

PIGS

Timeline of Events

1960s

- Over 640,000 farms with hog sales (1969) (*see graph 1.42*)
- Annual attrition rate for farms averages 2% until mid-60s when it starts to accelerate¹

1970s

- Pork consumption sinks to a low of 56 lbs per capita (carcass weight equivalents) (1975)
- # of farms with hog sales drops to 422,873 (1978) (*see graph 1.42*)

1980s

- First megafarms are built. Facilities in Kansas, Nebraska, Colorado and Oklahoma built with capacities of 300,000 hogs per year. Facilities in North Carolina housing 10,000 to 25,000 head at a time.
- Premium Standard Farms tries to build a large-scale hog farm in Iowa but cannot get approval and builds instead in Missouri (late 1980s)
- North Carolina ranks 7th nationwide in pork production (1986)
- Pork industry launches the “Pork-The Other White Meat” campaign (1987)
- # of farms with hog sales drops to 236,973 (1987) (*see graph 1.42*)
- NPPC introduces the Pork Quality Assurance Program emphasizing good management practices in handling and using animal health products (1989)

1990s

- 17% of hogs sold on a grade and weight basis, 83% on a Live weight basis (1990)
- NPPC launches a nationwide environmental initiative (1991)
- NPPC launches an Environmental Assurance Program
- New regulations adopted by the North Carolina Environmental Management Commission requiring confined animal feeding operations with more than 250 hogs to register with the Division of Environmental Management and file and implement an approved waste management plan (1992)
- North Carolina becomes the 2nd leading hog producing state (1994)
- # of farms with hog sales drops to under 150,000 (1994) (*see graph 1.42*)
- 25 million gallon manure spill in Onslow County North Carolina leads to a massive fish kill in the New River (June 1995)
- North Carolina Senate passes the Swine Farm Siting Act which requires new swine houses or lagoons to be located at least 1500 feet from an occupied residence, at least 2500 feet from any school, hospital, or church; and at least 100 feet from any

- property boundary (1995)
- Largest pork processing plant in the world is built in North Carolina. The plant owned by Smithfield could process 8% of all of the hogs in the U.S.
- United States becomes a net exporter of pork (1995)
- Smithfield, Murphy, Carroll's, and Prestage Farms plan a joint operation in Utah (1995)
- "60 Minutes" runs a story on hog manure spills and the controversy over large farms in North Carolina (1996)
- Alternative hog production methods being explored: hoop structures, etc.
- Pork industry introduces the "Meat of Choice" campaign (1997)
- Citizens groups organize in many states to fight hog farms, ex. Alliance for a Responsible Swine Industry, Citizens Against Corporate Hog Factories
- National Environmental Dialogue on Pork Production convened (1997)
- Over 70% of pigs produced in U.S. are sold on a carcass merit basis (1997)

Trends

- **Hog farms:** Steep decline in the number of hog farms in the United States, falling from 644,882 farms selling hogs in 1969 to under 150,000 in 1994 (*see graph 1.42*). The average number of hogs sold per farm has increased steadily from 138 in 1969 to 588 in 1992 (*see graph 1.43*). In 1995, farms with 2000 or more hogs accounted for 43% of all hogs on farms. Twelve largest producers owned 20% of the nation's sows in 1996². While production specialization had been increasing for more than 60 years, the rate accelerated in the 1980s. Farms specialize in: breeding, weaning, finishing. Production increasing in states such as Colorado, Mississippi, Oklahoma, Utah and Wyoming during the 1990s. Systems approach is applied to production³. In 1997, over 70% of pigs produced in U.S. are sold on a carcass merit basis in which premiums are paid for amounts of fat and muscles³.
- **Consumption:** Pork consumption remains largely unchanged from 1970 to the early 1990s hovering around 65-70 lbs per capita (carcass weight). "Pork- The Other White Meat" campaign gives pork "what amounts to brand name status with consumers"⁴.
- **Exports:** The U.S. is a net importer of pork until 1995. Exports in 1996 total 305,872 metric tons. Estimated that in 1996, exports added 10% to the price of hogs in the U.S.⁵ U.S. at one time had 40% of Japanese pork market but lost it in the 1980s to the Danish and Taiwanese. The Danish were more aggressive in exporting quality pork⁶.
- **Industrialization:** Hog industry, like other agricultural industries, is industrializing. Features of industrialization include: 1) shift from food commodities to food products, i.e., shift from a "here's what we produce" to a "here's what consumer's want" mentality⁷ and 2) shift from spot auction markets

to more direct market channels (ex. production contracts). Less than 6% of hogs purchased for slaughter were brought through public markets in 1994⁸. Creating a “pork manufacturing system”⁹ based on discovering technologies and then applying these technologies to produce low-cost, consistent, high quality pork. Hog megaproducers practice a form of integration which differs from the vertical integration of the poultry industry, these megaproducers have genetic lines developed for their breeding herds, run state-of-the-art feed mixing and handling facilities, have on-site veterinarian facilities, and increasingly own packing plants to process their hogs or contract with a packing plant to process their hogs. Megaproducers also contract with other producers. In the hog industry the owner of the vertically integrated facility is not a packing plant or feed company, rather it is a company that also produces a large number of hogs. In 1992, hogs produced under contract represented approximately 16% of domestic slaughter¹⁰. Factors leading to integration: 1) independent producers had in the past been able to finance hog production; as modern pork production becomes more capital intensive, banks less interested in lending money, 2) independent farmer had been the low cost producer of pork with no one able to produce pork cheaper; large, specialized hog production operations used improved genetics, nutrition, etc. to compete, 3) independent producers had been able to sell in any market without substantial discounts; packers are now paying premiums for large lots of hogs, 4) access to technology critical to independent producers’ advancement; private firms now beginning to do their own proprietary research on genetics, nutrition and herd health, 5) free access to information; market prices becoming less useful due to carcass merit pricing, and 6) consumers are changing, consumer’s not willing to accept whatever is put before them¹¹.

- **Technology:** Advances in genetics, housing design, nutrition and waste management allow growth in large-scale operations. Some argue that new technologies point to operations of more than 1500 sows to fully capture economies of scale.⁷ Technology has produced more litters per sow per year and more pigs saved per litter (increasing from less than 7.5 in the early 1980s to over 8.5 in 1997¹²). Technology has also improved feed conversion rates and produced slightly heavier live weights but leaner animals (255 lbs in the mid-1990s up from 240 lbs in the early 1970s) (*see graph 1.45*). Compared to pigs produced 40 years ago, pigs in the 1990s have 50% less fat³. Majority of pigs are produced under terminal breeding systems to maximize production of leaner hogs³. Artificial insemination becoming more and more common to introduce improved genetic material faster³.
- **North Carolina:** Hog industry in North Carolina developed using the vertical integration model of the poultry industry in that state. There was not an existing hog industry infrastructure in North Carolina. Contractual arrangements run by the megaproducers in North Carolina are highly coordinated, contracts specify

- feed formulations, production facilities, genetics, internal veterinary care and management strategies¹³. Estimates in the mid-1990s were that over 80% of hogs in the state were raised under coordinated arrangements with processors¹⁴. Contracting arrangements allowed coordination of packing plant construction to match rapid expansions in production². Hogs seen as a replacement for the declining tobacco industry¹⁵. In 1995, the average number of hogs per farm in
- North Carolina reached 1258 double the average size in Iowa (576)².
 - **Public sentiment:** Increased anti-corporate hog farming and anti-mega hog farm legislation being proposed in states such as Nebraska, Oklahoma, etc. Citizens groups being formed including the Alliance for a Responsible Swine Industry and Citizens Against Corporate Hog Factories. Don Webb founder of the Alliance states, “I have no problems with the hog industry growing hogs, but I want them to be responsible. I don’t believe that one American has the right to force the odor of feces and urine down another American’s nose. And I don’t think they have the right to threaten the water supply.”¹⁶
 - **Alternative production systems:** USDA SARE grants to study alternative production systems. Minnesota legislature in 1997 allocated money to study the Swedish system, pasture production, and low-cost structures such as “hoop houses” and also to provide grants for study of the feasibility of developing on-farm processing facilities¹⁷. Studies at Iowa State indicate that hoop structures are economically competitive due to their low construction cost^{8,18,19}.
 - **Food safety:** NPPC launches Pork Quality Assurance Program to emphasize good management practices in the handling and use of animal health products. Up to pork producers to supply packers with animals which are free from violative tissue levels of antimicrobials and chemicals. Violations for all residues in pork have been reduced to less than 10%, ten years ago violative drug residue levels exceeded 10%²⁰.

Uncertainties For The Future

- **Environmental issues:** Can the hog industry satisfactorily address the concerns raised about the environmental impact of large-scale or megafarms? Will environmental problems place an upper limit on expansion? Critics contend that manure handling on megafarms is a disaster waiting to happen. They also site the possibility of long-term health problems due to odor from hog operations and reduced real estate property values¹⁴. Critics note that 10000 hogs produce as much waste as a city of 25000 and while cities of that size have to spend millions of dollars on sewage treatment plants, hog farms or “swine cities”²¹ can use concrete tanks or earthen lagoons to store manure until it can be spread on cropland²². Audit conducted in North Carolina in 1995 shows many farms to be in non-compliance with existing standards¹⁵. Industry contends that education is needed so that the public will understand modern swine raising techniques²³. Spills that have happened were caused by freak weather events. Spills are not taking place on modern production facilities. Pork industry questions whether runoff from pork production is a primary contributing factor in groundwater or surface water contamination

citing commercial fertilizer, due to its higher content of nutrients, as a much more significant risk. NPPC launched an environmental initiative in 1991 with the goals of “creating environmental awareness among producers and fostering adoption of technologies and management practices that are environmentally and economically sound”²³. NPPC also has an Environmental Assurance Program which emphasizes voluntary proactive efforts to protect environmental resources. Under the Clean Water Act, pork operations with over 2500 animals must comply with federal requirements for storage and treatment of animal manure. National Environmental Dialogue on Pork Production issued recommendations for a comprehensive environmental framework to promote sound environmental performance by the pork production industry²⁴. The recommendations were endorsed by federal officials from EPA and USDA, regulatory agencies from several states, and pork producers. Dialogue members believe that “if these standards and procedures are ultimately adopted, they will promote the protection of the environment, public health, and welfare from the environmental impacts associated with the breeding and raising of pork while providing consistency in the regulation, and preserving the sustainability of the pork production industry”²⁴. Alternative production systems like hoop structures, etc. collect manure with the bedding which can then be composted²⁵.

- **Impacts on rural communities:** Can the hog industry show that megafarms are good for rural communities? Do large-scale facilities mean economic development or just economic growth? Critics cite studies done by the University of Minnesota and Iowa State and in Virginia which show that large farms spend less in the local area than small farms and that three jobs are lost for every one created by a new factory farm, the local tax base is eroded because megafarms do not purchase local feed, fuel, and farm supplies²¹. Critics also cite temporary labor brought in to work on megafarms as being a drain on local social services. Rural development advocates who consider livestock production to be an essential part of rural communities because of livestock’s ability to add diversity to a farmer’s profitability, provide manure for crop production, and convert lower quality forages and grains into high value products, worry that negatives associated with large-scale livestock production will push communities against wanting any livestock production²⁶. Hog production has historically been important for beginning farmers and a “mortgage burner” due to its high return to labor and management on small and mid-size diversified farms, therefore, it is important that opportunities in hog production remain open to small farmers²⁷. Supporters of contracting by megaproducers state that contracting allows more families to stay in farming. Farms enter into contracting arrangements to reduce risk and because they lack capital.
- **Integration:** Will integration in the hog industry eventually reach the extent that it has in the poultry industry and will it change to packer/feed company owner or remain megaproducer/ integrator owned? Some studies show economic and efficiency advantages for coordinated operations. Integration thus far has been more horizontal by production firms and less by firms integrating forward or backward¹³. “One packer involved in the pork, beef, and poultry industries recently said, ‘I can tell you six months

from now on a given day how many turkeys I will process. I don't have the slightest idea how many hogs I will process tomorrow.”¹¹ Coordination happening by feed companies trying to link genetics, feed, and farmers and also by hog farmers themselves working toward vertical integration by raising seedstock, feed, and linking with a packer through a marketing agreement¹¹. Also farmer-owned cooperatives are trying to coordinate members¹¹.

- **Grower relations:** Pork industry faces concerns about treatment of farmers under the contract system including lack of managerial decision making responsibility. Farmers who had been independent businesspeople reduced to “hoghouse janitor” status²⁸. “The hog industry is becoming a source of low wage jobs, instead of a source of profitable self-employment opportunities.”⁸ Concern that contract payments are not sufficient to cover the costs of replacing facilities¹⁰.
- **Marketing channels:** Will there be markets for independent hog producers? How will producers obtain pricing information? How valid are reported market prices when a growing share of production receives premium payments for quantity and/or quality preference? Trend toward direct marketing is reducing the availability of spot and terminal markets. Packers do not want to be bothered with smaller loads. In 1997, less than 1% of hogs were sold through terminal markets³. Independent producers might end up playing a residual supplier role if integrated operations provide a larger share of total pork production.
- **Consumption:** Can the pork industry increase domestic consumption of pork? Can the industry make consumers feel good or at least not guilty about eating pork²⁹? Will international demand for U.S. pork grow? Pork industry to date hasn't be able to infiltrate the fast food industry as a lunch/dinner item, no “chicken nuggets” success story. Pork industry is in the protein industry where it competes with the poultry and beef industries. Competing with turkey in the bacon and sausage market. Worldwide, pork represents 44% of the daily meat protein intake while beef and poultry each represent less than 30% of daily global intake; poultry consumption has been increasing⁵.
- **Midwest:** How viable will hog production remain in the Midwest? Midwest continues to have natural advantage of grain production, however, that advantage seems to be of lesser importance. Some large, family-operated units can come close to corporate farms in marketing large quantities of uniform animals. Also, smaller producers in Minnesota, Wisconsin and Iowa forming cooperatives/associations to jointly market hogs²². If hog production moves from Midwest, will packers follow? Midwest states such as Iowa, Minnesota and Wisconsin have laws restricting or limiting the involvement of large, nonfamily corporations in farming activities and prohibit packers from processing their own hogs². Minnesota law loosened to allow unrelated farmers to pool resources. Environmental concerns also enter into the picture. Expansion of hog production into states on the western fringe of the Corn Belt due to less intense environmental concerns and lower population densities. Midwest fears a reprise of the westward shift of beef production despite the Midwest's grain production advantage²⁹. Megafarms not viewed in Midwest as a replacement for a dying industry but as a threat to independent family

farms¹⁵. Coordination has been slower to develop in the Midwest because there was already a highly developed pork production industry.

- **Hog farms/production:** How many more farms will leave the hog business? Can the decline be stopped? “The standards set by the largest hog producers now suggest that some 50 producers could account for all the hogs needed in the U.S. Moreover, the standards set by new, state-of-the-art packing plants suggest that fewer than 12 plants could process all of the country’s hogs.”²
- **Animal Welfare:** Can the industry overcome animal welfare/rights concerns about large-scale production practices? Industry contends that controlled buildings allow hogs to be handled better and provides for more direct observation of the animals and greater ability to protect animals and workers from weather extremes³. Pasture systems and other alternative systems such as hoop structures are argued by some to be better for the animals since they allow animals more freedom of movement^{3,8,30}. Grouped housing indoors or outside is also thought to improve reproductive behavior over the isolation typical of confinement³⁰. Also animals have fewer respiratory and disease problems in the open air. Pigs like having the bedding to root around in²⁵.

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swine 2

