C., Ricke, S.C., Nisbet, D.J. 2005. Evaluation of *Salmonella enteritidis* in molting hens after administration of an experimental chlorate product (for nine days) in the drinking water and feeding an alfalfa molt diet. *Poultry Science*. 84:1186-1190. <http://ps.fass.org/cgi/reprint/84/8/1186>. Accessed July 25, 2007.
- 73 Lee, Jill. Scientists Seek New Clues on *Salmonella*. United States Department of Agriculture, Agricultural Research Service. April 9, 1998. <http://www.ars.usda.gov/is/pr/1998/980409.htm>. Accessed July 25, 2007.
- 74 United States Department of Agriculture. Annex B: Distribution of *Salmonella* Prevalence in Hens and Eggs. October 2005. [http://www.fsis.usda.gov/PDF/SE\\_Risk\\_Assess\\_Annex\\_B\\_Oct2005.pdf](http://www.fsis.usda.gov/PDF/SE_Risk_Assess_Annex_B_Oct2005.pdf). Accessed July 25, 2007. p.B-19,21.
- 75 Department of Health and Human Services Centers for Disease Control and Prevention. *Salmonella enteritidis*. [http://www.cdc.gov/ncidod/dbmd/diseaseinfo/salment\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/salment_g.htm). Accessed July 25, 2007.
- 76 Duncan IJH. op cit.
- 77 Duncan IJH. op cit.
- 78 Estevez I. 2002. Poultry welfare issues. *Poultry Digest Online* 3:No.2.
- 79 Estevez, Ibid.
- 80 Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: State of the Animals 2001 (Washington, D.C.: Humane Society Press, p. 90).
- 81 MacArthur M. 2002. Analyst says poultry growers oblivious to poor conditions. *Western Producer*, Dec. 12, 2002.
- 82 Fraser, Ibid.
- 83 BBC News. 1999. Battery hen cages to be outlawed. June 15. [news.bbc.co.uk/1/hi/world/europe/369555.stm](http://news.bbc.co.uk/1/hi/world/europe/369555.stm). Accessed February 2, 2007.
- 84 "West Hollywood City Council Passes Resolution Opposing One of Factory Farming's Worst Abuses." January 17, 2007. [http://www.hsus.org/farm/news/pressrel/west\\_hollywood\\_city\\_council.htm](http://www.hsus.org/farm/news/pressrel/west_hollywood_city_council.htm)
- 85 HSUS personal correspondence with Marcus Henley, operations manager, Hudson Valley Foie Gras, July 6, 2006.
- 86 Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 20). [ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed May 17, 2007.
- 87 Scientific Committee on Animal Health and Animal Welfare (SCAHAW), Ibid.
- 88 Scientific Committee on Animal Health and Animal Welfare (SCAHAW), Ibid.
- 89 Report on Force Feeding by Belgian Experts. 1996. Council of Europe, Permanent Council of the European Convention on the protection of farmed animals (T-AP), 32nd Meeting, Strasbourg, October 8-11, p. 49. Trevayne K, trans.
- 90 Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Faure JM, Guy G, and Guémené D. 2000. Comportement exprime par le canard mulard en fonction du mode de logement pendant la période de gavage (Hybrid duck behaviour according to housing during force feeding). *Actes des 4e Journées de la Recherche sur les Palmipèdes à Foie Gras, Arcachon*, October 4-5, pp. 42-5. Comiti A, trans.
- 91 Based on feeding data from Guemene D, Guy G, Noirault J, Garreau-Mills M, Gouraud P, and Faure JM. 2001. Force-feeding procedure and physiological indicators of stress in male mule ducks. *British Poultry Science* 42(5):650-7; and assuming a 160-pound adult human.
- 92 Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 34). [ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed May 17, 2007.
- 93 The Humane Society of the United States. Force-Fed Abuse. <http://www.hsus.org/farm/camp/ffa/>



94 An HSUS Report: The Welfare of Animals in the Foie Gras Industry. June 5, 2007. [http://www.hsus.org/farm/resources/research/welfare/the\\_foie\\_gras\\_industry.html](http://www.hsus.org/farm/resources/research/welfare/the_foie_gras_industry.html).

95 Brown PL. 2003. Foie gras fracas: haute cuisine meets the duck liberators. *The New York Times*, September 24.

96 Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 35). [ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed May 17, 2007.

97 Stevenson P. 2000. Foie gras: the force-feeding of ducks and geese. *Compassion in World Farming*.

98 McKenna C. 2000. Forced feeding: an inquiry into the welfare of ducks and geese kept for the production of foie gras. *Advocates for Animals and World Society for the Protection of Animals*. [advocatesforanimals.co.uk/pdf/FoieGras.pdf](http://advocatesforanimals.co.uk/pdf/FoieGras.pdf). Accessed May 17, 2007.

99 Supreme Court of Israel. Foie Gras Verdict. August 2003. [chai-online.org/en/compassion/foiegras/food\\_foiegras\\_verdict.htm](http://chai-online.org/en/compassion/foiegras/food_foiegras_verdict.htm). Accessed August 10, 2006.

100 California Decides to Permanently Pull Foie Gras Off the Menu. 2004. Press release by The Humane Society of the United States issued October 8. [www.hsus.org/farm/news/ournews/california\\_bans\\_foie\\_gras.html](http://www.hsus.org/farm/news/ournews/california_bans_foie_gras.html). Accessed April 19, 2007.

101 United States Department of Agriculture Economic Research Service. Hogs: Background. <http://www.ers.usda.gov/Briefing/Hogs/Background.htm>. Accessed April 12, 2007.

102 National Pork Producers Council. Today's U.S. Pork Industry. [http://www.nppc.org/about/pork\\_today.html](http://www.nppc.org/about/pork_today.html). Accessed November 20, 2007.

103 United States Department of Agriculture Economic Research Service. Ibid.

104 United States Department of Agriculture Economic Research Service. Ibid.

105 U.S. Department of Agriculture National Agricultural Statistics Service. 2007. Livestock slaughter: 2006 summary. March. [usda.mannlib.cornell.edu/usda/current/LiveSlauSu/LiveSlauSu-03-02-2007.pdf](http://usda.mannlib.cornell.edu/usda/current/LiveSlauSu/LiveSlauSu-03-02-2007.pdf). Accessed May 3, 2007.

106 Reun PD, Dial GD, Polson DD, and Marsh WE. 1992. Breeding and gestation facilities for swine: matching biology to facility design. *The Veterinary Clinics of North America: Food Animal Practice* 8(3):475-502.

107 Barnett JL, Hensworth PH, Cronin GM, Jongman EC, and Hutson GD. 2001. A review of the welfare issues for sows and piglets in relation to housing. *Australian Journal of Agricultural Research* 52:1-28. Cited in: Pajor EA. 2002. Group housing of sows in small pens: advantages, disadvantages and recent research. In: Reynells R (ed.), *Proceedings: Symposium on Swine Housing and Well-being* (Des Moines, Iowa: U.S. Department of Agriculture Agricultural Research Service, June 5, pp. 37-44). Accessed March 6, 2006. [www.ces.purdue.edu/pork/sowhousing/swine\\_02.pdf](http://www.ces.purdue.edu/pork/sowhousing/swine_02.pdf).

108 The Humane Society of the United States. An HSUS Report: Welfare Issues with Gestation Crates for Pregnant Sows. [http://www.hsus.org/farm/resources/research/practices/gestation\\_crates.html](http://www.hsus.org/farm/resources/research/practices/gestation_crates.html). Accessed December 6, 2007.

109 Scientific Veterinary Committee. Animal Welfare Section. 1997. *The Welfare of Intensively Kept Pigs*.

110 Commission of the European Communities. 2001. Council Directive 2001/88/EC amending Directive 91/630/EEC laying down the minimum standards for the protection of pigs. *Official Journal of European Communities* 23 October, L316:1-4.

111 Forsythe BK. 2003. Letter to the editor. *Journal of the American Veterinary Medical Association*, July 1, p. 42.

112 Rollin BE. 2007. Personal correspondence with The Humane Society of the United States. January 30.

113 The Humane Society of the United States. An HSUS Report: The Welfare of Animals in the Meat, Egg, and Dairy Industries. [http://www.hsus.org/farm/resources/research/welfare/welfare\\_overview.html](http://www.hsus.org/farm/resources/research/welfare/welfare_overview.html).

114 United States Department of Agriculture Economic Research Service, op cit.

115 Swine News. 2006. North Carolina State Cooperative Extension Service. February, Volume 29, Number 1. Accessed May 5, 2006. [mark.asci.ncsu.edu/Swine\\_News/2006/February/February06.pdf](http://mark.asci.ncsu.edu/Swine_News/2006/February/February06.pdf).

116 Purdue University. Cooperative Extension Service. 2001. *Pork Industry Handbook*, p. 8.

117 U.S. Department of Agriculture National Agricultural Statistics Service. 2006. Livestock slaughter: 2005 summary, op cit.

118 Tilman D, Cassman KG, Matson PA, Naylor R, and Polasky S. 2002. Agricultural sustainability and intensive production practices. *Nature*



Photo Disc Inc.

418:671-7.

119 Anderson AD, McClellan J, Rossiter S, and Angulo FJ. 2003. Public health consequences of use of antimicrobial agents in agriculture. In: *The Resistance Phenomenon in Microbes and Infectious Disease Vectors: Implications for Human Health and Strategies for Containment: Workshop Summary* (Washington, D.C.: National Academies Press, pp. 231-43). [fermat.nap.edu/openbook/0309088542/html/231.html](http://fermat.nap.edu/openbook/0309088542/html/231.html). Accessed February 19, 2007.

120 Mellon MG, Benbrook C, and Benbrook KL. 2001. *Hogging It! Estimates of Antimicrobial Abuse in Livestock* (Cambridge, MA: Union of Concerned Scientists).

121 Center for Science in the Public Interest. Antibiotic Resistance Project. Humane-use antibiotics are used to treat animal disease. [http://www.cspinet.org/ar/ar\\_animaldisease.html](http://www.cspinet.org/ar/ar_animaldisease.html). Accessed June 21, 2007.

122 Center for Science in the Public Interest. Antibiotic Resistance Project. The US lags behind many other countries in protecting its citizens from antibiotic resistance due to the use of antibiotics in livestock. [http://www.cspinet.org/ar/ar\\_antibiotics\\_us.html](http://www.cspinet.org/ar/ar_antibiotics_us.html). Accessed June 21, 2007.

123 U.S. Department of Agriculture National Agricultural Statistics Service. Beef Cows: Inventory on January 1 by Year, U.S.: 1920 to 2004. Accessed January 27, 2006, at [www.nass.usda.gov/Charts\\_and\\_Maps/Cattle/bcow.asp](http://www.nass.usda.gov/Charts_and_Maps/Cattle/bcow.asp).

124 Washburn SP, White SL, Green Jr JT, and Benson GA. 2002. Reproduction, mastitis, and body condition of seasonally calving Holstein and Jersey cows in confinement or pasture systems. *Journal of Dairy Science* 85:105-11.

125 Goldberg JJ, Wildman EE, Pankey JW, Kunkel JR, Howard DE, and Murphy BM. 1992. The influence of intensively managed rotational grazing, traditional continuous grazing, and confinement housing on bulk tank milk quality and udder health. *Journal of Dairy Science* 75:96-104.

126 Clancy, Kate. Greener Pastures: How grass-fed beef and milk contribute to healthy eating. Union of Concerned Scientists. March 2006. [ucusa.org/greener-pastures.pdf](http://ucusa.org/greener-pastures.pdf). Accessed November 16, 2007.

127 Smith RA. 1998. Impact of disease on feedlot performance: a review. *Journal of Animal Science* 76:272-4.

128 United States Department of Agriculture: Food Safety and Inspection Service. Fact Sheets: Meal Preparation: Veal from Farm to Table. October 17, 2006. [http://www.fsis.usda.gov/Fact\\_Sheets/veal\\_from\\_farm\\_to\\_table/index.asp](http://www.fsis.usda.gov/Fact_Sheets/veal_from_farm_to_table/index.asp). Accessed April 24, 2007.

129 Clancy, Kate. Greener Pastures: How grass-fed beef and milk contribute to healthy eating. Union of Concerned Scientists. March 2006. [ucusa.org/greener-pastures.pdf](http://ucusa.org/greener-pastures.pdf). Accessed November 19, 2007, pg. 9.

130 U.S. Department of Agriculture Animal and Plant Health Inspection Service. 1996. Dairy 1996 NAHMS Study, pp. 15-6.

131 Webster AJ. 1986. Health and welfare of animals in modern husbandry systems: dairy cattle. In *Practice* May 8(3):85-9.

132 Extending functional longevity. *Country Folks of Pennsylvania*, May 12, 1997, p. A9.

133 Clancy, Kate, op cit.

134 Clancy, Kate, op cit.

135 Food and Water Watch. Say No to rBGH! <http://www.foodandwater-watch.org/food/dairy/bovine-growth-hormone/no-rbgh>. Access November 19, 2007.

136 North, Rick. "rBGH-Free Oregon Campaign Fact Sheet" Oregon Physicians for Social Responsibility. [http://www.oregonpsr.org/csf/rbgh\\_fact\\_sheet.doc](http://www.oregonpsr.org/csf/rbgh_fact_sheet.doc). Accessed July 26, 2007.

137 North, Rick, op cit.

138 Food and Water Watch. Say No to rBGH! <http://www.foodandwater-watch.org/food/dairy/bovine-growth-hormone/no-rbgh>. Access November

- 19, 2007.
- 139 Food and Water Watch, Say No to rBGH!, op cit.
- 140 North, Rick, op cit.
- 141 Food and Water Watch, Say No to rBGH!, op cit.
- 142 Stull CL, Payne MA, Berry SL, and Hullinger PJ. 2004. Tail docking in dairy cattle. University of California, Davis, School of Veterinary Medicine, April 13. [www.vetmed.ucdavis.edu/vetext/INF-AN/Tail-Docking-Dairy.pdf](http://www.vetmed.ucdavis.edu/vetext/INF-AN/Tail-Docking-Dairy.pdf). Accessed February 26, 2006.
- 143 Schreiner DA and Ruegg PL. Dairy briefing: understanding the impact of tail docking in dairy cattle. University of Wisconsin Agriculture and Extension Service Center. [www.co.brown.wi.us/uw\\_extension/Fact%20Sheet-Benefit%20of%20Tail%20Docking%20in%20Cattle.htm](http://www.co.brown.wi.us/uw_extension/Fact%20Sheet-Benefit%20of%20Tail%20Docking%20in%20Cattle.htm). Accessed February 26, 2006.
- 144 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 145 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 146 Weise E. 2004. Illegal hormones found in veal calves. USA Today, March 28, 2004. [www.usatoday.com/news/health/2004-03-28-veal-usat\\_x.htm](http://www.usatoday.com/news/health/2004-03-28-veal-usat_x.htm).
- 147 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 148 The Humane Society of the United States. An HSUS Report: The Economics of Adopting Alternative Production Systems to Veal Crates. [http://www.hsus.org/farm/resources/research/economics/veal\\_crates\\_econ.html](http://www.hsus.org/farm/resources/research/economics/veal_crates_econ.html). Accessed November 19, 2007.
- 149 The Humane Society of the United States. An HSUS Report: The Economics of Adopting Alternative Production Systems to Veal Crates. Op cit.
- 150 The Humane Society of the United States. An HSUS Report: The Economics of Adopting Alternative Production Systems to Veal Crates. Op cit.
- 151 Scientific Veterinary Committee, Animal Welfare Section, 1995. Report on the welfare of calves. European Commission, Brussels. For the European Commission, Directorate-general for Agriculture; Report Vi/5891/95 PVH/kod, September 11. Accessed December 16, 2007. [europa.eu.int/comm/food/fs/sc/oldcomm4/out35\\_en.pdf](http://europa.eu.int/comm/food/fs/sc/oldcomm4/out35_en.pdf), p. 57.
- 152 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 153 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 154 U.S. Department of Agriculture National Agricultural Statistics Service. Beef Cows: Inventory on January 1 by Year, U.S.: 1920 to 2004. Accessed January 27, 2007, at [www.nass.usda.gov/Charts\\_and\\_Maps/Cattle/bcow.asp](http://www.nass.usda.gov/Charts_and_Maps/Cattle/bcow.asp).
- 155 Goodrich R and Stricklin WR. 2004. South Dakota State University College of Agriculture and Biological Sciences Department of Animal and Range Sciences Extension & Research. Beef. Last updated October 19, 2004. [ars.sdstate.edu/animaliss/beef.html](http://ars.sdstate.edu/animaliss/beef.html).
- 156 Rollin BE. 1995. Farm Animal Welfare: Social, Bioethical, and Research Issues (Ames, Iowa: Iowa State Press, p. 95).
- 157 Lawrence J, Shouse S, Edwards W, Loy D, Lally J, and Martin RE. 2000. Beef feedlot systems manual. Presented by the Iowa Beef Center and Iowa State University Extension as a supplement to the Cattle Feeding in Iowa for the 21st Century Conference, November 1, 2000. [extension.iastate.edu/Publications/PM1867.pdf](http://extension.iastate.edu/Publications/PM1867.pdf).
- 158 Union of Concerned Scientists. Benefits of Sustainable Agriculture. Greener Pastures. How Grass-Fed Beef and Milk Contribute to Healthy Eating. [http://www.ucsusa.org/food\\_and\\_environment/sustainable\\_food/greener-pastures.html](http://www.ucsusa.org/food_and_environment/sustainable_food/greener-pastures.html). Accessed July 30, 2007.
- 159 Goodrich R and Stricklin WR. 2004. South Dakota State University College of Agriculture and Biological Sciences Department of Animal and Range Sciences Extension & Research. Beef. Last updated October 19, 2004. [ars.sdstate.edu/animaliss/beef.html](http://ars.sdstate.edu/animaliss/beef.html).
- 160 United States Department of Agriculture: Food Safety and Inspection Service, op cit.
- 161 Vansickle, Joe. Quality Assurance Program Launched. National Hog Farmer. Feb 15, 2002. [http://nationalhogfarmer.com/mag/farming\\_quality\\_assurance\\_program/](http://nationalhogfarmer.com/mag/farming_quality_assurance_program/). Accessed August 1, 2007.
- 162 The Humane Society of the United States. Get the Facts on Downers. [http://www.hsus.org/farm/resources/animals/cattle/get\\_the\\_facts\\_on\\_downers.html](http://www.hsus.org/farm/resources/animals/cattle/get_the_facts_on_downers.html)
- 163 No Downers: A Farm Sanctuary Campaign. <http://www.nodowners.org/>. Accessed August 28, 2007.
- 164 U.S. Department of Agriculture Food Safety and Inspection Service. 2007. FSIS publishes final rule prohibiting processing of "downer" cattle. July 12. [www.fsis.usda.gov/News\\_Events/NR\\_071207\\_01/index.asp](http://www.fsis.usda.gov/News_Events/NR_071207_01/index.asp). Accessed July 16, 2007.
- 165 7 U.S.C. § 1902.
- 166 The Humane Society of the United States. An HSUS Report: The Economics of Adopting Alternative Production Practices to Electrical Stunning Slaughter of Poultry. [http://www.hsus.org/farm/resources/research/economics/electric\\_stunning.html](http://www.hsus.org/farm/resources/research/economics/electric_stunning.html). Accessed January 2, 2008.
- 167 The Humane Society of the United States. An HSUS Report: The Welfare of Animals in the Meat, Egg, and Dairy Industries. [http://www.hsus.org/farm/resources/research/welfare/welfare\\_overview.html](http://www.hsus.org/farm/resources/research/welfare/welfare_overview.html). Accessed January 2, 2008.
- 168 The Humane Society of the United States. An HSUS Report: The Economics of Adopting Alternative Production Practices to Electrical Stunning Slaughter of Poultry. Op cit.
- 169 Humane Methods of Livestock Slaughter, 7 U.S.C.A. § 1902(a). Humane Methods. [www.animallaw.info/statutes/stusfd7usca1901.htm](http://www.animallaw.info/statutes/stusfd7usca1901.htm).
- 170 Human Rights Watch. About HRW: Who we are, what we do. [hrw.org/about/whoweare.html](http://hrw.org/about/whoweare.html). Accessed February 20, 2007.
- 171 Compa L and Fellner J. 2005. Meatpacking's human toll. Washington Post, August 3. [washingtonpost.com/wp-dyn/content/article/2005/08/02/AR2005080201936.html](http://www.washingtonpost.com/wp-dyn/content/article/2005/08/02/AR2005080201936.html). Accessed October 9, 2006.
- 172 Human Rights Watch. Blood, Sweat, and Fear: Worker's Rights in U.S. Meat and Poultry Plants. 2004. p. 36. [http://www.factoryfarming.com/BloodSweatandFear\\_WorkersRights2004.pdf](http://www.factoryfarming.com/BloodSweatandFear_WorkersRights2004.pdf). Accessed August 1, 2007.
- 173 Ibid. p. 55-56..
- 174 Ibid. p. 48.
- 175 United States Department of Agriculture. Livestock Slaughter Inspection Training. Humane Slaughter. January 2005. [http://www.fsis.usda.gov/PDF/LSIT\\_HumaneHandling.pdf](http://www.fsis.usda.gov/PDF/LSIT_HumaneHandling.pdf) . p. 4. Accessed August 9, 2007.
- 176 Dorff, Elliot N. and Roth, Joel. Shackling and Hoisting. <http://www.grandin.com/ritual/conservative.jewish.law.html>. Accessed August 9, 2007.
- 177 Ibid.
- 178 Ibid.
- 179 Grandin, Temple. Animal Welfare in Slaughter Plants. 1996. p.6. [http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/04-013N/Animal\\_Welfare\\_Slaughter\\_Plants.pdf](http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/04-013N/Animal_Welfare_Slaughter_Plants.pdf). Accessed August 9, 2007.
- 180 Grandin, Temple and Regenstien, Joe M. Religious Slaughter and Animal Welfare: A Discussion for Meat Scientists. 1994. <http://www.grandin.com/ritual/kosher.slaugh.html>. Accessed August 9, 2007.
- 181 Grandin, Temple. Best practices for animal handling and stunning. Meat & Poultry, April 2000, pg. 76. Accessed via <http://grandin.com/humane/best.practices.handle.stun.html> on November 19, 2007.
- 182 Grandin, Temple. Animal Welfare in Slaughter Plants. Presented at the 29th Annual Conference of American Association of Bovine Practitioners. Proceedings, pages 22-26 (1996). Accessed via <http://grandin.com/welfare/general.session.html> on November 19, 2007.
- 183 The Humane Society of the United States. USDA Reverses Decades-Old Policy on Farm Animal Transport. September 28, 2006. [http://www.hsus.org/farm/news/ournews/usda\\_reverses\\_28\\_hour\\_policy.html](http://www.hsus.org/farm/news/ournews/usda_reverses_28_hour_policy.html) Accessed June 20, 2007.
- 184 The Humane Society of the United States, Ibid.
- 185 Rainforest Action Network. Forest Family Forever! Facts About Beef. [http://www.ran.org/fileadmin/materials/education/factsheets/fs\\_beef.pdf](http://www.ran.org/fileadmin/materials/education/factsheets/fs_beef.pdf). Accessed September 4, 2007.





- 186 Postel, Sandra and Vickers, Amy. Boosting Water Productivity. The Worldwatch Institute. Special Focus: The Consumer Society State of the World 2004. pg. 54.
- 187 Environmental Protection Agency (EPA). Protecting Water Quality from Agricultural Runoff: Clean Water is Everybody's Business. [http://www.epa.gov/owow/nps/Ag\\_Runoff\\_Fact\\_Sheet.pdf](http://www.epa.gov/owow/nps/Ag_Runoff_Fact_Sheet.pdf). Accessed December 6, 2007.
- 188 The Humane Society of the United States. Helping the Planet... One Bite at a Time. [http://www.hsus.org/farm/news/ournews/earth\\_day.html](http://www.hsus.org/farm/news/ournews/earth_day.html). Accessed November 19, 2007.
- 189 U.S. Environmental Protection Agency. National pollutant discharge elimination system permit regulation and effluent limitation guidelines and standards for concentrated animal feeding operations (CAFOs); Final Rule, 68 Fed. Reg. 7176, 7180 (Feb. 12, 2003).
- 190 Natural Resources Defense Council. 2005. Facts About Pollution from Livestock Farms. [www.nrdc.org/water/pollution/ffarms.asp](http://www.nrdc.org/water/pollution/ffarms.asp). Accessed April 26, 2006.
- 191 Public Citizen. Factory Farm Alert: Factory Farm 101. [www.citizen.org/cmep/foodsafety/cafo/ffalert/articles.cfm?ID=13464](http://www.citizen.org/cmep/foodsafety/cafo/ffalert/articles.cfm?ID=13464). Accessed April 26, 2006.
- 192 Sierra Club. Water Contamination from Factory Farms. [www.sierraclub.org/factoryfarms/factsheets/water.asp](http://www.sierraclub.org/factoryfarms/factsheets/water.asp). Accessed March 6, 2006.
- 193 Natural Resources Defense Council. 2005. Facts About Pollution from Livestock Farms. [www.nrdc.org/water/pollution/ffarms.asp](http://www.nrdc.org/water/pollution/ffarms.asp). Accessed April 26, 2006.
- 194 Testimony of Wiley Stem, Assistant City Manager, City of Waco, Texas, on behalf of the American Water Works Association. April 19, 2007. Before the House Subcommittee on Water Resources. [www.awwa.org/Advocacy/Govtaff/Documents/Stem\\_Testimony\\_April\\_2007.pdf](http://www.awwa.org/Advocacy/Govtaff/Documents/Stem_Testimony_April_2007.pdf). Accessed July 16, 2007.
- 195 Natural Resources Defense Council. 2005. Facts About Pollution from Livestock Farms. [www.nrdc.org/water/pollution/ffarms.asp](http://www.nrdc.org/water/pollution/ffarms.asp). Accessed April 26, 2006.
- 196 Public Citizen. Factory Farm Alert: Factory Farm 101. [www.citizen.org/cmep/foodsafety/cafo/ffalert/articles.cfm?ID=13464](http://www.citizen.org/cmep/foodsafety/cafo/ffalert/articles.cfm?ID=13464). Accessed April 26, 2006.
- 197 Sierra Club. Air Pollution from Factory Farms. [www.sierraclub.org/factoryfarms/factsheets/air.asp](http://www.sierraclub.org/factoryfarms/factsheets/air.asp). Accessed April 26, 2006.
- 198 Ibid.
- 199 Environmental Protection Agency. Press Release: EPA Takes Important Step in Controlling Air Pollution from Farm Country Animal Feeding Operations. Aug. 22, 2006. <http://yosemite.epa.gov/opa/admpress.nsf/a8f952395381d3968525701c005e65b5/a3b628e23af32f68852571d2006184741OpenDocument>. Accessed November 19, 2007.
- 200 <http://www.epa.gov/compliance/resources/agreements/caa/cafo-fcsht-0501.html>
- 201 U.S. Environmental Protection Agency. 2007. Inventory of U.S. greenhouse gas emissions and sinks: 1990-2005. [www.epa.gov/climatechange/emissions/downloads07/07CR.pdf](http://www.epa.gov/climatechange/emissions/downloads07/07CR.pdf).
- 202 U.S. Environmental Protection Agency. 2007. Inventory of U.S. greenhouse gas emissions and sinks: 1990-2005. [www.epa.gov/climatechange/emissions/downloads07/07CR.pdf](http://www.epa.gov/climatechange/emissions/downloads07/07CR.pdf).
- 203 Rainforest Action Network. Forest Family Forever! Facts About Beef. [http://www.ran.org/fileadmin/materials/education/factsheets/fs\\_beef.pdf](http://www.ran.org/fileadmin/materials/education/factsheets/fs_beef.pdf). Accessed September 4, 2007.
- 204 The Asahi Glass Foundation. Profiles of the 2001 Blue Planet Prize Recipients: Dr. Norman Myers. <http://www.af-info.or.jp/eng/honor/hot/enr-myers.html>. Accessed November 19, 2007.
- 205 Kaimowitz, David, Mertens, Benoit, Wunder, Sven and Pacheco, Pablo. Hamburger Connection Fuels Amazon Destruction. Cattle ranching and deforestation in Brazil's Amazon. [http://www.cifor.cgiar.org/publications/pdf\\_files/media/Amazon.pdf](http://www.cifor.cgiar.org/publications/pdf_files/media/Amazon.pdf). Accessed December 16, 2007.
- 206 Rainforest Action Network, op cit.
- 207 Environmental Defense: Cleaning Up Hog Waste in North Carolina. <http://www.environmentaldefense.org/article.cfm?contentID=5078> Accessed on April 25, 2007.
- 208 Sierra Club. Clean Water and Factory Farms: FAQs. <http://www.sierraclub.org/factoryfarms/faq.asp>. Accessed August 29, 2007.
- 209 Aneja, Viney P., Yongxian Li, John Walker and J.P. Chauhan. "Atmospheric Ammonia/ Nitrogen Compounds Emissions and Characterization." Proceedings from Workshop on Atmospheric Nitrogen Compounds, March 1997. Accessed August 29, 2007 via <http://www.sierraclub.org/factoryfarms/factsheets/air.asp>.
- 210 Cornelius, Wayne L. "Comparison of Nitrogenous Ion Deposition and Human and Animal Census Trends in Eastern North Carolina." Proceedings from Workshop on Atmospheric Nitrogen Compounds, March 1997. Accessed August 29, 2007 via <http://www.sierraclub.org/factoryfarms/factsheets/air.asp>.
- 211 Sierra Club, op cit.
- 212 Williams, Ted. "Assembly Line Swine," Audubon Magazine, (March-April 1998), p. 28. Accessed August 29, 2007 via <http://www.citizen.org/cmep/foodsafety/cafo/ffalert/articles.cfm?ID=13464>.
- 213 Walker P, Rhubart-Berg P, McKenzie S, Kelling K, and Lawrence RS. 2005. Public health implications of meat production and consumption. Public Health Nutrition 8(4):348-56.
- 214 Rainforest Action Network. Forest Family Forever! op cit.
- 215 Just Food. GLOBAL: Eat less red meat to beat cancer, says study. 1 November 2007. <http://www.just-food.com/article.aspx?id=100217>. Accessed November 19, 2007.
- 216 World Cancer Research Fund and American Institute for Cancer Research. Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective. Pg. 116-124. [http://www.dietandcancerreport.org/downloads/Second\\_Expert\\_Report.pdf](http://www.dietandcancerreport.org/downloads/Second_Expert_Report.pdf)
- 217 The Humane Society of the United States. Guide to Vegetarian Eating. 2005. [http://www.hsus.org/farm/resources/pubs/gve/for\\_your\\_health.html](http://www.hsus.org/farm/resources/pubs/gve/for_your_health.html). Accessed November 19, 2007.
- 218 Messina, Virginia, Melina, VEsanto and Mangels, Ann Reed. A New Food Guide For North American Vegetarians. [http://www.dietitians.ca/news/downloads/Vegetarian\\_Food\\_Guide\\_for\\_NA.pdf](http://www.dietitians.ca/news/downloads/Vegetarian_Food_Guide_for_NA.pdf). Accessed through [http://fnic.nal.usda.gov/nal\\_display/index.php?info\\_center=4&tax\\_level=3&tax\\_subject=256&topic\\_id=1348&level3\\_id=5733&level4\\_id=0&level5\\_id=0&placement\\_default=0&test](http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=3&tax_subject=256&topic_id=1348&level3_id=5733&level4_id=0&level5_id=0&placement_default=0&test) on September 4, 2007.
- 219 Stahler, Charles. Vegetarian Journal 2006 Issue 4. How many adults are vegetarian? The Vegetarian Resource Group asked in a 2006 national poll. <http://www.vrg.org/journal/vj2006issue4/vj2006issue4poll.htm>. Accessed September 4, 2007.
- 220 Julian RJ. 1998. Rapid growth problems: ascites and skeletal deformities in broilers. Poultry Science 77:1773-80.
- 221 Bessei W. 2005. Welfare of meat producing poultry: an overview. In: Proceedings of the 7th European Symposium on Poultry Welfare (Lublin, Poland: June 15-19).
- 222 Duncan IJH, op cit.
- 223 7 U.S.C. § 1902.



**THE HUMANE SOCIETY  
OF THE UNITED STATES**

**YOUTH**

[humanesociety.org/teens](http://humanesociety.org/teens)