

The United States pork niche market phenomenon¹

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ABSTRACT: After the broad industrialization of the US pork industry, there has been a development of niche markets for export and domestic pork; that is, there is a pork niche market phenomenon. The US pork niche market phenomenon is characterized, and 2 of the major markets are explained in detail. With the Midwest's tradition of a diversified family-based agriculture and record low hog prices of the late 1990s, the conditions were conducive for this phenomenon to develop. Pork niche markets utilize various sales methods including Internet sales, local abattoir sales, direct marketing, farmer networks, and targeting to organized groups. In 2003, there were approximately 35 to 40 active pork niche marketing efforts in Iowa. The Berkshire breed is an example of a swine breed that has had a recent resurgence because of niche markets. Berkshire pork is known for tenderness and excellent quality. Berkshire registrations have increased 4-fold in the last 10 yr. One of the larger niche marketers of "natural pork" is Niman Ranch Pork, which has more than 400 farmer-producers and processes about 2,500 pigs weekly. Many US consumers of pork are interested in issues concerning the environment, food safety, pig

welfare, and pig farm ownership and structure. These consumers may be willing to pay more for pork from farmers who are also concerned about these issues. Small- and medium-sized swine farmers are active in pork niche markets. Niche markets claim product differentiation by superior or unique product quality and social attributes. Quality attributes include certain swine breeds, and meat quality, freshness, taste or flavor, and tenderness. Social or credence attributes often are claimed and include freedom from antibiotics and growth promotants; local family farm production; natural, organic, outdoor, or bedded rearing; humane rearing; known origin; environmentally friendly production; and the absence of animal by-products in the feed. Niche pork markets and alternative swine production practices offer an unusual contrast to commodity pork markets and industrial confinement swine production. Because they strive to have these attributes in their product, the niche pork market producers are a distinct clientele group. If niche pork markets continue to flourish, the markets and the producers that supply them will be a viable sector in a diverse US pork industry.

Key words: alternative production, pork marketing, pork quality, swine housing

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INTRODUCTION

Niche refers to a specialized market or "a status for which a thing is best fitted." A phenomenon is an "observable or significant fact or event" or an "exceptional or unusual occurrence" (Merriam-Webster Online Dictionary, 2005).

After the recent broad industrialization of the US pork industry, there has been a development of spe-

cially or niche markets for export and domestic pork, both fresh and cured. The work of supplying these markets has coupled local and regional abattoirs with small- and medium-sized independent swine farms (farms that produce <2,000 pigs annually), primarily in the Midwestern United States. A pork niche phenomenon was described earlier (Honeyman, 2005). The purpose of this article is to characterize the pork niche phenomenon in the United States and describe 2 of the major niche markets in detail as examples.

Niche pork markets claim product differentiation in 2 general ways—superior or unique product quality, and social or credence attributes. Quality attributes include meat quality (pH, color, water holding capacity, and intramuscular fat), freshness, taste, and tenderness. Social or credence attributes usually have little direct impact on meat quality. Examples of credence

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attributes are natural, reared without antibiotics, pasture raised, and others (Honeyman, 2005).

Several of the large, integrated US pork companies have developed “premium” pork brands [e.g., Premium Standard Farms, Smithfield, and Cargill (Salvage, 2005a)]. These premium pork brands are not included in this article, although premium branded pork may be included in some definitions of niche pork. This article focuses on the emerging, relatively new (within the last 10 yr) niche marketers that are procuring pork from independent producers and selling pork in the domestic and export markets for a premium.

BACKGROUND AND SCOPE

Economic, historical, and cultural factors have helped the pork niche market phenomenon to occur. Agriculture in the Midwestern United States developed about 150 yr ago as a system of diversified farms supported by small towns. A dominant mixed agricultural system was established, consisting of many family-based farms producing surpluses of corn that were fed to livestock, particularly pigs, to increase its value (Ross, 1951). The “supply of corn and hogs were closely allied” and moved west in tandem (Shepard, 1886). For example, in 1840 and 1850, Tennessee and Kentucky led the United States in pig and corn production; Indiana and Illinois led in 1860; Illinois and Missouri led in 1870. By 1880, Iowa and Illinois were leading the United States in pig and corn production (Shepard, 1886). Since 1880, Iowa and Illinois have been leaders in US corn, soybean, and pig production (NASS, 2004). The swine production infrastructure is well established and extensively developed.

Consolidation and industrialization of pig production happened quickly in the Midwest during the 1980s and 1990s. For example, in Iowa, the number of pig farms decreased from 65,000 in 1980 to approximately 10,000 in 2002 (NASS, 2004). In the same period, the size of the average Iowa swine farm increased from 200 pigs in 1980 to 1,400 pigs in 2002 (NASS, 2004).

In response to these dramatic changes, in the early 1990s some farmers began to search for alternative pig production systems such as outdoor farrowing or deep-bedded hoop barns to reduce fixed or capital costs (Honeyman et al., 2001). Generally these early alternative swine producers marketed to conventional commodity markets.

In 1998 and 1999, US market pig prices fell to historically low levels, which led some family farmers to look to niche marketing of their pigs as a way to remain competitive in the industry (Lawrence, 2004). Thus, the structural changes in pig production and the associated large number of pigs produced, low prices, and narrow margins for US pigs led to more niche pork marketing.

As farmers achieved success in alternative pig production, they sought markets that would provide better prices for their pigs. About the same time, US consumers were becoming more responsive to environmental,

livestock care, and human dietary issues and were willing to pay more for pork from producers who shared their concerns (Salvage, 2005b). Much of the meat that meets this description is labeled “natural” (Salvage, 2003). “Natural” is defined as products that “contain no artificial ingredients, coloring ingredients, or chemical preservatives” coupled with “not more than minimally processed” plus affidavits detailing the “producer’s operational protocol” verifying the claims on the label and presented to “officials at the Federal establishment at the time of slaughter. A carcass identification program is required at the slaughter plant to assure that only the labeling of products derived from qualified carcasses bear such claims” (FSIS, 1999). Consumers also wanted more assurances that antibiotics were not fed to meat animals. Additionally, as pigs became leaner, there was greater incidence of poor-quality pork. Some consumers wanted better-tasting pork (Salvage, 2005b).

Niche pork markets established rapidly in the late 1990s and have continued to expand. For example, approximately 35 to 40 pork niche marketing efforts are currently active in Iowa (Ennis and Andreasen, 2003). Various marketing techniques are employed, including direct sales to consumers, Internet sales, and sales to foodservice or retail, either directly or through distributors. The marketers range from individual farmers to organized marketing groups or coops (Pork Niche Market Working Group, 2003). Beginning in 2005, McDonald’s restaurants began purchasing meat only from farms that are antibiotic free (McDonald’s, 2003). Another example is the food service company Compass Group, which in August 2005 announced a new purchasing policy to curb antibiotic use in pork production (Food Business Review Online, 2005).

Estimating the size of the pork niche market in the United States is difficult. There are no specifically reported numbers of pigs slaughtered for these markets. Additionally, the individual markets are extremely competitive and are reluctant to share exact slaughter numbers. The authors estimate that the larger 4 niche marketers are: Niman Ranch Pork, Thornton, IA; Beeler’s Naturally Pure Pork, LeMars, IA; Coleman Purely Natural Brands, Golden, CO; and a broad grouping of Berkshire swine producers and marketers. Based on the authors’ estimates, these marketers may slaughter 7,000 to 10,000 pigs weekly or 360,000 to 500,000 pigs annually. If these 4 marketers represent approximately 70% of all niche markets, the current US niche pork market may be as large as 500,000 to 750,000 pigs annually. Most of the marketers report more demand for pork than the supply of pigs can provide at this time.

There continue to be US pork consumers who are interested in animal welfare, environmental impact, and farm size. These consumers are also willing to pay more for pork with certain attributes and pork from pigs raised under certain conditions that they value. Consumers who frequent high-end restaurants are frequently interested in pork raised without antibiotics or

hormones as well as animals that are raised in a free-range system or one that does not use confinement (Pork Niche Market Working Group, 2003). A national survey of US consumers reported that 57% of the respondents were “very or moderately concerned” about the “well being of pigs raised for pork” (Freese, 2000). Eighty percent of the respondents stated that they would pay a premium for pork reared in an “environmentally-friendly” manner, 68% would pay a premium for pork reared in an “animal-friendly” manner, and 72% would pay a premium for pork from smaller family-based swine farms (Freese, 2000). Research with experimental auctions has also shown that consumers were willing to pay more for pork raised under these conditions (Hurley, 2000). More recent work found that the retail market share of pork from pigs that were pasture raised without antibiotics, growth promotants, and animal by-products in feed and priced at a 40% over market premium would have a 25% market share. Increasing the premium to 75% would reduce the market share to about 22% (NPB, 2005).

The study also evaluated 6 niche pork attributes that are not related to price. The 6 attributes were no antibiotics, no growth promotants, no animal by-products in the feed, Berkshire breed, and pasture and organic rearing. These 6 attributes were the ones most commonly found in the marketplace. The conjoint analysis allowed no more than 6 non-price-related attributes. The price of pork had “more influence on (pork) purchase decisions than any other attribute” (NPB, 2005).

For the non-price-related attributes, raised without animal by-products and without growth promotants were ranked important by 37% of pork consumers. Consumers also ranked no antibiotics and pasture-rearing as desirable attributes. Organic rearing and Berkshire breed were ranked the lowest. The researchers concluded that consumers are interested in niche pork, particularly with multiple attributes (NPB, 2005).

NICHE PORK MARKET TRENDS

Niche Pork Attributes

Smaller farmers with pig production management skills are ideal candidates for niche market production. The markets can provide both price premiums and reduce market risk to farmers in the highly competitive pork industry. Agricultural economist G. Grimes of the University of Missouri said at the 2003 World Pork Expo, Des Moines, IA, “Unless small pork producers have captured a niche market within the pork chain, they will disappear.”

As stated earlier, niche markets try to differentiate their products by achieving unique or superior pork quality and by claiming social or credence attributes. Color, water-holding capacity, intramuscular fat, and ultimate pH of the pork are usually not promoted. The meat quality characteristics that are promoted include certain swine breeds, superior taste or flavor, high qual-

ity, freshness, and tenderness. Social or credence attributes often promoted, yet difficult to measure in the pork, include freedom from antibiotic and growth promotants; local family farm production; natural, organic, outdoor, or bedded rearing conditions; humane rearing; known origin; environment-friendliness; and no animal by-products in the feed.

For example, Whole Foods Market of Austin, TX, is the largest natural/organic retail food chain in the United States. Their pork production standards are stated as: absolutely no antibiotics; no supplemental growth hormones; no animal by-products in the feed; no gestation crates; freedom of movement for sows in farrowing pens; and bedding required to satisfy natural rooting instincts (Whole Foods Market, 2005).

There is also a concomitant proliferation of food animal certification or audit systems. These certification systems establish standards and monitor livestock farmers for compliance. Some systems and organizations that are currently active in certification, record keeping, and auditing livestock farms include the Animal Welfare Institute, Humane Farm Animal Care, the Humane Society of the United States, and the Food Alliance.

Berkshire Pork

The niche pork market phenomenon is exemplified by pork from Berkshire pigs. The Berkshire breed originated in England in 1875, and its producers organized as the American Berkshire Association (ABA), the first purebred swine registry in the United States (ABA, 2005). The breed was popular in the early 1900s but lost general favor after 1950 when the pork industry placed more emphasis on leanness. However, recently the Berkshire swine breed has enjoyed a resurgence initially driven by demand in Asia for Berkshire pork and more recently by increased domestic demand (McLaughlin, 2004). The Japanese pork customers pay about a 50% premium for pork from the Berkshire pig, known as the *kurobuta* or black pig. Berkshire pork is known in Japan for flavor and tenderness (ABA, 2005). United States markets with upscale restaurants and their chefs are requesting and featuring Berkshire pork. The domestic market for Berkshire pork is rapidly expanding (Spiselman, 2006). The Berkshire breed has grown in response to these markets. For example, from 1991 to 1994, the Berkshire breed registered about 7,500 litters; but from 2001 to 2004, there were more than 30,000 litters registered or about a 4-fold increase in 10 years (A. Smith, ABA, West Lafayette, IN, unpublished data).

Berkshire pork has a long-held reputation for excellent meat quality. In 1995, the National Genetic Evaluation Project evaluated pork from 9 terminal sire lines and clearly established that pork from Berkshire sires excelled in meat quality traits of darker color, greater ultimate pH, more tenderness, and more moisture content after cooking (NPPC, 1995). The Berkshire-sired

pigs also had more backfat and smaller loin muscle area than most of the other sire lines (NPPC, 1995). In an Illinois sensory evaluation, Berkshire loin chops were superior in pork flavor and had lowest abnormal flavor among 7 various breeds and lines of pigs. The Berkshire chops also had the most intramuscular fat (Brewer et al., 2002).

The ABA is the sole owner of its subsidiary, Berkshire Meat Products LLC, which has 2 marketing programs. Berkshire Gold was developed to feature pork possessing of at least 50% Berkshire genetics. The 100% Pure Berkshire Pork program, verified by the USDA, is now operational (ABA, 2005). Additionally, there are a number of niche marketers selling Berkshire pork for domestic and export use, e.g., Lobel's, New York, NY; Snake River Farms, Boise, ID; Eden Natural, State Center, IA; Fairway Packing Company, Detroit, MI; SIG, Boyden, IA; Venison American, Hudson, WI; Berkshire Meats, Geneva, MN; and Berkridge, Sioux City, IA.

Niman Ranch Pork

Niman Ranch Pork began by filling orders for local restaurants in the San Francisco area. In 1996, Paul Willis, a pig farmer from Thornton, IA, was introduced to Bill Niman and began supplying hogs to Niman. Demand grew, and producers from Iowa set up a 50/50 joint venture with Niman Ranch Inc. and created Niman Ranch Pork Company in 1998 to assist with purchasing the live hogs needed for the Niman brand. Niman Ranch supplies pork to many restaurants including McDonald's Chipotle Mexican Grill restaurants. The Niman brand of pork has maintained an annual growth rate of 40% for several years (Niman Ranch, 2005).

Niman Ranch Pork Company is located in Thornton, IA, and buys about 2,500 pigs weekly from more than 400 producers, primarily in Iowa and neighboring states. Meat quality ratings are given to producers based on pH, color, shear force, drip loss, and taste scores. Purchase priority is given to those producers with the greatest meat quality ratings. L. Lyon (personal communication), quality manager for Niman Ranch Pork Company states, "Pigs produced for Niman Ranch should ideally be 240 to 280 lb with 47 to 51% lean and have 1 in. of backfat, a 6-in.² loin eye area, and a 4 on the marbling and color scale." Niman Ranch Pork Company purchases pigs from qualifying farmers using the weighted average according to the USDA national daily direct hog report plus a premium. Additional premiums are paid based on a company grid for pigs meeting the 47 to 51% lean standard. Farmers pay 1½ cents per pound live weight to Niman Ranch Pork Company for operating and other costs, resulting in farmers owning half of the company. Most of the pigs are slaughtered weekly at SiouxPreme Pack in Sioux Center, IA. All pigs are identified by their farm of origin and tracked for quality control purposes.

Before selling pigs to Niman Ranch, a list of guidelines must be satisfied. Niman Ranch follows guidelines (Table 1) set forth by the Animal Welfare Institute (Washington, DC): "The aim of AWI is to reduce the sum total of pain and fear inflicted on animals by humans" (AWI, 2004).

Major feed companies have developed lines of feed that meet the specifications set by Niman Ranch. Feed labels listing all feed ingredients and additives must be submitted to Niman Ranch. Three months before marketing, a staff member from Niman Ranch makes a farm visit to ensure AWI's husbandry standards are being met. Center cut pork chop samples must be submitted for quality evaluation before the farm markets any pigs. The approved producers sign a quality standard affidavit that is filed with the USDA. Farms are periodically reevaluated for compliance with meat quality and animal welfare requirements.

Based on the number of farmer-producers (400) and the total annual number of pigs slaughtered (120,000), the average Niman producer markets about 300 pigs annually. Assuming 12 to 15 pigs per sow per year, the average producer would have 20 to 25 sows, which is a small operation by industry standards and is less than the average-sized pig farm in most swine states (NASS, 2004).

Economics and Challenges

Retail prices for niche premium fresh pork vary widely from approximately \$6 per kg to \$70 per kg of pork (McLaughlin, 2004). Production costs of producing pigs were projected at \$34 to \$40 per weaned pig for the natural pork market (Reich and Kliebenstein, 2006) and at \$150 to \$167 per market pig for the organic market (Larson et al., 2001). Costs of production vary depending on feed costs and assumptions. Premiums paid to farmer producers vary and are also difficult to document. Hueth et al. (2005) calculated the prices received by producers from 2 Iowa natural pork niche marketers compared with the commodity hog market. Premiums of approximately \$17 to 50 per head (assuming 113-kg liveweight) were calculated. The pricing structures also have a price floor and ceiling as well as additional premiums for winter-born pigs (Hueth et al., 2005). Premiums for organic pigs may be even greater.

Primary challenges for growing niche pork marketers include recruiting new producers, expanding existing production, maintaining a steady supply of hogs, and marketing the entire pork carcass. For example, Niman Ranch Pork Company is able to market about 46% of the carcass through its high-value niche markets (L. Lyon, Niman Ranch Pork Company, personal communication).

One of the greatest challenges for pork niche marketers is maintaining a steady supply of pork. Because most of the markets require that pigs be born outdoors or on bedding, a majority of the pigs are farrowed outdoors during favorable periods, from late spring

Table 1. Summary of Animal Welfare Institute humane husbandry standards for pigs (for farmers entering the program after January 1, 2005)¹

Item	Requirement
Housing	Environment for normal animal behavior—rooting, socializing, walking, turning around Access to outdoors at all times (except nursing sows and litters)
Space requirements	
Finishing pigs	Separated dunging and lying areas Space that allows animal to lie in a full recumbent position Indoor bedded area, 8 ft ² to 110 lb and 10 ft ² above 110 lb, with outdoor access
Boars	64 ft ² per individual
Sow and litter in pens	64 ft ² per individual
Sow and litter in boxes	48 to 70 ft ² per individual depending on the sow size
Group lactation	81 ft ² per sow and litter
Gestating sows	28 to 40 ft ² per individual depending on group size
Bedding	Straw or chopped corn stover/pasture Hygienically maintained bedding
Family farm	Ownership of the pigs Dependence on farm for livelihood Family provision for the majority of labor for operation
Equipment/buildings	Allowance for freedom of movement and natural behavior
Transporting	Prevention of injury while loading and unloading
Diet	Variety and a good balance Necessary satiety of animal Ad libitum access to water Minimum competition for feed Ad libitum forages for limit-fed sows and boars; simultaneous group feeding
Injury	Individual treatment of injured pig On-farm euthanization of injured animals
Weaning	Recommendation at 6 wk of age Minimum of 5 wk of age
Castration	Before 1 wk of age
Prohibited equipment and procedures	Gestation crates, stalls, or tethers; slatted floors Hot prods or electric shockers; clipping of needle teeth (grinding is allowed) Subtherapeutic antibiotics, hormones, sulfas; detusking of boars Interval feeding of gestating sows; farrowing-inducing hormones Tail docking; liquid manure

¹Summarized from Humane Husbandry Criteria for Pigs (Animal Welfare Institute, 2004).

through early fall in the Midwest. Indoor farrowing is avoided because of greater labor requirements, cold temperatures, lack of facilities, or increased piglet disease. This creates a shortage of marketable pigs during the summer for many niche markets. Some niche markets will not accept new producers unless they agree to farrow pigs during the winter. For example, new producers to Niman Ranch Pork Company must farrow in winter to help fill the lack of supply during midsummer. Niman also actively recruits producers outside of the Midwest in areas where winters are milder.

Farmers have tried various approaches to improve alternative winter farrowing systems. Many involve using the outdoor farrowing huts with supplemental heat in various indoor structures including pole barns, greenhouses, and hoop barns (MWPS, 2004a). The use of radiant tube heaters may be a positive development for these approaches. Another approach, a deep-bedded Swedish model, was replicated successfully in Iowa, although prewean mortality was excessive in the bedded farrowing cubicles (Honeyman and Kent, 2001).

Another challenge for producers of niche pork is acquiring applicable information and technology. These producers are often small and have limited capital. Fre-

quently, a major impediment to their success is not having access to tested methods of production including nutrition, genetics, housing, animal health, and overall systems. Several land-grant universities are beginning to fill this void. For example, Texas Tech University's Pork Industry Institute has a registered label with the USDA for Sustainable Pork (Pork Industry Institute, 2001) and conducted work on meat quality of pigs reared in alternative systems (Gentry and McGlone, 2003). Research and demonstrations related to pig behavior (Lay et al., 2000), bedded hoop barns (Honeyman and Harmon, 2003), farrowing huts (Honeyman and Roush, 2002), and bedded systems (Honeyman and Kent, 2001) have been conducted by Iowa State University to advance the understanding of alternative swine production systems. Minnesota, Michigan State, Nebraska, and North Carolina State universities also have researchers or programs targeted to niche pork production. The MidWest Plan Service and the Pork Industry Handbook have published several applicable pamphlets (MWPS, 2004a,b,c; PIH, 1999, 2001). The National Pork Board has more recently developed a niche pork Web site called "Niche Pork, the other opportunity." A multistate Pork Niche Market Working Group was be-

gun in 2002 in Iowa to “support the development of niche markets for pork, to foster the success of highly differentiated pork value chains that are profitable to all participants that incorporate farmer ownership and control, and contribute to environmental stewardship and rural vitality” (Pork Niche Market Working Group, 2003). This working group has supported about 20 projects in 4 years to address challenges across the niche pork value chain. A proposed alternative pork production system that incorporates deep-bedded hoop barns, group housing of lactating and gestating sows, outdoor summer farrowing, and indoor winter farrowing was developed by Honeyman (2005).

SUMMARY

Niche pork markets and alternative swine production practices offer an unusual contrast to commodity pork markets and industrial confinement swine production. The pork niche market producers are a distinct clientele group for animal scientists, agricultural engineers, veterinarians, and other suppliers of information and technology. If pork niche markets continue to flourish, the markets and the producers that supply them will be a viable sector in a diverse US pork industry. The niche pork market sector offers an entry pathway for beginning producers, diversified farmers, and sustainable agriculturalists. To continue to grow and develop, the sector will need appropriate research, extension, and support programming. It also will need to develop tangible incentives for existing producers to expand their operations and for new or conventional producers to learn production methods of these systems. Specifically, research on production costs, transaction costs, and herd health management is needed to provide producers with the information they require to remain competitive and to secure operating capital from local banks. The pork niche market is a rapidly evolving sector that presents unique challenges and opportunities.

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