

Where's the Local Beef?

Rebuilding
Small-Scale
Meat Processing
Infrastructure

food&waterwatch





About Food & Water Watch

Food & Water Watch is a nonprofit consumer organization that works to ensure clean water and safe food. We challenge the corporate control and abuse of our food and water resources by empowering people to take action and by transforming the public consciousness about what we eat and drink. Food & Water Watch works with grassroots organizations around the world to create an economically and environmentally viable future. Through research, public and policymaker education, media and lobbying, we advocate policies that guarantee safe, wholesome food produced in a humane and sustainable manner, and public, rather than private, control of water resources including oceans, rivers and groundwater.

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Executive Summary

Local beef. Sustainable sausage. They're what a growing number of people want for dinner. Across the country, demand is increasing for meat from cattle, sheep and other animals raised on the pastures of local and regional farms and ranches.

But satisfying this burgeoning demand is no easy task. Decades of agribusiness and economic trends tilted toward centralizing animal agriculture in industrial factory settings have hollowed out the infrastructure needed to produce and market meat close to population centers. The long, slow demise of local small slaughter and processing operations is now preventing farmers and ranchers from fully satisfying rising consumer demand for meat from sustainably raised livestock.

A rebirth of small slaughterhouses would breathe new life into small communities everywhere, give farmers and ranchers more options for processing their sustainably raised livestock and satisfy growing consumer demand for healthy meat products.

This report documents changes in the slaughter and processing industry across the country, identifies the reasons for the disappearance of the small plants, presents examples of next generation processors and suggests policy changes necessary for rebuilding this sector of the meat industry.

Definitions

Slaughter: killing and gutting livestock.

Processing: butchering and turning carcass into different cuts. Ranges from cutting into steaks, grinding, cooking, adding fillers, and incorporating into products such as soup or chili. A processing facility does not slaughter live animals.

Traditional slaughterhouse: plant in a fixed location. A traditional slaughter facility is a permanent facility where producers bring their animals to be slaughtered. Some facilities may have both slaughter and processing plants at the same location.

Mobile slaughter: an operation in a trailer that goes to a farm or ranch to slaughter livestock on site.

Food Safety and Inspection Service: agency of the U.S. Department of Agriculture responsible for meat, poultry, egg products and catfish inspection.

Federally inspected: indicates that a slaughter facility is operated while an FSIS inspector is on site during slaughter. This designation must be stamped on the product label or packaging, and it enables the product to be sold and transported across state borders. In a processing facility, the USDA inspector is supposed to visit the plant at least once a day, but may not be in the plant at all times while it is operating.

State-inspected: inspection program run by a state department of agriculture. The state inspection program can be different than the federal government's program, but USDA must determine that it is equal to or better than the federal program. There are 27 states that run their own inspection programs. Like federal inspectors, state inspectors must be on site during slaughter. Product from a state-inspected plant must be

stamped "state-inspected" and can be sold only within the state. Note: a provision in the 2008 Farm Bill allowed product from state-inspected meat plants with fewer than 25 employees to be sold across state lines as long as the plant meets federal inspection guidelines. As of May 2009, USDA had not yet implemented the Farm Bill language.

Custom slaughter: a separate category under both federal and state law. Meat must be slaughtered for the customer's "own use" rather than commercial sale. In other words, the meat goes back to the farmer, rancher or hunter who brought in the animal for slaughter. In some states, consumers could buy animals from farmers or ranchers and have the animals slaughtered for their own use.

Exempt slaughter: on-farm processing that is considered "exempt" from inspection if a number of criteria are met. There are maximum numbers of animals that can be slaughtered on a farm in one year, depending on the species and applicable state laws. Typically, the meat must be consumed locally and, depending on the state, may be sold at local retailers and restaurants.

HACCP: Hazard Analysis Critical Control Point inspection program that the USDA implemented in 1998. The Food Safety & Inspection Service touted this program as better and more modern than the previous system of meat inspection because, according to FSIS, it incorporated microbial testing and required plants to establish plans that outlined where and how a company would try to prevent likely food safety problems.

Microbial pathogens: Forms of microbes that can cause human illness and death. These include some forms of E. coli, Salmonella, Listeria and Campylobacter. FSIS has developed particular regulations to deal with microbial pathogens.

Key Findings

- Small slaughter and processing operations have been closing across the country because of industry consolidation, low profit margins, the complexities of federal regulation and difficulty disposing of slaughter byproduct.
- Small slaughter operators are expected to adhere to a regulatory framework that is biased toward large, corporate facilities that can afford the expensive techniques and equipment now incorporated into government inspection requirements.
- Despite the odds stacked against them, some small slaughterhouses and processors are finding ways to survive.
- A variety of public policies, including regulations on food safety, economic development and rules governing livestock markets must change in order to level the playing field for small meat plants.

Recommendations

The USDA must deal with overarching problems in its inspection programs, including an overemphasis on meat inspectors examining company food safety plans instead of inspecting product. But in addition to the way in which it deploys its inspectors, the agency should make specific changes to its program that would level the playing field for small meat plants. These changes include providing resources for small plants in the form of useful generic food safety plans; performing microbiological testing based on volume of production; and conducting investigations to find the source of contamination when it is first detected at small plants that do not slaughter animals.

One of the most important — and immediate — changes that could help rebuild meat processing infrastructure would be to increase inspection resources so that lack of inspectors does not impede the ability of small plants or mobile slaughter facilities to operate.

Another vital piece of the effort to rebuild local meat processing infrastructure is increasing sources of funding for the facilities themselves as well as the government programs necessary for this sector to operate. It is imperative that any new funding or programs be designated for small and very small plants and not used by existing large plants as a subsidy for their operations. This funding could be part of the establishment of a “food infrastructure bank,” similar to dedicated public funding that exists for other essential infrastructure, such as highways.

State and local governments also have a role to play, assisting with identifying and funding entities that can be fiscal sponsors for new meat plants or mobile slaughter units, including small meat plants in programs that give tax breaks for job creation and economic development, and incorporating meat and poultry products into regional or state agriculture marketing programs.

In addition to policy changes necessary to facilitate the entrance of new firms to the meat processing industry, agriculture policy must change to prevent the further consolidation of the meat industry. There must be long term strategies to deal with structural problems in the meat packing industry, including action at the federal level to address anti-competitive behavior and prevent any mergers that lead to further consolidation of the meatpacking sector.

Plant Size

The U.S. Department of Agriculture uses the Small Business Administration's definitions for slaughter and processing plant sizes. A “large” plant employs 500 or more people. “Small” plants are those with between 10 and 499 employees. “Very small” plants have one to nine employees or annual sales of less than \$2.5 million.¹

These definitions apply to federally-inspected plants. The analysis in this report includes considerations of very small and small federally-in-

spected plants as well as custom or exempt facilities that don't fall under those size definitions.

This report focuses on the economic and regulatory issues faced by the smallest federally-inspected facilities over the past few decades. Too often they have been forced to close or operate as custom exempt facilities, a designation that renders them unable to supply the commercial market because they can only provide meat to the owner of the animal.

I grew up in a small town in northern California, a town that had four or five state-inspected butcher shops and now we have one. When I talk to the butcher and others, they told me that butchers shops and slaughter plants had to close due to increased regulations and fewer customers. But now, the customers are coming back, only this time, they want local meat. But we lost the infrastructure and now regulatory and economic hurdles are preventing a re-growth of the industry.

– Tyler Dawley, rancher



Part I: Small Meat Plants Follow Trends in Agriculture

While farmers and ranchers across the country can tell you that small slaughter and meat processing facilities are disappearing, conclusive data on such facilities are difficult to obtain. Even the executive director of the American Association of Meat Processors, a professional association for small processors, indicated that, “The exact number of facilities that exist in the small meat industry is definitely unattainable.”² The best data available are collected by USDA in its Livestock Slaughter Summary Report (2007)³ and by the U.S. Census Bureau in its Manufacturing — Industry Series (2002)⁴. Both sets of data clearly show an overall drop in the number of slaughter facilities nationwide.

That decline is part of a general trend in U.S. agriculture toward the industrial model of food production.

Be it farms or slaughterhouses or just about any aspect of food and farming in the United States, a pattern has emerged: a movement toward very small, specialty farms that grow for a relatively small niche market and a simultaneous increase in the economic power, if not number, of larger farms selling to commodity markets. Meanwhile, with slaughter and processing operations, more are either going out of business or reverting to being custom exempt operations that are essentially restricted to processing animals from the small niche farms and not putting the meat into commercial markets. The result is that these high quality meat products are not available in most grocery stores. Likewise, the large industrial slaughterhouses are expanding.

The consolidation of U.S. agriculture, which has accelerated in recent decades, has been documented and analyzed by University of Missouri professors William Heffernan and Mary Hendrickson. They describe a chain in which food passes through a number of steps on the path from farmers to consumers, including livestock slaughter and meat processing.⁵ The trend toward centralized, industrial-scale food production and processing is characterized to a great degree, according to Heffernan and Hendrickson, by firms working in clusters to control the food system from “the gene to the supermarket shelf.”⁶

This consolidation is driven by horizontal and vertical integration, as well as global expansion. Both types of integration have played key roles in reducing the number of small slaughter operations.

In the case of horizontal integration, ownership and control happens within one part of the food system, such as processing, for one type of commodity. And when that part of the system is consolidated to the point that four firms control 40 percent or more of it, economists suggest it is no longer competitive.⁷

Today, control of the beef market has extended far beyond 40 percent. By 2005, Tyson, Cargill, Swift & Co. and National Beef Packing were slaughtering 83.5 percent of cattle.⁸

This concentration extends into the industry's further processing of meat, including beef grinding. For example, in the early 1990's, FSIS conducted a baseline survey of beef plants to determine the prevalence rate of *Salmonella* in ground beef. The agency took no samples at very small plants because it estimated that they produced less than one percent of ground beef products.⁹

The story is similar with hogs. By 2005, the top four companies (Smithfield, Tyson, Swift & Co., and Cargill) killed over 60 percent of hogs.¹⁰

The control of the market by four firms allows them to exercise a "disproportionate influence on not just the price of a commodity, but also the quantity, quality and location of production," according to a sustainable agriculture publication.¹¹ Not surprisingly, the small slaughter operations

are left out of that equation, as are the farmers looking to send a relatively small number of sustainably raised hogs to them for slaughter and processing.

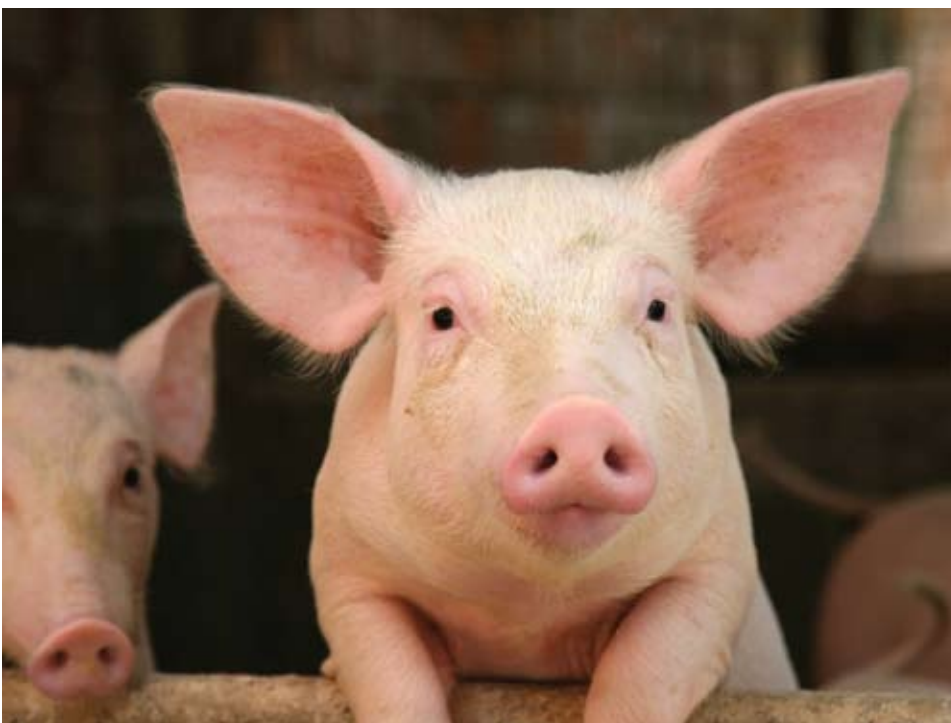
Meanwhile, vertical integration is further empowering large-scale operations. In this scenario, the same company owns all the different aspects of making, selling, and delivering a product or service. For livestock, it means firms are linked at more than one part of the food chain, such as upstream suppliers or downstream buyers. A prime example is Smithfield, which is involved in both raising hogs and pork packing and marketing pork products. Another is a chicken company, such as Perdue, that contracts with farmers to raise chickens that the company owns and then processes and markets.

Effects of Consolidation

Because very few companies now buy livestock, many farmers and ranchers are forced to sell at whatever low prices these agribusiness giants offer. The unprecedented level of market consolidation effectively eliminates free market competition from the way that independent farmers and ranchers sell their animals. One mechanism used by meatpackers to depress prices paid to ranchers is to buy cattle far in advance of the time they are ready for slaughter. Livestock prices are reduced when packers own the livestock they slaughter and do not need to use auctions or other open markets to purchase animals. These "captive supplies" — livestock owned outright by packers or controlled through contracts with farmers and ranchers — has meant lower prices, a smaller share of the retail dollar and shrinking livestock markets for farmers and ranchers.

These lower livestock prices for farmers have encouraged them to adopt more intensive practices like those found on concentrated animal feeding operations — or forced them out of the market.

Hogs illustrate the problematic trend toward concentration in American agriculture, and the changes in the industry in Iowa are a good example. According to USDA statistics, the total number of Iowa hog operations declined by three quarters between 1993 and 2007, but the year-end hog inven-



tory jumped by 29 percent from 13.8 million to 19.4 million over the same period. This divergence occurred as Iowa lost smaller hog operations but expanded the number of large operations raising over 5,000 hogs. The number of operations with fewer than 500 hogs fell 87 percent from 24,400 in 1993 to only 3,100 in 2007, but the number of operations with more than 5,000 hogs jumped 8-fold over the same period. These 800 industrial hog operations raised at least 4 million hogs in 2007.¹²

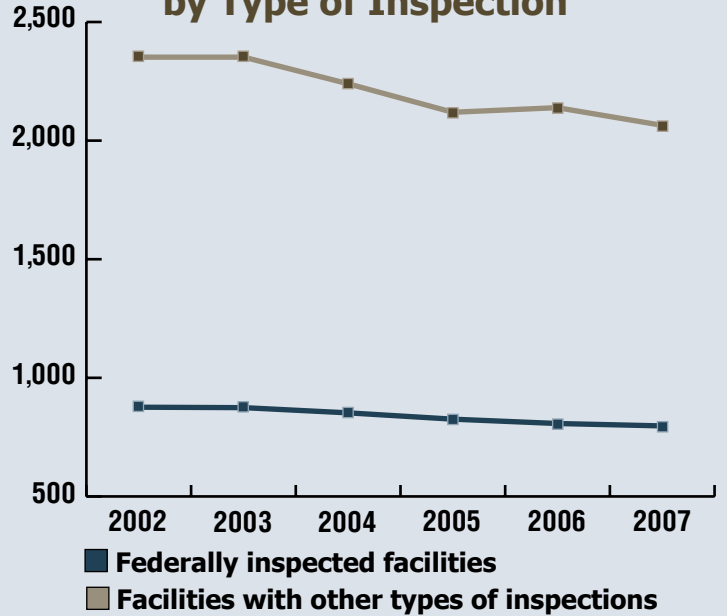
Similarly with the slaughter industry, consolidation means that the largest firms have enough control that the smaller operations can't gain access to the mass market. As a result, they become a custom exempt operation or go out of business. It leaves farmers who want to get into commodity markets with few choices but to take their animals to a large operation located far away. The problems with this include increased transportation costs and the loss of quality in meat because of stress to animals. In the end, farmers who are trying to raise relatively small numbers of livestock along with having a diverse farm then either can't get a fair price from the mainstream market or they just give up on that market. Farmers and ranchers could receive better prices if there were more competitors bidding for their livestock, and consumers would likely receive lower retail prices if there were more competitors for their customer dollars.

Charting the Demise of Small Plants

USDA collects data on both federally and state-inspected slaughter facilities. Between 1998 and 2007, the total number of inspected slaughter facilities fell by 20.8 percent. More "other" facilities, defined as state-inspected or custom, were lost — 22 percent — than federally-inspected plants — 18 percent.¹³

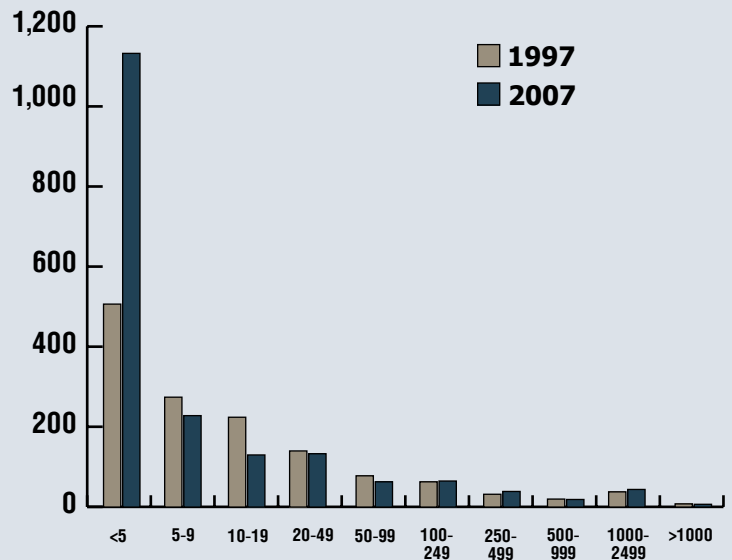
Every five years, the U.S. Census Bureau conducts a census of manufacturing. Both meat and poultry slaughter facilities are counted in the survey. The last available data come from 2002. The graph below summarizes the changes in the number of red meat slaughter facilities by number of employees from 1997 to 2002. While the overall number of facilities declined in this period, there was a significant increase in the number of very small plants with one to four employees. The number of large and very large plants was relatively stable during this period. The most plants lost were in the category between five and 99 employees.¹⁴

Number of U.S. Slaughter Facilities by Type of Inspection



Source: USDA *Livestock Slaughter*.

Number of Red Meat Slaughterhouses (by Number of Employees)



Source: U.S. Census Bureau.

Federal Versus State Inspection

Meat from federally-inspected meat plants can be sold across state lines. In contrast, products from state-inspected plants have been restricted to being sold only within the state, although a provision of the 2008 Farm Bill will eventually allow products from state-inspected plants with fewer than 25 employees to cross state lines.

Poultry

The dynamics of poultry processing are slightly different from red meat species such as cattle, hogs and sheep because there are a number of exemptions under which poultry can be slaughtered for sale by a producer without inspection.¹⁵ For example, small facilities can slaughter up to 20,000 poultry a year and sell them to consumers, restaurants and hotels under these guidelines.

Nationally, by 2007 just two companies — Pilgrim's Pride and Tyson — killed 47 percent of birds. The top four companies controlled 58.5 percent of the market by 2007, up from 50 percent in 2001.¹⁶

The implications of this control are staggering.

The *Baltimore Sun* described it well: "Ninety-five percent of chickens produced for meat are grown under production contracts with fewer than 40 companies. The farmer furnishes the land and labor, and is required to invest hundreds of thousands of dollars for buildings and other equipment. The company provides the chicks, feed and medicine and agrees to pay a guaranteed price per pound. In the 1950s, when there were more than a thousand companies, most poultry farmers benefited from such contracts because they were protected from price fluctuations. Now that four vertically integrated firms control 50 percent of the market, the terms of the contracts are much more favorable to the companies. Their power is so great that some companies have been found to systematically cheat farmers by underestimating the weight of birds, overestimating the weight of feed, or providing poor quality chicks or feed. A farmer who complains is likely to have their contract canceled and be placed on a blacklist."¹⁷

"Although most poultry farmers are making poverty level wages or below, without a contract they can't pay off their mortgages and face foreclosure. Some cynics have suggested, 'why buy the farm when you can own the farmer?' and describe chicken farmers as 'serfs' who are never able to escape their debts."¹⁸

Both federal and state-inspected plants have to operate under the constraints of a program called Hazard Analysis Critical Control Point, but the requirements are reported by many plant operators to be less onerous for some state inspection programs. Some state-inspected plants that have moved to federal inspection have been required to make relatively expensive changes in their facilities. A frequently reported difference between state and federal inspection programs seems to be the role played by inspectors. For example, state inspectors are described by plant owners as being more helpful in giving plants suggestions for meeting inspection regulations. In contrast, instructions to federal inspectors specifically prohibit providing such assistance.

States with Meat and/or Poultry Inspection Programs¹⁹

Alabama	Meat & Poultry
Arizona.....	Meat & Poultry
Delaware	Meat & Poultry
Georgia.....	Meat Only
Illinois	Meat & Poultry
Indiana.....	Meat & Poultry
Iowa	Meat & Poultry
Kansas.....	Meat & Poultry
Louisiana	Meat & Poultry
Maine	Meat & Poultry
Minnesota	Meat & Poultry
Mississippi	Meat & Poultry
Missouri	Meat & Poultry
Montana.....	Meat & Poultry
North Carolina	Meat & Poultry
North Dakota	Meat Only
Ohio.....	Meat & Poultry
Oklahoma.....	Meat & Poultry
South Carolina	Meat & Poultry
South Dakota	Meat Only
Texas	Meat & Poultry
Utah	Meat & Poultry
Vermont	Meat & Poultry
Virginia	Meat & Poultry
West Virginia	Meat & Poultry
Wisconsin	Meat & Poultry
Wyoming.....	Meat & Poultry

California, Colorado and New York do not maintain meat or poultry inspection programs. They do, however, perform custom exempt reviews on behalf of FSIS, which is responsible for periodic reviews of these operations.

Why Are Facilities Closing?

There are four major reasons why smaller inspected facilities are either closing or shifting to production that is exempt from inspection: economies of scale and industry consolidation, labor intensity of production and low margins, regulations such as the HACCP program, and byproduct disposal problems.

Economies of Scale

Research on the meat processing industry has demonstrated that, in the search for higher profit, plants have been increasing their scale of operations. And once they achieved the maximum individual profit level, they tend to consolidate.²⁰ The American Association of Meat Processors estimates that this horizontal integration has resulted in five to six percent of the large meat establishments now accounting for 94 to 95 percent of the meat sold in the United States.²¹ What is more, the plants are now vertically integrating, as well. That means they are doing their own further fabrication of meat, as well as producing their own ground beef and boxed meat products, which used to be done by small independent plants.²²

Labor-Intensive Family Businesses

Some studies have concluded that most new small slaughter plants do not make it beyond five years, with about 10 percent of the very small plants and 20 percent of the rest surviving only 10 years. Meanwhile, larger plants fare better.²³ Part of the reason for the disappearance is that the children of small plant owners don't want to take over the labor intensive, marginally profitable businesses.^{24,25} So, when the owners and managers reach the point of retirement, many of the small meat plants close their doors. In addition, few universities and schools are training people to slaughter and butcher meat. As a result, the knowledge base and potential employee pool is declining.

Byproduct Disposal

No one, not even the corporate slaughterers processing thousands of head of livestock a week, makes much money strictly from the practice of slaughter. But they do end up with a great deal of waste, often referred to as rendering or offal. Between one third and half of the animal is not used to produce meat, including the head, hide, internal organs, bones and other parts of the carcass.²⁶

In the past, there were many rendering plants that often would pay the slaughter operations for their offal. But



consolidation in the rendering business has left few plants nationally that can do this.²⁷ In many cases, renderers have gone out of business, in part because of suburban development that brings new homeowners unwilling to live with the odors. Consequently, those remaining in the industry drive from farther away — often in trucks that run on increasingly expensive diesel fuel — to collect offal. It all adds up to more expenses for the small slaughter shop.

In fact, the mention of rendering to the owners of small slaughter shops might very well elicit a collective sigh or roll of the eyes. They don't handle enough livestock to be able to process their own offal, but they're required to dispose of it in a federally approved way. This means either calling a rendering business to come retrieve it or sending it to a landfill for disposal. When small plants have to give away their byproducts or, worse, pay to dispose of them, this additional cost has to be carried in the price of the meat. Dale Smith, owner of Smith Valley Meats in Rich Creek, Virginia, told *The Roanoke Times* newspaper: "Bones got 2 to 3 cents a pound, and fat got 8 cents a pound. Now, we get paid nothing. Right now it's costing us \$50 a stock."²⁸



Meanwhile, the multi-million dollar slaughter operations dealing with hundreds of animals a day have enough scale that they can process the byproducts themselves or send them to rendering plants.

Food Safety Regulations

In 1998, FSIS changed to a new inspection approach referred to as HACCP, which stands for Hazard Analysis Critical Control Point. It focuses explicitly and systematically on food safety hazards. Many large plants had been using it as a tool for internal control for years, but when USDA adopted it, all federally and state-inspected plants, regardless of their size, were required to, as well. Now, these plants have to justify their plans with scientific studies and tests. They also have to set up extensive self-monitoring and recordkeeping systems. Because smaller plants often make a greater number of more complex products (such as sausages), they require multiple HACCP plans that also are more extensive. Government assistance for devising these plans was in short supply as HACCP was implemented, so small plants had to hire expensive consultants. (For more information about the difficulties smaller plants have with HACCP, see the appendix on HACCP.)

For small plants, these requirements add disproportionately more operational costs per animal or per pound of processed product. In addition, for the first time, under HACCP FSIS began holding processors (typically smaller plants) responsible for contamination coming in on raw meat supplies (typically bought from the largest slaughter plants).

A retired small slaughter operator and current supervisor at the University of Minnesota's meat lab shared his views on the program: "When HACCP came into play and I was under inspection, I didn't change one practice that we had been doing for decades. The only thing that changed was that I was now on the hook for 32 hours of additional paperwork." He also explained that HACCP's focus on recordkeeping and paperwork is less appropriate in smaller plants because managers have many more opportunities to personally monitor the safety and quality of product than at large plants.³⁶

That owner is not alone. USDA conducted a survey of plants of all sizes after HACCP implementation, which posed a number of multiple-choice questions and invited written comments.³⁷ It found that operators were frustrated over the costliness of developing and implementing HACCP plans. According to one operator's response to the survey:

"Our plant is small (18 employees) [this is near the extreme bottom end of the small category, which includes plants

USDA'S *E. coli* Testing Program

The agency's *E. coli* O157:H7 testing program for ground beef provides a good example of how the implementation of HACCP imposed greater burdens on the smallest plants. Ground beef is a product that is commonly made by the largest beef slaughterhouses as well as a large percentage of the smaller federally-inspected plants, so *E. coli* O157:H7 testing policies impact a significant portion of the industry. *E. coli* contamination first occurs at slaughter (when fecal material from the intestines or from the animal's hide comes into contact with the meat).

Many small and very small plants buy coarse ground beef or trim from other cuts of beef to further process into ground beef. Often the supplier of these raw materials is a large slaughter facility.

The agency has been forced to change its policies several times in response to highly publicized outbreaks and recalls due to *E. coli* O157:H7 (ConAgra in 2002 and Topps in 2007). The chart below outlines changes in FSIS policy on testing. But what remains constant throughout these changes is:

- The agency creates incentives for plants to use interventions (e.g. chemical sprays or hot water rinses).
- The agency avoids collecting data or performing tests that would show if these technologies are not being used effectively at the largest beef slaughter plants.
- The agency avoids enforcement of regulations at these large plants when it learns of unsafe production practices and contamination coming from these plants.
- The agency exerts more oversight and enforcement action at the smaller grinders and explicitly makes them responsible for changing the food safety practices at the largest plants, which are suppliers of raw material for the small plants.

Table: FSIS Policy on *E. coli* O157:H7

Timeframe	Large Plants These plants have 500 or more employees.	Smaller Plants These plants include small (those with 10-499 employees) and very small (those with 1-9 employees and annual sales less than \$2.5 million.) Some comparisons below cite only data from very small plants.
1994 Northwest Recall through 1998 (HACCP Implementation)	<p>FSIS began an <i>E. coli</i> O157:H7 sampling program, taking an average of 1, 350 samples at federally-inspected plants and 3, 050 samples at retail facilities, annually.²⁹</p> <p><i>.09% of samples taken at federally-inspected plants were found positive</i> <i>.04% of samples taken at retail plants were found positive</i></p> <p>NOTE: In 1997 and again in 1999, FSIS changed sampling methodology or technology, increasing the sensitivity of the tests and consequently, the number of positives detected from that point on increased.³⁰</p>	
1998 (HACCP Implementation) through 2002 (ConAgra recall)	<p>FSIS generally exempted most large plants from FSIS testing program because they used technologies, such as spraying carcasses with chemicals, during the slaughter process.</p> <p>FSIS took .82% of samples at the large plants.</p> <p><i>2.25% of <i>E. coli</i> tests taken at these plants were positive.³¹</i></p> <p>FSIS ignored the other microbial evidence, including plant testing, plus recalls and outbreaks caused by large plants' products, which indicated they were not ensuring production of safe food. The agency continued to exempt most large plants from <i>E. coli</i> O157:H7 testing.</p>	<p>FSIS decreased testing at retail (averaging 2, 400 tests annually), increased testing at the small plants (averaging 4, 800 tests annually).</p> <p>An average of 58% of tests were taken at the very small plants, which make 1% of the ground beef.</p> <p><i>0.44% of <i>E. coli</i> tests taken at these plants were positive.³²</i></p> <p>FSIS explicitly expected these small plants to require the large plants to supply them with raw material that was not contaminated. When FSIS testing found <i>E. coli</i> at these plants:</p> <ol style="list-style-type: none"> 1) FSIS took strong enforcement action, even if <i>E. coli</i> came in on beef from slaughter plants. 2) FSIS only rarely investigated at the slaughterhouses that originally produced the contaminated products.
2003 (ConAgra recall) through 2007 (Topps recall)	<p>FSIS began testing beef at large plants, but only <i>after</i> it was pre-tested by the plant and found to be negative.</p>	<p>FSIS continued to focus oversight and enforcement efforts at small and very small plants, many of which continued to get contaminated product from suppliers. 40% of very small grinders tested before 2003 stopped grinding, went out of business all together, or operated under one of the exemptions from inspection.</p>
After 2007	<p>FSIS collected information about practices in all beef plants.</p> <p>FSIS published plans to base testing on the "risk" posed by each plant and said that volume of product will "slightly" increase the probability of getting tested.³³ As of June 1, 2009, the agency will be testing at the large plants at least monthly, on average, and at the smallest plants quarterly.</p>	<p>During FSIS review, many plants felt pressure to adopt practices that make processors responsible for regulating the slaughter facilities that supply them and are impractical and/or too expensive for most small grinders.³⁴</p> <p>FSIS published its intent to increase testing "significantly" at plants without practices that are more difficult, if not impossible for the smallest plants. This part of the new sampling policy has not yet been implemented.</p>

Interestingly, USDA told Congress in 2008 that small and very small plants are much better with HACCP compliance than large meat processors. Not only do they pose less risk in terms of volume produced, they may actually produce safer product. Yet, FSIS often focuses its enforcement efforts on these small plants. (For more discussion see appendix on *E. coli*)

with between 11 and 499 employees], but has a very complex product mix, from fresh beef and pork cuts all the way to finished, ready-to-eat products. To cover our many types of products we had to develop and implement 19 separate HACCP plans, plus the SSOP procedures. Needless to say, this took a huge amount of time and resources. Our HACCP team of 9 individuals (half the plant [employees]) met for 1 to 2 hours on a weekly, sometimes biweekly, basis for 14 months. Additionally, one person worked half-time for two and a half years. Our direct labor cost for HACCP and SSOP plan developments was well over \$100,000. During this process, there were several false starts, as the 'rule' seemed to be constantly changing, a moving target if you will. Our plant has four certified people. Each of us attended separate HACCP training courses (3-day sessions required by law) and each of us brought back new or different requirements."

However, HACCP may not be the end of the regulatory hurdles for the small and medium size operations. Food safety regulations grew stricter with the advent of mad cow disease. And an ongoing problem for small plants and new plants entering the field is the availability of USDA inspec-

tors to visit their facilities. Inspector shortages and vacancies hit the processing sector of the meat industry most severely, with FSIS obligated to send inspectors to cover slaughter plants (which by law cannot operate unless an inspector is present). When there are shortages, the agency struggle to cover eligible processing facilities with too few inspectors, leading to some processing plants regularly receiving less than daily inspection (the legal standard).

Another important food safety issue is the role of sanitation and how it is prioritized by USDA. Good sanitation is the cornerstone of food safety. Yet the largest plants typically do not receive as much sanitation inspection, proportionally, as small plants.

In addition to food safety regulations, plants have to comply with federal, state and local environmental rules.^{38,39} In addition, if these plants sell to niche markets, they may also need organic, kosher, halal or other marketing related certifications. All of this amounts to regulatory and recordkeeping requirements that can prove difficult for small businesses. (Read more about this in the appendix on HACCP).



Photo by John Nyberg/Stock.Xchng.

Case Study: Midwest

The nation's heartland needs and wants more small slaughter and processing facilities to meet the growing demand for meat from local, sustainably raised livestock. But, as we've seen, the path to keeping or starting such businesses often is blocked. The impediments include a combination of market issues, regulatory matters, and the collection and disposal of slaughterhouse waste.

The owners and operators of small slaughter operations, agricultural extension service agents and university personnel across the Midwest shared their thoughts on addressing these issues in order to meet consumers' growing taste for fresh, safe local meat.

Peter C. Nelson's story illustrates how one moves toward federal inspection in the context of changing economic factors.

In 1936, his father began a meat locker, which today would be a custom-exempt plant, in Minnesota. Opening the business provided an outlet for nearby dairy farmers to bring steers for slaughter so that they could then consume the meat. After his Marine Corps service in 1968, Nelson began buying into the plant until, by 1976, he owned it.⁴⁰

In the 1980s, events forced Nelson to make some decisions. USDA had offered to buy out dairy farmers to reduce the glut of milk. Many of the state's producers accepted the deal, which meant fewer steers from dairy farms coming to his plant.⁴¹

For example, one of Nelson's customers went for the dairy buyout even though he had been successfully making homemade cheese. He realized that rather than continuing with the hard work and expense of running a dairy farm, he could just buy the milk to make the cheese.⁴²

"It wasn't the dairy farmers that hurt so much [from the buyout] but the demise of local slaughterhouses, creameries, feed mills and other small town businesses," Nelson says.⁴³

But all of that aside, the reality for Nelson was that he needed new markets, and one was readily apparent. Farmers raising livestock sustainably needed places to have their animals slaughtered and the meat processed so they could then sell it throughout the state. Unfortunately for Nelson, Minnesota did not have a state meat inspection program at the time, so he took on \$100,000 in debt to



Photo courtesy of Mike Lorentz.

prepare his facility for federal inspection. That would allow both him and his farmer customers to sell the finished products anywhere in the country.⁴⁴

Nelson initially took live animals for slaughter and bought raw beef from larger federally-inspected establishments to grind. Later, he also expanded into exotic animals such as bison and farm-raised elk, deer, ostrich and emu. In fact, his was one of the first five plants approved by USDA to process the large birds, classified as ratites. (He helped USDA write the protocol for inspecting those species).⁴⁵

His business was going well — Nelson had won awards for jerky, hams, bacons, smoked turkeys, summer sausage and other types of meat

products — but costs, such as that of transportation and competition from large slaughter operations were slowly cutting into his advantage of being the state's only certified organic meat processor who was USDA-inspected.⁴⁶

The economics were working against Nelson's business. Farmers were driving five to six hours to deliver livestock to the plant for processing. In addition, while distribution and warehouse centers loved the quality of his product, they could purchase similar items for two cents per pound cheaper from bigger processors. In addition, supermarkets wouldn't carry any product that hadn't gone through one of those corporate warehouses. While that has lessened to some degree since the late 1990s, larger chain grocery stores still prefer to order meat from one place — their warehouse — and take all deliveries from one truck.⁴⁷

To make matters worse, Nelson says, many livestock farmers are going out of business just as they have across the country.

Dan Frobose, an agricultural extension agent in Bowling Green, Ohio, works with small beef producers on a marketing program and in his time has seen a lot of changes.⁴⁸

Historically, several small family-owned meat plants operated throughout Ohio. But now farmers are finding it more difficult to locate someone to slaughter their animals. In fact, waiting times of two to three months are common.⁴⁹

He works primarily with producers who use no growth hormones and no antibiotics. Many of those producers are not near large slaughterhouses, so they have a difficult time getting competitive market prices.⁵⁰

One difference is the drop credit, which is the value of byproducts, including hide and bones that remain after the meat is removed from the carcass. These byproducts can be turned into animal feed, cosmetics, soap, pharmaceuticals and other consumer goods. In large plants, the volume is enough that the byproduct can be sorted into pallet-load quantities. Small plants don't have this advantage. The drop credit in large plants in Ohio adds about \$100 more to each cow processed.⁵¹

Ivan Belville, who runs a small slaughter operation in northwest Ohio, has worked with Frobose and had much to say about all these issues. He's been slaughtering and processing cattle for nine years and also works with pork and lamb.⁵²

Belville's very small, state-inspected plant of five employees is unusual in the sense that he also is raising cattle and retailing meat products.⁵³

He's fine with the limitation on being state-inspected — that he can't sell the meat across state lines. There's no advantage for him to shift to federal inspection. He relies on local customers and they rely on him. He estimates that 70 percent of his customers are very interested in locally produced meat. He makes ground beef, and while he does use some meat from other processors, all of them are local. His customers all believe that local beef is safer. "The more recalls [in reference to *E. coli* outbreaks traced in large part to large, corporate slaughterhouses] there are, the better it is for my business."⁵⁴

Although he doesn't have to deal with federal inspection, he knows all about HACCP because the state inspects his plant. He finds the paperwork to be very redundant. And on that note, he finds the regulations geared toward large plants. "I do what I'm saying I'm doing in my plan. Then I check what I did and then I checked that I checked."⁵⁵

Back in Minnesota, Peter Nelson, now supervisor of the meat lab at the University of Minnesota, never saw anything particularly beneficial about HACCP.

"When HACCP came into play and I was under inspection, I didn't change one practice that we had been doing for decades," he said. "The only thing that changed was that I was now on the hook for 32 hours of additional paperwork." He added that smaller plants deal with much

smaller volumes, so they have many more opportunities to look personally at the product than large operations do.⁵⁶

Nelson also thinks the paperwork could be reduced. The redundancy of monitoring, verification and pre-shipment review is not serving any purpose in very small plants. "There should be a risk-based inspection because in the small plants, the risk is much less." He points out that in a small plant, an inspector will oversee the slaughter of three hogs per hour, while in a large plant the inspector could oversee the slaughter of hundreds per hour.⁵⁷



Hamburger moves through Joe Maas' processing facility in Ohio. Courtesy of Jeff & Carlos/JTM Design Group.

An FSIS inspector might look at a HACCP plan and approve it, only to be overruled by a supervisor who orders the plan changed. However, no instruction is given about how to change it. Nelson: "So you make a change and it satisfies the supervisor. But then someone else doesn't like it and so you change it again. But then you have the food safety audits. The reviewer has never been in my plant, knows nothing about my operation, but just looks at the paperwork and requires another change. None of that improved the safety of my product, but it did justify their jobs. I always felt that more inspectors were needed in the field" to actually inspect product.⁵⁸

Ohio processing plant operator Joe Mass is also no fan of HACCP.

One big issue is recordkeeping. His small company of 300 employees has grown over the years and now has several people who focus on keeping records.⁵⁹

"I'm heavily leveraged in order to keep the growth going," Mass said. "I'm at great risk and it's pretty terrifying. I feel responsible for all of my employees. The recordkeeping isn't the worst part. There is zero flexibility in how you do your recordkeeping. You get an NR [non-compliance record] for having the signature at the top of the page rather than the bottom. It's these things that make it difficult to be in compliance. They don't do HACCP in the way it's intended. HACCP is of no benefit to my company. I had no food safety problems before, and I don't have any today. HACCP does zero to improve the food safety of my products."⁶⁰

Mass didn't change anything when the HACCP regulation came out, but he did have to incur expenses to hire consultants with scientific expertise so that FSIS would approve his production practices. He laments that the agency does not care whether an operation, such as his,

has never made anyone sick and will not look at its microbial testing history.⁶¹

Like others, he also has a problem with the inconsistencies and the fact that too often small plants that grind beef are held responsible for contamination that often comes from large operations.⁶²

If the government were to find *E. coli* on Mass's meat, "They'd find my HACCP plan inadequate," Mass said. "But as a grinder, I couldn't put it [*E. coli*] in there and I can't keep it out of the beef. I'm required to buy meat that is USDA-inspected, but they say I'm responsible [for the contamination on the USDA-inspected raw beef]."⁶³

"I am a consumer besides being a plant owner," he continues. "The majority of the food I and my family eat does not come from this plant and therefore, I'm very concerned for the health of my wife and kids. It drives me batty to see USDA profess that HACCP is the answer to the problem of *E. coli*."⁶⁴

He scoffs at the notion that USDA thinks small operators can force large suppliers to improve their food safety practices just by threatening not to buy from them.⁶⁵ (See more discussion in Appendix on *E. coli*.)

"Even as big as I've gotten the large suppliers would not care if I canceled my order," he said. "And then, where would I go? Small companies like me and smaller, it is not in the realm of possibility that I audit them [the large companies]. And why should I have to when I'm paying taxes to have the agency in the slaughter plants all day, every day?"⁶⁶

"I'm not qualified to do it. The inspectors are trained to do it. There are hundreds of plants that supply the raw supplies — I couldn't audit that many suppliers. We order it from the company, but which plant it comes out of is up to them. They could send me supplies from multiple plants. Even if I discovered a problem . . . why are you asking me to do what you are already doing? It's insane to me that the USDA would have me do this."⁶⁷

Increasing Small Slaughter Operations in the Midwest

To maintain or attract new small slaughterhouses, a group of farmers and ranchers must be committed to supporting them. "You have to be around a number of farmers committed to supplying the small plant and not just bringing an occasional animal," said Rob Lorentz, co-owner of a Minnesota slaughter operation.⁶⁸

And to direct market to restaurants, he says, "you have to have a chef who's willing to put on the menu that they have locally raised product with a limited quantity — they

have to be willing to have x number of ribeyes and when they run out, they take it off the menu."⁶⁹

Joellen Feirtag from the University of Minnesota extension service agrees that the slaughterhouse is the lynchpin for getting more sustainably raised and local meat. "If we help the small slaughterhouses, it expands out to farmers, restaurants, jobs so kids don't leave the community. That's why it's so important to provide resources in the rural areas and even in the urban areas, especially within the ethnic communities."⁷⁰

"I'm heavily leveraged in order to keep the growth going. I'm at great risk and it's pretty terrifying."

— Joe Maas, small-scale processing plant operator

Rendering

Rendering also is a big issue in the Midwest. The number of renderers is dwindling there, as it is nationwide. In northern Minnesota, renderers can't make money, so most carcass waste goes to a landfill.⁷¹

Previously, renderers paid slaughter and processing plants for the byproducts, but this has changed.

"In the early 1970s, a check from the rendering company would pay all the gas, electric and one guy's salary for three to five weeks," Nelson said. "In the 1990s, the check would pay one man's salary up until the first coffee break at 10 a.m. Monday morning, literally. Also, previously, the price of beef hides was higher because they used the leather for the military boots. There is less leather used for that now and consequently, this byproduct brings in less money for a slaughterhouse."⁷²

When Ivan Belville began nine years ago, he didn't pay to have byproduct picked up, but after mad cow disease, renderers began charging. He assumes that rendered products can now be used to make biodiesel and if so, he believes that the renderers should again be paying processors for the byproduct.⁷³

Why Can't New Firms Enter the Market?

Small slaughterhouses and processors that have survived during the rise of industrial agriculture tend to cater to the growing market for specialty meat products such as organic, grass-fed, halal, or specific breeds like Berkshire pork.^{74,75,76} The demand for these products continues to increase, yet the limited number of slaughter and processing facilities means that producers often must get on a waiting list before taking their livestock for processing.⁷⁷

While there are fewer barriers to opening a small exempt or custom facility, that is not the case with facilities that are slightly larger, in a fixed location and inspected.

With estimates of the cost of opening a USDA-inspected plant as high as \$2 million,⁷⁸ it is no wonder that *Farming* magazine summed it up this way: "The costs of opening a small federally approved slaughter facility are high enough to keep many potential operators from entering the fray." A farmer told the magazine: "The question is, would it ever make sense for a small entrepreneur to do it? People have told me, 'Don't even think about it.'"⁷⁹



Financing Barriers

Low profit margin small businesses are difficult to capitalize using conventional financing. In the absence of investor grade returns, equity must come from friends, family and stakeholders. Banks are unlikely to finance debt without some kind of credit enhancement. This often prompts entrepreneurs to turn to government programs for assistance. However, while those programs seem relevant and useful, in reality they are fairly difficult to work with on food processing projects that require a significant upfront capital investment. For example, USDA has a loan guarantee program that would appear to provide the credit enhancement needed by a commercial lender. In practice, however, it cannot be used for construction financing and it requires 20 percent equity on the balance sheet at implementation. This forces a business to raise significant additional equity to cover the lender's requirements during construction. The program also requires a full feasibility study and an environmental impact statement — a lot of complexity and expense for a small business.

Helping small and very small facilities grow, or transition to a new ownership group, is easier than starting a new facility. The current business has cash flow that makes a recapitalization easier than creating a startup. In addition, an existing business has permits, a certificate of inspection and the neighbors know the business and are less likely to object to it.

From a public policy perspective, it is much easier to keep existing facilities, rather than to start over with a new facility and new business entity. Changes in public financing opportunities will be a key part of policy change to encourage growth of small slaughter facilities.

Siting, Water and Environmental Issues

Siting can be a significant barrier to starting a new facility. People are not likely to want a slaughterhouse next door, even if it is going to process organic, grass fed or other specialty meats. In addition, finding a location with the required water supply and sewerage facilities and one that is situated away from residential areas to which it might draw noise and traffic complaints can be difficult.⁸⁰ For example, a project in Point Reyes, California is currently stalled over siting issues.⁸¹

Management and Staff Barriers

Profitably running a facility that makes low margin products requires strong management expertise and diligent oversight to fully utilize plant capacity. And the scope of the regulatory compliance required in the meat industry means that the manager most likely needs to come with experience in meat or food processing. In addition, the multicultural



supervisory requirements for working with immigrants who are skilled in the practices of slaughtering and butchering, but who often have limited English language skills, makes this a challenging management position to fill.

Slaughtering animals humanely and breaking down carcasses requires both skill and physical stamina. It also makes this a business that is difficult for a non-profit organization not accustomed to the acute bottom line orientation and physical labor requirements. A Connecticut slaughter facility, operated by the New England Livestock Alliance, closed because it could not find the management expertise it required.⁸²

National Animal Identification System

The new National Animal Identification System promises to add even more work to meat processors. Under the proposed system, animals would be required to be identified with a tag or implanted electronic chip and tracked throughout their lives to slaughter. The program is very unpopular in rural communities across the country, especially among small livestock producers who object to the potential costs of complying with the program as well as the potential for abuse of information submitted to a centralized tracking system. Additionally, NAIS will force slaughter facilities to invest in computer systems and electronic tag reading systems that are capable of handling the identification data.

Inspection

People wishing to open a small slaughter operation or processing facility are faced with a number of regulatory issues. One of the most important is what kind of inspection the plant will receive — state or federal. Several factors influence that choice:

Proximity to local market. If the local market is large enough, it may not be worth the additional investment to obtain USDA inspection. Those costs are not likely to pay back if the meat can be sold within the state. In contrast, where the local markets are limited, USDA inspection may be necessary in order for a facility to be economically viable.

Complexity of HACCP Plans. All HACCP plans identify critical control points in a production process. Products need to be identified by batch processed, and the plant must track all product as it moves through the critical control points in the process. However, because every processing facility is different and the liability issues significant, there are no boilerplate HACCP plans that a new small facility can easily implement. Inspectors often interpret regulations differently, and have varying requirements for HACCP programs. This is one of the major factors of USDA's implementation of HACCP that bothers small slaughter operators who are otherwise supportive of the federal inspection program.

Access to capital. Estimates vary depending on the type of slaughterhouse under consideration, but it is clear that building and operating a USDA-inspected facility is more expensive and will therefore be more difficult to finance and more dependent on processing a sufficient number of animals to be economically viable.

While not insurmountable obstacles, the amount of time, money and expertise needed for compliance with all of these programs is cumulative and challenging for small businesses with limited staff.

Case Study: California

Many of California's small- and medium-sized slaughter and processing facilities have gone out of business over the past 20 years. Rancher Tyler Dawley, who raises cattle, sheep and chickens on pasture, knows firsthand the difficulty of finding a place to slaughter his animals. "I grew up in a small town in northern California, a town that had four or five state-inspected butcher shops and now we have one. When I talk to the butcher and others, they told me that butchers shops and slaughter plants had to close due to increased regulations and fewer customers. But now, the customers are coming back, only this time, they want local meat. But we lost the infrastructure and now regulatory and economic hurdles are preventing a re-growth of the industry."⁸³

No one, not even the corporate slaughterers processing thousands of head of livestock a week, makes much money strictly from the practice of slaughter. The profit comes from adding value in some way, by processing the carcass into cuts of meat or other products that consumers buy.

Given all these hurdles, small and medium-size slaughter and processing businesses have had to create niche markets. The California operations that we profile here are processing and/or selling branded cuts of meat. They are slaughtering, cutting and wrapping meat from grass-fed and locally raised cows, hogs, lambs and goats. The meat is sold at farmers markets, restaurants and other venues. One rancher is just about to emerge from the maze of regulatory hurdles required for building and operating a mobile slaughter unit. Meanwhile, the owner of a cut and wrap business is waiting to see how that project fares before she tries to go mobile. As with small operations in other parts of the country, those in California often cannot access major retailers as easily as large slaughter and processing companies.

What they all have in common, beyond being small, is the expensive and time-consuming process of dealing with HACCP and the inspection process.

Full Service Slaughter in Orland

Despite the odds stacked against him, Chris Johansen carries on with the slaughter business his grandfather began in 1914 in Orland, about 80 miles north of Sacramento. Statewide, Johansen's Quality Meats is one of only two remaining small operations that slaughter livestock and also butcher, cut and wrap the meat; the other is Creston Valley Meats in Creston.⁸⁴

He considers himself lucky that the business started USDA inspection in the mid-1960s. Going about that process now would be cost prohibitive.⁸⁵

He focuses on the weekly processing of about 20 to 25 head of mostly grass fed cattle brought from farms and ranches located everywhere from the Oregon border area all the way to San Juan Bautista in south-central California. In addition, he slaughters about 15 lambs and 20 hogs a month.⁸⁶

He charges \$0.65 per pound to slaughter, cut and wrap the livestock producers bring, which certainly isn't making him rich. But raising the prices he charges to slaughter, cut and wrap the meat that producers sell under their own label could harm his business.

His 2007 revenue amounted to \$250,000. After subtracting the wages for seven employees, complying with his HACCP plan, paying \$35 to \$40 a day for the collection and disposal of offal, and dealing with his other operational expenses, he reported personal income of \$26,000 on his federal income taxes. The fact that his wife is a college professor helps to pay the bills and allows him to continue the business.

However, in 2008, the revenue picture was looking much brighter.⁸⁷

And a big reason for that, he believes, is the value consumers increasingly place in a small, local independent business slaughtering cows, hogs and other livestock raised sustainably.

"This meat is better because it's raised by a local grower," he says. "The consumer knows what they're eating and where it comes from."⁸⁸

Cost of USDA Inspection

Although Johansen's operation has had USDA inspection for more than 40 years, he still had to adapt to changing USDA regulations, including complying with the HACCP program when it went into effect in the late 1990s.⁸⁹

On the whole, this program is good, he says, because it has required more attention be paid to certain food safety issues, such as *E. coli* and *Listeria*, bacteria that thrive in moist environments such as those of drains and machinery condensation. The Johansen plant is much more conscious regarding risk than it was 20 years ago, in large part because it is now a requirement.⁹⁰

He says that complying with the daily requests of inspectors, as well as the paperwork nightmares involved with food safety audits, can be taxing on his time and bottom line.

After the widely documented February 2008 case of Hallmark Meatpacking Company's mistreatment of downer cows — those too sick or injured to walk — and slaugh-

tering them for use in school lunches, inspectors began focusing on minor details of his operation. One of the two inspectors who regularly oversee his facility pointed out splinters and nails protruding slightly from boards in his holding pens. As is often the case, Johansen wasn't told how to deal with the issue, but only to fix it. Rather than running around trying to hammer down nails and sand off splinters that, he says, "might snag a tuft of hair," he spent \$30,000 to replace all the wood with metal. He's also going to do the same with the fencing that leads from the cattle drop-off point to the holding pens. Cattle typically spend seconds traveling the walkway and up to 12 hours in the holding pens.⁹¹

Johansen thinks this all was overkill stemming from the Hallmark incident in Chino, near Los Angeles. "I haven't mishandled animals, yet I'm being scrutinized because someone else did," he says.

Had he not fixed the pens, USDA could have withheld inspection, effectively killing his business because the meat could no longer be sold legally.



Photo by Patrick Strijards/Stock.Xchng.

Johansen also has had to put up with contradictory instructions from different inspectors. For example, six inspectors said nothing about contamination from the mist and condensation (a source of *Listeria*) generated by washing equipment with hot water, a sanitizer and then rinsing with hot water. But, later, a seventh inspector said no condensation was allowed because it could carry germs. So now, he rinses with cold water and tries to make sure all work surfaces and equipment are dry.⁹²

Johansen's biggest beef is with the paperwork. He had to gather together his HACCP plan and so much supporting documentation that he used a wheelbarrow to take it all to the USDA office.

In addition, there is the daily task of keeping up with the documentation, what he refers to as "crossing the T's and dotting the I's."⁹³

Johansen believes that small plants having a standard HACCP plan would cut down on paper work and the number of issues popping up in inspections from one operation to the next.

Another hurdle that he's facing has nothing to do with regulations or paperwork. It's suburban development. Although his relations with neighbors are fine at this point with regards to odors and other issues related to livestock processing, he wonders whether this might change in the future.⁹⁴

From Orland to Sonoma, Direct

Head southwest from Johansen's place in Orland to Sonoma and you'll run into the Guggiana family business — Sonoma Direct. Marissa Guggiana presides over the operation that opened in May 2005 with an exclusive focus on butchering, cutting and wrapping most livestock except poultry. The plant does not slaughter, which means a federal meat inspector may or may not be on site every day.⁹⁵

Although the Sonoma Direct plant already had a USDA inspector under the previous owner, Guggiana had to invest time and money — \$8,000 to \$10,000 — to upgrade her HACCP plan. She contracted with an expert to help with the plan development process, hired and trained staff and upgraded the building to meet standards. For example, she changed the floors and lighting, painted and installed the proper refrigeration and cooling technology.⁹⁶

Cutting and wrapping lamb from eight ranches forms the bulk of Sonoma Direct's business. Each week, about 200 of the animals are sent to the Superior plant in Dixon to be slaughtered and then returned to Sonoma Direct for cutting and wrapping.

Sonoma Direct puts its brand on about 4,000 pounds of this lamb each month for sale to Whole Foods supermarket outlets in the state and to restaurants in the San Francisco and Los Angeles areas. It has contracted with the ranchers for ownership of the carcasses. In this arrangement, Sonoma Direct buys the animals and sells the meat. The company's profit margin for this branded lamb is 20 to 40 percent.⁹⁷

In contrast, each month the company also cuts and wraps about 2,000 pounds of lamb that producers pick up to market themselves. Sonoma Direct makes only pennies on the pound from this segment of its business.⁹⁸

Guggiana is developing a line of charcuterie — cured meats — that has yet to hit the market.

When it comes to niche marketing, the company has worked with the University of California at Davis Cooperative Extension Service's livestock division to launch the Sonoma County Meat Buying Club. It's essentially a community supported agriculture project in which consumers purchase a subscription for lamb, pork and beef from animals raised humanely in the county.⁹⁹

A share costs \$7 per pound, and members can get 7, 10 or 15 pounds per month. Sonoma Direct cuts and wraps the meat for the club.

Guggiana also is trying to establish a mobile slaughter unit. Although she could begin retrofitting a unit, which could cost as much as \$175,000, she prefers to first make sure that she can get approval for such a project. The main issues are what to do with the offal and the wastewater. So she is watching to see how George Work, whose story we tell shortly, progresses with his development of a unit.¹⁰⁰

"Mobile processing units are good because they allow for ranchers in a local market to sell product on their own," she says. "If they have to drive cows to Idaho to have them killed, many will just send them to a feedlot to be slaughtered and then the meat is mixed in with that from thousands of other cows. Even driving to Orland is an expense if you're only doing one animal. With an MPU, you don't have to drive anywhere."¹⁰¹

As with all of Guggiana's ventures, one of the goals is to open a dialogue with local ranchers and push toward sustainability: "Sonoma Direct is all about selling a region and the story of the growers as much as it is about the meat."¹⁰²

While she anticipates continued revenue growth, it's not easy. As with the larger plants, volume sustains the business, but adding value makes it grow.



A vista from George Work's 12,000-acre ranch in San Miguel, California. Photo courtesy of George Work.

And one mustn't forget the expenses that come out of that revenue — labor, maintaining the plant, running the cooling and refrigeration equipment, operating trucks and keeping up with HACCP and inspection requirements.¹⁰³

Guggiana generally likes HACCP because, she says, it creates a system of risk monitoring. However, dealing with the inspection and paperwork process is a constant struggle.¹⁰⁴

She does chuckle at one example of how one-size-fits-all regulations often don't make sense in small facilities. A new food security plan will require each employee to wear identification tags. However, she has only five employees. "If they don't recognize one another, we've got real problems."¹⁰⁵

In the beginning stages of updating her HACCP plan, she says the USDA inspectors always gave her lots of feedback and time to learn the system. For example, if one of her reporting forms was incorrectly completed, they showed her the problem. Compared to reports from other small plants, she was fortunate that the inspectors in her plant took the time to work with her. The Food Safety Inspection Service's official position is that inspectors are there to make sure that a facility is complying with its federally approved HACCP plan, not to point out how to fix problems.¹⁰⁶

If Guggiana were getting started now and had a problem, the facility would receive a "noncompliance report," a piece of paper explaining the problem or problems the inspector found. In response, the plant must say what it will do in the future to stop it.¹⁰⁷

Guggiana believes that all new small operators should receive the same level of help and consideration with their HACCP process as she did.

“For small plants, more help is always necessary,” she says. “In this industry I hear about lots of animosity between operators and inspectors. In reality, inspectors should be there to help us be better.”¹⁰⁸

Work Ranch Goes for Mobility

George Work has just about reached the promised land of his six-year journey to develop California’s first mobile processing unit — a USDA grant of inspection.

It all started with questions from people staying on his and his wife’s 12,000-acre ranch near San Miguel, about halfway between Los Angeles and San Francisco. They couldn’t understand why he didn’t serve beef from the 200 head of cattle on the ranch. Answer: It’s not federally-inspected and can’t be sold.¹⁰⁹

He heard about a mobile processing unit in Lopez Island in Washington State and decided to look into it. Some research convinced him that constructing such a unit and getting approval from federal meat inspection authorities wouldn’t be easy or quick, but he figured it would be far more feasible than trying to build a stationary facility. That route would be expensive and, perhaps most importantly, close to impossible because no one wants a slaughterhouse anywhere near their back yard these days.¹¹⁰

In 2002 he contacted Rep. Sam Farr, who quickly helped make a \$137,000 economic development grant available for the project. Work brought together a group of cattle, hog, sheep and goat producers to form the Central Coast Home Grown Meat Alliance to operate the unit. The Monterey County Agricultural Land and Historic Land Conservancy donated its non-profit status so that it could receive the grant money and then lease the retrofitted 18-wheel tractor and trailer back to the group for one dollar a year.¹¹¹

The unit can slaughter five cows a day and deal with hogs, lambs and goats, as well. It holds 300 gallons of water for cleaning the unit. It will serve the state’s central coast community, which ranges from Ventura County to Monterey County.¹¹²

But after a relatively quick start, the project stalled. Its HACCP and sanitation plans were incomplete. Besides a lack of capital to proceed beyond the renovation of the trailer, getting the go-ahead from federal authorities required that the unit have a home base, facilities where it could fill up with water, and a means of disposing of the wastewater, blood and offal.¹¹³

Changes were made to the inside of the unit, including a desk and filing cabinet for a USDA inspector. The home for the moving slaughter operation will be a new federally-inspected facility in Paso Robles — Paso Robles Meat and Sausage Co. It will cut and wrap the meat produced by the mobile unit, as well as provide a place to empty wastewater and leave offal. They will share a federal meat inspector.¹¹⁴

Ultimately, Work would like to see California follow the example of Washington State and allow for ranchers and farmers to either compost offal from their livestock or leave it on farms for carrion.

He says that the Food Safety Inspection Service is not thrilled with sending inspectors to small plants to begin with, much less to a mobile unit that slaughters few animals each day. The agency says it is not cost effective, given its shortage of inspectors, to devote a full-time employee to small slaughter shops.¹¹⁵

At the very least he says, with fingers crossed, USDA has not made good on past talk of user fees — charging meat processors a fee to have a USDA inspector on site. He believes that would put many small operators out of business.

By spring 2009, Work’s plan was much closer to reality. The mobile unit had been turned over to a farmers’ cooperative that received a federal grant to set up a business plan, develop HACCP plans, and get into compliance with various regulations. And years of persistence paid off when USDA agreed to bring an inspector from another part of the state, part-time, so the mobile unit could start to operate.¹¹⁶

But it wasn’t long before there was another bump in the road for the project. After operating for just three days, the group had problems with offal disposal. Evidently, by following the instructions of one state agency for on-farm disposal, they ran afoul of the rules of a different state agency. As of early June 2009, the coalition was working with state officials to resolve the problem of what to do with offal. Because of the increased requirements for handling offal from older cattle, the group has already decided they will not process any older animals.¹¹⁷

Deb Garrison, coordinator of the project, says they are not out of the woods yet. “It’s not just the USDA regs, but also those of California that create the problem. The Washington unit has less restrictions” for waste disposal. But she also points out that the real key to long-term viability of the unit is an increasing willingness on the part of consumers to “pay a little more... to understand that the price they now pay for food does not adequately reflect production costs.”¹¹⁸



Part II: Rebuilding Small-Scale Meat Processing Infrastructure

New Facility Feasibility

While many small slaughter plants still operate across the country, starting a new one can be tricky. For one thing, feasibility studies commissioned by various entities consistently show marginal economic returns. The question is what kind of facility — traditional fixed location or a mobile slaughter unit — is more feasible.

Traditional Facilities

A traditional slaughter facility is a permanent facility where farmers bring their animals to be slaughtered. It may or may not include further processing of the meat, but the typical situation would include meat processing.

Advantages

Traditional fixed slaughter facilities have numerous advantages. They have, or should have, sufficient scale to make a significant contribution to local and regional food systems. Typically, a very small facility will slaughter two days a week and process three days per week. A typical small facility will slaughter five days per week. Very small slaughter facilities vary greatly in the number of animals they may kill per week. It typically can be as little as five¹¹⁹ or up to 50 or more.¹²⁰

Slaughter and processing can happen in the same facility. This means the two functions can share management and administrative duties. They also can be flexible. For example, many small plants are multi-species operations.

Often, they serve niche markets. The only way very small and small facilities can compete given their higher per animal cost of slaughter and processing is by commanding a premium in niche markets that are willing to pay for the products.

Disadvantages

However, these facilities also have downsides. Small facilities are not immune to the same siting and waste disposal problems faced by large plants; only the scale differs. While neighbors may be less likely to object to a small facility next door than a large one, it is still a place where live animals are killed, and that is difficult for some neighbors to stomach.

Offal disposal is actually more difficult for a small plant than a large one because the volume of product is low by large plant standards, and the renderers who accept the material often are not local.

Capitalization also can be tricky. The higher the upfront investment in a business, the more difficult it is to capitalize, particularly when the business doesn't offer investor grade returns. Thirty percent equity and personal guarantees on the bank debt and SBA loans are likely to be required. For a \$2 million federally-inspected facility, that pencils out to \$600,000 in equity and \$1.4 million in loan guarantees.

Many permits and regulatory compliance are typically required. Permits required tend to be locally determined and include appropriate zoning, wastewater discharge permits, local and state environmental impact assessment and any relevant environmental permits.

Small plants also can have difficulty in finding employees to perform the work. Meat processing has one of the highest workman's compensation ratings and is demanding physical work. People with relevant knowledge, skills and abilities are difficult to find for supervisory and management positions.

Despite these obstacles, some persistent companies have managed to start new operations that are not only surviving, but also thriving.

Next Generation Facilities

Lorentz Meats — Cannon Falls, MN

Lorentz Meats is a second generation slaughterhouse and processing facility in Cannon Falls, MN. The first generation of the family purchased the business in 1967 and sold it to their sons in 1997. The sons raised equity from friends and family to build a larger, state of the art facility in an industrial park on the edge of town. Their plant is federally-inspected, USDA organic certified, humane practices certified by Whole Foods and EU certified to ship elk and bison to Europe. There is a viewing room in the facility where the public can watch the entire process.¹²¹

Lorentz no longer markets its own meat products, but instead focuses on helping its livestock-producing customers grow their value added meat brands. The business also processes natural, certified organic beef and pork, Berkshire pork, grass-fed beef and locally grown, source-verified meat. Its meats are now shipped across the United States. It has 60 employees. Both sons are active in the business and are committed to growing their value-added niche market.¹²²

“Most people with good business skills can make the decisions needed and work with inspectors for both state and organic certification to get a plant set up.”

*– Lawrence Mayhew,
Gorman's Meat Locker*

Lorentz Meats is a good example for a number of reasons. It transitioned from one generation to another while recapitalizing to expand and work with local producers to develop national markets. Private equity was required to make this transition. And because the new Lorentz facility is state of the art, utilizes humane practices and has organic certification, it gives the business a strong competitive advantage both locally and nationally.

Gorman's Meat Locker

Gorman's is a Certified Organic Processing Facility in Lone Rock, WI that processes locally raised beef, pork, lamb and poultry meat products. This is an example of a new meat processing facility that is using an incremental approach to entering the specialty meat processing business.¹²³

Opened in 2006, Gorman's only processes livestock from farms that provide naturally raised animals with high quality forages grown on fully mineralized soils without the use of pesticides, hormones, genetically modified organisms or antibiotics. Its owner, Lawrence Mayhew, a seasoned entrepreneur, organic scientist and researcher, called setting up a certified organic meat processing plant, “the most challenging thing I have ever done in my life.” He also thinks that, “most people with good business skills can make the decisions needed and work with inspectors for both state and organic certification to get a plant set up.”¹²⁴

He cites several keys to success. He works out of a renovated an old meat plant rather than a much more expensive newly constructed building, restricts processing to the plant while slaughter is done off site or on the farm, has two business partners to help run the business, and has state

inspection. In addition, he sells meat at markets in a community with higher disposable incomes and more interest in organic foods.

Pete's Meat Service

Pete's Meat Service is an example of an existing custom meat processor that incrementally expanded into organic meat slaughter and became USDA-inspected. Tim Bolkus started processing organic meats at Pete's in 2006 in Rudolph, WI.¹²⁵ Tim's successful business model includes a kill floor that was added to an existing meat processing facility and federal inspection.

He's also had success with labor by finding and keeping former grocery employees in his facility. Many had been out of work as most of the grocery stores in the area shifted to selling prepackaged meats.

And, very importantly, he has a local retail outlet. In addition, Pete's ships meats over state lines into Iowa and Minnesota and is optimistic about the future growth of his organic business. "Organic will only continue to grow — the demand for organic meat by far exceeds what is available. People are taking notice of how things are being raised, we are only seeing the leading edge of a huge demand wave for organic meats."¹²⁶

Mobile Facilities

An alternative to a traditional small or very small fixed-location slaughter operation does exist.

USDA and state regulators have long recognized the farmer's right to slaughter animals on the farm for their own use. Over time this evolved into a custom slaughter model where people who owned very small meat lockers would come to a farm to slaughter an animal, break down the carcass, and take the meat back to the locker to cut and freeze on the farmer's behalf. Mobile slaughter facilities take this model one step further and bring a kill floor, in the form of a trailer, to the farm for handling the slaughter on site. The success of a few of these projects nationally has resulted in state-level initiatives across the country to explore the feasibility of such facilities, determine the level of producer interest, and provide a means for licensing their operation.

But as with a traditional facility, the mobile model has both advantages and disadvantages:

Advantages

The meat from animals slaughtered in a mobile unit benefits from several aspects of the process. Using a mobile slaughter plant avoids long trips that can stress livestock.



And slaughtering the animal on the farm, where the animal is relaxed, means meat that is more tender.¹²⁷

Starting a mobile slaughter unit is cheaper. The Alberta agriculture agency estimated that an initial capital cost of \$200,000 could build a unit equipped to handle eight head of cattle per day.¹²⁸

A mobile plant also reaches the monetary breakeven point faster due to low overhead per animal. Ever since the Lopez Island, Washington mobile slaughter facility succeeded in gaining USDA inspection approval, the mobile slaughter model has become an option for communities and individuals to consider.¹²⁹

Depending on the regulations in a particular state, byproducts may be composted on the farm. Offal biodegrades quickly and efficiently when in a properly designed compost pile and when large quantities are not allowed to accumulate in one place.

Fewer permits are required for mobile facilities. Farmers already have the ability to slaughter animals on farm for their own use. Along with that, siting isn't a problem. There is no central location that produces traffic, noise and odors.

Staffing is less of a problem for mobile facilities. The typical mobile slaughter facility requires one staff member working with the farmer. A federal inspector will have to travel with the trailer if the facility has a USDA certificate of inspection.

Cutting and butchering is easier and cheaper to locate. Without the need to slaughter animals, a butcher shop can be located in a typical retail location.

Disadvantages

The mobile slaughter model doesn't scale up very well. There is a limit to how big a trailer can get and the result is that the processing capacity of a mobile trailer is low: Five to nine steers per day or approximately 200 poultry per day.¹³⁰ This low volume makes it essential that there is sufficient demand for the mobile unit's services within a geographic area that is economically viable in light of fuel costs and market options.

In some parts of the country, such as California, mobile slaughter projects have been delayed by issues of waste management. How offal and wastewater from the processing unit will be disposed of may become another regulatory hurdle for new projects. In California, one project solved this problem by establishing a relationship with a "home base" plant that can accept the wastewater and offal from the unit and dispose of it in compliance with state rules.

Another regulatory hurdle can come from the USDA's unwillingness to assign a meat inspector to a mobile facility. This is more than just an annoyance, since the presence of an inspector is required for a plant to slaughter animals. Agency officials have used staff shortages as justification for not assigning inspectors to new mobile projects.

Viable Mobile Processors

Lopez Island

The Lopez Island project, in addition to being a path-breaking project in terms of USDA inspection, had a number of business model attributes that contributed to its success.



The local Community Land Trust was very involved throughout the project and obtained grants to support the early stage work on the project. The Land Trust purchased the trailer.¹³¹ This is significant because a land trust will typically have a strong balance sheet to leverage in obtaining financing, something a new organization often doesn't have.

A cooperative of farmers was organized, and the members have the right to use the trailer. The coop leases the trailer from the Land Trust. They help the one staff person who drives the facility with the slaughter process. The trailer can slaughter 10 head of cattle, 20 hogs, or 70 lambs. Farmer members pay a processing charge to a separate processing center that cuts the meat.¹³²

Mobile Matanza — Taos, New Mexico

The Taos County Economic Development Corporation (TCEDC), with funding from the state government, is providing a tool that can help make ranching more profitable. It's called the "Mobile Matanza," named after the tradition of community members coming together to help one another butcher livestock and share and celebrate the bounty.¹³³

Lee Knox, a native New Mexican who grew up on ranches, was hired as the Mobile Matanza manager and chief butcher. Like Lopez Island, the County Economic Development Corporation owns the trailer.¹³⁴

Island Grown Initiative on Martha's Vineyard

The Island Grown Initiative on Martha's Vineyard recently purchased a mobile slaughter facility that moves from farm to farm and backyard to backyard to slaughter poultry as part of its pastured poultry initiative. The initiative provides training, materials and networking opportunities for people on the island to help them raise their own meat birds.¹³⁵

Roles for Governments and Non-Governmental Organizations

The many barriers that make these businesses difficult to create and sustain make it useful to think of small meat processing facilities as strong candidates for support as quasi-public and private social ventures. Small meat processors struggle in their early stages, but can be sustainable businesses over the longer haul with the right management and business models. An opportunity therefore exists for the public sector and non-governmental organizations such as land trusts to provide assistance to get these businesses off the ground.

Creative Financing

Low investor returns, while potentially adequate for a mature ongoing business, are rarely capable of competitively rewarding investors for the risk associated with the early stages of new business. Therefore, it is useful to think of the opportunity to grow small meat processing infrastructure in the private sector in several ways.

First is the opportunity for leveraging strategic related parties, for example, a group of supplying farmers and ranchers who have existing related businesses and will view the low returns to processing as a value added increment to their existing businesses.

Another approach includes transitioning an existing small processor to a next generation ownership group and business model.

Of course, any of those approaches will require similar types of financial assistance.

Planning Grants

New businesses that require capital investment in a highly regulated market face significant up front planning expenses. These expenses are often difficult to fund because they must be incurred well before any revenue starts. Many government programs provide grant money to help cover these expenses, including business feasibility studies and business plans, engineering, legal, and financial and accounting assistance. These include USDA Rural Cooperative Development Grants, Rural Business Enterprise Grants, Rural Business Opportunity Grants, Resource Conservation & Development Program funding, various state value added agriculture grants, USDA's Value Added Grant program.

Small meat processing facilities require some combination of equity and debt as part of their capital structure.



Debt

Governmental bodies and other interested parties can help these businesses obtain credit facilities in various ways.

1. **Loan funds directly.** Many local communities have revolving loan programs as part of a community development block grant programs. These typically provide low interest loans that fill gaps and make projects feasible in their communities. Other interested non-governmental organizations could consider creating their own revolving loan programs modeled on these local community programs. In addition, the Small Business Administration has a number of direct loan programs that can be applied to small meat processing facilities including the 504 and 7A programs.
2. **Provide a credit enhancement to enable a bank to extend credit.** It is common for banks to require personal guarantees from entrepreneurs and increasingly common for them to require guarantees for their entire credit facility by a third party. Through the USDA Business Investment Program, private individuals or related business entities with large balance sheets can "rent" their balance sheet to a new entity as a way to guarantee the bank's debt. This may be an opportunity for an endowed nonprofit organization to leverage its balance sheet to help a social venture get started.

Equity

Organizations seeking to support these businesses on the equity side have a couple of options to consider.

1. **Grants.** Grant funds that come into a business during its startup build up a young company's balance sheet and therefore reduce its equity requirements.
2. **"Off balance sheet" loans.** A good model for this is a power company that structures energy savings programs such that they give businesses cash up front to purchase energy saving equipment and then allow the company to pay back the loan through its power bills. This creates an "equity-like" cash infusion for a company. In contrast, if this loan were structured as a more typical equipment loan in which the power company lent the business the money up front but required a collateral position on the equipment, it would simply be creating another loan instrument and not something similar to equity. The lesson here is that proper structuring of a loan can make it more like equity, which is more useful to a new business.
3. **Outright purchase and lease back to an operating entity.** This is the approach that's being used with

a number of mobile slaughterhouse projects when community land trust or nonprofit organization purchases the slaughter trailer and leases it back to the farmers' cooperative whose members use the trailer.

There are still challenges to tapping into many of these programs. There are relevant programs at the federal, state and local levels and in private foundations, but small business entrepreneurs often aren't aware of them. Any effort to improve existing funding or grant programs or create new ones should be accompanied by a significant public education effort.

Government and foundation programs often are very slow to award funds. This could force the small businesses to spend their own money on planning, even though they could have qualified for assistance.

Government programs often are complex. Small business entrepreneurs typically must pay people to write grant applications for them and then do the reporting afterward. Government programs are structured in ways that can be cumbersome for high capital investment businesses. They tend to help more on the debt side than the equity side. An opportunity therefore exists to provide the equity and support typically provided by Angel and Venture Capital funds for social ventures such as these.

Technical Assistance

The complexity associated with financing a slaughter facility can be daunting to an entrepreneur who really just wants to be in the meat business. There is, therefore, an opportunity for a foundation or government program to provide social venture financial consulting services. This could help an entrepreneur sort through all of the available financial programs, approach potential investors and locate a supportive bank. In addition, the myriad permits and regulatory requirements facing an entrepreneur who's developing a meat processing business could be mitigated through one-on-one technical assistance to individuals developing these businesses.

A model can be found in the Dairy Business Innovation Center in Wisconsin. The nonprofit began in 2004 and its 20 dairy consultants work to increase the specialty and artisan dairy businesses. The organization is financed by federal funds, thanks to support by Sen. Herb Kohl and Rep. Dave Obey, matched by in-kind services from state organizations.¹³⁶ The center provides a range of technical consulting services to entrepreneurs in the dairy business, ranging from business and market planning, financial consulting, packaging and label development, technical assistance on process issues, HACCP and permitting. This program has



worked with more than 155 different clients over the past four years to develop 70 new dairy businesses or value added product lines. A national program focused on small scale meat processing could make an even larger impact.

Programs that Foster Community

Community opposition to plans to build a traditional slaughter facility can be mitigated by community facilitation assistance working with members of local communities. Most individuals have no idea how important a facility like this is to preserving their open space and local food supply. Once they have the bigger picture, as well as the opportunity to talk to the entrepreneur about plans for handling the animals, truck traffic, noise, water and waste disposal, the community is more likely to support hosting the business. Doing this during the public comment period typically associated with a permitting process is too late; community members need to be engaged at the early planning stages to increase the odds that a dialogue will be successful.

Professional Development Programs

There is a new generation of young people who are committed to sustainable agriculture and local food systems. They are interested in working in the field but have no practical experience. They are well educated but have no experience working in a slaughter facility or meat processing facility. It is very important that the current generation of individuals who know how to operate these businesses humanely and profitably can pass what they know on to another generation, even if the next generation is not their own children. Many states have programs designed to match people who want to farm with people who want to retire from farming; a similar program could help preserve and build the technical and management skills we need to make small scale facilities viable.

Steps to Take to Start a Facility

So you think you want to start a slaughter facility in your community? The bad news is that every business is different, every community is different and every entrepreneur is different. The good news is that despite all of the differences that make each business unique, there is a fairly standard process that needs to be followed to start a meat processing business. While the steps are roughly sequential, it is often not a linear process and steps will often need to be revisited several times before a business is up and running.

1. Identify an Entrepreneur. Starting a slaughter facility is just like starting any other business. While some of these projects rise from the concerns of local food and other nonprofit organizations, at the end of the day someone has to adopt the project as their own. The importance of this role is not to be underestimated. Without this person, these projects are often simply too frustrating and complex for a group of otherwise well meaning people to complete.

Can the entrepreneur be a group of people? Yes, as long as the group is single-minded enough to persist despite all of the obstacles they will encounter along the way. The problems faced in maintaining this single-minded purpose often are what make it difficult for cooperatives to be successful as entrepreneurs.

2. Identify stakeholders and start working with them. Because of the low margin nature of the meat business, stakeholders are often the only way to raise equity for financing. Potential stakeholders include farmer suppliers; local land trust or other conservation organizations interested in preserving open land and or local food systems; local, state and federal government agencies; and family members. You may want to talk to the owners of any existing small facilities, because there may be an opportunity to purchase one from a family that is not interested in transitioning to the next generation. It is often easier to obtain traditional financing for an existing entity than for a start-up.

3. Develop a business model. Mobile or traditional? LLC, coop or partnership? USDA certified or not? These big picture business model issues need exploring and then decisions made to focus the business plan.

4. Develop a business plan. Just as with any other business, the best way to ensure success is to develop a business plan. This is required by lenders, and the process of writing it will force you to

think through critical areas of your business. These include:

a. The Target Market – Who is your best customer? What does he or she want to buy? Why? How many of them are there in your area? What market share do you need to be successful? Consider the marketing area, including the radius that can be served in terms of delivery or retail pickup. Take an inventory of existing slaughterhouses and processing facilities within the area to be served. This includes existing or potential mobile slaughter units, as well. Ways to look into this include the USDA Meat and Poultry Inspection Directory (http://www.fsis.usda.gov/Regulations_&_Policies/Meat_Poultry_Egg_Inspection_Directory/index.asp) and checking with USDA and state officials about new plants opening. In addition, look for plants shutting down.

b. Products, services, prices – What are you going to sell, for how much?

c. Sales and marketing plan – How are you going to sell, to whom? How are you going to distribute your product? How are you going to tell people you're there to sell them the products they want? In many cases, the smaller guys can compete with bigger operations only if they can carve out a niche.

d. Management and operational plan – How many people will you employ in what jobs? What knowledge, skills and abilities do they need to have? Where will you find these people? How much will you have to pay them?



e. Financial plan – How much is it going to cost to get this business off the ground? Where will you find the equity you need? How much do you need from a bank? Does the Small Business Administration or local government economic development authority have programs that might help?

f. Five-year financial projections – Will you make enough money at this? Be sure to include your own salary. These projections will be used by all of your financial partners in determining whether and how to finance your business.

5. Line up financing partners.

- a. Grants – government, nonprofits
- b. Equity – who are your investors?
- c. Lender – It may take several tries to find a bank willing to take the risk of financing your business.
- d. SBA or other programs designed to support lenders

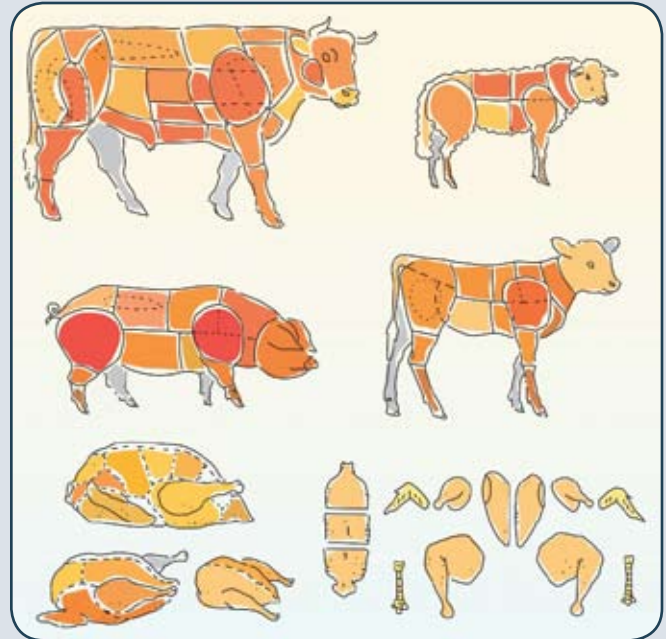
6. If a fixed facility, identify potential sites that can accommodate your wastewater, traffic, and needed proximity to main roads. Existing business or industrial parks that are already zoned appropriately make this process much easier. Start negotiation with its owner and local officials.

7. Engineer/design the facility. A contractor and equipment vendors often know what kind of permits are required for your project. Get these individuals involved early to ensure that you are picking the right location and addressing potential problems early.

8. Obtain needed permits. A range of permits are required. Zoning and construction permits should be pursued early in the business development process.

9. Register your business and develop your operating agreement. The operating agreement for a business defines how the ownership is structured and what authority is granted to the shareholders, board of directors, and managers. This is a critical document and a requirement for all financing.

10. Close on the site purchase simultaneous with financing. Your lender is likely to give you a long list of documents you will need to provide in order to close on financing.



11. Hire a plant manager – This individual should be involved in designing the facility and on staff during construction. He or she should be involved in sourcing equipment and working with suppliers and your contractor.

12. Build out facility – Your contractor should be under contract to perform the construction. Expect to have your plant manager fully engaged with the contractor during the build out. This is a good time for the manager to develop a HACCP plan for the facility.

13. Obtain grant of inspection and additional certifications – USDA requires that facilities have a grant of inspection prior to beginning operations. Those plants that will produce kosher, organic or other types of specialty products will require various certifications.

14. Startup – Plan to start up your operation at a pilot scale at first to make sure that the process is working as you anticipated it. Then scale up as quickly as possible. This process is fairly capital intensive and it is only profitable with sufficient product flow through the facility. Have a plan for how you are going to scale up and when.

Case Study: New York

New York State is the site of a frustrating yet compelling drama. For the last several years, the demand for locally produced meat and poultry products has been growing. Gourmet restaurants in New York City, local school districts, customers of farmers markets and other sectors of the public have all been increasingly interested. And local farmers have increased their herds and flocks as much as possible to meet demand. But there is a major wrench in the system — a lack of local slaughterhouses and processing plants. The primary culprit thwarting the development of this burgeoning market is the policies of the Food Safety and Inspection Service that favor the largest plants. Meanwhile, small and very small slaughterhouses and processing facilities have been falling by the wayside.

“The lack of slaughterhouses is the biggest bottleneck in the food business,” says Patrick Martins, who directs Heritage Foods USA, the sales and marketing division of Slow Food USA. Heritage launched into its mission to save America’s food traditions by helping to double the number of heritage turkeys. Within New York State, Heritage has been working with some farms to make local, sustainable meat available in regional markets. The farmers deliver the animals to slaughterhouse and then Heritage picks up the meat.¹³⁷

An increase in the number of local slaughterhouses “absolutely” would lead to farmers increasing their free-range herds and then being able to increase sales, Martins says.¹³⁸

Tom Gallagher, a livestock specialist in the Capital District of Cornell University’s Cooperative Extension Program, has perhaps the best ringside seat for this drama. He has assisted small processing plants to become USDA-inspected and helped local farmers market their products. He says that the market for meat from locally produced, free-range livestock is exploding.

“Several years ago, I’d get one call a year from someone wanting to buy locally produced meat or poultry,” Gallagher says. “Now it’s six or eight per month. At the end of last year we had 365 farmers markets; this year [June 2008] we already have over 400 and I’m opening another one later this week.”¹³⁹

But he has seen firsthand how a slaughterhouse functions as the bottleneck in this market. In the case of a newly reopened slaughterhouse in Altamont, New York, Gallagher urged the owner, who had been leaning towards opening a custom exempt facility, to take the steps necessary to become USDA-inspected. The local “livestock numbers were declining, but as soon as Nichols opened up we saw

“Several years ago, I’d get one call a year from someone wanting to buy locally produced meat or poultry. Now it’s six or eight per month.”

– Tom Gallagher, Cornell University’s Cooperative Extension Program

the numbers increasing. Farmers started adding customers so they increased the number of animals they were raising, demand grew and Nichols started getting more customers.”¹⁴⁰

The dearth of slaughterhouses in New York State developed in a bigger context over decades. It’s part of the degradation of New York’s local, family farming, which itself was a microcosm of what happened across the country after World War II. Although dramatically oversimplified, it’s fair to say that many interrelated factors came into play. Federal government agricultural policy swayed toward bigger is better, which tied into the growing economic might of giant agribusiness corporations. Meanwhile, the suburbs rose. People continued moving away from farming, both literally and figuratively. Refrigeration, trucks, and interstate highways accelerated the growing and processing of food on a factory scale in places far away.

In New York, many slaughter plants shadowed the dairy industry. When cows reached the point where they no longer were lactating, they were slaughtered in those small plants. But the consolidation of the dairy industry in the state and across the country rang their death knell. Instead, large corporations began slaughtering and processing most of the cattle and other ruminants.

In 2008, only 41 slaughter plants remained in the state, down from triple that number in the 1980s.¹⁴¹ Nearly half (45 percent) of New York’s very small plants producing ground beef before 2003 stopped producing it by 2007

— we have not determined how many of them also went out of business, but production of ground beef is often the mainstay of a processor's business — without it, they may not be able to remain profitable.¹⁴²

“We saw the very big and the very small surviving, but not the medium size operations,” says Richard Beckwith, who runs a full-service, USDA-inspected operation in Canaan.¹⁴³

In the last decade, however, the demand for sustainable, locally raised meat has taken off in the cafes, markets and restaurants in the Empire State and beyond. But without the slaughterhouses to efficiently and precisely process the meat, farmers are facing increased costs to meet the demand. That comes in the form of time and money spent transporting animals to the few and faraway slaughter facilities and then going back to pick up the meat, in many cases for further processing somewhere else.

Ken Kleinpeter is one of many farmers who would like to expand meat production in the Hudson Valley.

“The rocky, sloped land is not good for growing grain, but livestock grazing the grassy slopes of the area is a great way to preserve working landscapes,” says Kleinpeter, director of farm operations for the nonprofit Glynwood Center in Cold Spring, New York.¹⁴⁴

But the lack of slaughterhouses hurts. He not only has to deal with the time and expense — think fuel and vehicle wear and tear — of a two-hour trip to slaughter the cattle raised on Glynwood's 200 acres, but he also has had a difficult time scheduling slaughter. This delays his selling a finished product, which drives up his costs.¹⁴⁵

When slaughter plants are too busy to take more work, producers of pastured animals have problems. Normally, the meat on the animals is at its highest quality sometime in September or October. (But it's hard to know the exact date and the exact number of cows one will have.) So, if he can't take the animals to be slaughtered until winter, then he incurs the expense of feeding them hay made from the pasture grass and meat that is of a lower quality because the fresh grass is more nutritious than hay.¹⁴⁶

Farmer Kirby Selkirk has the same problem. For the past five to six years he's been raising and selling lamb and was one of the first producers in the Chateaugay area of upstate New York to have them slaughtered at a USDA-

inspected facility, which gives him the maximum opportunities for selling the product.

“There's been a growth in the market every year,” Selkirk says. “It's almost frantic trying to keep up with it. We've seen a big increase. The population that comes to the farmers market has been growing. There's a huge opportunity here, but we have a limited population. So in order not to have a second job, we will have to expand our marketing.”¹⁴⁷

But that's where the lack of slaughterhouse facilities complicates things. He needs to get the lamb slaughtered, cut and wrapped to fulfill the demand generated by an expanded marketing effort.

“The slaughterhouse and a processing facility is a bottleneck at this point,” he says. “Because the slaughterhouses are few and far between, it's difficult to get in.” His single choice is an 80-mile round trip to Tri-town in Brazier Falls, a journey that requires time, fuel and money. “We try to take a load of lambs when we go to pick up the meat from the previous slaughter, but doesn't always work out. The trip is getting more expensive, and so we have to raise our prices.”¹⁴⁸

Susan and Marc Jaffe share his woe. They gave up their hectic executive lives in Manhattan to raise chickens and cattle on 80 acres of pasture grass in Livingston Manor.

They used to transport about 7,000 chickens a year to a state-inspected slaughter facility that was half an hour away, but it closed. So they now have to drive the birds to a slaughter plant two hours away.¹⁴⁹



And it gets worse. “For our beef, we go to Pennsylvania, which is also a two hour drive, one way. Because of the gas prices, these types trips can make or break you.” They also have trouble scheduling their hogs and goats for slaughter.

“If there were plants closer it would absolutely ease the burden, because you wouldn't be spending time traveling or spending the extra gas money,” she says. “The convenience for farmers would be fantastic. You would have the opportunity for value-added products like chicken sausage. If you had a smokehouse, it wouldn't be just pork, but you could make bacon. It would offer not only the farmers but also the community a benefit. You'd also have a reduced carbon footprint.”¹⁵⁰

But getting the animals into a slaughterhouse is not the end of the story, for the plant must do a good job slaughtering and butchering the meat. For example, if steaks are not cut well, then there's a lot of wasted meat that reduces the farmer's profits, Kleinpeter says. He's found that because of the high demand on the few remaining slaughterhouses and the diminishing workforce, some can get away with offering subpar service. This hurts small producers trying to tap into gourmet restaurants and high end markets.¹⁵¹

Patrick Martins of Heritage Foods agrees: “If we work with a [slaughter]house and if the cuts come out bad, we wouldn't work with them but that would be because of a quality issue. USDA is not a quality check but a safety check. Because there are so few slaughterhouses, there is no competition for them to do quality work. It's the butchering. Is it cut elegantly? Do they follow the cutting orders exactly? Do they take enough of the fat off? Butchering is a lost art. Very few people are going into the business.”¹⁵²

The shortage of slaughterhouses is particularly difficult for Pam McSweeney, who needs to have her animals slaughtered in a USDA certified-organic slaughterhouse. The nearest one is in Vermont, two hours away and her second choice is one in Pennsylvania that is more than five hours away. The shortage of slaughterhouses also makes processing animals very expensive: “I want to emphasize: I brought two animals to be processed in January. My bill was \$1,100. That's a lot, especially considering all of the other expenses, including the increasing expense of two trips of at least five hours each — one to drop the animals



off, the other to pick up the cut-up beef. I don't know if this part of my business will ever be profitable.”¹⁵³

One organization trying to help is the Northeast Livestock Processing Service, a company run by producers and born out of a grassroots effort by the Hudson Mohawk Resource Conservation and Development Council to address issues associated with meat processing. Its mission is to “create a more profitable environment for farmers and livestock processors by creating a more efficient system which will offer better scheduling, act as a communication link between farmers and processors and help to resolve quality control issues,” says Kathleen Harris, the processing coordinator.¹⁵⁴

Universities are one of the large institutions that are now looking for local products, she says. Many are starting with one café on campus that serves locally produced foods, but there is increasing interest in larger orders. That's where NELPSC comes in. “Farmers don't generally have the mechanism in place to provide products to an institutions that have extensive requirements. The whole structure is designed for the industrial food model. Most of the procurement people have been getting meat in a box for so long, they've forgotten that it starts on four legs. I have to go through a whole process of educating them. They don't understand it from a processing capacity. Since I'm there as a liaison, it has made a big difference for the success of it. We are a farmer organization to help farmers. Our board stated that we don't want to compete in the

same market as the industrial food. We on-farm source the cattle, we provide affidavits on how the animals are raised. Then we schedule and make all processing arrangements, oversee the processing, and deliver the product to the college. They get one large order with one bill. We started meeting with one university in May 2006, and we made our first delivery in February 2008. They initially made a 10,000 pound commitment. Once we made the first two 2,500 pound deliveries they doubled their order and then I had to scramble to meet the demand.”¹⁵⁵

“These institutions have many requirements, including third party sanitation audits but, by and large, they are not scale appropriate for the plants we have in New York. We have some very good plants in New York, but they are all maxed out. They are so overbooked that they aren’t willing to spend the time. They don’t need the headache. It’s not that they can’t pass the audit, it’s that they are so over-worked that they have no reason to do the extra stuff that is necessary. Third party auditors want extra bookkeeping, tracking, and equipment. These plants are all operating on a shoestring and don’t have the extra to spare. I’m booking for February and March right now [in July].” Harris is now working to devise a third-party audit that would be more appropriate for smaller plants.¹⁵⁶

Others also have thoughts on getting more slaughter plants in New York State and beyond.

High cost has prevented development of more new small slaughter operations in New York and around the country, says Marty Broccoli, an agricultural economic development specialist with the Oneida County office of the Cornell University Agricultural Extension Service.¹⁵⁷

To build a full service processing facility, including slaughter, custom cut, cooking and smoking, requires at least an 8,000 square foot facility at a cost of about \$300 per square foot, minimum. With cattle, one actually needs about 10,000 square feet in order to be able to hang the large ruminants’ carcasses.¹⁵⁸

So of that \$3 million cost, even with \$1 million from the government and \$1 million from investors, processing the volume of animals needed to pay off the loan on the \$1 million would be difficult.¹⁵⁹

Much of the expense of developing a plant comes from building it to conform to regulations, including HACCP requirements. And Broccoli doesn’t foresee the government loosening regulations.

For example, the regulatory requirements covering grinding, smoking and cooking have increased. The meat laboratory at SUNY Cobleskill had a smokehouse, which produced a ready-to-eat product, inside the raw product cutting room. But under HACCP, cooked and uncooked product cannot be simultaneously stored or processed in the same room without a thorough cleanup procedure. Lots of the older slaughter plants combined those two and now have to be modified.¹⁶⁰

However, the cost of constructing a plant is not the only factor to be considered. There’s also labor.

Broccoli estimates that plant-owners have relatives working in 75 percent of small and very small plants, which typically have fewer than 25 employees. “It’s a family tradition and the baton gets handed down. It’s a skill — you’re born into the business... That’s why I do it. I was born into it. The situation is so tenuous now because once these people go...it’s not like we’re turning people out that want to go into it.”¹⁶¹

Indeed, slaughtering and butchering is a skill, but many of the sources of training in New York are gone. And there’s one course left — at the State University of New York Cobleskill campus — that teaches slaughter and meat cutting.

In order to assist plants in complying with regulations, Broccoli suggests that every state have one or two HACCP facilitators working on behalf of the plants as liaisons with FSIS inspectors. In addition, he thinks people who are considering the construction of a slaughterhouse should instead consider smaller value added facilities that take meat after slaughter and further process it into finished products.¹⁶²

“The more you add value, the more profit you can make from an animal,” Broccoli says.

The Glynwood Center’s Kleinpeter agrees that adding value is a good idea, but he questions the wisdom of abandoning the idea of developing new operations that combine slaughter and value-added processing. He’s already taking cows two hours away and then has to drive it somewhere else for further processing, such as grinding or smoking. All of this increases costs.¹⁶³

And when it comes to building a new plant, he says that well-run slaughterhouses do not stick out or disrupt communities. “But the perception is that it’s



bad," he says. "This is part of our being removed from our food."¹⁶⁴

Kleinpeter's advice: Build a good slaughter and processing facility in the Hudson Valley where the staff is honest, knowledgeable and where there is flexibility in terms of scheduling animals.

"If we had a good place in the Valley, more people would consider raising livestock," he says.¹⁶⁵

The push is on to bring a new slaughter operation to the village of Liberty, 90 miles northwest of New York City.

Paul Hahn, the director of agricultural economic development in Sullivan County, has been trying to start a 4,200 square foot slaughterhouse that could process 50 cows each week and more of smaller livestock such as pigs, lambs and goats. The building will be designed to expand if there's more demand. A mobile slaughter unit has been discussed as a possible future addition to the project.



Smoking, sausage production and other value-added processing could be added, as well.¹⁶⁶

The budget for infrastructure development, including putting the facility on municipal water and sewer systems, building out to the road and hooking up electricity is \$1.2 million. Once the site is "shovel ready," the cost of building the plant will run about \$1.1 million. More money will be required to build the plant to divide raw and cooked operations and with the capability of expanding beyond the 4,200 square feet. The goal is to open the facility by 2010.¹⁶⁷

Hahn is working with the Agricultural Local Development Corporation, a nonprofit organization that will either run or lease out the building, to secure grant money to build the facility. They have approached the New York State Department of Agriculture and Markets, USDA and other entities for the money. Farms in Sullivan, Delaware; Olster, Orange and Wayne County, PA; and Dutchess, New York also would use this proposed facility in Liberty.¹⁶⁸

In addition, he and others are working on developing their HACCP plans, and he has received the application for inspection from USDA. The first priority was to learn the regulations in order to build the slaughterhouse to code: "I heard that it can be a little difficult to get USDA to approve the HACCP plans, but that it is not usually the plan itself, but the language within the plan that has been the problem."¹⁶⁹

There is no reason why the geography and demographics in New York would not support the development of abundant niche farms. "The market we are going to try to capture is the New York City restaurant market which is now buying from California, Kansas and other places," he says. "There was some market research that shows it is feasible. There is no doubt that a better quality product can be produced in New York, because it will be grass-fed."¹⁷⁰

"Pork is also a big thing. Supposedly it will be harder to get because of grain prices, the big factory farms are cutting back. Pork will be in high demand in the future, and New York farmers could fill this demand as well. Our product should appeal to this restaurant market also because you can do more fresh product with shorter transportation times and lower transportation costs."¹⁷¹

There is a little bit of concern about getting trained employees. In the future, Hahn hopes to look at the possibility of having training in the facility. There are specific details that we will have to work out as things move forward.¹⁷²

And if Hahn is fortunate, he won't have the problems that

Ernie Ward did when he opened his plant in Richfield Springs, New York. There were already a lot of custom facilities and because Ward was familiar with and comfortable with HACCP from previous slaughterhouse work, he took the necessary steps to renovate a plant he purchased so that it would become a USDA-inspected slaughter and processing facility. But it wasn't as easy as he had hoped.¹⁷³

When the USDA veterinarian and HACCP reviewer from the district office first came to the plant, the vet sent the reviewer back to the office and told Ward he'd never get the plan approved . . . and if it were approved, "you won't be there long." There was nothing specifically wrong with the facility but we "didn't have the technology of the large plants and couldn't afford to put in the upgraded systems that they liked — the electronic temperature wheel or scales hooked up to computers." Ward had paid a HACCP consultant \$7,000 to help him design the plan. Then to get it approved, he made four visits to the Albany office, two of them including the consultant. "They kept kicking back the HACCP plan telling us it was inadequate. They told the consultant that it had to be changed. We would make all the changes. After three months, we ended up with the plan we started with."¹⁷⁴

They worked under the plan for one year. It passed muster with all of the inspectors and veterinarians that reviewed it, as well as four Food Safety Assessment reviews in the first year. November 2007 was the one-year anniversary of FSIS approving Ward's HACCP plan and granting a certificate of inspection. But in December, a different reviewer told Ward that he would have to rewrite the whole plan. So he hired the consultant and shelled out another \$5,000. The plan is essentially the same, but the wording had to be changed.¹⁷⁵

According to Ward: "They claimed it was 'too wide open to interpretation.' To me it wasn't. My plan was simple and I operated under it for one year with no problems."

Ward does not commingle beef from the large suppliers because he doesn't believe they have adequate control over *E. coli* O157:H7. He also does more testing for the pathogen than is required by USDA. "Depending how you look at it, the testing costs are not that bad. It costs me \$100 a sample, but I'd rather pay the \$400 a month than find out I killed one kid."¹⁷⁶

Ward worked two jobs and put in \$80,000 to get it to be a USDA-inspected plant. "If I didn't have so much money invested I'd close it. Also, it would hurt too many people if I did." He currently has clients in Pennsylvania, Connecticut and all over New York State scheduled to bring animals to

"Because there are so few slaughterhouses, there is no competition for them to do quality work. ... Butchering is a lost art. Very few people are going into the business."

– Patrick Martins, Heritage Foods

his plant. Many of his clients have increased their business since he opened, and at least one doubled his business in one year. "He did just over a hundred cows during the first year. This year, they're bringing four to five head per week. And that does not include their restaurant orders."¹⁷⁷

Ward's dissatisfaction is more than just complaining. He currently has approved financing and blueprints for a bigger cooler and a separate smokehouse. But he's not going to expand. "Business is real good. I can prove that I have enough work to support an addition and hire more employees. But the headache with USDA is getting out of hand. I could create 15 more jobs immediately [not to mention what it could do for local farmers] ... If I had to do it all over again, I wouldn't. They are comparing us to the very large plants that slaughter 8,000 to 10,000 beef a day. We are scrutinized because we are so small."¹⁷⁸

His latest "headache" is that the FSIS district office in Albany is pressuring the very small plants to do a complete cleanup between each animal processed. Ward knows of at least one plant owner who has decided not to accept pigs anymore because of this extra expense. With beef, he'd have to do a complete cleanup to produce approximately 800 pounds of product. With pork, he'd produce just over 100 pounds between cleanups. As a point of reference, it's worth noting that the large plants do one daily cleanup, and produce several *million* pounds of product before they do another cleanup.

Case Study: Vermont

The government of Vermont is taking the opportunity offered by mobile slaughter units seriously, with the state legislature providing funding for a mobile poultry slaughter project. The mobile unit was designed by the state's Agency of Agriculture to process up to 200 chickens or 50 turkeys a day in a 36-foot trailer that will travel to farms and operate under the state's meat inspection program.¹⁷⁹ As of May 2009, the unit had been built, but was not yet operational because the state was still looking for an operator who will rent or lease the unit.¹⁸⁰

The state's commitment to providing more options for poultry producers to get their birds to market builds on a state law passed in 2007 that allows the limited sale of poultry processed on farms without an inspector present. The law allows the sale of up to 1,000 birds processed on the farm without inspection at farmers markets and to restaurants.¹⁸¹ The hope for the new mobile slaughter unit is that by providing inspection, it can expand the opportunities for producers to enter new markets beyond direct sales. As deputy secretary for the Agency of Agriculture Anson Tebbetts put it, "The key is inspection, so it opens up every market you can imagine."¹⁸²

The options for on-farm meat processing in Vermont could also expand under a new state law. The Fresh Farm Meat Bill was signed into law in May 2008 and states that "an itinerant custom slaughterer may slaughter livestock owned by an individual who has entered into a contract with a person to raise the livestock on the farm where it is intended to be slaughtered." This means that farmers could sell animals to consumers while the animals are still alive and then the customer and the farmer would sign a contract to have the farmer raise the animal and slaughter it on the farm. The carcass could be transported to a custom meat plant to be further processed, but meat from that animal could not be sold and must be returned to the owner of the animal. Due to concerns about how this change would fit with federal rules for meat inspection (which Vermont's inspection program must be equivalent to), the legislature delayed the implementation date for the bill until April 2009. The USDA listed conditions under which the new law could be implemented and still maintain the state's status as equivalent to USDA inspection. Unfortunately, many advocates for the legislation view the conditions outlined by the USDA as too burdensome for on-farm slaughterers to meet.

Conclusion and Recommendations

The restoration of local and regional meat processing infrastructure is long overdue and can give farmers and ranchers more options for processing their sustainably raised livestock and satisfy growing consumer demand for healthy meat products.

Building these local and regional systems will take policy change at the federal level and funding and other support at every level of government.

I. USDA Meat Inspection Policy

Role of HACCP

The Hazard Analysis Critical Control Point program is a problem not just because it sets an uneven playing field for small and very small plants. More than ten years after being implemented, the program regularly fails to protect consumers from unsafe meat and poultry products.

Ultimately, USDA should restore the oversight authority of its FSIS inspectors to spend their time inspecting product and plant conditions rather than HACCP plans. In other words, inspectors should spend more time checking product and less time checking paperwork. FSIS must also increase product testing on a volume basis in order to properly focus their attention on the largest plants, which expose more consumers to their products.

Specific HACCP Adjustments

While we strongly urge USDA to reconsider the way it has implemented HACCP and the changes the department has made in the role of its inspectors, there are more immediate changes that could alleviate some of the pressure that HACCP puts on small and very small plants. These changes include:

- The requirement that plants provide scientific substantiation, in the form of research reports and scientific data, for the HACCP plan for every product puts an unfair burden on small plants that are more likely to make multiple products in one facility. USDA should re-examine its policy of requiring expensive scientific substantiation (usually produced by outside consultants) for different products if only minor adjustments (such as flavors or minor ingredients) are made from an original product for which substantiation was already completed.
- USDA should upgrade its generic HACCP plans so small plants have a solid base for developing plans that will be acceptable during agency reviews.

- Good sanitation is the cornerstone of food safety. USDA inspectors should spend more time on pre-operational and operational sanitation at slaughter and processing plants of all sizes, especially the largest plants, which typically do not receive as much sanitation inspection, proportionally, as small plants.
- A return to an emphasis on enforcing agency regulations would level the playing field for small plants. FSIS inspectors must be trained to the same standards to avoid contradictory interpretations and so plants know what standards they should be meeting as they develop their HACCP plans.

Microbial Testing

- USDA should fund research on real-time microbial tests so that inspectors could use these in plants of all sizes. This would benefit consumers by keeping contaminated product from reaching store shelves, but also keep downstream customers (often small plants) from receiving contaminated raw materials purchased from large slaughter plants.
- USDA's requirement that plants perform various types of microbial testing can put a bigger burden on small plants if they have to hire a consultant or additional personnel to do this testing, while larger plants are likely to have these people on staff. USDA should be doing this testing, not only because it eliminates the burden on small and very small plants, but also because it is more protective of consumers to have USDA conduct this testing than to have companies testing themselves.
- USDA testing should be volume-based, with a minimum amount of testing for all plants. The determination of volume should be based on the aggregate amount of product made in a particular plant, not the volume for individual products. This testing must be done in the context of smart, effective traceback that identifies the source of contamination problems. Simply increasing testing of downstream users of product is not sufficient. Testing programs should be designed to consider the likely sources and earliest possible opportunities for detection for different types of pathogens and establish the amounts and location of testing accordingly.
- The agency should do additional *E. coli* testing in the ground beef supply chain, at the points where contamination can first be detected — at the carcass level — but also in the outgoing trim and coarse ground beef at slaughter plants. In addition, testing should be performed on incoming product at processing plants, and if contamination is found, ac-



The MegaCooker at Joe Maas' processing facility in Ohio. Courtesy of Jeff & Carlos/JTM Design Group.

tion taken at the source plant to ensure that unsafe conditions are corrected.

- The agency should also change its definition of what is an adulterant so that *E. coli* O157:H7 is considered an adulterant in beef at any stage of production. Currently, the agency only classifies the pathogen as an adulterant in ground beef, which confuses the agency's efforts to follow up on testing results from other beef products to the original point of contamination.
- If companies conduct testing in addition to that done by USDA, they should be required to notify USDA of positive results immediately. USDA must then make sure that the company takes action to correct problems that led to the contamination and ensure that all potentially adulterated products are removed from commerce.
- USDA testing results should be made publicly available on a quarterly basis on the Internet and include the name, establishment number, location and size of plants.

Meat Traceback

- USDA must trace back to the source of contamination. Its failure to do so has unfairly pinned contamination and the stigma of a recall on many small plants that do not slaughter animals and were almost certainly not the source of *E. coli* contamination — and allowed larger slaughter plants to escape any consequences for selling contaminated product.
- When microbial testing indicates that the level of microbe or pathogen violates a standard, USDA

must initiate an investigation into the source of contamination and require corrective action in that plant.

The agency must also publish a quarterly report detailing its traceback efforts, including an explanation of instances where no traceback investigation was performed. This report could be released in conjunction with the agency's quarterly enforcement report.

Allocation of Inspection Resources

- USDA must increase inspection resources so that lack of inspectors does not impede the ability of small plants to operate. The Obama Administration must propose adequate funding and the Congress must appropriate adequate funding to fill vacancies all over the country.
- USDA needs to collect more data on the use of its inspection resources. Inspectors should be required to record how long they spend on each inspection task. USDA should reinstitute the requirement, last used in 1997, that inspectors record when they can't complete inspection tasks because of inspector shortages or because they are covering vacancies.
- An adequate inspection workforce will eliminate the dilemma currently faced by FSIS, which is how to cover eligible processing facilities with too few inspectors, leading to plants regularly receiving less than daily inspection (the legal standard). Currently, the agency uses the number of HACCP plans in a given plant to assign inspection resources. Instead, assignment of inspectors should be based on volume of product to avoid the scenario where the largest processing plants receive less inspection than the smallest plants, some of which happen to make multiple types of product and therefore have a lot of HACCP plans.

Small Plant Relations

- The 2008 Farm Bill established a small and very small plant outreach program within the Food Safety Inspection Service. This technical assistance division should be promptly implemented and fulfill the Farm Bill's mandate to make grants to state agencies for providing outreach, technical assistance, education and training to small and very small establishments.
- USDA should also establish an advisory committee on small plants. The committee should evaluate and recommend improvements in the department's small plant outreach program.



- The department should establish a small plant ombudsman office within FSIS and ensure that this office has staff resources to answer questions from small plants.
- FSIS should produce an annual report on the impact of agency directives, notices, and other policies on small plants (including an estimate of the amount of hours required for small plants to fulfill recordkeeping and expenses incurred to comply with new rules). This report should be open for public comment.
- The Agricultural Marketing Service should offer reduced rates for grading services and process claim verification for small plants so that they are more able to take advantage of these marketing opportunities.

Labeling

- USDA should streamline the label approval process, which disproportionately affects small plants that produce multiple products and often develop seasonal or new niche-market products. By establishing clear standards for labels that must get FSIS approval, as well as templates or model labels, the agency could shorten the approval process for small plants and allow them to respond to marketing necessities instead of waiting months for a label approval.
- In addition to FSIS, the Agricultural Marketing Service has a role to play in clearing up the process of getting labels approved. AMS should establish clear standards for process-verified claims like grass-fed, free-range and other marketing claims for which it is responsible.

Rendering

- USDA should conduct research into the potential for on-farm composting of offal from a limited number of animals as a possible option for mobile slaughter units.
- The department also should pursue a research agenda designed to identify potential uses of meat-plant waste in the production of biodiesel, especially on a small scale.

State Meat Inspection Programs

The differences in standards and enforcement between various state inspection programs must be addressed before the transition to allow interstate shipment of state-inspected meat is completed. These differences have been documented by USDA and should be addressed immediately. USDA can assist with this process by clarifying its own inspection policies and enforcement procedures and by distributing these materials to states with inspection programs.

Cooperation with State Governments

A common complaint from those in the small-plant sector is that USDA and state departments don't seem to talk to each other. In addition to better communication between states and USDA, USDA should consider ways to have state departments provide technical assistance to start-up and small plants.

II. Restoring Competition to Livestock Markets

There must be long-term strategies to deal with structural problems in the meatpacking industry, including action at the federal level to address anti-competitive behavior and



prevent any mergers that lead to further consolidation of the meatpacking sector.

- USDA should institute long-overdue rule changes to reform competition rules for livestock markets, including rules to address captive supply and undue preferences in livestock contracts.
- USDA should enforce the Packers and Stockyards Act not just on meatpackers, but also on the rendering industry, to prevent anti-competitive practices from driving smaller operations out of the industry.
- The Department of Justice must enforce anti-trust laws and stop mergers that would further decrease competition in livestock and rendering markets.

III. Funding

A vital piece of the effort to rebuild local meat-processing infrastructure is increasing sources of funding for the facilities themselves as well as the government programs necessary for this sector to operate. It is imperative that any new funding or programs be designated for small and very small plants and not used by existing large plants as a subsidy for their operations.

A first priority is to adequately fund USDA meat inspection so that lack of inspectors cannot serve as an obstacle to new firms entering the market or the growth of innovative ideas like mobile slaughter operations. The Obama Administration should propose and Congress should appropriate the amount of funding needed to fully fund USDA's meat-inspection program to the level needed to fulfill the agency's legal obligations at all size plants.

Federal and state agencies should also provide resources for technical and other assistance for small meat plants and those wishing to start new plants. This funding could be part of the establishment of a "food infrastructure" bank, similar to dedicated public funding that exists for other essential infrastructure, such as highways.

Such funding could cover:

- validation studies for HACCP plans for common processes in small plants, or assistance for small plants to get validation for their plans for unique products;
- upgrades to equipment and facilities, including construction of separate rooms for slaughter and processing, stainless steel equipment, or upgraded HVAC systems;

- professional development and technical assistance for new plants, including staff training;
- expanded agricultural extension services, with a requirement that a minimal level of meat industry expertise be available in every state;
- assistance for small plants to access the USDA's Agricultural Marketing Service grading and/or process-verified claims (such as "grass-fed") at affordable rates. One option is to model the program after the current cost-share program for organic certification. Using this program, farmers and processors can apply to their states for money to help pay for the costs they incurred in getting certified as organic. Funding for this program is given to the states by USDA.
- loans that are available to startup projects as well as existing plants;
- grants administered by various departments of the USDA including value-added grants, community food project grants and grants given through the rural development program and Risk Management Agency. These funds should be available for startup projects as well as existing plants.
- research into rendering and small scale biodiesel production.

IV. State and Local Policy

State and local governments also have a role to play in rebuilding the processing infrastructure necessary to have regional systems for meat production. Possible roles for state and local governments include:

- Identifying and funding nonprofit organizations or government entities that can be fiscal sponsors for mobile slaughter operations or small, traditional plants.
- Including small meat plants in programs that give tax breaks for job creation and economic development.
- Including meat plants in list of options for economic development priorities promoted by governments.
- Incorporating meat and poultry products into regional or state agriculture marketing programs.



Appendix A: The Impact of HACCP on Small Plants

In 1993, the pathogen *E. coli* O157:H7 in ground beef caused a foodborne illness outbreak that killed four people and sickened more than 600, many of them children. The outbreak sparked calls for improvements to the U.S. Department of Agriculture (USDA)'s inspection system for meat and poultry products, and the government responded in 1998 by instituting the Pathogen Reduction/Hazard Analysis Critical Control Point (HACCP) program. USDA's Food Safety & Inspection Service (FSIS) touted this program as more modern than the previous system of meat inspection because it incorporated microbial testing and required plants to establish plans that outlined where and how a company would try to prevent likely food safety problems.

The previous inspection system was more straightforward and required that plant operators comply with specific rules and standards. FSIS inspectors spent their time inspecting both product and the sanitation and other conditions in facilities. But in 1998, HACCP tied the duties of FSIS inspectors to verifying and auditing a company's HACCP plan. Now, a company's HACCP plan directs not only its activities, but, for the first time, also those of government inspectors. This means that the government has handed over its responsibility for ensuring food safety to the industry it is regulating. USDA's Office of Inspector General reported, "FSIS allowed establishments to limit or reduce the number of critical control points identified in their HACCP plans and thereby limited Government oversight."¹⁸³ Government inspectors now spend most of their time checking company paperwork in plants. And now, when they do find problems with either product or paperwork, they have less authority to act than in the past.

To make matters worse, the government has made the interpretation of the new regulations and policies extremely complicated. Consequently, small slaughterhouses and processors, which lack the money, legal assistance and staff of large operations, often have found it difficult to comply with the shifting interpretations of what is required under HACCP.

With the implementation of HACCP, small slaughter and processing plants that grind beef were, for the first time, held responsible for contaminants such as *Salmonella* and *E. coli* O157:H7 that likely originated in another plant and entered the grinding plant on USDA-inspected beef purchased from other facilities. And it is likely that those raw beef supplies are from one of the four large meatpackers that slaughter more than 80 percent of the cattle in the

United States. Because *E. coli* is found in fecal matter — either on the hide of the animal or in its intestines — *E. coli* contamination occurs at the slaughter plant. If a plant only processes meat and does not slaughter cattle, it is not the original site of contamination with *E. coli*.

This regulatory bias toward big operations helped to push some small plants out of business and unnecessarily prolonged public health threats to consumers. For example, government microbial test results demonstrate that ground beef produced by larger plants has a higher prevalence of pathogens than the ground beef from smaller plants. Why? One explanation is that FSIS stopped testing product from the larger plants and instead focused its enforcement on the small and very small grinders that could do nothing to prevent the contamination that happened at the slaughterhouses.

Under HACCP, FSIS had new expectations that small plants would adopt various expensive practices and technologies, such as dowsing products with chemicals, which fit well into the paradigm of HACCP. Small plants never had — and probably never will have — the money or staff resources to afford some of those practices, such as constant testing. Many large plants already had been incorporating some HACCP-like procedures, and economies of scale helped them absorb the costs of the new FSIS mandates.

HACCP Mandates

FSIS requires that plants develop at least one HACCP plan for each type of production process, as determined by the plant, and that they revise the plan when there are indications that the plan may no longer be effective in preventing food contamination. While the largest plants often churn out lots of one type of product, such as raw, whole chickens, their smaller counterparts frequently produce a great variety of products, such as roasts, sausages and salamis. That means the smaller plants must manage numerous HACCP plans.

Other requirements added to the burden of HACCP. HACCP plans typically are founded on USDA's "prerequisite" programs that are required in addition to specific HACCP plans. These prerequisite programs — particularly sanitation procedures — entail similar analysis, substantiation and voluminous recordkeeping.¹⁸⁴ HACCP also imposed generic *E. coli* testing requirements on slaughter plants, based on volume of production.

Cost

Even before the final HACCP rule was published in 1996, two years before going into effect, FSIS acknowledged, “small plants will be disproportionately affected by rule-related costs.”¹⁸⁵ The General Accounting Office determined that this would include 2,234 federal facilities and 2,890 state-inspected facilities.¹⁸⁶ The cost of implementing HACCP at very small plants making few products was estimated to be roughly \$12,000 to \$13,000 for initial implementation and \$6,000 to \$7,000 each year thereafter. The cost was 15 percent higher for small operations that combined slaughter and processing.¹⁸⁷

However, these costs were underestimated. USDA’s Economic Research Service reported in 2004 that “[t]he industry’s annual investments in food safety measures are much higher than the cost estimates made by USDA’s [FSIS] prior to enactment of the regulation.” Furthermore, for a number of reasons discussed below, the costs per pound for changes necessary to comply with the HACCP regulation were two to six times higher for the smallest plants than for the largest operations.¹⁸⁸

Culture Change

Plants that were already using some procedures required under HACCP, typically large operations, had to pay less to implement the program.¹⁸⁹ Before the regulatory change in 1998, many of these operations were already voluntarily using a HACCP plan, quality assurance and control programs or other system approaches.¹⁹⁰ Such system approaches aided managers of the large facilities but were not as beneficial (or necessary) for small operations. While more than 20 percent of the largest plants had such programs prior to USDA’s publication of the HACCP regulation in 1996, fewer than three percent of the smallest plants did.¹⁹¹ Overall, adoption of HACCP was both more disruptive and necessitated a greater culture change in the smallest plants.

Just as FSIS anticipated that the smallest plants would be disproportionately affected by the costs of implementation, the agency “recognize[d] that many smaller establishments lack the familiarity with HACCP that exists already in many larger establishments. Therefore, FSIS is planning an array of assistance activities that will facilitate implementation of HACCP in ‘small’ and ‘very small’ establishments.”¹⁹² These included written materials, demonstration projects and a hotline.¹⁹³ But many fell short of the original promise and together they were insufficient to provide enough guidance to prevent many of the smallest plants from closing their doors.

Development of HACCP Plans

Prior to implementation, USDA estimated that development of HACCP plans would be one of the least costly burdens for the industry.¹⁹⁴ However, due to the multiple plans many very small plants had to devise, the required specificity of the plans, the complexities and nuances of the HACCP program, lack of agency clarity regarding expectations, and changing agency expectations, development of HACCP plans seems to have been the most troublesome part of the new requirements.

The regulations require that the design of the original HACCP plan, and any subsequent changes, be conducted by someone who has completed a HACCP training course. Each plan requires that operations:

- analyze the process and identify critical control points where food safety hazards can occur and be controlled;
- establish specific standards for at least one of those points (all other potential critical control points must be handled through a sanitation or other prerequisite program);
- set monitoring procedures for all critical control points;
- establish for each point a specific action that will be taken when the critical limit is not met;
- establish procedures to verify that the HACCP plan is working; and
- provide scientific documentation to substantiate the appropriateness of:
 - » critical control points
 - » critical limits (such as temperature or other measurable conditions that can impact the likelihood of food safety problems)
 - » monitoring procedures
 - » frequency of monitoring procedures
 - » corrective actions
 - » verification procedures
 - » frequency of verification procedures.

In short, the operator must demonstrate that the establishment’s “HACCP system, if operated as designed, can adequately control identified hazards to produce a safe product.”¹⁹⁵ Procedures must exist to record and document all decisions considered and made, results of monitoring at all control points, all corrective actions taken and the results of all verifications.¹⁹⁶



The food development lab at Joe Maas' processing facility in Ohio. Courtesy of Jeff & Carlos/JTM Design Group.

Any changes, including changes to the raw materials used in production or their source, the formulation (recipe), the packaging or the volume produced “that could affect the hazard analysis or alter the HACCP plan” necessitates that an establishment reassess the plan. The plan must also be reassessed annually. Additionally, the Sanitation Standard Operating Procedure (SSOP)¹⁹⁷ for the plant and the prerequisite programs associated with each HACCP plan require complex analysis, scientific justification and resource intensive recordkeeping.

It is easy to see how this program could quickly overwhelm establishments that produce only one product and need just one HACCP plan. However, many of the smallest plants make a number of products, such as different types of sausages, roast beef and pepperoni, and require many more HACCP plans than establishments that may slaughter only one species of animal and make one product. Plans for more complex products will likely have more potential hazards that necessitate more controls, whether in the HACCP plan, the SSOP or the prerequisite program. The FSIS generic HACCP plans identify three to five critical control points for slaughter plants, but four to seven points for further processed products.¹⁹⁸ Small establishments, which often produce niche products in order to survive, also use many more outside ingredients and may frequently change formulations, packaging and volume to meet customer demand. This means they also have to endure formal HACCP reassessments more frequently.

Large plants often have several experts on staff whose only job is to maintain HACCP plans and deal with the USDA when there are conflicts over the plan, its implementation or violations. While many of the smallest plants have sent an employee for a three-day HACCP class to get basic training in the process, this takes away from their already limited production time because they have so few employees. For example, a previous survey of plants in FSIS' Philadelphia District (covering Pennsylvania and New Jersey) showed that of the 341 very small plants, nearly 80 percent had five employees or fewer and most of the employees were related.¹⁹⁹ Even if they had the time to deal with the complexities of HACCP plans, most plants would need to get outside expert help in the form of a paid consultant with the required scientific expertise. One very small plant owner complained that, “FSIS ignores the actual costs of expert consultant advice on compliance for small and very small processors who, by economic fact of life, will not have such personnel on payroll.”²⁰⁰

USDA's Economic Research Service conducted a survey of plants of all sizes after HACCP implementation.²⁰¹ It found that operators were frustrated over the costliness of developing and implementing HACCP plans. According to one operator's response:

“Our plant is small (18 employees), but has a very complex product mix, from fresh beef and pork cuts all the way to finished, ready-to-eat products. To cover our many types

of products we had to develop and implement 19 separate HACCP plans, plus the SSOP procedures. Needless to say, this took a huge amount of time and resources. Our HACCP team of nine individuals (half the plant [employees]) met for one to two hours on a weekly, sometimes biweekly, basis for 14 months. Additionally, one person worked half-time for two and a half years. Our direct labor cost for HACCP and SSOP plan development was well over \$100,000. During this process, there were several false starts, as the 'rule' seemed to be constantly changing, a moving target if you will. Our plant has four certified people. Each of us attended separate HACCP training courses (three-day sessions required by law) and each of us brought back new or different requirements.”

Perhaps the most difficult part of the process is validating the HACCP plan with scientific studies. In order to do this, documentation must identify:

- The hazard and pathogen, including the level of hazard prevention or pathogen reduction to be achieved,
- All associated factors or conditions, and
- Which processing steps will achieve the specified reduction or prevention and how these processing steps will be monitored.²⁰²

Many studies have been done for the most common products and, therefore, validation poses little problem for the larger plants. For many of the specialty products made by small plants, however, there have been no scientific studies to demonstrate that those particular formulations will produce a safe product. Most significantly for small plants, FSIS does not allow the use of historical plant data to demonstrate that the product has no harmful pathogens.

The agency has provided grants for some scientific studies pertaining to processes or technologies that could be used by small plants. Some universities will do free research on some traditional products, but not for a unique item made by only one plant. Several universities and trade associations also provide what documentation is available on their Web sites.

When no previous studies have been published, however, the only option is to contract to have a specialized study done, a cost prohibitive endeavor for most small plants. Depending on the complexity, such a study can cost upwards of \$100,000. Some small plant owners have spent thousands of dollars for a study only to have the agency refuse to accept it. Jay Wenter, Executive Director of the American Association of Meat Processors (AAMP), suggests that plant owners who want to contract for a scientific study first get



approval for the protocol from the agency.²⁰³ Many small plants used to make seasonal products, such as minced meat for the Christmas season. But the sale of 200 pounds of product once a year would not justify a validating study even if it only cost several thousand dollars. This fact has led to the end of many ethnic, specialty and seasonal products.²⁰⁴

While adapting to some of the other HACCP requirements has been difficult for many small plant owners, this particular mandate has been impossible for the producers of many specialty products and creates a continuing frustration for those who try to assist them. In a survey of 85 consultants and trainers for small and very small plants, “process validation information” was identified by more respondents (74 percent) than any other resource as a useful addition to their training program.²⁰⁵

Recordkeeping

Once the HACCP plan is accepted and used, it requires voluminous recordkeeping that is more onerous for small plants because they:

- produce a smaller volume of a wider variety of products that require more HACCP plans;
- produce more complex products with more critical control points to be monitored;
- can't afford computerized recordkeeping systems — such as automatic temperature recording equipment. (Temperature is a frequently chosen critical control point because it affects the growth of pathogens);
- employ a significantly smaller number of staff.

A Boston plant owner said of HACCP: “It has hurt the industry because it has added to the special burdens that affect small processors. There will be just too much paperwork for a one- or two-man shop.”²⁰⁶

Indeed, about 60 percent of respondents who had submitted written comments to a USDA survey said, “the paperwork costs outweighed the benefits of the HACCP tasks.”²⁰⁷

USDA originally contemplated requiring a modified version of HACCP at small plants to decrease the recordkeeping requirements, but discarded the idea because it would “seriously compromise the usefulness of HACCP as a means to make inspection more effective and avoid program cost increases.”²⁰⁸ In a survey conducted by Food & Water Watch, FSIS inspectors reported that they spent five times as much time reviewing company paperwork under HACCP as they did under the previous inspection system.²⁰⁹

Policy Confusion

The previous inspection system was often characterized as command-and-control, and required that owners comply with specific rules and standards. In contrast, HACCP was touted as allowing more flexibility. But in the process, it also erased many clearly identifiable rules. The vagaries of the new scheme created problems from the beginning — problems that persist today.

A 1999 survey of federal inspectors revealed that more than half felt that intra-agency conflicts about the correct interpretation of the new regulations hampered their ability to enforce the law. It led one inspector to comment in the survey that HACCP stood for “Hardly Anyone Comprehends Current Policy.”²¹⁰ Although FSIS established the Technical Service Center in Omaha, Nebraska, complete with a hotline, to deal with this confusion, 31 percent of responding inspectors were aware of instances in 1999 “when

the Tech Center gave conflicting instructions regarding the same problem or situation.”²¹¹

In 2002, the U.S. General Accounting Office (now the Government Accountability Office) reported that FSIS had not established a clear standard for when a plant’s repetitive violations required additional enforcement action, resulting in a lack of consistency from plant to plant and from one USDA district to the next.²¹² Plant owners could neither anticipate when a problem might garner a strong regulatory response nor determine whether they were being treated fairly, relative to other plants. It was as if the government were issuing speeding tickets but refused to publicize the official speed limit.

USDA’s Office of Inspector General reported that policy confusion within the agency prevented inspectors for nearly a year from responding to abundant evidence of deadly contamination at a large slaughterhouse. FSIS investigators debated with the Technical Center about whether microbial samples should be taken during the investigation because that policy was unwritten.²¹³

In 2003, a manager of one of the largest meat companies complained about inconsistent enforcement. Dr. Dell Allen, vice president for quality assurance at Cargill-Excel, said his company’s experience with large slaughter plants in different USDA districts illustrated disparities in the FSIS interpretation of HACCP. “At the end of the most recent round of consumer safety officer visits, some of them told us our HACCP plan exceeded their expectations, and others, looking at the same plan, said we couldn’t walk and chew gum at the same time.”²¹⁴

In 2004, a very small plant owner commented “Whereas previous [inspection] systems had allowed [inspectors] to provide easily accessible advice and technical assistance, such service is not now within their purview. [T]here is no single point of contact within FSIS for processor inquiries as to best practices and . . . repeated attempts at asking the same question of multiple parties can result in entirely different answers.”²¹⁵

There were continuing reports of problems with inconsistent policy interpretation in 2005 and 2006.²¹⁶

In October 2007, in response to the dramatic rise in *E. coli* O157:H7 recalls compared to the previous year, the agency issued a checklist that surveyed beef plants to learn what practices they were using to control the pathogen.²¹⁷ Agency officials said that no changes were going to be mandated but inspectors in several parts of the country described pressure from their supervisors to make sure that the plants



were implementing some of the recommendations in the checklist document. A plant manager in the upper Northwest reported that other plants told him they had been informed by FSIS that they had to implement additional microbiological testing schemes. Since then, FSIS has not settled on or communicated a definite policy.

On April 30, 2008, FSIS sponsored a meeting with extension agents and representatives of small and very small plants to discuss how to better assist these plants in complying with all regulations. One of the comments summarizing the meeting said, "Compliance may be further hampered by interpretation problems. For example, Notice 65-07 on *E. coli* — interpretation for testing — everyone says something different!!"²¹⁸

Numerous small plant owners have reported changing their HACCP plans in response to pressure from an FSIS official, only to have to change it back when a different FSIS official does a review. Jay Wenther of AAMP reported that he is also aware of such situations. While large corporations can often use a cookie-cutter approach to devising HACCP plans for their products, using the same basic HACCP plan for a number of plants, there are no well-established HACCP plans for many unique, specialty products. Therefore, FSIS reviewers as well as plant owners have more trouble determining what is acceptable. Additionally, large companies with plants in different districts throughout the country can easily determine when regulatory interpretations are not consistent and can also easily gather evidence

to prove inconsistencies. The very small plants cannot easily gather this information and may discover, long after the fact, that they have been held to a different standard than other plants.

Small processors have persistently asked FSIS for clear guidelines, yet the agency has resisted identifying specific practices plants can use that are, in effect, pre-approved. Some in the industry assert that HACCP was adopted so that FSIS could "escape specific product liability issues by making individual plants responsible for food safety."²¹⁹

As a practical matter, on a day-to-day basis, policy confusion and debate can derail a small plant. Hypothetically, having one employee argue with an in-plant inspector, or having to appeal a decision up the chain of command, correlates 20 percent of the workforce in a five-employee plant. In contrast, when a large plant has an employee dealing with FSIS inspectors that amounts to less than one percent of the company workforce.

Selective Enforcement

Very small plant owners have long asserted that USDA enforces the rules more stringently at the very small operations. The agency's regulation of *E. coli* O157:H7 seems to bear that out [for more discussion see the appendix on USDA's *E. coli* policy.] One reason for this selective enforcement is that large companies have deeper pockets than the agency and can finance a protracted legal action against the government. One former very small plant owner explained:

"Small plants lack the political clout and financial wherewithal enjoyed by the large plants to engage the agency in protracted litigation during attempted agency enforcement actions. As such, the small plants are much easier enforcement prey, while the large plants enjoy a FSIS lethargic laissez-faire hands off protocol of meat non-inspection."²²⁰

A former inspector corroborated this view:

"The big boys with deep pockets, their operations are interpreted, applied and enforced differently than the small guys. Same rules though, according to USDA. If the little guy can get shoved around, he WILL be shoved around, nothing you can do about it, if you appeal (sic) they will find something else."²²¹

Small beef grinders are currently caught between the regulatory power of the government and the superior market power of the large corporations. For example, in late 2007, FSIS issued a list of "Best Practices" for the control of *E. coli* O157:H7 in conjunction with an inquiry into the practices



at each beef grinding plant. The document indicates — and reports by inspectors, plant owners and HACCP educators confirm — that there has been added pressure for grinders to test incoming beef products from their suppliers, despite the fact that FSIS is aware that some large suppliers will refuse to sell to small grinders who test the incoming products. At a recent public meeting about control of *E. coli* O157:H7, FSIS stated that it would “step in” if the commercial conflict was not resolved. Subsequently, industry counsel stated, “From our legal perspective, we believe such blatant interference and involvement in business dealings is far beyond any Agency authority.”²²² In other words, large suppliers would sue the government if it steps in to force suppliers to sell to grinders who test their products. In the interim, large suppliers are maintaining this prohibition, yet FSIS is still holding the small plant grinders to this standard they cannot meet.

USDA Assistance

Prior to HACCP implementation, FSIS discussed the assistance for small plants. It promised that a series of generic HACCP plans would “remove much of the guesswork and reduce the costs associated with developing HACCP plans.”²²³ However, once the finalized plans were published in September 1999, each began with a letter in which the agency warns users “... they are not designed to be used ‘as is’... and it is necessary for each HACCP plan and all of its associated records to be extremely plant and process specific.”²²⁴ The agency’s view of the proper use of the generic plans was as a check on a HACCP plan that was already being planned by a HACCP-trained individual and several other employees. “This is the point when FSIS expects the team to pick up the appropriate generic model and get a sense of whether they are on the right track.”²²⁵

Prior to implementation, the agency also announced that it would “conduct HACCP demonstration projects. . . . These projects will . . . [address] issues unique to [very small plants]. For instance, how does a HACCP system function in an establishment with only a single employee?”²²⁶ It’s unclear whether the agency ever held one of these meetings in a working plant, but the agency later announced that, between 1997 and 1999, it had conducted “over 190 workshops, serving over 4,000 individuals from in excess of 2500 small and very small plants.”²²⁷ The agency claimed workshops were “two days of open discussion,”²²⁸ but a former plant owner from Montana said that he and other local plant owners found them a waste of time because FSIS officials would only speak in generalizations and not provide answers to most specific questions posed.²²⁹ A former trade association director said that his members described them as “... a course of warnings about what would hap-

pen if they missed dotting an I or crossing a T.” Both have the impression that the agency was very concerned about proving that it had made outreach efforts, and in Montana, plant owners were instructed that “while our attendance was not mandatory. . . [o]ur absence would be construed as an unwillingness to update our HACCP plans as policies and historical events occurred.”

The agency’s assistance to small plants was inadequate and an active, ongoing review of the agency’s impact on the smallest plants never materialized. The agency adopted the position that it would answer general questions but would not tell plants “how to write their HACCP plans.” In the first years, the agency’s efforts were insufficient and there was prolonged dissatisfaction, resulting in a significant number of federally-inspected plants exiting the industry, including an estimated 20 percent of red meat slaughter and processing plants.²³⁰

FSIS broke its pre-HACCP promise that, “Through these demonstration projects, FSIS, State inspection authorities, participating establishments, and the industry at large will gain added understanding of the problems and techniques of HACCP implementation and operation in ‘small’ and ‘very small’ establishments.”²³¹

More than a decade after HACCP was first implemented, very small plant owners report that they are only a little bit better off, if at all. In 2006, the Undersecretary for Food Safety Richard Raymond told a meeting of the American Association of Meat Processors (the national trade organization representing the largest number of very small plants) that the agency was embarking on a new era of communication and collaboration with “small and smaller processors.” He “observed that smaller processors often don’t have the time, manpower and resources that larger ones do in crafting and executing their HACCP plans, and that he has walked way (sic) from more than one industry meeting with the impression that FSIS was not doing all it could to assist them... We want to shift from regulating to educating.”²³²

But conversations with plant owners and representatives from trade associations indicate that the jury is still out on this latest version of assistance for small plants. Dr. Raymond’s initiative exceeded that of any of his predecessors, but there is no guarantee that his successor will be able to prevent institutional forces from reverting back to letting the smallest plants flounder on their own.

Just providing long overdue training and education is not enough to solve this problem. The inconsistent interpretation, disproportionate paperwork burden, and lack of clear guidance must be addressed.

Appendix B: USDA's *E. coli* Policy

In 1994, USDA instituted a testing program for the bacteria *E. coli* O157:H7. While such a move was warranted, the program has been implemented poorly. The program favors industrial-scale slaughter and meat processors while unfairly burdening smaller operations.

In fact, this bias towards large operations goes along with what USDA's Food Safety & Inspection Service has been doing since Hazard Analysis Critical Control Point (HACCP) program began in 1998. The agency has decreased its oversight of the larger slaughterhouses and justified this change with the fact that many of them employ expensive technological interventions such as chemical sprays and testing. Instead, FSIS has spent most of its regulatory time and resources on the small and very small federally inspected plants that have demonstrated better food safety records — even without expensive technologies — than their large counterparts.

Introduction

2007 saw a significant increase in the number of recalls due to *E. coli* O157:H7 in beef; among those was one of the largest ground beef recalls in history. The Centers for Disease Control estimated that the number of *E. coli* O157:H7 outbreaks caused by beef, which had been approximately 25 percent of all outbreaks in 2006, was “at least twice that” in 2007.²³³

With the recall by Nebraska Beef of more than five million pounds of beef, accompanied by at least 49 associated illnesses in seven states,²³⁴ 2008 was not much better than 2007.

Taking a long view, CDC reported that there was no statistically significant decrease in the number of illnesses due to *E. coli* O157:H7 in 2006 compared with the rate just before HACCP was implemented in 1998.²³⁵

Why does FSIS have such trouble reducing the public health threat of *E. coli* O157:H7?

It's certainly not due to a lack of scrutiny on the smaller plants that grind beef, much of which comes from larger slaughter operations. Since HACCP began, FSIS has explicitly and actively held these small plants responsible for controlling the *E. coli* O157:H7 pathogen and disproportionately tested them for its presence in ground beef.

In fact, through multiple policy changes, FSIS has avoided overseeing large slaughterhouses and grinders. No matter

that the agency's microbial testing proves the big plants produce more contaminated ground beef than the smaller operations. Scientific studies show that the technological interventions and routine testing these large plants use — because they have the money and resources to do so — can be very effective in preventing microbial contamination, but their use is no guarantee that the plants using them will produce safer meat.

Indeed, a comparison with USDA's efforts against *Salmonella* is telling. Every year between 1998 and 2007, the agency's testing program found that the rate of *Salmonella* prevalence on ground beef was at least twice as high in the large plants.²³⁶

With *E. coli* O157:H7, random tests at large plants between 1998 and 2002 found a positive rate of 2.65 compared with 0.44 percent at all other plants.²³⁷ In 2004 and 2005, 0.41 percent of tests for this pathogen at the largest plants registered a positive result, compared with a 0.12 percent positive rate at the smallest plants.²³⁸

Unfortunately, USDA has ignored small processors' food safety record and spent an inordinate amount of regulatory effort trying to force small meat grinders to fix contamination that often happens at their large suppliers.

The agency's insistence on focusing on small plants has put an enormous amount of pressure on the smaller plants. Before 2003, more than a third of approximately 6,000 federally-inspected plants made ground beef,²³⁹ which can be an important part of a small processor's business. But by 2007, in large part because of FSIS policy, 40 percent of the smallest operations either stopped grinding beef, switched to exempt processing status or went out of business altogether.²⁴⁰

This appendix outlines USDA's policies on *E. coli* from 1994 to the present and highlights the government's consistent practice of avoiding regulatory action at the large slaughterhouses where this contamination often originates.

Background

The highly toxic bacteria *E. coli* O157:H7 is often the source of foodborne illness caused by beef. *E. coli* live in the intestinal tract of cattle, so if feces escapes this organ during slaughter, the carcass can become contaminated with *E. coli*. Feces on the cattle's hide also can spread the bacteria to the carcass during slaughter. The danger of contamination continues afterward as the carcass is fabricated into smaller cuts, such as primals (such as chucks and rounds), subprimals (such as steaks) and trim, which is the excess



Photo by Koos Schwaneberg/Stock.Xchng.

meat trimmed from the larger cuts and used to make ground beef. Contamination may continue as the pathogens are spread to equipment and then onto other pieces of meat.²⁴¹

More than 80 percent of beef cattle are slaughtered at large facilities owned by four companies — Tyson, Cargill, Swift & Co. and National Beef Packing Co.²⁴² Very often, however, the further processing and grinding of beef happens at small or very small plants. Some of these plants also slaughter cattle, but most do not.^{243,244}

In 1993, the Pacific Northwest outbreak caused by *E. coli* O157:H7-contaminated ground beef served at Jack in the Box restaurants pushed USDA to recognize microbial pathogens as a major food safety concern. FSIS re-evaluated its inspection program and also implemented *E. coli* O157:H7 testing. FSIS collected an average of approximately 7,500 samples a year, but never more than 12,292 annually.²⁴⁵

In the decade and a half since the testing program began, USDA has been forced to make changes several times when large illness outbreaks or meat recalls publicly revealed the inadequacies in testing. Throughout the changes, the government has consistently avoided taking action at the large slaughterhouses where contamination originates. Instead, it has held the small meat grinders responsible.

PHASE 1

In 1994, on the heels of the Northwest outbreak, FSIS declared *E. coli* O157:H7 an adulterant on beef. The new and controversial declaration allowed the agency to take enforcement action when the pathogen was found. FSIS began microbial testing for the pathogen in its regulated facilities. The agency had the option of applying the definition to *all* beef and could have tested carcasses. Instead, it designed an “end-product sampling program”²⁴⁶ that focused only on ground beef, most samples of which were collected from retail stores; a smaller number of samples came from federally-inspected plants that produced ground beef. The vast majority of these grinders were not slaughterers and, therefore, could not have prevented contamination of the raw product. The agency collected between 1,000 samples and 6,000 samples each year between 1994 and 1998.²⁴⁷

PHASE 2

In 1998, FSIS moved toward a new inspection system called the Hazard Analysis and Critical Control Point (HACCP) program. It was based on the theory of analyzing the production of meat and poultry products as systems. Prior to HACCP, microbial sampling was sometimes used to determine if product was acceptable for release into commerce. However, under the new systems approach, a positive microbial test signaled that the production process needed review and might need to be changed.

The Testing Exemption

Under HACCP, FSIS generally stopped *E. coli* O157:H7 testing at the large, industrial slaughterhouses and cut back on testing at retail stores. The agency essentially used HACCP to exempt those plants because they had integrated expensive new food safety systems, including chemical sprays and rinses, and were testing their own products — with no requirement to report positive results of contamination to the agency. Meanwhile, FSIS substantially increased testing at the small and very small federally-inspected facilities that couldn't afford these expensive innovations.

Through its microbial testing programs, the agency acquired ample evidence during this period to contradict its presumption that plants using the new technologies would produce safer ground beef.²⁴⁸ Despite this evidence, FSIS did not rescind the exemption. Twenty of the 24 large plants producing ground beef were exempted from or subjected to minimal *E. coli* O157:H7 testing during this period. However, all were subject to USDA's *Salmonella* testing program. Seven of these 20 large plants failed the *Salmonella* tests at least once between 1998 and 2002, including a plant that failed twice with the worst *Salmonella* results of any ground beef plant of any size. Another operation failed *Salmonella* testing three times. Three of the 20 large plants failed one of the very few *E. coli* O157:H7 tests USDA conducted at the plant during the five-year period. Three had to conduct recalls because of illnesses or deaths associated with *E. coli* O157:H7 in their products. Two others had to conduct recalls because of the presence of the bacteria in their products.

Because USDA did so little *E. coli* testing at the large slaughter plants, it did not have an accurate picture of the level of *E. coli* O157:H7 being sent into the market. Each year between 1998 and 2002, FSIS collected between 52 percent and 65 percent of the samples at the very small plants,²⁴⁹ which produce less than one percent of ground beef products.²⁵⁰ Meanwhile, less than one percent of the tests²⁵¹ were taken at the large plants that slaughter 80 percent of the nation's cattle, and many of these plants went years without any FSIS *E. coli* testing. Between 1998 and 2002, 14 of the 20 plants operated for three years, and three plants for four years, without a single FSIS *E. coli* O157:H7 test.

The Consequences of a Positive Sample

It was not the exemption from testing itself, but rather the exemption from the consequences of a positive finding that was the primary benefit for the large plants. When contamination was found, USDA required two corrective actions. First, if product had been released into the market by the time the test result came back, all potentially affected prod-



uct had to be recalled and destroyed.²⁵² A recall could be damaging to the company's reputation, as well as economically difficult. At minimum, all meat produced between one complete cleaning of equipment and the next was considered contaminated because it all had been processed on the same equipment.²⁵³ At a large facility, a recall could involve several hundred thousand pounds of product or more. Recalls at smaller facilities usually involved much less product but could be equally financially devastating.

FSIS' proportionally excessive testing resulted in more recalls by the smaller plants. Between 1998 and 2003, 86 percent of beef products recalled by very small plants, and only two percent of beef products recalled by large plants, were due to results of the agency's testing program. By contrast, 87 percent of the products recalled by large plants and none of the products recalled by very small plants were recalled because of consumer illness or death.²⁵⁴ FSIS was finding *E. coli* through the testing program at the very small plants, but because it was doing so little sampling at the large plants, the vast majority of product found through the testing program came from the small plants.

The second action required when FSIS testing resulted in a positive result was the plant having to change its food safety plan.²⁵⁵ This was difficult for several reasons. For most beef

grinding operations, trying to prevent a recurrence was futile because contamination probably originated at the slaughter plant that supplied them with the raw materials. Meanwhile, USDA had regulatory authority and a daily presence at all the large slaughter operations, but took no action to prevent them from sending more contaminated meat. At the 63 very small plants where USDA's ground beef testing found *E. coli* O157:H7 between 1998 and 2003, only 20 of them engaged in cattle slaughter. Therefore, 43 of them could not have introduced the pathogen into the product.²⁵⁶ Since most plants commingle beef from different suppliers²⁵⁷ to achieve a specific fat-to-lean ratio, it also may have been the supplier's product that introduced contamination in the 20 slaughter/processing plants and not the beef produced in that plant.

Plant operators often found that the process of determining what change in their HACCP plan would satisfy FSIS after a positive result was onerous. FSIS had established no hard and fast rules, refused to tell plants what measures would be acceptable or discuss options. Instead, it would accept or reject the change only after the plant had officially proposed

it. A corrective action that satisfied FSIS officials in one area of the country or state might be rejected elsewhere, so even getting advice from other plants or organizations might be fruitless. Plants often spent weeks, or even months, in trial and error mode. The agency justified these arduous processes by saying that, under HACCP, it was the plant's responsibility to determine how to produce safe food and that there was no one-size-fits-all approach. The time and expense of these exercises could drain more of a small plant's resources, in terms of money and staff time, than a recall.

One thing was clear. Meat grinders were no longer permitted to rely on the USDA seal of approval on the beef they bought from other plants. Over time, the agency established several *pro forma* steps that it would accept, despite the fact that they provided little protection against the plant receiving contaminated product. For example, a plant could get letters of guarantee stating that the supplier used a technique or process that had been demonstrated to decrease pathogenic contamination.²⁵⁸ However, if the small plant doing the grinding subsequently received contaminated products from the supplier, the plant doing the grinding

Missed Opportunities

If FSIS had responded to each positive finding at a small grinder by tracing the beef back to the slaughter plant that supplied it and then forcing those plants to improve food safety practices, subsequent contamination throughout the whole production network may have been minimized. However, the agency didn't do this in most cases and, in fact, vigorously resisted this type of investigation.

For example, in February 2002, FSIS testing revealed *E. coli* O157:H7 in ground beef produced by a very small plant, Montana Quality Foods (MQF). Plant owner John Munsell and USDA inspectors at his plant urged the agency to trace back to the supplying plant, ConAgra, in Greeley, Colorado. They knew that Munsell had purchased a very small fraction of that large plant's daily production and worried that other grinders, unaware of the contamination, were using the remainder of the lot that could be contaminated. MQF was a slaughterhouse as well as a grinder, but Munsell and the inspectors insisted that the contaminated lot contained meat only from the outside supplier. Munsell repeatedly offered the agency unopened product from the supplier for testing, which might have proved the origin of the contamination, but USDA officials rejected the offer each time because "the government already had approved it as wholesome" [when it allowed the product out of ConAgra's plant and into commerce], ConAgra "would sue" them, and testing would create the appearance of "conspiring" against a large packer."²⁵⁹

USDA shut down Munsell's grinding operation for nearly six months while he repeatedly tried to revise his HACCP plan to do the impossible – prevent contaminated meat from coming into his plant. USDA also retaliated against its own inspection personnel who had pushed to sample product from ConAgra. One FSIS supervisor complained about "the [agency's] absolute unwillingness to look at all the possibilities of where the positive O157:H7 originated" and asked, "[W]hy are those of us in the field being hassled for trying to get to the truth instead of being allowed to solve this problem and move forward?"²⁶⁰

Three months later, in May 2002, USDA again discovered the pathogen, this time at Galligan's, another very small grinder that also used raw materials from the Greeley ConAgra plant. When Galligan's owner pressed the agency to sample the supplier's product, USDA's policy office again refused and chastised him for trying to "point fingers at other companies."²⁶¹ Fortunately, this time, government officials who were aware of what happened at MQF persisted, argued with headquarters for a week and finally got permission to take a microbial traceback sample. The positive result proved that the same ConAgra plant identified by Munsell was the source of the contamination at Galligan's.²⁶² ConAgra eventually recalled nearly 19 million pounds of ground beef, but not before the contaminated products caused nearly 50 illnesses in 16 states²⁶³ and one death.²⁶⁴

would have to come up with additional corrective actions such as asking the supplier to ensure that it had taken steps to correct any deficiencies in their operation.

The small grinder was, therefore, expected to oversee and monitor the large supplier's corrective actions. Significantly, all other customers of that supplier could continue to rely on its initial letters of guarantee until they themselves received contaminated product. Most importantly, FSIS would not get involved to ensure that the large plant supplying the grinders with contaminated beef actually took corrective actions that were effective.

Blaming the Victim

The agency justified enforcement activity at the grinder, rather than at the slaughter plants where contamination originated, based on faulty theory. In general, FSIS expected small and very small plants to pressure their large suppliers to produce cleaner product.

Despite repeated objections by small plant representatives that they did not have the market power to do this, USDA continued to interpret the sale of contaminated product as a private matter between two businesses. Small grinders had all of the responsibility and, realistically, none of the control.

Unlike the testing exemption, the second policy loophole for large plants was not an established written policy. Although the HACCP regulation requires corrective actions when evidence demonstrates that food safety measures are not effective, an investigation of the large ConAgra ground beef recall by USDA's Office of the Inspector General revealed that USDA supervisors had instructed inspectors to ignore repeated *E. coli* O157:H7 positive results at the ConAgra plant because the company had performed those tests for customers, rather than as a check on its own food safety system. Between April 2002 and the massive recall on July 19, 2002, ConAgra testing revealed the presence of the *E. coli* O157:H7 bacteria 78 times, which amounted to more than three percent of the tests conducted for its customers.²⁶⁵ ConAgra destroyed or diverted the tested lots to cooking (which kills the pathogen). Meanwhile, USDA ignored the "clean-up to clean-up" principle and applied the seal of approval to beef produced during the same time frame, which was also likely contaminated.

These two loopholes resulted in disproportionate scrutiny on small grinders, which was too much for many grinders to bear.

PHASE 3

After the 2002 ConAgra recall of 19 million pounds of ground beef, FSIS announced several policy changes. One would have required inspectors taking a sample at a grinding plant to record the identity of all suppliers of products going into the sampled lot.²⁶⁶ However, this policy was officially rescinded within two months.

The major lasting change was that FSIS abolished the testing exemptions, so that even plants with interventions and plant testing programs would be tested by the agency.²⁶⁷ However, FSIS adopted two other policies that decreased the possibility of positive findings at large plants.

First, FSIS allowed plants to determine their lot size rather than mandating that all product produced between clean-up to clean-up constituted a lot.²⁶⁸ The second policy was that at plants that tested every lot of ground beef, FSIS would take its test only *after* the plant had tested the product and found it to be negative.

Beginning in 2003, large plants started minimizing the size of lots, typically to include only 10,000 pounds. They also began testing each lot of beef trim, the primary component for ground beef, with a statistical sampling program. If the lot tested positive, it was diverted to cooking or destroyed. If it tested negative, it was accepted for sale as raw product. This change meant that production lot sizes were small relative to the several million pounds of daily production at the largest plants. When a lot was found to be contaminated, only minutes' worth of production was diverted to cooking, despite the fact that no clean-up had occurred and the rest of the day's beef was produced on the same equipment and could be contaminated.

The significance of a positive finding also changed. New agency policy provided that "corrective actions ... *should* be taken" (emphasis not in the original) but the arduous process of HACCP reassessment was no longer necessary.²⁶⁹ This means that the plant would not have to propose and seek approval for a systemic change to prevent recurrence. Since many, if not most, smaller plants could not afford the expense of testing every lot, this benefit was again reserved for the largest plants. The smaller plants would still bear the full brunt of government scrutiny and enforcement activity whenever *E. coli* O157:H7 was discovered through government testing.

Failing to address process control problems when positive test results were found in trim would mean that the plant would likely produce even more contaminated trim. That product would also be subject to testing, which presumably would detect some of the contamination. However, the real



problem was that with no correction of sloppy practices at slaughter, *all* beef coming from production could have more contamination. This would include primals and sub-primals, from which processors often use the small excess pieces (called “bench trim”) to include in ground beef.²⁷⁰ While the agency claims that it has considered *E. coli* O157:H7 an adulterant on such beef since 1999²⁷¹, it never tested these products for *E. coli* O157:H7.

Did this confused execution of policy lead to an actual increase in contamination on the slaughter floor? The agency would address this question publicly after the next major recall in 2007. But there was, and still is, no way of knowing because the agency keeps no records of how many contaminated lots were being found by plant testing and diverted to cooking. In fact, there was little emphasis on FSIS involvement with plant sampling programs.²⁷²

Additionally, although the agency was now testing ground beef for *E. coli* O157:H7 at the large slaughter facilities, the agency again changed its policy in a way that prevented it from getting a good picture of the contamination. The agency only tested beef that had already been pre-tested and found to be negative by the company. Food & Water Watch pointed this out to the head of the relevant congressional

subcommittee, Rep. Rosa DeLauro, in 2007. After she confronted FSIS administrators, the agency instructed inspectors to take samples before and after company sampling.²⁷³

PHASE 4

The dramatic rise in the number of beef recalls due to *E. coli* O157:H7 in 2007 again exposed the inadequacy of FSIS policies. In 2006, there were eight recalls of beef products, all triggered by product testing. In 2007, there were 21 recalls with 10 triggered by foodborne illness outbreaks.²⁷⁴ The CDC later reported that the proportion of *E. coli* O157:H7 outbreaks due to beef (as opposed to other possible sources, such as water or produce) had been approximately 25 percent in 2006 and was “at least twice that” in 2007.²⁷⁵ The Topps recall, first announced on September 25, 2007²⁷⁶ was one of the largest in history, with more than 21 million pounds of ground beef product recalled and at least 40 associated illnesses.²⁷⁷

Within a week and a half, the agency announced what would become the centerpiece of its response to the Topps recall — the “Checklist.”²⁷⁸ The Checklist survey²⁷⁹ included very detailed questions about what specific control mea-

tures each plant was using. The Checklist also included "...a set of best practice measures that, while not required, the Agency considers to be essential to controlling *E. coli* O157:H7."²⁸⁰

A primary goal of the Checklist was to increase the pressure on beef plants to adopt additional controls.²⁸¹ Plants that did not use interventions or other best practices were subject to an extensive government review, known as a food safety assessment (FSA).²⁸² A number of FSIS inspectors reported that they had been instructed by supervisors to threaten plants with these assessments if they did not incorporate some of the best practices. FSIS Deputy Assistant Administrator Dr. Daniel Engeljohn said, "We are not going to say you have to have these practices, but we are going to say that if you don't we are going to spend more time to scrutinize your rationale."²⁸³

Many of the practices identified in the Checklist were more difficult, too expensive, or unfeasible for many of the smallest plants and therefore many were targeted for assessments. These assessments generally involve about two weeks of scrutiny by USDA to evaluate its HACCP plan.²⁸⁴ This drains a much greater percentage of staff time at the smallest plants, which have fewer than 10 employees, as it does at the largest plants, with 500 or more employees. In addition, large plants often have consultants and attorneys to help in these matters. FSIS conducted four and a half times the number of assessments at these very small plants as they did at the large plants.²⁸⁵

It appears that food safety assessments will not be the end of FSIS' stepped up activities at the smallest plants. In February 2008, the agency published plans to increase testing at large volume plants and "establishments that are more likely to produce product contaminated with *E. coli* O157:H7."²⁸⁶ However, the rationale presented in the 2008 report continues to rely on oversampling at the smallest plants because they do not use many chemical interventions or in-plant testing.²⁸⁷ While avoiding an evaluation of whether companies using these technologies are doing so effectively, the agency continues to pressure all plants to use them.

Soon after the publication of the new plan, John Munsell, former manager/owner of a small, family-owned USDA-inspected plant for 34 years and now a consultant/advocate for small plants, expressed the sentiments of many owners of the smaller plants:

"The questionnaire was intentionally designed for small plants to fail. Why? Because their answers are a repetitive NO to questions like: Do you utilize a Hide-On Carcass wash? Do you utilize steam vacuuming on your kill floor?"

Do you have lactic acid spray cabinets? ... Do you perform ongoing verification testing of source materials from all suppliers, at least quarterly? Do you test all lots of finished products? The list goes on and on. As well as the No, No, No, No, No answers."

Quarterly Testing

While the agency has not literally required plants to adopt testing for *E. coli* O157:H7, instructing its employees to reject company HACCP plans that do not include it amounts to the same thing.

While the agency continues to avoid testing the beef from the largest slaughterhouses, the smallest plants are pressured to do quarterly testing of raw beef product from their large suppliers. In many cases this is not feasible for several reasons. Small grinders often get their supplies from distributors and have no control over which slaughterhouse's products are available. Doing quarterly testing of supplies from more than 30 large slaughterhouses and even more small slaughterhouses would soon become cost prohibitive.^{288, 289}

Given the sporadic nature of *E. coli* O157:H7 outbreaks, it would also be extremely unlikely that a quarterly test would detect contamination, even if it were there. This expense would be quite a burden for small plants and yield little public health benefit.

More significantly, the agency is aware that numerous suppliers took "some very aggressive steps [to warn grinders] that they cannot or should not test their product or have the likelihood of it not being supplied further product."²⁹⁰ The grinders are caught between a rock and a hard place — the agency is requiring that they test suppliers' products and suppliers will refuse to sell to them if they test.²⁹¹

Annual Audits

Even the largest of the small plants object that auditing their suppliers is not feasible.²⁹² One small grinder, with more than 300 employees, said, "Even as big as I've gotten the large suppliers would not care if I cancelled my order. And then where would I go? Small companies like me, and smaller, it is not in the realm of possibility that I audit them."²⁹³

Shifting responsibility for contamination to downstream processors ignores the agency's failure to prevent contamination. FSIS has inspectors monitoring the slaughter of every animal, yet ignores their complaints of the line moving so fast that the inspector cannot spot all of the fecal contamination. FSIS also often restricts inspectors from intervening when plants contaminate meat through



carelessness. For example, an employee at one large plant accidentally doused nearly 500 carcasses with sewage water before anyone noticed.²⁹⁴ Inspectors in the plant wanted this meat condemned, but the agency allowed the plant to rinse it with chemicals until microbial tests indicated that it was safe. While FSIS deliberately diminishes its involvement at the large slaughter plants, it wants grinders to send a private auditor, with no authority, to demand records or access to the plant as a way of ensuring that suppliers are maintaining food safety controls.

Misplaced Focus

On April 9 and 10, 2008, as part of its response to the Topps Recall, FSIS held a public meeting entitled “Shiga Toxin-producing *E. coli* — Addressing the Challenges, Moving Forward with Solutions.” At the meeting, the agency discussed a new policy to²⁹⁵ determine that “raw beef products such as primal cuts and boxed beef contaminated with *E. coli* O157:H7 are adulterated.”²⁹⁶

But by the fall of 2008, the agency seemed to have abandoned this approach, instead considering an industry petition for expanded use of irradiation on carcasses, an expensive controversial intervention not likely to be used at small plants. As of June 2009, FSIS has not extended the definition of adulteration.

Appendix C: Rendering

Between one-third and one-half of each animal used to produce meat is left over at the end of the process.²⁹⁷ This waste is the primary raw material used by the rendering industry annually to convert over 50 billion pounds of animal byproducts into approximately 11 billion pounds of proteins and 10 billion pounds of fats.²⁹⁸ In 2006, there were 273 rendering plants in the United States.²⁹⁹

During rendering, the raw material is broken down through physical (grinding, cooking, pressurizing) and chemical processes.³⁰⁰ The resulting proteins and fats are then manufactured into consumer products such as edible tallow and lard, livestock feed, personal care products and, more recently, fuel.³⁰¹

The World Health Organization sums up the vital role that rendering plays in the meat industry, noting that the rendering industry “performs an essential public service: the environmental clean-up of wastes too hazardous for disposal in conventional ways. For example, animal wastes provide ideal conditions for the growth of pathogens that infect humans as well as animals. Incineration would cause major air pollution. Landfills could lead to disease transmission. In contrast, rendering ‘sanitizes’ the wastes. The high temperatures used are sufficient to kill almost all infectious agents — the causative agent of BSE [bovine spongiform encephalopathy or mad cow disease] being the notable exception.”³⁰²

The meat, poultry and rendering industries always have been linked. But with the tremendous growth of the meat industry in the twentieth century, especially the consolidation that occurred during the second half, the relationship has become even more symbiotic. The decline in small slaughterhouses led to a decrease in the number of renderers, which in turn led to hardships for small slaughterers and processors. When mad cow disease was discovered in the United Kingdom in the late 1990’s, as a precautionary measure the U.S. government instituted new rules pertaining to animal feed ingredients. The regulation first hit renderers, but also quickly affected the beef industry and smaller packers, as well.

Background

For at least two millennia, only rendered fats were highly marketable, with tallow going primarily into candles, and to a lesser extent, soap. The first record of soap, and therefore of rendering, comes from the first century A. D.³⁰³ By the second half of the 19th century, soap was the principal product made from tallow and the soap and rendering industries

were linked.³⁰⁴ In the 1880s, fat from a steer brought in nearly three times as much as meat from the animal and was worth approximately 20 times what it is today.³⁰⁵

In the 20th century, protein byproducts, for the first time, also became highly marketable in the United States. In 1901, a professor at Purdue University experimented with feeding protein byproduct, which had previously been discarded or used as fertilizer, to livestock.³⁰⁶ About 85 percent of rendered fats and proteins are now used in the production of animal feed.³⁰⁷

Industry Growth and Consolidation

Rendering facilities associated with larger meat packing houses in New England initially supplied the market for soap, but demand increased dramatically after the Civil War, and small renderers sprang up to deal with waste from small slaughter plants.³⁰⁸ As meat monopolies grew, they competed for supplies, “establishing scrap routes that procured fat, bones, and offal from grocery stores and small slaughtering plants.”³⁰⁹ A 1920 investigation by the Federal Trade Commission into monopoly practices led to the Packers and Stockyards Act of 1921 which “trigger[ed] a major expansion” in the number of renderers. There were nearly 1,000 U.S. rendering facilities in 1927.³¹⁰

Since then, however, the decisive trend towards consolidation in the livestock industry led to a decline in the number of small slaughter and processing plants and to a substantial decrease in the number of renderers. Some larger meat processors render their own byproducts and do not collect any other material to process.³¹¹

In 2002, it was estimated that independent renderers collected and processed approximately half of livestock and poultry that do not reach the slaughter plant (because they die on the farm.)³¹² Another important supplier for independent renderers were small slaughter plants, until the number of small plants began to decline in the late 1980's.³¹³

In 2007, David Kaluzny II, then president of the National Renderers Association, said, “There has been more consolidation, and it's due to two things... One is the economies of scale, since rendering is very capital intensive, including the ancillary costs associated with air-pollution control. By the same token, there is also [a decline in] the amount of product that is available to independent renderers, as packer-renderers take more of the product out of the general rendering cycle.”³¹⁴

In 1992, David Grandstaff, owner of Indiana's Grandstaff Rendering, described how consolidation in the industry and



the decreasing number of meat packers was impacting his business. He recounted how his grandfather had bought rendering operations in Indiana, Ohio and Michigan for seven sons in the beginning of the century. In 1992, his was the only facility remaining of the family businesses and “one of six surviving Hoosier renderers out of more than 100 such operations at the turn of the century. So we have seen a lot of consolidation. In fact...we bought a plant that closed in Warsaw, Indiana [and] also purchased and consolidated the plant that used to operate at Huntington. So we've been a part of that consolidation. We're a small survivor... But new business in this area in terms of processing of a major kind, it doesn't come along. Economics of going out to compete with an operation that's in 12 states does not make much sense. If I behave myself they allow me to keep operating. If I get smart, they are capitalized to the point that they could come in and buy every account I have and I'm done tomorrow. That's the reality of being very small.”³¹⁵

On November 4, 2005, Grandstaff Rendering ceased operations after being sold to another family-owned business.³¹⁶

Mad Cow Disease

The discovery of mad cow disease in the United Kingdom dramatically affected the rendering industry and consequently, the meat industry. BSE led to a number of changes that significantly decreased the value of U.S. byproducts, especially protein byproducts from cattle and other species. Europe banned the use of cattle-derived meat and bone

meal and in 1997 the U.S. Food and Drug Administration (FDA) prohibited the use of feed containing ruminant materials for feeding to ruminants in the United States.³¹⁷ After the discovery of the first U.S. animal with mad cow disease, the United States adopted additional safeguards, including the prohibition of certain “specified risk materials” from cattle, including spinal cord, brain, tonsils, eyes, and parts of the small intestines, from human food.³¹⁸

This decrease in the price renderers could get for their products was passed along to small packers. In the 1990s, Darling, one of the largest independent renderers, began charging all but the largest suppliers for pick-up,³¹⁹ a cost the large meatpackers that run their own rendering plants do not have to bear.

Another update to the feed rule went into effect in 2009, with predictions that more renderers would increase the pick-up costs charged to farmers and small meat plants.

Large meatpacking houses with an attached rendering facility may have fared better during this upheaval. They incurred no transportation costs because the rendering facility was attached or near the slaughterhouse. And a large meatpacker will have a steady supply of the same kind of raw materials that allows for the development of specialized products like pharmaceuticals.³²⁰

The recent difficulties created by BSE have led some independent renderers to close their doors. In August 2005, Southern Oregon Tallow Company closed because of the “possibility of more federal regulations and the decline in the value of meat and bone meal.”³²¹

Closure of these small rendering facilities affects communities as well as small packers that then have to find alternative disposal methods. The Oregon Department of Agriculture estimated that closure of Southern Oregon Tallow Company and another nearby facility would “affect more than 100 million pounds of material per year.”³²² As many other independent renderers shut their doors, the meat industry in Oregon reportedly turned to “disposing of their animal byproducts in landfills or having it transported to rendering facilities in Washington and California.”³²³

Another issue when local renderers close is a region’s ability to deal with unusually high volume of dead animals. In a 2006 California heat wave, “20,552 dairy cows, over 10,738 calves, 800,000 chickens, and 200,000 turkeys” died in a short timeframe, which overwhelmed the rendering facilities in California.³²⁴

Other states have also recognized the need to prepare for

the unexpected. Iowa State University’s Department of Agriculture and Biosystems Engineering began a study in 2002 to prepare for large-scale disease outbreaks. The department drafted emergency composting guidelines because consolidation in the rendering industry has necessitated increased hauling distances and costs and because a large-scale disease outbreak could temporarily overwhelm local rendering capacity.³²⁵

Alternatives to Rendering

Each alternative to rendering has potential disadvantages:³²⁶

Landfills – Space is limited. Annual animal byproducts and mortalities, if processed with the necessary addition of sawdust or other materials needed to absorb moisture, would fill approximately 25 percent of the available U.S. landfill space, at a cost estimated in 2001 of \$105 per ton. While the temperature of decomposing material does increase, waste in landfills is often not hot enough to destroy all pathogens. Landfills produce noxious odors and attract insects and animals. Some states, including California, prohibit cattle carcass disposal in landfills.

Composting – Composting has even greater space considerations than landfills because the process requires the addition of large volumes of other materials to control moisture. Like landfills, composting can create pathogen, odor and pest hazards if not done properly. Composted materials are often spread on land, but composted cattle material could carry BSE-causing tissues, threatening the amplification of the disease that the FDA feed rules seek to avoid.

Burial – Burial has risks similar to landfills and composting, and is prohibited in many states because it can also threaten ground and surface water. Space limitations are also a limiting factor given the large amount of waste to be managed.

Incineration – While incineration destroys pathogens and avoids pest problems, it can create hazardous chemicals such as dioxin. It also requires substantial fuel and may be cost prohibitive because offal is a very wet material. Additionally, there are not enough incinerators in the United States to dispose of all animal byproducts. And there is also the problem of disposing of incinerator ash that remains at the end of the process.

The Potential for Biofuels

There is at least one alternative on the horizon that may hold promise — the production of biofuels, especially biodiesel, utilizing animal byproducts. According to a guide put out by the rendering trade association, “Biodiesel is biodegradable and non-toxic, and has significantly fewer emissions than petroleum-based diesel when burned.”³²⁷ As with any new technology, the development of practical applications is occurring in fits and starts.

But animal-based biodiesel production addresses the problem of what renderers and communities can do with ruminant byproducts that have lost value in the wake of FDA’s feed rules. Of the approximately 240 U.S. rendering facilities, 171 of them handle “prohibited materials” that are restricted by FDA’s feed rules.³²⁸

Several European studies have suggested that biofuels can be made safely under test conditions from animal waste that is contaminated with prions,³²⁹ the infectious protein particles that are believed responsible for neurodegenerative disorders such as the human form of mad cow disease.³³⁰

The National Renderers Association expects the demand for animal-based fats and oils to increase with biodiesel,³³¹ and the significant improvement in the price of fats and oils relative to animal proteins in 2007 may reflect this.

Charles Neece, of Farmers Union Industries, LLC in Minnesota, says “whether the renderer is an integrated processor or an independent, it would be hard not to give biofuel some credit for the increase in value.”³³² (An integrated processor is one that is connected to a slaughterhouse).

According to a rendering industry journal, the biodiesel market started with very little raw material coming from renderers. “Typically, biodiesel produced from animal-based feedstock was seen as inferior, mainly due to cold flow qualities.”³³³ But advantages of animal-based feedstocks are beginning to be recognized.

In 2004, the Farmers Union Marketing and Processing Association (FUMPA) and Farmers Union Enterprises (FUE) began operating a biodiesel refinery that uses between 80 percent and 100 percent animal fats as its feedstock in North Redwood Falls, Minnesota.³³⁴ FUMPA was founded in 1929 as a way for farmers to have more bargaining power when dealing with meatpackers and Farmers Union Enterprises is made up of state farmers unions from five states.³³⁵ The corporation formed by FUMPA and FUE has two rendering facilities, with most raw material coming from beef and poultry slaughter plants.³³⁶ It also collects dead animals as a service for its members.³³⁷

While planning the FUMPA operation in 2004, Chuck Neece, the operation’s research and development director, said “We’ve had general interest in biodiesel development because we are an ag company... We’ve also been monitoring BSE and how it has affected activity in byproducts. With biodiesel, we would have an outlet for (animal byproducts) if the market reacted negatively to the use of those products [in feed].”³³⁸

The new facility required a \$3.25 million dollar investment³³⁹ and the plant received a \$500,000 grant from the USDA.³⁴⁰ The plant was purchased as an assembled unit, which provides flexibility for the owners, since it could be easily moved to another site.³⁴¹ With an annual capacity of approximately three million gallons,³⁴² the plant has been supplying several rail lines with blends containing up to five percent of FUMPA’s products.³⁴³

In Oregon, Jim Gordon, a principle investor in the company Earth by Design, has purchased land adjacent to a landfill with plans to build a rendering operation, biogas facility, and biodiesel plant using rendered fats and greases. Dead animals, meat products, cooking grease, and other byproducts will feed the biodiesel facility.³⁴⁴ The company expects to employ approximately 60 people.³⁴⁵

Several state and local governments have also recognized the potential benefits of the production of biofuels made from animal byproducts. Minnesota Governor Tim Pawlenty signed a bill in 2008 that mandates an increasing percentage of biofuels sold within the state. It also mandates that five percent of the feedstocks for biofuels come from “non-traditional” agricultural resources from the state, including tallow.³⁴⁶



Appendix D: Resources

Starting a new meat plant or keeping an existing plant in business is no small task. Other meat processors and some trade associations can provide much needed information and assistance. The websites listed below are good places to start.

Government

FSIS Small and Very Small Plant Outreach Center:
www.fsis.usda.gov/Small_Very_Small_Plants/index.asp

Federal Government Grants (including USDA):
www.grants.gov

Small Business Administration: www.sba.gov

Small-Scale Plants

Niche Meat Processor Assistance Network:
<http://www.nichemeatprocessing.org/>

Mobile Slaughter and Processing Information:
http://www.extension.org/pages/Mobile_Slaughter/Processing_Units

HACCP

International HACCP Alliance:
www.haccpalliance.org/sub/index.html

National Associations

American Association of Meat Processors
www.aamp.com/

North American Meat Processors Association
www.namp.com/

Regional Associations

Southwest Meat Association
www.southwestmeat.org/

Southeastern Meat Association
www.southeasternmeat.com/

State and Local Associations

Chicago Midwest Meat Association
<http://www.chicagomidwestmeatasso.com>

Illinois Association of Meat Processors
www.illinoismeatprocessors.com/

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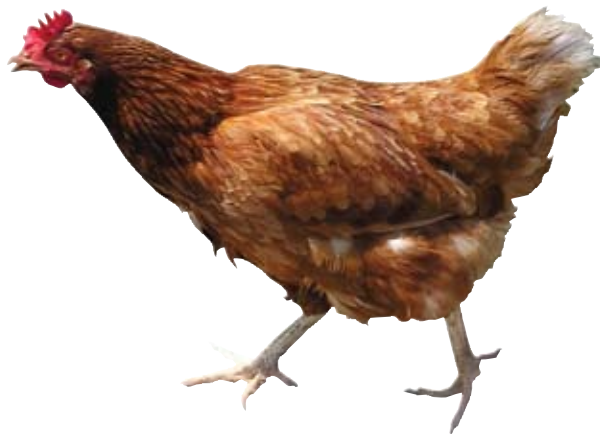
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