

Journal of Rural Social Sciences

Volume 23

Issue 1 *Special Issue: Sustainable Agriculture
and Quality of Life*

Article 8

6-30-2008

Barriers to Entry into the Specialty Red Meat Sector: The Role of Food Safety Regulation

Michelle R. Worosz
Michigan State University

Andrew J. Knight
Susquehanna University

Craig K. Harris
Michigan State University

David S. Conner
Michigan State University

Follow this and additional works at: <https://egrove.olemiss.edu/jrss>

 Part of the [Rural Sociology Commons](#)

Recommended Citation

Worosz, Michelle, Andrew Knight, Craig Harris, and David Conner. 2008. "Barriers to Entry into the Specialty Red Meat Sector: The Role of Food Safety Regulation." *Journal of Rural Social Sciences*, 23(1): Article 8. Available At: <https://egrove.olemiss.edu/jrss/vol23/iss1/8>

This Article is brought to you for free and open access by the Center for Population Studies at eGrove. It has been accepted for inclusion in *Journal of Rural Social Sciences* by an authorized editor of eGrove. For more information, please contact egrove@olemiss.edu.

**BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR:
THE ROLE OF FOOD SAFETY REGULATION***

MICHELLE R. WOROSZ**

MICHIGAN STATE UNIVERSITY

ANDREW J. KNIGHT

SUSQUEHANNA UNIVERSITY

CRAIG K. HARRIS

MICHIGAN STATE UNIVERSITY

and

DAVID S. CONNER

MICHIGAN STATE UNIVERSITY

ABSTRACT

Historically, the rules governing red meat food safety in the U.S. were driven as much by global trade and industry rationalization as by food safety. Contemporary and historical documents, statutes, and regulations; a survey of producer and farmers' market representatives; and key informant interviews show that these rules, and their implementation, have affected the current development of niche marketing opportunities. Three significant issues arise from this research: a) the elimination of the state meat inspections limits producer access to slaughter; b) the Hazard Analysis and Critical Control Points (HACCP) rule limits producer access to processing; and c) uncertainty at the local level limits producer access to direct markets. We conclude that the accumulated rules affect producers' quality of life; and they raise several issues about the relationship between sustainability and policy including barrier mitigation, balancing competing qualities, and the effects of the broader policy context.

*We would like to thank Michigan Food and Farming Systems for their advice and guidance in the formulation of our work on this topic, Utaka Walton for her assistance in data collection, and Deborah Pierce for her assistance with various administrative tasks associated with both the collection of data and the preparation of this manuscript. The research that provides the basis for this paper was supported by a grant from the Community Vitality Program of the Families and Communities Together Coalition at Michigan State University and by funding from the Vice-President for Research and Graduate Studies at Michigan State University. An early version of this paper was presented at the 2007 Southern Rural Sociological Association meetings in Mobile, Alabama. We are grateful for the comments received during our presentation and from anonymous reviewers of our draft manuscript. Lastly, we would like to thank Doug Constance and Jeff Jordan for their guidance and support.

**Please address all communications to Michelle R. Worosz, Food Safety Policy Center, Michigan State University, 429A Berkey Hall, East Lansing, MI 48824-1111; woroszmi@msu.edu; 517-353-1942.

Introduction

The industrialization of animal agriculture is associated with a growing concentration in on-farm production activities and assets, as well as a growing organizational concentration. For example, the most recent estimates of consolidation in the pork industry show that four producer-firms control nearly 50 percent of the commercial hogs raised in the U.S. (Hendrickson and Heffernan 2005). As Hinrichs and Welsh (2003) point out, this concentration was made possible, at least in part, by the structural changes that began to take place in the 1970s. Today, concentration in animal agriculture is increasingly influenced by the restructuring of the agrifood industry at the global level (Swanson, Samy, and Sofranko 2003). These structural changes also facilitated new forms of vertically-coordinated management where, for instance, a producer might be contracted to raise animals owned by others, or be required to build particular animal rearing facilities and/or use particular animal feed to meet buyer specifications (also see Friedland 1991; Heffernan and Constance 1994). At the farm level, economies of scale in transaction costs and slim profit margins have encouraged animal livestock producers to expand operation size, adopt Fordist style mass production methods (e.g., feedlots), substitute capital for labor (e.g., mechanized feed and manure handling), engage in commodity specialization (e.g., Angus beef only), and use science and technology to control biophysical variation (e.g., genetic selection) (Duffy 1998; Hinrichs and Welsh 2003; Klobner 2001; Page 1997; Swanson et al. 2003).

This agroindustrial model has produced a stable and cheap supply of meat, but it has also been the subject of mounting criticism. The first critique of “conventional” animal agriculture is that producers, even some of the largest, have lost decision-making control over production due to the increasingly restrictive grades and standards of the dominant, and often global, wholesalers and retailers (cf., Konefal, Mascarenhas, and Hatanaka 2005; Marsden, Harrison, and Flynn 1998). Second, agroindustrial animal production has had adverse economic effects. While producers face declining commodity prices associated with the technological treadmill (Cochrane 1993), the process of industrialization has led to declining property values for their neighbors, and it has restrained economic growth in rural communities (Abeles-Allison and Connor 1990; Gomez and Zhang 2000; Kilpatrick 2001). Third, the spatial concentration of the animals creates large volumes of environmentally hazardous waste, especially manure. Manure has been linked to various negative effects on not only the soil, water, and air, but also on the humans who interact with the environment (Constance and Bonanno 1999; Martin and

Zering 1997). For example, residents in communities where large scale, highly industrial farms are located are, among other things, subjected to nuisance odors. These odors have been linked to mood disorders and other more generalized health problems (Schiffman et al. 1995). Fourth, animals produced on an industrial scale are increasingly raised in concentrated animal feeding operations (CAFOs). Numerous studies indicate that intensive and concentrated operations, compared with extensive pasture-based systems, result in more stress, antisocial behavior, and increased illnesses among the animals (Cox and Cooper 2001; Goldberg et al. 1992; Krohn and Munksgaard 1993; Miller and Wood-Gash 1991; Washburn et al. 2002; Wells, Garber, and Wagner 1999). Last, consumers are at greater risk of contracting foodborne illnesses and being exposed to resistant pathogens from industrial practices such as the use of antibiotics in animal feed (Sapkota et al. 2007).

In recent decades, the alternative agriculture movement has been viewed as a countertrend to agroindustrial animal production, and there are at least three reasons why these “alternatives” are often characterized as more “sustainable.” First, ecologically, alternative practices such as managed intensive rotational grazing provide improved ecosystem services compared with the confined animal feeding operations (CAFO) used in conventional production (Bishop et al. 2005; Digiacoimo et al. 2001; Rotz et al. 2002). These practices also reduce the risk of air and water pollution (Clancy 2006a; Petit and van der Werf 2003).

Second, alternative agriculture improves the quality of life for farmers, their livestock, farm workers, rural communities, and consumers. It has been found that a shift toward alternative and potentially more sustainable practices increases farmers’ self-reported satisfaction with their families’ quality of life (Ostrom and Jackson-Smith 2000; Taylor and Foltz 2006). Alternative practices have been found to reduce stress on the animals (Clancy 2006a); reduce worker and community health problems (Schiffman 1998; Wing and Wolf 2000); maintain the real estate values of nearby housing (Kilpatrick 2001); and reduce or alleviate disputes with the local community (Conner and Hamm 2005; DeLind 1998). Furthermore, alternative practices offer consumers an opportunity to: a) purchase meat and meat products produced from animals raised locally and/or by someone they know (Winter 2003); b) purchase meat from animals raised without prophylactic antibiotics or other additives (Clancy 2006a); and/or c) to purchase meat from animals raised humanely and/or ethically (Phan-Huy and Fawaz 2003).

Third, economically, alternative animal agriculture offers an opportunity for farmers to gain price premiums by selling outside common bulk commodity production and marketing arrangements (Henry A. Wallace Center 2001; Lyson

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 173

and Green 1999). Alternative or “specialty” products are often marketed using a product differentiation strategy (Porter 1990) that capitalizes on consumers’ demand for a range of quality attributes (Lancaster 1974) emphasizing trust, tradition, and/or place (Goodman 2003; Whatmore, Stassart, and Renting 2003). “Specialty meat” may be sold, for instance, based on one or more claims about a) *who* produced it (e.g., family farm, trusted producer), b) *what* was produced (e.g., minimally processed vs. highly processed), c) *when* it was produced (e.g., fresh vs. frozen), d) *where* it was produced (e.g., local, regional), e) *how* it was produced (e.g., chemical free, humanely), and f) *why* it was produced in these ways (e.g., sustainability, ethical values). Moreover, this type of niche marketing offers synergistic opportunities for rural communities. Independent and smaller scale farms, which are most likely to engage in these types of activities, often lend more support to local businesses and generate more local economic activity than do larger, contractually integrated farms (Chism and Levins 2004; Foltz, Jackson-Smith, and Chen 2002; Lawrence, Otto, and Meyer 1997; Lyson, Torres, and Welsh 2001; Marousek 1979).

Despite these advantages, the trend toward agroindustrial production has created numerous barriers for small scale, alternative producers and processors that limit their growth and/or marketing opportunities. These barriers include, but are not limited to, capital costs (e.g., equipment, transportation); transaction costs (e.g., information gathering, business plan development, market negotiation); a lack of institutional support; a shortage of key intermediaries; declining rural infrastructure (Ilberry et al. 2004; Renting, Marsden, and Banks 2003; Verhaegen and van Huylenbroeck 2001), absence of a network of effective business structures and/or collaborative partnerships (Handfield and Nichols 2002), and restrictive policies (Henry A. Wallace Center 2001).

Using Michigan as a case study, our goal was to explore whether or not food safety policy restricts producers’ ability to engage in the alternative red meat sector. Thus, our first objective was to identify the key statutes and regulations governing the safety of red meat and to determine what role they play in the development of the industry at large. Our second objective was to contextualize these rules historically—to determine whether the intent of the rules has shifted and how that shift might affect contemporary small-scale alternative production. Last, we sought to explore whether or not food safety policy creates barriers and challenges for producers who wish to market alternatively produced red meat and/or meat products.

In the next section, we describe the methodological approach that we used in this exploratory case study. This section is followed by a description of the historical development of the rules about red meat production and processing. We discuss the role of red meat food safety statutes and regulations in international and domestic trade, and we discuss the impact that they have had on different levels of the state and scale of operation. In the third section, we focus on the Michigan case. We describe the development of the state-level rules, and we show how the state and the federal rules have influenced the development of the alternative red meat sector. To conclude, we discuss the political economy of red meat food safety including the role that policy plays in the development of the Michigan specialty meat sector and the ways in which it affects producers' quality of life. We also address several gaps in our collective knowledge about the relationship between policy and sustainability: how to mitigate statutory and regulatory barriers and how to balance safety and the range of other qualities that are important in the alternative food movement, as well as the broader policy context in which alternative agriculture is embedded.

Methodology

Red meat, as defined by law, includes meat and meat products from cattle, hogs, sheep, goats, and horses.¹ Michigan is ideally suited as a red meat case study for two reasons. First, Michigan consumers have shown high levels of interest in alternate red meat products. In the 2005 State of the State survey, a random sample of Michigan consumers (n=988) indicated that they value a range of attributes associated with specialty red meat including environmentally-friendly production, humane treatment of animals, and animals that are hormone-free, pasture-raised, and raised locally and/or on family farms (Conner, Campbell-Arvai, and Hamm 2008). However, most Michigan consumers are unable to buy alternatively produced meat products with these attributes due to limited availability. Second, it has been asserted that this limited availability may be linked to several processing challenges and these processing challenges are caused by food safety statutes and regulations.

The data for this case study were collected in an iterative process via multiple methods (Charmaz 2000; Strauss 1995). First, we began by collecting and reviewing each of the key statutes and regulations, at both the state and federal level, which

¹All other animals such as rabbits, buffalo, and deer are classified as "non-amenable species." See footnote 5 for additional information.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 175

govern red meat food safety. These rules were obtained via the Michigan Legislature's Compiled Laws website, the Michigan Department of Agriculture's website, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) webpage for Regulations & Policies, and the GOP Access webpage for the U.S. Code.

Second, to ascertain whether or not members of the specialty red meat sector view these statutes and/or regulations as barriers, we surveyed key representatives of associations that were relevant to red meat production. These associations included both legislatively established commissions and other publicly recognized agricultural and commodity organizations. Surveying this group was critical to this exploratory project as Michigan's specialty red meat sector is very diffuse, lacks any specific integrative organizations, and does not have a specific identifiable population. During the autumn of 2006, each of the 33 association Presidents received a self-administered questionnaire via e-mail, or via an alternative arrangement (i.e., mail, telephone). The survey included questions asking a) what are the most important issues facing their membership; b) with respect to production, processing, distribution, marketing, and selling, what regulatory barriers affect their membership; and c) in what ways do their members typically market and sell their products. If the questionnaire was not returned within two weeks, a reminder telephone call was made to the association representative. By the end of December 2006, 13 of the 33 surveys were completed (39 percent).

Third, to explore the key issues raised by the survey participants, we conducted a set of key informant interviews. These data included a total of 16 individual face-to-face interviews with 14 people,² and two meetings with a special interest group of five people. Each participant, as well as members of the special interest group, represented a different area of expertise including production and processing; marketing, farmers' markets, and agricultural entrepreneurship; and food safety regulation and implementation. The key informants were identified using a snowball technique, starting with the Director of a prominent sustainable agrifood organization. An interview guide, tailored to the individual's role in the industry, was developed before each meeting. Similar to the association questionnaire, each guide focused on the types of statutory and regulatory challenges that the specialty red meat sector faces, but in far greater detail.

²One person was interviewed twice to clarify technical details and another was interviewed a second time to expand on various points of discussion.

Analyses of the survey and interview data revealed that farmers' markets are a key avenue in which specialty red meat is sold in Michigan, and they represent an important point where the local implementation of state and federal food safety statutes and regulations may create barriers to niche marketing. Therefore, we also conducted a survey with farmers' market managers, sponsors, and vendors. A brief questionnaire was developed to ascertain a) whether or not some farm market managers permitted the sale of red meat and, if not, why; b) if sales were permitted, are they growing, stable, or declining; and c) whether or not the managers, sponsors, and vendors have any particular concerns about the sale of red meat at farmers' markets. The survey was distributed via a pre-existing electronic listserv and an e-mail list in January 2007.³ In total, we received 27 completed questionnaires. The lists, which are maintained by a statewide sustainable agriculture organization, do not necessarily include a representative from each of the 150 farmers' markets in the state;⁴ therefore, these data, while very informative, cannot be treated as statistically representative.

Lastly, as we analyzed the data, gaps in our knowledge emerged. These gaps included specific technical aspects of the rules governing red meat processing, the role of state and federal red meat policy, and the legislative history of both the state and federal rules. While we conducted a literature review before the start of this project, we conducted a second and more targeted review of the early statutes and regulations, and both the relevant peer-reviewed and "grey" literature. These data, some of which was identified and/or provided by our research participants, included historical laws, trade and public interest group publications, both historical and contemporary extension and experiment station reports, both state and federal government reports, and legal reviews and opinions. While the "grey literature" was not peer-reviewed, we included it in our analyses because it provided very specialized and precise information and/or represented a range of thoughts on a range of statutory and regulatory issues.

³Historically, there has been little in the way of a formal organization of farmers' markets in Michigan. In 2006, the Michigan Farmers' Market Association (MFMA) was organized, but because it had been in operation for a very short period of time, the list serve and e-mail list were one of few ways in which the managers, sponsors, and vendors could communicate with one another at the time in which these data were collected.

⁴For a current list of farmers' markets in the state, please refer to the MFMA website: <http://farmersmarkets.anr.msu.edu/>, which is updated more frequently than the list maintained by the U.S. Department of Agriculture's Agricultural Marketing Service (i.e., <http://www.ams.usda.gov/farmersmarkets/>).

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 177

Together, the survey, interview, and documentary data provided a means for tracing the trajectory of the rules governing the safety of red meat, for identifying problematic statutes and regulations, for clarifying the complex aspects of red meat food safety, and for placing claims about red meat food safety system into a context. These data also provided a means for triangulation; they permitted us to clarify and to substantiate our findings (Stake 2000).

Legislative History

The federal government became involved in red meat food safety because of an international trade dispute. In the 1880s, U.S. meatpackers greatly expanded their exports of livestock and inexpensive meat to Europe nearly free of regulation (Yeager 1981). Meanwhile, European manufacturers who exported goods to the U.S. faced large import taxes. As a result, states across Europe (e.g., Germany, France, Belgium) placed restrictions on the importation of live animals and red meats of U.S. origin, especially pork (Libecap 1992; Young 1981). Besides the trade imbalance, Europeans were aware of reports detailing an increasing number of livestock diseases, such as hog cholera, and the increasing spread of these diseases among U.S. livestock. They were also suspicious that the importation of U.S. animals “on the hoof” and/or the importation of meats from these animals was the source of foodborne illnesses such as trichinosis. As a result, U.S. meatpackers were concerned about losing their export markets as were livestock producers who believed that export markets were the only way to increase consumption, and subsequently raise market prices. Based on these concerns, the meat packers and livestock producers petitioned Congress to guarantee the quality of industrially produced meat and meat products (Ollinger and Mueller 2003:2); that is, to institute a set of standards and certification procedures that would establish the safety of their meat. The latent benefits of such an approach included protecting the meat industry from increased scrutiny (Wiser 1986b) and facilitating both trade and the accumulation of wealth (cf., Standford 2002). The outcome was the passage of the Meat Inspection Act of 1890. It authorized the U.S. Secretary of Agriculture to inspect hogs entering export markets, if requested by the importing country. As Libecap (1992) suggests, establishing an industrial or commercial quality of the meat was the most significant impact as there had been no known foodborne illnesses, except trichinosis, from the consumption of diseased animals. Five years and several amendments later, the Meat Inspection Act required all cattle, sheep, hogs, goats, and horses “whose meat was to be shipped across State or Territory lines to be inspected ante- and post-mortem at any slaughterhouse, canning facility,

or processing plant” (Wiser 1986a:7). However, the Act did not require inspection of livestock slaughtered on-farm, nor did it provide for the inspection of processing plants’ sanitation.

Also during the 1880s, Chicago meatpackers (Cronon 1991), particularly those known as the “Beef Trust” (i.e., National Packing Company, a merger of Swift, Armour, and Morris), rose to prominence in the domestic market with the large-scale processing and shipping of dressed meat. “Dressing” is the initial stage of meat processing in which the animal is slaughtered and the hide, hooves, and internal organs are removed. Although processed, dressed meat is considered “fresh” (Kujovich 1970). The Beef Trust displaced small abattoirs and butcher shops in distant locations by engaging in bullying and “price dumping.” To counter, these local businesses “charged that the Chicago packers used diseased cattle and that dressed beef was unwholesome” (Libecap 1992:244). Moreover, they demanded that their respective state legislatures protect them from the Beef Trust’s predatory practices.

In response, some states began to develop both antitrust laws (e.g., restricting shipments of dressed beef) and food safety laws (e.g., animal inspection) to protect their local meat industry. The Beef Trust and the Chicago Board of Trade, as well as other states, argued that these policies were insufficiently developed, unevenly applied, and/or unfair. In 1890 the U.S. Supreme Court (*Minnesota v. Barber* 1890) struck down a Minnesota law that restricted the sale of meat to that which was slaughtered within the state because the U.S. Constitution prohibits the states from interfering with interstate commerce. Further contributing to the demise of early state level red meat legislation, the USDA’s Bureau of Animal Industry, later known as the Food Safety Inspection Service (FSIS), rejected claims that “dressed” meat was unwholesome and/or that unwholesome meat was entering the food chain (Libecap 1992). By the end of the decade, various farm groups and others interested in antitrust legislation lobbied Congress for limits to monopolistic behavior, particularly that of the beef packers. The outcome was the passage of the *Sherman Antitrust Act* (1890), codifying a set of norms for fairness in commercial trade. Despite the passage of the Act, the Beef Trust did not dissolve until 1912.

Federal Policy Governing the Domestic Market

Despite the implementation of the federal Meat Inspection Act and the state meat safety laws, concerns about the safety of red meat increased during the next two decades. During the Spanish-American war it was widely reported that canned meat was preserved with “secret” chemicals that caused widespread troop casualties

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 179

(Keuchel 1974). A few years later, Upton Sinclair published his book, *The Jungle* (1906), which is generally credited with raising public consciousness, in both foreign and domestic markets, about unhygienic processing practices and unsanitary processing facilities among U.S. meatpackers. President Roosevelt, who was skeptical of Sinclair's motives, commissioned an investigation. The subsequent Neill-Reynolds report, which was made public, indicated that Sinclair underrepresented the situation (Gaughan and Hutt 2004). Each of these events contributed to consumer outrage and a sharp decline in meat consumption. In addition, the meatpackers complained about irregularities in the rules and the ways in which they were enforced, leading them, along with producers and veterinarians, to lobby for stricter meat inspection rules that would standardize the inspection process and further protect the quality of their product (Ollinger and Mueller 2003; Wisner 1986b). The combination of these events—public outrage and declining meat consumption, industry outrage and lobbying efforts—led to the passage of the *Federal Meat Inspection Act* (1906). It addressed four key areas:

- *Animal health.* Each animal to be slaughtered for meat and entered into the human food chain via interstate commerce was required to undergo both ante- and post-mortem inspection via organoleptic examination—sight, touch, smell—and it was to be inspected throughout processing and packing.
- *Sanitation.* Equipment and handling standards for slaughter and packing facilities were established, and these operations were to be inspected for cleanliness on at least a daily basis.
- *Labeling.* A stamp was to be applied to the product to notify consumers that the meat had been “inspected and passed.” Animals and meat that did not pass inspection were to be labeled “condemned” and destroyed.
- *Jurisdiction.* The Secretary of Agriculture was granted the authority to carry out the law that included, but was not limited to, inspecting meatpacking facilities during the day or night, withdrawing inspection from any plant that failed to destroy condemned meat, prohibiting the use of false or misleading product names, and prohibiting interstate or foreign transportation of meats that have not been inspected.

Farmers slaughtering their own animals for intrastate sale continued to be exempt from the federal law.

While the development of red meat statutes and regulations was continuous, there was little substantive change relevant to food safety for decades (McEnroe

1971). Instead, red meat policy focused most heavily on codifying the rules and norms of fair trade (e.g., *Packers and Stockyards Act* 1921). This emphasis changed following World War II and the subsequent introduction of new foods and new production and processing practices (e.g., agrichemicals, additives, antibiotics, advanced meat recovery) that began to raise broader concerns among consumers about the wholesomeness and safety of food (Blumenthal 1990; Hulebak and Schlosser 2002; Vogt 1995). By the 1960s FSIS had shifted its efforts in detecting animal diseases to detecting both visible and invisible contaminants that may be hazards to human health (McEnroe 1971).

In the early 1960s, federal budget deficits directed attention toward efficiency. Within the agricultural sector that meant eliminating duplicate services, facilities, and personnel. The *Federal State Cooperative Act* (1962), more commonly known as the *Talmadge-Aiken Act*, was designed to eliminate this overlap by attaining “closer coordination and greater effectiveness and economy of administration of federal and state laws” (National Association of State Departments of Agriculture [NASDA] 2006:1). Under this cooperative agreement, FSIS had the authority to a) contract state inspectors to inspect small plants in remote locations, and b) supervise their inspection for reliability. The red meat and meat products inspected under this agreement were monitored more efficiently and they qualified for both interstate and export commerce (U.S. General Accounting Office [GAO] 1995). However, few states participated in this program, providing the impetus for the *Wholesome Meat Act* ([WMA] 1967). Passage of the *Wholesome Meat Act* was also linked to the growing consumer movement, including Ralph Nader’s claims of unsanitary conditions in state-inspected meatpacking plants (Rabin 1986) and President Johnson’s overall support for public health initiatives (McEnroe 1971).

The WMA was one of the most significant amendments to the FMIA. While opposed by livestock producers, meat processors, and farm organizations, President Johnson “sold” it to Congress as a public health measure (McEnroe 1971; Wiser 1986b). Among its requirements were mandatory ante- and post-mortem examinations of all red meat animals⁵ that were to be entered into either intra- or interstate commerce. The WMA also expanded federal regulatory authority (Wiser 1986b). Following its passage, FSIS issued regulations that identified good

⁵Non-amenable red meat species—buffalo, antelope, reindeer, elk, rabbits—are not covered by FMIA or WMA. The *Agricultural Marketing Act* (1946) included a provision that producers and/or processors of non-amenable meats could voluntarily request FSIS inspection on a fee-for-service basis. This Act also set out the legal authority upon which firms may request grading of meat and meat products (e.g., prime, choice, select) (Becker 2006:2).

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 181

manufacturing practices and defined adulteration.⁶ Handbooks were developed to further standardize the practices of industrial meat processing including the design specifications that the facilities were to adhere to including the interior materials (e.g., walls, floors) and the layout. Additionally, the WMA defined adulteration to mean diseased meat, meat lacking a valuable ingredient or containing harmful substances, and/or meat processed under unsanitary conditions (Ollinger and Mueller 2003). Subsequently, FSIS implemented a new testing and monitoring program. By setting standards and increasing inspection, testing, and certification, FSIS could show that it was protecting the health and welfare of the public at large. Nevertheless, the logic of the WMA was still rooted in commercial trade—showing consumers that industrial scale production of red meat was safe would ensure continued consumption.

Federal Policy and the States

Because the states retained jurisdiction over intrastate commerce, they were free to develop inspection programs as they saw fit (Wiser 1986b). Consequently, local inspection developed independent of the Federal system, which meant, in part, that each state had different requirements—some states had no red meat regulatory system at all, while others had very strict requirements. By 1960, 31 states had slaughter inspection programs—15 were mandatory and 16 were voluntary (Bowler 1964). Inspection of processed meat products was mandatory in 25 states. A 1963 congressional study found widespread weaknesses across these state programs such as ignoring the use of unsafe chemical additives, failures to detect or control parasites, and neglecting irregularities in the way the rules were implemented and enforced (Wiser 1986b). Therefore, the WMA included a provision mandating that states upgrade their regulations to be “at least equal to” the federal inspection system. It also included a provision stating that federal agencies would provide “assistance to States in developing their State inspection programs” (Wiser 1986b:186). Some members of Congress saw the WMA as trampling states’ rights as it required state inspected plants that fell under the “State-Federal Program” to be monitored and certified by FSIS (FSIS 2007a; Ollinger and Mueller 2003; GAO 1995). Because the State-Federal Program (i.e., those activities covered under the

⁶The definition of adulteration is also linked to the passage of the *Federal Food and Drug Act* (1906), more commonly known as the *Pure Food and Drug Act*, and further narrowed with the passage of the *Federal Food, Drug and Cosmetic Act* (1938), to mean any food that is a) filthy, putrid, decomposed or otherwise unfit; b) “prepared, packed; or held under insanitary [sic] conditions, whether or not any contamination occurs;” and/or c) made to appear as if it has greater value (Antle 1995:13).

WMA) was operated by the state in question, in contrast to the Talmadge-Aiken arrangements, the meat and meat products continued to be limited to intrastate sales (Becker 2006; NASDA 2006).

Science-Based Regulation

The next major change in food safety policy and regulation took place in the mid-1990s, and in contrast to previous changes, its justification was based on a particular outbreak and a particular pathogen. In 1993, 732 people from four states became ill following the consumption of ground beef at Jack in the Box restaurants (Stearns 2005). Of those who were ill, 195 were hospitalized and four children died. Both to ensure the safety of their meat ingredients and to diminish their legal liability, some large chain restaurants, including Jack in the Box, began to require that their suppliers use a Hazard Analysis and Critical Control Points (HACCP) system (Ollinger and Mueller 2003). The basic philosophy of HACCP is to identify each point, throughout the processing chain, that poses a hazard, and to take corrective action by developing preventive measures to alleviate the risk of foodborne illness (Hulebak and Schlosser 2002). A year following the Jack in the Box outbreak the USDA ruled that *E. coli* O157:H7 was an adulterant in ground beef (FSIS 1998). This ruling was upheld in federal court, giving FSIS the authority to block production and new distribution of ground beef with this contaminant by withdrawing inspection from a plant, effectively shutting down production, and/or seeking a court order to seize or detain the product (Becker 2006).

In 1996 FSIS published the “Pathogen Reduction; Hazard Analysis and Critical Control Points (HACCP) Systems; Final Rule.” This rule is perhaps the most significant regulatory change because it shifted FSIS inspection from a “command and control” system to an “audit” system (Dunn 2007). It included four mandates (FSIS 1996, 1998, NASDA 2006). First, red meat processors were required to establish and to implement their own sanitation standard operating plans (SSOPs). SSOPs are documents specifying the sanitation procedures that will be used both before and during processing to prevent contamination or adulteration. They also detail the record-keeping system used not only to monitor the system, but also to justify a product’s quality in a public way. Second, the Final Rule required regular microbial testing in slaughter facilities for two indicator organisms of sanitation; generic *E. coli* testing carried out by the plant and *Salmonella* testing carried out by FSIS (Becker 2006:3). Third, FSIS established *Salmonella* performance standards as a measure of the effectiveness of the SSOPs (FSIS 1996:38808). Again, the plants were expected to develop and implement their own process control measures for

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 183

meeting the standard. Finally, the plants were required to identify all critical points within their processing system, to develop a HACCP plan justified with scientific data, and to use the plan to monitor their system. By promoting it as a science-based approach, HACCP provided a means for bolstering the image of the food safety system following a widely publicized foodborne outbreak that shook the public's confidence in federal oversight (cf., Vanderpool, Ten Eyck, and Harris 2004). Under the "equal to" clause, states with state inspection programs were also required to adopt monitoring procedures for HACCP, including microbial testing, performance documentation, and certification of the corrective actions taken (GAO 1995).

Federal Rules and the Small Firm

In the early years of red meat food safety, small farms, and the local processors that they worked with, were likely to have been affected more by the changing structure of agriculture than the changing structure of the food safety system per se. As noted above, the "Beef Trust" engaged in oligopolistic and predatory practices in local markets. Meatpacking was a leading industry at the turn of the century (Page and Walker 1991:294) and the rules governing the safety of red meat were clearly designed to secure large scale foreign and domestic markets and to facilitate the accumulation of capital. In contrast, small and very small firms that served only their local communities were subject to state and municipal rules. These subnational rules raise at least two issues.

First, depending on the state in question, there were differences among municipalities, which excluded some producers from some nearby markets. Second, state-inspected meat and poultry are the only commodities restricted from entering interstate commerce (NASDA 2006:4). Today, criticism of the exclusion of state inspected meat from interstate commerce is framed in terms of fairness because a) foreign plants determined to be "equivalent," but not the same, can legally ship red meat into the U.S. and b) state level inspection programs must meet federal standards (cf., Becker 2006; FSIS 2007a). Thus, it is a disruption to the free flow of goods and a restriction on the ability of small agricultural entrepreneurs who, by virtue of a geopolitical designation, are impeded from fully realizing potential markets. In essence, while the rule may have positive impacts on public health, it is criticized for its negative impacts on small scale production. Despite this

controversy, to date, attempts to overturn this rule continue to be unsuccessful (Becker 2006).⁷

Immediately following the passage of the WMA, 17 states discontinued their meat inspection programs and today, 23 states do not have one. In these states, all red meat entering commerce must be inspected by FSIS and must abide by the federal rules and regulations. Thus, municipal systems of inspection were also discontinued. While these policies and regulations have been increasingly framed as a public health issue, debate has occurred over whether this shift is disproportionately difficult for small firms. In 1996, when the HACCP rule was issued, 17 percent of all federally-inspected slaughter plants and 42 percent of all federally-inspected packing plants were “small,” as were nearly all the plants engaged solely in intrastate trade.⁸ FSIS acknowledged the burdens to these operators by staggering the dates by which compliance was required. All plants had to design and adopt SSOPs by January 1997, but small plants and very small plants were not required to implement the procedures until 1999 and 2000 respectively (Ollinger and Mueller 2003). Between the 1960s and the 1990s, FSIS routinely issued handbooks to guide small plants, but they did not begin a HACCP outreach program in earnest until very recently (e.g., FSIS 2007b; McGinnis 2007).

While HACCP/SSOP gave processors a higher degree of flexibility than they had following the WMA, it also shifted the onus away from FSIS and to the processors themselves (e.g., testing, monitoring, record-keeping) (FSIS 1998; GAO 1995). These costs were lower for abattoirs that only slaughtered animals as they have few critical control points. The greatest expense was incurred by the smaller multipurpose plants, those that small producers often use because they offer a range of services—slaughter and processing, packing, and freezing for multiple species (GAO 1995). Consequently, it is believed that the combination of interstate trade rules and HACCP/SSOP has led to increased concentration in the processing sector, leaving smaller farmers with fewer options (NASDA 2006).

⁷The *Farm, Nutrition, and Bioenergy Act* (2007), which the U.S. House of Representatives passed in September, proposes to overturn this rule. But, given a) the controversy over this provision, and b) the numerous recalls and illness during the spring and early fall of 2007, it is likely to be stricken from the bill during the Senate “markup.”

⁸FSIS defines small plants as those with 10 to 499 employees and very small plants as those with fewer than 10 employees or annual sales less than \$2.5 million (Ollinger and Mueller 2003).

The Michigan Story

Regulation of red meat in Michigan began in 1895 with the enactment of *Public Act 193*. It focused on adulteration, fraud, and deception (Motts 1959). With the passage of *Public Act 120* (1903), the inspection of meat, by local municipalities, was authorized. *PA 120* defined the quality of meat in terms of public health, but fairness in commercial trade was an underlying current. Based on this rule, many meat packers who were not federally inspected (i.e., they were processing for intrastate trade) pressured their municipalities to develop an inspection program. Certification of the safety of their meat would establish its commercial quality and thus, it would be more competitive in the marketplace (Bowler 1964). Most municipalities chose not to develop an inspection program, even in the face of pressure from public health officials and university researchers who promoted its value in terms of health and welfare (e.g., Runnells 1924). The localities that did create an inspection program were permitted, by law, to set their own standards and fee schedule. In addition, they were authorized to govern whether or not the meats processed and inspected in neighboring municipalities could be sold within their jurisdiction. Farmers selling meat from animals that they raised, slaughtered, and dressed on their farms were exempt from state or municipal regulation. One might infer that, consciously or unconsciously, state legislators trusted that producers would deliver a safe product to their local markets, yet as with the federal program, inspecting all red meat producers may have been seen as simply impractical. In the decades that followed, nearly every state rule governing red meat focused on codifying the norms of fair trade including, but not limited to, shipping and distribution, contractual agreements, and advertising (Motts 1959).

According to Bowler (1964), by the 1950s, the inspection system in Michigan was under attack for a lack of consistency, inadequacy, and inequality among municipalities; it was also criticized for creating unfairness in trade, and mistrust and resentment among members of the red meat sector, including the inspectors themselves. In response, producers, processors, veterinarians, and sanitarians began lobbying for a uniform inspection program. In 1960, a survey of 43 Michigan meat packers found that the processors had two major concerns (Bowler 1964). The first concern was the lack of rule uniformity and the lack of reciprocity between cities and counties that restricted commerce. Second, the cost of inspection was high, due, in part, to a dearth of local inspectors. Respondents felt that they, as well as their producer-suppliers, were at an economic disadvantage compared with the four packing houses that received free federal inspection (Motts 1959). Furthermore, some charged that unwholesome meats were entering the food chain in the

municipalities without meat inspection, which put consumers at risk of illness and the industry at risk of tarnishing its reputation. Essentially, one way in which red meat inspection became socially constructed was in terms of public health. In contrast to the instigation of the federal inspection system in the late 1800s, which was framed as a trade issue, during the 1950s, the wholesomeness of meat in Michigan was framed as a public health issue. Some survey respondents saw no need to change the current system, but most felt both that the greatest regulatory problem was the lack of a state meat inspection program, and that the State had both a moral and a financial responsibility for overseeing such a program (Bowler 1964).

Between 1960 and 1964, many bills were introduced in the state legislature in an attempt to establish a statewide inspection program. These efforts failed due to unresolved questions about which department would be responsible for meat inspection, how the program would be financed, and what would be the role of local inspectors. Some health department officials felt that inspection was best handled at local levels, and that they were best equipped to ensure the safety of the meat for their communities. Despite these issues and concerns, *Public Act 280* passed in 1965, establishing a red meat inspection program that covered each of the key areas regulated by the federal rule—animal health, sanitation, labeling, and jurisdiction, which was granted to the Michigan Department of Agriculture (MDA). This law created a consistent set of food safety standards for all animals and facilities not federally inspected, and it permitted the transfer of local inspectors to the MDA. Our data suggest that Michigan's red meat laws were perceived as the most stringent laws in the nation; it was believed that they ensured that the citizens of the state received the safest meat in the country. One such example was the Comminuted Meat Law (*Public Act 228* 1952). It defined adulteration and set out specific standards, beyond the federal rules, for what ingredients could and could not be added to ground and mixed meat products. As Fortin (2008:25) states, the law was looked upon with a great sense of pride. Some participants even went as far as to claim that during this period, Michigan produced and inspected red meat was the safest in the world. The philosophy behind Michigan's inspection program was "rule of reason," which meant "that judgment of facilities and equipment was based on what is necessary to produce a wholesome product under sanitary conditions" (Riley, Allen, and Jackson 1984:27).

In 1967 there were 202 state- or federally-inspected abattoirs in Michigan (Huie 1968). These plants were concentrated around the larger population centers, particularly metropolitan Detroit, but nearly every county in the Lower Peninsula

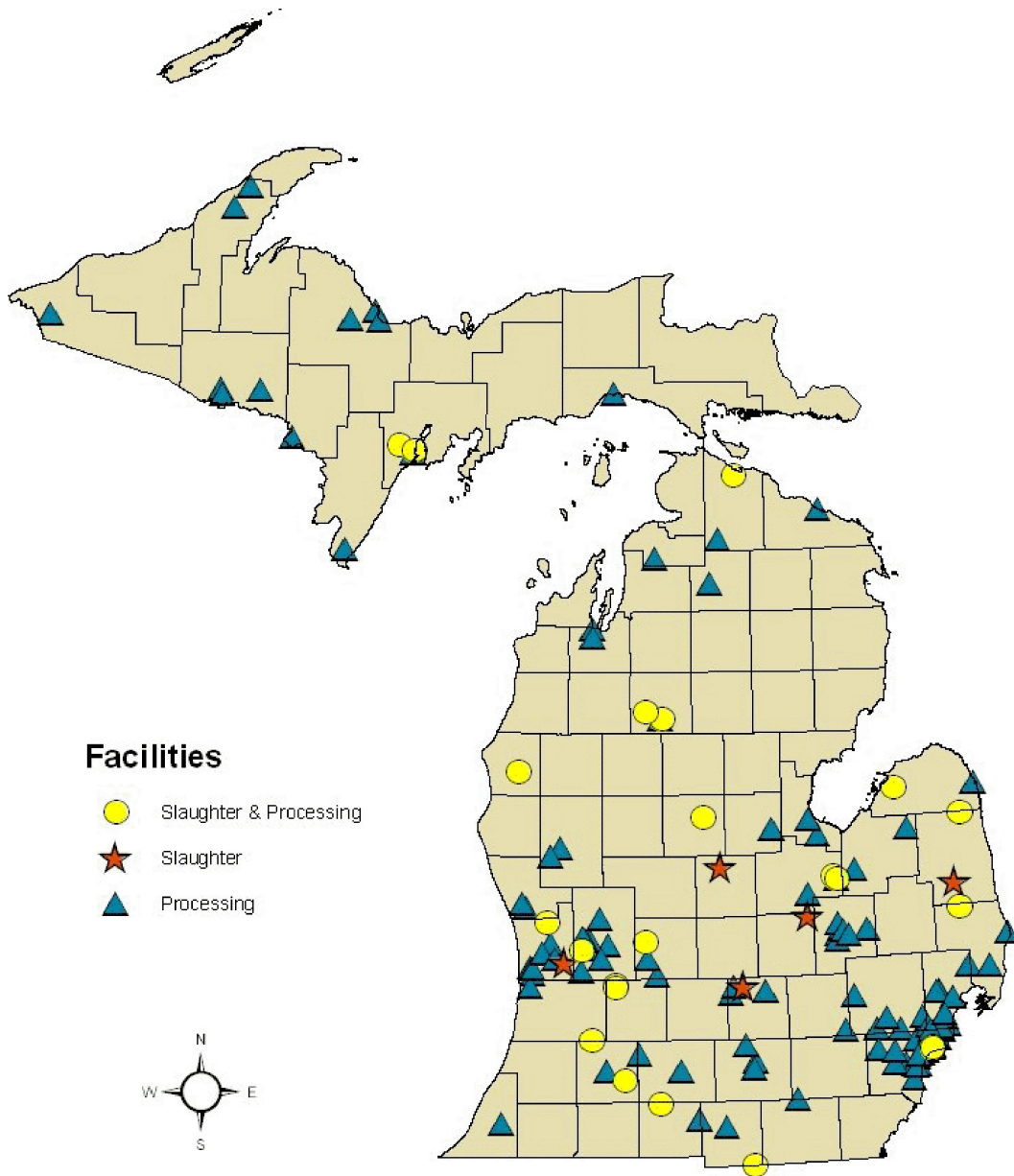
had at least one slaughterhouse. By the early 1980s the number of slaughter plants dropped to 170, largely due to industry concentration in the Great Plains, which included specialized processors, new facilities, and low wage contracts that made possible the packing and shipping of cheaper “boxed” and “table-ready” cuts of meat (Riley and Hiemstra 1981a). Many plants also closed because it was cost prohibitive for them to modernize their slaughter and processing lines. The largest closure of slaughterhouses took place in the urban centers including Detroit, which lost nearly all of its plants by 1980 (Riley et al. 1984). In October 1981 the state ended its meat inspection program. Several people we interviewed indicated that its elimination was the result of fiscal crisis. Producers who wished to sell retail were now required to seek out federally-inspected meat packers. The plants that intended to seek federal inspection were required to submit their facility blueprints to FSIS for review by the spring of 1983, indicating how they would come into compliance with the federal rules. If FSIS approved the plans, the plant was to be remodeled within 18 months. Consequently, additional plants were closed due to the costs of complying with both existing and evolving federal rules such as new forms of testing and management (Ollinger and Mueller 2003; Riley et al. 1984).

Food Safety Rules and the Alternative Red Meat Sector

While the state is no longer in the meat inspection business, it still maintains a wide range of rules governing the slaughter of meat for one’s own consumption, the selling of wholesome meat, sanitation, and the content of comminuted meats. However, where necessary, the rules have had to be modified to comply with the WMA preemption clause. This clause stipulates that a state regulation cannot exceed the requirements of a federal regulation (Fortin 2008:8), and the federal regulations have become increasingly problematic for the alternative sector. For example, a participant in our study stated that the federal food safety rules create a significant “*regulatory barrier between processing and marketing*” for specialty red meat producers in Michigan. Our analyses reveal that these regulatory barriers arise in three specific areas—slaughter, packing, marketing.

Slaughter. Slaughter is expensive. In contrast to the rules for poultry, which permit on-farm slaughter and dressing of up to 10,000 birds in a calendar year without federal inspection (Lehnert 2002), red meat cannot be sold at retail without FSIS inspection. Currently, there are only 30 USDA-inspected abattoirs in Michigan. As Figure 1 demonstrates, USDA inspected slaughterhouses, as well as slaughterhouses that also process meat, are concentrated in the Lower Peninsula, many of which are in the Thumb and Southwest regions. Particularly problematic

FIGURE 1. USDA INSPECTED SLAUGHTER AND PROCESSING FACILITIES IN MICHIGAN (Colunga and Rathka 2006).



BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 189

is the lack of convenient access to inspected facilities, especially plants that do both the slaughtering and the processing of the meat, which would include cutting, packing, labeling, and freezing in retail packs. One respondent in our study said that his/her livestock must be “trucked” up to two and a half hours to reach an inspected abattoir. Similarly, a recent survey of Michigan beef producers (n=52 farms, from 27 counties), conducted by Michigan State University Extension educators, found, on average, that the animals were transported 25 miles to slaughter with some going as far as 95 miles (Gould and Lindquist 2005). In one reported case, the producer travels 200 miles for processing (Cantrell 2002). Furthermore, participants in our research claimed that because there are so few facilities, the waiting list for scheduling slaughter can be up to seven months, and they risk losing access to slaughtering/processing during deer season as hunters are the “bread and butter” of these smaller facilities (Riley and Hiemstra 1981b).

Besides the cost of time and transportation, some participants believe that the growing number of rules and the escalating cost of complying with the rules have caused both a decline in the number of abattoirs inspected and higher costs for slaughter at the remaining facilities. While FSIS will conduct ante- and post-mortem inspection up to eight hours a day, free of charge, the facilities themselves must meet an increasing range of regulatory standards—handling of the animal before slaughter (e.g., water, pens, flooring), treatment of the animal on the kill floor (e.g., stunning before shackling), processing of the carcass (e.g., skinning, washing, cooling), and disposal of the waste.⁹ Thus, beyond slaughter HACCP, these rules include, but are not limited to, monitoring electronically identified cattle for bovine tuberculosis [TB], which is currently specific to Michigan (Kaneene, Miller, and Meyer 2006); humane slaughter practices (FSIS 2005b); and carcass disposal, including the management of “Specified Risk Materials” (e.g., brain, nerve tissue) (FSIS 2005c). These standards create high overhead costs for existing facilities (Ollinger and Ballenger 2003), as well as economic, labor, and sociotechnical barriers for producers who wish to establish their own facilities (Knudson and Peterson 2007).

Packing. While the increasing number of rules and consequent increases in the expense of slaughter were seen as barriers, participants in our study saw these

⁹The handling of waste is an important issue for small processors as they typically must pay to have their waste picked-up or they receive only a small fee for the various byproducts. In contrast, leather and pet food companies, as well as other types of rendering businesses, will pay large facilities for their waste and this payment may be high enough that the byproducts become income generators for the plant (Knudson and Peterson 2007; Riley and Hiemstra 1981a).

problems as magnified at the processing stage because of the ambiguous nature of the regulations. The rule identified as most problematic, especially for small and very small processors, was HACCP. The participants identified at least four overlapping issues that relate to the expense and/or complexity of HACCP compliance (also see Nganje and Mazzocco 2000:241).

First, a HACCP program is expensive to develop. Large processors often had HACCP-like programs in place before the “Final Rule” (FSIS 1996) was established, which meant that they were familiar with the general principles of HACCP and had already altered at least some of their practices to enable compliance. For those without a similar program, the learning curve is steep, implementation is expensive, and obtaining scientific justification of their program is complex.

Second, HACCP maintenance is also problematic. As more than one participant noted, large processors are likely to have full-time technical experts on staff to monitor and regularly adjust the facilities’ HACCP plans as the conditions of production and/or the rules change. In addition, they often have the resources necessary to alter practices and/or equipment as needed for compliance. Small processors must pay high fees for consultants or navigate through the rules and through the process on their own. And, they are, of course, less likely to have the resources to alter their operation.

Third, the federal outreach program is inadequate. As noted above, FSIS initially planned to provide technical assistance (e.g., generic HACCP plans) to small plants (GAO 1995), but their outreach program is still in its initial development stage, more than 10 years following the Final Rule. Some members of the sector that we interviewed found the appropriateness and the usefulness of the outreach materials developed to date to be questionable, saying that some guides (e.g., HACCP Model of Irradiation) are unsuitable for the alternative agrifood sector (FSIS 2006). It is too early to tell whether more recent efforts will be effective.

Last, rule interpretation is inconsistent. Some members of the Michigan alternative red meat sector claim that FSIS regulators have been unhelpful at best and downright hostile at worst with respect to rule interpretation. As one survey participant stated, “there doesn't seem to be a consensus among regulators what the law says or how to apply it. Different inspectors have their own interpretation of regulations . . . [and] . . . there is no consistency in the application.” Similarly, an agricultural lawyer stated, “the federal rules ‘are so poorly written it is hard—even for government officials—to determine exactly what they mean’” (quoted in Cantrell 2002).

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 191

According to the interviewees, the problems with HACCP have caused some processors, who fear that FSIS will shut them down, to reduce the services that they offer. For example, some processors have limited their product line and/or opted out by switching to “custom exempt”¹⁰ processing.

Marketing. Confusion surrounding the rules limits producers’ access to some markets. As discussed previously, red meat requires continuous federal inspection at slaughter to be sold at retail. In addition, producers are required to be licensed by the state to engage in retail sales. One primary way in which our participants wished to retail their products was direct to consumers at farmers’ markets. However, no state or federal law specifically governs the safety of red meat at farmers’ markets (Hamilton 2002). According to our participants, there are few farmers’ markets in Michigan with a policy addressing red meat and those that do exist do not necessarily have consistent rules. Consequently, each farmers’ market manager approaches the sale of red meat differently. According to the farmers’ market managers surveyed, some do not ask questions about the meat sold at their market; they have a high level of trust in the producers. Others are concerned about a wide range of food safety-related issues including: a) the maintenance of proper temperature control; b) compliance with other USDA and MDA regulations; c) working with the local health department and/or MDA inspectors (e.g., getting timely responses to questions, getting mixed messages, inadequate communication); d) conflict with any one of these agencies over rule interpretation; and e) the ability of MDA to monitor meat storage adequately. Thus, market managers are concerned about the burden of regulations on the one hand, and proper inspection and certification on the other hand. The response of some market managers is to forbid the sale of red meat outright.

Food Safety Policy and the Specialty Red Meat Producer

According to one industry expert, when Michigan gave up its meat inspection program, the red meat producers and processors felt the state abandoned them. Over the last 25 years, sector members were forced to “get out,” alter their production and/or marketing scheme, or work on their own to come into compliance with the federal rules. This transition has been difficult. As our participants indicated, the federal rules of the current “audit” state (Dunn 2007)

¹⁰The slaughter and processing of meat for consumption by the person arranging for the services is exempt from most FSIS inspection rules. Facilities that specialize in “custom exempt” processing are inspected by FSIS on only a periodic basis (FSIS 2005a).

differ significantly from the once dominant “poke and sniff” inspection and the “command and control” management of earlier decades. And, this regulatory climate raises at least two key problems for the alternative red meat sector in Michigan. First, it is argued that small producers are subject to the same broad range of federal rules as large producers who engage in mass commodity production. It is unclear to our respondents how these regulations are applicable for, or appropriate to, alternatively produced livestock as their animals are not confined to corrals where they stand in their own feces, are not fed agrichemicals that would require residue monitoring, and do not consume feed that includes material from the bodies of other animals (i.e., they will not be exposed to the prions that cause spongiform encephalopathies) (Clancy 2006b). Moreover, their animals are not slaughtered or processed on high speed lines where mistakes are likely to happen (cf., Hennessy 2005; Juska et al. 2003).

Second, the rules and regulations have created significant regulatory burdens to increasing the volume of sustainably produced red meat in Michigan, and consequently, the rules and regulations create constraints to “agriprenurship” (e.g., farm-to-school, slow food restaurants). While, some members of the specialty red meat community have no interest in state inspection—they already have federal inspection or they are exempt from federal inspection—other members believe the lack of a state inspection program is at the root of this burden, a sentiment echoed by the Michigan Food Policy Council (2006). These respondents believed that a system of state meat inspections is “better” for small farmers and processors because state regulations are more manageable than federal regulations and state inspected meats are safer for consumers. In addition, they also indicated that state regulators are more approachable, more willing to provide technical guidance, and more invested in the success of Michigan agriculture and its potential contributions to the state economy. This result is consistent with a study of state inspected processors and state regulators in Kansas and Minnesota, both of which have red meat inspection programs (Slaughter et al. 2001). One key reason they have maintained their programs is to develop local or niche markets. Our respondents indicated that without an inspection program producers are unable to develop and expand their markets. Without well developed markets, producers cannot invest in alternative forms of animal production. Others felt that there was a danger that meat slaughter and processing will go underground if access to inspected facilities does not improve as demand for specialty meat products increases. This finding echoes that of small processors in Kansas City, Missouri who felt that the loss of plants in rural

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 193

areas would cause “more slaughter activities [to] be performed illegally or privately on farms under uncontrolled sanitary conditions” (GAO 1995).

Discussion

The goal of this study was to determine whether food safety policy plays a role in the development of the specialty red meat sector, and ultimately how that role might influence the quality of life for producers. Examining the history of federal and state food safety statutes and regulations contextualizes the policy structure in which the Michigan specialty red meat industry is embedded. These rules illustrate at least three concerns about the political economy of red meat food safety.

First, the rules governing the safety of red meat are rooted in a larger agrifood system. They were not created in isolation from the statutes and regulations developed and enforced by other nations engaged in the global market. Under the guise of food safety, the policy of foreign nation-states emerged out of questions about fairness in trade (Libecap 1992). Large-scale capital intensive firms responded by requesting and supporting a system of standards and certification that would provide not only an efficient means for demonstrating wholesomeness, but also an efficient means for eliminating barriers to these international markets (cf., Gereffi 1994). The rules are also embedded in a broader U.S. state and federal context in which there has been, and continues to be, a struggle between a) overlapping groups that want to mitigate the insidious power of big business and/or ensure public safety, and b) the demands of leading firms and others who wish to remove barriers to trade in the domestic market. Again, industry leaders supported the development of a red meat food safety system because it provided a means of responding to scandals and scares, which, in turn, eliminated barriers to interstate markets. The outcome was a set of rules that not only eliminated barriers for large-scale producers and processors, they also created a positive externality in that they erected sociotechnical barriers for small firms that wished to enter and/or participate in the market.

Second, the accreted rules draw our attention to red meat food safety as a progressive public good, but simultaneously, they illustrate how the dominant agrifood system becomes hardened and undemocratic. The statutes and regulations governing red meat food safety were created incrementally over a period of 125 years. The outcome is a complex system of statutes and regulations that are difficult to interpret and to implement. Once codified and institutionalized, altering a statute requires congressional intervention and this intervention is often influenced by the dominant political and economic actors that have sufficient resources to do so.

Regulations are inherently easier to alter, but they are also more easily influenced by powerful actors. As a result, the rules were designed without equal participation from small-scale producers and processors. They were also created with little regard to the “rights” of the states to determine what is best for their citizens and/or the local conditions, the capability of the states to oversee and manage an emerging and dynamic food safety system, and/or the responsibilities of the states to serve their local businesses, as well as their residents who wish to access alternative red meat products.

Last, red meat food safety statutes and regulations coordinate the market around “industrial” and “commercial” qualities (Boltanski and Thévenot 2006; Eymard-Duverney et al. 2005; Murdoch, Marsden, and Banks 2000; Ponte and Gibbon 2005; Wilkinson 1997). They promote the dominant ideas, technologies, activities, and practices that produce red meat products that can be evaluated based on “objective” criteria, criteria measured with precision and inspected, certified, and enforced by experts (Biggart and Beamish 2003). These industrial qualities are justified by the logic of mass commodity production, namely efficiency and reliability. The rules were also designed to lower transaction costs by reducing barriers to trade, and thus, to facilitate exchange based on price. The primary justification of this commercial quality is the accumulation of wealth. In essence, the rules governing red meat food safety accommodate the large scale capital intensive sector. However, the preference awarded to industrial and commercial qualities undermines the wide range of qualities associated with specialty meats and meat products such as trust in the seller or the place produced, use of production practices that are ecologically sound and/or promote perceptions of “naturalness” and “healthfulness,” and the provision of other social benefits that would improve producers quality of life, as well as the quality of life of their families, workers, rural neighbors, and consumers (Lyson and Green 1999; Renting et al. 2003).

Food Safety Policy and Quality of Life

As Flora (1999) points out, quality of life is not about consumption and/or material wealth. Instead it encompasses a range of issues related to feeling good, including one’s ability to make choices and one’s satisfaction with their productive work, as well as their engagement in interpersonal relationships (also see Schuessler and Fisher 1985). Farmers may, for instance, “feel good” when they offer products that go beyond industrial and commercial qualities such as those that were produced using sustainable practices and/or those that contribute to the local economy. These are the types of qualities embedded in the alternative agriculture

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 195

movement. We found three key barriers that impede producers' ability to make choices in the ways in which they produce and market red meat and create dissatisfaction with the alternative red meat sector: access to slaughter, HACCP, and rule complexity.

When the state red meat inspection system was discontinued, members of the small-scale and/or alternative sector lost access to officials with the necessary knowledge and information to assist with rule compliance, which was only magnified when HACCP was instituted. The loss of expertise contributed to the high costs of compliance with the rules and it contributed to the decline in inspected slaughter and processing facilities. Today, when a meat packer can be found, they are either further away from the producer, which results in higher transportation and transaction costs, or less dependable as they cater to hunters rather than specialty meat producers. Thus, besides the increasing economic costs of meat packing, producers must endure the emotional costs of their frustration with both the lack of slaughter and processing options available to them and the lack of institution support for them.

The complexity of the rules also creates barriers to niche marketing. Some producers are unable to partake in one of the fastest growing direct to consumer niche markets—farmers' markets—due to restrictions imposed at the local level out of fear and uncertainty about the rules. The inability to sell at farmers' markets limits producers' opportunities to engage with consumers directly, that is, to create and maintain the interpersonal relationships of civic-based agriculture (Lyson 2004; Ross 2006). Interacting with consumers at farmers' markets gives producers a way to inform others about the qualities of their products, and/or alternatively produced products more broadly (Andreatta and Wickliffe 2002). Interacting with the producer is also a key reason that some consumers purchase food at farmers' markets. Farmers' markets give them an opportunity to learn and to ask questions about food production, to request particular products and/or qualities, to provide feedback, and/or to exercise choice in the foods they buy and in the foods they eat. Thus, quality of life is affected when specialty meat producers have limited options for marketing their goods.

In essence, we find that specialty producers must exist in two divergent realities. On the one hand, they typically operate in markets that promote trust in local producers, practices that tread lightly on the earth, and quality of life. On the other hand, specialty red meat producers must negotiate a complex web of national, state, and local statutes and regulations, as well as perceptions about the rules that subject them to testing, monitoring, and certification of precisely defined attributes.

Managing these realities is filled with uncertainty, which makes alternatively produced red meat both difficult and stressful to produce and to market.

Policy and Sustainability: Where Do We Go From Here?

Sustainability is a process (Maxey 2006); it is not a state or endpoint in which a set of rules ought to be simply, and uncritically, followed. Sustainability involves the collective efforts of a wide range of actors throughout the agrifood system. Specialty red meat is embedded in a much larger agrifood system that is largely industrialized, and it includes a vast range of human and nonhuman entities, activities, and processes that bring a commodity into being, into the market, and into the hands and mouths of consumers. This research reinforces the need to examine alternative agriculture within this larger structure. While our case study suggests many questions that need further empirical investigation, we focus on three issues that are specific to policy.

First, with respect to food safety and the alternative red meat sector, we must explore how to improve producer access to inspected meat packing facilities. This line of investigation ought to consider whether producers' and processors' training and outreach needs are being met and what the role of state and federal agencies ought to be in meeting these needs. However, we should not overlook the potential role that collaborative arrangements might have in improving coordination and cooperation within the sector, and how collaborative arrangements might be fostered without impinging on some values that matter most to farmers such as their feelings of independence and being one's own boss (Ross 2006).

Second, we must examine the role of food safety rules in other sectors relevant to specialty red meat. A range of comparative studies will be critical in finding viable statutory and regulatory alternatives (cf., Beaulieu 2005) that will promote safety, yet incorporate the qualities of alternative and/or more sustainably produced meat and meat products.

Last, we need a more detailed analysis of a wider range of existing statutes and regulations including the linkages between them, their specific impacts on producer scale and product qualities, and how they are understood at each level of the value chain (Worosz, Knight, and Harris 2008). Understanding this context will give us a better understanding of the range of the actual barriers that small-scale alternative producers face and it will highlight potential opportunities to include these voices and their interests in larger policy debates.

References

- Abeles-Allison, M. and L. J. Connor. 1990. *An Analysis of Local Benefits and Costs of Michigan Hog Operations Experiencing Environmental Conflicts*. Agricultural Economics Report, 536. East Lansing, MI: Michigan State University Extension.
- Agricultural Marketing Act*. 1946. 7 U.S.C. §1621.
- Andreatta, S. and W. Wickliffe II. 2002. "Managing Farmer and Consumer Expectations: A Study of a North Carolina Farmers Market." *Human Organization* 61:167-76.
- Antle, J.M. 1995. *Choice and Efficiency in Food Safety Policy*. Washington, DC: AEI Press.
- Beaulieu, L.J. 2005. "Breaking Walls, Building Bridges: Expanding the Presence and Relevance of Rural Sociology." *Rural Sociology* 70:1-27.
- Becker, G.S. 2006. *Meat and Poultry Inspection: Background and Selected Issues*. CRS Report for Congress, RL32922. Washington, DC: Congressional Research Service.
- Biggart, N.W. and T.D. Beamish. 2003. "The Economic Sociology of Conventions: Habit, Custom, Practice, and Routine in Market Order." *Annual Review of Sociology* 29:443-64.
- Bishop, P.L., W.D. Hively, J.R. Stedinger, M.R. Rafferty, J.L. Lojpersberger and J.A. Bloomfield. 2005. "Multivariate Analysis of Paired Watershed Data to Evaluate Agricultural Best Management Practice Effects on Stream Water Phosphorus." *Journal of Environmental Quality* 34:1087-101.
- Blumenthal, D. 1990. "Red No. 3 and Other Colorful Controversies." *FDA Consumer* 24(4). Retrieved March 18, 2008 (<http://www.fda.gov/bbs/topics/CONSUMER/CON00063.html>).
- Boltanski, L. and L. Thévenot. 2006. *On Justification: Economies of Worth*. Princeton, NJ: Princeton University Press.
- Bowler, G.E. 1964. *A Review of the Attempts to Obtain a Uniform Statewide Meat Inspection Law in Michigan: Reference to the Situation in other States--A Proposed Law*. Ann Arbor, MI.
- Cantrell, P. 2002. "States Get Back into Meat Business: Inspection Hurdles in Michigan Separate Farmers and Eager Consumers." *The New Entrepreneurial Agriculture: A Key Piece of the Farmland Protection Puzzle*. Beulah, MI: Michigan Land Use Institute. Retrieved March 18, 2008 (<http://mlui.org/growthmanagement/fullarticle.asp?fileid=16414>).

- Charmaz, K. 2000. "Grounded Theory: Objectivist and Constructivist Methods." Pp. 509-535 in *Handbook of Qualitative Research*, edited by N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA: SAGE Publications.
- Chism, J. and R. Levins. 2004. "Farm Spending and Local Selling: How Do They Match Up?" *Minnesota Agricultural Economist* 676:1-4.
- Clancy, K. 2006a. *Greener Eggs and Ham: The Benefits of Pasture-Raised Swine, Poultry, and Egg Production*. Washington, DC: Union of Concerned Scientists.
- _____. 2006b. *Greener Pastures: How Grass-fed Beef and Milk Contribute to Healthy Eating*. Cambridge, MA: Union of Concerned Scientists.
- Cochrane, W.W. 1993. *The Development of American Agriculture: A Historical Analysis*. Minneapolis, MN: University of Minnesota Press.
- Colunga, M. and K. Rathka. 2006. "USDA-Inspected Meat Facilities Map." Raw data from the FSIS Meat, Poultry and Egg Product Inspection Directory. East Lansing, MI: Michigan State University, Computational Ecology and Visualization Laboratory and C.S. Mott Group for Sustainable Food Systems at Michigan State University.
- Conner, D.S., V. Campbell-Arvai and M.W. Hamm. 2008. "Value in the Values: Opportunities for Pasture-raised Livestock Products in Michigan." *Renewable Agriculture and Food Systems* 23:62-9.
- Conner, D.S. and M.W. Hamm. 2005. "Adventures in Pasture-based Agriculture: Opportunities, Obstacles and Outlook." Presented at the annual meeting of the Agriculture, Food and Human Values Society, June 12, Portland, OR.
- Constance, D. and A. Bonanno. 1999. "CAFO Controversy in the Texas Panhandle Region: The Environmental Crisis of Hog Production." *Culture & Agriculture* 21:14-26.
- Cox, L.N. and J.J. Cooper. 2001. "Observations on the Pre- and Post-weaning Behaviour of Piglets Reared in Commercial Indoor and Outdoor Environments." *Animal Science* 72:75-86.
- Cronon, W. 1991. *Nature's Metropolis: Chicago and the Great West*. New York: W. W. Norton & Co.
- DeLind, L.B. 1998. "Parma: A Story of Hog Hotels and Local Resistance." Pp. 23-38 in *Pigs, Profits and Rural Communities*, edited by K. Thu and E. Durrenberger. Albany, NY: State University of New York Press.
- Digiaco, G., C. Iremonger, L. Kemp, C. van Schaik and H. Murray. 2001. *Sustainable Farming Systems: Demonstrating Environmental and Economic Performance*. St. Paul, MN: Minnesota Institute for Sustainable Agriculture.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 199

- Duffy, M. 1998. *How Small Farms Compete*. Ames, IA: Iowa State University Extension.
- Dunn, E. 2007. "Escherichia coli, Corporate Discipline and the Failure of the Sewer State." *Space and Polity* 11:35-53.
- Eymard-Duvernay, F., O. Favereau, A. Orléan, R. Salais and L. Thévenot. 2005. "Pluralist Integration in the Economic and Social Sciences: The Economy of Conventions." *Post-Autistic Economics Review* 34:22-40.
- Farm, Nutrition, and Bioenergy Act*. 2007. H.R. 2419, 110th Congress, introduced by Colin C. Peterson (MN) on May 22.
- Federal Food and Drug Act (Pure Food and Drug Act)*. 1906. Pp. 768-772, Chapter 3915, 34 Stats. 768.
- Federal Food, Drug, and Cosmetic Act*. 1938. 1040 et seq. 52 Stat.
- Federal State Cooperative Act (Talmadge-Aiken Act)*. 1962. 7 U.S.C. §450.
- Federal Meat Inspection Act*. 1906. Pp. 669-697, Chapter 3913. 34 Stat. 674.
- Flora, C.B. 1999. "Quality of Life Versus Standard of Living." *Rural Development News* 22:1-3.
- Foltz, J., D. Jackson-Smith and L. Chen. 2002. "Do Purchasing Patterns Differ Between Large and Small Dairy Farms: Econometric Evidence from Three Wisconsin Communities." *Agricultural and Resource Economic* 31:28-38.
- Fortin, N.D. 2008. "State Governments." Pp. 1-28 in *Food Regulation: Law, Science, Policy, and Practice*. Hoboken, NJ: Wiley & Sons.
- Friedland, W.H. 1991. "Introduction: Shaping the New Political Economy of Advanced Capitalist Agriculture." Pp. 1-34 in *Towards a New Political Economy of Agriculture*, edited by W.H. Friedland, L. Busch, F.H. Buttel, and A.P. Rudy. Boulder, CO: Westview Press.
- FSIS (Food Safety and Inspection Service). 1996. "Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems; Final Rule." Pp. 38805-989 in, 9 CFR Part 304, et al., issued by U.S. Department of Agriculture.
- _____. 1998. "Pathogen Reduction and HACCP Systems...and Beyond: The New Regulatory Approach for Meat and Poultry Safety." Retrieved August 23, 2005, (<http://www.fsis.usda.gov/OA/background/bkbeyond.htm>).
- _____. 2005a. "Exemptions." Pp. 90-7 in, 9 CFR §303.1, issued by U.S. Department of Agriculture.
- _____. 2005b. "Humane Slaughter of Livestock." 9 CFR §313, issued by U.S. Department of Agriculture.
- _____. 2005c. "Specified Risk Materials from Cattle and Their Handling and Disposition." 9 CFR §310.22, issued by U.S. Department of Agriculture.

- _____. 2006. "Food Safety Resources: Hazard Analysis and Critical Control Point (HACCP) Systems: Small and Very Small Plant Outreach." U.S. Department of Agriculture, Washington, D.C.
- _____. 2007a. "FSIS Review of State Programs: Summary Report." U.S. Department of Agriculture, Washington D.C.
- _____. 2007b. "Small & Very Small Plants." Retrieved October 10, 2007, (http://www.fsis.usda.gov/Small_Very_Small_Plants/index.asp).
- GAO (U.S. General Accounting Office). 1995. *Meat and Poultry Inspection: Impact of USDA's Food Safety Proposal on State Agencies and Small Plants*. Report to Congressional Requesters, GAO/RCED-95-228. Washington, DC: U.S. General Accounting Office.
- Gaughan, A. and P.B. Hutt. 2004, "Harvey Wiley, Theodore Roosevelt, and the Federal Regulation of Food and Drugs" *Legal Electronic Document Archive (LEDA) at Harvard Law School*, Retrieved November 5, 2007 (<http://leda.law.harvard.edu/leda/data/654/Gaughan.html>).
- Gereffi, G. 1994. "The Organization of Buyer-driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks." Pp. 95-122 in *Commodity Chains and Global Capitalism, Contributions in Economics and Economic History*, edited by G. Gereffi and M. Korzeniewicz. Westport, CN: Greenwood Press.
- Goldberg, J.J., E.E. Wildman, J.W. Pankey, J.R. Kunkel, D.B. Howard and B.M. Murphy. 1992. "The Influence of Intensively Managed Rotational Grazing, Traditional Continuous Grazing, and Confinement Housing on Bulk Tank Milk Quality and Udder Health." *Journal of Dairy Science* 75:96-104.
- Gomez, M. and L. Zhang. 2000. "Impacts of Concentration in Hog Production on Economic Growth in Rural Illinois: An Econometric Analysis." Presented at the annual meetings of the Agricultural Economics Association, July 31 - August 2, Tampa, FL.
- Goodman, D. 2003. "The Quality 'Turn' and Alternative Food Practices: Reflections and Agenda." *Journal of Rural Studies* 19:1-7.
- Gould, K. and J. Lindquist. 2005. "Direct Marketing Beef Survey." *Cattle Call* 10:3.
- Hamilton, N.D. 2002. "Farmers' Markets Rules, Regulations and Opportunities." An Agriculture Law Research Article. University of Arkansas, Fayetteville, AK.
- Handfield, R.B. and E.L. Nichols, Jr. 2002. *Supply Chain Redesign: Transforming Supply Chains into Integrated Value Systems*. Upper Saddle River, NJ: Prentice Hall.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 201

- Heffernan, W.D. and D.H. Constance. 1994. "Transnational Corporations and the Globalization of the Food System." Pp. 29-51 in *From Columbus to Conagra: The Globalization of Agriculture and Food*, edited by A. Bonanno, L. Busch, W.H. Friedland, L. Gouveia, and E. Mingione. Lawrence, KS: University Press of Kansas.
- Hendrickson, M. and W. Heffernan. 2005. "Concentration of Agricultural Markets." Consolidation in the Food System. Food Circles Networking Project, University of Missouri Extension, Columbia, MO.
- Hennessy, D.A. 2005. "Slaughterhouse Rules: Animal Uniformity and Regulating for Food Safety in Meat Packing." *American Journal of Agricultural Economics* 87:600-9.
- Henry A. Wallace Center. 2001. "Making Changes: Turning Local Visions into National Solutions." Henry A. Wallace Center for Agricultural & Environmental Policy. Winrock International, Arlington, VA.
- Hinrichs, C.C. and R. Welsh. 2003. "The Effects of the Industrialization of US Livestock Agriculture on Promoting Sustainable Production Practices." *Agriculture and Human Values* 20:125-41.
- Huie, J.M. 1968. "Number, Size, and Location of Beef Slaughter Plants in Michigan." Ph.D. dissertation, Department of Agricultural Economics, Michigan State University, East Lansing, MI.
- Hulebak, K.L. and W. Schlosser. 2002. "Hazard Analysis and Critical Control Point (HACCP) History and Conceptual Overview." *Risk Analysis* 22:547-52.
- Ilberry, B., D. Maye, M. Kneafsey, J. Jenkins and C. Walkley. 2004. "Forecasting Food Supply Chain Development in Lagging Rural Regions: Evidence from the UK." *Journal of Rural Studies* 20:331-344.
- Juska, A., L. Gouveia, J. Gabriel and K.P. Stanley. 2003. "Manufacturing Bacteriological Contamination Outbreaks in Industrialized Meat Production Systems: The Case of *E. coli* O157:H7." *Agriculture and Human Values* 20:3-19.
- Kaneene, J.B., R. Miller and R.M. Meyer. 2006. "Abattoir Surveillance: The U.S. Experience." *Veterinary Microbiology* 112:273-82.
- Keuchel, E.F. 1974. "Chemicals and Meat: The Embalmed Beef Scandal of the Spanish-American War." *Bulletin of the History of Medicine* 48:249-64.
- Kilpatrick, J. 2001. "Concentrated Animal Feeding Operations and Proximate Property Values." *Appraisal Journal* 69:301-6.
- Klober, K. 2001. "Filling the Small Farm Hog Niche." *Small Farm Today* 18:21-2.

- Knudson, W.A. and H.C. Peterson. 2007. *A Feasibility Assessment of a Meat Slaughtering/Processing Plant or Feedlot in Northern Michigan*. East Lansing, MI: The Strategic Marketing Institute, Michigan State University.
- Konefal, J., M. Mascarenhas and M. Hatanaka. 2005. "Governance in the Global Agro-food Systems: Backlighting the Role of Transnational Supermarket Chains." *Agriculture and Human Values* 22:291-302.
- Krohn, C.C. and L. Munksgaard. 1993. "Behaviour of Dairy Cows Kept in Extensive (Loose Housing/Pasture) or Intensive (Tie Stall) Environments II. Lying and Lying-down Behaviour." *Applied Animal Behaviour Science* 37:1-16.
- Kujovich, M.Y. 1970. "The Refrigerator Car and the Growth of the American Dressed Beef Industry." *The Business History Review* 44:460-82.
- Lancaster, K.L. 1974. "A New Approach to Consumer Theory." *Journal of Political Economy* 74:132-57.
- Lawrence, J., D. Otto, and S. Meyer. 1997. "Purchasing Patterns of Hog Producers: Implications for Rural Agribusiness." *Journal of Agribusiness* 15:1-18.
- Lehnert, R.H. 2002. *On-Farm Processing of Pastured Poultry: Clearing a Path for the Legal Sale of Poultry Processed by Michigan Farmers*. East Lansing, MI: Michigan Integrated Food and Farming Systems.
- Libecap, G.D. 1992. "The Rise of the Chicago Packers and the Origins of Meat Inspection and Antitrust." *Economic Inquiry* XXX:242-62.
- Lyson, T., R. Torres and R. Welsh. 2001. "Scale of Agricultural Production, Civic Engagement and Community Welfare." *Social Forces* 80:311-27.
- Lyson, T.A. 2004. *Civic Agriculture: Reconnecting Farm, Food, and Community*. Medford, MA: Tufts University Press.
- Lyson, T.A. and J. Green. 1999. "The Agricultural Marketscape: A Framework for Sustaining Agriculture and Communities in the Northeast." *Journal of Sustainable Agriculture* 15:133-50.
- Marousek, G. 1979. "Farm Size and Rural Communities: Some Economic Relationships." *Southern Journal of Agricultural Economics* 11:57-61.
- Marsden, T., M. Harrison and A. Flynn. 1998. "Creating Competitive Space: Exploring the Social and Political Maintenance of Retail Power." *Environment and Planning A* 30:481-98.
- Martin, L.L. and K.D. Zering. 1997. "Relationships Between Industrialized Agriculture and Environmental Consequences: The Case of Vertical Coordination in Broilers and Hogs." *Journal of Agricultural and Applied Economics* 29:45-56.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 203

- Maxey, L. 2006. "Can We Sustain Sustainable Agriculture? Learning from Small-scale Producer-suppliers in Canada and the UK." *The Geographical Journal* 172:230-44.
- McEnroe, K. M. 1971. "A Changing Meat and Poultry Inspection Program." *Journal of the American Veterinary Medical Association* 159:1546-550.
- McGinnis, L. 2007. "USDA Web Portal Offers Big Food Safety Benefits for Small Food Processors." *News & Events*, Retrieved October 10, 2007, (<http://www.ars.usda.gov/is/pr/2007/070919.htm>).
- Michigan Food Policy Council. 2006. "Report of Recommendations." State of Michigan, Lansing, MI.
- Miller, K. and D.G.M. Wood-Gash. 1991. "Some Effects of Housing on the Social Behavior of Dairy Cows." *Animal Production* 53:271-8.
- Minnesota v. Barber*. 1890. 136 U.S. 313; 10 S. Ct. 862; 34 L. Ed. 455 (U.S. LEXIS 2215).
- Motts, G.N. 1959. *Marketing Handbook for Michigan Livestock, Meats and Wool*. Agricultural Experiment Station Special Bulletin, 426. East Lansing, MI: Michigan State University.
- Murdoch, J., T. Marsden, and J. Banks. 2000. "Quality, Nature, and Embeddedness: Some Theoretical Considerations in the Context of the Food Sector." *Economic Geography* 76:107-25.
- National Association of State Departments of Agriculture. 2006. "Background & History On Interstate Sales of State-Inspected Meat and Poultry Products and Meat and Poultry Inspection Programs." Retrieved March 18, 2008 (<http://www.nasda.org/InterstateMeatShipment/2007/Interstate%20Backgrounder%20March07.doc>).
- Nganje, W.E. and M.A. Mazzocco. 2000. "Economic Efficiency Analysis of Haccp in the U.S. Red Meat Industry." Pp. 241-65 in *The Economics of HACCP: Costs and Benefits*, edited by L. Unnevehr. St. Paul, MN: Eagan Press.
- Ollinger, M. and N. Ballenger 2003. "Weighing Incentives for Food Safety in Meat and Poultry." *Amber Waves*, 1(2):35-41.
- Ollinger, M. and V. Mueller. 2003. *Managing for Safer Food: The Economics of Sanitation and Process Controls in Meat and Poultry Plants*. Agricultural Economic Report No. 817. Washington, DC: U.S. Department of Agriculture and Economic Research Service.
- Ostrom, M.R. and D.B. Jackson-Smith. 2000. "The Use and Performance of Management Intensive Rotational Grazing Among Wisconsin Dairy Farms in

- the 1990s." Program on Agricultural Technology Studies, University of Wisconsin-Madison, Madison, WI.
- Packers and Stockyards Act*. 1921. 7 U.S.C. §205.
- Page, B. 1997. "Restructuring Pork Production, Remaking Iowa." Pp. 133-57 in *Globalising food: Agrarian questions and global restructuring*, edited by D. Goodman and M. Watts. New York: Routledge.
- Page, B. and R. Walker. 1991. "From Settlement to Fordism: The Agro-industrial Revolution in the American Midwest." *Economic Geography* 67:282-315.
- Petit, J. and H.M.G. van der Werf. 2003. "Perception of the Environmental Impacts of Current and Alternative Modes of Pig Production by Stakeholder Groups." *Journal of Environmental Management* 68:377-86.
- Phan-Huy, S.A. and R.B. Fawaz. 2003. "Swiss Market for Meat from Animal-friendly Production: Responses of Public and Private Actors in Switzerland." *Journal of Agriculture and Environmental Ethics* 16:119-36.
- Ponte, S. and P. Gibbon. 2005. "Quality Standards, Conventions and the Governance of Global Value Chains." *Economy and Society* 34:1-31.
- Porter, M.E. 1990. *The Competitive Advantage of Nations*. New York: The Free Press.
- Public Act 120*. 1903. "Inspector of Meats, Appointment; Regulation of Meat Supply, Slaughterhouses; Public Abattoir." Pp. 140-143, United States, MI.
- Public Act 228*. 1952. "Comminuted Meat Law." Pp. 375-379, *Public Act 228*, 289.581-289.592 (Repealed). United States, MI.
- Rabin, R.L. 1986. "Federal Regulation in Historical Perspective." *Stanford Law Review* 38:1189-326.
- Renting, H., T.K. Marsden and J. Banks. 2003. "Understanding Alternative Food Networks: Exploring the Role of Short Food Supply Chains in Rural Development." *Environment and Planning A* 35: 393-411.
- Riley, H., K. Allen, and M. Jackson. 1984. *An Assessment of the Economic Feasibility of New Investments in Beef Slaughtering and Processing Facilities in Michigan*. Agricultural Economics Report, 447. East Lansing, MI: Michigan State University.
- Riley, H.M. and S.W. Hiemstra. 1981a. *Michigan's Competitive Position in Cattle Slaughtering and Beef Processing*. Extension Bulletin, E-1557. East Lansing, MI: Michigan State University.
- _____. 1981b. *Trends in the Michigan Beef Industry*. Extension Bulletin E-1558. East Lansing, MI: Michigan State University.
- Ross, N.J. 2006. "How Civic is It? Success Stories in Locally Focused Agriculture in Maine." *Renewable Agriculture and Food Systems* 21:114-23.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 205

- Rotz, C.A., A.N. Sharpley, L.D. Satter, W.J. Gburek and M.A. Sanderson. 2002. "Production and Feeding Strategies for Phosphorus Management on Dairy Farms." *Journal of Dairy Science* 85:3142-4153.
- Runnells, R.A. 1924. *Meat Inspection in Michigan Cities*. East Lansing, MI: Michigan Agricultural College Agricultural Experiment Station.
- Sapkota, A.R., L.Y. Lefferts, S. McKenzie and P. Walker. 2007. "What Do We Feed to Food Production Animals? A Review of Animal Feed Ingredients and Their Potential Impacts on Human Health." *Environment Health Perspectives* 115(5): 663-70. Retrieved February 23, 2007 (<http://www.ehponline.org/docs/2007/9760/abstract.html>).
- Schiffman, S.S. 1998. "Livestock odors: Implications for human health and wellbeing." *Journal of Animal Science* 76:1343-55.
- Schiffman, S.S., E.A. Saltely Miller, M.S. Suggs and B.G. Graham. 1995. "The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents." *Brain Research Bulletin* 37:369-75.
- Schuessler, K.F. and G.A. Fisher. 1985. "Quality of Life Research and Sociology." *Annual Review of Sociology* 11:129-49.
- Sherman Antitrust Act*. 15 U.S.C. §1 et seq. (1890).
- Sinclair, U. 1906. *The Jungle*. New York: The Jungle Publishing Co.
- Slaughter, K., S. Cordes, A. Tomkins and L. Kathlene. 2001. *Potential Impacts of State Meat and Poultry Inspection for the State of Nebraska*. Lincoln, NE: University of Nebraska Public Policy Center.
- Stake, R. E. 2000. "Case Studies." Pp. 435-54 in *Handbook of Qualitative Research*, edited by N.K. Denzin and Y.S. Lincoln. Thousand Oaks, CA: SAGE Publications.
- Standford, L. 2002. "Constructing 'Quality': The Political Economy of Standards in Mexico's Avocado Industry." *Agriculture and Human Values* 19:291-310.
- Stearns, D. 2005. "Preempting Food Safety: An Examination of USDA Rulemaking and its *E. coli* O157:H7 Policy in Light of *Estate of Kriefall ex rel. Kriefall v. Excel Corporation*." *Journal of Food Law Policy* 1:374-431.
- Strauss, A.L. 1995. *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.
- Swanson, B.E., M.M. Samy and A.J. Sofranko. 2003. "Global Challenges and Opportunities for Midwest Farmers." Pp. 89-113 in *The American Midwest: Managing Change in Rural Transition*, edited by N. Walzer. Armonk, NY: M. E. Sharpe, Inc.

- Taylor, J. and J. Foltz. 2006. "Grazing in the Dairy State: Pasture Use in the Wisconsin Dairy Industry, 1993-2003." University of Wisconsin Madison, Center for Integrated Agricultural Systems and the University of Wisconsin Madison, Program on Agricultural Technology Studies, Madison, WI.
- Vanderpool, C., T. Ten Eyck and C. Harris. 2004. "Legitimation Crisis: Food Safety and Genetically Modified Organisms." Pp. 101-30 in *Biotechnology Unglued: Science, Society, and Social Cohesion*, edited by M.D. Mehta. Toronto, Canada: University of Toronto Press.
- Verhaegen, I. and G. van Huylenbroeck. 2001. "Costs and Benefits for Farmers Participating in Innovative Marketing Channels for Quality Food Products." *Journal of Rural Studies* 17:443-56.
- Vogt, D.U. 1995. *Food Additive Regulations: A Chronology*. CRS Report for Congress, 95-857 SPR. Washington, DC: Congressional Research Service.
- Washburn, S.P., S.L. White, J.T. Green and G.A. Benson. 2002. "Reproduction, Mastitis, and Body Condition of Seasonally Calved Holstein and Jersey Cows in Confinement or Pasture Systems." *Journal of Dairy Science* 85:105-111.
- Wells, S.J., L.P. Garber and B.A. Wagner. 1999. "Papillomatous Digital Dermatitis and Associated Risk Factors in US Dairy Herds." *Preventive Veterinary Medicine* 38:11-24.
- Whatmore, S., P. Stassart and H. Renting. 2003. "Guest Editorial: What's Alternative about Alternative Food Networks." *Environment and Planning A* 35:389-91.
- Wholesome Meat Act*. 1967. 21 U.S.C. §601 et seq.
- Wilkinson, J. 1997. "A New Paradigm for Economic Analysis? Recent Convergences in French Social Science and an Exploration of the Convention Theory Approach with a Consideration of its Application to the Analysis of the Agrofood System." *Economy and Society* 26:305-39.
- Wing, S. and S. Wolf. 2000. "Intensive Livestock Operations, Health, and Quality of Life among Eastern North Carolina Residents." *Environmental Health Perspectives* 108:223-33.
- Winter, M. 2003. "Embeddedness, the New Food Economy and Defensive Localism." *Journal of Rural Studies* 19:23-32.
- Wiser, V. 1986a. "Healthy Livestock - Wholesome Meat: A Short History." *Journal of NAL Associates* 11:1-17.
- _____. 1986b. "Meat and Poultry Inspection in the United States Department of Agriculture." *Journal of NAL Associates* 11:169-205.

BARRIERS TO ENTRY INTO THE SPECIALTY RED MEAT SECTOR 207

- Worosz, M.R., A.J. Knight, and C.K. Harris. 2008. "Resilience in the Red Meat Sector: The Role of Food Safety Policy." *Agriculture and Human Values* 25.
- Yeager, M. 1981. *Competition and Regulation: The Development of Oligopoly in the Meat Packing Industry*. Greenwich, CT: Jai Press.
- Young, J.H. 1981. "The Long Struggle for the 1906 Law." *FDA Consumer*, Retrieved June 23, 2005 (<http://www.cfsan.fda.gov/~lrd/history2.html>).