(M)EAT LOCAL®:
MARKET AND DISTRIBUTION CHALLENGES
IN THE LOCAL MEAT SYSTEM

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I. INTRODUCTION

The average American consumes approximately 200 pounds of poultry and livestock per year.\(^1\) Most of this meat is produced by industrial-scale poultry and livestock operations,\(^2\) presenting significant implications for public health\(^3\) and the quality of the nation’s natural resources.\(^4\)

As awareness about the myriad problems associated with industrialized livestock production has increased, consumers are driving change in the meat market, increasingly looking for meats produced in accordance with their values—meat from humanely treated animals raised outdoors, without the routine use of antibiotics and synthetic hormones, by fairly compensated farmers and workers.

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2. Id.
3. See, e.g., Carrie R. Daniel et al., Trends in Meat Consumption in the United States, 14 PUB. HEALTH NUTRITION 4, 575-83 (2010) (stating that there is epidemiological evidence that red and processed meat consumption increases cancer and chronic disease risk).
from their own communities.\textsuperscript{5} These increases are being seen despite the fact that “[p]ound for pound, head for head, local and niche meats cost more….\textsuperscript{6} This willingness to pay more at the cash register perhaps reflects an understanding that meat (and produce) is not cheap: consumer pricing is simply a matter of how the costs are distributed and of who bears them along the way from farm to plate.

In fact, demand is so high that many farmers and processors find it difficult to keep up.\textsuperscript{7} Some farmers report a shortage of slaughtering and processing space; as the livestock industry has consolidated, there are fewer small-scale slaughterhouses overall, and many of the remaining slaughterhouses will not take small lots of animals.\textsuperscript{8} Yet some slaughterhouses, as discussed later in this article, report a lack of animals or inconsistent throughput.\textsuperscript{9} Identifying, addressing and responding to the barriers that create this disparity will be essential for this segment of the market to continue to grow and develop from a “niche” into a more widely available market alternative.

This article explores many of these barriers by reporting the results of a series of anonymous interviews conducted with individuals involved throughout the production process. It builds on work the Duke Environmental Law and Policy Clinic\textsuperscript{10} has

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\item 8. While most slaughter facilities perform some form of primary processing (e.g., cutting the carcass into halves or quarters), and some offer extensive processing services, not all processing facilities perform slaughter. In this article the term “processor” is used inclusively to cover both slaughterhouses and processing facilities.
\item 9. The number of live animals brought to a facility for processing per unit of time.
\item 10. The Duke Environmental Law and Policy Clinic at Duke Law School allows students to work with clinic faculty and other legal professionals in representing non-profits in a range of
\end{itemize}
undertaken for the National Young Farmers Coalition\(^ {11}\) (NYFC) to identify bottlenecks and help farmers and processors meet growing consumer demand. The issues identified are of critical importance to beginning and small farmers alike. Farming is a risky business;\(^ {12}\) fewer than half of beginning farmers report positive sales,\(^ {13}\) which underscores the importance of ensuring market opportunities for small growers. This article provides a brief overview of production trends in the livestock industry in Part II, and then offers the perspectives of various stakeholders in the growing alternative market in Part III. Part IV provides recommendations for policy and regulatory reforms that are needed to better serve small farmers and processors and meet consumer demands for sustainable sources of meat.

II. THE LIVESTOCK INDUSTRY: AT A GLANCE

A. Historic and Recent Trends

So sweeping are the changes in the livestock industry over the past several decades that images of small farms, recollections of hogs getting loose among the squash, and talk of butcher shops are now quaint and unfamiliar, no longer consistent with the realities of the nation’s livestock industry. But it is important to remember that livestock were not always raised in massive feedlots and slaughtered in factories.\(^ {14}\) These structural changes have taken place rapidly—transforming communities as well as our relationship to the meat we eat—and were made possible by stark changes in federal farm policies.

In 1971, Earl Butz became the Secretary of the United States Department of Agriculture (USDA) and ushered in a new era of


11. The National Young Farmers Coalition is a membership organization dedicated to representing, mobilizing, and engaging young and beginning farmers. For more information about the Young Farmers Coalition see YOUNG FARMERS, www.youngfarmers.org (last visited Feb. 26, 2015).


13. Conversely, however, studies show that small farmers with direct-to-consumer sales have a greater chance of reporting positive sales than those who use traditional market channels. *Id.*

agricultural policy that emphasized the production of commodity crops, advising farmers to “get big or get out.” This directive and the associated shift in federal funding priorities for agricultural production resulted in an abundance of cheap grain, fueling changes in food and animal production methods. The quantity of industrial-scale feedlots, in which large numbers of animals are brought into enclosed areas for feeding and watering, exploded, and “[a]n increasingly consolidated meat industry learned to transform cheap grain into cheap—but highly profitable—burgers, chops, and chicken nuggets.” Such operations are commonly referred to as “concentrated animal feeding operations” (CAFOs), a legal term found in the federal Clean Water Act that denotes confinement-based livestock operations required to obtain water pollution control permits.

Since that time, the number of farms raising cattle and swine has been in steady decline, although the number of animals produced has continued to rise. The trend continues: between 1997 and 2007, the total number of cattle and hog operations declined by 14% and 33%, respectively. The result is a system of operations that concentrates...
thousands of animals in small, confined spaces, and replaces land and labor with automated feeding, temperature control, and manure management.\textsuperscript{21} By concentrating animals, reducing the land available to assimilate their manure, and reducing the labor required to raise them, industrial-scale operations can produce livestock at a much lower cost to the farmer.\textsuperscript{22}

Equally dramatic trends are seen in the slaughtering and processing side of the livestock business.\textsuperscript{23} The number of slaughterhouses across the country began to decline in the 1980s, a trend that has continued through the present time.\textsuperscript{24} Meanwhile, the size of slaughterhouses increased, and most meat is currently processed in facilities designed to slaughter millions of animals each year.\textsuperscript{25} Slaughterhouses are now high volume operations that process animals at extraordinary speeds. Charts set forth in federal regulations indicate that processing rates can reach 390 steers or 1106 market hogs in just one hour;\textsuperscript{26} the rate for poultry operations can

\begin{footnotesize}
\begin{enumerate}
\item  MacDonalD & McBriDe, supra note 19, at 3.
\item  See generally Smithfield, 2013 INTEGRATED REPORT (2013), available at http://smithfieldfoods.com/media/39114/smitHfield-integrated-report2013.pdf. Smithfield's wholly-owned subsidiary, Murphy-Brown, produces more than sixteen million hogs per year for slaughter and processing at Smithfield's facilities. Id. at 16. Annually, this accounts for approximately 53\% of the hogs Smithfield processes. Id.
\item  See Food & Water Watch, WHERE'S THE LOCAL BEEF? REBUILDING SMALL-SCALE MEAT PROCESSING INFRASTRUCTURE 3 (2009), available at http://www.foodandwaterwatch.org/tools-and-resources/wheres-the-local-beef (accounting that between 1998 and 2007, the number of government-inspected slaughter facilities fell by more than 20\%); see also Low et al., supra note 7, at 23 (citing USDA NASS data showing that the number of small federally inspected cattle slaughter plants slaughtering under 10,000 head per year has declined by 12\% since 2001, dropping to 554 in 2013).
\item  James M. MacDonalD et al., Food & Rural Econ. Div., Econ. Research Serv., U.S. Dep't. of Agric., AGRIC. Econ. REPORT NO. 785, CONSOLIDATION IN U.S. MEATPACKING 37 (1999), available at http://www.ers.usda.gov/media/493235/ae785_1_.pdf. For example, according to USDA NASS data, 8.6 billion chickens were slaughtered in the U.S. in 2013. Low et al., supra note 7, at 23, n.26. The numbers for cattle are smaller simply because the animals are so much larger. Nonetheless, “ninety-four percent of cattle slaughtered in 2013 were processed in facilities that slaughtered at least 100,000 cattle during the year.” Id.; see also Johnson, Marti & Gwin, supra note 23, at 7–8, 12 (noting that size of slaughterhouses has increased as overall number of slaughter plants has decreased in recent years).
\item  See 9 C.F.R. § 310.1 (2012) (stating that for 390 steers, it takes 13 inspectors; for 1106 hogs, it takes 7 inspectors).
\end{enumerate}
\end{footnotesize}
reach 25 broilers per minute, or 1500 per hour, per inspector.\textsuperscript{27} With multiple slaughter lines operating simultaneously, poultry slaughterhouses can now process up to almost 12,000 poultry per inspector per day.\textsuperscript{28}

Other structural changes accompanied the expansion in the size of farms and slaughterhouses. Processing operations have merged to become dominant market players. In the United States, meat production is now controlled in large part by just a handful of companies. The top four beef processors control 83\% of their market, the top four pork processors control 66\%, and the top four broiler chicken producers and processors control 58\%.\textsuperscript{29}

Moreover, the various market players are increasingly consolidated vertically along the supply chain, “from the corn to the bacon.”\textsuperscript{30} For example, Cargill is one of the nation’s largest processors of soybean and corn—primary ingredients in livestock feed—and is the nation’s second largest feed mill operator.\textsuperscript{31} It is also the nation’s third largest producer and second largest packer of beef, the fourth largest packer of pork products, and the third largest producer of turkeys.\textsuperscript{32} The company markets its meat products under more than twenty-four brand labels. Such market dominance allows this one company to better weather market shifts and fluctuating grain markets than smaller, independent market players.

Although each livestock sector varies in structure, most livestock are now owned by large corporations that contract with farmers to “grow out” the animals.\textsuperscript{33} The corporation owns the breedstock and supplies the animals to the farmer, who specializes in a single stage of

\textsuperscript{27} 9 C.F.R. § 381.67 (2012); see also 9 C.F.R. § 310.1(b)(1) (2012).

\textsuperscript{28} For example, the Smithfield Foods Packing Plant in Tarheel, N.C. slaughters up to 36,000 market hogs each day. NAT’L POLLUTANT DISCHARGE ELIMINATION SYSTEM, ENVT’L PROT. AGENCY, FACT SHEET FOR NPDES PERMIT DEVELOPMENT (NPDES PERMIT NO. NC0078344) (2007).


\textsuperscript{32} Id. at 1–2.

\textsuperscript{33} See MACDONALD & McBRIDE, supra note 19, at 2 (remarking that today’s livestock farms are increasingly producing under contract arrangements).
production in the animals’ life. The company supplies the feed and any drugs needed in the production process, provides veterinary services, and may even design the buildings and waste management systems that the grower must use. The corporation may also own the feed mills, the slaughterhouses, the processing plants and the brand labels, as well as the trucks that transport the animals and the finished products through the supply chain. This is all done under contract with the farmer-grower, who is paid on a per-head basis at the slaughterhouse for a pre-arranged price. In short, farmers are “paid for the services that they provide, and not for the products that they sell.”

The vertical integration of the livestock industry helps keep commercial meat prices low at the cash register. One way in which this level of vertical integration confers market advantage is by capitalizing on federal policies that subsidize and support the production of commodity grains like corn and soybeans. Federal feed subsidies to large companies amounted to a $35 billion boost over an eight-year period between 1997 and 2005, providing those companies with the “equivalent [of] a 5–15% reduction in overall operating costs.” Economies of scale are created in other ways as well, such as innovations in slaughter plant technology and changes in labor relations that have resulted in wage reductions.

Federal farm policies, in addition to efficiency gains from economies of scale, create cost advantages for industrial livestock operations. The advantages come “at the expense of smaller scale, diversified, locally-owned crop and livestock farms,” making it

34. *Id.* at 5.
35. See *id.* at 5–12 (discussing contractual relationships in livestock production).
36. See *id.* (discussing contractual relationships in livestock production).
37. *Id.* at 2. Typically, a grower is not paid for animals that die on the farm.
38. *Id.* at 1.
40. See *id.*
41. See MACDONALD ET AL., supra note 25, at 1 (discussing how changes in technology changed economies of scale).
42. See Feeding the Factory Farm, Tufts Univ. Global Dev. and Env’t Inst., http://aese.tufts.edu/gdae/policy_research/BrilerGains.htm (last visited Feb. 25, 2015) (discussing the impact federal regulations had on industrial livestock operators).
43. *Id.*; see also Pew Commission on Industrial Farm Animal Production supra
increasingly difficult for small farmers and processors to compete. 

Nevertheless, the trend is changing, and that change is gaining momentum. Demand for locally-raised meats and poultry produced in sustainable and transparent ways is increasing, providing a sharp contrast to a general decline in the per capita consumption of meats. Part of that increase is attributable to a dramatic increase in the numbers of farmers’ markets around the country, which provide more convenient opportunities for consumers to purchase meat directly from farmers. Yet the number of small-scale slaughter facilities continues to decline. It is against this backdrop that groups like NYFC seek solutions to the forces that limit supplies in the face of rising consumer demand.

B. What Is Local Meat?

Despite increased demand, general consensus on what constitutes “locally-produced” meat remains elusive. There is no standard definition of this concept, nor is there agreement on the appropriate geographic range between production and consumption. For example, could meat processed and marketed by a global corporation nonetheless be considered “local” when the products are sold in the community in which the processing facility is located? The USDA defines “local” to mean food produced within 400 miles or within the state of the point of purchase. Many farmers’ markets

44. See Johnson, Marti & Gwin, supra note 23, at 4 (noting the market share of alternatively produced livestock is increasing).  
46. Id. at 23; Johnson, Marti & Gwin, supra note 23, at 12. 
47. See Martinez et al., supra note 46, at iii (observing there is no consensus as to what defines a locally produced food). 
48. H.R. Rep. No. 110-256, pt. 1, at 399-400 (2007) (“The term ‘locally or regionally produced agricultural food product’ means any agricultural food product that is raised, produced, and distributed in (1) the locality or region in which the final product is marketed, so that the total distance that the product is transported is less than 400 miles from the origin of the
employ more restrictive metrics, ranging from 60 miles to 150 miles from the market, and require that vendors actually produce the farm products they sell. While such debates are beyond the scope of this article, they are nonetheless important for understanding the forces that drive demand and the challenges for those striving to meet it.

Proponents of local foods tend to be motivated by societal goals and values they believe are undermined by the industrial food system. Accountability, transparency and food safety are key motivators, and many firmly believe the meat tastes better. But deeper forces are also at work. Concerns about animal welfare and environmental impacts are paramount for meat products. Additional drivers include the authenticity of one’s relationship to food and the desire to contribute to economic opportunities and growth in one’s own community.

With livestock, as with other agricultural products, the production model employed can determine whether the requirements of local food consumers are met. For example, was the animal raised on pasture, or was it raised in a confinement operation? It is

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52. MARTINEZ ET AL., supra note 46, at 29–31 (discussing consumer preferences for locally produced foods).

53. See id. (noting that consumers perceive locally produced foods to be fresher and of higher quality than processed foods).

54. Id. at 4, 32 (noting that consumers consider local foods to be environmentally sustainable).


56. See generally Yoko Onozaka et al., Local Food Consumers: How Motivations and Perceptions Translate to Buying Behavior, CHOICES (2010), available at http://www.farmdoc.illinois.edu/policy/choices/2010/2010013/2010103.pdf (explaining that “the wide spread differentiation of food offerings and venues has allowed consumers to more carefully search out attributes that are important to them”).
widely thought that animals are happier when raised outdoors, on pasture, and able to express instinctive behaviors.57 Farmers interviewed for this article considered rooting, wallowing, and nesting behaviors for pigs, and roosting and scratching for chickens, to be good indices of the animals’ welfare.

Production models have implications for human health, as well. Studies show that pasture-raised meat products are more nutritious, providing more vitamin E and omega-3 fatty acids.58 The production model also influences antibiotics usage. Studies show that routine antibiotic usage—to promote animal growth and suppress the higher incidence of disease in animals raised in confinement—leads to an increase in antibiotic-resistant bacteria and undermines the effectiveness of antibiotics in treating human ailments.59

Environmental concerns, such as impacts to water and air quality and contributions to greenhouse gas emissions, are also influenced by the production model and associated waste management practices.60 Well-run, pasture-based livestock operations maintain significantly lower stocking densities,61 and farms with a diverse mix of crops and

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57. See generally Joel Salatin, Everything I Want to Do Is ILLEGAL: War Stories from the Local Food Front (2007); About, ANIMAL WELFARE APPROVED, http://animalwelfareapproved.org/about (last visited Feb. 25, 2015).


59. See, e.g., Ellen K. Silbergeld et al, One Reservoir: Redefining the Community Origins of Antimicrobial-Resistant Infections, 92 MED. CLIN. N. AM. 1391, 1402-03 (2008) (concluding that antimicrobial use in food contributes to microbial resistance in humans); Amy R. Sapkota et al, What Do We Feed to Food Production Animals? A Review of Animal Feed Ingredients and Their Potential Impacts on Human Health, 115 ENVIRON. HEALTH PERSPECT. 663, 668 (2007), available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1867957/ (concluding that use of antibiotics in animals which are consumed could lead to bacterial resistance of antibiotics in humans); Leah Schinasi et al, Air Pollution, Lung Function, and Physical Symptoms in Communities Near Concentrated Swine Feeding Operations, 22 EPIDEMIOLOGY 208, 214 (2011) (concluding that human exposure to air pollutants near hog operations causes acute physical symptoms); see also MacDONALD & McBride, supra note 19, at 2, 29-35 (discussing link between use of antibiotics in animals that are later killed for human consumption).

60. For more information about the environmental impacts of industrial-scale meat production, see Nowlin, Sustainable Production, supra note 4; see also J.B. Ruhl, supra note 4; see also MacDONALD & McBRIE, supra note 19, at 29-33.

61. For example, the National Organic Standards Board’s Livestock Subcommittee recommends an outdoor stocking rate of at least one half acre of pasture per 1,000 lb. ruminant animal unit. NAT’L ORGANIC STANDARDS BD., LIVESTOCK COM., RECOMMENDATION, ANIMAL WELFARE 5 (2009), available at http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC079545&acct=nosh Some small-scale hog farmers interviewed for this article recommend a range of 6-10 hogs per acre, depending on size and age, and only 4-6 pregnant sows per acre. See generally MacDONALD & McBRIE, supra note
animals make more effective use of manure-based nutrients.\textsuperscript{62} Locally-produced meats may also have a smaller transportation footprint.\textsuperscript{63} Finally, many land trusts promote local farms to:

\begin{quote}
[P]rotect open space and provide opportunities for wildlife to flourish. If farmers thrive, they will not sell their land to developers, and well-managed farms can have many different environmental benefits, including riparian buffers, space for a variety of pollinators, as well as habitat.\textsuperscript{64}
\end{quote}

Given this complex set of considerations driving consumer demand for their products, it is understandable that many local livestock producers seek to do business with slaughterhouses and processors that can ensure product traceability and have the equipment needed for desired packaging.\textsuperscript{65} They also often seek third-party certifications, such as Animal-Welfare Approved\textsuperscript{66} or Organic,\textsuperscript{67} and so must find slaughtering facilities that comply with

\textsuperscript{19}, at 28 (discussing manure application in livestock operations).

\textsuperscript{62} Mixed Crop-Livestock Farming: Characterization of Mixed Farms, FOOD & AGRIC. ORG. OF THE U.N. AGRIC. & CONSUMER PROT. DEPT (2001), http://www.fao.org/docrep/004/Y0501E/y0501e03.htm ("The best known type of integrated mixed farming is probably the case of mixed crop-livestock systems. Cropping in this case provides animals with fodder from grass and nitrogen-binding legumes, leys (improved fallow with sown legumes, grasses or trees), weeds, and crop residues. Animals graze under trees or on stubble, they provide draught and manure for crops, while they also serve as a savings account.").

\textsuperscript{63} See N.C. CHOICES, Why Start a Local Meat Buying Club? (2012), available at http://wake.ces.ncsu.edu/wp-content/uploads/2012/08/Meat-Buying-Club.pdf; Nicolette Hahn Niman, The Carnivore's Dilemma, N.Y. TIMES (Oct. 3, 2009); see also NE. REG'L ASS'N OF STATE AGRIC. EXPERIMENT, SCIENCE ROADMAP FOR FOOD AND AGRICULTURE 74 (2010), available at www.nrea.umd.edu/landGrant/papers/ScienceRoadmapDraftJuly2010.doc (statement by U.S. Secretary of Agriculture Tom Vilsak: "... by reconnecting consumers with local producers, we can create new income opportunities for farmers ... and decrease the amount of energy used to ship all over the world ... ").


\textsuperscript{65} Many farmers interviewed for this article felt this way. In addition, \textit{see generally Building the Capacity of Small Meat Processors: Successes and Lessons from N.C., NC CHOICES AND NICHE MEAT PROCESSOR ASSISTANCE NETWORK WEBINAR (Jan. 7, 2015), https://learn.extension.org/events/1874#.VPhgkU1ASUk.}

\textsuperscript{66} Products with an Animal Welfare Approved label must be raised on pasture or range. \textit{See Standards, ANIMAL WELFARE APPROVED, http://animalwelfareapproved.org/standards/} (stating that the "Animal Welfare Approved" label is the only label that requires that animals have pasture access).

\textsuperscript{67} 7 C.F.R. § 205 (2012).
those standards. These demands, combined with the other challenges described below, limit access to sufficient slaughter and processing capacity.

C. Regulatory Considerations

After Upton Sinclair published The Jungle in 1906, exposing unsanitary and disturbing conditions in the meatpacking industry, Congress responded by passing the Federal Meat Inspection Act of 1906 (FMIA). FMIA requires pre-slaughter and postmortem inspection of every “amenable” animal slaughtered for human consumption and empowers USDA to enforce sanitary requirements in meatpacking plants.

The FMIA did not apply to poultry products, which were not in high commercial demand at the time. During World War II, USDA began inspecting establishments selling poultry to the U.S. military to ensure sanitation standards for troop health. In 1957, Congress passed the Poultry Products Inspection Act (PPIA), requiring continuous inspection of poultry products (before slaughter, after slaughter, and before processing) that enter interstate commerce.

68. Of course, consumers must pay close attention to these claims, many of which have no set regulatory definition and remain subject to interpretation. For example, the term “free range” is defined by USDA, but is applicable only to poultry, and merely requires that the birds have access to outdoors. See USDA FOOD SAFETY AND INSPECTION SERV., MEAT AND POULTRY LABELING TERMS (2014), available at http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/getanswers/food-safety-fact-sheets/meat-and-poultry-labeling-terms/meat-and-poultry-labeling-terms. The USDA-sanctioned “grass-fed” label allows animals to be fed cereal grains (but only in the vegetative state), and allows for confinement of those animals. 72 Fed. Reg. 58,631, 58,631–37 (Oct. 16, 2007). By contrast, the American Grassfed Association label requires that animals have a diet exclusively of grass and forage and that these animals are raised on pasture, never confined. See Our Standards, AMERICAN GRASSFED ASSOCIATION, http://www.americangrassfed.org/about-us/our-standards/ (last visited May 15, 2015).


70. 21 U.S.C. §§ 603, 604. “Amenable species” is defined in the statute to include species to which FMIA applied before a 2005 amendment (“cattle, sheep, swine, goats, horses, mules, and other equines,” Pub. L. No. 109-97 (2005)), catfish, and “any additional species of livestock that the Secretary considers appropriate.” 21 U.S.C. § 601(w). Although not every species slaughtered for human consumption must undergo inspection (e.g. wild game are exempt), each individual animal from the “amenable species” must be inspected.


72. Id.

73. Id.


75. See FSIS, supra note 71.
To sell meat and poultry products in the United States—regardless of whether the sale is from a grocery store, a farmers’ market, or a farm stand—the meat must have been slaughtered and processed at a facility inspected by the USDA or equivalent state agency.\textsuperscript{76}

Both the FMIA and the PPIA are implemented by USDA’s Food Safety and Inspection Service (FSIS).\textsuperscript{77} FSIS has considerable powers in regulating the safety of meat and poultry products.\textsuperscript{78} An FSIS inspector (or state equivalent) must inspect every animal slaughtered and processed before and after slaughter to ensure the safety and quality of the meat.\textsuperscript{79} No meat for human consumption may enter commerce without its stamp of “Inspected and passed.”\textsuperscript{80} If conditions warrant, FSIS has the authority to withdraw inspection, preventing the facility from operating.\textsuperscript{81} It may condemn meat and order its destruction.\textsuperscript{82} It also has the authority to approve the use of any product label, which must include the product’s standard of identity, quantity, safe handling instructions, list of any added ingredients (such as salt or spices), and the facility’s number, name, and address.\textsuperscript{83}

Regulatory exemptions exist for meat that does not enter commerce.\textsuperscript{84} Such meats may be processed at a “custom-exempt” facility or on-farm.\textsuperscript{85} To fall under this exemption, however, the meat must be processed exclusively for the personal use of the animal’s owner or the owner’s family and nonpaying guests, and may not be sold commercially.\textsuperscript{86} Similar restrictions exist for poultry, although the PPIA also exempts the on-farm slaughter and processing of up to 20,000 birds per year from inspection requirements and prohibitions on commercial sale.\textsuperscript{87}

Nationally, a processing facility has the choice to operate under one of five categories: Federally Inspected, State Inspected,

\textsuperscript{77} 21 U.S.C. §§ 679c, 683.
\textsuperscript{78} 21 U.S.C. §§ 683, 691–695.
\textsuperscript{79} 21 U.S.C. §§ 603-604.
\textsuperscript{82} 21 U.S.C. § 604.
\textsuperscript{84} 21 U.S.C. § 623(a); 9 C.F.R. § 303.1(a) (2012).
\textsuperscript{86} 21 U.S.C. § 623(a).
\textsuperscript{87} 9 C.F.R. § 381.10(a)(6) (2012).
Talmadge-Aiken, Custom-Exempt, and Cooperative Interstate Shipment. Each facility type has some advantages and disadvantages associated with it. Not all options are available in every state; however, where available, a processor may choose the option that best fits his or her business model.

1. Federally Inspected Facilities

Federally Inspected (FI) facilities are directly regulated by FSIS under the FMIA. These facilities are typically medium and large processing plants approved for the slaughter and processing of meat for intra- and interstate sales. FI facilities must operate under strict safety guidelines and regulations, including HACCP regulations. A federal safety inspector must be onsite at all times during the slaughtering and processing of all animals and may require facilities to submit extensive safety and compliance reports. FI facilities process the vast majority of meat slaughtered in the United States. Meat slaughtered at FI facilities may be sold commercially to individuals at farmers’ markets, or packaged as retail cuts to restaurants, retailers, and food services. This type of inspection is beneficial for processors because the meat can be sold in interstate and foreign commerce. One interviewed processor felt that a disadvantage to operating an FI facility was the inflexibility of federal inspectors and the required paperwork related to multiple levels of

89. 9 C.F.R. § 424 (2012).
91. 9 C.F.R. § 417 (2012). In 1996, FSIS adopted regulations requiring all meat and poultry slaughter and processing plants to adopt a “Hazard Assessment and Critical Control Point” (HACCP) system to reduce food safety hazards. Id. The HACCP model requires the plant operator to identify the points, steps, or procedures in which risks of contamination are likely to occur, and then adopt controls or protocols to prevent or reduce those risks at that point in the process. Id. The HACCP rule has four components: standard operating procedures (SOPs) for sanitation, HACCP plans, generic *E. coli* testing, and *Salmonella* performance standards. See 9 C.F.R. § 417.1 (2012).
92. 9 C.F.R. § 307.4(a) (2012).
93. For example, in 2010, 98% of all cattle and 99% of all pork were slaughtered at FI facilities. USDA Nat’l. Agric. Stat. Serv., Livestock Slaughter 2010 Summary 6 (2011).
94. Gwin et al., supra note 88, at 1.
federal bureaucracy.

2. State Inspected Facilities

State Inspected (SI) facilities must comply with the same regulations as FI facilities or with state regulations “at least equal to” federal regulations.95 State health officials, rather than federal inspectors, inspect and monitor SI facilities.96 The SI system may allow states to be more innovative and involved in the meat processing industry—however, that involvement comes at a cost.

For farmers, the main downside of the SI system is that meat processed at a SI slaughterhouse is restricted to intrastate sales, which limits the market outlets farmers may access.97 Additionally, only twenty-seven states across the country retain state-level red meat inspection programs.98 Although states are reimbursed for fifty percent of their operating inspections costs by the federal government, many states still find the cost of implementation to be prohibitive.99 Many states have neither the extra revenue nor the will to pay for state regulation of the meat industry when the federal government is willing to take on those costs through the FI program.100

In recent years however, a shift in thinking appears to have fueled a movement in the industry to promote expanding SI facilities in the hope that they will improve slaughterhouse access for small farmers.101 Small processors interviewed in North Carolina maintained that SI inspectors are more willing to work with them to help them understand the regulations in place and to maintain compliance. They also asserted that SI inspectors are more responsive to questions than federal regulators, and are able to provide more personalized guidance.102 As a result, these processors prefer to work with state regulators rather than with the federal

96. Id.
98. Id.
99. Id.
100. Id.
101. Id. at 5.
government.

3. Talmadge-Aiken Facilities

Talmadge-Aiken (TA) plants are slaughter facilities inspected by state employees acting as agents for USDA’s FSIS. 103 When it is beneficial for the regional interstate economy, FSIS may enter into an agreement with a state agency to have state employees conduct meat inspections or other regulatory activities on behalf of FSIS, in effect delegating regulatory authority to the state. 104 Meat produced from a TA plant, therefore, may be sold in interstate commerce because the production is officially overseen by the federal government. 105 However, only nine states have active TA facilities, and these facilities process a very small percentage of the national meat product. 106

North Carolina is one of the nine states that engage in TA agreements with USDA. 107 Interviewees reported that North Carolina typically enters into an agreement with USDA for TA inspection when former SI facilities wish to change their inspection classification to engage in interstate commerce. If USDA does not have a readily available federal inspector in the area of the facility, USDA sometimes delegates inspection duties to the state inspectors already present in the area. A TA designation is beneficial to the processor: the facility can process meat for interstate commerce while remaining under the inspection of potentially more responsive state regulators.

4. Custom Exempt Facilities

Custom Exempt (CE) slaughterhouses are exempt from FSIS inspection under the FMIA. 108 The FMIA exempts from inspection animals that will be slaughtered and processed for the use of the

104. JOHNSON ET AL., supra note 97, at 5.
107. Id.
108. 21 U.S.C. § 623 (2012). Similar restrictions exist for poultry, although the PPIA also exempts the on-farm slaughter and processing of up to 20,000 birds per year from inspection requirements and from prohibitions on commercial sale. 9 C.F.R. § 381.10(a)(6) (2012).
owner of the animal, his or her family, and nonpaying guests.\textsuperscript{109} CE facilities are primarily used by hunters to dress elk, deer, and other game meat.\textsuperscript{110}

Livestock producers may also use this exemption when they have sold a portion of an animal to a direct purchaser prior to the animal’s slaughter. The butchered meat is then typically used as “freezer meat” for the new owner.\textsuperscript{111} If the entire animal is sold by the farmer to a private individual prior to processing, then the new owner can have the entire animal processed and the new owner will pay the processing fee. This type of processing can decrease marketing costs for farmers by decreasing the number of individual products the farmer must sell.

While CE facilities are exempt from most FMIA inspection regulations and do not need state or federal inspectors overseeing slaughter, CE facilities must comply with some FMIA regulations and health and safety rules.\textsuperscript{112} For example, federal and state health and safety inspectors must inspect the slaughter and processing site. However, this is done infrequently—generally on a yearly basis.\textsuperscript{113} Some of the other regulatory requirements facing CE facilities include humane slaughter, recordkeeping, and sanitation requirements.\textsuperscript{114} Overall, CE facilities are fairly common around the country, but they are unlikely ever to be large players in the household meat industry because CE output cannot enter commerce.\textsuperscript{115} Small-scale processors who operate slaughter and processing facilities for a living will probably not find CE classification appealing. While they would be able to slaughter and process without inspectors on site, it is unlikely that they would be able to maintain sufficient throughput to remain viable.

5. The Cooperative Interstate Shipment Program

The fifth and final slaughter facility option available to

\begin{itemize}
  \item \textsuperscript{109} 21 U.S.C. § 623(a) (2012).
  \item \textsuperscript{110} \textit{Slaughtering, Cutting, and Processing}, CORNELL UNIV. (July 7, 2012), http://smallfarms.cornell.edu/2012/07/07/slaughtering-cutting-and-processing/.
  \item \textsuperscript{111} \textit{See} GWIN ET AL., \textit{supra} note 88, at 4, 6 n.6 (describing steps involved for typical local meat processing and the federal regulations through which products must pass).
  \item \textsuperscript{112} 9 C.F.R. § 303.1(a)(2) (2012).
  \item \textsuperscript{113} JOHNSON ET AL., \textit{supra} note 97, at 7.
  \item \textsuperscript{114} 21 U.S.C. § 642 (regarding recordkeeping procedures).
  \item \textsuperscript{115} \textit{See} 9 C.F.R. § 303.1(a)(2) (2012) (exempting custom slaughter that is used exclusively by owner, his or her household, and non-paying guests).
\end{itemize}
processors is the Cooperative Interstate Shipment (CIS) program.\textsuperscript{116} This program allows interstate sales from SI plants with fewer than twenty-five employees.\textsuperscript{117} The program is open to all twenty-seven states that have their own Meat and Poultry Inspection (MPI) programs.\textsuperscript{118} Once the state is registered with the program, a slaughter plant can then apply to become a CIS facility.\textsuperscript{119} Once registered, the facility is able to keep its state inspectors and is granted a new federal seal, allowing it to engage in interstate commerce.\textsuperscript{120}

Currently only four states have registered for the program,\textsuperscript{121} and of those four, only two states have active facilities participating in the program (twelve facilities between the two).\textsuperscript{122} This program may be a viable option for very small processing facilities to engage in interstate commerce, but it has yet to see significant use across the country.

III. CHALLENGES IN THE LOCAL MEAT DISTRIBUTION CHAIN: STAKEHOLDER PERSPECTIVES

The local meat system involves many interdependent players, from the farmer to the processor to the distributor. Each group has a different perspective on the challenges of the local meat supply chain. Farmers have difficulty finding adequate local processing capacity

\begin{itemize}
\item[118.] Cooperative Interstate, supra note 117. The twenty-seven states with state inspection programs are Alabama, Arizona, Delaware, Georgia (meat only), Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Minnesota, Mississippi, Missouri, Montana, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota (meat only), Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming. FSIS, States Operating Their Own MPI Programs, USDA FSIS http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection/state-inspection-programs/state-inspection-and-cooperative-agreements/states-operating-their-own-mpi-programs (last visited Mar. 31, 2015).
\item[119.] Cooperative Interstate, supra note 117.
\item[120.] Id.
\item[121.] Id. The four participating states are Indiana, North Dakota, Ohio, and Wisconsin.
\end{itemize}
and value added services.\textsuperscript{123} Processors struggle to maintain steady and adequate throughput and to find quality skilled labor.\textsuperscript{124} Major local meat buyers, such as wholesale purchasers, desire a consistent local meat supply and a market for all parts of the animal.\textsuperscript{125}

While each of these players faces unique concerns, measures to improve the local meat system must incorporate all of their perspectives. To better understand these concerns, the Clinic interviewed participants along the supply chain, including farmers, processors, restaurateurs, institutional buyers, retail outlets, and market aggregators. These interviews provided valuable insights into the complexities of meat production and distribution.

\textit{A. Farmers}\textsuperscript{126}

Farmers working in the local meat system face several difficulties in getting their meat to market. Transportation costs associated with traveling to slaughter and processing facilities rise with increasing distance from the farm.\textsuperscript{127} Farmers are also concerned with the impact of processing on the final meat products they are able to offer, since processor practices will affect the farmers’ ability to maintain traceability to their farm or to offer certain types of value-added processing and packaging to consumers.\textsuperscript{128}

As small farmers seek ways to meet growing consumer demand for locally-raised meats, research is needed to identify the bottlenecks and obstacles that prevent—or discourage—them from meeting this demand.

\textbf{1. Time and Distance to Processor}

One major complaint shared by many of the farmers surveyed for this article is the distance they must travel to processing facilities. Nationwide, it is not uncommon for small farmers to drive many

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\textsuperscript{123} For additional perspective, see GWIN ET AL., \textit{supra} note 88, at 5, 9–10.
\textsuperscript{124} \textit{Id.} at 5.
\textsuperscript{125} \textit{Id.} at 25–26.
\textsuperscript{126} The surveyed sources in this section include several meat processors and farmers from North Carolina, as well as businesses involved in North Carolina’s local meat industry. Additional information related to these interviews is on file with the lead author.
\textsuperscript{127} \textit{E.g., GWIN ET AL.}, at iv.
hours to reach a slaughter and processing facility. In central North Carolina, farmers report having to drive six hours roundtrip to a pork slaughtering facility and six hours in another direction for poultry processing. Long trips like these increase fuel expenditures and add to the opportunity cost of lost on-farm management and marketing time. Additionally, long trips may stress the animals, resulting in tougher, less valuable meat.

Distance-to-slaughter challenges are compounded in diversified farming systems. In the industrial agriculture model, both growers and processors specialize. Growers typically raise only one animal species, and large plants slaughter only one animal type; they even prefer uniformity in size to reduce equipment recalibrations and maximize line speed. However, small, local farmers may raise several types of animals to take to slaughter. Each additional animal species may increase the transportation costs for the farmer, either because they are not accepted at the same processing facilities on the same days, or because different animals are ready for slaughter at different times of the year (e.g., autumn for pasture-raised beef and spring for lamb).

The structure of the local meat industry also increases the transportation burden on local farmers. The key distinction here is that growers in the industrial system sell livestock, whereas farmers in the local food system sell meat. When a hog leaves a farm for slaughter in the industrial system, the grower is generally paid for the live animal and never sees it again. In local food systems, the farmer typically owns the animal up to, during, and after slaughter. In this system, the farmer is not paid until the meat is sold (although a contract to buy the meat may be in place early in the animal’s life). Slaughter at small, independent processing facilities is typically provided on a fee-for-service basis. This model requires farmers to make two trips to the processing facility—one to drop off their

130. Additionally, see AGRICULTURE INNOVATIONS, LLC, supra note 55, at 36, 47, which notes that there is only one USDA-inspected poultry processing facility serving small, independent farmers in North Carolina.
132. *See generally PwC COMM’N ON INDUS. FARM ANIMAL PROD., supra note 19.*
133. GWIN ET AL., supra note 88, at 18, confirm this by providing an example of a small fee-for-service operation.
animals and one to pick up the meat to sell. Thus, their transportation time and costs are doubled.

Even if a farmer brings a small batch of animals to be slaughtered right away, the meat will not be ready to pick up that day. In addition to slaughtering, dressing, and cutting time, the meat must also stay in the facility long enough to be chilled or to undergo further processing. Meat must cool after slaughter before it can be taken offsite. \footnote{134. \textit{E. coli} inspections (except for meat that is deboned while still hot) are performed on chilled carcasses requiring the meat to remain in the processing facility until fully cooled and inspected. 9 C.F.R. § 310.25 (1996). Poultry that is not immediately cooked or frozen must be chilled to 40 degrees Fahrenheit within a timeframe specified by regulation, but ranging from four to eight hours. 9 C.F.R. § 381.66 (2004).} But if the carcass is cooled too fast it cold shortens the meat, toughening it through muscle contraction. \footnote{135. F. J. Bowater, \textit{Rapid Carcass Chilling Plants Compared to Conventional Systems}, INT. JOURNAL OF REFRIGERATION 3, \textit{available at} http://www.fjb.co.uk/wp-content/themes/fjb/publications/Rapid%20Carcass%20Chilling%20vs%20Conventional.pdf.} To enhance flavor, beef typically “hangs” or dry ages as a whole carcass for at least a week before being divided into cuts of meat. \footnote{136. SUSAN J. MELLAGE, \textit{Frequently Asked Questions About Processing and Marketing Beef, Pork, Lamb, and Goat Meats In North Carolina and South Carolina} 10 (2006), \textit{available at} http://www.ncagr.gov/meatpoultry/pdf/FAQ_Marketing.pdf; ARION THIBOUMERY & KRISTINE JEPSEN, \textit{BEEF AND PORK WHOLE ANIMAL BUYING GUIDE} 11 (2013), \textit{available at} https://store.extension.iastate.edu/Product/pm2076-pdf.} Even with prompt and quick service at the slaughterhouse, farmers must make multiple trips to the processing facility because of food safety regulations, quality considerations, and the fee-for-service structure.

Fee-for-service slaughter can introduce scheduling challenges for farmers, which may exacerbate their transportation problems. Processors may schedule appointments for slaughter six weeks or more in advance, especially in times of high slaughter demand. \footnote{137. \textit{See, e.g., id. at 8 (“Most processors want to know ahead of time that you are coming with a load of animals to be processed. Ask them how much notice they will need. Certain times of year can be busier than others (for example, many hogs are slaughtered right before the 4th of July) so make sure you have scheduled an appointment far enough in advance.”).} } Farmers, on the other hand, may have little control over their slaughter schedule. Consequently, they may have to weigh the financial loss of taking a time slot when their animals are not at optimal weight against the added time and expense of traveling to a more distant processor who has availability. Whereas some experts note that small-scale farmers have difficulty getting processing space because they cannot meet processors’ minimum lot requirements, \footnote{138. GWIN ET AL., \textit{supra} note 88, at 8.} original research for this article did not reveal similar concerns among
contacted farmers in North Carolina. In fact, none of the contacted processors reported having a minimum lot requirement. A North Carolina aggregator even noted that a farmer of any size can access quality service from processors if he or she is a consistent customer.  

Scheduling slaughter may also be a challenge because many small-scale farmers have full-time, off-farm jobs and would like to schedule slaughter for the evenings. Processors may have little flexibility to offer extended slaughter hours because they must pay overtime for USDA inspectors. Some processors have been able to provide assistance by allowing farmers to drop off their animals at night, and then holding them at the processing facility until slaughter resumes in the morning.

2. Traceability

Traceability is a second area with significant implications for farmers in the local meat sector. Local farmers typically cannot compete with industrial agriculture on price, so they target high-value niche markets where their animal husbandry practices can garner a premium. To receive that premium on their product, farmers must be sure they are getting their own meat back from the processor.

Some of the interviewed farmers report traceability concerns with their past or present processing facilities. They have been alerted to potential problems when they received the wrong number of animals from the slaughter facility, or the wrong number of animal parts packaged separately (e.g., 100 poultry carcasses, but only 97 livers). This may indicate merely a communication problem between farmers and processors, or it may point to deeper problems with traceability within the processing facility. Regardless, such experiences make farmers concerned that their animals are being commingled and cause them to lose confidence in the production process. They worry that the products they receive from their processors may not adhere to the quality and origin claims made on their labels.


140. 9 C.F.R. § 307.4(c), (d)(3) (2012).

141. It is important to note that the processors interviewed for this article said that they have strict protocols for traceability and that these discrepancies result from a failure of communication rather than a mix-up of animals.
3. Value-Added Processing and Packaging

A third significant concern for farmers is consumer demand for particular packaging and value-added processing. Not all processors offer the same cut, wrap, or packaging services. Some farms in North Carolina bypass their closest processing facilities to find ones that offer higher-quality packaging. According to one farmer, the closest processor offers only cuts wrapped in freezer paper; because the farm’s customers prefer vacuum sealed packaging, the farmer drives an extra hour and a half each way to a facility that offers it.

Value-added processing may increase revenues for farmers. Hams, hotdogs, sausages, and salamis can be sold at a premium. However, federal law prohibits farmers from further processing meats to be sold as food in commerce once they are picked up from the processing facility. Consequently, farmers interested in providing value-added products to their customers must find a processor that offers curing, smoking, or sausage-making services. Yet few small processing facilities offer a full range of value-added services, often because of lack of expertise or the high capital costs of purchasing value-added equipment. One farmer who wants to sell hot dogs and cured meats reported driving the cut meat an additional 100 miles to reach a second processor who provides curing and other value added services.

B. Processors

As the slaughter and processing industry has become more consolidated and vertically integrated, many small operations have been replaced by large, regional facilities structured to serve the

142. See generally MELLAGE, supra note 136, at 10.

143. See generally ED JACKSON, USDA, DEVELOPING MARKET OPPORTUNITIES FOR VALUE-ADDED MEAT AND POULTRY PRODUCTS 10 (2005), available at http://www.ams.usda.gov/AM Sv1.0/getfile?dDocName=STELPRD3433424 (describing how the use of value-add processing can increase profits for meat processors, presumably from such products as those listed above).

144. See 21 U.S.C. § 606(a) (2012) (requiring inspection of all meat food products prepared for commerce in processing and similar facilities); 21 U.S.C. § 608 (requiring sanitary inspection of establishments in which meat food products are prepared for commerce); 21 U.S.C. § 623(a) (requiring separation of meat food products prepared for commerce from those prepared as custom-exempt meat food products, which must be labeled “Not for Sale”).

145. JACKSON, supra note 143, at 10 (producers expressed a desire for more technical assistance in producing value-added products and more access to business planning resources).

146. The surveyed sources in this section include several meat processors, farmers, and meat retailers in North Carolina. Additional information is on file with the lead author.
industrial-scale model. Even so, a number of small facilities remain active in the industry. These businesses cater to the needs of small farmers who lack the product volume to work with large-scale industrial facilities. While the overall number of slaughter and processing facilities around the country remains high, the number of facilities willing to work with small farmers has dwindled. For example, North Carolina currently has 236 meat processors, but only 44 of those plants cater to the needs of farmers in the state. Of those 44 facilities, only 20 businesses engage in animal slaughter. Not every slaughter and processing facility has the same business model, processes the same animals, or provides the same cutting services. Therefore, it is possible for a local farmer to be sited in an area surrounded by slaughter and processing facilities, yet be several hours away from a facility capable of and willing to process their animals.

Existing small processors realize there is unmet farmer demand for their services. But a number of barriers prevent processors from filling small farmers’ needs. Economic, regulatory, and capital barriers create hurdles for small processors interested in working with small farmers. Although current and new facilities may wish to expand into high demand market areas, these barriers may be insurmountable.

1. Economic Barriers

Building a slaughter or meat processing facility is capital intensive. Constructing even the most rudimentary facility requires...


148. Nowlin, Sustainable Production, supra note 4, at 1139 (noting that “small-scale processing facilities have declined rapidly in number,” but have not vanished completely).

149. See Summary of Meat Processing Issues in Washington State, WASHINGTON STATE DEPT OF AGRIC, 1, available at http://agr.wa.gov/FoF/docs/MeatProcessing.pdf (noting the lack of meat slaughtering facilities available to small farmers as the industry has consolidated).

150. Nowlin, supra note 4, at 1139; see GWIN ET AL., supra note 88, at 5–7.


152. Id.

153. GWIN ET AL., supra note 88, at 5. The author provides the example of a processor saying “[f]armers ask me to do new things, but they don’t have enough volume to cover my costs.”

154. Indeed, a recent feasibility study conducted in North Carolina estimated the costs of constructing a new, humane-certified slaughterhouse with capacity for 54 cattle (or cattle
hundreds of thousands of dollars and comes with substantial financial risk. \textsuperscript{155} Opening a new facility, then, requires that a processor and financier be convinced the facility’s revenues will eventually cover overhead and operating costs. Prospective investors must be confident that real and sufficient demand exists for the facility’s services. Without the assurance that the facility can maintain steady throughput, a prospective business owner or financier may hesitate to invest in a new facility or expand an existing one. To move past these initial funding constraints, clear and steady demand for the processor’s services must be readily apparent and accessible. \textsuperscript{156}

Few new independent processing facilities have been built in the last ten years due in large part to this financial uncertainty. \textsuperscript{157} Results of a study on barriers to entry for small-scale processors in 2013 indicate that small farmers do not bring sufficient throughput volume to cover costs. \textsuperscript{158} As indicated by the North Carolina slaughter and processing facilities interviewed for this article, processing facilities need a steady supply of animals to remain operational, especially if the facility operates on a fee-for-service basis. \textsuperscript{159} With concern over the availability of consistent revenue to cover slaughterhouse capital, new processors are unlikely to expand into local markets, and existing facilities may be unlikely to increase capacity in their brick and mortar plants.

2. Inconsistent Temporal Throughput

Consistent throughput at a processing facility is needed to cover a slaughter operation’s costs and keep skilled laborers employed. Historically, animal slaughter and processing was a seasonal endeavor in which small-scale farmers aimed to have their animals slaughtered

equivalent) per day to be more than $2 million (including land acquisition costs), with approximately $300,000 for equipment alone. Costs for an adjacent small-animal slaughter facility with the capacity for 20,000 birds (or equivalent) per year were estimated at $143,000 for the building, and $100,000 for equipment. \textsc{Agriculture Innovations, LLC}, \textit{supra} note 55, at 78–92.

\textsuperscript{155} \textsc{Gwin et al.}, \textit{supra} note 88, at 5; \textit{see also} Kydna Curtis et al., \textsc{Locally Produced Livestock Processing and Marketing Feasibility Assessment}, \textit{available at} http://cecentralsierra.ucanr.org/files/114199.pdf.

\textsuperscript{156} \textsc{Gwin et al.}, \textit{supra} note 88, at 5.

\textsuperscript{157} \textit{Id.}

\textsuperscript{158} \textit{Id.} at 5–6, 10.

\textsuperscript{159} These responses mimic the findings of \textsc{Gwin et al.}, \textit{supra} note 88, and are indicative of a system in which there is the potential for insufficient throughput to cover overhead processing and slaughter costs.
at their optimal weight.\textsuperscript{160} For cattle and hogs, this was in the early fall, following a long summer’s grazing period. Slaughtering at an animal’s optimal weight provides the greatest return to a farmer. Currently, many small farmers wish to carry on this tradition (especially those whose livestock are grass fed), but existing processing capacity makes this difficult.

If all small producers in an area wish to have their livestock processed at the same facility during the same temporal window (early fall or spring), a small slaughterhouse may not have sufficient capacity to handle the large flow of animals during such a short window. Conversely, under this type of system, there may be a dearth of throughput in months when pasture-raised animal weight is low.\textsuperscript{161} These traditional meat production cycles lend themselves to boom-and-bust processing cycles that can put significant stress on a processor’s finances.

While farming and livestock production are fundamentally seasonal industries, manufacturing and processing facilities have year-round costs independent of seasonal meat supply.\textsuperscript{162} Slaughter facilities must pay the rent or mortgage for the building and physical property on which their facility is located, and pay skilled laborers for year-round work. Interviewed processors explained to us that if they offer reliable employment only for boom processing months, they will have difficulty keeping skilled workers, as most will look elsewhere for more stable, year-round employment. This consideration all but forces processors to hire skilled workers for year-round work regardless of the seasonality of meat supply.

3. Labor

Even a facility fortunate enough to have the throughput to pay butchers and skilled laborers year-round wages may not be able to find qualified individuals to hire. As the overall number of slaughterhouses and processing centers has decreased, the number of skilled butchers has declined with it.\textsuperscript{163} According to the Bureau of Labor Statistics, the number of skilled butchers in the United States has decreased dramatically in the last fifteen years. In 1994, there

\textsuperscript{160} See G\textsc{win ET AL.}, supra note 88, at 7 (stating farming in “fundamentally seasonal”).

\textsuperscript{161} Id.

\textsuperscript{162} Id.

were 218,994 skilled butchers in the United States; by 2010, this number had declined to 125,910.

The decrease in the number of butchers has outpaced the decrease in the number of processing facilities, creating a shortage of skilled butchers. Many processors cite the insufficient number of skilled butchers in the local work force as a barrier to expanding operations or replacing current employees, and some identify the shortage as their business's primary concern. One North Carolina processor indicated that despite high levels of retention in their workforce, finding new employees is difficult. Butchery is a highly-skilled profession, but there are very few training programs around the country. With few adequately trained individuals in the general population, processors would need to undertake the time-intensive and costly process of training employees themselves.

This lack of qualified labor is a barrier for current operators looking to maintain or expand their business, but also presents problems for new processing facilities hoping to move into emerging market areas. If current operators cannot find suitable replacements for outgoing workers, then new facilities may find it prohibitively difficult to fill multiple positions. To entice skilled individuals to fill a new position, new and expanding processors may need to offer higher wages and benefits, which could eat into already slim profit margins. Most small processors cannot afford to increase compensation to skilled laborers, putting potential small business owners in a difficult financial position.

Retail customers demand consistency in certain types of cuts and value-added processing. It takes considerable skill to properly butcher every animal the same way into prime, subprime, and retail cuts. Without a consistent supply of adequately trained labor, small slaughter and processing facilities may find it difficult to meet the needs of both farmers and retailers. Consistency of the finalized

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product is a barrier that small processors face in attempting to expand their business and market reach. A scarcity of skilled butchers may exacerbate these issues and contribute to a decline in product consistency.

4. Scheduling

As in any other manufacturing industry, processing facilities need to maximize the efficiency and output of their labor and capital stocks to keep costs down and revenues up. This means optimizing the number of animals moving through the facility, and keeping this number consistent throughout the year. Large commercial or “commodity” processing facilities use contracts and production arrangements with growers to ensure consistent throughput. By contrast, most small processors predominantly use fee-for-service arrangements.

Under the fee-for-service scheduling model, a farmer will call a processor when she is ready to have her animals slaughtered and processed. At this point, the processor will try to schedule the farmer for a processing date six to eight weeks later. This time frame gives the processor plenty of time to ensure that inspectors are onsite for slaughter and that appropriate equipment will be available for use that day. This system works well when there are no cancellations and throughput is consistent. Yet any hiccup in the schedule—such as a no-show, or a farmer bringing the wrong number of animals—can create added pressure on processors and eliminate expected profits. Unfortunately, cancellations and incorrect deliveries from small farmers are common. These problems decrease both productivity and processing revenue for processors.

Fee-for-service operations, coupled with inconsistent seasonal throughput, can place significant economic stress on small processors. Some small facilities have attempted to deal with this issue by engaging in long-term contracts with larger farmers. Although these contracts increase the certainty of the transaction, they create their own types of risk. For example, one North Carolina processor disclosed that they have a few long-term contracts but prefer to operate with small farmers under the fee-for-service model because of the risk associated with linking their business with only two or three large farmers. If the company were to lose a contract, or damage a

167. Additionally, see GWIN ET AL., supra note 88, at 8 (confirming this).
168. Id.
169. Id. at 7-9.
relationship with a large farmer, the loss of that farmer’s business could put the processor’s entire business at risk.

Fee-for-service processing at small slaughterhouses is also expensive when compared to large processing facilities. ¹⁷⁰ Slaughter and processing at a small facility typically costs more on a per-head basis than processing at a commodity facility. ¹⁷¹ This is presumably due to economies of scale. Large plants can process large volumes of animals at a lower cost per head because they are able to capitalize on the efficiency of their plant’s physical capital. ¹⁷² Therefore, a processing plant with employees working along an assembly line will be able to slaughter and process animals more quickly than a small facility with only a handful of employees.

Although the overhead costs associated with large facilities may be higher than the fixed costs for smaller facilities, the increased number of animals processed using automated equipment in large facilities allows these companies to produce each unit of meat at a lower cost. ¹⁷³ Most small processing facilities cannot—and in fact may not want to—take advantage of economies of scale and so have higher per unit processing costs. ¹⁷⁴ Due to these comparatively higher processing costs, many local farmers think that local processors overcharge, and are hesitant to sign long-term agreements with them.

5. Regulation and Inspection

The FMIA and PPIA regulations are intended to ensure and maintain food safety standards for all consumers across the country. ¹⁷⁵ For this reason, USDA regulates all meat under the same regulations regardless of where the animal was raised or processed. ¹⁷⁶ Therefore, the rules and inspection regimes regulating small-scale processing facilities are the same as those that govern large-scale commercial slaughter and processing facilities. This lack of scale-sensitive regulation can place a disproportionate regulatory burden on small

¹⁷⁰ Id. at 8.
¹⁷¹ Id.
¹⁷² Id.
¹⁷⁴ Some farmers, processors, and consumers expressed concern that fast, automated slaughter fundamentally changes the nature of the relationship with the animal, transforming it from a living being deserving of care and respect into a mere commodity.
plants. While all plants must comply with the same rules and regulations, larger plants have more throughput over which to spread regulatory costs. For example, pathogenic E. coli sampling, required under the FMIA, requires a tissue sample from a batch of processed animals during a processing cycle. The size of this product sample is invariant of the number of animals processed in a cycle. For small processors that process fewer animals, this testing results in a greater percentage of total product loss than for larger facilities. Larger product loss leads to smaller revenues and thinner profit margins.

Compliance with state and federal regulations can also be extremely costly due to high in-house administrative costs. Regulations can be difficult to understand and even more difficult to implement correctly. Small facilities often require the assistance of legal counsel to correctly interpret applicable regulations, and full-time staff to handle administrative paperwork. For example, one North Carolina processor had to hire two additional employees to remain in compliance and keep accurate records: one who simply handles all of the inspection and compliance paperwork, and another who aids the inspector with his daily activities. These individuals do not directly help in the slaughter and processing of animals, and so add to the company’s administrative compliance costs.

Most small facilities do not have the financial resources to hire full-time administrative staff or consult with an attorney every time they need compliance assistance. This can lead to administrative rule infractions and penalties for incorrect interpretation and implementation. Coupled with the inconsistency of state and federal inspectors’ implementation of the rules, these administrative burdens can create a prohibitive barrier for small processors.

Inspection is another area where regulations governing animal slaughter and processing were developed for large, consolidated systems. Many provisions are not calibrated to the scale and practices of small and independent operations. A number of these scale-independent regulations—originally crafted to improve consumer safety—place a disproportionate burden on small

177. GWIN ET AL., supra note 88, at 8.
179. GWIN ET AL., supra note 88, at 8.
180. Id.

One such scale-independent regulation involves inspector access to facilities. A slaughter and processing facility must be accessible to state or federal inspection employees at all times—day or night.\footnote{9 C.F.R. § 300.6(b)(1) (2004).} While this rule may not burden large slaughter and processing facilities that operate for long hours, small companies with only a handful of employees may find it difficult to provide access to an inspector on demand. Along with open access, an inspector must be onsite to inspect every animal prior to and following slaughter.\footnote{21 U.S.C. §§ 603-604; 9 C.F.R. § 307.4(a) (2011) (effective as of 2011).} While this regulation is applicable to all plants and operators, inspectors at large plants see many more animals in the course of a workday than inspectors working at a small facility. This makes it easier for larger producers to amortize the costs of ensuring inspector access. On the other hand, the disparity in time spent per animal may also lead to differences in inspection quality between plans of different sizes.

The number of inspectors required at a facility depends on the animal type, inspection system, and line configuration, as well as the slaughter rate.\footnote{9 C.F.R. § 310.1 (1985).} Small facilities, especially those without mechanized assembly lines, will slaughter and process animals at a slower rate than larger processors.\footnote{Industrial Meat, PBS, \url{http://www.pbs.org/wgbh/pages/frontline/shows/meat/industrial/consolidation.html} (last visited Mar. 1, 2015).} For example, a large FI facility slaughtering chickens may have a production speed with a maximum inspection rate of 15.5 to 25 birds per minute.\footnote{9 C.F.R. § 381.67 (2012).} Small facilities are unlikely to slaughter and process birds at these rates—they are limited by their
equipment and physical capital. However, if a large processor is capable of working at that speed, it can spread the fixed costs of each inspector over more birds. The more animals that a plant can pass through its facility under the eyes of one inspector, the more the compliance costs associated with that inspector will decrease.

Hog processing facilities experience similar problems. It is not uncommon for large hog processing facilities to slaughter thousands of animals in a day with only a few inspectors on site. As reported by an inspector in a 2014 affidavit to the Government Accountability Project’s Food Integrity Campaign, three inspectors routinely oversee 1,100 hogs processed per hour in some high capacity plants. Small facilities that process only a handful of animals per hour cannot spread inspection costs across as many animals. This increases the relative total cost of slaughter and processing.

There are many costs associated with having an inspector on-site. While the cost of inspection during normal work hours for federal inspection of meat is borne by the federal government, processors still incur substantial inspection costs. For example, to ensure that the inspector has a clean place in which to work and conduct his or her professional business, a processing facility must provide office space, including necessary furnishings, light, heat, and janitor services, for the exclusive use of the inspector assigned to the facility. In addition to office space, a facility must provide suitable lockers in which inspectors can keep brands bearing the official inspection legend (to ensure that labels will not be misused), along with other official and personal items.

While not unreasonable, these rules are especially burdensome for small processing facilities. The cost of adding an office and required sanitary hand washing stations for the exclusive use of the inspectors is more manageable for large processing facilities with high levels of throughput, which can spread the cost of inspectors’ facilities over more animals. Smaller plants, some of which process animals only two or three times a week, may struggle to adequately

189. Id. As mentioned in earlier discussion, such a fast line speed may decrease the thoroughness of inspection and diminish meat safety.
meet the needs of inspectors while covering operational and overhead costs.

\textit{i. Scheduling Inspectors}

Scheduling inspection also creates hurdles for small slaughter and processing facilities. To have an inspector on site, a facility must submit a work schedule to the inspection area’s regional supervisor and maintain a consistent schedule week to week.\footnote{9 C.F.R. § 307.4(d) (2011).} Any request to change a work schedule must be done at least two weeks in advance of the proposed schedule change date.\footnote{9 C.F.R. § 307.4(d)(2) (2011) (“Any request by an establishment for a change in its work schedule involving an addition or elimination of shifts shall be submitted to the area supervisor at least 2 weeks in advance of the proposed change. Frequent requests for change shall not be approved: Provided, however, minor deviations from a daily operating schedule may be approved by the inspector in charge, if such request is received on the day preceding the day of change.”) (emphasis in original).} While this system provides greater certainty for regulators, it creates challenges for small processors. Processors operating on fee-for-service relationships with farmers may have changes in their schedule with less than two weeks’ notice.

A small processor, especially one that does not operate five days a week, may lack the flexibility to give inspectors advanced notice of these scheduling changes, and therefore may not be able to accept all of the animals that farmers wish to deliver for processing. In contrast, large facilities that enter into long-term contracts with large farmers face fewer scheduling-related challenges.\footnote{GWIN ET AL., supra note 88, at 8.} With long-term contracts come stability and certainty.

These difficulties are also presented in scheduling an inspector’s shifts and overtime hours. USDA (or equivalent state programs) will provide processors with inspection service for up to eight consecutive hours per shift during the basic workweek.\footnote{9 C.F.R. § 307.4(c) (2011).} A basic workweek consists of five consecutive eight-hour workdays.\footnote{Id.} If a processor wishes to have an inspector work overtime hours, the facility must give the inspector advance notice as early as possible.\footnote{9 C.F.R. § 307.4(d)(3) (2011).} If an inspector is able to work the overtime request, the facility must reimburse the inspection program for the cost of the overtime

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\begin{itemize}
  \item 9 C.F.R. § 307.4(d) (2011).
  \item 9 C.F.R. § 307.4(d)(2) (2011) (“Any request by an establishment for a change in its work schedule involving an addition or elimination of shifts shall be submitted to the area supervisor at least 2 weeks in advance of the proposed change. Frequent requests for change shall not be approved: Provided, however, minor deviations from a daily operating schedule may be approved by the inspector in charge, if such request is received on the day preceding the day of change.”) (emphasis in original).
  \item GWIN ET AL., supra note 88, at 8.
  \item 9 C.F.R. § 307.4(c) (2011).
  \item Id.
\end{itemize}
inspection service. Overtime rates are generally 1.5 times the normal wage rate for inspectors.

While scheduling inspectors is a problem that both large and small facilities face, fee-for-service operations without set contracts face the added challenge of variability in the daily number of animals brought by farmers. If a producer on a fee-for-service setup brings more animals than expected on an individual day, the processor may need the inspector to work overtime hours. However, there is no guarantee that the inspector can or will honor this request.

\textit{ii. Inspector Interpretation}

Implementation of the FMIA rules and regulations by federal and state inspectors is also a major concern of small processors. Small facilities—like large facilities—need consistency in the interpretation of rules and regulations to maintain a steady flow of operations. If inspectors vary significantly in their interpretations, then a processing facility may be in compliance under one inspector, but in violation under another. This is less of a concern for larger plants that run at least five days a week because there are generally inspectors dedicated to their individual facility, rather than a rotation of different inspectors, as small facilities often experience. According to some small processors, with every new inspector comes a slightly different interpretation of the standing rules and regulations. Attempting to understand and implement a new inspector’s interpretation of the rules costs facilities time and money. It is not uncommon for a new inspector to shut down an active facility for an alleged violation that a previous inspector consistently allowed.

Processors also find state regulators and inspectors easier to work with than their federal counterparts. They find federal inspectors to be more bureaucratic and less likely to help solve problems than state inspectors. This does not mean that state inspection is less stringent than federal inspection; state inspectors are required to regulate using state standards that are “at least equal to”

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\textsuperscript{201} 9 C.F.R. § 391.3(a) (2011).
\textsuperscript{203} \textit{Id.}
federal standards. However, state inspectors are more responsive to small processing facilities’ questions and needs. Small processors attribute this approachability to there being fewer levels of bureaucratic hierarchy at the state level.

6. Revenue from Animal Byproducts

In addition to the added relative costs that small processing facilities face in comparison to larger facilities, large facilities are able to tap into a revenue-generating source that most small processors cannot. Due to the considerable throughput at large-scale commodity processing plants, these plants are able to exploit the large volume of animal byproducts left following slaughter and processing. Large-scale processors can earn most—and at times all—of their net revenue from the sale of animal byproducts. There are edible and non-edible animal byproducts (known as offal), such as hides, skins, blood, fats, bones, and innards. This is a considerable amount of material: offal constitutes about 30% of the live weight of hogs and 44% of the live weight of cattle.

Although demand for edible animal byproducts is insignificant in the United States, a robust and expanding market for these products exists overseas. Through the sheer scale of production, large processing facilities have been able to exploit an international demand for animal byproducts. Companies like Smithfield Foods and Cargill have established trading relationships with Asian countries to transform processing wastes into a valuable commodity.

Without the processing scale of larger plants, smaller plants are unable to take advantage of this demand. While niche demand for some animal byproducts may exist regionally, most small processors either throw away their offal or have a rendering company pick it up

204. 9 C.F.R. § 321.1 (2012).
205. GWIN ET AL., supra note 88, at 8 (“Large processors can earn so much for byproducts because they operate at a large enough scale to refine different parts into useable products and to sell in large enough volumes to access valuable international markets.”).
206. Id.
208. Id.
209. Id.
210. See id. at 6–17 (describing the United States ability to produce byproducts in quantities above domestic demand and the consequent profit from export of surplus).
211. Id.
to use in dog and animal feed. Some rendering companies charge small facilities for pickup, whereas large slaughterhouses are usually paid for their offal. Consolidation of the offal market exacerbates the difficulties small processors face; the large rendering companies do not need to compete for small processors’ waste products, and few small or regional companies exist to fill that niche. From both an environmental and economic perspective, utilization of the whole animal is critical to minimizing waste and expanding revenue. Without access to this revenue stream, small processors are decidedly disadvantaged when compared to their larger counterparts.

7. Access to Capital

A final area of concern for processors is the lack of access to capital to expand existing facilities and build new ones. A number of small North Carolina processors note that their businesses have sufficient throughput to warrant expansion. However, these companies have found it difficult to increase capacity due to lack of capital. Expanding a slaughter and processing facility can cost hundreds of thousands of dollars. Most processing operations cannot be expected to have adequate capital on hand to finance these kinds of projects; facilities must enter capital markets to find loans at competitive rates or else apply for state or federal grant funding.

Due to the financially risky nature of slaughter and processing centers, private financers may be unwilling to finance expansion projects and so business owners may be unable to find loans with competitive rates. Multiple existing state and federal programs are available to provide financial support for new and expanding facilities, but interviews with small processors in North Carolina

212. GWIN ET AL., supra note 88, at 17.
213. Id.
214. See NAT’L RENDERERS ASS’N, MEMBERSHIP DIRECTORY (2014), available at https://d10k7k7mywg42z.cloudfront.net/assets/53459df24f720a5b9c000f11/NRA2014Directory.pdf (listing, for example, only four member companies in North Carolina).
215. For example, the difference in “drop” value per head between small and large packers is approximately $85 for a 1200-pound steer. AGRIC INNOVATIONS, GROWING HEALTHY FOOD: AN ECONOMIC DEVELOPMENT STRATEGY FOR NORTH-CENTRAL NORTH CAROLINA 52 (Dec. 6, 2010).
216. GWIN ET AL., supra note 88, at 17, 30, 31.
217. See, e.g., Finding Capital: Financing Options for Meat Processors, EXTENSION, http://www.extension.org/pages/70522/finding-capital-financing-options-for-meat-processors#.VNOqEqlXF9w (last visited Mar. 2, 2015) (discussing public financing options such as Tax Increment Financing, Tax Abatement, the Rural Economic Development Loan and Grant, the Rural Energy for America Program (REAP) aka Section 9007 of the Farm Bill, and
indicate that many processors there were unaware that these grants existed or felt incapable of accessing them.

One major complaint from processors about existing grant programs is that many of them are directed towards new processing facilities instead of existing ones. According to processors, existing facilities with proven track records and successful business models seeking to expand and increase capacity are often overlooked. Instead, most grant programs are tailored towards riskier new operations without proven success. By opening funding opportunities to both new and existing facilities, grant programs may be more successful in expanding farmer access to slaughter and processing facilities.

C. Wholesale Purchasers

After processing, meat can be sold either directly to the consumer or to wholesale purchasers. Direct-to-consumer sales, while important in the local meat system, have simpler distribution channels and are beyond the scope of this article. This article focuses on wholesale purchasers, which includes retail sellers (such as grocery stores and butcher shops) as well as restaurants and food service providers.

1. Quality and Consistency of Supply

Small, local farmers are at a comparative disadvantage when trying to sell their products to wholesale purchasers. Wholesale purchasers are businesses with institutional needs regarding their product supply, some of which can be difficult to meet through local supply chains. In particular, many that were interviewed tend to look for a steady supply of consistently adequate quality that can be

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218. The surveyed sources in this section include several institutional buyers, retailers of agricultural products, restaurants, farmers, and a wholesaler in North Carolina. The institutional buyers represent a range of interests, but their observations as to the supply constraints and available processing services in the local meat market may be specific to central North Carolina. Additional information is on file with the lead author.

219. Direct-to-consumer sales are those where farmers sell to household consumers, usually at farmers’ markets or on the farm itself. See generally Farmers Market and Local Food Production Program, NAT’L SUSTAINABLE AGRIC. COAL., http://sustainableagriculture.net/publications/grassrootsguide/local-food-systems-rural-development/farmers-market-promotion-program/ (last visited Apr. 7, 2015).

220. See GWIN ET AL., supra note 88, at 3–12 (describing the three types of processing and explaining related supply chains).
traced back to the farm or group of farms from which it came.\textsuperscript{221}

One way for purchasers to ensure consistent supply without incurring excessive transaction costs is to do most of their business with one or two large local farms, rather than many small farmers. For example, one North Carolina butcher’s shop sources beef from two farms and uses an aggregator\textsuperscript{222} as a back-up if output from those farms falls short. This approach can be challenging in locations where most local farms are small-scale or several local buyers are vying for the same few large suppliers.

One North Carolina restaurant that tried sourcing directly from farmers found that it would have to hire another full-time employee to manage all the transactions required to get the necessary quantity of meat from small-scale farmers. This arrangement was cost-prohibitive, so the restaurant now works with a local food hub that can ensure a steady supply by aggregating products from approximately twenty beef farmers. The restauranteur interviewed for this article noted that beef supply can be especially difficult to schedule in a business’s start-up phase because pasture-raised beef cattle have a two-year growth cycle and small-scale growers are unlikely to have started growing cattle without an idea of where they would be sold.

All the wholesale purchasers interviewed indicated that local poultry sourcing presents greater difficulty in central North Carolina than local beef or pork. Several farmers reported scaling back or ending their poultry operations because of the lack of local poultry processing. Consequently, some local foods restaurants offer no poultry products on the menu at all. They also noted that consumer expectations are a greater barrier for poultry than for other meat, observing that consumers are not accustomed to the meat qualities that outdoor poultry farming produces (i.e., tougher meat) and are less willing to pay a premium for local chicken than for local steak.

A second consistency challenge for retailers arises when insufficient processing capacity creates a bottleneck at the slaughterhouse. When farmers must schedule slaughter appointments six weeks in advance, they lack flexibility to increase supply on short notice for wholesale purchasers.

In North Carolina, wholesale purchasers of local meat are willing

\textsuperscript{221} See also id. Purchasers of commodity meat, on the other hand, focus on price rather than origin, and generally have few difficulties obtaining adequate volume.

\textsuperscript{222} See infranote 232.
to pay a premium over commodity meat, partly because of its perceived higher quality. But purchasers may have difficulty obtaining consistent supplies of high-quality products through local meat distribution channels. Retail sellers need quality cuts, in correct quantities, from the processors that supply them. As previously discussed, creating specialty cuts requires skilled butchers, and high-end buyers may struggle to find desired cuts from processors with insufficient skilled labor. The particular cuts that chefs may want are not always those that processors know how to make.

2. Whole Animal Utilization

Ensuring 100% utilization of edible carcass parts is one of the biggest challenges to purveyors of local meat. Because processors in the local, fee-for-service business generally do not sell offal, the local meat production process must be profitable for both farmers and processors based exclusively on meat sales.

Costs can be brought back down through efficient utilization of the whole animal, using both highly sought and less desirable cuts. For example, one North Carolina grocery store cuts costs by buying whole beef carcasses and breaking them down in their own facilities. These cost savings are particularly important for local, grass-fed beef that already retails at comparatively high prices.

Wholesale purchasers buying whole animals or primal cuts must be able to sell all of the animal parts, in the relative quantities in which they come on the carcass (e.g., 185 pounds of ground beef for every 85 pounds of round roasts and steaks). A farm-to-table restaurant may address this challenge by including less familiar items on its menu, recognizing the importance of whole animal utilization to both farm-to-table ideals and the business’s bottom line. An alternative to whole carcass utilization in-house is to partner with another buyer who can use or dispose of complementary cuts. For instance, a five-star restaurant using top quality cuts might buy beef in partnership with a burger joint that could grind beef from lower

223. See supra Section B.2 of this part.
224. Prevatt, supra note 139.
225. For pork, which is more locally abundant, the grocery store buys only the cuts of pork that it needs.
226. “Primal cuts” (or “primals”) refers to the basic divisions into which a carcass is separated during butchering. Further subdivisions (subprimals and retail cuts), like steaks, are usually cut from these when selling to retail customers.
quality cuts.

3. Regulatory Challenges

Overall, wholesale purchasers did not identify regulatory barriers as significant hurdles for their businesses. However, the size and maturity of a region’s local meat system may affect the level of regulatory burden it faces. One North Carolina restaurateur does not see regulation as a significant constraint on his current business, but describes having experienced more significant regulatory hurdles in the past when the local meat market first took hold in his region. Because pasture-raised cattle take longer to grow to market weight, they are much older at slaughter than grain-fed animals. USDA inspectors accustomed to inspecting sixteen-month-old animals were unacquainted with the normal appearance of meat and bones in two-year-old animals, prompting them to order additional testing on perfectly safe meat. The additional testing interrupted the meat supply to his restaurant, which had been marketed extensively as using only pasture-raised beef. Once the inspectors grew familiar with the appearance of grass-fed beef, this problem subsided.

USDA grading can also be a challenge for pasture-raised beef. Because grass-fed meat is not as fatty as grain-fed, it may lack the necessary marbling to be labeled “USDA prime.” One restaurant no longer gets its beef USDA graded because, in their opinion, the quality of their meat is not accurately reflected in a grading system designed for feedlot-finished animals.

One large-scale food services provider in North Carolina identifies a self-imposed business practice, rather than a regulatory requirement, as a key barrier to sourcing meat from small farmers. The company requires its vendors at every stage (both farmers and processors) to carry indemnification policies of at least $3 million. They recognize that for many small-scale operators, that requirement proves an insurmountable hurdle for doing business with their company.

Wholesale purchasers’ concerns with local meat procurement mainly revolve around ensuring a steady and consistent supply of high-quality cuts of meat at prices consumers are willing to pay. Regulatory burdens may affect some purchasers, but are generally secondary to market challenges and sometimes to the constraints of purchasers’ own internal business practices.
IV. SOLUTIONS

The various barriers discussed above invite a variety of potential solutions. These solutions include changing the nature of the relationship between farmers and processors, such as switching to long-term contracts or forming farmer cooperatives. Other solutions introduce new market actors, such as aggregators or mobile slaughter units. Still others include making regulatory changes that improve small processor competitiveness and bolster access to capital for processors.

A. Long-Term Contracts

One approach to dealing with the current local meat production and processing problem is to encourage small farmers to sign long-term production contracts with small and independent slaughterhouses. By changing the current system from fee-for-service transactions to contract relationships, processors and farmers could increase the certainty of future supply and demand. Contracts would allow a processor to slow or even eliminate the boom and bust cycles currently prevalent in the industry. By controlling the arrival and number of animals, processors can attempt to spread processing volume across multiple months, thereby decreasing the negative effects of bust cycles.

Multiyear contracts could also create anchor customers for small processing facilities. Anchor customers would provide steady throughput for a facility over multiple years, creating a more reliable yearly base supply of animals.\textsuperscript{228} Although long-term contracts are not a necessary precondition for establishing anchor customers, establishing a legal relationship could make the interaction more dependable than relying on uncertain future demand. Farmers would gain in this type of system by being assured of a processing slot and time, which would reduce the uncertainty of scheduling.

Multiyear contracts can provide processors with long-term demand projections, easing concerns about future demand and throughput. They can improve processors’ understanding of their future costs and revenue, allowing them to better plan future capital expenditures. They may also improve processors’ access to capital because processors could show potential financers reliable earnings projections when seeking loans. It may also fix the shortage of

\textsuperscript{228} LAUREN GWIN, ARION THIBOUMERY & RICHARD STILLMAN, supra note 5, at i.
butchers by providing an incentive to the slaughterhouse to hire or train better butchers, and to invest in the equipment needed to produce value-added cuts.

B. Cooperatives

Another option for easing market barriers to local slaughterhouse access could be local and regional organization of farmers into cooperative societies. By grouping local livestock producers that produce the same types of animals under similar conditions, the combined group of farmers can collectively provide a small slaughter and processing facility with consistent, year-round business. Cooperation can come in the form of formal cooperatives that have a collective brand name associated with the final processed product, or the relationship can be much simpler and involve only information sharing among members. Regardless of the setup, bringing multiple small farmers together allows farmers and processors to address some of the issues of scale identified in this article.

Grouping small farmers may allow all involved farmers to exploit economies of scale. These arrangements also have the potential to open up new revenue sources for livestock producers. For example, farmers in a cooperative may be able to benefit from the collection and sale of edible offal at a larger scale. Individual farmers struggle to sell their small quantities of offal such as liver or tripe; however, if all of the small farmers in an area were aggregated, they might be able to collectively tap into larger markets, such as restaurants, where they could offer edible organs in quantities large enough that a restaurant could include them as a menu offering.229

Processors would also gain from farmer cooperation by decreasing costs and increasing efficiency. When cooperatives can bring larger batches of animals of a uniform size, a facility may increase efficiency by using the same cutting equipment and procedures for the batch.230 Cooperatives can provide a processing facility with the steady and predictable throughput needed to ensure financial stability. Cooperatives, which may act as anchor customers, can provide the financial security to keep and improve a skilled year-round workforce, invest in facility and equipment upgrades, and provide the value-added services that customers demand.

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229. See Martí et al., supra note 207, at 6-16 (discussing production of byproducts).
Cooperatives could potentially improve processing access for small farmers by taking a financial stake in their local slaughter and processing facilities. If a facility is unable to meet the aggregate demand for slaughter and processing, a cooperative may be able to supply the necessary capital for expansion so that its members’ needs are met. By owning a piece of the slaughterhouse, a cooperative may also have a greater say in the types of cuts, value-added processing, or packaging offered at the facility.

C. Aggregators and Food Hubs

Many of the same economies of scale achieved through cooperation can also be realized by introducing independent market actors who act as food hubs231 or aggregators.232 They provide intermediary services, such as scheduling slaughter to maintain consistent throughput and apportioning cuts of meat among buyers to achieve whole animal utilization. They lessen the producers’ transportation burden by picking up the meat from processing facilities themselves. Aggregators take over the role of marketing, both to retailers and household consumers. Aggregators may also be good partners for long-term contracts because they may be better able to guarantee stable throughput levels via access to higher volumes. They also reduce the number of distinct labels that a processor must use because they replace the labels of individual farms with the aggregator’s label. They simplify transactions with wholesale purchasers who no longer have to manage relationships with multiple small farms.

D. Mobile Slaughter Units

Another potential option to overcome market and economic barriers to slaughterhouse access for small farmers is through expanded use of Mobile Slaughter Units (MSUs).233 An MSU is a


233. An MSU is defined by FSIS as a “self-contained slaughter facility that can travel from
slaughtering facility located in a towable trailer rather than within a brick and mortar building.\textsuperscript{234} MSUs are similar to fixed-location plants in that they must comply with federal law; however, they differ in that they can move to high-demand areas, while brick and mortar plants cannot. In areas where increased processing capacity is needed, they may face less opposition from communities than the creation of new fixed-location facilities.

Small farmers are beginning to utilize MSUs in some areas of the country as a way to solve the local processing problem.\textsuperscript{235} These MSUs are advantageous for small farmers because the facility can come to the farmer’s property, thereby reducing steep transportation costs. They may fill gaps in the local processing system, such as in North Carolina, where poultry processing is particularly hard to come by. They may also create some marketing benefits. Small farmers may like the idea of being able to tell their customers that their animals were slaughtered on the farmer’s property, and under his or her supervision.\textsuperscript{236} This may allow the farmer to charge an increased premium or to establish a better connection with consumers.

MSUs are also beneficial for processors because they represent less financial risk than larger, brick and mortar processing facilities.\textsuperscript{237} MSUs are less capital intensive than other forms of processing facilities\textsuperscript{238} and can minimize financial risk by physically going to a farmer’s property when throughput is low instead of waiting for the farmer to come to the facility. They may also benefit from being able to bypass zoning restrictions that would apply to brick and mortar facilities and from circumventing community opposition to a stationary slaughterhouse.

While there are clear advantages to mobile slaughterhouse operations, there are increased burdens as well. For example, with an MSU, the transportation costs are shifted from the farmer to the


\textsuperscript{234} Id.


\textsuperscript{236} See id.

\textsuperscript{237} Overview of Mobile Slaughter Units (MSUs), NICHE MEAT PROCESSOR ASSISTANCE NETWORK, http://www.nichemeatprocessing.org/mobile-unit-overview (last visited May 15, 2015).

\textsuperscript{238} Id.
Therefore, the MSU operator must increase his or her fees in order to recoup this loss. Also, MSUs have limited capacity and can slaughter and minimally process only a handful of animals in one day. Typical small fixed-location slaughter facilities are able to slaughter more animals in the course of a day than an MSU, bringing their per-animal slaughter costs lower than those of MSUs due to economies of scale and the ability to spread costs across a larger product volume.

MSU facilities can also operate for only two consecutive days before they must offload the slaughtered carcasses. While MSUs provide an alternative means of slaughter, further butchering is required to process the meat into consumer friendly cuts. A farmer must then find a separate cut and wrap or processing facility to receive the carcasses from the MSU. This can be problematic for all of the distance and access problems discussed in Part III. Although MSUs may be part of a larger comprehensive solution to the slaughterhouse access problem, they solve only part of the issue on their own.

E. “Right-Sizing” of Regulations

Developing scale-sensitive regulations is another potential solution to barriers to entry in the local meat system. Regulations related to inspector costs place a disproportionate burden on smaller processors, who cannot spread those costs across as many animals as large-scale facilities can. Regulations about scheduling inspection time make it more difficult for fee-for-service facilities to accept inconsistent throughput or last-minute schedule changes.

One possibility would be to offer exemptions for small-scale facilities—some exemptions may be available that do not increase safety risks. These might include safe actor exemptions that reduce reporting requirements for facilities with exemplary safety records. Ideally, this would decrease processor labor costs without sacrificing

239. Id.
240. See JOHNSON ET AL., supra note 23, at 17 (“Red meat MSUs can typically slaughter five to ten heads of cattle, ten to twenty-five hogs, or ten to forty sheep per day”).
242. Id.
243. Id.
244. Id.
product safety.

Another option to reduce the disparate burden of regulations upon small processors would be to strengthen inspector oversight of large facilities, whose products have a larger market reach with greater potential for widespread public health implications. Their greater volumes and higher processing speeds may well increase the risks of producing unsafe meat, potentially justifying such an expansion. More research is needed to determine how plant size and line speed might impact product safety.

F. Access to Capital

Expanding capacity or range of value-added services at processing facilities can help both farmers and processors increase profits. However, processors who wish to expand or add value-added processing to meet growing demand often face capital constraints. If a processor does not have sufficient internal funds to finance a facility expansion or upgrade, then it has to look elsewhere for financing. Potential options include private loans and state and federal grant and loan programs. As noted in Part III, financing is available from these sources, but processors often have limited access to them. One reason for this lack of access is a lack of information and processor awareness of funding opportunities.

One potential financing opportunity for existing processing facilities is Tax Increment Financing. If a processor wishes to expand their facility, yet cannot find suitable financing, then they may be able to enter into a Tax Increment Financing agreement with the local government. In such an agreement, the local government agrees to loan the facility money to pay for the expansion with the expectation that the expansion will increase tax revenues generally over the coming decade.\textsuperscript{245} The facility will then pay off the loan through incremental tax payments over the next decade or two.\textsuperscript{246} In effect, this system allows the local government to front the processor the money that it expects to receive in the form of tax payments from the expansion.

Other potential financing opportunities are available for new and existing facilities. These may include business development grants;\textsuperscript{247}


\textsuperscript{246} \textit{Finding Capital}, supra note 217.

\textsuperscript{247} These are likely to be from private or local government entities, as the federal government does not provide direct grant funding for business start-up and expansion. \textit{See
guaranteed loan programs,\textsuperscript{248} financing assistance for energy efficiency improvements,\textsuperscript{249} or other business or rural development programs.\textsuperscript{250} To better access these programs, processors may need greater assistance from cooperative extension agencies, small business development councils, and state and local governments. Greater access to funding programs may enable processors to expand their facilities, provide greater value-added processing, and hire more skilled workers in the rapidly expanding local meat industry.

V. CONCLUSION

The local food movement creates new economic opportunities for rural communities. North Carolina serves as a prime example, with many farmers returning to more traditional farming practices and many new farmers entering the market. However, the growth in production is insufficient to keep up with consumer demand, and many farmers reference a lack of infrastructure to get their products to market. To better understand the dynamics of the local meat system, the Duke Environmental Law and Policy Clinic interviewed some of the market players in North Carolina to hear their perspectives about barriers and needs. While this research is ongoing, and is not assumed to represent experiences and market dynamics in other parts of the country, what we learned was surprising.

For the most part, none of the market participants felt burdened by the presence of regulations. To the contrary, they support regulation to ensure the safety of their products and the welfare of their customers. There were, however, concerns about inconsistent interpretation of those regulations, especially by federal inspectors who were less familiar with meats produced on pasture. In addition, small processors’ concerns that federal inspectors scrutinize them more closely than large processors may be true: federal inspectors at small processing plants have considerably more time to examine the


health of each animal before slaughter and the condition of the meat before packaging. This raises concerns not about the quality of the meats fabricated in small operations, but of what inspectors may be missing at larger facilities that process significantly more animals at much faster speeds.

Market barriers seem to be a bigger obstacle to meeting consumer demand. Even small processing facilities require large capital investments, and loan officers may be unfamiliar with the local food system and question the viability of small-scale operations in the absence of available market comparisons. Small business loan programs do not cater to existing processing facilities that want to expand their operations. Although there are regulatory exemptions for on-farm poultry processing, the equipment needed to process the animals is expensive and unaffordable for many small farmers. Scale-appropriate software programs are needed to help processors and farmers with scheduling and recordkeeping. Delivery services could help to get final cuts back to the farmer, and aggregators are needed to get edible and inedible offal to markets.

These findings do not undermine the rightful role of government. To the contrary, proportionate government action is necessary to address and resolve these barriers: federal inspectors may require additional guidance and training, and some regulations and reporting requirements could be modified for small-scale processing facilities without compromising food safety; agricultural agencies should make information about loans and grant programs more available to small-scale market participants; training programs for butchers, as well as business and financial management programs for packers and processors, are needed; and state and federal lawmakers should reconsider longer-term tax policies and federal subsidies that create unfair market advantages for industrial-scale farms and processors.

In addition, there is a strong role for local government action: many communities need local food policy councils and infrastructure assessments; vacant land can be made available for businesses that aim to address gaps in infrastructure; public investment in cold storage and shared-use facilities would address distribution issues with local food; and zoning modifications could support emerging local markets and accommodate small-scale processing operations or aggregation facilities in areas closer to farm production.\(^{251}\)

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In sum, as the local food movement gains momentum and market share, action is needed to ensure the availability of the products consumers demand at prices that are affordable but provide a fair profit margin. Although consumer demand exists and producers are interested in satisfying it, regulatory and market barriers currently impede this process. Farmers and processors need to communicate and collaborate more closely with one another and with their communities to address their respective needs and to better serve those who want to buy their products. Federal, state, and local governments each have critical roles to play, as well, in creating new market opportunities by removing or reducing the barriers discussed in this article. The solutions identified above will benefit producers and consumers alike, and lead to a healthier, safer, more efficient, and more sustainable food system for all.