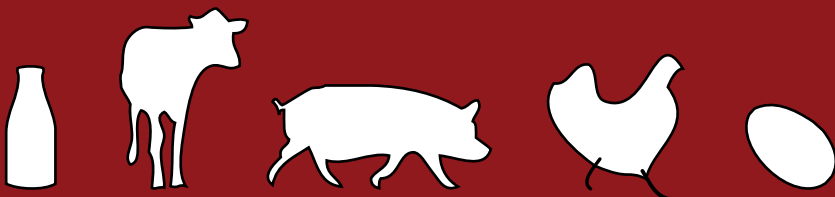


Factory Farm Nation

How America Turned Its Livestock Farms into Factories



www.factoryfarmmap.org





About Food & Water Watch

Food & Water Watch works to ensure the food, water and fish we consume is safe, accessible and sustainable. So we can all enjoy and trust in what we eat and drink, we help people take charge of where their food comes from, keep clean, affordable, public tap water flowing freely to our homes, protect the environmental quality of oceans, force government to do its job protecting citizens, and educate about the importance of keeping shared resources under public control.

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Executive Summary

Over the last two decades, small- and medium-scale livestock farms have given way to factory farms that confine thousands of cows, hogs and chickens in tightly packed facilities. Farmers have adopted factory-farming practices largely at the behest of the largest meatpackers, pork processors, poultry companies and dairy processors. The largest of these agribusinesses are practically monopolies, controlling what consumers get to eat, what they pay for groceries and what prices farmers receive for their livestock. This unchecked agribusiness power and misguided farm policies have pressed livestock producers to become significantly larger and adopt more intensive practices. Despite ballooning in size, many livestock producers are just squeezing by because the real price of beef cattle, hogs and milk has been falling for decades.

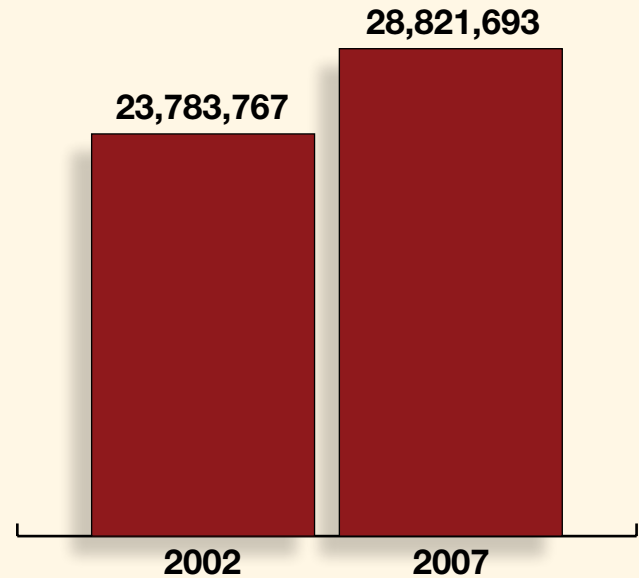
These intensive methods come with a host of environmental and public health costs that are borne by consumers and communities; none of the costs are paid for by the agribusiness industry.

Factory farms produce millions of gallons of manure that can spill into waterways from leaking manure lagoons or fields where manure is over-applied as fertilizer. Manure contains hazardous air pollutants and contaminants that can endanger human health. Neighbors and workers in these animal factories often suffer intensely from overwhelming odors and related headaches, nausea and other potentially long-term health effects.

Even people thousands of miles away from these facilities are not immune to their impacts. Thousands of animals crowded into unsanitary facilities are vulnerable to disease. Consumers eating the dairy, egg, and meat products produced in factory farms can inadvertently be exposed to foodborne bacteria such as *E. coli* and *salmonella*, as well as to the public health consequences of unchecked antibiotics and artificial hormones. And yet, despite all of the well-documented problems and health risks, the number and concentration of factory farms in the U.S. continues to increase.

For more, see our Factory Farm Map at www.factoryfarmmap.org.

Total Animals on Factory Farms in the United States



Source: Food & Water Watch analysis of USDA data, measured in animal units

What Is a Factory Farm?

- Beef cattle: 500-head on feed (feedlot)
- Dairy: 500-head
- Hogs: 1,000-head
- Broiler Chickens Sold Annually: 500,000
- Egg-Laying Chickens: 100,000

Key Findings

Between 1997 and 2007, there was a geographic and economic shift in where and how food is raised in the United States. Even a few decades ago, there were small- and medium-sized dairy, cattle and hog farms dispersed all across the country. Today, these operations are disappearing. The remaining operations are primarily large-scale factory farms that are concentrated in specific regions, states and even counties where the thousands of animals on each farm can produce more sewage than most large cities, overwhelming the capacity of rural communities to cope with the environmental and public health burdens.

Food & Water Watch analyzed U.S. Department of Agriculture (USDA) Census of Agriculture data from 1997, 2002 and 2007 for beef cattle, hogs, dairy cattle, broiler meat chickens and egg-laying operations. In this report, factory farms were defined as operations with more than 500 beef cattle (feedlots only), 1,000 hogs, 500 dairy cows, 100,000 egg-laying chickens and 500,000 broiler chickens, the largest size categories that USDA recognizes in its survey. (See methodology section for a more detailed description of Food & Water Watch's data analysis.) Key findings from Food & Water Watch's analysis include:

- **The total number of livestock on the largest factory farms rose by more than one-fifth between 2002 and 2007.** The number of livestock units on factory farms rose 21.2 percent from 23.8 million in 2002 to 28.8 million in 2007.¹ "Livestock units" is a way to measure different kinds of livestock animals on the same scale based on their weight — one beef cattle is the equivalent of approximately two-thirds of a dairy cow, eight hogs or four hundred chickens.²
- **The number of factory-farmed animals increased significantly for all types of livestock.**
- **Dairy cows on factory farms (over 500 cows) nearly doubled.** The number of dairy cows rose 93.4 percent from 2.5 million cows in 1997 to 4.9 million in 2007. On average, nearly 650 additional dairy cows were added every day over the decade. The growth of factory-farmed dairies in western states like Idaho, California, New Mexico and Texas shifted dairy production away from traditional dairy states like Wisconsin, New York and Michigan.
- **Beef cattle on feedlots (over 500 cattle) rose 17 percent.** The number of beef cattle on operations with at least 500-head grew by 17.1 percent from 11.6 million in 2002 to 13.5 million in 2007 — adding about 1,100 beef cattle every day for five years. The five states with the largest numbers of beef cattle on feedlots all have more than 1,000,000-head.³
- **Hogs on factory farms (over 500 hogs) increased by one-third.** The number of hogs on factory farms grew by more than a third (36.3 percent) from 46.1 million in 1997 to 62.9 million in 2007, adding 16.7 million hogs. Nationally, about 4,600 hogs were added to factory farms every day for the past decade.
- **Broiler chickens on the largest factory farms nearly doubled to 1 billion.** In 2007, there were over one billion broiler chickens on large farms in the United States — more than three birds for every person in the country. The number of broiler chickens raised on factory farms nearly doubled over the decade, rising 87.4 percent from 583.3 million in 1997 to 1.09 billion in 2007.⁴ The growth in industrial broiler production added 5,800 chickens to factory farms every hour over the past decade.
- **Egg-laying hens on factory farms increased by one-quarter to 266 million.** The number of egg-producing layer hens increased by nearly a quarter over the decade, rising 23.6 percent from 215.7 million in 1997 to 266.5 million in 2007. Half the egg-laying hens in 2007 were in the top five egg producing states — Iowa, Ohio, Indiana, California and Pennsylvania.
- **The average size of factory farms increased 9 percent in five years.** The size of the average large-scale livestock operation increased from 1,018 animal units in 2002 to 1,108 in 2007. The shift to industrial scale livestock production has crammed more animals onto each operation.

(Continued.)

- **Average factory-farmed dairy size swells by one-third.** The average size of factory-farmed dairies increased by a third over the decade, rising from 1,114 head in 1997 to 1,481 in 2007. In Kansas the average size was more than twice the national average, with nearly 3,600 cows on each operation in 2007. Average-sized mega-dairies in Arizona, Oklahoma, New Mexico, Idaho and Nevada held more than 2,000 cows.
- **Average beef feedlot has more than 3,800-head.** The average size of beef cattle feedlots nationally declined slightly from 2002 to 2007, falling by 8.7 percent to 3,810 in 2007. In Texas, the average feedlot inventory was over 20,000. Average-sized feedlots in California, Oklahoma and Washington were over 12,000 head.
- **The average size of hog factory farms increased by 42 percent over a decade.** The average hog factory farm rose from 3,612 hogs in 1997 to 5,144 in 2007. Seven states averaged more than 10,000 hogs per factory farm.
- **The average broiler chicken operation size grew to 168,000 birds.** The average size of U.S. broiler chicken operations rose by 7.4 percent from 157,000 in 1997 to 168,000 birds in 2007. The states with the largest operations are considerably larger than the national average. Five states (California, Florida, Ohio, Oklahoma and Indiana) averaged broiler flocks in excess of 200,000 birds. The USDA Agricultural Census only measures broiler operations by annual sales, not by facility size. An average of 5.5 batches of broilers is produced per year at any given facility, so facility size is estimated by dividing annual sales by 5.5.
- **The average size of egg operations has grown by half over the decade.** Average-sized U.S. layer chicken operations have grown by 53.7 percent from 399,000 in 1997 to 614,000 in 2007. The states with the largest layer operations were both considerably larger than the national average and grew much faster over the decade. The five states with the largest average layer flocks (Florida, Missouri, Iowa, Michigan and Illinois) all averaged at least 750,000 hens per factory farm.

The incredible growth of factory farming is the result of three key factors. First, misguided farm policy encouraged over-production of commodity crops such as corn and soybeans, which artificially depressed the price of livestock feed and created an indirect subsidy to factory farm operations. Second, unchecked mergers and acquisitions between the largest meatpacking, poultry processing and dairy companies created an intensely consolidated landscape where a few giant agribusinesses exert tremendous pressure on livestock producers to become larger and more intensive. And finally, lax environmental rules and lackluster enforcement allowed factory farms to grow to extraordinary sizes without having to properly manage the overwhelming amount of manure they create.

The combination of these trends eroded rural economies, drove independent producers out of business, and allowed the largest livestock operations to dominate animal agriculture in the United States. The manure from these factory farm operations pollutes the environment and endangers public health. Crowded, unsanitary conditions leave animals susceptible to disease, drive the overuse of antibiotics and hormone treatments, and can contribute to foodborne illnesses. As consumers saw during the 2010 egg recall, food safety problems on even a few factory farms can end up in everyone's refrigerator.

The stakes are high for the future of livestock production. Because government at all levels has made decisions that contributed to the rise of factory farms, all levels of government must be involved in changing policies and enforcing existing laws to rein in this industry. Food & Water Watch recommends the following courses of action: Congress must restore sensible commodity programs that do not prioritize the production of artificially cheap livestock feed over fair prices to crop farmers. The U.S. Environmental Protection Agency (EPA) must implement and enforce appropriate environmental rules to prevent factory farm pollution. The Food and Drug Administration (FDA) must reverse its approval of controversial hormone, non-therapeutic antibiotic and other livestock treatments that facilitate factory farming at the expense of public health. The USDA must enforce livestock marketing regulations that allow independent livestock producers' access to markets. State environmental authorities must step up their coordination and enforcement of regulations on factory farms.



The aftermath of Hurricane Floyd on a factory farm site in North Carolina in 1999. Photo by Rick Dove, www.doveimaging.com.

Introduction

The significant growth in industrial-scale, factory-farmed livestock has contributed to a host of environmental, public health, economic, food safety and animal welfare problems. Tens of thousands of animals can generate millions of tons of manure annually, which pollutes water and air and can have health repercussions on neighbors and nearby communities. Consumers in distant markets also feel the impacts, either through food-borne illness outbreaks or other public health risks or through the loss of regional food systems. Even the producers are not benefitting from this system of production because they are not getting paid much for the livestock they raise.

The rise of factory farming was no accident. It resulted from public policy choices driven by big agribusinesses, especially meatpackers and processors that dominate the critical steps in the food chain between livestock producers and consumers. The silos and gentle meadows pictured on the labels of the food most Americans buy have little relation to how that food is actually produced. Most of the pork, beef, poultry, dairy and eggs produced in the United States come from large-scale, confined livestock operations.

These animals produce tremendous amounts of manure. Large-scale commercial livestock and poultry operations produce an estimated 500 million tons of manure each year, more than three times the sewage produced by the entire U.S. human population.⁵ Unlike the household waste

produced in an overwhelming majority of U.S. communities, which have municipal sewer systems, the manure and waste from livestock operations is untreated. Instead, the factory farm waste is stored in manure pits or lagoons, and ultimately it is applied to farm fields as fertilizer. As the *Wisconsin State Journal* noted, “[u]nlike cities, which treat their waste, most of the large farms dispose of manure the same way farmers disposed of it in the Middle Ages — by spreading it on fields as fertilizer.”⁶

Small, diversified farms that raise animals as well as other crops have always used manure as fertilizer without polluting water. The difference with factory farms is scale. They produce so much waste in one place that it must be applied to land in quantities that exceed the soil’s ability to incorpo-



rate it. The vast quantities of manure can — and do — make their way into the local environment where they pollute the air and water. Manure contains nitrogen, phosphorus and often bacteria that can endanger the environment and human health. Manure lagoons leak, and farmers over-apply manure to their fields, which allows manure and other wastes to seep into local streams and groundwater. Residential drinking wells can be contaminated with dangerous bacteria that can sicken neighbors and the runoff can damage the ecological balance of streams and rivers. In some cases, manure spills that reach waterways can kill all aquatic life.

Large quantities of decomposing manure doesn't just stink, it can be a health hazard as well. Noxious gas emissions from manure holding tanks and lagoons — including hydrogen sulfide, ammonia and methane — can cause skin rashes, breathing problems and headaches, and long-term exposure can lead to neurological problems. For children, senior citizens and adults with other health problems, exposure to these fumes can cause even more problems.

Industrial livestock operations also can create public health hazards in other ways. The facilities are over-crowded and stressful to animals, making it easy for disease to spread. When thousands of beef cattle are packed into feedlots full of manure, bacteria can get on their hides and then into

the slaughterhouses. Contamination on even one steer can contaminate thousands of pounds of meat inside a slaughterhouse. In 2010, the crowded, unsanitary conditions at two Iowa egg companies caused a recall of more than half a billion potentially *salmonella*-tainted eggs.

Factory farms can create public health concerns beyond foodborne illness. Because over-crowded animals are susceptible to infection and disease, most industrial livestock facilities treat the animals with low-levels of antibiotics to prevent illness and also promote weight gain. By creating a breeding ground for antibiotic-resistant bacteria, the sub-therapeutic dosages used on millions of factory-farmed livestock can reduce the effectiveness of antibiotics for human patients. The feed used for livestock can also introduce public health threats. Broiler chickens often receive arsenic-based feed additives to promote pinker flesh and faster growth, and beef cattle continue to be fed with animal byproducts, which increases the risk of mad cow disease.

These unhealthy conditions and additives not only pose threats to the environment and public health, they are also detrimental to the animals themselves. Most factory-farmed hogs and chickens have no access to the outdoors and never see daylight. Beef cattle and dairy cows spend time outside, but they are crammed onto feedlots with no access to pasture or grass, which is what they are designed to eat. The lack of outdoor access, inability to express natural behaviors, health problems and stress caused by production practices, and breeding designed to maximize weight gain or egg and milk production take a toll on animal welfare.

Nor do most farmers benefit from the shift to factory farming. The number of dairy, hog and beef cattle producers in America has declined sharply over the last twenty years as the meatpacking, processing and dairy industries have pressed farmers to increase in scale. Most farmers barely break even. In 2007, more than half of family farmers lost money on their farming operation.⁷ The tiny handful of companies that dominate each livestock sector exert tremendous control over the prices farmers receive, and they micromanage the day-to-day operations of many farms. The real price that farmers receive for livestock has fallen steadily for the last two decades.

The rapid transformation of livestock production from hundreds of thousands of independent farmers with reasonably sized operations to a few thousand mega-farms did not evolve naturally. Factory farming was facilitated by three policy changes pushed by the largest agribusinesses: A series of farm bills artificially lowered the cost of crops destined for livestock feed; the EPA ignored factory farm pollution; and the Department of Justice (DOJ) allowed the largest meatpackers to merge into a virtual monopoly.

Since the 1980s, U.S. farm policy has encouraged the overproduction of corn, soybeans, oats and other crops used for livestock feed. For most of the past quarter century, this overproduction made the cost of feed artificially low — below the cost it took to raise the crops. Permitting crop prices to fall below their cost of production and then paying farmers some of the difference with taxpayer dollars indirectly subsidizes meatpackers, factory farms and food processors. Artificially low commodity prices encouraged livestock producers to buy feed rather than pasture their livestock or grow their own feed crops. Since producers no longer needed land for pasture or feed crops, and feed costs were low, it became economically feasible to confine large numbers of animals together in factory farm facilities without an enormous amount of land. The failed farm policies often proved disastrous for crop farmers because in most years, they were paid little for their production, and the new policies facilitated a transformation of livestock production into factory farming.

Second, the environmental oversight of factory farms is disjointed, toothless and almost non-existent. Weak oversight of waste disposal, a major expense in livestock operations, reduces the costs of factory farming and encourages the development of larger and larger operations. Although the EPA is tasked with regulating factory farms, it has done little or

nothing to control the environmental damage caused by factory farms. Adequate oversight was repeatedly blocked by the livestock industry, which opposed any safeguards or oversight of factory farm pollutants.

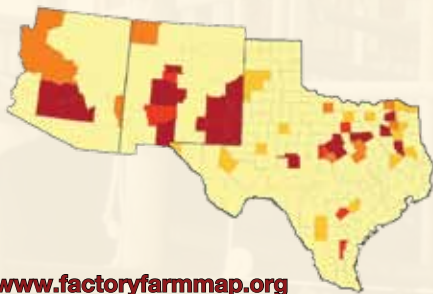
These two policies reduced the major operating costs of factory farming — feed and manure disposal. The growing trend toward consolidation within the meatpacking, poultry and dairy industries cemented factory farming as the dominant model of livestock production. Over the past two decades, a wave of mergers and acquisitions has concentrated the livestock sectors into the hands of just a few dominant companies. These powerhouses employ heavy-handed tactics, abusive contract terms and manipulative practices that minimize the prices they pay for livestock. In many cases, the companies encourage or require farmers to increase the scale of their operations or the companies will not buy their livestock.

The results of these converging trends are clear: Most animals raised for food in the United States are raised on factory farms. As this report outlines, over the past decade factory farms have become the dominant method of livestock production and factory farms are getting bigger and more concentrated in certain regions of the country.



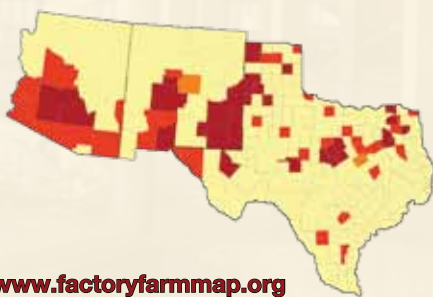
An example of a leachate pond from a factory dairy farm in Northwestern Illinois that discharges livestock waste into a tributary of the Apple River. Photo by Helping Others Maintain Environmental Standards (HOMES); more information at www.StopTheMegaDairy.org.

Factory-Farmed Dairy Cows in Arizona, New Mexico and Texas, 1997



www.factoryfarmmap.org

Factory-Farmed Dairy Cows in Arizona, New Mexico and Texas, 2007



www.factoryfarmmap.org



Dairy

In recent years, small and mid-sized dairy farms have been disappearing and are being replaced by factory-farmed dairies that now dominate milk production. Between 1997 and 2007, the United States lost 52,000 dairy farms — about 5,000 farms every year — but because the remaining farms added more and more cows, milk production has remained constant.⁸

Food & Water Watch's analysis of USDA Census of Agriculture data found that the number of cows on factory farms with over 500-head nearly doubled from 2.5 million in 1997 to 4.9 million in 2007.⁹ About 2.4 million dairy cows were added to factory-farmed dairy operations over the decade — nearly 650 additional dairy cows every day.

The rise of the factory-farmed dairy industry has been more pronounced in western states and has transformed the national dairy landscape over the past decade. Food & Water Watch found that although traditional dairy states like Wisconsin and New York added 340,000 dairy cows to the largest operations over the decade, these states were overwhelmed by the size and growth of factory-farmed dairies in western states. In 2007, there were more than 2.7 million cows on

factory-farmed dairies in California, Idaho, Texas and New Mexico. The emergence of western factory-farmed dairies has contributed to the decline of local dairy farms in the Southeast, Northeast, Upper Midwest and parts of the Midwest.¹⁰

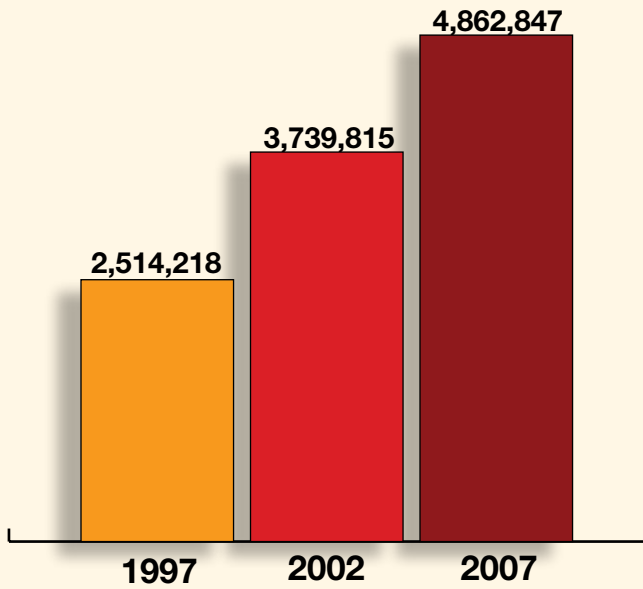
Increasing Size

Food & Water Watch found that the average size of factory-farmed dairies increased by a third over the decade, rising from 1,114 head in 1997 to 1,481 in 2007. Many states have higher average sized factory-farmed dairies. Average-sized factory-farmed dairies in Arizona, Oklahoma, New Mexico, Idaho and Nevada all contained more than over 2,000 cows.

Manure Spills

Small dairies generate less manure than factory farms; they usually apply that manure to cropland or incorporated it into pasture as fertilizer. Because big dairies generate far more manure than they can use as fertilizer, they must either store it in giant lagoons or apply it to cropland at excessive rates, where it leaches into groundwater and runs off into nearby rivers and streams. Many factory-farmed dairies have caused significant manure spills and environmental hazards in recent years.

Number of Dairy Cows on U.S. Factory Farms



Source: Food & Water Watch analysis of USDA data

Indiana: In 2010, at a 1,650-cow Randolph County, Indiana dairy operation, a manure lagoon liner detached, floated to the surface of the lagoon, and became inflated with decomposing manure gases.¹¹ The manure bubbles were large enough to be seen from satellite photos, but the operator, who had declared bankruptcy after milk prices collapsed, could not afford to repair the liner.¹² After the county shut down local roads and banned school buses from the surrounding area because of the risk posed by potential noxious gas releases or explosions, Indiana environmental officials deflated the bubbles.¹³ (See photo, below at right.)

Maryland: In 2009, a 1,000-cow Frederick County, Maryland dairy operation reimbursed the county and a local city \$254,900 for providing emergency water supplies, testing and other costs after a 576,000 gallon manure spill in 2008 polluted the town’s water supply, which had to be shut off for two months.¹⁴

Minnesota: In 2009, a 250,000 to 300,000 gallon manure spill from a 660-head Pipestone County, Minnesota dairy leaked into a tributary after a pipe between manure basins clogged and overflowed. The spill killed fish and closed a state park to swimmers for Memorial Day weekend after heightened levels of fecal *coliform* were found in the park’s waters.¹⁵

The largest factory-farmed dairy counties produce as much untreated dairy waste as the sewage produced in major American metropolitan areas, which goes to treatment plants. The more than 464,000 dairy cows on factory-farmed dair-

ies in Tulare County, California produce five times as much waste as the population in the greater New York City metropolitan area.¹⁶ The nearly 240,000 dairy cows in Merced County, California produce about ten times as much waste as the metropolitan area of Atlanta, Georgia.

Top Dairy Counties	Dairy Cows on Factory Farms	Human Population Sewage Equivalent (millions)	Comparable Metropolitan Area
California\Tulare	464,863	103.0	5 x New York City
California\Merced	239,927	53.1	10 x Atlanta
California\Stanislaus	163,011	36.1	6 x Philadelphia
California\Kings	155,376	34.4	2 x New York City
Idaho\Gooding	135,565	30.0	New York City + Chicago
California\Kern	124,278	27.5	5 x Washington, DC
California\Fresno	108,257	24.0	New York City + Washington, DC
California\San Bernardino	105,095	23.3	New York City + San Diego
California\San Joaquin	96,977	21.5	New York City + Denver
Arizona\Maricopa	93,547	20.7	New York City
Washington\Yakima	86,038	19.1	New York City
New Mexico\Chaves	85,041	18.8	Los Angeles + Philadelphia



Gas bubbles in the liner of the Union Go Dairy manure lagoon in Randolph County, Indiana. Photo by BloomingtonAlternative.com.

Dairy Industry Concentration

Up until the 1990s, medium-sized fluid milk processors were local, family-owned businesses that bought milk from local dairies and supplied local consumers and retailers.¹⁷ Today, a tiny handful of companies buy the majority of milk from farms and process it into dairy products and industrial food ingredients. These larger market players increasingly source their milk from industrial mega-dairies that dominate milk production. The largest milk processing company, Dean Foods, controls around 40 percent of the nation’s fluid milk supply¹⁸ and 55 percent of all organic milk.¹⁹

Dean Foods is the most common source of milk in the dairy case, but consumers might not see a Dean label. Dean or one of its subsidiaries owns or sells more than 50 brands, including AltaDena, Berkeley Farms, Borden, Country Fresh, Garelick, Land O’Lakes, Lehigh Valley, Meadow Brook, Meadow Gold, Mayfield Farms, Reiter, Shenandoah’s Pride, Verifine, Horizon Organic, Silk Soymilk, Swiss Dairy and several dozen others.²⁰ Consumers see a familiar label they may associate with a local or regional company, but the company behind most of the labels is Dean.

Dairy Crisis Drives Farm Losses

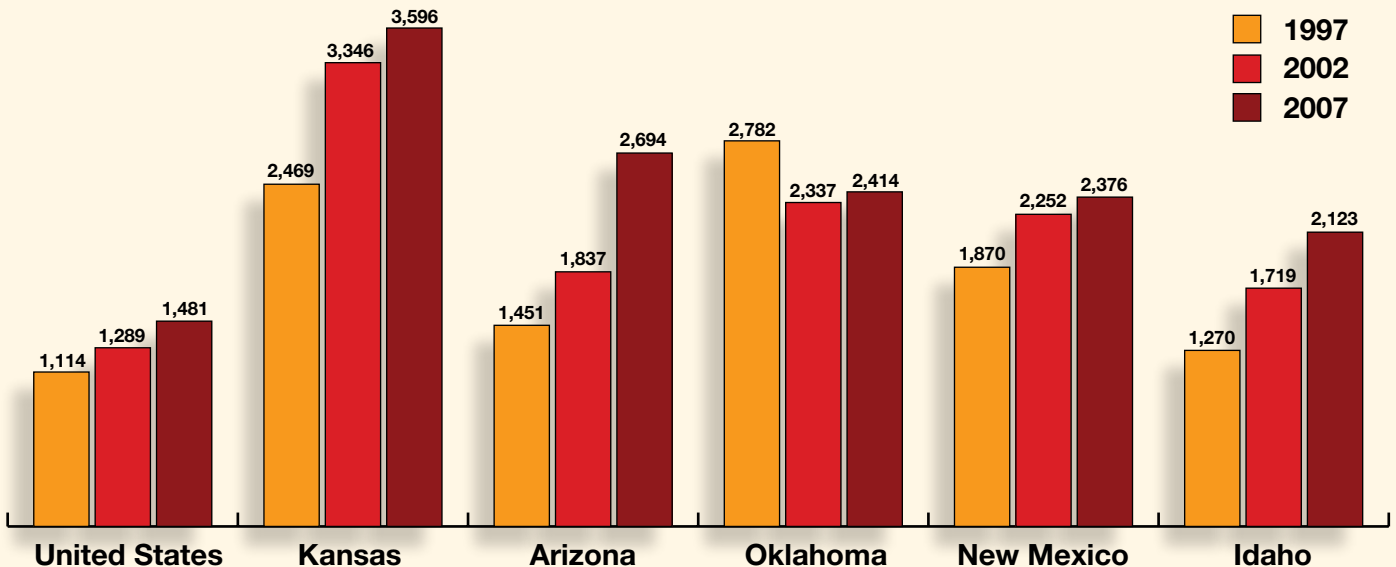
In 2009, milk prices paid to farmers plummeted after a roller-coaster upswing a few years earlier. When prices rose, many large-scale dairies added more cows to capitalize on favorable prices, but higher prices evaporated after the global recession. The average price farmers received for milk in 2009 was among the lowest since the 1970s.²¹

During the summer of 2007, the price farmers received for milk reached a record high \$21.70 per hundred pounds of fluid milk (known as a hundredweight).²² Over the following two years, these prices fell by nearly half (47.7 percent) from \$21.60 per hundredweight in July 2007 to \$11.30 in June 2009.²³ Although milk prices fell, production costs did not, because the cost of feed rose 35 percent and the cost of energy rose by 30 percent during 2008.²⁴ Feed costs alone were higher than the price California and Pennsylvania farmers received for milk in 2009.²⁵ Many dairy farmers lost between \$100 and \$200 per cow every month in 2009.²⁶

Dairy farms faced an unprecedented economic catastrophe that drove many multi-generational farms out of business. One New York and two California dairy farmers committed suicide in the face of failing farms.²⁷ An Illinois dairy farmer in operation since 1980 told Reuters,

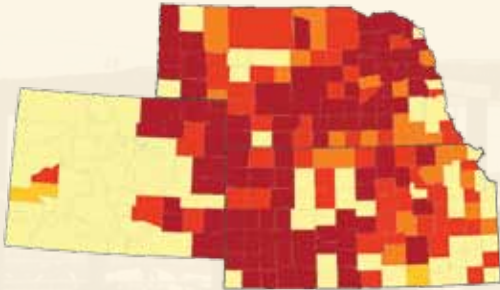
“We’ve dealt with farm recession. We’ve dealt with droughts and floods and this is by far the worst economic situation we have ever dealt with in our years of farming.”²⁸ At the USDA and Department of Justice workshop on the state of competition in the dairy industry in July 2010, dairy farmers from across the country with herds ranging from 50 cows to over 10,000 agreed that historic low milk prices was causing economic problems for all dairy farms.²⁹

Average Size of Factory-Farm Dairies (number of cows)



Source: Food & Water Watch analysis of USDA data

Beef Cattle on Feedlots in Colorado, Nebraska and Kansas, 2007



www.factoryfarmmap.org



Beef

Over the past decade, large-scale industrial feedlots that fatten beef cattle prior to slaughter came to dominate the entire cattle industry. These feedlots buy from small or mid-sized ranches that raise young cattle and then “finish” cattle to market weight. Even in 2008, nearly half (46 percent) of all beef cattle were raised on 675,000 farms and ranches with fewer than 100 head of cows.³⁰ But most of these cattle ultimately end up on feedlots.

These feedlots have gotten much larger and often partner with or are owned by meatpackers. Until the mid-1960s, most feedlots were small, family-owned-operations that handled fewer than 1,000 head. They marketed most of the nation’s beef cattle.³¹ Now, the largest beef feedlots finish the vast majority of beef cattle. In 2008, the largest 12.1 percent of feedlots each finished more than 16,000 cattle and marketed nearly three-quarters (70.2 percent) of beef cattle.³²

Increasing Size

Food & Water Watch found that the number of beef cattle on feedlots larger than 500-head grew by 17.1 percent from 11.6 million in 2002 to 13.5 million in 2007, adding about 1,100 beef cattle every day for five years.³³ The five states with the largest inventories of beef cattle on feedlots all have more than 1,000,000 factory-farmed beef cattle. Combined, these five states (Texas, Kansas, Nebraska, Iowa and Colorado) held 10.3 million head of beef cattle on feedlots in 2007 — about three-fourths (76.4 percent) of all factory-farmed beef in the country.

The national average for beef feedlot size is over 3,800-head. The average size of feedlots nationally declined slightly from 2002 to 2007, falling by 8.7 percent to 3,810 in 2007. In many states, however, the average feedlot size increased significantly over the decade and is now quite high. In six states, average feedlot size was double the national average in 2007. In Texas, the average feedlot was over 20,000-head. In California, Oklahoma and Washington it was over 12,000-head.

Most cattle feedlots are located in rural counties but the large number of cattle in these areas produces the same amount of waste as some of America’s largest cities. The manure from cattle feedlots is stored on site until it is spread onto nearby farm fields. But feedlots can flood or generate polluted runoff, and over-applied manure on farm fields can leach into groundwater or leak into nearby waterways.

Top Beef Feedlot States

State	Beef Cattle Inventory	
	2002	2007
Texas	2,644,450	2,993,215
Kansas	2,223,850	2,566,734
Nebraska	2,173,979	2,512,659
Iowa	606,648	1,178,958
Colorado	1,062,357	1,102,792

Manure Spills

Idaho: In 2010, the EPA ordered a Grand View, Idaho feedlot containing between 30,000 and 65,000 beef cattle to cease discharging fecal bacteria-contaminated water from its stock watering system into a tributary of the Snake River. The EPA noted that the feedlot “discharges a tremendous volume of contaminated water into a river already impaired by bacteria and nutrient pollution.”³⁴

Iowa: In 2009, a 4,600-head Sioux County, Iowa cattle operation agreed to pay \$25,000 to settle allegations that it violated the Clean Water Act by allowing manure and wastewater to runoff into tributaries of the Floyd River.³⁵

Texas: In 2008, a surprise EPA inspection of a non-permitted Texas cattle feeder found that because it was not properly constructed or operated, it could not contain all of the operation’s manure waste, was unable to treat its wastewater and storm water runoff, and had caused an unauthorized waste discharge into a tributary of the Pease River.³⁶

Untreated manure spills and discharges can be a significant public health risk in counties where hundreds of thousands of beef cattle are fattened on feedlots. The nearly 466,600 beef cattle on feedlots in Deaf Smith County, Texas produce about four times as much manure as the human sewage output of greater Los Angeles.³⁷ The 399,000 beef cattle on feedlots in Imperial County, California produce twice as much waste as the entire New York City metropolitan area.

Top Beef Cattle Counties	Beef on Feedlots	Human Sewage Equivalent (millions)	Comparable Metro Area
Texas/Deaf Smith	466,579	47.0	4 x Los Angeles
California/Imperial	399,043	40.2	2 x New York City
Texas/Castro	339,125	34.2	New York City + Los Angeles
Texas/Parmer	299,056	30.1	5 x Philadelphia
Colorado/Weld	295,255	29.7	New York City + Chicago
Nebraska/Cuming	253,940	25.6	New York City + Miami
Kansas/Scott	224,926	22.7	New York City + Seattle
Texas/Hansford	194,299	19.6	New York City
Iowa/Sioux	190,201	19.2	New York City
Colorado/Yuma	181,453	18.3	Los Angeles + Atlanta

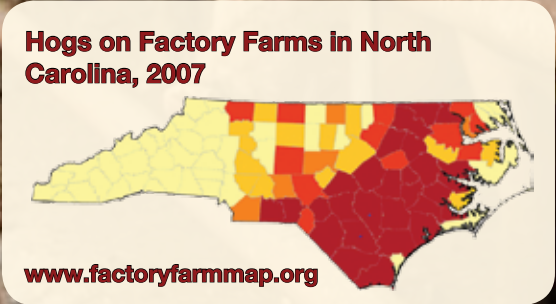
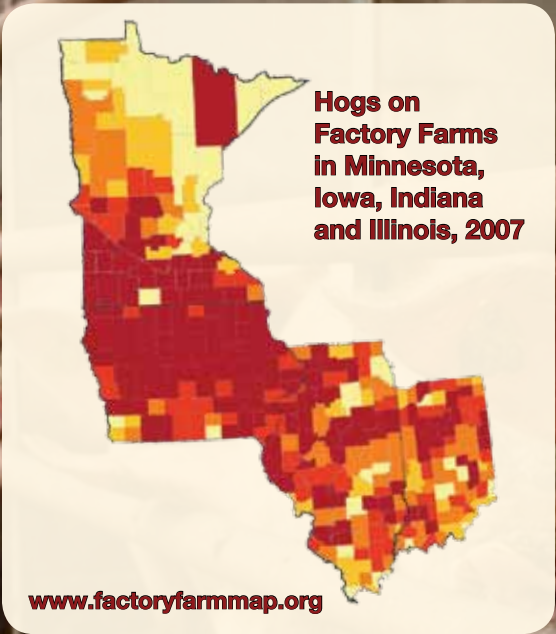
Packers v. Cowboys: How Meatpackers Manipulate Cattle Markets

The beef-packing industry is more powerful and consolidated now than it was a century ago when Congress enacted the Packers & Stockyards Act to break up the beef monopolies.³⁸ Beef packing is the most concentrated industry in the livestock sector. Feedlots are getting larger in order to sell into an increasingly consolidated meatpacking industry, with just four firms slaughtering more than four out of five beef cattle.³⁹ This concentration gives large packers tremendous leverage over independent cattle producers. The pressure to sell to larger meatpackers has encouraged independently owned feedlots to get bigger, in part to compete with the large meatpacker-owned feedlots.

The large beef packers now own their own cattle and operate feedlots, thus controlling supply through all stages of production and reducing their need to buy cattle from independent and small operators. About one in 12 cattle (between 7 and 8 percent) slaughtered in 2007 were packer-owned.⁴⁰ Packer-owned feedlots enable the meatpackers to drive down cattle prices, keep consumer beef prices high and push down the prices paid to producers. Because meatpackers who own cattle can be sellers, buyers or on both sides of a sale, they can distort or manipulate prices. They can slaughter their own cattle when the cash price is high or buy at auction when prices are low, which can drive down prices for other independent cattle producers.⁴¹

Company-owned feedlots can be immense. The world’s largest beef processor, JBS, owns the Five Rivers Cattle Feeding company, which in 2010 had a capacity of 839,000-head on 13 feedlots in Colorado, Idaho, Kansas, New Mexico, Oklahoma, Texas and Wisconsin.⁴² The average Five River feedlot has about 65,000-head capacity, but the largest in Yuma, Colorado, has a capacity of 125,000.⁴³ In 2007, Cargill’s cattle feedlot business was the third largest in the United States, feeding 700,000 head of cattle each year.⁴⁴ In 2010, Cargill operated three feedlots in Texas, one in Kansas and one in Colorado.⁴⁵

These corporate-owned feedlots are generally bigger than independently owned feedlots and they lack roots in their local communities. Cargill is headquartered in Minnesota, but its feedlots are located in Texas, Colorado and Kansas. JBS is a Brazilian company. While farmers and ranchers drink the same water and breathe the same air as their neighbors, the corporate owners of these largest feedlots are located thousands of miles from any environmental problems they may create.



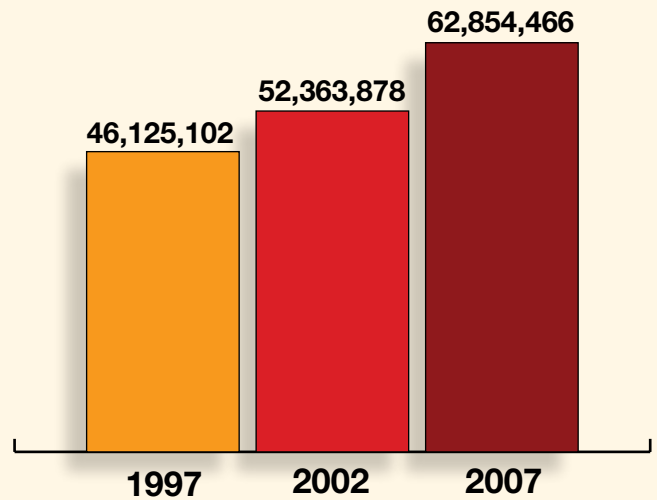
Pork

Hog farms have grown dramatically with thousands of hogs packed into confinement barns. In many regions, there are only one or two pork packers so hog producers have few potential buyers for their hogs. This economic pressure has led many hog producers to follow the meat industry's mantra to "get big or get out."⁴⁶ In less than two decades the number of hog farms declined by 70 percent, from more than 240,000 in 1992 to fewer than 70,000 in 2007.⁴⁷ Despite the collapse in the number of farms, the number of hogs remained fairly constant as the scale of the remaining operations exploded. What makes the rise of factory farms in the hog industry so noteworthy is that it happened recently and quickly. In 1992, less than a third of hogs were raised on farms with more than 2,000 animals; by 2004, four out of five hogs were raised on these giant operations.⁴⁸ By 2007, 95 percent of hogs were raised on operations with more than 2,000 hogs.⁴⁹

Increasing Size

Food & Water Watch found that the number of hogs on factory farms with more than 500-head grew by more than a third (36.3 percent) from 46.1 million in 1997 to 62.9 million in 2007. The addition of 16.7 million hogs in a decade put 4,600 more hogs onto factory farms every day.

Number of Hogs on U.S. Factory Farms



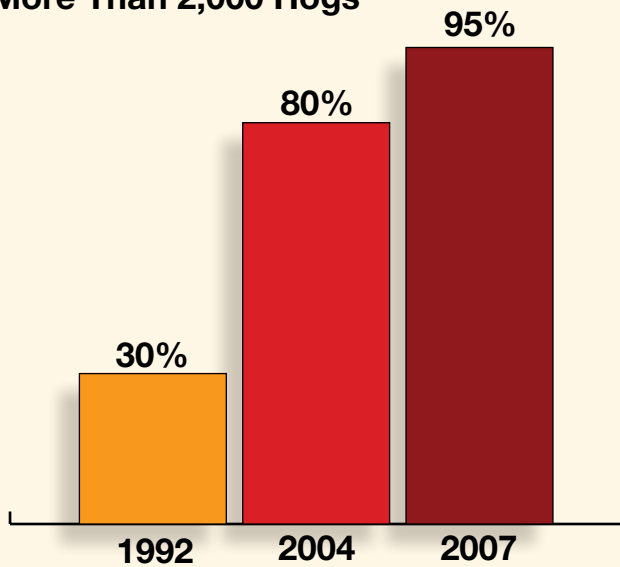
Source: Food & Water Watch analysis of USDA data

The five largest states for factory-farmed hogs (Iowa, North Carolina, Minnesota, Illinois and Indiana) represent about two-thirds of all factory-farmed hogs. They have held this ranking since 1997, but the most rapid growth has been in the Midwest. The number of hogs on factory farms in Iowa grew by 75 percent between 1997 and 2007 and in Min-

nesota the number surged 71 percent. In contrast, although North Carolina has maintained the number two ranking for the number of factory-farmed hogs, the growth in hogs there has been much smaller, only six percent between 1997 and 2007. This more moderate growth resulted from state laws that have curtailed unlimited expansion of hog factory farms (see box on opposite page).

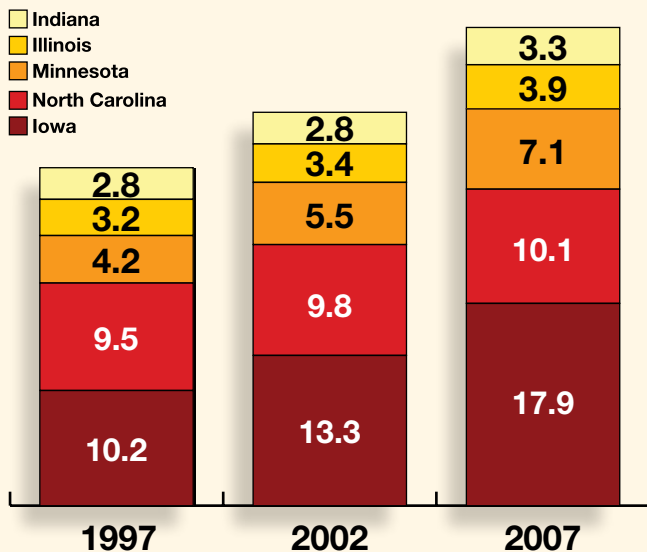
Food & Water Watch found that the average hog factory farm size increased by 42.4 percent over a decade, rising from 3,612 hogs per farm in 1997 to 5,144 in 2007. The largest hog factory farms were not in the states with the largest number of hogs, but in states where hog production was largely limited to a few counties with enormous operations. Seven states averaged more than 10,000 hogs per factory farm. The average operation in Texas contained 100,000 hogs.

Share of Hogs on U.S. Operations with More Than 2,000 Hogs



Source: USDA

Top Factory Farm Hog States (millions of hogs)



Source: Food & Water Watch analysis of USDA data

Manure Spills

Much of the U.S. hog production is concentrated in the grain and soybean producing Midwest. The tremendous amount of manure produced on hog factory farms is stored in lagoons and applied — often over-applied — to cropland. In the upper-Midwest, where farmland freezes solid during the winter, manure applied to frozen fields cannot be absorbed so it quickly runs off into local waters. When manure storage lagoons spill or leak, or if manure is over-applied on farmland, it can easily spill into local waterways. Recent manure spills include:



North Carolina: In 2010, a North Carolina grand jury indicted a Columbus County hog farmer for violating the Clean Water Act after an investigation found that a 332,000 gallon hog manure spill in 2007 was not the result of a manure system failure, an accident or vandalism.⁵⁰

Iowa: In 2009, 25,000 gallons of manure released over a farm field at a Mitchell County, Iowa sow operation killed 150,000 fish over four miles of a local stream.⁵¹

Illinois: In 2008, the Illinois Environmental Protection Agency investigated an estimated 90,000-gallon manure spill from a 6,000-head Adams County hog facility after construction equipment broke a manure pipe that spilled waste into Cedar Creek.⁵²

In 2007, each of seventeen U.S. counties held more than half a million hogs on factory farms. These counties effectively generated the same amount of untreated manure as the volume of sewage that enters the wastewater treatment plants of some of America’s largest cities. The nearly 2.3 million hogs in Duplin County, North Carolina generated twice as much

County	2007 Factory Farmed Hogs	Human Sewage Equivalent (millions)	Comparable Metropolitan Area
North Carolina\ Duplin	2,274,524	39.7	2 x New York City
North Carolina\ Sampson	2,145,523	37.4	6 x Philadelphia
Oklahoma\ Texas	1,145,735	20.0	New York City
Iowa\Sioux	1,015,831	17.7	Los Angeles + Atlanta
Iowa\Hardin	857,385	15.0	3 x Atlanta
North Carolina\ Bladen	811,665	14.2	Chicago + Atlanta
Iowa\Plymouth	732,736	12.8	2 x Dallas-Fort Worth
Iowa\Kossuth	727,507	12.7	Los Angeles
Minnesota\ McLeod	679,577	11.8	2 x Houston
Iowa\Franklin	588,814	10.3	3 x Seattle

North Carolina

North Carolina, where intense hog production increased significantly during the 1980s, embodies the risks created by the rapid rise of big pork packing companies and factory farms. In the 1990s, lenient environmental regulations and local zoning exemptions attracted corporations like Smithfield and Premium Standard Farms that transformed the state into a pork powerhouse. After Smithfield and Premium Standard merged in 2007, Smithfield controlled an estimated 90 percent of the hog market in the state.⁵⁶ North Carolina now has more hogs than people.⁵⁷

The hog population in North Carolina nearly quadrupled from 2.5 million hogs in 1988 to more than 10 million by 2010.⁵⁸ While the number of hogs surged, the number of farms fell by more than 80 percent, as factory farms drove traditional farms out of business. In 1986, there were 15,000 hog farms, but by 2007, just 2,800 remained.⁵⁹ The state’s 10 million hogs produce 14.6 billion gallons of manure every year.⁶⁰

The burden of these facilities is concentrated in some of North Carolina’s most impoverished areas. Nearly two-thirds (61 percent) of North Carolina’s factory-farmed hogs are located in five counties in the eastern part of the state.⁶¹ One study found that North Carolina industrial hog operations are disproportionately located in communities of color and communities with higher rates of poverty.⁶²

North Carolina’s waters have been polluted repeatedly by waste from hog factory farms. The public first became aware of problems with the lagoon and sprayfield system when in 1995, a lagoon burst and released 25 million gallons of manure into eastern North Carolina’s New River.⁶³ Hog lagoon spills were responsible for sending one million gallons of waste into the Cape Fear River and its tributaries in the summer of 1995,⁶⁴ one million gallons into a tributary of the Trent River in 1996,⁶⁵ and 1.9 million gallons into the Persimmon Branch in 1999.⁶⁶ Hog waste was also the likely culprit for massive fish kills in the Neuse River in 2003; at least 3 million fish died within a two-month span.⁶⁷

Perhaps the most infamous example of the danger hog factories pose to the environment occurred in 1999 when Hurricane Floyd hit North Carolina. The storm flooded fifty lagoons and caused three of them to burst, which led to the release of millions of gallons of manure and the drowning of approximately 30,500 hogs, 2.1 million chickens and 737,000 turkeys.⁶⁸

In 1997, North Carolina established a moratorium on building new hog waste lagoons, and in 2007 the legislature made the ban permanent.⁶⁹ Unfortunately, this doesn’t impact existing lagoons. Watchdog groups that have been tracking the industry for years note that it continues to expand.⁷⁰

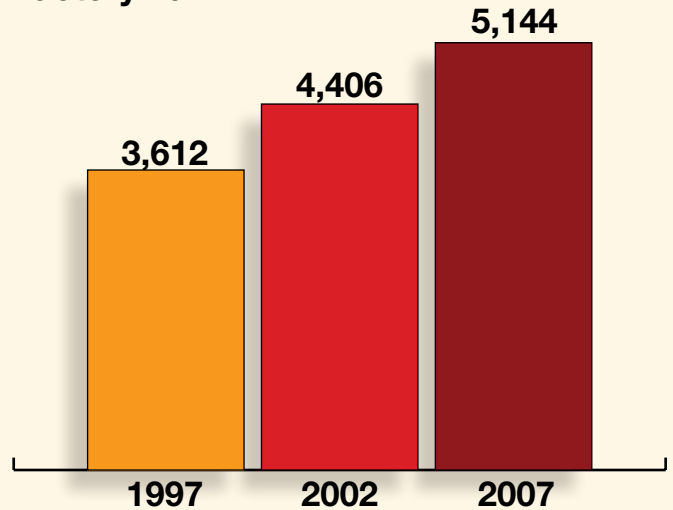
waste as the entire New York City metropolitan area. Sampson County, North Carolina generated six times as much waste as greater Philadelphia, Pennsylvania. In Texas County, Oklahoma, more than 1.1 million hogs generated the waste equivalent of the New York City metro area; and the one million hogs in Sioux County, Iowa produced as much manure as the sewage from Los Angeles and Atlanta combined.

Pork Industry Concentration

Since the 1990s, a wave of mergers has significantly increased consolidation in the pork packing industry. In 1995, the top four pork packers slaughtered less than half of the hogs (46 percent), but by 2006 the top four firms slaughtered two-thirds of the hogs.⁵³ These companies pressed farmers to enter into contracts to sell to or raise hogs owned by the packers. In 1993, almost all (87 percent) hog sales were open market sales between farmers and pork packers or processors. By 2006, nearly all (90 percent) hogs were controlled well before the time of slaughter by the pork packers either because they owned the hogs (20 percent) or because they had already contracted to buy the hogs (70 percent).⁵⁴ The use of these contract arrangements depresses the price of hogs. Average monthly hog prices were \$75 per hundredweight between 1989 and 1993 (in 2009 dollars), when most hogs were not under contract. During the 2004 to 2008 period, average monthly hog prices were \$52 per hundredweight, a 31 percent decline.⁵⁵



Average Number of Hogs per U.S. Factory Farm



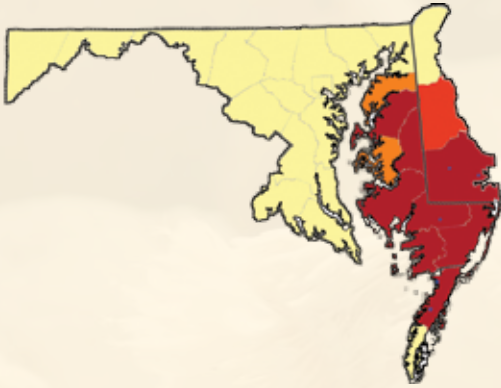
Source: Food & Water Watch analysis of USDA data

Utah

Utah is home to the enormous Circle Four Farms, which is owned by Murphy Brown LLC, a production arm of pork-processing giant Smithfield Foods.⁷¹ Western hog production proliferated as North Carolina hog operations were unable to expand (see North Carolina box).⁷² Circle Four launched in 1994 and expanded to become one of the largest U.S. hog farms, producing roughly one million pigs in 2008.⁷³ This growth was facilitated by the Circle Four-promoted 1994 “Agricultural Protection Act,” which exempted Utah livestock operations from nuisance lawsuits and zoning requirements.⁷⁴

Soon after Circle Four opened, Milford residents complained of severe odors coming from the complex.⁷⁵ Circle Four has been plagued by environmental problems ever since, including contamination of groundwater with 80,000 gallons of manure in 1996, leaking lagoons in 1999 and 2000, and a 60,000 gallon manure spill onto surrounding farmland in 2001.⁷⁶ The facility is so big that in August 2010, after a nearby rendering plant that processed dead pigs closed down, Circle Four applied for a permit to open its own landfill to dispose of 40,000 pounds of hogs daily — about 160 pigs — that die at the facility.⁷⁷

Factory-Farmed Broiler Chickens in Maryland, Delaware and Virginia (Delmarva Peninsula), 2007



www.factoryfarmmap.org



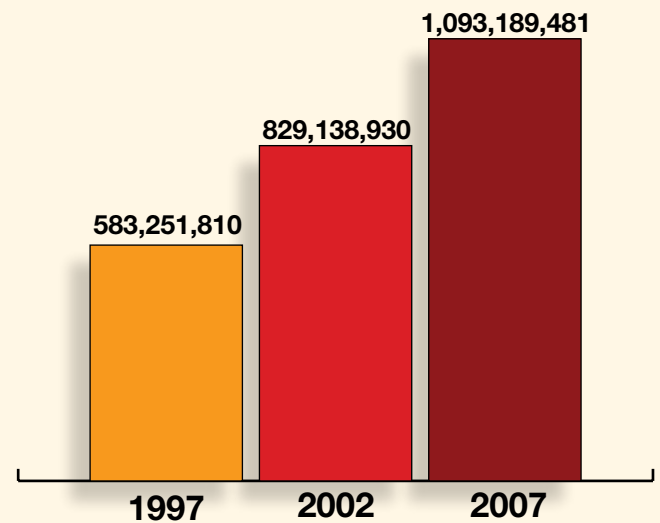
Chicken

Chicken meat comes from billions of chickens raised on thousands of broiler chicken operations where farmers raise birds on contract for the few poultry processing companies that dominate the industry. This means that the companies own the chickens and pay farmers to raise them. Under these contracts, the companies make management decisions like feed and chick delivery scheduling, and they lock farmers into contracts that prohibit them from selling chickens to anyone else. The scale of poultry farms has grown rapidly, as growers try to eke out a living by increasing the volume of birds they produce on contract. The median-sized poultry operation increased by 15 percent in four years, rising from 520,000 birds annually in 2002 to 600,000 birds in 2006.⁷⁸

Increasing Size

Food & Water Watch found that in 2007 over one billion broiler chickens were raised on large farms in the United States — more than three birds for each person in the United States.⁷⁹ The number of broiler chickens nearly doubled over the decade, rising 87.4 percent from 583.3 million in 1997 to 1.09 billion in 2007. Over the past decade, the growth in industrial broiler production added 5,800 chickens every hour.

Broiler Chickens on U.S. Factory Farms



Source: Food & Water Watch analysis of USDA data

Broiler production is concentrated in Southeastern states and concentrated within states into localized clusters.⁸⁰ Three-fifths of broilers are raised in Georgia, Arkansas, Mississippi, Alabama and Texas. In each of these states, the number of broilers nearly doubled between 1997 and 2007. The con-

Top Factory-Farmed Broiler States			
State	1997	2002	2007
United States	583,251,810	829,138,930	1,093,189,481
Georgia	111,531,597	148,756,228	204,868,424
Arkansas	58,804,907	84,236,645	133,823,449
Mississippi	51,758,060	75,418,401	110,316,732
Alabama	68,294,243	99,502,886	107,616,715
Texas	46,663,562	77,935,404	90,428,689

centration of broiler operations means that twenty-one states have no large-scale broiler production at all.

The average size of U.S. broiler operations remained steady between 1997 and 2002, but by 2007 it rose by 7.4 percent to 168,000 birds. These figures represent the average number of birds housed in facilities at any one time. Over the course of a year, 924,000 broilers would have passed through the average operation. The states with the largest operations are considerably larger than the national average — five states averaged broiler flocks in excess of 200,000 birds at any one time.⁸¹ In 2007, the average broiler operation inventory in California exceeded 1.4 million birds.

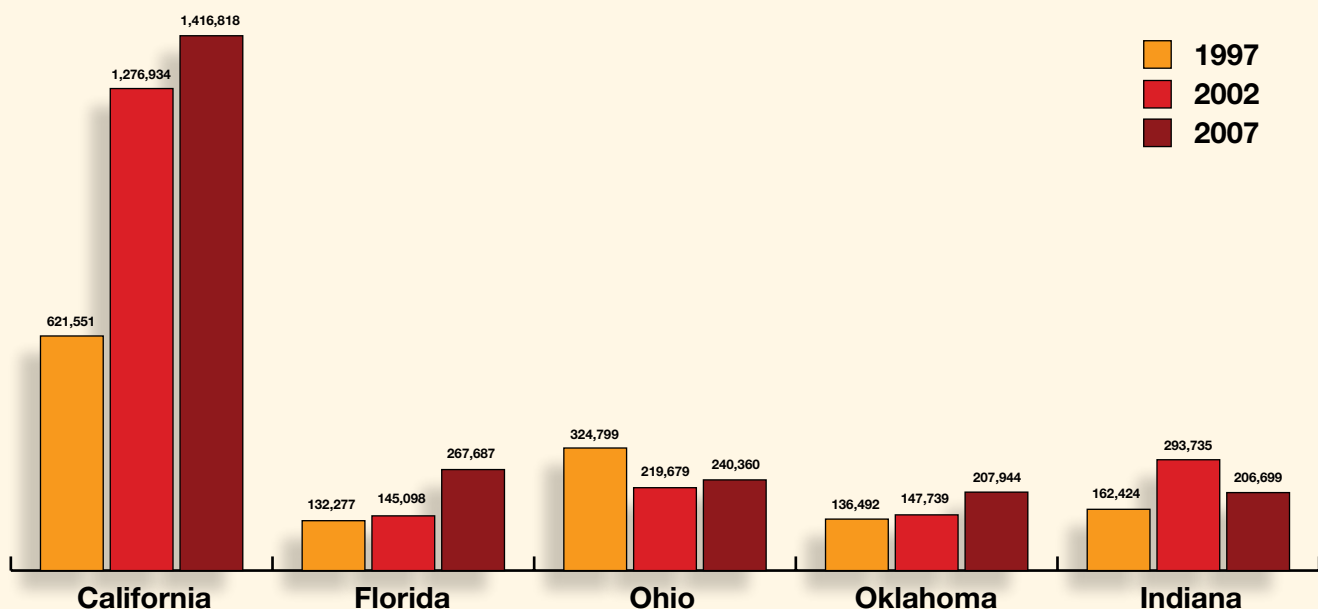
Water Pollution

Although the poultry companies own the chickens and the feed that goes into them, the farmers are responsible for the management of the manure. Poultry litter — chicken

Top Broiler Counties	Broiler Chickens	Human Sewage Equivalent (Millions)	Comparable Metro Area
Texas\Shelby	20,161,805	6.78	Dallas-Fort Worth
Georgia\Franklin	17,535,348	5.90	Philadelphia
Arkansas\Benton	16,192,161	5.44	Atlanta
California\Fresno	15,584,997	5.24	2 x Denver
Missouri\Barry	15,310,731	5.15	2 x Denver
Delaware\Sussex	14,387,201	4.84	Boston
Arkansas\Washington	14,128,454	4.75	Boston
Texas\Nacogdoches	13,973,528	4.70	Detroit
North Carolina\Wilkes	12,484,993	4.20	Riverside, Calif.
Georgia\Gilmer	10,764,273	3.62	Seattle

manure and manure-laden bedding (usually rice hulls or straw) — is stored on farms where it is applied to farmland as fertilizer. In many dense poultry production areas, the volume of poultry litter greatly exceeds the fertilizer need and capacity of nearby farmland. With so many birds and so much manure, the accumulated litter can pose a significant environmental risk.

Average Size of Broiler Chicken Operations (number of chickens)



Source: Food & Water Watch analysis of USDA data

Manure Problems

Virginia: In 2010, the EPA ordered a 100,000 broiler chicken operation in Virginia to cease discharging pollutants from large piles of uncovered chicken manure that were leaching nitrogen and phosphorus into a tributary of the Shenandoah River.⁸²

Texas: In 2009, the EPA issued an administrative order to a Hopkins County, Texas broiler operation for violating the Clean Water Act for unauthorized discharge of chicken litter from the farm's litter staging area.⁸³

Maryland: In 2009, the Waterkeeper Alliance and Assateague Coastkeeper filed suit against an Eastern Shore, Maryland broiler farm and Perdue, which contracted with the farmer,

for allegedly allowing an uncovered manure pile to drain into a tributary of the Pocomoke River, leading to elevated nitrogen, *E. coli* and fecal *coliform* levels.⁸⁴

Even though chickens are small and produce less manure than cattle or hogs, the sheer number of broilers in many rural counties produces as much untreated manure as the sewage output of some major and mid-sized metropolitan areas. The more than 20.1 million broiler chickens on factory farms in Shelby County, Texas produce about as much waste as the population of the entire Dallas-Fort Worth metropolitan area. The 17.5 million broilers in Franklin County, Georgia produce as much waste as the greater Philadelphia metro area.

Contract Abuse

The broiler industry is the most “vertically integrated” segment in agriculture — a system where companies own and control every step of the chicken supply chain. Over the past 20 years, as larger companies acquired smaller, regional processors and cooperatives, it has become increasingly concentrated. In the past decade, the share of the market controlled by the four largest broiler companies has increased by nearly a third, from 46 percent in 1995 to 58.5 percent in 2006.⁸⁵

These companies control the entire chicken meat production chain: operating hatcheries and specialized feed mills, contracting with growers to raise the chickens for them and running processing plants.⁸⁶ Production contracts exist for almost all types of livestock, but the broiler industry is unique in the near-universal use of production contracts.⁸⁷ Under these contracts, the companies deliver chicks and feed to the farmers, tell them how to raise the chickens and collect the birds when they have reached their full weight.⁸⁸ The farmers don't own the chickens. These production contracts pay the growers for raising the birds, not for the actual chickens.⁸⁹

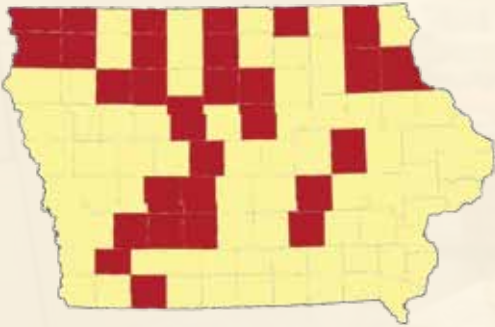
The transformation of chicken farmers from independent producers to subcontractors of the poultry companies began more than 50 years ago.⁹⁰ Over the past five or six decades, the poultry industry has strengthened its grip on contract poultry growers through unfair and often abusive “take-it-or-leave-it” contracts.⁹¹ About half of growers only have one or two processors located near enough to get contracts, so they have little choice but to accept whatever terms the companies offer.⁹² Many contracts only cover

growing a single flock of birds, which takes about seven weeks. Even when flock-to-flock contracts are automatically renewed, growers are dependent on the companies to maintain new deliveries of birds, and thus income.⁹³

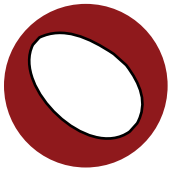
The short-term contracts must generate enough income to support the farmers and repay significant long-term loans on their broiler houses.⁹⁴ Many processors demand that poultry growers invest in significant upgrades to broiler houses and other equipment to secure contracts.⁹⁵ New broiler houses are extraordinarily expensive, often costing between \$350,000 and \$750,000 for the two houses that most growers use.⁹⁶ Although processors require these new investments, their contracts do not pay more to the farmers who must repay the loans required to make the upgrades.⁹⁷ Nor do growers who make upgrades receive guaranteed long-term contracts that ensure they can pay off these debts.⁹⁸ Even after growers made the required investments, some integrators have cancelled contracts.⁹⁹

Many contract poultry growers barely break even, as the prices growers receive for broilers have been falling steadily and the mandated upgrade investments can mire growers in debt. In 2006, the average on-farm total income was \$10,000 for small poultry operations (with fewer than 266,000 birds a year) and \$20,000 for medium sized poultry operations (between 266,000 and 660,000 million birds annually).¹⁰⁰ These meager earnings can barely make a dent in the debt from poultry house upgrades. Poultry growers lost money 10 years of the 15 years from 1995 and 2009.¹⁰¹

Egg-Laying Hen Operations in Iowa, 2007



www.factoryfarmmap.org



Eggs

Eggs are also produced on large-scale operations with hundreds of thousands of layer hens held in each facility. A handful of firms own multiple farms or contract with a number of large layer operations, most of which house their birds in small cages that are stacked from floor to ceiling.

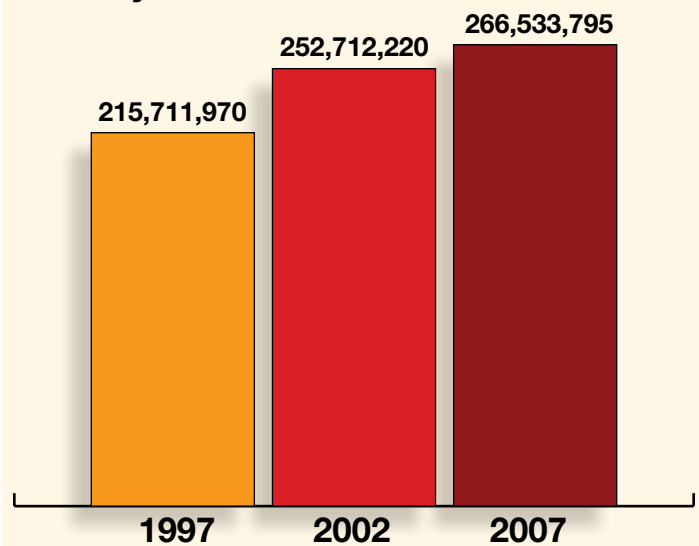
The number of egg-producing layer hens increased by nearly a quarter over the decade, rising 23.6 percent from 215.7 million in 1997 to 266.5 million in 2007. Because each hen can lay about 260 eggs a year, the additional 50 million hens added since 1997 produce an additional 13 billion eggs.¹⁰² In total, the layer hen flock produced an estimated 69 billion eggs in 2007.

Egg production is concentrated in only a few states. Nearly half the hens in 2007 were located in the top five states — 52.5 million in Iowa, 23.2 million in Ohio, 22.5 million in Indiana, 19.7 million in California and 15.2 million in Pennsylvania. Ten states had no industrial scale layer operations at all in 2007.

Increasing Size

The average size of layer operations has grown by half from 399,000 in 1997 to 614,000 in 2007. The states with the

Number of Egg-Laying Hens on U.S. Factory Farms

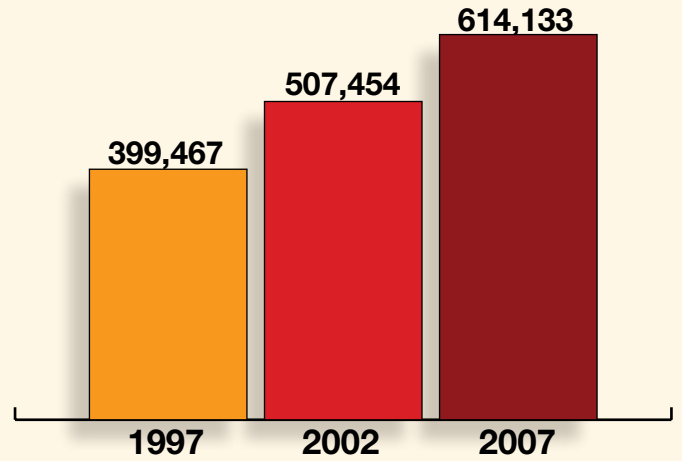


Source: Food & Water Watch analysis of USDA data

largest layer operations (Florida, Missouri, Iowa, Michigan and Illinois) were both considerably larger than the national average and grew much faster over the decade. The five states averaged at least 800,000 hens.

Top Layer Counties	Factory-Farmed Egg Laying Hens, 2007	Human Sewage Equivalent (millions)	Comparable Metropolitan Area
Ohio\Mercer	13,840,543	6.7	Dallas-Fort Worth
Iowa\Sioux	7,676,062	3.7	Seattle
Indiana\Adams	6,261,275	3.0	San Diego
Ohio\Darke	4,464,691	2.1	Cincinnati
Iowa\Winneshek	3,838,031	1.85	San Jose
Texas\Gonzales	3,836,086	1.84	San Jose
Indiana\Jay	3,756,765	1.81	Columbus, Ohio
Pennsylvania\Lancaster	3,716,411	1.8	Columbus, Ohio
Michigan\Allegan	3,502,800	1.7	Austin
California\San Bernardino	3,194,989	1.5	Jacksonville

Average Size of U.S. Egg-Laying Factory Farms (number of chickens)



Source: Food & Water Watch analysis of USDA data

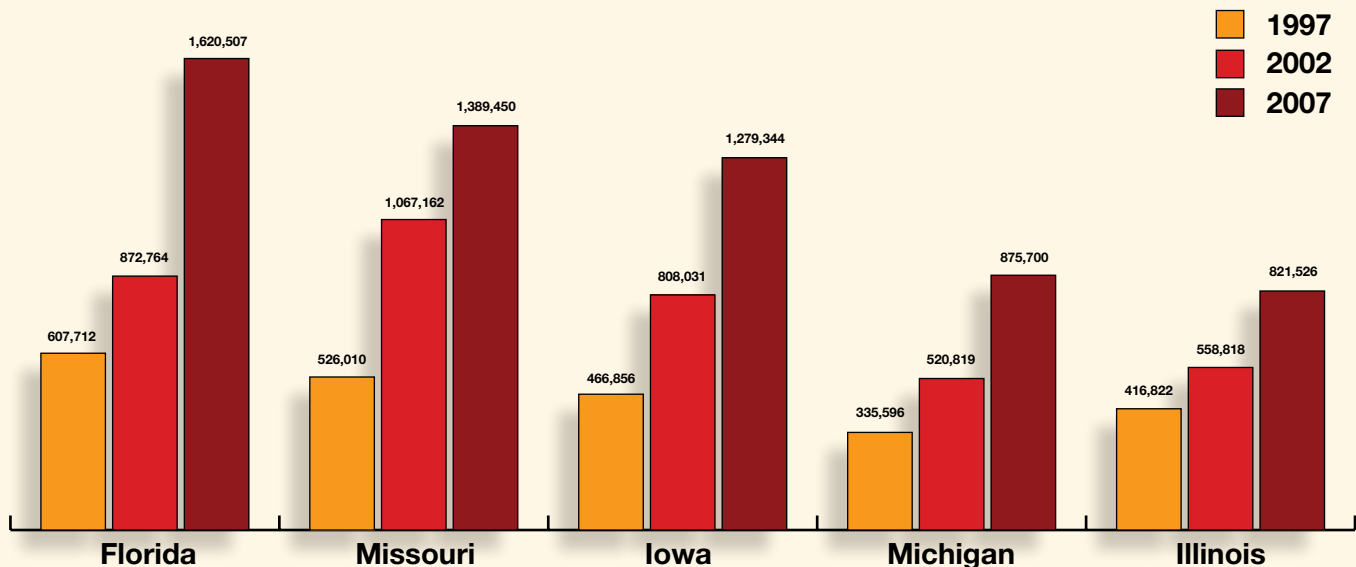
Manure Problems

Large layer facilities generate tremendous volumes of manure and manure-tainted litter. Some operations have been found to violate environmental rules.

Ohio: In 2009, Ohio's largest egg producer pleaded guilty to illegally discharging egg wash water, which contains chicken manure, from its three million hen facility in Marseilles, Ohio into a local stream in negligent violation of the Clean Water Act.¹⁰³

California: In 2008, a California Regional Water Quality Control Board issued a notice of violation to a 500,000-hen egg facility in Valley Center and Ramona, California for violating water discharge rules. The notice followed six similar warnings from San Diego County between 2005 and 2008 for allegedly allowing contaminated water to flow onto neighboring properties and into storm drains.¹⁰⁴

Average Size of Layer Hen Factory Farms (number of chickens)



Source: Food & Water Watch analysis of USDA data

The counties with the largest concentrations of layer hens can produce as much manure as the sewage from medium-sized cities. The more than 13.8 million layers in Mercer County, Ohio produce as much untreated waste as the entire population of greater Dallas-Fort Worth, where all of the water is treated. The 7.7 million layers in Sioux County, Iowa produce as much manure as all the sewage in Seattle.

Egg Industry Concentration

A handful of egg companies produce a large proportion of the eggs most Americans eat. In 2009, the four largest firms owned 30.2 percent of the laying hens in production.¹⁰⁵ When a few firms dominate the marketplace, the major players can collude and manipulate prices and drive practices that are more intensive and larger scale. Some of the largest

companies have been implicated in a scheme to manipulate the price of eggs at the grocery store by allegedly colluding to artificially reduce egg production and drive up retail prices. In 2009, Land O'Lakes and its egg supplier MoArk LLC agreed to pay \$25 million to settle a price fixing class action suit that alleged that the Land O'Lakes companies conspired with other industry partners to reduce the supply and drive up the retail price of eggs.¹⁰⁶ The suit contended that producers lowered hen cage space (which reduces egg production), coordinated practices to reduce flock size between firms, and exported eggs below their cost, all in an effort to reduce supply and raise prices.¹⁰⁷ Land O'Lakes agreed to provide documents related to other companies' participation in the alleged conspiracy.¹⁰⁸

Historic Egg Recall Reveals Factory Farm Risks

In the summer of 2010, more than half a billion eggs were recalled from two large Iowa egg companies after the largest *salmonella* outbreak since the 1970s sickened nearly 1,500 people.¹⁰⁹ Wright County Egg, which is owned by the DeCoster family, recalled 380 million eggs, and Hillandale Farms, which shared a feed and hatchery supplier with Wright County Egg, recalled 170 million eggs.¹¹⁰ Companies controlled by the DeCoster family run nine egg confinement facilities in Wright County, Iowa with 8.9 million layers.¹¹¹

The DeCoster family businesses are tied to a long-standing series of lawsuits and investigations. In 1988, eggs from a Maryland DeCoster operation were linked to a New York City hospital *salmonella* outbreak in which 11 people died.¹¹² In the early 1990s, DeCoster successfully sued the state of Maryland for trying to prohibit the company's Maryland operations from selling *salmonella*-tainted eggs across state lines; federal officials took no action against the operation at that time.¹¹³ In 1997, one of the DeCoster companies agreed to pay \$2 million to settle workplace safety violations that included forcing employees to live in rat-infested trailers and handle manure and dead chickens with their bare hands.¹¹⁴ In 2001, the Iowa state Supreme Court prohibited Jack DeCoster from building a hog factory farm for his son after repeated environmental violations.¹¹⁵ Iowa officials described DeCoster as "a habitual violator" of state

environmental rules.¹¹⁶ In 2002, the federal government fined him \$1.5 million for employee discrimination and harassment charges for mistreatment of female employees, including charges of rape, sexual harassment and other abuse.¹¹⁷ In 2008, federal workplace safety inspectors cited DeCoster for forcing workers to recover eggs from a building that had collapsed in a winter storm.¹¹⁸ In 2010, DeCoster Egg Farm in Maine paid \$125,000 to settle charges that it mistreated hens by keeping too many of them in each cage, failing to treat wounded birds and failing to remove dead birds from cages.¹¹⁹

State public health officials traced the 2010 *salmonella* outbreak to eggs from Wright County Egg.¹²⁰ The Centers for Disease Control found four times as many cases of the specific type of *salmonella* than usual.¹²¹ A later federal analysis linked 15 of 26 national outbreaks of this type of *salmonella* to Wright County Egg.¹²² Despite its history of problems, FDA officials had never inspected any of DeCoster's Wright County Egg facilities.¹²³ After the recall, FDA investigators uncovered a host of unsanitary conditions at Wright County Egg, including fly, maggot and rodent infestations; towering piles of manure; wild birds and freed hens tracking through the manure; and other significant problems.¹²⁴ As of late October 2010, no penalties had been levied against Wright County Egg or Hillandale Farms.



Why Farms Got Big or Got Out

Industrial-scale livestock production emerged over the past quarter century but accelerated rapidly over the past decade. Between 2002 and 2007, about five million livestock units were added to America's largest livestock operations. The number of factory-farmed dairy cows, beef cattle, hogs, broiler chickens and layer hens all increased and the average size of most operations grew significantly.

This growth was not due to a superior business model or some breakthrough in efficiency; it was facilitated by poor public policy decisions. Although the livestock processing industries contend that the transformation of medium-sized, diversified livestock farms into industrial-scale factory farms was driven by efficiency, the purported efficiencies have rarely materialized. The two largest costs of industrial livestock production — feed and manure management — have been artificially reduced by federal policies. Feed has been sold at extremely low prices, often below the cost of production — for most of the past fifteen years as a result of farm programs that promote over-production of corn and soybeans. And while this was happening, federal and state environmental authorities turned a blind eye to the growing pollution from factory farms, allowing bad management practices to become the industry standard.

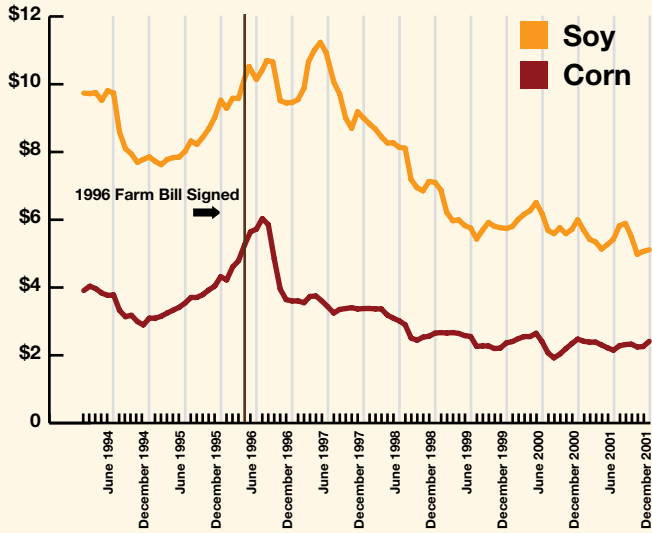
Cheap feed and nonexistent oversight of manure management artificially lowered the operating costs of factory farms. This allowed livestock operations to balloon in size, but the shift was cemented by rapid consolidation in the meatpacking and livestock processing industries. During the 1980s and 1990s, regulators approved a wave of mergers between the largest firms in the beef, pork, poultry and dairy sectors. Their concentrated market power allowed the biggest firms to exert tremendous leverage over farmers. They could lower the prices they paid to farmers because there were so few firms to bid for livestock. The big firms also pressed farmers to enter contracts — often with unfair terms and prices — that reduced meatpackers' need to buy animals on the open market, such as a livestock auctions. As farmers received less for each steer, hog, chicken or gallon of milk, they added more livestock on factory farms to try to recoup their losses from low prices with increased volume.

The rise of factory farms was not a natural evolution of a more mature business model; it was the result of political decisions orchestrated by the largest livestock processors.

The High Cost of Low-Priced Feed

Traditionally, farmers usually raised livestock on pasture and also grew the feed they needed to sustain their animals over the winter. Farmers continued to pasture and cultivate feed

Real Price of Corn and Soybeans, 1994-2001 (cost per bushel in 2009 dollars)



Source: USDA

for their animals because prior to the 1990s buying feed was expensive. Factory farms, however, must purchase enough grain to feed the thousands of animals they keep at each site. Over the past twenty years, changes to federal farm policy have promoted the over-production of feed crops like corn and soybeans, which drove prices down during most years. This reduction in feed price is an indirect subsidy for factory farm operators.

The 1996 farm bill, called the Freedom to Farm Act, marked the end of policies designed to stabilize farm prices. It eliminated the requirements to keep some land idle as a way to manage supply and prevent overproduction. Instead, farmers could plant crops on as much land as they wanted. They harvested 7.5 million more acres of corn and 7.6 million more acres of soybeans in 1997 than in 1995.¹²⁵ Additionally, the government eliminated reserves of grain, allowing all the grain produced onto the market at once. Even the system of loans to farmers was reworked, which destabilized failing to stabilize prices and encouraging overproduction. Farmers could no longer forfeit a portion of their crops to the government as repayment for their loans if crop prices fell below the cost of production. Farmers instead sold their entire crop, further eroding prices.

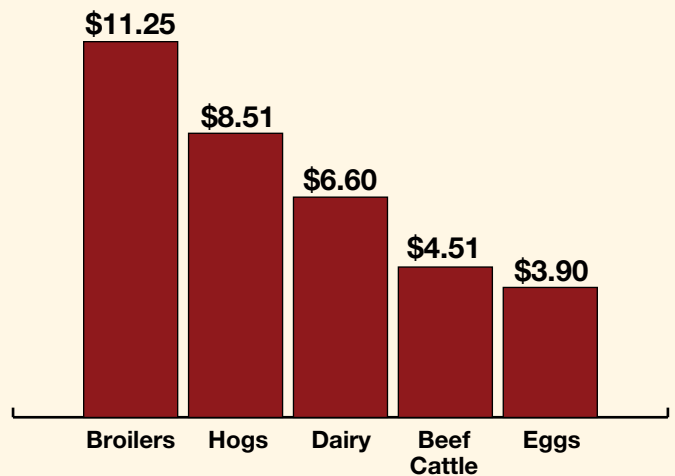
As a result of this drastic increase in production, crop prices plunged. Between 1996 and 1997, real corn prices dropped by 28.4 percent.¹²⁶ The crop price free fall continued for years. By 1999, the real price of corn was 50.0 percent below 1996 levels and the soybean price was down by 40.9

percent. As prices fell, farmers planted additional acres to try to make up for their lost income, which then caused more supply and further price drops. The Freedom to Farm Act thus became known in farm country as “Freedom to Fail.”

To quell criticism after prices collapsed, Congress authorized emergency payments to farmers that reached \$20 billion in 1999.¹²⁷ However, these payments could not make up for the decline in prices. Even with the payments, U.S. net farm income declined by 16.5 percent from 1996 to 2001.¹²⁸ In the 2002 farm bill, Congress voted to make these “emergency” payments permanent. Rather than address the primary cause of the price drop, they perpetuated overproduction.

The 2002 and 2008 farm bills largely maintained the commodity programs created by Freedom to Farm and the ensuing emergency payments. This effectively replaced supply and price management policies that had characterized federal farm policy since the 1930s with income supports designed to compensate for low prices generated by overproduction. Since then, taxpayer money has been used to make up some of the income lost by farmers who grow cheap commodity inputs for agribusiness, including animal feed. Instead of programs that could put a brake on collapsing prices, government payments make up the difference between the low price agribusiness pays farmers for crops, and the farmers’ cost of sowing, growing, harvesting and transporting them. Permitting crop prices to fall below their production costs and then paying farmers some of the difference with taxpayer dollars indirectly subsidizes discounted commodity purchases by meatpackers, factory farms and food processors.

Factory Farm Savings from Low-Priced Feed, 1997-2005 (in billions)



Source: Tufts University Global Development and Environment Institute

These indirect subsidies for artificially low-priced feed have saved industrial livestock producers billions of dollars. Until 2007, when commodity prices began to rise, factory farms could actually buy feed on the market at a price lower than what the grain cost to produce. A 2007 Tufts University study found that factory farms saved \$34.8 billion between 1997 and 2005 because they were able to buy feed at below-production cost.¹²⁹ This indirect subsidy has been a key element of the so-called efficiency of factory farming. When commodity prices rose in 2007 and 2008, meatpackers, industrial feedlots and poultry processors saw significant drops in profit as the cost of their major input — feed — started to rise.¹³⁰

Weak Environmental Oversight

The main costs of factory farms are what goes in — feed — and what comes out — manure and other livestock waste. Giant commercial confined livestock and poultry operations produce half a billion tons of manure each year, more than three times as much as that produced by the entire U.S. population.¹³¹

But as the number of animals on factory farms has ballooned, federal and state environmental officials have largely ignored the growing pollution burden on rural communities, waterways and aquatic ecosystems. The USDA offers a direct subsidy to factory farms under the Environmental Quality Incentives Program (EQIP), which dedicates 60 percent of program funding to upgrading manure management systems. Taxpayers paid \$179 million between 2003 and 2007 to cover manure management costs just for industrial dairies and hog operations (not counting chickens or cattle) under EQIP.¹³² Weak environmental enforcement also amounts to a subsidy to factory farms that are not required to meet pollution control standards similar to those of municipal sewer systems or even factories that emit the same kinds of contaminants.

The EPA and state regulators are tasked with regulating factory farms' impact on the environment. Oversight of water pollution is shared with state regulators, and while water pollution discharge rules are rife with generous loopholes that essentially let factory farms manure management practices go unregulated. The EPA has barely attempted to safeguard the public from air pollution from factory farms. For the last five years it has done nothing but study the problem.

Water

EPA's discharge permit system is the national regulation over water pollution from factory farms. However, until 2009, the agency essentially did nothing to control the environmental damage caused by factory farms, in part because of constant efforts by the livestock industry to weaken or eliminate environmental regulations. The industry vigorously lobbied



Congress for exemptions from pollution reporting requirements and mandatory permits for releasing into local waters. Rules for Clean Water Act permits for water discharge permit rules were tied up in court for decades.

The factory farm water discharge-permitting program is implemented and enforced by individual state environmental agencies, leading to a patchwork federal and state system of rules and regulations. The many state interpretations of federal rules leave communities vulnerable to often indifferent and underfunded state environmental enforcement. In some states, enforcement has been so lax that the EPA has attempted to revoke the state's authority to oversee the factory farm permitting system. For example, in 2010 the EPA announced that due to widespread problems with enforcement and oversight, it was giving the state of Illinois one month to improve its permitting program for factory farms.¹³³

The directive to Illinois came after years of EPA inaction. In 2008 under the Bush administration, EPA finally released updated rules for permitting factory farms under the Clean Water Act. However, the rules allowed factory farm operations to avoid water permit requirements altogether unless they "discharge or propose to discharge."¹³⁴ Permits were only required for facilities that stated their intention to release manure directly into waterways. Common manure management and disposal techniques such as lagoons and applying manure to cropland did not require any permit at all. The rule also provided a certification system to partially protect unpermitted facilities that were later found to be discharging waste.¹³⁵ Under the rules, a factory farm that certified that an accidental discharge was remedied still does not need a permit.¹³⁶ Several environmental groups challenged the rule in court and in 2010 a settlement agreement was announced under which the EPA would re-work its factory farm permit program.¹³⁷



Manure poses a significant risk to communities and the environment. Unlike in cities, where human waste ends up at a sewage treatment plant, untreated livestock waste is flushed out of confinement buildings into large cesspools, or lagoons. These waste pools can leak or burst, especially during storms, spilling into local waterways, killing fish and spreading waste and odor across communities. Manure from lagoons is applied to fields as fertilizer, but when the application exceeds the ability of fields to absorb the nutrients, the residual manure nutrients — mostly nitrogen and phosphorus — and any bacteria leach off fields and into groundwater and rivers.¹³⁸

The long list of contaminants making their way from manure into drinking water includes heavy metals, antibiotics and pathogenic bacteria.¹³⁹ Six of the 150 pathogens found in animal manure are responsible for 90 percent of human food- and water-borne diseases: *Campylobacter*, *salmonella*, *Listeria*, *E. coli* 0157:H7, *Cryptosporidium*, and *Giardia*.¹⁴⁰ Between 1991 and 2000, groundwater-based drinking water systems were associated with 68 disease outbreaks that affected nearly 11,000 people, accounting for over half of the decade's waterborne disease outbreaks.¹⁴¹

Even small amounts of pathogenic bacteria in drinking water can lead to disease¹⁴² For example, in 2006, an early thaw leached *E. coli* and bacteria from the 260 million gallons of

manure produced by 41,000 dairy cows in Brown County, Wisconsin. It polluted more than 100 nearby wells. Residents of the town of Morrison, Wisconsin suffered from chronic diarrhea, stomach illnesses and ear infections, and one household that tested its tap water found *E. coli*, *coliform* bacteria and other contaminants associated with livestock manure.¹⁴³

The nutrients flowing off factory farm fields and leaking from manure lagoons are also detrimental to the health of ecosystems and aquatic life. Large manure spills can rapidly overwhelm smaller waterways and kill almost all aquatic life. In 2009, as many as 200,000 fish were killed in a 12-mile length of the Black River in Sanilac County, Michigan after dairy manure was improperly spread on fields.¹⁴⁴

Air

The EPA does almost nothing to prevent factory farms from releasing dangerous air pollutants. In 2005, the EPA under President Bush announced a Clean Air compliance agreement with the large-scale livestock industry that exempted participating operations from air quality violations if they joined a study on factory farm air emissions.¹⁴⁵ This was a sweetheart deal for factory farms. In exchange for a nominal fee, factory farm air pollution emissions would be monitored, and the operations would be excused from any air quality enforcement. EPA claimed that without the study it did not have enough data on air emissions to apply the Clean Air Act to factory farms.¹⁴⁶ By 2010, five years after the survey began, the EPA had yet to provide any information on the volume of factory farm air pollution emissions. According to the GAO, this study might not even provide the necessary information to oversee air pollutants because of incomplete data collection and a distorted factory farm sample.¹⁴⁷

Federal law requires all facilities — factories or factory farms — to report any *significant* accidental releases of certain dangerous air pollutants, like ammonia.¹⁴⁸ In 2008, the EPA announced that most factory farms were to be exempt from reporting large releases of hazardous chemicals into the air.¹⁴⁹ This exemption removed the air pollution-reporting requirement from all but the largest factory farms.¹⁵⁰ The factory farms participating in the Air Compliance Agreement also received an exemption from the hazardous release reporting requirements.¹⁵¹ Industry groups, apparently not realizing that they had previously been required to report emissions, sued EPA, claiming this was a new obligation.¹⁵² The EPA noted that the statutory reporting requirement was long-standing,¹⁵³ but this did convince the livestock industry to drop the challenge.¹⁵⁴ As of 2010, the case was still pending.

Factory farms can release significant volumes of toxic chemicals into the air. Decomposing manure releases ammonia and hydrogen sulfide gases in concentrations that are poten-

tially harmful to nearby residents.¹⁵⁵ The GAO reported that storing large quantities of livestock manure on factory farms could cause emissions of “unsafe quantities” of ammonia, hydrogen sulfide and particulate matter.¹⁵⁶

Overexposure to hydrogen sulfide can cause dizziness, nausea, headaches, respiratory failure, hypoxia and even death.¹⁵⁷ Factory farm hydrogen sulfide releases have contributed to excess diagnoses of respiratory and digestive disturbances; workers in factory farm facilities experience high levels of asthma-like symptoms, bronchitis and other respiratory diseases.¹⁵⁸ In liquid manure holding pits, releases of hydrogen sulfide can exceed lethal levels when waste from the lagoons is agitated prior to being pumped out of the facility.¹⁵⁹

One 1,500 cow dairy in Minnesota released so much hydrogen sulfide gas in 2008 that the state evacuated nearby residents and declared it a public health hazard.¹⁶⁰ Although residents had complained about odors from the dairy for years, the Minnesota Pollution Control Agency did not install a monitor to measure emissions until the spring of 2008.¹⁶¹ Emissions levels remained high throughout the summer. That October, the Minnesota Department of Health declared the Excel Dairy a public health hazard, the first time Minnesota declared a large livestock operation a public health risk.¹⁶²

In addition to the health risks, factory farm odors diminish the quality of life for neighbors who can no longer hang their laundry out to dry, picnic in their yards, sit on their porches or even open their windows. In 2010, a Missouri jury awarded \$11 million to neighboring farmers of Premium Standard Farms who complained of odors from the 1.8 million hogs produced annually on the company’s Missouri operations.¹⁶³ The significant nuisance of living near the overwhelming stench of factory farms even erodes the wealth of their neighbors. A 2003 study found that living downwind from industrial hog operations reduced the property values of neighboring residential homes by approximately 10 percent.¹⁶⁴

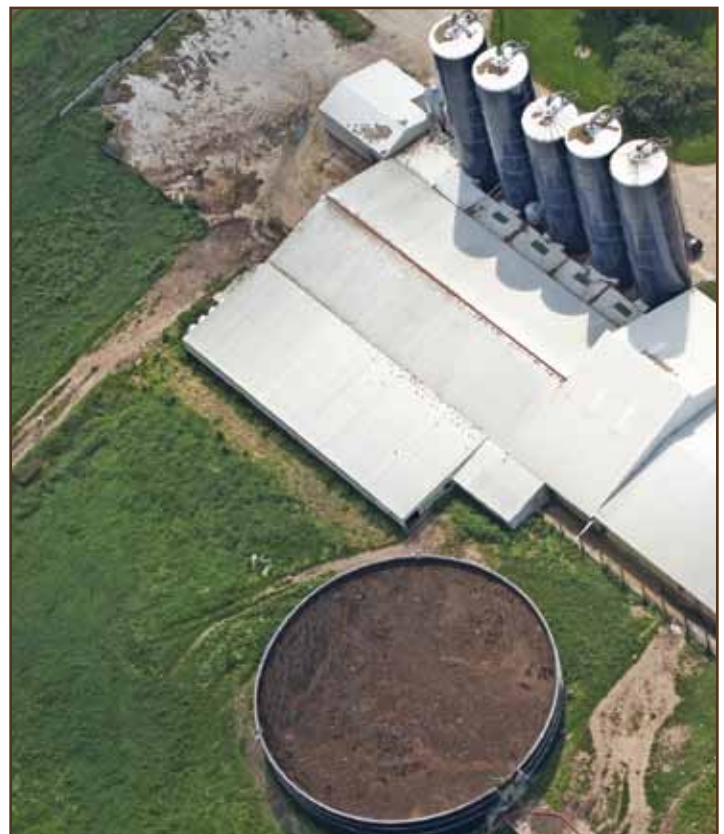
Weak environmental oversight reduces the cost of factory-farmed livestock operations. Municipal sewer systems must treat the wastewater that is discharged into waterways, and factories cannot simply pump ammonia and hydrogen sulfide gas out their smokestacks without some kind of treatment. Although factory farms pay the cost of storing manure in lagoons and spraying waste on their fields, the weak environmental oversight allows a continual discharge of water or air pollutants. If factory farms had to bear the full cost of managing, treating and disposing of the waste they generate, the purported efficiencies of their large scale operations would begin to evaporate.

Agribusiness Consolidation

For many years, the largest meatpackers, poultry companies and milk processors took advantage of low-cost feed and weak environmental enforcement to consolidate their stranglehold over the entire livestock sector. After decades of mergers, the concentrated market power of meat, poultry and dairy companies has pushed livestock operators to become significantly larger. By pushing down the prices farmers receive for their livestock and often imposing unfair contract terms, the dwindling number of larger companies that buy or contract for cattle, hogs, poultry or milk exert tremendous pressure on the hundreds of thousands of livestock producers.

Over the past two decades, the Department of Justice has approved mergers between some of the biggest companies in each type of livestock. In 2007, Brazilian beef giant JBS bought the U.S. meatpacker Swift.¹⁶⁵ In 2007, the largest hog processor, Smithfield Foods, merged with Premium Standard Farms.¹⁶⁶ In 2006, Pilgrim’s Pride (itself now part of JBS USA) bought Gold Kist, making it the world’s largest chicken producer.¹⁶⁷ In 2001, two of the dominant milk processors, Dean Foods and Suiza, merged.¹⁶⁸

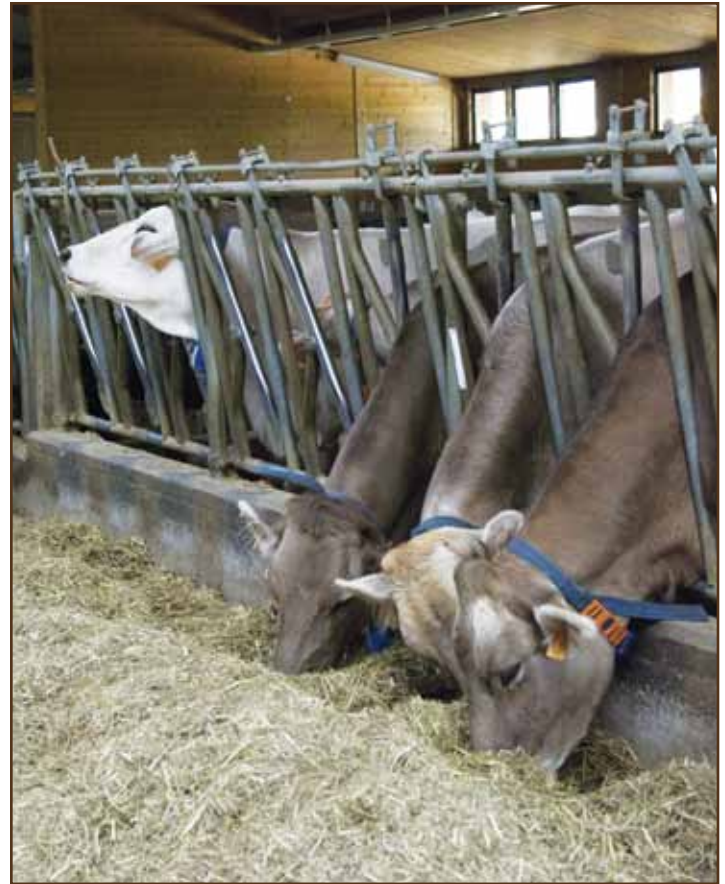
These mega-mergers between some of the largest livestock processing companies have led to an unprecedented concentration of buyer power over farmers. The four largest firms



control 83 percent of beef packing, 66 percent of pork packing, 58 percent of poultry processing and 43 percent of fluid milk processing.¹⁶⁹

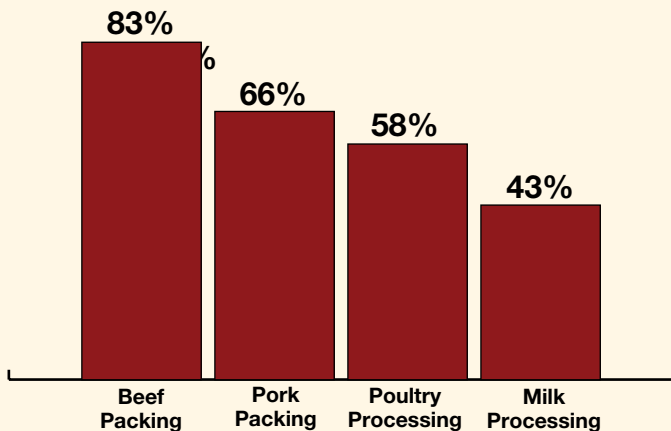
Livestock producers have always needed access to slaughter and processing to sell their livestock, eggs and milk and this relationship has always been prone to an imbalance of power. Consolidation has left producers with fewer and fewer options for getting their livestock to market. In fact, the number of cattle and hog slaughter plants declined by about a third between 1996 and 2006.¹⁷⁰ And between 1972 and 1992, the number of fluid milk processing plants fell by 70 percent.¹⁷¹ The national dominance of these companies may understate the pressure farmers face on the local or regional level because most regions do not have processing facilities run by all of the top players. A large beef packing plant controls a large purchasing territory because most beef cattle are shipped less than 300 miles.¹⁷² Poultry growers typically sell to processors within only 20 or 40 miles; only one or two companies serve most growers within a practical distance.¹⁷³

Food & Water Watch's Factory Farm Map shows factory-farmed livestock operations clustered around the geographic territories of the four largest beef, hog and poultry processing companies.¹⁷⁴ The poultry processing facilities are located primarily in a band between western Arkansas across the Southeast to central North Carolina and in other poultry areas, including the Chesapeake Bay, the Shenandoah Valley in Virginia and the lower Ohio River Valley. Almost all of the large poultry farms are within a few counties of these processing plants.



Similar patterns are evident in the beef and hog packing industry. Most of the beef slaughter facilities are located in a triangle between the Quad Cities on the Iowa-Illinois border, the front range of the Colorado Rockies, and the Texas panhandle. They are co-located with the greatest density of large beef cattle feedlots and operations. There are five plants west of the Rocky Mountains that are close to counties with large beef feedlot operations. There are a few slaughter plants in dairy areas as well, where dairy cows are slaughtered and processed when their milking days are over. Most hog slaughter and processing plants are located between eastern Nebraska and western Illinois, with the highest concentration of plants in Iowa surrounded by the highest concentrations of factory-farmed hogs. There are also plants in North Carolina, Indiana and Kentucky, which serve industrial hog operations in North Carolina, Ohio and Indiana.

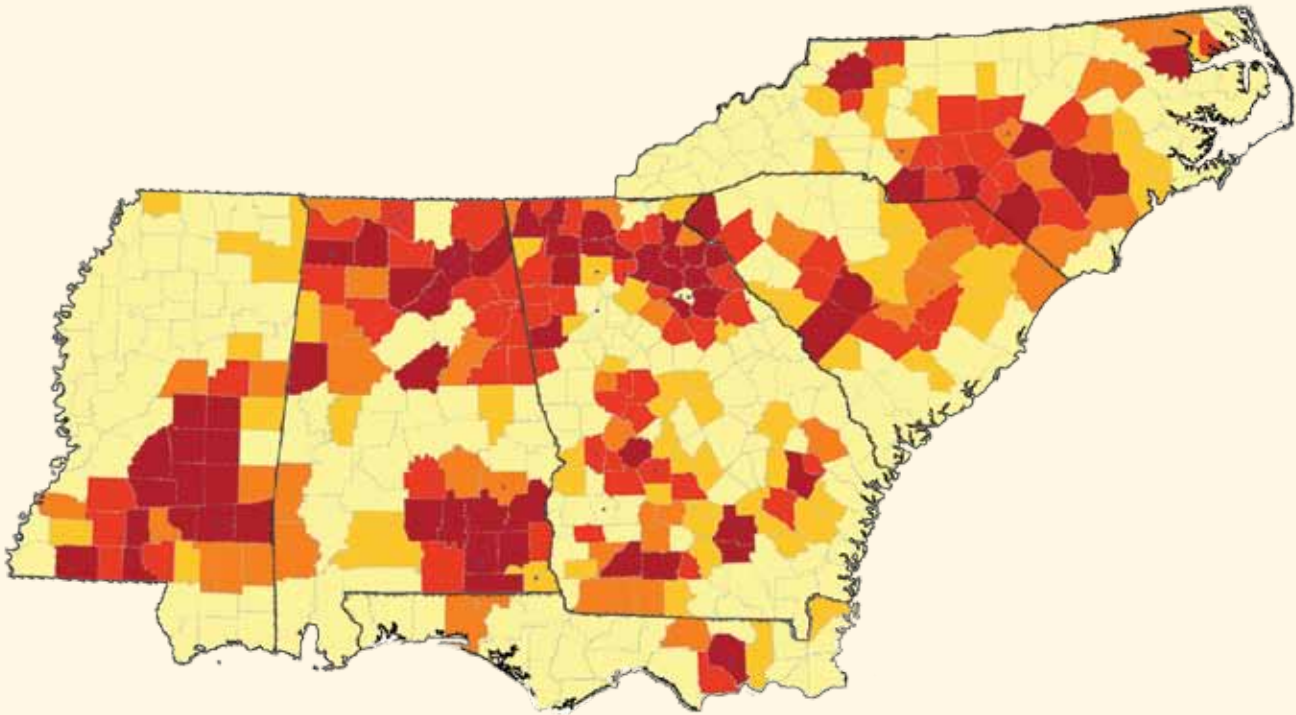
Market Concentration of Top Four Firms, 2007



Source: Hendrickson & Heffernan; USDA

The decline in buyers and processing plants has left fewer selling options for livestock producers, which puts them under increased pressure to take whatever price they can get, even if it does not cover their costs. Over time, this forces small operations to grow in order to recoup low prices with higher volume (more animals) or leave the business entirely. In farm circles, this phenomenon is described as “get big or get out.”

Concentration of Broiler Chickens in Mississippi, Alabama, North Florida, Georgia, South Carolina and North Carolina, 2007

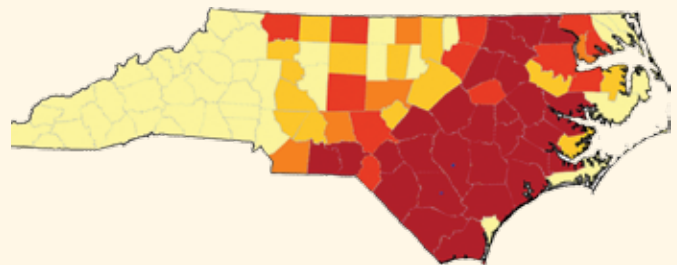


Source: www.factoryfarmmap.org

Meatpackers, poultry companies and milk processors exert control over livestock producers by controlling many links in the food chain and using contracts to bind farmers to the company. Theoretically, contracts give farmers a guaranteed market for their livestock, but large contract livestock buyers can extract lower prices and impose exploitative contract terms on farmers. Cattle, hogs and milk are often sold under marketing agreements that ensure future sales of livestock products — sometimes for a pre-arranged price and sometimes for a price to be determined upon delivery.

Poultry and hogs are often delivered under production contracts where the farmers raise company-owned animals. The farmer provides the service of raising the livestock, but does not own the animals. The terms of production contracts can be severe, and many of them effectively shift the cost and risk of doing business from the company to the hog farmers or poultry growers.¹⁷⁵ For example, poultry growers are responsible for securing environmental permits for disposing the chicken manure and are financially and legally responsible for the manure disposal.¹⁷⁶ Contract livestock operators are also often required to make significant investments — in land, buildings and equipment — in order to secure contracts.¹⁷⁷ Farmers take on long-term debt with no matching

Concentration of Hogs on Factory Farms in North Carolina, 2007



Source: www.factoryfarmmap.org

long-term guarantee that the company will keep using them. Both types of contract have been used to lower prices farmers receive for their livestock and push producers to increase the size of their operation. Contracting companies primarily do business with the largest operations and are reluctant to deal with medium-sized or smaller producers.¹⁷⁸



The High Costs of Factory Farms

In rural communities, factory farms pollute nearby air and water, undermine rural communities, reduce the quality of rural life, and trample the democratic rights of citizens to participate in their community. But the impacts of factory farms reach far beyond rural communities to suburban supermarkets.

The crowded, unsanitary conditions in industrial livestock facilities make the animals susceptible to disease — both pathogens that cause foodborne illnesses and other contagious diseases. Other factory farm methods that are designed to promote production or weight gain, including artificial hormones and antibiotics as well as the addition of chemicals and animal byproducts to livestock feed, can also endanger public health. The animals themselves are raised in over-crowded conditions with no access to the outdoors or even natural light. Breeding for specific production traits like rapid weight gain, larger breasts on chickens, or high milk or egg production has made animals susceptible to structural deformities and infections, such as mastitis in dairy cows.¹⁷⁹ These practices, along with methods used to promote fast growth and maximum production, such as antibiotics and feed additive use, artificial growth hormone use, and diets that may promote weight gain but not be appropriate for animals, all lead to welfare problems for animals raised on these facilities.

In addition to the water and air pollution, the burden of industrialized livestock operations creates long-term impacts. This industry contributes to global warming, over-consumes

water and energy resources, and degrades regional waterways. Livestock production is the dominant source of the greenhouse gas methane in the United States, and manure management is the fastest growing large source of methane, increasing by more than 50 percent between 1990 and 2008.¹⁸⁰ Livestock drink tremendous amounts of water and additional water is required to move manure around on factory farms. Livestock operations consume more than two billion gallons of water every day in the United States.¹⁸¹ Many industrial cattle feedlots sit atop the overstressed Ogallala aquifer that lies beneath most of the land between Nebraska and Texas. The explosion of mega-dairies in the arid Southwest puts a tremendous strain on the Rio Grande and Colorado River basins. Livestock manure from the watersheds that feed the Chesapeake Bay are the source of approximately one-fourth of the pollution that causes oxygen-depleted dead zones in the Chesapeake Bay.¹⁸² There are ongoing debates about the extent and role of livestock on these environmental problems, but the impacts on local communities, food safety and public health are sufficient reasons to reject the factory-farmed livestock model. The potential contribution of these additional long-term sustainability issues is just further reason to reevaluate how we raise food animals.

The meatpacking, poultry and dairy companies contend that these industrialized production methods are more efficient and deliver lower prices to consumers. Although the big companies have reduced the prices they pay farmers for their livestock, consumers have not seen a reduction in their grocery bills. The real, inflation-adjusted consumer prices

for meat, milk and eggs have been steadily rising while the farmer share of the grocery dollar has been falling during the period when factory farms became dominant.

Impact on Farmers

The rise of factory farming has put more animals on fewer farms and has pushed large numbers of farmers out of business altogether. For those that remain, the concentrated power of the big meatpackers, processors and poultry companies has made it hard for many livestock producers to eke out a living. The real, inflation adjusted prices that farmers receive for beef cattle, hogs and milk have been falling as big meatpackers and dairy companies gained a stranglehold on the livestock sector. Contract poultry operators have an even tougher time.

The number of livestock producers has dropped steeply over the past few decades even as the total number of farmers has hovered around two million for 10 years. The rise of factory-farmed livestock has meant that although the number of livestock producers has collapsed, the number of hogs, beef cattle, dairy cows and chickens has risen because each farm has so many more animals. Between 1980 and 2008, the number of beef cattle operations has fallen by 41 percent from nearly 1.3 million producers in 1980 to 757,000 in 2008.¹⁸³ The number of hog farms declined by 90 percent from 667,000 in 1980 to 64,760 in 2008 and the number of dairy farms fell by 80 percent from 335,270 in 1980 to 67,000 in 2008.¹⁸⁴

The prices farmers receive for their beef cattle have fallen steadily over the past 20 years. The real, inflation-adjusted farmgate price for beef cattle has fallen by nearly a fifth (18.5 percent) from an annual monthly average of \$116 between 1989 and 1992 to \$94.60 between 2004 and 2008 (in constant 2009 dollars).¹⁸⁵ Between 1981 and 1994, cattle producers received an average of \$36 a head after production costs, but between 1995 and 2008 farmers netted out an average of \$14 a head.¹⁸⁶ Hog and dairy farmers faced similarly steep declines in farmgate prices. Real average monthly hog prices were \$75 per hundredweight between 1989 and 1993 (in 2009 dollars), when the minority of hog farms used contract production. During the period between 2004 and 2008, when the majority of hog farms used contract production, average monthly farmgate hog prices were \$52 per hundredweight, a 31 percent decline.¹⁸⁷ Even before the dairy crisis that began in 2007, real farmgate milk prices had been falling for decades. They fell 23.3 percent from \$18.01 per hundredweight in 1997 to \$13.81 per hundredweight in 2006. Although dairy prices spiked to over \$20 per hundredweight in 2007, they rapidly collapsed (see dairy crisis section). The decline in dairy prices has pushed many dairy farmers into desperate debt and bankruptcy.

Impact on Rural Communities

Agribusiness consolidation and the increase in factory farming can sap the economic vitality of rural communities. Economically viable farms are the lifeblood of rural communities.¹⁸⁸ The earnings from locally owned and locally controlled farms generate an economic “multiplier effect” when farmers buy their supplies locally and the money stays within the community.¹⁸⁹ The loss of nearly 1.4 million cattle, hog and dairy farms over the past 30 years has drained the income out of rural communities.¹⁹⁰

Fewer, larger factory farms pump less money into rural communities. Several studies have reported that large-scale livestock operations were more likely than smaller livestock farms to bypass local suppliers for inputs like feed and equipment.¹⁹¹ An Iowa study found that more than two-thirds (70 percent) of smaller livestock operations bought feed locally, but only two out of five (43 percent) large-scale livestock operations bought local feed.¹⁹² The economic multiplier effect is much lower with large corporate-owned factory farms than with smaller independent farms.¹⁹³ The earnings and profits from meat-packer-owned cattle feedlots and hog production facilities are shipped to corporate headquarters instead of invested locally.

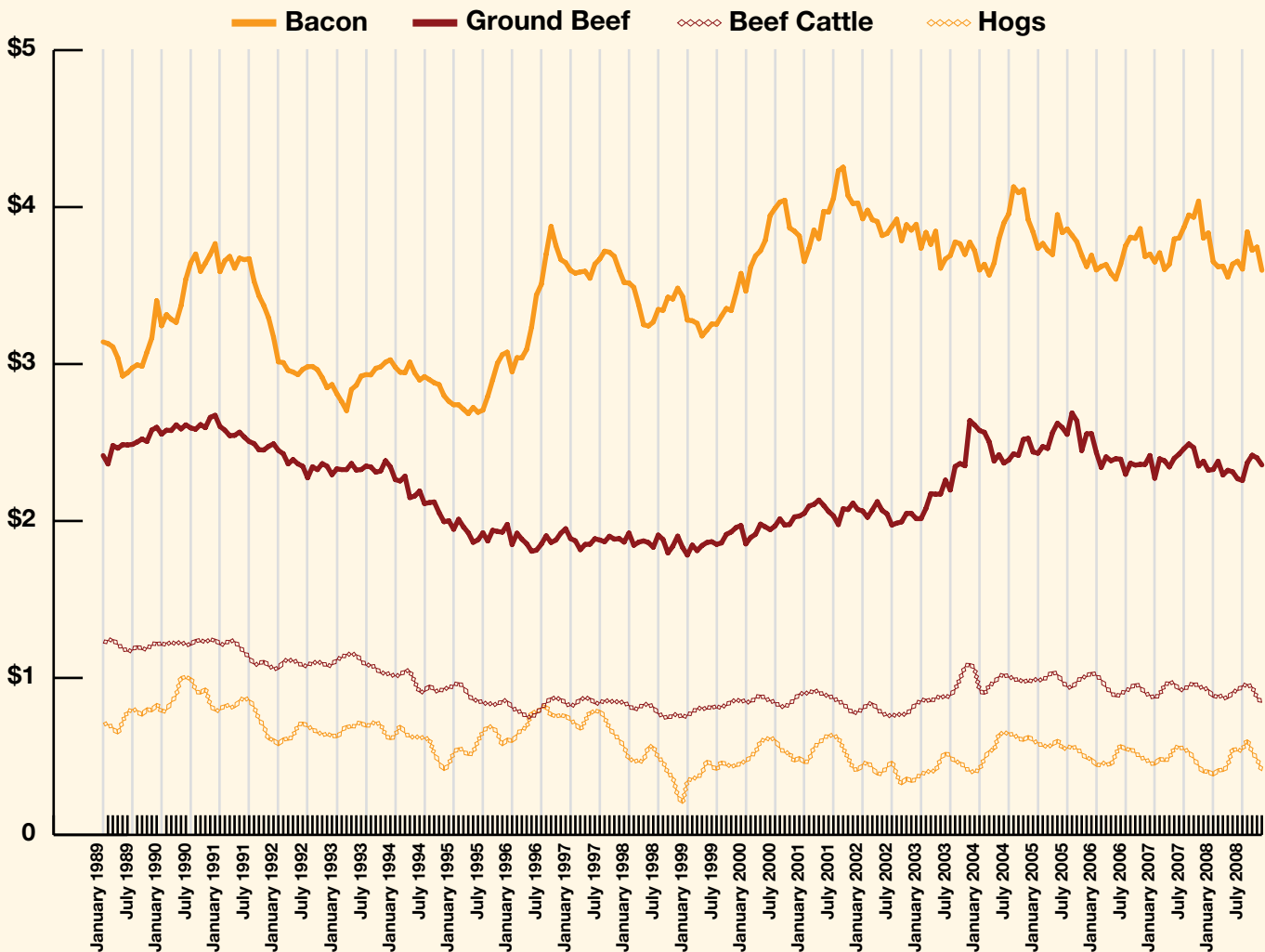
The loss of local meatpackers, poultry producers and milk processing plants undercuts rural economies in other ways, too. Independent small slaughterhouses and medium-sized regional milk and meat processing firms as well as locally owned grain elevators and local feed and equipment dealers provide employment, investment and stability to rural communities. According to Auburn University Professor Robert Taylor, concentrating economic power in the hands of few companies effectively “siphons profits out of rural areas and moves them to international financial centers.”¹⁹⁴

Impact on Consumer Prices

Although the real prices farmers received for their livestock have been falling for decades, few of these savings are passed on to consumers. The largest meat and milk companies, along with the big grocery chains, can seize more of the margin between the farmgate and retail prices. Since the mid-1980’s, the inflation-adjusted cost of a market basket of groceries has risen relatively steadily.¹⁹⁵ In contrast, the farmer share of the same market basket of groceries remained at about a third of the retail grocery sales between 1960 and 1980, but then declined sharply to 24 percent in 1990 and to 19 percent in 2006.¹⁹⁶

Food & Water Watch compared real consumer retail prices and real farmgate prices for common meat and milk products and found that consumers paid more and livestock producers received less over the past several decades.¹⁹⁷ Over the past 10 years, real, inflation-adjusted consumer prices for ground beef have increased by 24.0 percent, from a monthly average

Real Farmgate Prices v. Real Retail Prices (per pound, in 2009 dollars)



Source: Bureau of Labor Statistics; USDA

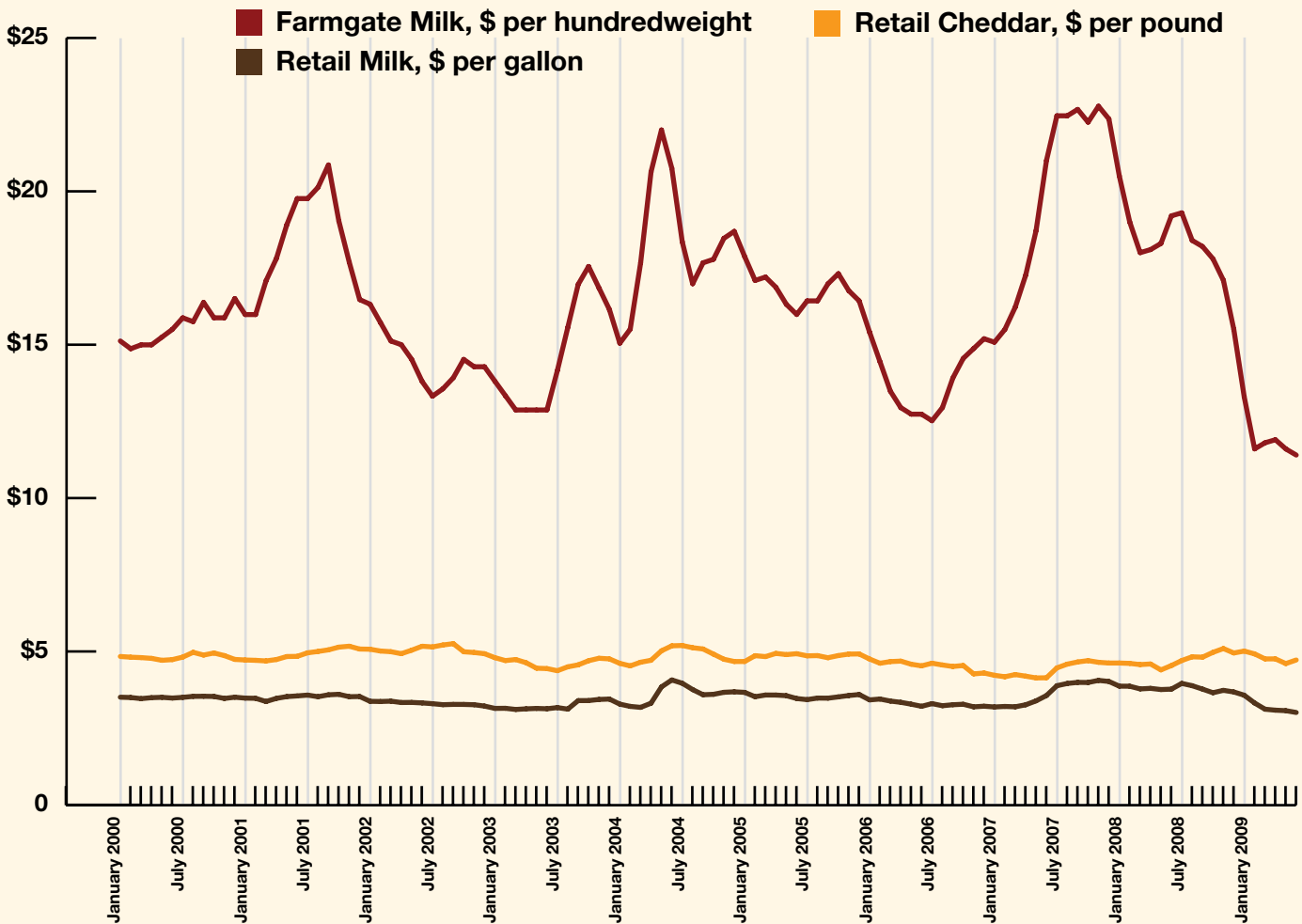
price of \$1.89 a pound in 1999 to \$2.34 a pound in 2008 (in constant 2009 dollars). Over the same period, farmgate prices for beef cattle only rose by 8.5 percent — a third as fast as retail prices increased. Similarly, the real price consumers paid for bacon increased by 19 percent, from \$3.07 per pound in 1989 to \$3.66 in 2008, but the price farmers received for hogs fell by 36 percent from \$0.75 per hundredweight in 1989 to \$0.48 in 2008.

Dairy products present the starkest picture of the disconnect between what consumers pay in the grocery store and what farmers get paid. Even before the dairy crisis that began in 2007, real farmgate milk prices had fallen sharply while retail prices for cheese rose and retail prices for milk fell only slightly. Real farmgate prices for milk fell 23.3 percent from \$18.01 per hundredweight in 1997 to \$13.81 per hundredweight in 2006. Over the same period, the real consumer

price for a gallon of milk fell only by 6.6 percent and the price of cheddar cheese actually increased by 4.7 percent.

When milk prices collapsed between 2007 and 2009, the price consumers paid for dairy products fell only modestly — if at all. Between July 2007 and June 2009, the real price farmers received for milk fell by 49.3 percent, but the retail price for milk fell only half as fast (declining by 22.6 percent) and the price of cheddar cheese increased by 5.8 percent. As the Utah Commissioner of Agriculture noted, “We are concerned that retailers have not reduced the retail price of milk to reflect the huge reduction in the wholesale level.”¹⁹⁸ Very little of the money consumers pay for milk ends up in the hands of farmers. In 2009, farmers only received 97¢ for every \$2.99 gallon of milk and less than \$1.00 for every \$4.99 pound of cheddar cheese.¹⁹⁹ This is one more supposed efficiency of factory farms that does not actually exist.

Real Farmgate Milk, Retail Milk and Cheddar Cheese Prices (in 2009 dollars)



Source: Bureau of Labor Statistics; USDA

Impact on Public Health

Even people who don't live in rural communities are harmed from factory farming. Practices common on factory farms can lead to foodborne illness, including outbreaks from *E. coli* and *salmonella* contamination and the risk of mad cow disease. The large number of animals raised in cramped conditions is a breeding ground for the formation of new diseases, and the routine use of antibiotics in livestock can lead to the creation of deadly antibiotic-resistant bacteria. Dairy cows are injected with rBGH, a synthetic hormone that increases udder infections (requiring the increased use of antibiotics for treatment) and may increase the risk of certain cancers in humans. Chickens are routinely fed arsenic, a known carcinogen that can end up in chicken meat and can contaminate soil and streams.

E. coli

Cattle are uniquely suited to eat grass, but cattle finished in factory farm feedlots are instead fed grains like corn and soybeans. This practice has serious human health impacts. The diets fed to factory farm animals increase the concentration and length of time that *E. coli*, including dangerous strains like O157:H7, survives in manure.²⁰⁰ Not only does the bacterium pass on to meat from the intestines, hides and hooves of cattle that stand in their own feces all day,²⁰¹ but it also can contaminate other food sources, such as vegetables.²⁰² The 2006 case of *E. coli*-O157:H7, contaminated spinach in California that killed three people and sickened hundreds offered a dramatic example of how this can happen.²⁰³ Agricultural sources have also been shown to be a considerable source of *E. coli* in recreational waters, potentially sickening people who swim.²⁰⁴

Salmonella

One of the most common causes of foodborne illness, *salmonella* is a bacteria found in the intestinal tracts of animals.²⁰⁵ Meat, poultry, and eggs are common sources of *salmonella* infection for people, although produce has also been contaminated with the bacteria. The tight confinement and crowded conditions found in U.S. operations are thought to increase the risk of *salmonella*. Surveys done in the European Union led researchers to conclude that “cage production as well as a larger flock size were associated with a higher risk of positivity [for *salmonella*]” in eggs.²⁰⁶ In addition to the threat of foodborne illness posed by *salmonella*, the medical community has worried that the overuse of antibiotics in livestock production could make these illnesses harder to treat.²⁰⁷ In 2009, *Consumer Reports* magazine conducted a study of 382 chickens bought in more than 20 states. Among the birds tested, 14 percent tested positive for *salmonella*, and 68 percent of the *salmonella* and 60 percent of the *campylobacter* organisms analyzed showed resistance to one or more antibiotics.²⁰⁸

Mad Cow Disease

The materials fed to livestock can impact public health. Animal feed has long been used as a vehicle for disposing of animal byproducts.²⁰⁹ Scientists believe that “mad cow disease,” or bovine spongiform encephalopathy (BSE), is spread when cattle eat nervous system tissues, such as the brain and spinal cord, of other infected animals.²¹⁰ Variant Creutzfeldt-Jakob disease (vCJD), which causes dementia and ultimately death in humans, is almost certainly caused by eating BSE-infected beef.²¹¹ Keeping mad cow disease out of the food supply is particularly important because, unlike most other foodborne illnesses, it cannot be eliminated by disinfection or cooking the meat.²¹²

Three cases of mad cow disease have been identified in cattle in the U.S. — in December 2003, June 2005, and March 2006.²¹³ In fall 2006, the USDA decided to scale back testing for mad cow disease by over 90 percent, claiming that testing was expensive and detection of infected cows was rare.²¹⁴

In 1997, the FDA instituted a rule that banned certain animal proteins from cattle feed, but it continued to allow those proteins in other animal feed,²¹⁵ and it did not ban blood products and poultry litter from cattle feed.²¹⁶ In 2008, the FDA updated the rule to ban the entire carcasses of BSE-positive cattle, as well the brains and spinal cords of cattle 30 months of age or older, from all animal feed.²¹⁷ A safer policy for consumers would be to remove all cattle tissues from the feed system, regardless of their age or BSE status, and also to ban restaurant plate waste, cattle blood and poultry litter from cattle feed.

Growth Hormones

More than 40 percent of cows in industrial dairies are injected with a genetically engineered growth hormone called recombinant bovine growth hormone (rBGH) to increase their milk yields.²¹⁸ This artificial hormone’s known side effects include increased udder infections (mastitis) and reproductive problems in cows. In addition, a growing body of scientific research also suggests a link between drinking milk from rBGH-treated cows and certain types of cancer in humans.

Dairy cows treated with rBGH increase production of a protein called insulin-like growth factor-1 (IGF-1).²¹⁹ Humans naturally produce their own IGF-1, but humans drinking milk from treated cows will consume more IGF-1 than they otherwise would. Recent research shows that when present in the human body at elevated levels, IGF-1 increases the risk of breast, colon, prostate, and other cancers.²²⁰ rBGH has never been approved for commercial use in Canada or the European Union due to concerns about the drug’s impact on animal health and welfare,²²¹ and is also banned in Japan and Australia.²²² In 2007, nearly 43 percent of large-scale dairies (over 500 head), 30 percent of mid-sized dairies, and nine percent of small dairies used rBGH on their cows.²²³

Antibiotic-Resistant Bacteria

In factory farms, thousands of genetically similar animals are breathing, urinating and defecating in cramped conditions. This intense confinement creates a breeding ground for viruses to mutate and for diseases and contamination to spread quickly, not just to livestock but also to farm workers and other people in contact with those animals.²²⁴ This threat became very real with the spread of avian flu to humans, which first appeared in 1997, and with the swine flu outbreak that began in 2009.²²⁵

Factory farms typically mix low doses of antibiotics (below the amount used to treat an actual disease or infection) into animals’ feed and water to promote their growth and to preempt outbreaks of disease. This continual use of antibiotics can lead to the creation of antibiotic-resistant bacteria.²²⁶ Methicillin-resistant *Staphylococcus*, or MRSA, is a deadly strain of staph infection that is resistant to certain antibiotics.²²⁷ Hogs and other animals can be carriers of MRSA. Employees working in large operations are hundreds of times more likely to be carriers of MRSA than the general public, suggesting that MRSA is passing from animals to humans.²²⁸

Because of the threat posed by life-threatening antibiotic-resistant bacteria, numerous groups, including the American Public Health Association,²²⁹ the American Medical Association,²³⁰ and the Pew Commission on Industrial Farm Animal Production,²³¹ have requested a ban on the non-therapeutic use of antibiotics in animals.



Arsenic

U.S. poultry farmers have used drugs containing arsenic (a known poison) to control the common disease coccidiosis for decades.²³² The chicken industry discovered that the arsenic-based drug roxarsone also promoted growth, increased feed efficiency, and improved flesh pigmentation.²³³ Between 1995 and 2000, 70 percent of chicken producers used roxarsone feed additives.²³⁴

Although the chicken industry maintains that arsenical drugs are safe, arsenic poses problems in chicken meat and waste. Chronic exposure to arsenic is associated with increased risk for several kinds of cancer, including bladder, kidney, lung, liver, and prostate,²³⁵ and it leads to cardiovascular disease and diabetes as well as neurological problems in children.²³⁶ Areas of concentrated poultry production have experienced public health concerns tied to the use of arsenic feed additives, such as increased arsenic concentrations in soil and even arsenic in house dust.²³⁷ When chicken litter containing arsenic is used as fertilizer, it can contaminate soil and water, a particular threat to the local populations.²³⁸

Impact on Communities

With all of the harmful environmental, social, economic and public health impacts of factory farming, it comes as no

surprise that citizens and communities near factory farms have attempted to fight back against the spread of these facilities. Some municipalities and counties have tried zoning restrictions and siting requirements for new factory farms, while others have tried to prevent corporate and outside ownership of farms. However, in many parts of the country, agribusiness has been able to exert considerable influence, and state legislatures have acted on behalf of corporate agriculture by taking control away from citizens and handing it over to state governments or boards that are controlled by factory farming interests.

Nebraska is a premier example. In 1982, Nebraska voters approved Initiative 300, a constitutional amendment that created one of the country's strongest prohibitions on the corporate ownership of farmland and livestock.²³⁹ Unfortunately, in 2005 a federal district court declared that I-300 violated the U.S. Constitution,²⁴⁰ and the U.S. Court of Appeals for the Eighth Circuit upheld the lower court ruling.²⁴¹

Despite the setback in Nebraska, citizens in a number of other states and municipalities have attempted to pass similar measures intended to prevent outside agribusiness interests from running roughshod over democratic values. To date, none has succeeded.

Ohio

In Ohio, proponents of industrial livestock production launched a new offensive in 2009 designed to wrest oversight of livestock operations from state agricultural and environmental agencies and shift it to a commission that could be easily dominated by special interests representing factory farms. A 2009 referendum, Issue 2, was an agribusiness-backed attempt to change the Ohio state constitution by establishing an appointed Livestock Care Standards Board that would have unchecked power to establish standards for livestock and poultry in the state.

Groups representing major agribusiness interests, including the Ohio Farm Bureau and the Ohio Pork Producers Council, heavily backed Issue 2.²⁴² The effort was promoted as an initiative to protect family farms from excessive regulation, but the majority of the financial backing came from the largest agriculture trade associations and agribusinesses, and much of the support came from outside of Ohio. Trade associations like the Farm Bureau (national, state and local chapters), industry trade groups including the National Pork Producers Council, and agribusiness provided \$3.1 million to support the initiative — 58 percent of all money raised by supporters of the initiative.²⁴³ Because the agribusinesses outraised the critics of Issue 2 by more than 50-to-1, the initiative passed and successfully provided the industry with a way to regulate itself.²⁴⁴



permits through the Indiana Department of Environmental Management.²⁵² In return, residents have experienced rivers polluted by millions of gallons of spilled manure,²⁵³ tens of thousands of dead fish,²⁵⁴ and community strife and unrest,²⁵⁵ while Food & Water Watch found the number of hogs in the state raised on factory farms increased by over 460,000.

Missouri

Community organizations in Missouri have had to repeatedly fight to maintain local government control over factory farms. Every year since 2003, agribusiness industry groups have attempted to push measures through the state legislature that would eliminate local control, and each year citizens have successfully preserved their right to protect their communities.²⁵⁶ For example, in 2007, then-State Senator Chris Koster sponsored the anti-local control Senate Bill 364, which would have abolished all Missouri health ordinances that were enacted to protect citizens and farmers from the negative impacts of factory farms.²⁵⁷ According to Rhonda Perry, a livestock and grain farmer and program director of the Missouri Rural Crisis Center, "Missouri's family farmers, rural citizens and landowners have seen firsthand what these corporate controlled industrial livestock operations have done to their economies, the environment and rural health. In response, our local elected county officials have exerted 'local control' by passing health ordinances and making these operations more accountable to the people, taxpayers and environment of the county. At the state legislature, corporate agri-business lobbyists and their allies attempt to take away local control from our counties and their citizens, but every year family farmers and rural people stand up and say 'NO! Government is best when it is closest to the people.'"²⁵⁸

In addition to bills in the state legislature, agribusiness interests have also used the courts to try to wrestle control of factory farms away from communities. In 2007, 81 percent of voters in Richland Township, Missouri passed a referendum authorizing the township to regulate factory farms through a zoning ordinance, but a judge tossed out the rules because the township lacked authority to regulate farm buildings.²⁵⁹ And in a case that began in 2007 with a lawsuit by a community organization attempting to protect a historic landmark from encroachment by a proposed 4,800 hog farm, a judge set up a protective two-mile buffer around the park. Former state Senator Chris Koster, now acting as the state Attorney General, appealed the ruling, and the buffer was overturned in 2010.²⁶⁰

The battle over local control shows the lengths agribusiness will go in order to have its way. By trying to resist local democratic processes, the industry is trying to consolidate not only the markets for livestock, but also its power over government.

Pennsylvania

Citizens in both Pennsylvania and Indiana now have to contend with an invasion of factory farms without any power over these operations at most local levels of government. In 2005, the Pennsylvania legislature essentially eliminated local control of agriculture when it passed the Agricultural, Communities and Rural Environment Act, a bill that allowed the state's attorney general to sue municipalities on behalf of factory farm owners if local ordinances "restricted" agricultural operations or ownership.²⁴⁵ State Attorney General Tom Corbett wasted no time in using this law to aggressively go after local townships that had attempted to protect their communities from factory farming. He sued five municipalities in 2006.²⁴⁶ He has continued to use the law to attack local ordinances, suing a township in 2009 for attempting to restrict factory farms to land of low agricultural quality, and settling with a number of others that amended their ordinances to avoid a lawsuit.²⁴⁷

Indiana

In 2005, in an economic development plan akin to promoting the construction of landfills and prisons, Indiana governor Mitch Daniels announced his intention to double pork production in the state by 2025.²⁴⁸ With minimal public input, Governor Daniels and his newly established Department of Agriculture quickly established rules to increase the number of factory farms in the state.²⁴⁹ They included limiting citizens' ability to sue factory farms for losses in their property values,²⁵⁰ creating model zoning restrictions to facilitate siting new factory farms,²⁵¹ and fast tracking hog factory farm

Impact on Animal Welfare

Chickens and hogs raised in factory farms usually have no access to the outdoors, fresh air or natural light, and spend much of their time confined in crates that are so restrictive the animals cannot stand up, turn around or fully extend their wings.²⁶¹ Dairy and beef cattle on factory farms do not have access to pasture where they could express their natural behavior (and ideal diet) of grazing.²⁶²

With 100,000 chickens or 1,000 hogs in one building, and thousands of cattle held together in one dirt lot, industrial livestock conditions make animals vulnerable to disease. A growing body of research has examined the heightened risk that influenza viruses can originate, mutate, and circulate among animal populations, specifically confined livestock operations that rely on genetically similar animals. Concern escalated several years ago when a highly pathogenic strain of avian flu caused a worldwide human influenza outbreak and was re-invigorated with the global spread of the H1N1 strain of swine flu. Many public health authorities and animal scientists have identified workers at these facilities as an important potential transmission link between livestock and humans and have called for increased study into the role of industrialized livestock operations in the spread of influenza.²⁶³

In addition to the burden put on animals from densely crowded conditions, most livestock breeds have been bred for specific production traits like rapid weight gain, larger breasts on chickens, or high milk or egg production. For example, since the 1920s, changes to broiler chicken breeding and production have resulted in chickens that grow twice as big in half the time.²⁶⁴ This selective breeding, which emphasizes high production over animal fitness or hardiness, has created animals that are prone to structural deformities such as lameness and bone deformities, metabolic problems, and susceptibility to infections.²⁶⁵

Selective breeding that makes livestock prone to health problems are coupled with unhealthy growing methods, such as the use of artificial growth hormones. The long list of side effects on dairy cows treated with the artificial growth hormone rBGH includes potential increased rates of mastitis (udder infections), reproductive problems, foot and knee disorders, potential swelling at injection site and digestion problems.²⁶⁶

If the biotechnology industry has its way, livestock production will soon incorporate even more exotic technologies that could impact the welfare of animals. In 2010, the Food and Drug Administration moved closer to approving the first genetically engineered (GE) food animal, a salmon engineered for fast growth in large-scale fish farms. Close behind it in the regulatory pipeline is another GE animal, called Enviropig, that has been engineered to produce manure with lower levels of phosphorous — an ideal characteristic for factory farms

What About Organic?

The USDA sets standards for organic food. For meat, poultry, eggs, and dairy to be certified organic, they must come from animals that only eat organic feed (raised without synthetic fertilizers or pesticides and from crops that were not genetically engineered), and they cannot be given growth hormones or antibiotics. The organic standards do say that animals should be able to express their natural behaviors and that organic production must minimize environmental impacts. However, organic standards do not include specific animal welfare conditions and they do not restrict the size of livestock operations. In 2010, after years of controversy, and inaction by the USDA, the organic standards were updated to specify how much “access to pasture” organic cattle must receive and how this requirement could be enforced.²⁶⁹ Requiring organic dairy and beef cattle to spend a significant portion of their time on, and receive a significant portion of their nutrition from, pasture was a major step toward making sure that organic products live up to consumer expectations. For “organic” to be even more meaningful to consumers, the USDA needs to specifically address animal welfare with standards that require outdoor access for chickens, end the use of feed additives meant to replace the nutrients chickens would get from foraging outdoors, and outline specific animal welfare practices for stocking density, handling and transportation.

that have to deal with the manure from tens of thousands of animals. The FDA has already approved cloning of food animals. Cloning animals is an inexact science with very low survival rates — less than 5 percent.²⁶⁷ Internal hemorrhaging, digestive problems and multiple organ failure are some of the most common causes of death among cloned animals in the first week of life.²⁶⁸ Regulators have typically brushed aside potential health impacts for people eating these engineered or cloned food animals, or for the welfare of the animals themselves due to deformities and susceptibility to disease.

These technologies represent more dramatic attempts by meat companies to force animals into their preferred production models instead of adapting production systems that maximize animal welfare, ensure the wholesomeness of the food produced there or protect the environment. For years, investigations have revealed conditions on some factory farms that result in extreme animal suffering, ranging from cramped cages to rough handling and extreme stress. The meat industry typically claims these harmful conditions are the work of just a few bad actors, but factory farms are different from the small-scale farms they have replaced in more than just size. The methods used to raise the animals on factory farms are more likely to compromise the welfare of the animals.

Conclusion

The dominance of factory farm production in the United States is neither mysterious nor accidental. The livestock sector responded aggressively to tough economic conditions for producers and influenced lawmakers and regulators to prioritize corporate interests above public health, sound food policy, community participation, or environmental concerns. The growth of factory farming is the result of bad farm policies that subsidize artificially-cheap feed; lax regulatory enforcement that enabled factory farm expansion without addressing the environmental and human impacts of their massive quantities of waste; and unchecked corporate consolidation that allowed giant agribusiness companies to pressure farmers to get big or get out.

Factory farms have caused extensive environmental damage and have exploited natural resources. Agribusiness interests prevent citizens from exercising democratic control in their communities and have left communities with fewer independent family farms, unsafe water, reduced air quality and depressed economies. Instead of benefitting from the supposed efficiencies in this system, consumers instead face foodborne illness outbreaks and public health threats like antibiotic-resistant bacteria. As consumers saw during the 2010 egg recall, food safety problems on even a few factory farms can end up in everyone's refrigerator.

Congress, regulatory agencies and states need to put a stop to the policies that have allowed these facilities to proliferate, and they must create and enforce policies that allow food to be produced in a way that allows farmers to make a living and does not harm communities, the environment or public health.

To address the impact factory farms have on the environment, public health, food safety and rural communities, Food & Water Watch recommends:

- The EPA and states should establish a moratorium on the construction of new factory farms and on the expansion of existing facilities;
- The EPA and states should establish and enforce strong pollution laws and water use standards, as well as pollution reporting requirements; eliminate the regulatory loophole that exempts factory farms from having to report large releases of hazardous chemicals into the air; and end the ongoing factory farm air emission monitoring study program that essentially allows factory farms to violate air quality standards without consequence;
- The Justice Department should reassess the impact of the major agricultural mergers approved in the past decade and rectify any anticompetitive developments that have occurred as a result of those mergers. Further, the department should establish a moratorium on any proposed agricultural and food company mergers by the top four firms in any sector of the food system;
- The USDA should finish and enforce the long-overdue rule to help restore real competition in livestock markets and ensure contract fairness. It should continue to work to end unfair contract practices used in the livestock sector as well as address the unfair power exerted by meatpackers over livestock producers through marketing agreements and packer-ownership of livestock;
- The FDA should ban non-therapeutic use of medically-important antibiotics in livestock, the use of the artificial growth hormone rBGH and the use of arsenic-based drugs for livestock;
- Congress should reform federal farm policies to stop encouraging overproduction of corn, soybeans, and other commodities that have resulted in cheap feed for animals in factory farms, including the establishment of commodity reserves to reduce price volatility and manage the supply of agricultural commodities;
- Congress should revamp the federal milk pricing system to ensure that farmers receive a price for milk that covers at least their cost of production and a fair return. Congress should also safeguard the milk pricing system against easy manipulation by corporate interests;
- Congress should cap payments made to farms under the Environmental Quality Incentives Program to ensure that the program no longer serves as a subsidy for the manure management technology required by large factory farms;
- State legislatures should enact laws that affirmatively allow local governments to retain the authority to impose strict health and zoning regulations for factory farms and restore them in states that had previously taken away local control.

APPENDIX: Factory Farm Map Methodology

Food & Water Watch compiled the data on the largest livestock farms from the USDA Census of Agriculture — a five-year survey of America’s farms — from 1997, 2002 and 2007. The Census of Agriculture collects and reports data on livestock operations for every county and state in the United States, including the number of operations (farms) and the number of livestock. The USDA also reports the distribution of the number of livestock on different sized farms by state and by county. For this map, Food & Water Watch only analyzed the number of livestock on the largest categories of operations for beef cattle, dairy cows, hogs, broilers (chicken) and layers (eggs). The Census of Agriculture is available online at: <http://www.agcensus.usda.gov/>

Definitions

Food & Water Watch analyzed the county-level data for the USDA’s largest categories of farms based on the number of livestock — either the inventory of livestock on an operation or, in the case of broiler chickens, the annual number of birds sold. The livestock operations that were analyzed for the map and report have at least:

Factory Farm Size Definitions	
Beef cattle:	500 or more beef cattle “on feed” (see below)
Dairy:	500 or more dairy cows
Hogs:	1,000 or more hogs
Broiler chickens (broilers):	annual sales of 500,000 or more broiler chickens (see below)
Egg-laying hens (layers):	100,000 or more egg-laying hens

“All Livestock” Calculation

Food & Water Watch compared the total number of livestock across different animal types — comparing chickens to cattle and hogs — by using the USDA definition of a “livestock unit,” which measure different kinds of livestock animals on the same scale based on their weight. A livestock unit is a comparison of 1,000 pounds of live weight based on the type of animal. One beef cattle is the equivalent of approximately two thirds of a dairy cow, eight hogs or four hundred chickens.²⁷⁰ The average livestock units per farm were calculated by dividing the total livestock units by the number of livestock operations. (This may slightly underestimate the size of livestock operations because some farms may raise more than one type of livestock, although it has become significantly less common for farms to have diversified livestock production.) Because the USDA did not report beef cattle on feed prior to 2002 (see below), the “all livestock” measurement covers only 2002 and 2007.

Livestock Density

The map displays the number of livestock on the largest operations in every county, by type of livestock, which is displayed on the density color scheme. The map displays five levels of livestock density, which reflect the 2007 distribution of the number of livestock by type and by county broken into four equal parts (quartiles). These levels are applied to the prior years, which show how livestock operations grew in size over the studied decade. See chart below.

Density	Map Color	All Livestock (Animal Units)	Dairy Cows	Beef Cattle on Feed	Hogs	Broiler Chickens Sold	Egg-Laying Hens
Extreme	Dark Red	More than 13,200	More than 4,200	More than 17,400	More than 48,500	More than 2.75 million	More than 1.25 million
Severe	Red	5,200-13,200	2,100-4,200	7,300-17,400	19,000-48,500	1 million - 2.75 million	750,000-1.25 million
High	Orange	2,000-5,199	1,200-2,099	2,175-7,299	9,500-18,999	350,000-999,999	500,000-749,999
Moderate	Light Orange	Fewer than 2,000	Fewer than 1,200	Fewer than 2,175	Fewer than 9,500	Fewer than 350,000	Fewer than 500,000
Low	Yellow	None	None	None	None	None	None

Average Size

The average size of operations was calculated by dividing the number of livestock on the largest operations by the number of the operations. The USDA Census of Agriculture does not disclose these figures if the number of operations in any one county is very low (about one or two operations), because doing so would effectively disclose private or proprietary information about a specific farm. For counties where the number of operations is reported but the number of livestock is not disclosed, Food & Water Watch calculated an average size of the county operations based on state figures.

In most cases, Food & Water Watch calculated a residual average within each state by subtracting the reported county livestock numbers from the state livestock total numbers (for each type of animal) and dividing the remainder by the number of farms with undisclosed livestock numbers. (State livestock total - reported county livestock numbers within that state / number of operations with undisclosed livestock numbers.) This provides a close average for the livestock on operations that do not disclose the number of animals.

In a few cases, the USDA does not disclose the size of any operations in the state (if there are too few or if the few that do exist are dispersed among many counties). For states with small numbers of livestock and when operational size was not disclosed, Food & Water Watch used the threshold figure for the largest types of operations (500 for beef cattle and dairy and 1,000 for hogs) for these counties. Poultry operation sizes were not disclosed for any county, and these averages are calculated by dividing the total number of broilers or layers by the total number of farms, see below. For states that were among the top ten livestock producers in any animal type that did not disclose the size of any operations in the state, Food & Water Watch calculated a residual average based on operational size classifications by subtracting the largest possible number of livestock on smaller farms from the state total, and divided the residual figure by the number of the largest category of farms.

Slaughterhouses and Processing Plants

The map also shows the county location of the slaughter facilities and poultry processing plants for the top four beef, pork, and poultry processing companies in the United States. The top four companies and their locations were taken from industry sources (*Cattle Buyers Weekly*, the National Pork Board and *Watt PoultryUSA*).²⁷¹ The displayed location on the Factory Farm Map reflects only the county where the facilities are located; it does not reflect the exact geographic location of the facility. In counties where there is more than one slaughter or processing facility, the map display represents an even distribution of facilities. Again, this does not reflect the exact location of the plants.



Cattle on Feed

Until 2002, USDA did not separately report the number of beef cattle operations that finish cattle on feed, which distinguishes feedlots from younger cattle on cow-calf, back-grounder and stocker operations that pasture their cattle or those that are entirely grass-fed and do not spend any time on a feedlot. The inventory of "Cattle on feed," was a new item in the 2002 Census, and refers to cattle being fattened on feedlots with grain prior to slaughter. The map and analysis does not display data for 1997 for cattle on feed, and, as a consequence, cannot report total animal units for 1997 because there is no comparable information.

Broilers and Layers

The USDA's Census of Agriculture does not report the number of chickens by county but it does report state totals for broilers and layers. For broiler and layer operations, Food & Water Watch divided the total number of birds in each state by the number of operations and attributed the state average to every operation in the state. This necessarily is a less precise average than for some other livestock average size figures but it does reflect the average in that state. For broiler operations, USDA does not report the number of birds on the farm by size class; it only reports the annual sales of broiler operations by size class. The largest category of broiler operations sold at least 500,000 broiler chickens. To determine the average size of these operations, Food & Water Watch divided the total state number of broilers sold on the largest operations by 5.5 (the number of flocks of broilers sold annually by typical operations), which generates the statewide broiler inventory. The statewide broiler inventory was divided by the number of broiler operations to calculate the average broiler inventory.

Endnotes

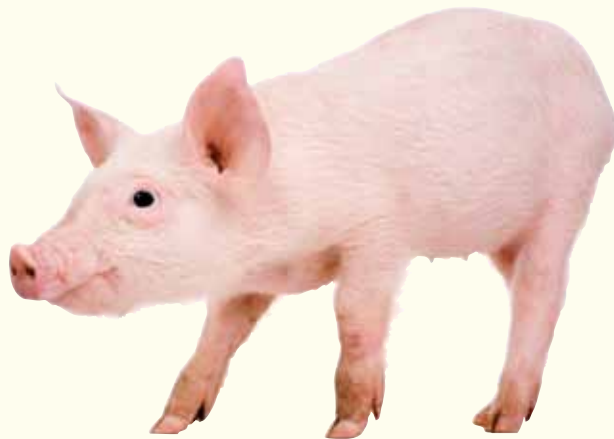
- 1 The comparison for animal units only goes back to 2002, as USDA did not collect inventory data on beef cattle feedlot operations prior to that. Inventory of "Cattle on feed," was a new item in 2002, and refers to cattle being fattened on feedlots with grain prior to slaughter, not cattle that were pastured only. See USDA Census of Agriculture 2002, Appendix A at A-8 and USDA Census of Agriculture 2007, Appendix B at B-5.
- 2 Gollehon, Noel et al. USDA ERS. "Confined animal production and manure nutrients." AIB-771. June 2001 at 8.
- 3 See USDA Census of Agriculture 2002, Appendix A at A-8 and USDA Census of Agriculture 2007, Appendix B at B-5.
- 4 The USDA Agricultural Census only measures broiler operations by annual sales, not by facility size. There are an average of 5.5 batches of broilers produced per year at any given facility, so facility size is estimated by dividing annual sales by 5.5.
- 5 Pew Commission on Industrial Farm Animal Production. "Putting meat on the table: industrial farm animal production in America." April 2008 at 23.
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- 9 The data presented throughout this report is taken from Food & Water Watch's analysis of the USDA's 1997, 2002 and 2007 Census of Agriculture reports and data. For more information on the source and analysis of this data, see the methodology section at the end of the report.
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