



NORTH CAROLINA HOG FARMING

NORTH CAROLINA HOG FARMING: FROM FAMILY FARMS TO CORPORATE FACTORIES

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ABSTRACT

Hog farming is a billion dollar business, and North Carolina is the nation's second largest hog farming state. Corporate hog farms—referred to as confined animal feeding operations or CAFOs—dominate domestic pork production. While hog production is an important economic engine in the state of North Carolina, the huge number of hogs produces an enormous amount of solid waste, which may pollute the water and air and endanger public health. This paper examines the financial, social, and environmental impacts that CAFOs have on North Carolina, and concludes with comments about the possible directions for the future.

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1. Introduction & Executive Summary

Over the last twenty years, corporate (industrial) livestock farms have been replacing the traditional family-sized farms that once raised most of this nation's poultry, swine and cattle. The number of livestock animals produced in the United States has grown modestly in the past two decades but the number of farms raising them has shrunk dramatically, because large producers increasingly dominate the market. In the pork industry, the number of hog farms has fallen from 600,000 to 157,000 over the past fifteen years, while the number of hogs produced has stayed about the same. Today, about 50 large pork producers are responsible for about 45% of the industry's product. Their market domination is expected to rise to 75% within the next few years, industry officials predict.

As the number of family farms has declined, research is beginning to demonstrate that small family farms can be more profitable to communities. A study comparing the impact on the local Virginia economy of adding 5,000 sows through ten independent farms versus a single large contract operation found the independent arrangement yielded thirteen more permanent jobs, a 37% larger increase in per capita income and a 20% larger increase in retail sales¹.

Today's large livestock operations look more like animal factories than animal farms. A typical hog factory farm has several metal barns; each containing several hundred to several thousand animals tightly confined cheek by jowl. Unlike traditional family farms, where pigs live in spacious barns in which straw bedding absorbs manure, or where they root about outside and leave their manure to decay in a pasture or open lot, these animals live in cramped conditions and may never see sunlight. They spend their lives standing on slatted metal floors, beneath which their feces and urine are flushed. The manure is piped into open-air manure lagoons, where it is stored until it can be pumped out to irrigate fields, presumably to fertilize crops². But the scale of factory farms is so great that enormous quantities of excess manure are now being spread on farmlands, posing threats to drinking water and fisheries³.

This trend toward industrial-scale farming has created an enormous increase in the concentration and quantity of manure that is generated at a single site. The storage lagoons on factory farms are often stinking manure lakes the size of several football fields, containing millions of gallons of liquefied manure. A single animal factory can generate the waste equivalent of a town. Manure lagoons have spawned environmental disasters in North Carolina, spilling disease-causing bacteria into neighboring rivers and leaching manure into groundwater used for drinking. The volume of manure is so enormous that a single spill from the lagoon of an animal factory can be devastating to the health of a nearby river and the fish that live within it.

Seeking to dispose of vast quantities of excrement, factory farms tend to apply far more manure or "litter" (dry poultry manure mixed with other materials) to cropland than the soil can safely absorb. Over the long term, this practice promises to further pollute the drinking water on which many communities depend. Additionally, many factory farms now shoot liquefied manure and urine from irrigation pivot sprayers to fertilize cropland. By failing to immediately incorporate the manure into the soil adequately through either method, factory farms routinely risk the possibility that manure will run off into lakes, rivers or streams. Over-application and liquid manure application has poisoned drinking water and once-pristine waterways in many communities. According to the U.S. Fish and Wildlife Service, manure runoff has been identified as a culprit in the contamination of fisheries along 60,000 miles of streams. In addition, in 17 states, the groundwater is impaired by feedlot manure containing fecal streptococci and fecal coli form bacteria, according to U.S. Environmental Protection Agency (EPA) tests.

¹ Natural Resources Defense Council. <http://www.nrdc.org/water/pollution/factor/exec.asp>.

² Lang, John, "U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* (April 29, 1998).

³ Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, "Animal Waste Pollution in America: An Emerging National Problem," Washington, D.C. (December 1997), p.5.

According to the Natural Resources Defense Council, our nation's federal and state regulatory systems for protecting environmental health have failed to keep pace with the rapid growth of factory farms. When Congress passed the Clean Water Act in 1977, it had the foresight to identify feedlots as an industrial source of pollution and to require that feedlots be regulated as strictly as other industries. However, the EPA has failed to enforce these statutory requirements and the implementation of the regulations has been pockmarked with loopholes. According to a 1995 General Accounting Office Report, in 1992 only 30% of the 6,600 farms that were large enough to be subject to federal permit requirements actually obtained a permit under the Clean Water Act⁴. To a greater or lesser extent, states have attempted to step into the void created by an ineffective federal approach. However, as this report will illustrate, the states have failed to curb factory farm pollution.



Operations of a hog factory farm dumped waste into this stream in Duplin County, North Carolina. This stream leads to the Cape Fear River. This was discovered and reported by a local citizen activist.

Source: Natural Resources Defense Council, <http://www.nrdc.org/water/pollution/cesspools/cesspools.pdf>.

2. North Carolina's Hog Farming Industry

Hog Farming Industry History

The hog farming industry arose in the eastern portion of North Carolina during the early 1980s and experienced unprecedented growth during the 1990s. Hog farming offered a new opportunity for the farmers of the state, who were facing declining revenues from North Carolina's famed tobacco crops.

Several factors led to the explosion of the hog farming industry in North Carolina. The most important of these was the construction of the world's largest meat processing plant in 1992, located in Bladen County, NC. Today the plant employs thousands of people and processes about 8 million hogs per year. North Carolina hog production is based on a contracted system that utilizes independent farmers who specialize in specific stages that breaks hog production down into three areas that include the sow unit, the nursery unit, and the finishing unit.

The development of corporate farms in the 1980s resulted in North Carolina having 211 farm locations with over 1,000 sows due to a systems approach that standardized buildings, equipment, and hog management with the objective of minimizing operating costs. Lenient environmental regulations and local zoning exemptions provided large-scale hog farms the opportunity to construct several corporate, or mega-farms throughout eastern North Carolina. After several environmental disasters affected the region, legislation was enacted to curb the hog farming explosion in eastern North Carolina and promote cleaner living conditions for the residents and wildlife in the area⁵.

NC Hog Farming Timeline

- 1980 NC hog farms range between 10,000 and 25,000 hogs in size.
- 1985 NC ranks 7th nationally in hog production.
- 1991 NC Senator Wendell Murphy co-sponsors legislation that exempts large-scale hog farms from local zoning regulations.
- 1992 Smithfield Foods, Inc opens the world's largest meat processing plant in Bladen County, NC.
- 1994 NC hog population has tripled to 10 million, compared to a 5% increase nationally.
- 1995 NC Senate passes Bill 1080, the Swine Farm Siting Act, requiring new swine houses or lagoons to be located at least 1,500 feet from an occupied residence, at least 2,500 feet from any school, hospital, or church; and at least 100 feet from any property boundary.

⁴ U.S. General Accounting Office, Briefing Report to the Committee on Agriculture, Nutrition, and Forestry, U.S. Senate, *Animal Agriculture, Information on Waste Management and Water Quality Issues*, GAO/RCED-95-200BR, Washington, D.C., pp. 58-61.

⁵ <http://www.nrdc.org/water/pollution/cesspools/cesspools.pdf>

- 1996 President Clinton signs the Freedom to Farm Act in an attempt to cut Federal-farming subsidies.
- 1997 The Clean Water Responsibility Act, part of Bill 515, places a moratorium on the construction of farms with more than 250 hogs or the expansion of existing large farms in North Carolina.
- 1999 Hurricane Floyd hits NC, flooding hog waste lagoons and contaminating the water supply.
- 2003 NC Gov. Mike Easley successfully calls for a four-year extension of the moratorium on the construction of hog farms in eastern NC⁶.

Major Industry Players

Over the last two decades, the hog farming industry has seen a tremendous shift towards consolidation. In 1985, the top four pork-producing companies in the United States accounted for 32% of the market. By 1998, industry consolidation had resulted in the top four pork-producing companies controlling 62% of the market.

Leading the way in the hog farming industry are vast corporations that utilize vertical integration to maintain quality and oversee all aspects in production. The leading pork packing companies own thousands of sows themselves, have contracts with other hog farmers to raise even more sows, and have direct contracts with most of the other hog packers. As a result of the consolidation within the hog farming industry, five major vertically integrated pork-producing companies have emerged as industry leaders⁷:

Top 5 American Pork Producers	
<u>Company Name</u>	<u>Market Share</u>
<i>Smithfield</i>	<i>26%</i>
<i>Tyson/IBP</i>	<i>17%</i>
<i>Swift (ConAgra)</i>	<i>11%</i>
<i>Cargill/Excel</i>	<i>8%</i>
<i>Hormel</i>	<i>8%</i>

Smithfield Foods, a Fortune 500 company, is the top pork producer in the United States as well as in the entire world. Through the acquisition of such competitors as Farmland Foods, Murphy Farms, and Carroll’s Foods, Smithfield has unprecedented ability to produce over 11 million hogs annually. In addition to its production capabilities, Smithfield operates the world’s largest processing plant in Bladen County, NC, which has the capability of slaughtering over 40,000 of the 80,000 hogs Smithfield slaughters every day.

Tyson Foods, the leading chicken producer in the United States, entered the pork-producing industry in a big way when it purchased the country’s number two pork producer IBP, in 2001. The acquisition of IBP made Tyson the leading meat producer in the world.

Swift & Company, a division of ConAgra Foods, is the nation’s third largest pork producing company with an 11% market share. The majority of the company’s operations are centered in the Midwest, where its successful Armour brand is produced.

The Excel Corporation, a subsidiary of Cargill Foods, has an 8% share of the market. Excel has been in the pork-producing industry since 1987 and produces over 2 million hogs per year.

Hormel Foods, the fifth leading pork producer in the United States, is based in Austin, MN and has over 15,500 employees.

NC Top Hog Farming Companies

North Carolina is the second leading hog producer in the United States, behind Iowa, with a hog population of over 10 million. The industry has seen a hog population explosion since 1992, when North Carolina’s hog population totaled about 2 million. The majority of the hog industry in the

⁶ <http://www.duke.edu/web/mms190/hogfarming/>

⁷ Ibid.

state is located in the Southeastern region of North Carolina, particularly in the counties of Duplin, Sampson, Bladen, and Robeson.

The hog industry in North Carolina is dominated by three major companies: Smithfield Foods, Prestage Farms, and Premium Standard Farms. Smithfield Foods, the world leader in pork production, dominates the North Carolina hog farming industry. The Virginia-based company produces over 11 million hogs annually with the majority of those sows being raised and processed in the state of North Carolina. Through its strategy of vertical integration, Smithfield is has been able to contract North Carolina hog farmers to raise its sows until they are ready to be processed in its meat packaging facility located in Bladen County.

Prestage Farms, based in Clinton, NC, was founded in 1983 and produces over 123,000 sows that result in about 450 million pounds of pork annually. The company employs over 1,000 people and has over 700 contracts with farmers to raise their sows. All of the sows produced by Prestage Farms are sold to Smithfield Foods.

Premium Standard Farms, a Missouri-based company, produces about 1.9 million hogs per year in North Carolina in farms that are primarily located in Duplin, Greene, Pitt and Sampson Counties. The company has over 200 contracts with North Carolina farmers to raise their hogs. An 800,000 square foot processing plant located in Clinton, NC, processes over 9.1 million hogs annually for Premium Standard Farms and employs approximately 1,200 people⁸.

3. Environmental Impact

Toxic Waste

The methods of industrialized farming are inarguably cruel, but the offenses of the hog farm industry do not stop with animal cruelty. Hog farms harm rural communities by polluting the environment, driving local farmers out of business and endangering human health. With so many animals confined in so little space, hog farms produce vast amounts of waste, stored in huge lagoons. In North Carolina alone, 19 million tons of feces and urine are produced a year. Unlike human sewage, which is treated and disinfected, hog waste is minimally treated, and then sprayed on land. Run-off from sprayed fields, and spills or leaks from lagoons send waste into rivers, streams and groundwater supplies. The high levels of nitrogen and phosphorous present in hog waste cause excess algae growth to rob the water of oxygen and kill fish when present in sufficient quantities.

Pfiesteria is a toxic micro-organism that kills fish and feeds off their flesh. It is often found in waters polluted with excessive nitrogen and phosphorus. Pfiesteria outbreaks in recent years have caused mass fish kills and sickened people, causing vision problems, difficulty concentrating, memory loss, breathing problems and skin sores⁹.

Planned Phase-Out of Open Air Hog Waste Lagoons

The NC Attorney General and Smithfield Foods agreed, in the summer of 2000, to fund “environmentally superior waste management technologies” for North Carolina hog farms. NC State University’s College of Agriculture & Life Sciences provided the research for implementation of this technology. The \$17.1 million effort was to be overseen by a designee from NC State’s Animal and Poultry Waste Management Center.

Details of the agreement include:

The agreements define an environmentally superior technology as ‘any technology, or combination of technologies that:

(1) is permit-able by the appropriate governmental authority;

⁸ <http://www.duke.edu/web/mms190/hogfarming/>, ibid.

⁹ http://www.farmsanctuary.org/newsetter/hog_farms.htm

(2) is determined to be technically, operationally and economically feasible for an identified category or categories of farms as described in the agreements and;

(3) meets the following performance standards:

1. Eliminates the discharge of animal waste to surface waters and groundwater through direct discharge, seepage or runoff;
2. Substantially eliminates atmospheric emissions of ammonia;
3. Substantially eliminates the emission of odor that is detectable beyond the boundaries of the parcel or tract of land on which the swine farm is located;
4. Substantially eliminates the release of disease-transmitting vectors and airborne pathogens; and
5. Substantially eliminates nutrient and heavy metal contamination of soil and groundwater.¹⁰

The technology is currently in process of analysis to determine best practices, with eight candidate processes for Phase 1 processing and an additional five processes as candidates for Phase 2. From an upflow biofiltration system to a sequencing batch reactor system, all of these technologies are a far cry from the lagoon and spray field management systems currently predominantly employed across North Carolina hog farms.

The spraying of waste is a primitive and generally inadequate means of divesting waste that is toxic to the surrounding environment. Increases in lagoon levels can cause flooding during heavy rains, with run-off lagoon water soaking into rivers, creeks and groundwater. Flooding and rains from 1999's Hurricane Floyd forced 20 million gallons of hog waste from lagoons into the Neuse River. Separation of solid and liquid waste helps to dilute the impact of lagoons, with dried feces reducing odor and ammonia emission. The remaining liquid is high in phosphorus and nitrogen, both valuable to plant growth but problematic in surface or groundwater in high levels. Many waste management systems are established to provide a solution to overwhelming levels of these nutrients. The odor of these lagoons creates unpleasant wafting of dangerous odors into neighboring communities.¹¹

Hog Methane, Carbon Dioxide, Ammonia, Hydrogen Sulfide

Gas by-products from hog farms are a result of hog waste decomposition, yielding methane, carbon dioxide, ammonia and hydrogen sulfide. Degrading organic acids produce the methane in greatest content, generally escaping into the atmosphere as a hazardous air pollutant with an explosive characteristic and an asphyxiating effect. Odorless carbon dioxide can also provide overlooked pollution as the second most abundant chemical. Hydrogen sulfide can produce the "rotten egg" smell known well to hog farming regions. Agitation of stored or decomposing manure can cause a large release of these chemicals, drastically depleting the oxygen supply.

Most technologies to trap the potentially lucrative methane prove to be a money-losing proposition. Progress Energy has proposed systems to compensate start-up costs for hog farmers for trapping methane as a renewable energy source.¹²

The state has the potential to generate about 93 megawatts of electricity from hog waste, according to a recent study conducted for the state by an energy consulting firm. That amount is about one-tenth the output capacity of the 900-megawatt Shearon Harris nuclear plant in Wake County.¹³

Progress' proposal to pay farmers a premium rate is intended to allow pork producers to cover the expense of installing anaerobic digesters in hog waste lagoons to trap methane gas from decomposing manure. An anaerobic digester could cost as much as \$400,000 to install. After the digester is paid off, in about five to seven years, Progress would revert to paying the farmer its

¹⁰http://www.southernenvironment.org/cases/cafo_nc/smithfield.htm

¹¹ http://www.cals.ncsu.edu/waste_mgt/smithfield_projects/smithfieldsite.htm

¹² http://www.ecochem.com/t_hoginfo.html

¹³ <http://www.newsobserver.com/104/story/544951.html>

standard rate of 5 cents per kilowatt hour for electricity. “We needed a breakthrough that included some form of incentives,” said George Pettus, vice president of the N.C. Pork Council’s board.

4. Societal Impacts

Over the last few decades, a large percentage of annual hog production has moved from the Midwest to eastern North Carolina. The increase in large hog farms—often referred to as “confined animal feeding operations,” or CAFOs—and factory hog farming in eastern North Carolina occurred because of, and is now, contributing to the health of the communities surrounding the operations, the types of jobs available to the local populace and the future competitive positioning of the communities in eastern North Carolina. A 1998 study by Wing, Cole and Grant published in *Health Perspectives* reported that Duplin and Sampson Counties were the two largest hog-producing counties in the United States.¹⁴

The intense concentration of factory hog farming operations in relatively small areas creates strong negative effects on the population and communities located near these “hog clusters”. The clusters affect both the physical and mental health of the population as well as the competitiveness of the community in attracting more sustainable industry.

Health Issues

Levels of obesity in a populace are often used as leading indicators of a community’s healthiness, physical activity, education and infrastructure—all considered important factors when a business or industry is evaluating a community’s competitive positioning. Unfortunately, the obesity levels in North Carolina continue to grow. A 2004 NC Behavioral Risk Factor Surveillance System Survey by the NCSU Center for Health Statistics reports that prevalence of obese and overweight individuals in the North Carolina population increased over 1% from 2003 to 2004.¹⁵ In fact, North Carolina’s populace is so unhealthy that the state ranked 41st in level of premature mortality, and eastern North Carolina on its own would rank dead last.¹⁶ Although factory hog farming and CAFOs by themselves do not create the obesity phenomenon and the high levels of poverty in eastern North Carolina, they do seem to take advantage of them. Data indicates intensive hog farming operations target low population density areas with an available low-wage workforce.¹⁷

Even with the hog producers targeting low population density locations, the operations have begun to impact the local communities. More and more instances of CAFOs and processing plants abutting residences and other non-agricultural sites will occur as the population of North Carolina continues to grow at its current, torrid pace. The increase in population will force more families and communities into closer proximity with CAFOs, and communities have relatively little power to force out existing CAFOs. North Carolina’s current “Right-to-Farm” legislation, originally passed in 1979, is designed to protect existing farms from “nuisance legislation” from new neighbors.¹⁸

Already North Carolina had evidence of the damaging health effects created by the proximity of CAFOs to local communities. A recent study of 1,600 private wells located near CAFOs in Eastern North Carolina determined that 34% of the wells were contaminated by nitrates. The chemicals are known to lead to higher rates of bladder cancer, non-Hodgkin’s lymphoma and kidney failure.¹⁹ In 2004, the American Public Health Association even called for a nationwide moratorium on new CAFOs due to the study’s findings and others like it.²⁰

Evidence exists linking another aspect of CAFOs—odor—to both negative physical and mental health effects. The odors come from the barns, the croplands on which the waste is sprayed and

¹⁴ <http://www.ehponline.org/realfiles/members/2000/108p225-231wing/wing-full.html>

¹⁵ <http://www.schs.state.nc.us/SCHS/brfss/2004/highlights.html>

¹⁶ <http://www.ncsu.edu/iei/news/10282005.php>

¹⁷ <http://www.ncsociology.org/sociationtoday/v21/hog.htm>

¹⁸ <http://www.nolo.com/article.cfm/pg/2/>

¹⁹ http://americacity.org/article.php?id_article=124

²⁰ http://www.factoryfarm.org/press/docs/APHA_moratorium.pdf

from the waste lagoons²¹ and can cause increased tension, depression, anger, confusion and fatigue and can deteriorate the health of those already affected by asthma.²²

Labor Practices and Demographic Effects

The potentially positive effects of the hog industry on the local economies are what muddy the waters of the CAFO debate. In 1994, the NC Agricultural Research Service conducted an analysis that found hog production employed roughly 5,400 full-time employees and an additional 5,900 worked in hog slaughtering and processing in North Carolina.²³ Including jobs indirectly related to hog farms and processing through construction, transportation, retail and wholesale sales, the number eclipsed 25,000 jobs—a significant number in a region where unemployment levels exceed the state average. These job numbers have only grown in the more than 12 years since the analysis was conducted. However, the question becomes: to whom are these jobs going, and of what quality are the jobs?

Hispanic workers filled one in three of all new jobs created in North Carolina from 1995 to 2005.²⁴ In the hog farming industry, the percentage may be greater. Many of these jobs are low wage and are being filled by immigrants rather than the local populace, thereby limiting the positive effects of job creation on the local communities.

Along with the CAFOs come the processing and packing stages. Smithfield Foods owns and operates a 975,000 square foot processing plant in Tar Heel, NC in Bladen County through its Murphy-Brown subsidiary. The plant currently employs over 5,500 workers who kill and butcher up to 32,000 hogs per day, making the plant the single largest pork processing plant in the world.²⁵

Numerous instances exist tying the Bladen County plant to illegal or detrimental labor practices.

“Not so publicized in this union-phobic state has been the long-running battle over organizing attempts at the plant by the United Food and Commercial Workers. Union votes have been defeated twice at the [Bladen County] plant, most recently in 1997, when on the day of the union vote workers were greeted at the plant gates by Bladen County sheriff’s deputies in full riot gear. A federal judge later ruled the company repeatedly used unlawful actions to preserve its non-union status.”²⁶

As recently as November 2006, the plant’s labor management practices, intended to maintain the low wages and costs associated with the local workforce, caused a walkout by 1,000 employees. The company plans to extend its use of non-unionized workers by realigning jobs from its unionized plant in Virginia to the non-unionized plant in Smithfield.²⁷

The result of hog production facilities bringing low quality, low wage jobs to eastern North Carolina is that the potential for higher-paying, more sustainable industries coming into the area is reduced. Although the health and pollution risks of intensive hog farming practices in eastern North Carolina carry real and lasting damaging effects to the communities of the area, the practice also creates image problems for the region. What forward-looking business or industry will bring work to eastern North Carolina when the region is saddled with the image of being the home of a low-wage, unhealthy industry that creates a miasma in the environment, both foul smelling and unhealthy? Until the industry can improve its methods for managing waste and improving its processes to create more value-added jobs, then the hog farming industry will have done nothing for eastern North Carolina except make it into America’s slaughterhouse—not a place most people want to visit.

²¹ <http://www.pulitzer.org/year/1996/public-service/works/4stink.html>

²² <http://www.pulitzer.org/year/1996/public-service/works/4odor.html>

²³ <http://www.pulitzer.org/year/1996/public-service/works/4region.html>

²⁴ <http://www.the-dispatch.com/apps/pbcs.dll/article?AID=/20070223/NEWS/702230333/1005>

²⁵ <http://www.smithfieldjustice.com/aboutsmithfield.php#Main>

²⁶ <http://indyweek.com/gyrobase/content?oid-oid%3A40768>

²⁷ Ibid.

5. Financial Impact

Understanding Pricing, Concentration and Vertical Integration

Some large, independent hog operations, seeing the wide price fluctuations for finished hogs in the past few years, have started to move into contracting. As Jane Feagans, of Oasis Farms in Oakford, Illinois, says, "Our strategy right now is to survive. I don't see the pork business as a particularly good business to be in right now.... We went into the contract arrangements as a risk-management tool. But it's like insurance. Risk management comes at a cost, because it limits the upside of the market."²⁸ Producers who want to raise a large number of hogs will most likely need to contract with someone. As Chris Hart, Purdue University Extension marketing specialist explains, "The financial risks of not being aligned in some way in the pork marketing chain are just too extreme. Many of these independents are saying enough is enough."²⁹

However, before producers decide to sign a contract to produce hogs for a vertical integrator, it is best to understand all aspects of the contract. Farmers' Legal Action Group, Inc. (FLAG), located in Minnesota, has several publications and articles on livestock production contracts. Some key questions to be addressed in contracts are listed in FLAG's publication *Livestock Production Contracts: Risks for Family Farmers*:

- How is the grower's compensation calculated?
- What are the grower's expenses under the contract?
- Who has management control under the contract?
- Does the grower carry the responsibility for compliance with environmental and other regulations?
- Can the Integrator require the Grower to replace equipment in barns?
- What happens if the production contract is terminated by the Integrator?³⁰

In addition, many state departments of agriculture and Cooperative Extension Services have publications available to help producers better understand contracts.

With vertical integration, the mainstream pork industry has consolidated in a way that many people consider to be unsustainable. The number of hog producers is rapidly decreasing every year. Between 1971 and 1992, the number of hog farms fell from 869,000 to 256,390³¹, and between 1997 and 2002 the number of hog farms continued decreasing by about 39%, from 125,000 to just over 79,000³².

While the number of hog producers is decreasing, large operations are expanding or increasing in actual numbers. In 2000, hog producers marketing fewer than 1000 hogs per year—68.2% of hog producers—marketed only 1.8% of all hogs produced, while hog producers marketing more than 50,000 head per year—two-tenths of one percent (.002) of hog producers—marketed 51.3% of hogs produced.³³

Large-scale vertical integration (producer/packer/processors linked from farrowing to packing to the retail counter) has put pork production in the same predicament as poultry production. Vertical integrators are direct-contracting more hogs today than in the past. According to a National Pork Board Analysis of USDA price data, 35.8% of all hogs were sold on the open market (negotiated price) in 1999, but that number fell to 11.6% in January 2004.³⁴

This shrinking of the open market is a problem for hog farmers. While some small cooperatives and processors, as well as small-scale direct hog marketers, are technically vertical integrators, they lack

²⁸ Hillyer, G., and Phillips, J. "Squeeze Play". *Progressive Farmer*. December 2002.p20-22.

²⁹ *Ibid.*

³⁰ <http://flaginc.org/topics/pubs/arts/artcf005.pdf>

³¹ Smith, R. "Pork Producers on Schedule to Increase Production 40%". *Feedstuffs*. June 15, 1998.

³² Martin, A. "Survey Finds 3% of Farms are Thriving". *Chicago Tribune*. June 4, 2004.

³³ Lawrence, J. and Grimes, G. Producer and production profile. In: *Pork Facts 2002/2003*.

³⁴ <http://www.porkboard.org/News/NewsEdit.asp?NewsID=403>.

the concentration of power to affect the market. According to Fred Kirschenmann, director of the Leopold Center for Sustainable Agriculture in Ames, Iowa, the mid-size farms are finding it more difficult to find competitive markets for their hogs. These mid-size farms are “too big to sell directly to consumers and too small to interest corporate food producers, who often prefer dealing with a few large farms rather than with dozens of smaller farms.”³⁵

What this reduced open-market pricing really means is that 11.6% of hogs – those sold on the open market – establish the price for many of the vertically-integrated hogs as well, because integrators tie their prices to the open market price. However, in the written testimony of the Organization for Competitive Markets (OCM) to the U.S. Senate Judiciary Subcommittee on Antitrust, Competitive Policy, and Consumer Rights, Michael Stumo, OCM General Council, states:

“The hog industry is approximately 87% vertical at the producer/packer interface. Vertical integration takes the form of packer owned hogs, and various types of contracted hogs. Ninety percent of the hog contracts pay the producer through a formula price based upon the open market price reported each day by the USDA’s Market News Service. All the pork packers have been aggressively going vertical and have stated as much.”

In theory, the 13% of the non-vertical hogs set the price for the open market price reports. In practice, three to five percent of the hogs traded set the price. These are the hogs actually negotiated between packers and producers in the Iowa-Southern Minnesota market, the price setting market. The other non-vertical hogs either are committed to a packer through an oral formula arrangement, or are merely forced to take the “Posted Price” that the packer says it will pay based on the Iowa-Southern Minnesota market....

Packers always have an incentive to push hog prices down to save money. But when 90% of the contract hogs are pegged to the open market, the marginal cost of bidding for open market hogs is tremendously magnified. ... In today’s concentrated packer environment, we have dominant firms interacting in a very thin market. This scenario exponentially increases their ability to drive prices lower as compared to a situation where the dominant firm bought all their hogs from a high-volume open market. It is no surprise that the past 20 years have seen a steady downward trend in hog prices as packers consolidated horizontally and vertically even while the wholesale meat prices justify far more for live hogs.³⁶

Recent NC Financial Picture

All hogs and pigs on North Carolina farms on March 1, 2006 totaled 9.5 million head, down 2% from last year and down 3% from the December 1, 2005 inventory. Market hogs, at 8.48 million head, are also down 2% from last year and down 4% from last quarter. Breeding stock totaled 1.02 million head, up 1% from both last year and last quarter. North Carolina currently ranks 2nd in the nation for the total number of hogs and pigs behind Iowa.

The State’s pig crop during the December 2005-February 2006 period totaled 4.91 million head, up 3% from the same quarter last year. These pigs were produced by 540,000 sows, unchanged from the last year and down 2% from last quarter. Pigs saved per litter averaged 9.10, compared to last year’s 8.85 litter size.

North Carolina producers intend to farrow 540,000 sows during March-May 2006 and 550,000 sows during June-August 2006. If these intentions materialize, farrowings will be 2% below the same six month period last year.

U.S. inventory of all hogs and pigs on March 1, 2006 was 60.1 million head. This was up 1% from March 1, 2005, but down 2% from December 1, 2005. Breeding inventory, at 6.03 million head, was

³⁵ Martin, A. “Survey Finds 3% of Farms are Thriving”. Chicago Tribune. June 4, 2004.

³⁶ http://www.competitivemarkets.com/news_and_events/press_releases/2003/7-23.htm.

up 1% from last year and up slightly from the previous quarter. Market hog inventory, at 54.1 million head, was up 1% from last year but down 2% from last quarter.

Hogs: Average Prices Received By Farmers, By Month, North Carolina, 2001-2005
Dollars per 100 Pounds *Preceding Year³⁷

YEAR	Dec*	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Marketing Year Average*
2001	40.2	37.2	39.7	46.8	48.2	51	53.4	52	50.8	45.3	39.9	34.2	44.7
2002	33.7	39	39.3	36.1	31.4	34.2	37.2	40.1	31.8	27.1	30.8	28.6	34
2003	30.8	33.6	34.5	35.5	35.9	43.6	47.5	44.4	42.6	41.3	37.5	35.9	38.3
2004	35.5	39.3	44.6	48	48.1	58.2	57.6	57.7	55.6	56.5	52.8	57.4	50.6
2005	52.7	54.4	50.8	51.3	52.5	55.1	50	50.4	51.6	49.7	47	43.9	50.7

The December 2005 - February 2006 pig crop, at 25.7 million head, were up 1% from 2005 and up 2% from 2004. Sows farrowing during this period totaled 2.84 million head, up slightly from both 2004 and 2005. The sows farrowed during this quarter represented 47% of the breeding herd. The average pigs saved per litter was 9.03 for the December 2005-February 2006 period, compared to 8.94 last year. Pigs saved per litter by size of operation ranged from 7.50 for operations with 1-99 hogs and pigs to 9.10 for operations with more than 5,000 hogs and pigs.

The total number of hogs under contract, owned by operations with over 5,000 head, but raised by contractees, accounted for 39% of the total U.S. hog inventory, unchanged from last year.³⁸

The economic analyses of farm records by various state universities show that the size of the hog operation is not as important to making a profit as how well the hog operation is managed.³⁹ In a presentation to the Biodynamic Farming Conference, Fred Kirschenmann of the Leopold Center stated, "Studies in Iowa have shown that the most efficiencies are gained on farms that market 800 to 1000 pigs annually."⁴⁰

But vertical integrators do not want independent producers; they want producers tied to them with contracts that offer these producers minimal rewards for their labor. Vertical integrators have their own operations in every phase of pork production. From the farrowing-to-finishing factory farm to the packinghouse to the fresh and frozen meat cases, vertical integrators need no help from anyone.

University of Missouri rural sociologist William Heffernan has found that the profits from an independent producer have a multiplier effect of three to four in a local community, but profits from a corporate or private company-owned farm leave the local community almost immediately.⁴¹ Another study in Minnesota found that for livestock-intensive operations, the percentage spent locally (within 20 miles of the farm) declined dramatically with the growth of the operation. So, rural communities and even states need to consider what is more important to them: having a large number of hogs produced or having a large number of hog producers.⁴²

³⁷ http://www.ncagr.com/stats/pric_rec/prrhogyr.htm

³⁸ <http://www.ncagr.com/stats/livestoc/anihgi03.htm>

³⁹ <http://ssu.agri.missouri.edu/Faculty/JIkerd/papers/HogSummit.htm>

⁴⁰ http://newfarm.org/depts/talking_shop/1203/biodynamic2.shtml

⁴¹ DiGiacomo, G. "Factory Farms are Poor Rural Development Tools". Farm Aid News. 3/21/95, p.5.

⁴² Thompson, N. "Are Large Hog Operations Good for Rural Communities?" Center for Rural Affairs Newsletter. November, 1997, p.3-4.

6. Conclusions

Changing Directions

As North Carolina moves further into the 21st century, the state must come to terms with the evolving hog farming industry and its short- and long-term effects on the emerging triple bottom line. The trends show an increasing volume of hogs raised and processed each year by a smaller concentration of corporate factories and a clustering of CAFOs in counties in the eastern part of the state. Both trends, along with the negative environmental effects of large-scale hog farming and abortive or even obstructive environmental control legislation are leading North Carolina to a dark future.

The state, in cooperation and partnership with other public and private entities must take swift action to change the course of the evolving industry or risk turning the eastern part of the state further into an economically and environmentally challenged area. The industry can be led into more sustainable environmental, employment and integration practices to become a positive force for the state's economy, or the industry will continue to grow solely through the pursuit of cost control measures and practices driven by short-term market demands.

Possible Outcomes

The purpose of this paper is merely to explore the issues and highlight the challenges and opportunities available to the players involved in hog farming. Many options exist for moving forward in a manner that benefits the communities of eastern North Carolina, while at the same time helping the corporate hog farmers find a balance in the triple bottom line. Neither the communities nor the hog farming companies want a repeat of the decline experienced in the rural Midwest over the last 20 years. If a repeat decline occurs in eastern North Carolina, then the corporate factories will have to move on once more, a major expense, to the next low cost region. In fact, Smithfield Foods has already begun expansion into Poland in an attempt to turn it into the "Iowa of Europe"⁴³. Community development and infrastructure will decay in the region and only the lasting legacy of CAFOs will remain: open air waste lagoons awaiting the next hurricane.

⁴³ <http://www.rollingstone.com/politics/story/12840743/>