

Oregon Food Infrastructure Gap Analysis

**Where Could Investment Catalyze Regional
Food System Growth and Development?**

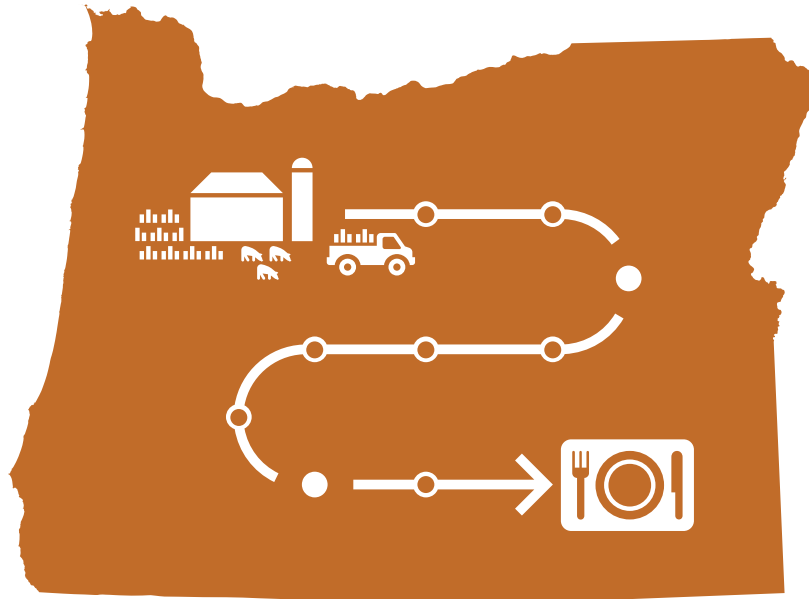
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Food System Growth and Development?**

By Ecotrust, with Matthew Buck
Funded by Meyer Memorial Trust

April 2015

Project Team

Amanda Osborne, VP, Food & Farms, Ecotrust
Matthew Buck, Matthew Buck Consulting
Lauren Gwin, PhD, Associate Director, Center for Small Farms & Community Food Systems at Oregon State University
Michael Mertens, PhD, Director, Knowledge Systems, Ecotrust
Stacey Sobell, Director, Food & Farms, Ecotrust
Katy Pelissier, Program Coordinator, Food & Farms, Ecotrust
Angela Hedstrom, Farm to School Assistant, Ecotrust
Jocelyn Tutak, GIS Analyst, Ecotrust
Noah Enelow, PhD, Economist, Ecotrust
William Moore, Senior Developer, Ecotrust
Ryan Sullivan, Graphic Design, Paste in Place

Stakeholders and Contributors

Hannah Ancel, ACCESS
Susan Arakelian, Beaverton School District
Mark Anderson, Champoeg Farm
John Boyle, New Seasons Market
Denise Breyley, Whole Foods Market
Sarah Brown, Oregon Tilth
Caitlin Burke, Hacienda CDC
Sarah Cantril, El Huerto del Familia
Cory Carman, Carman Ranch
Karla Chambers, Stahlbush Island Farms
Bridget Cooke, Adelante Mujeres
Eecole Copen, Oregon Health Sciences University
Mitch Daugherty, Built Oregon
Fernando Divina, Oregon Health Sciences University
Piper Davis, Grand Central Baking
Chuck Eggert, Pacific Foods
Lynne Fessenden, Willamette Farm & Food Coalition
Joel Fisher, Oregon Business Association
Gitta Grether-Sweeney, Portland Public Schools
Amy Gilroy, Oregon Department of Agriculture
Rick Gruen, Clackamas County
Greg Higgins, Higgins Restaurant
Alan Hummel, New Seasons Market
Franklin Jones, B-Line Sustainable Urban Delivery
Reg Keddie, Pacific Foods
Jill Kuehler, formerly Friends of Zenger Farm
Spencer Masterson, Oregon Food Bank
Michael Madigan, Bowery Bagels
Chrissie Manion Zaerpoor, Kookoolan Farms

Advisors

Jeff Harvey, CEO, Burgerville
Ashley Henry, Community Engagement Manager, Beneficial State Foundation
Sayer Jones, Director of Finance and Mission Related Investing, Meyer Memorial Trust
Nathan Kadish, Director of Investment Strategy, Ecotrust
John Klostermann, Director of Operations, Oregon Food Bank
Jason Lafferty, General Manager, SnoTemp
David McGivern, President, Northwest Food Processors Association
Mike Moran, General Manager, Columbia Plateau Producers (Shepherd's Grain)
Katie Pearmine, Strategic Sourcing Manager, Oregon Food Bank
Gary Roth, Marketing Director, Oregon Department of Agriculture
Richard Satnick, Owner, Dick's Kitchen

Laura Masterson, 47th Avenue Farm
Sarah Masoni, Food Innovation Center, Oregon State University
Nellie McAdams, Friends of Family Farmers
Michelle McGrath, Oregon Environmental Council
Gretchen Miller, Oregon Food Bank
Sara Miller, Northeast Economic Development District
Michael Morrissey, Food Innovation Center, Oregon State University
Jim Myers, PhD, Oregon State University
Ivan Mulaski, Friends of Family Farmers
Tanya Murray, Oregon Tilth
Ron Paul, James Beard Public Market
Peter Platt, Andina
Madeleine Pullman, PhD, Portland State University
Jared Pruch, Cascade Pacific RC&D
Teresa Retzlaff, North Coast Food Web
Trudy Tolliver, Portland Farmers' Market
Chris Schreiner, Oregon Tilth
Lane Selman, Culinary Breeding Network
Wendy Siporen, Thrive
Emma Sirois, Healthcare Without Harm
Thomas Stratton, formerly Oregon Rural Action
Sarah Sullivan, Gorge Grown Food Network
Sharon Thornberry, Oregon Food Bank
Chris Tjersland, New Seasons Market
Katrina Van Dis, Central Oregon Intergovernmental Council
Lisa Vincent, Beaverton School District
Karen Wagner, formerly Oregon Rural Action
Bob Wise, Cogan Owens Greene
Philip Yates, ACCESS

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Chicken





Photo courtesy Carole Topalian

6.1. Executive Summary

In recent years, concerns for food safety, health, animal welfare, and the environment have combined to increase interest in differentiated chicken. These attributes, often lumped together as “sustainable” by consumers, include local, from smaller-scale farms, antibiotic-free, free-range, and pasture-raised. Consumers have also demonstrated a willingness to pay for these attributes, with retail prices for “conventional” and “alternative” versions of whole chickens observed to range from \$1.29/pound to nearly \$6.00/pound.

A review of Oregon retailers, restaurants, hospitals, and educational institutions suggests there is potential demand for over 5 million broilers (over 20 million pounds of raw, whole, or cut-up chicken) that offer some combination of local, antibiotic-free, free-range, or pasture-raised. This represents about 6 percent of the chicken that is consumed in Oregon each year. The approximate breakdown by channel is as follows:

Retail:	80%	(~16 million lbs.)
Restaurants:	9%	(~1.7 million lbs.)
Hospitals:	4%	(~850,000 lbs.)
Schools and Colleges:	7%	(~1.6 million lbs.)

It is important to remain aware that large commercial entities such as Foster Farms and Draper Valley already offer at least one of the desired attributes. Although the market is not wide open, Oregon may have capacity to serve in-state demand for alternative chicken. A total of 487 Oregon farms, many concentrated in the Willamette Valley, reported sales of nearly 23 million broilers in 2012. This is enough chicken to satisfy about 28 percent of Oregon consumption. However, almost all chickens produced are currently shipped for processing and marketing out of state. Of all farms reporting sales of broilers, 95 percent likely sold fewer than one thousand birds, and less than 1 percent of chickens raised are marketed to Oregon buyers.

Currently, we could only find one midsized Oregon chicken farm and no midsized Oregon chicken brands targeting local markets. As such, there are may be opportunities to develop profitable enterprises around midscale production, processing, and marketing of chicken. Primary research conducted with Oregon producers revealed that expansion of existing small businesses or the launch of new businesses may require investment in processing facilities. Characteristics and costs of various processing facility options are reviewed in this chapter. However, a successful effort to develop midscale chicken in Oregon will likely hinge on factors beyond simple processing capacity, including:

- Ability to target specific end markets and be price competitive
- Finding an appropriate basis for differentiation
- Organizing production
- Access to skilled management
- Access to labor

The chapter concludes with an in-depth analysis of the price competitiveness (or lack thereof) of pastured poultry versus conventional, and alludes to opportunities to develop profitable small/midscale poultry enterprises.

6.2. Introduction to the Industry at the National Level

US consumption of chicken (now eighty-three pounds per capita) has increased every year since 1965, and since 1993 has exceeded consumption of either beef (fifty-four pounds) or pork (forty-six pounds).⁶⁰ This “consumption” figure represents the retail weight of chicken, including bones and other parts that may not be eaten. USDA Economic Research Service estimated the edible weight of chicken consumed by Americans at fifty-seven pounds in 2012.⁶¹

The National Agriculture Statistics Service estimated the national farm-level value of chicken (broilers) produced in 2013 at \$30.7 billion.⁶² The National Chicken Council estimates that 95 percent of the 8.5 billion broilers produced annually are raised under contracts with large processing companies.⁶³ The bulk of the remaining 5 percent are raised on farms that are company owned. Only a fraction of broilers are raised and marketed directly by farmers.

6.3. Segmentation, Key Issues, and Trends

The Economic Research Service offers the following description of the broiler industry:

“Most U.S. broiler production is under contract with a broiler processor. The grower normally supplies the growout house with all the necessary heating, cooling, feeding, and watering systems. The grower also supplies the labor needed in growing the birds. The broiler processor supplies the chicks, feed, and veterinary medicines. The processor schedules transportation of the birds from the farm to the processing plant.”⁶⁴

In this system, broilers are raised indoors in barn-like structures that each may house up to twenty-five thousand birds.

In contrast, a 2007 report for the Agriculture of the Middle project describes midsized and smaller scale farmers or farmer cooperatives that raise chicken for direct or specialty markets:

“They own the birds and slaughter either on-farm or in small, locally-owned processing facilities. These birds are sold directly by the farmers to consumers, retail stores, restaurants, and other outlets that are scaled appropriately. In this model, the farmer typically buys chicks from

⁶⁰ “Per Capita Consumption of Poultry and Livestock, 1965 to Estimated 2015, in Pounds,” National Chicken Council, 2015.

⁶¹ “Economic Data,” US Poultry and Egg Association, 2015.

⁶² “Poultry—Production and Value 2013 Summary,” USDA, NAAS, 2014.

⁶³ “Broiler Industry Key Fact,” National Chicken Council, 2012. See

⁶⁴ “Background,” USDA, ERS, 2012.

a hatchery or feed mill and provides all the feed, lighting, housing, expertise, and other requirements for raising the birds. Farmers maintain control over the bird and its production. For processing, farmers can either conduct their own slaughter or work with a facility that is willing to provide processing.”⁶⁵

In recent years, a number of issues have coalesced to raise concerns about conventional or “industrial” chicken and increase interest in alternative production models. These include:

- The quality and nutritive value of foods
- The incidence of salmonella, e-coli, and other food-borne illnesses
- Routine use of antibiotics in the livestock industry
- Animal welfare and the conditions under which chickens are raised and slaughtered
- The environmental impacts of concentrated animal feeding operations

These concerns have created opportunities for chicken producers to differentiate their products and access potentially profitable niche markets by marketing broilers with a variety of characteristics and claims, sometimes combined under the heading “sustainable.” These include:

- Heritage poultry varieties
- Pasture-raised (typically small numbers of chickens raised in open-air fenced enclosures)
- Free-range (typically large numbers of birds raised in closed barns, but without cages)
- No antibiotics used (commonly known as “antibiotic-free” and shortened to “ABF”)
- Organic certified
- Animal welfare certified (Animal Welfare Approved, Certified Humane, Food Alliance, etc.)

While advocates like Health Care Without Harm⁶⁶ and institutional purchasers like Bon Appétit Management Company⁶⁷ have promoted or made commitments to purchasing more sustainably produced chicken, availability and price remain challenges for procurement managers.

The price difference for conventional and alternative chicken can be significant, as demonstrated by a snapshot of Portland retail prices in September 2014:

- Conventional chicken on sale at a major grocer for \$1.29/pound (Foster Farms);
- Free-range, ABF chicken available at New Seasons Market for \$1.99/pound (Draper Valley); and

⁶⁵ “Poultry of the Middle in the US,” The Agriculture-of-the-Middle Initiative, 2007.

⁶⁶ “Purchaser’s Guide to Sourcing Sustainable Poultry,” Health Care Without Harm, (n.d.).

⁶⁷ “Animal Welfare,” Bon Appétit Management Company, (n.d.).



- Pasture-raised chicken available direct from Kookoolan Farms in Yamhill, Oregon, at \$5.89/pound.

Despite higher prices overall for differentiated products, midsized and smaller-scale farmers pursuing niche markets must earn a margin that enables profitability in spite of typically higher per unit production, processing, and marketing costs. The Agriculture of the Middle report describes the challenges:

“Typically, as small and medium-sized poultry producers grow, there are two tasks that are essential to their set-up, operations, and survival. These companies must seek out a product/niche that will distinguish their company. They must also create for themselves the infrastructure needed to get their product from farm to consumer. The infrastructure needed includes all of the resources that integrated companies own: access to genetics, hatcheries, feed, processing facilities, distribution, marketing, sales staff, and more.”⁶⁸

In addition, increasing interest in ABF chicken on the part of commercial buyers, including mainstream restaurant chains like Chipotle,⁶⁹ Chick-fil-A,⁷⁰ and more recently McDonald’s and Costco,⁷¹ is driving change in the industry and making that product more available and more affordable. This was demonstrated with a 2014 announcement by Perdue,⁷² the third largest US chicken producer, on a phase-out of antibiotics important for human use in their facilities.

6.4. Demand for Chicken in Oregon

Understanding market demand is critical to evaluating potential investments to increase production and profitability of local and more “sustainable” chicken.

6.4.1. Consumer Spending on Chicken

According to the Bureau of Labor Statistics⁷³, the average household (2.6 persons) in the western US spent \$7,180 on food at home (59 percent) and away (41 percent) in 2013. This includes \$169 spent on all types of poultry for at-home consumption. Agricultural Marketing Resource Center⁷⁴ figures show that production and sale of poultry for meat in the US is dominated by chicken (82 percent) and turkey (18 percent).

⁶⁸ “Poultry of the Middle: ‘Implications for Sustainable Producers and Scaling Up,’” The Agriculture-of-the-Middle Initiative, 2007.

⁶⁹ “Chipotle Sets the Record Straight on Antibiotics, Hormones,” *Meat and Poultry*, 2013.

⁷⁰ “Chick-fil-A to Serve Antibiotic-Free Chicken,” Elizabeth Landau, CNN, 2014.

⁷¹ “America’s Hunger for Antibiotic-Free Chicken Is Becoming a Costly Headache for Chicken Suppliers,” P.J. Huffstutter and Lisa Baertlen, Reuters, 2015.

⁷² “Perdue Cuts Way Back on Use of Antibiotics in Chicken,” Bruce Horvitz, USA Today, 2014.

⁷³ “Region of residence: Annual expenditure means, shares, standard errors, and coefficient of variation,” Consumer Expenditure Survey, 2013.

⁷⁴ “Commodity Poultry Profile,” Agricultural Marketing Resource Center, 2012.



The National Chicken Council⁷⁵ estimates that the domestic market for chicken is divided between retail (55 percent) and foodservice (45 percent, of which 56 percent is for fast food), with 52 percent of chicken sold fresh (whole or parts) and 48 percent further processed.

In December 2013, the USDA Economic Research Service⁷⁶ marked the composite price per pound for broilers at wholesale at \$0.73 and the retail price at \$1.97 (meaning that the wholesale price could be 37 percent of the final retail price).⁷⁷

A number of sources indicate that foodservice ingredient costs average 30 percent of the final retail price, but can range lower or much higher depending on the type of establishment. Schools and hospitals may be seeking to keep food costs closer to 20 percent. Fine dining establishments may be comfortable with food costs reaching 40 percent or more, with a priority placed on high quality ingredients.

Using population data and the figures above, it is possible to estimate the consumer market for chicken in Oregon, at the county level, or for municipalities. These estimates are displayed in the chart below.⁷⁸

Geographic Unit	Total Chicken “Consumed”	Total Spending: Chicken at Home	Estimated Spending: Fresh Chicken At Home	Implied Wholesale Opportunity (37%)	Estimated Spending: Fresh Chicken in Foodservice	Implied Wholesale Opportunity (20–40%)
Oregon (pop. 3,919,020)	327M lbs.	\$255M	\$133M	\$49M	\$88M	\$17M–\$34M
Multnomah Co. (pop. 756,530)	63M lbs.	\$49M	\$25.6M	\$9.5M	\$17M	\$3.4M–\$6.8M
Jackson Co. (pop. 206,310)	17M lbs.	\$13.4M	\$6.98M	\$2.6M	\$4.65M	\$0.9M–\$1.8M
Bend (pop. 79,109)	6.6M lbs.	\$5.14M	\$2.74M	\$1M	\$1.83M	\$400K–\$800K
La Grande (pop. 13,048)	1.1M lbs.	\$848K	\$441K	\$163K	\$294K	\$59K–\$118K

Table 6.1: Estimated Consumer Market for Chicken in Oregon.

The figures above are rough and very conservative for foodservice. These estimates account only for the resident population, and do not take into account spending by tourists, business travelers, or others who may be present or pass through. Further, consumer spending figures reflect household expenditures and thus do not account for purchases of chicken by entities such as schools, hospitals, nursing homes, or prisons. (These purchases are addressed in more detail below, where information is available.)

⁷⁵ “How Broilers Are Marketed,” National Chicken Council, 2011.

⁷⁶ “Overview: Meat Price Spreads,” USDA, ERS, 2015.

⁷⁷ Note: The ERS does not produce a farmgate price estimate since the large majority of producers are contracted to large poultry brands.

⁷⁸ For the purposes of this report, the estimates for wholesale opportunities are limited to fresh chicken (whole/parts). This is based on an assumption that the scale of production of alternative chicken must be increased before further processing of those chickens will be viable.



It should also be reiterated that the large majority of chicken consumed comes from lowest-cost commodity producer/processors. This has bearing on interpreting the scope of the implied wholesale opportunities referenced above. In reality, the opportunity for higher priced chicken with special attributes (pasture-raised, etc.) is only a fraction of the estimates provided—likely well under 10 percent.

6.4.2. Market Channels

Chicken makes its way from farm to market through a number of channels both direct and wholesale.

6.4.2.1. Direct Market

A growing number of small-scale farmers in Oregon are raising broilers. A good portion of that increase is likely due to the 2011 passage of the one thousand bird “On-Farm Sale Exemption,” which allows small poultry producers without a state-licensed processing facility to process and sell their own fresh or frozen birds to consumers who come to the farm to make their purchase.

Farmers that do operate or access a state-licensed processing facility have additional opportunities to sell to consumers through farmers’ markets, or direct to retailers and restaurants.

The primary limitations on growth of direct sale chicken are inconvenience and cost. Only a limited number of consumers will be willing or able to travel to a farm or farmers’ market to make purchases. Birds are typically sold whole and may be frozen, adding to the inconvenience. A four-pound bird may also cost over twenty dollars, as much as three times the cost of a conventional bird sold precut in pieces in a supermarket.

Higher-end restaurants and grocery retailers are interested in procuring local, pasture-raised birds from farmers, but need assurances for quality, consistency, and predictable availability. Farmers selling to restaurants and retailers must also be able to manage without receiving the full price paid by consumers at the farm or farmers’ markets. Currently, only a handful of Oregon farmers have both access to state-licensed processing and sufficient volume to serve restaurants and retailers successfully.

6.4.2.2. Processing/Manufacturing

There are few examples of food processors/manufacturers deliberately sourcing Oregon-grown chicken as an ingredient. This is due in major part to the lack of access to USDA-licensed poultry processing necessary for sale of finished products across state lines. The most notable example is Pacific Natural Foods (PNF), which has vertically integrated to ensure supplies for its line of packaged broths and soups. PNF helped restart a shuttered hatchery in Oregon to supply chicks for its own farm, and now raises a growing percentage of its own chickens and turkeys. PNF also owns Dayton Natural Meats, the only USDA-licensed poultry processor in Oregon, which handles about ten thousand birds a week for PNF’s use. PNF managers report that



about 80 percent of their ingredients are certified organic, that 45 percent of their ingredients come from local sources, and that they would like to increase both percentages.

6.4.2.3. Retail

US Census County Business Patterns data indicate there were 763 grocery stores and 56 independent meat markets in Oregon in 2012. Many grocery stores are outlets of major chains, like Safeway and Kroger, which are likely too large to integrate smaller local chicken suppliers. However, there are also about 80 independent or natural food stores, including New Seasons Market (15 stores), Market of Choice (9 stores), Whole Foods Market (8 stores in Oregon), Zupan's (4 stores), and about a dozen cooperative grocery stores (such as People's Food or Oceana Natural Food), that may be interested in relationships with local suppliers.

One local multi-store retailer sells between thirty-five thousand and fifty thousand birds per week. Those birds come primarily from Draper Valley Farms (based in Washington), which is reportedly the only regional supplier capable of meeting the store's requirements and volume demand. Attributes sought include free-range birds, raised without antibiotics, Non-GMO Project Verified, fresh (not frozen) and preferably air-chilled (not water chilled) for better flavor. The stores buy both whole birds and parts.

In the past, the retailer has bought limited numbers of fresh, pasture-raised chickens from Kookoolan Farms (Yamhill, Oregon) and Botony Bay Farms (Brush Prairie, Washington) seasonally. The capacity of those farms to supply birds is the major limit on the relationship.

The store's meat manager describes a vision for procurement in the future in which stores would offer customers three tiers of options for chicken:

- A standard product from Draper Valley Farms, representing 60–70 percent of volume.
- An exclusive private label product, representing 30–40 percent of volume. Product in this line would come from source-identified farms that are members of a local or regional marketing group (like Country Natural Beef or Umpqua Valley Lamb). Chickens would ideally be pastured in season, and raised free range in barns during winter months.
- The store would also continue to support small local farms by offering branded whole birds, fresh in season.

Extrapolating this retailer's sales volume and vision of having about a third of chicken from identified local/regional farms across eighty independent and natural food stores, suggests there could be an annual market for as many as 4 million local ABF birds (about 16 million pounds total).

6.4.2.4. Restaurants

US Census County Business Patterns data indicate there were 3,974 full-service restaurants (not including limited service "fast food") and 123 catering



companies in Oregon in 2012. The top 10 percent may be considered “fine dining” and more likely to be engaged in procurement of local products (though primarily through wholesalers). However, it is clear that interest in local is widespread across the industry.

A 2014 National Restaurant Association survey on menu trends resulted in the following top three responses:

1. Locally sourced meats and seafood
2. Locally grown produce
3. Environmental sustainability

An earlier survey of members of Chefs Collaborative, a national network of more than one thousand chefs that support sustainable cuisine, also found significant support for local foods:

- 90 percent use locally grown food on their menus and in advertising
- 81 percent have purchased ingredients directly from farmers
- 34 percent purchase more than 50 percent of food from local sources

Even some fast casual restaurants, such as the regional Burgerville chain, are promoting local ingredients.

A 2008 feasibility study⁷⁹ for pasture poultry production and processing in Washington’s Puget Sound region estimated restaurants would purchase twenty birds per week. Using that estimate for 397 Oregon restaurants (top 10 percent) suggests a market for 413,000 birds (about 1.7 million pounds total). This estimate is likely conservative.

6.4.2.5. Hospitals

Health Care Without Harm (HCWH) is an international environmental health organization that supports sustainable food procurement at hospitals and healthcare facilities, including sourcing of antibiotic-free chicken. A 2008 report⁸⁰ by HCWH indicated that 42 percent of 112 hospitals surveyed were buying some quantity of antibiotic-free poultry, and that another 47 percent had plans to start sourcing hormone- and antibiotic-free meat products.

A contributor to the report, the Oregon Center for Environmental Health, documented four Portland-area hospitals purchasing a total of 129,720 pounds of chicken in 2007, with 10–20 percent (13,000–26,000 pounds) from antibiotic-free sources.

Follow-on inquiries about food procurement by Oregon Physicians for Social Responsibility in 2009 and 2012 resulted in six detailed reports of chicken purchases from five Portland-area hospitals. Combined, the five institutions

⁷⁹ “Pasture Poultry Production and Processing Feasibility in the Puget Sound Region,” Bruce Dunlop, Cascade Harvest Coalition, 2008.

⁸⁰ “Menu of Change: Healthy Food in Health Care,” Health Care Without Harm, 2008.



represent about 1,850 hospital beds and reported purchasing about 260,000 pounds of whole chicken and cut-up chicken parts annually (not including cooked, breaded, or other processed chicken).

Extrapolating from those five institutions to Oregon's 33 private hospitals and 6,008 total hospital beds, this suggests hospitals could represent a market for about 210,000 ABF birds (a total of 845,000 pounds).

With an additional 12,403 beds in Oregon's licensed nursing care facilities, there is potential for the health care sector's demand to be even greater.

Conclusions should be tempered with the knowledge that price remains a major consideration for foodservice in healthcare. If ABF chicken is available from large, conventional suppliers, the added value of local products from smaller-farm suppliers may not be enough to justify paying a price premium.

6.4.2.6. Schools and Colleges

School Food FOCUS is a national collaborative that is working with fifteen large school districts across the US (including Portland Public Schools and the Beaverton School District in Oregon) to make school meals nationwide healthier, regionally sourced, and sustainably produced, and has also made antibiotic-free chicken a priority.⁸¹ Reported purchasing of chicken in 2011–2012 by the fifteen member districts totaled approximately \$16 million.

In Oregon, approximately 24 percent of school food budgets are spent on local food—the highest percentage in the nation (USDA, 2014). Two large urban school districts (Portland Public Schools and Beaverton School District) have asked Ecotrust to help them procure regionally produced chicken raised without antibiotics. Schools, with limited budgets and limited ability to prepare fresh foods, offer an interesting procurement challenge.

In the 2013–14 school year, Portland Public Schools (PPS) purchased more than 320,000 pounds of chicken, of which just over 13,000 pounds was purchased locally. Procurement staff report that the district prefers to source dark meat, which is harder to overcook and holds well in warmers. They prefer drumsticks, which are lower-cost and a convenient means to meet a required two-ounce protein requirement for meals (one drumstick from a three to three-and-a-half pound bird contains approximately one ounce of lean meat). In 2013, PPS served chicken raised without antibiotics sourced from Oregon and Washington twice, spending \$23,462 to provide two drumsticks with each meal—about one dollar per serving (estimate: two dollars per pound). Portland Public says it would consider serving local drumsticks monthly if costs were lower. While thighs are potentially more expensive, they have higher yield, less waste, and can also be used in more menu items. If boneless thighs (whole muscle only) were available at the right price, local chicken could be served weekly.

⁸¹ "Collaborative Across the Plate: Hatching New Ideas for Chicken," School Food Focus, (n.d).



Beaverton School District reports that it is not currently sourcing any local, antibiotic-free chicken, but would be willing to feature it on menus two to four times per month depending on affordability. Beaverton officials quoted one dollar per serving (two drumsticks) as the maximum they would consider, saying a price of fifty cents per serving would be ideal.

A case study⁸² published by School Food FOCUS describes procurement of over 500,000 pounds of fresh, local drumsticks by St. Paul and Chicago Public School Districts, with costs quoted as low as twenty cents per serving (estimate: eighty cents per pound). Jeffco Public Schools in Colorado has also reported serving local ABF drumsticks once a month at a cost of forty-four cents per pound.

Portland Public Schools has enrollment of about 46,000 students, serves 21,000 lunches daily, and provided 11,500 servings of chicken in each of the two lunches in 2013 referenced above.

Extrapolating to the 567,000 students enrolled in districts across Oregon suggests 141,750 total servings of chicken would be required each time chicken was served. If local ABF chicken was featured twice per month during the school year, that suggests a need for 2.6 million servings equating to 5.2 million drumsticks (2.6 million birds for drumsticks or about 300,000 for 1.2 million pounds of equivalent).

Extending that same scenario to the approximately 190,000 students enrolled in Oregon universities and colleges suggests a need for at least another 400,000 pounds of chicken per year.

6.4.3. Demand Summary

Combining the estimates provided above for retail, restaurants, hospitals, and educational institutions suggests there is potential demand in Oregon for over 5 million broilers (over 20 million pounds of raw, whole, or cut-up chicken) that offer a combination of desired attributes including: local, antibiotic-free, free-range, or pasture-raised. This represents about 6 percent of the chicken that is consumed in Oregon each year.

The approximate breakdown by channel is as follows:

Retail:	80%	(~16 million lbs.)
Restaurants:	9%	(~1.7 million lbs.)
Hospitals:	4%	(~850,000 lbs.)
Schools and Colleges:	7%	(~1.6 million lbs.)

As noted above, it is important to keep in mind that large commercial entities already offer at least one of the desired attributes and that the market is not wide open. The next section explores chicken production in Oregon and the state's ability to meet this demand.

⁸² "Why Can't Schools Simply Cook a Chicken," School Food Focus, (n.d.).



6.5. Oregon Chicken Production

Oregon is not considered a major producer of chicken. The 2012 USDA Census of Agriculture⁸³ shows there are a total of 578 farms in Oregon raising broilers or other meat type chickens. The number of farms raising meat chickens has increased 45 percent since 2007 (from 395).

A total of 487 Oregon farms reported sales of broilers in 2012, with a combined total of 22,789,036 birds sold. (This is actually a 7 percent decline since 2007—1.8 million fewer birds sold.) Oregon Agriculture Information Network data show the farmgate value of broilers sold in 2012 as \$68 million or an average of \$2.98 per bird.

All told, Oregon farmers produce enough broilers to satisfy 28 percent of Oregon chicken consumption. However, as will be discussed in more detail below, almost all chickens produced in Oregon are shipped for processing out of state, with a good percentage of final products likely marketed out of state as well.

Oregon chicken farms are concentrated in Clackamas (77), Yamhill (57), Marion (45), Linn (39), Lane (34), and Washington (29) counties. These six counties contain 58 percent of farms reporting sales of broilers. Map 6.1 shows the value of chicken broiler sales by county.

Of all farms reporting sales of broilers, 95 percent sold fewer than 2,000 birds (463 farms). Most are likely operating under the 1,000-bird processing exemption and so represent fewer than 450,000 birds total (1.8 million pounds at an average retail weight of 4 pounds per bird or 0.5 percent of Oregon consumption).

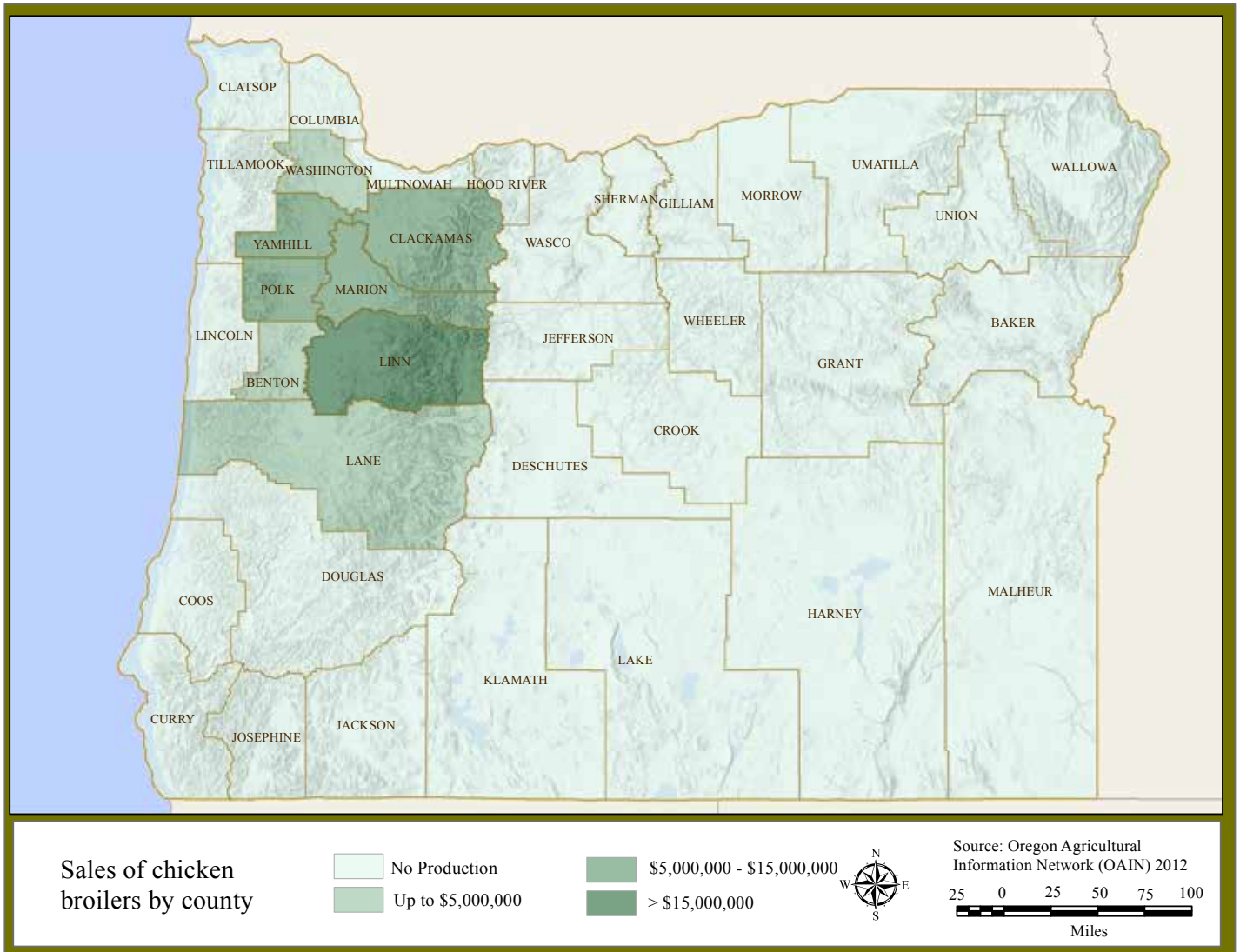
Four farms reported sales between 2,000 and 15,999 birds. These operate under the federal 20,000-bird processing exemption⁸⁴ and represent fewer than 64,000 birds total (256,000 pounds or less than 0.1 percent of Oregon consumption).

No farms reported sales between 16,000 and 99,000 birds.

⁸³ "Poultry—Inventory and Sales," 2012 Census of Agriculture—County Data, (n.d.).

⁸⁴ Large poultry operations are required to have a Food Safety and Inspection Service (FSIS) inspector present, and have continuous bird-by-bird inspection, during slaughter and processing. Businesses/farms that slaughter or process less than twenty thousand birds/year can qualify for an exemption from this regulation although the poultry cannot be distributed across state lines.





Map 6.1: Value (farmgate sales) of chicken broiler operations by county, 2012.

Four farms reported sales between 100,000 and 499,999 birds. There were also 16 farms reporting sales over 500,000 birds. These 20 farms can be assumed to be contracted to large regional brands such as Foster Farms, and together produce the remaining approximate 22.3 million birds raised (89 million pounds or 27 percent of Oregon consumption).

Given the segmentation of the broiler industry in Oregon into very small or very large farms, it is worth examining how farms at the two ends of the spectrum operate.

6.5.1. Large-Scale Producer/Processor Profile

A 2005 OSU Oregon Agricultural Commodities⁸⁵ study characterized the state's poultry industry, noting that most broilers grown in Oregon are processed in Washington. Noted regional brands include Foster Farms (California, Oregon, Washington), Draper Valley (Oregon, Washington) and Petaluma Poultry (California).

Foster Farms is headquartered in California,⁸⁶ operates thirteen processing plants, and has annual sales of \$2.4 billion. Foster Farms reports that it sources broilers from eighteen independent farmers in Oregon,⁸⁷ which are processed primarily in Kelso, Washington.⁸⁸ Foster Farms does offer an organic product line, and claims that it does not use antibiotics for growth promotion,⁸⁹ does not use medically important antibiotics, and that it is committed to expanding antibiotic-free production. Foster Farms is also certified by the American Humane Association.

Draper Valley Farms and Petaluma Poultry were purchased in 2011 by Perdue,⁹⁰ as part of the acquisition of the Coleman Natural brand. Perdue is the third largest poultry producer in the US, with annual sales of \$3.1 billion. Perdue is also now reportedly the leading producer of organic and no-antibiotics-ever chicken,⁹¹ and recently announced the elimination of antibiotics from its hatcheries.⁹² Draper Valley reportedly sources chicken from about 25 Oregon and Washington farmers,⁹³ which are processed in Washington. Petaluma's production and processing⁹⁴ appears limited to California. Draper Valley and Petaluma both offer organic product lines and antibiotic-free "free-range" lines with birds that have outdoor access. Draper Valley also offers an antibiotic-free "natural" line with birds raised indoors. Both companies make "humanely raised" and "sustainably farmed" claims, but are not third-party certified.

6.5.2. Small Direct Market Producer Profile

In *Growing Your Range Poultry Business*⁹⁵ (available from ATTRA) most small poultry producers are described as earning from two dollars to three dollars per bird and making a small supplementary income. They are advised:

⁸⁵ "Oregon Agricultural Commodities," Oregon State University Extension Service, 2005.

⁸⁶ "Top 100," *Meat and Poultry*, 2013.

⁸⁷ Foster Farms.

⁸⁸ Foster Farms.

⁸⁹ Foster Farms.

⁹⁰ "Perdue Farms Purchases Draper Valley Assests," Perdue, 2013.

⁹¹ Sustainable Food News.

⁹² "Perdue Foods Reaches Milestone in Reducing Antibiotic Use, Sets Standard for Responsible Use," Perdue, 2014.

⁹³ "Draper Valley Farm" Helena Schweigert, Life Source Natural Foods, 2001.

⁹⁴ Petulma Poultry.

⁹⁵ "Growing Your Range Poultry Business, Livestock and Pasture," ATTRA.



“labor for a 1,000-bird-per-year enterprise is 20–22 hours per week over a four month production schedule, and the farmer can expect hourly earnings of about \$10 per hour.” A larger-scale 5,000-bird enterprise “would require 35–42 hours of work per week over a six-month production schedule. With a net income of \$18,000, an experienced farmer could expect to earn about \$12–\$18 per hour.”

The guide also advises that “producers who process on-farm and direct market often see a real limit to the amount of birds they would even want to produce since it is a very labor-intensive enterprise,” suggesting that one thousand birds is a practical limit for most farmers with diversified operations.

Farmers attempting to raise and market chicken on a larger scale must find access to commercial processing or invest resources to develop their own processing capacity. A 2011 High Country News article⁹⁶ profiling several small Oregon chicken farmers and their challenges with processing makes clear this can be difficult.

6.5.3. The Missing Middle

A major challenge to increasing production of alternative chicken in Oregon is a lack of midsized farms suitable to develop a brand and serve local and regional markets. Oregon simply does not have a midsized poultry company within the range between White Oak Pastures in Georgia (that processes 200,000 birds/year) or TFC Poultry in the upper Midwest (that processes 1.4 million birds/year).

What would be necessary to recreate the missing middle? Can existing small poultry producers can grow into that space or aggregate production to serve that role?

⁹⁶ “Small Poultry Farmers Grapple with Lack of Slaughterhouses,” Carla A. Wise, *High Country News*, 2011.



6.6. Oregon Poultry Processing

Processing capacity is frequently referenced as an infrastructure gap and a barrier to the development of more midsized farm and food businesses. Federal law requires that poultry be processed at a federally inspected facility to be sold as human food. However, there are exemptions that allow processing of birds sold within the state of Oregon under a state license or even without a license:

Very small producers are allowed to process up to one thousand of their own birds for sales direct to consumers, at the farm, with minimal facilities and in open-air conditions, without meeting the facilities requirements for a state license.

Producers with a state license may process up to twenty thousand of their own birds. Within that limit, those with an accompanying “small enterprise exemption” may also buy birds, process them, and sell them back to the original owner for marketing.

Multiple producers can also share access to a state licensed mobile processing unit, processing up to twenty thousand birds per farm per year.

Growing Your Range Poultry Business⁹⁷ and case studies from the Niche Meat Processor Assistance Network⁹⁸ and other sources suggest processing infrastructure development options at a variety of scales.

Production Unit	# of birds	Processing Facility	Low Cost	High Cost
Single Farmer	<5,000	Basic open-air on-farm	\$5,000	\$10,000
Multiple Farmers	<5,000	Trailerred open-air on-farm unit	\$8,000	\$15,000
Single Farmer	>5,000	Larger contained on-farm	\$20,000	\$40,000
Multiple Farmers	<25,000	Basic contained mobile unit	\$50,000	\$70,000+
Multiple Farmers	>25,000	Larger contained mobile unit	\$70,000	\$100,000+
Any	30,000-50,000+	Higher capacity built facility	\$75,000	\$250,000+

Table 6.2: Poultry infrastructure at a variety of scales.

A closer examination of these options and currently available processing capacity follows.

⁹⁷ “Growing Your Range Poultry Business, Livestock and Pasture,” ATTRA, (n.d).

⁹⁸ “Niche Meat Processor Case Studies,” Extension, 2014.



6.6.1. On-Farm Processing Under the One Thousand Bird Exemption

Growing Your Range Poultry Business⁹⁹ estimates on-farm processors can handle 10 birds per person per hour from kill to chill, excluding set-up and cleanup time and packaging.

Cascade Pacific Resource Conservation & Development (RC&D) has established a model small poultry operation at the Berggren Demonstration Farm¹⁰⁰, including an on-farm, open-air processing system. Costs for processing equipment broke down as follows:

Table 6.3: Costs for equipment at Cascade Pacific RC&D

Item	Cost
Featherman ‘Set-Up Special’ (Killing cones, stand, scalding, plucker)	\$3,580
Propane tank for scalding	\$18.99
Plastic waste water barrel	\$10.95
Sump pump & plumbing fittings	\$159
Boxes for holding birds	\$16 for materials
Steel top for eviscerating table (custom)	\$290
Folding table	\$40
EZ-Up canopy	\$110
Knives (6)	\$12.95 each
Chill tanks/coolers (2)	\$120 each
Vacuum sealer	\$120
Scale	\$300
TOTAL	\$4,803.64

Cascade Pacific RC&D also advises that farmers interested in processing will also need:

- **Certified potable water supply:** Estimate five gallons of water per bird used while processing.
- **Cooling methods:** Ice, a refrigerator, and a freezer as needed.
- **Hand-washing/sanitation methods:** a three-bucket sanitizing system (wash/bleach/rinse) for tools; soap, warm water, and paper towels for hand washing.
- **Waste disposal methods:** There will be offal and wastewater (from the scalding and evisceration process). At Berggren Farm offal is composted and wastewater is pumped onto fields.
- **Insurance:** Check whether poultry processing is an activity covered under your policy.

Cascade Pacific RC&D has a truck and trailer and can transport its on-farm processing set-up to other locations. They charge a modest rent of \$25 for 24

⁹⁹ “Growing Your Range Poultry Business, Livestock and Pasture,” ATTRA, (n.d).

¹⁰⁰ “Mobile Poultry Processing Unit,” Berggren Demonstration Farm (n.d.).



hours, plus a subsidized mileage rate of \$0.25 round trip. Renters must also complete an initial training (\$20) and pay a \$250 deposit for damage/cleaning.

6.6.2. Processing Under a State License

There are options for state licensing of both mobile and fixed slaughter and processing units.

6.6.2.1. Mobile Slaughter and Processing Units

Two Oregon farmers have collaborated to introduce the state's first licensed mobile poultry processing unit. Oregon Mobile Poultry Processing,¹⁰¹ based in Philomath, offers custom and state-licensed poultry processing in the Willamette Valley. The unit is contained in a 33-foot trailer, with a fold-down metal platform that creates a 128-square-foot "kill floor" outside the trailer. This helps keep the interior processing space clean. The owners estimate they have the capacity to process as many as 500 birds per day. Cost to process birds appears to vary depending on number, but should be close to \$3.50 per. Costs to build the Oregon Mobile Poultry Processing unit were not disclosed. However, case studies from other states and prefabricated units available for sale suggest that mobile units can range from a low of \$8,000–\$10,000 for an open air system on a 10-foot trailer, to \$50,000 for a basic enclosed system in a 23-foot trailer, to \$70,000–\$100,000 for a higher capacity enclosed system in a 32-foot trailer.

Growing Your Range Poultry Business¹⁰² suggests that mobile processing units offer a way for producers to start small and share equipment costs, while ironing out production problems and developing markets. Thus they can be a step towards preparing an individual or group to make the investment to build a brick and mortar processing facility, when justified by proven market demand for higher volumes of product.

6.6.2.2. Fixed Slaughter and Processing Units

Farmers who raise from five thousand to twenty thousand birds each year may find it cost effective to build processing facilities that meet state licensing requirements.

In 2013, the *Oregonian*¹⁰³ reported there were twenty state-licensed poultry processors. These included a number of farms processing only their own birds, such as Walker Farms in Siletz (4,000 birds/year), Kookoolan Farms (9,000 birds/year), and Afton Fields Farm (10,000 birds/year). With these smaller volumes, owners and their families likely provide a significant portion of the processing labor required.

Only a handful of state-licensed facilities in Oregon actually offer processing to independent farmers. These include:

¹⁰¹ Provenance Farm.

¹⁰² "Growing Your Range Poultry Business, Livestock and Pasture," ATTRA, (n.d).

¹⁰³ "Small Oregon Chicken Farmers See Surge in Demand with Salmonella Outbreak Tied to Foster Farms," Lynne Terry, *The Oregonian*, 2013.



- B&K Natural Farm near Sutherlin. \$3.50 per chicken.
- Harrington's Poultry in Boring. \$3.50 per chicken <5pounds; \$4.50-\$5.50 for larger birds.
- Mineral Springs Poultry near Willamina. \$3.48 bagged whole or \$4.08 cut and wrapped on a tray.
- Scio Poultry Processing near Scio. \$5.25 per chicken <7pounds; \$5.85 for larger birds.

Costs to construct processing facilities vary depending on size and processing capacity.

At Afton Field Farm, Tyler Jones built his own simple state-licensed butchering shed,¹⁰⁴ with concrete floors, large windows, and a clear plastic roof. He estimates he spent between \$20,000 and \$25,000 on building materials and equipment for the shed.

However, costs for a state-licensed on-farm processing facility could easily reach \$40,000, and costs for a stand-alone processing facility serving multiple farmers could easily top \$100,000.

6.6.3. Processing Under a USDA Federal License

Dayton Natural Meats is currently the only USDA-licensed poultry plant in Oregon¹⁰⁵ and processes ten thousand birds a week—almost exclusively for its parent company, Pacific Natural Foods.

Scio Poultry Processing did offer USDA processing briefly, but reverted to a state license in 2011 due to lack of demand for higher cost USDA processing on the part of client farmers. Bernard Smith of Full of Life Farm in St. Paul, Oregon, was quoted in *High Country News* saying that processing his 4,000 broilers under USDA license at a cost of \$1.50 per pound priced him out of the market, and left him with 2,500 chickens in the freezer that could not be sold at a profit.

In 2013, Little Farms Inc. (Goldendale, Washington) built a new facility that complies with USDA requirements for \$110,000 (not including the cost of the land).¹⁰⁶ That facility is capable of processing two hundred birds per day, but is reportedly underutilized. It currently also operates under a state license as owners do not see enough demand for USDA processing.

A 2003 small-scale poultry-processing guide¹⁰⁷ available from ATTRA offers a case study of a 2,500 square foot plant capable of processing 500 birds per day constructed at a cost of \$120,000 (not including cost of land) and suggests that a plant capable of processing as many as 5,000 birds per day could be

¹⁰⁴ Photos of Processing, Afton Field Farm.

¹⁰⁵ "Q&A with Chuck Eggert," Hannah Wallace, *Oregon Business*, 2014.

¹⁰⁶ "Pluck 'N Grit: Getting a Small Poultry Processing Facility Off the Ground," *Honest Meat*, 2013.

¹⁰⁷ "Small Scale Poultry Processing," ATTRA, 2013.



constructed for less than \$500,000. The guide estimates that experienced crews in a small processing plant can process 15-plus birds per person per hour, excluding setup and cleanup time and paperwork.

6.7. Support Infrastructure for Poultry

Beyond processing capacity, it is important to consider other support infrastructure necessary for production and marketing of chicken. Oregon faces a number of infrastructural challenges to the development of midscale chicken production and the development of local and regional chicken brands.

6.7.1. Hatcheries to Supply Chicks

Many commercial chicks come from hatcheries in the midwestern and southern states, where chicken production is centralized. However, Oregon does have a few independently operated hatcheries. Many, such as Winn's Livestock and Hatchery (Corvallis, Oregon), appear focused on supplying small numbers of specialty poultry to backyard enthusiasts and for show. However, Jenk's Hatchery in Tangent, Oregon, is a family-owned company that supplies Cornish Cross and Red Ranger chicks for small farmers. Cornish Cross chicks range from \$1.35 to \$1.15 apiece (for less than 50 and greater than 100 chicks), with additional price breaks for orders over 350. Red Rangers are \$2.45 to \$2.10 apiece.

The relatively high cost of chicks raised in Oregon is a concern. A 2008 feasibility study¹⁰⁸ for pastured poultry in Puget Sound estimated a \$1.08 chick purchase representing 14 percent of expenses (not including labor) to deliver a bird for processing.

6.7.2. Feed Suppliers

Feed is the largest input cost for chicken. A single chicken can consume 10 pounds of feed¹⁰⁹ over a 7-week rearing period, more for slower growing varieties. The 2008 feasibility study¹¹⁰ referenced above estimated feed costs between \$0.20 and \$0.30 per pound, with the cost of feed at the higher end of the scale representing 60 percent of expenses (not including labor) to deliver a bird for processing. Prices for Organic Certified or Non-GMO Verified feeds will be even higher.

CHS/Kropf operates a feed mill in Harrisburg, Oregon, which manufactures and distributes bulk and bag conventional and organic feeds. Other local companies include Haystack Farm and Feed, Cascade Feeds, Union Point Custom Feeds, Rogue Quality Feeds, and others. Ingredients for feeds from these companies may or may not come from Oregon farms.

¹⁰⁸ "Pasture Poultry Production and Processing Feasibility in the Puget Sound Region," Bruce Dunlop, Cascade Harvest Coalition, 2008.

¹⁰⁹ "How Much Will My Chicken Eat?" Jacquie Jacob and Tony Pescatore, University of Kentucky, Cooperative Extension Service, 2012.

¹¹⁰ "Pasture Poultry Production and Processing Feasibility in the Puget Sound Region," Bruce Dunlop, Cascade Harvest Coalition, 2008.



6.7.3. Poultry Barns and Cold Storage

One challenge for smaller-scale chicken producers is that pastured poultry is a seasonal product, with production and fresh chicken available from April to October. Other times of the year, farmers either sell frozen product or have no inventory.

A 2005 OSU Oregon Agricultural Commodities¹¹¹ study noted freezing capacity for chicken products in Oregon is quite limited. US Census County Business Patterns data¹¹² shows there were only twenty-one companies offering refrigerated storage services in Oregon in 2012. Food safety requirements for segregation of products will further limit access to those facilities by poultry farmers.

Costs to build dedicated cold storage facilities may have to be considered. The alternative is construction of climate controlled poultry barns to enable year-round production. This offers benefits for processors, who can then operate throughout the year, and to some end consumers, who may prefer fresh product. However, there may be marketing challenges if the use of poultry barns is perceived as a recreation of the existing commodity production system.

6.7.4. Distribution

Smaller local or regional chicken producers are unlikely to see their products carried by large broadline distributors such as Food Services of America or SYSCO. Once some scale is achieved, there may be opportunities to work with associated businesses, such as Fulton Provision Company (owned by SYSCO). However, there are some smaller, specialty distributors that may offer more immediate support. These include companies like SP Provisions, Nicky USA (which has actually bought land and a USDA-licensed mobile processing unit to be able to raise, process, and distribute its own small animals), Eat Oregon First, and Corfini Gourmet (based in Washington).

6.8. Rebuilding the Missing Middle: Two Paths

There appear to be at least two paths to developing midscale production and marketing businesses in Oregon to meet demand for high quality, differentiated, local chicken. The first is a bottom-up farmer entrepreneur model exemplified by Greener Pastures Poultry—a once lauded but now closed Oregon company. The second is a top-down processing and marketing business exemplified by a proposal outlined by Pacific Natural Foods, which uses a hub and spoke approach to coordinate production of birds by a large number of small, independent farmers.

6.8.1. Farm Entrepreneur Model: Greener Pastures Poultry

Aaron Silverman started raising chickens as a side business on his twenty-acre vegetable farm outside Corvallis. He had relationships with chefs, was already selling produce to restaurants, and was hearing significant demand for

¹¹¹ “Oregon Agricultural Commodities,” Oregon State University Extension Service, 2005.

¹¹² “2012 County Business Patterns (NAICS),” CenStats, US Census, 2012.



pasture-raised chicken. He started with two thousand birds, processing them on-farm. Then in 2001 as the business started to grow, he leased a shuttered 1950s-era, red-meat processing plant, put \$20,000 into renovating the building and \$40,000 into equipment, and launched Greener Pastures Poultry (GPP). The facility was not ideal for poultry processing, but could handle as many as 500 birds a day. Aaron increased his own production to 13,000 birds, and began coordinating with three other farmers to supply birds. He processed two days a week during the field season, stockpiling product and selling frozen chickens in the winter. Sales to restaurants, at a farmers' market, and then to New Seasons Market reached 20,000 birds. However, the business was only marginal at that level. Aaron estimated that GPP needed to be able to process at least 120,000 birds a year to be sustainable, but doing so would require opening a USDA-licensed processing plant. GPP closed its doors in 2006 when Aaron was unable to identify and attract a manager with the skill and experience to operate a USDA plant, and then, as a result, could not secure the funding to build it. Before the closure, GPP was studied intensively as a model for new farm businesses, including in this report by Washington State University.¹¹³

In an interview after the closure, Aaron cited a number of lessons learned from the experience, including:

- There is significant demand for pastured poultry.
- However, as a small business owner trying to raise chickens, coordinate production by other farmers, manage processing and packaging, as well as market and deliver product, he exhausted himself. He needed more ability to delegate parts of the enterprise.
- It was extremely difficult to attract and retain employees in the processing plant when operating only seasonally. This added recruitment and training costs, and required more constant oversight.
- The gap from twenty thousand birds processed under state license to the number of birds necessary to justify a USDA-licensed facility is very large.

(Note: With an enterprise of this type, ability to manage manure and processing wastes may also become important. On very small, diversified chicken farms, wastes can be composted, used as fertilizer, and provide an economic benefit. As the number of chickens surpasses the acreage available to absorb nutrients safely, disposal of manure and waste becomes a cost and environmental risk.)

6.8.2. Processing and Marketing Business Model: Pacific Foods

Chuck Eggert, the owner of Pacific Natural Foods and Dayton Meats, has proposed a different approach to the challenge. Chuck envisions a system more like the 1950s, when a large percentage of chickens were still raised on small family farms. Those farm families might have raised fewer than one thousand birds over the course of a year for their own consumption and for

¹¹³ "Marketing Quality on Creative Growers' Farms," Rural Roots and the University of Idaho Research Team, 2005.



supplemental income. With a distributed network of independent small farms clustered around central processing nodes, which are in turn owned by a processing and marketing company, Chuck believes he can deliver a small, but reliable income to farmers, better quality of life for a growing number of chickens, and a unique, high-quality product in volume for wholesale. Under this system, an independent small farm, like Champoeg Farms (outside St. Paul, Oregon), would allocate land and invest in mobile broiler houses to move with the chickens from pasture to pasture. A second stage investment in small poultry barns could allow production to continue in winter months. The expectation would be that farmers could sell between one thousand and five thousand birds to the central processor in a season. **(Estimate: That effort might be expected to generate a profit of \$1,000 to \$2,000 per one thousand-bird unit.)** The processor might also provide chicks and feed, and specify production standards (humane treatment, no antibiotics, organic for some markets, etc.). For a plant that processes 120,000 birds per year, if each participating farmer raised 5,000 birds/year, there would need to be twenty-four growers in the cluster. Production schedules could be established to enable harvest of flocks in units to keep the plant in operation.

6.8.3. Analysis

Both paths are likely achievable.

The farmer-entrepreneur model requires a deeply committed individual, significant personal risk, and access to labor, management skills, and capital at key junctures. There is a learning curve, but the profitable growth of the enterprise directly benefits the farmer.

The processing and marketing business model brings with it management experience, and potentially easier access to staff, facilities, and resources. There is however a significant social challenge, organizing and coordinating the activities of many small farmers, and the revenue to individual farmers is modest.

6.9 Conclusions

Expectations coming into research for this report were that there was a shortage in regional supply of antibiotic-free chicken, and that processing capacity was a gap to be overcome to resolve that supply challenge. We found that there is robust demand for antibiotic-free chicken, and restaurateurs and retailers are interested in procuring more pasture-raised chicken. However, it appears that established large regional chicken producers like Foster Farms and Draper Valley are already well underway to meet demand for antibiotic-free, and offer free-range chicken, which addresses at least some of the impulse towards pasture-raised. This may be enough to satisfy much of the need that is currently being expressed.

There are likely opportunities to develop profitable enterprises around midscale production, processing, and marketing of chicken. However, processing capacity is not the only challenge and is likely not the largest challenge that will be experienced building those enterprises. Expansion



of existing small businesses or the launch of new businesses may indeed require investment in processing facilities, but a successful effort to redevelop “poultry of the middle” in Oregon will also likely hinge on factors beyond processing capacity, including:

- **Ability to target specific end markets and be price competitive:** There is likely a midpoint price opportunity to be struck between commodity broilers at retail at \$1.29–\$1.99 per pound and farm-direct broilers sold for closer to \$6.00 per pound. It would be beneficial to further explore the potential and price sensitivity of markets for that midrange product. A case study below takes a deeper look at production costs, wholesale and retail costs, and consumer willingness to pay.
- **Finding an appropriate basis for differentiation:** With large-scale brands now marketing organic, free-range, and antibiotic-free chicken, smaller scale entrants to the market will increasingly have to differentiate based on other factors including product quality, authenticity (small farm story), and other production methods (pasture rearing, non-GMO feeds, higher levels of animal welfare, etc.). It remains to be proven what combination of attributes will have sufficient market appeal to justify a premium price.
- **Organizing production:** It is not clear that any of the existing small chicken farms are interested in and capable of growing significantly, or that groups of smaller farmers have discussed the development of cooperative marketing ventures. Coordination of multiple farms seems likely to be necessary to supply volumes to justify any meaningful investment in processing capacity.
- **Access to skilled management:** The number of people qualified to operate a USDA-licensed poultry processing plant is small.
- **Access to labor:** Farm work and meat processing are low paid, and can be strenuous, repetitive, unpleasant, and dangerous. Both farm and processing facility managers report challenges recruiting and retaining workers—especially if operations are seasonal.

6.10 Case Study: Toward a Profitable Supply Chain for Pastured Poultry

Given the variety of challenges faced by small and mid-sized poultry producers in Oregon, we further examined opportunities to develop profitable pasture-based production models. Although mid-scale production would have been more relevant to this report, “poultry of the middle” doesn’t currently exist. Input data was available for pasture-based models of less than one thousand birds per year however, so we present this market analysis as an illustrative case study.

We conducted an in-depth analysis of the price competitiveness of pastured poultry, including production costs, wholesale/retail prices, and consumer willingness to pay. Results of that analysis are outlined below. In all cases, production costs for pastured poultry were found to greatly exceed those



of conventional chicken, meaning that producers must charge a significant premium on their product to break even. Efforts that focus on identifying more local and affordable types of feed, sources of chicks, and options for processing of birds (since these constitute the largest portion of production costs) are likely to benefit small poultry producers most and create opportunities for them to scale.

6.10.1. Introduction

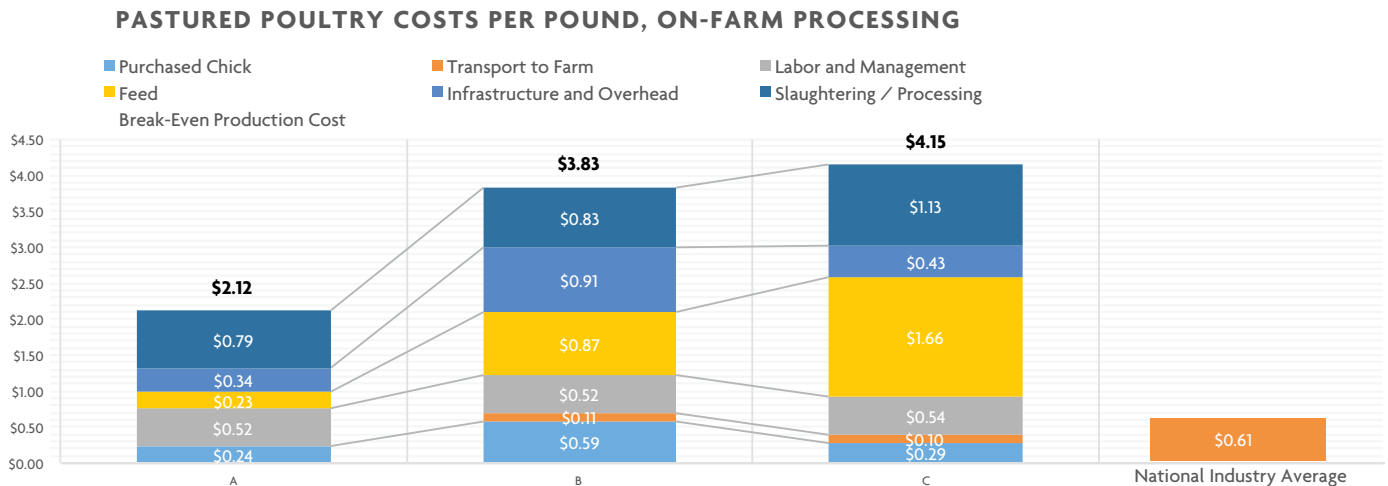
Consumers have demonstrated a willingness to pay a premium for attributes such as “free-range,” “antibiotic-free,” and “organic.” However, such methods of growing poultry also bear with them higher production and processing costs in comparison to conventional production methods. As a result, the higher retail prices do not always ensure a sufficient income to the producer. To explore the potential for profitability in differentiated niches, we posed three top-level questions surrounding the production and marketing of pastured poultry:

1. What does it really cost to produce? What are the major factors that influence the cost?
2. What are realistic wholesale/retail margins? How are prices passed on from producer to consumer?
3. What are consumers willing to pay (WTP)? How do specific characteristics such as organic certification, no GMO feeds, and no antibiotics, influence consumers’ WTP?

6.10.2. The Real Cost of Production

Figure 6.1 (below) presents three alternative estimates of per-pound production costs for pastured poultry, assuming on-farm processing. All three studies assume production scale of one thousand birds. These three estimates are compared to the national industry average farm gate price per pound for poultry as reported by National Agriculture Statistics Service (NASS) (NASS, 2015). Conventional chicken is processed predominantly off-farm; these four studies are thus not directly comparable at a disaggregated level.

Figure 6.1. Production costs per pound, pastured poultry with on-farm processing



The three studies presented in Figure 6.1 (above) rest upon different assumptions about the cost of purchasing chicks, feeding until maturity, and slaughtering/processing, as well as the post-processing (“dressed”) bird weight, and mortality rate during the growth period.¹¹⁴ Table 6.4 (below) highlights the principal assumptions of these three studies.

Four assumptions vary most dramatically: cost of purchased chicks, cost of feed, dressed bird weight, and mortality rate of the birds. It is not clear why the cost of purchased chicks is so much higher in Study B than Studies A or C: it may be due to regional or local price differences. Feed costs vary most dramatically. The cost of feed varies depending on its product attributes: for instance, organic certified feed produced without the use of GMO crops currently commands a market premium over conventional feed.¹¹⁵

Dressed bird weight assumptions also differ markedly, from a low of 3.75 pounds in study B to 5.0 pounds in study A. It is not clear why the dressed bird weight varies so dramatically. The difference may lie in the quantity of feed given to the birds.¹¹⁶ Birds also differ in weight depending on their variety. A recent comparison of Cornish Cross (CC) and Cornish Cross Slow (CCS) hens (Painter et al., 2015) found that the average carcass weight of CC hens was 4.71 pounds while the average carcass weight of CCS hens was 3.5 pounds. Clearly the dressed bird weight depends on the type of bird. The industry statistics provided by NASS (NASS, 2015) distinguish between light, medium, and heavy slaughter chickens. In 2013, light slaughter chickens averaged 3.28 pounds per bird live weight nationally; medium slaughter chickens averaged 5.92 pounds per bird, and heavy slaughter chickens 8.08 pounds per bird.

Mortality rate of birds ranges from 8 percent to 15 percent. In general, more experienced producers attain lower bird mortality rates. Ten percent is considered a desirable mortality rate (Kansas Rural Center, 2003). Data from small-scale producers collected by Heifer International (Fanatico, 1999)

¹¹⁴ Study A represents the generic example given in the enterprise budget for pastured poultry developed by the Center for Integrated Agricultural Systems (CIAS) at the University of Wisconsin (Luening and Schuster, 2003a). Study B represents the budget example given for pastured poultry by the Kansas Rural Center (2003). Study C represents a modification of the CIAS budget to reflect the assumptions of several other studies (Kansas Rural Center, 2003; Roaring Fork Valley, 2014; Painter et al., 2015). All dollar cost estimates are updated to 2014 USD using the Producer Price Index (PPI) for commodity slaughter chickens (Bureau of Labor Statistics, 2015).

¹¹⁵ Study A provides no information about the composition of feeds; it appears to be conventional feed. Study B uses a composite feed made of corn, soybeans, fishmeal, and other ingredients (see Table 6.4 below). Study B gives no information about the GMO or organic content of its feeds; it is assumed they include GMO ingredients and are not organic certified. Study C uses a locally sourced, non-GMO feed from Colorado.

¹¹⁶ Study A uses standard Cornish Cross hens, a bird bred for size and fast growth, and assumes that the dressed weight is 5.0 pounds. Study B assumes the same birds, but makes the conservative assumption that the dressed weight is 3.75 pounds. Study C, a modified version of Study A, uses the assumption of 4 pounds per bird, borrowed from a study conducted in Colorado (Roaring Fork Valley, 2014) for which bird variety data is not available.



indicate mortality rates as low as 3 percent; however, mortality rate may rise with batch size due to crowding and less supervision.

Study Index	State	Year	Purchased Chick (2014\$)	Feed \$/ton (2014\$)	Feed Type	Slaughtering \$/bird (2014)	Processing Facility	Post-processing (dressed) bird weight	Mortality Rate
A	WI	2003	\$1.20	\$130	No information given; assume non-certified commodity feeds	\$3.96	On-farm	5.00	8.00%
B	KS	2003	\$2.22	\$459	Composite feed including corn, soybeans, fish meal, nutri-balancers, aragonite, and kelp	\$3.09	On-farm	3.75	15.00%
C	WI	2014	\$1.15	\$770	Assumption from Study D (below): locally sourced, non-GMO, reflective of Colorado (Roaring Fork Valley) prices	\$4.28	On-farm	4.00	10.00%

Table 6.4: Key Assumptions of Pastured Poultry Production Cost Studies, On-Farm Processing

Scale matters for production costs. Both the Wisconsin study (Luening and Schuster, 2003a) and the Kansas study (Kansas Rural Center, 2003) assume an operation producing one thousand birds. In the case of the Kansas study, the birds are raised in five batches of two hundred birds each; in the Wisconsin study they are raised all at once. Smaller-scale studies often arrive at much higher average production costs. For instance, the Washington State study (Painter et al., 2015), which assumes an operation of seventy-five birds, derives a break-even price (production cost) of \$5.20/pound for Cornish Cross hens, and \$7.87/pound for Cornish Cross Slow hens. A study conducted by Heifer International in the US Southeast, by contrast, found per-pound production costs for small-scale pastured poultry (at seventy-five birds/batch) of as low as \$1.75/pound in 2014 US dollars (Fanatico, 1999). The Heifer International studies, however, did not include labor costs, or the amortized costs of buildings including insurance, taxes, or other components of infrastructure or overhead costs, explained below. Infrastructure and overhead costs are two cost items that are not discussed extensively in this study, but are nonetheless significant in determining the costs of production.¹¹⁷

¹¹⁷ There are three main components to these costs: fixed costs of buildings and equipment, variable operating costs of utilities and supplies, and labor costs. Fixed costs are calculated using what CIAS (2003) (Luening and Schuster, 2003b) call the “DIRTI” five: Depreciation, Interest, Repairs, Taxes, and Insurance. These five cost categories are used to calculate a Capital Recovery Factor (CRF), which is applied to the cost of the building or equipment, net of salvage value, to arrive at a per-year amortized cost estimate. Variable operating costs include utilities (electricity, water), bedding and other supplies, fuel, transport, medical, legal and accounting, and marketing. Labor costs can be paid directly as a wage, or imputed to cover the opportunity costs of family labor or other types of non-hired labor. Sometimes an imputed management fee is factored in as a percentage of revenues; the management fee thus depends on the expected price of the product (Luening and Schuster,



6.10.3 Wholesale and Retail Markups

What kinds of wholesale and retail prices are implied by the production costs in Figure 6.1 and Table 6.4 above?

Figure 6.2: below provides a range of possibilities based on the studies explained above. We assume a fixed dollar markup between industrially produced and pastured chicken.^{118, 119}

Figure 6.2: also contains the national industry average farm gate price per pound of broiler chickens, \$0.61/pound, as reported by NASS (NASS, 2015). Most industrially grown broiler chickens are produced on contract. The grower is provided with chicks, feed, fuel, and management supervision by an integrated poultry company, called an “integrator” in industry parlance. The grower supplies land, labor, housing, equipment, and operating costs. The integrator then purchases the broilers from the grower at a fixed price per pound of live (preprocessed) bird weight. This price is generally very low: for example, an Oklahoma State study gave \$0.06/pound as an example (Doye et al., 2008). Broilers are produced in large-scale grow houses—the Oklahoma State example assumes a grow house capacity of 26,400 birds (Doye et al., 2008).

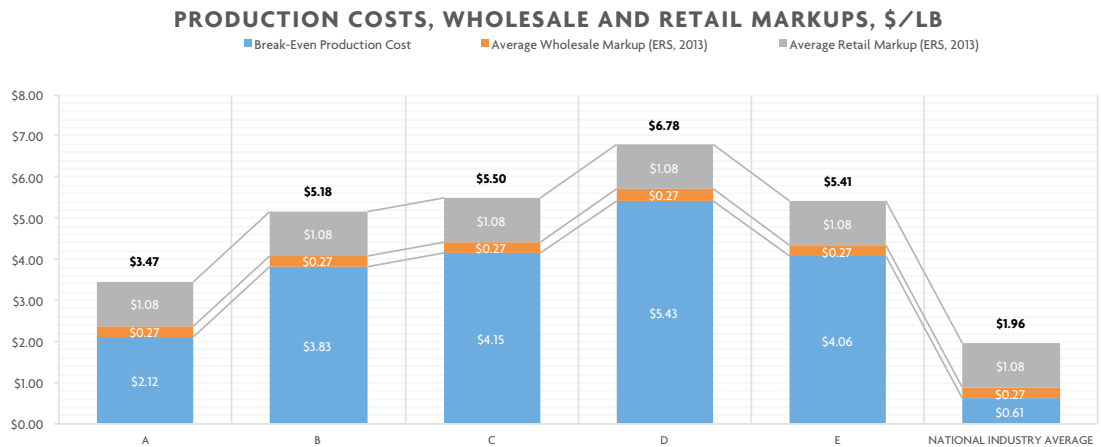


Figure 6.2: Pastured Poultry: Farm Production Costs, Wholesale and Retail Markups, dollar/pound.

2003a). The local farm wage is usually assumed to be the opportunity cost of family labor (Luening and Schuster, 2003b). Infrastructure and overhead costs vary considerably across farms, at different scales, and in different regions of the United States.

¹¹⁸ Were we to assume a percentage markup, the retail prices of pastured poultry would become much higher (over thirteen/pound for Study C, for example).

¹¹⁹ We estimate the wholesale markup by subtracting the average national farmgate prices received for slaughter chickens, as reported by NASS (NASS, 2015), from the average wholesale prices for slaughter chickens (broilers) reported by the USDA’s Economic Research Service (ERS) historical time series data on price spreads (USDA, 2014). We use 2013 wholesale prices, since those are the latest data available. The same ERS data series (USDA, 2014) reports average retail prices and retail-wholesale price spreads for broilers. We use the 2013 data on average retail price spreads as our assumptions for Figure 6.2: above.



Figure 6.2: also contains estimates from two off-farm processing budgets, one from Colorado (Study D) (Roaring Fork Valley, 2014) and one from Kansas Rural Center (Study E) (Kansas Rural Center, 2003). These two budgets show that off-farm processing does not necessarily entail cost savings for the pastured poultry grower; it may even increase those costs (Study D), especially if the processing facility is located far from the farm, increasing transport costs. Assumptions from Studies D and E are given below in Table 6.4:.

Study Index	Location	Year	Purchased Chick (2014\$)	Feed/ton (2014\$)	Feed Type	Slaughtering \$/bird	Processing Facility	Post-processing bird weight	Mortality Rate
D	CO	2014(?)	\$1.15	\$770	Locally sourced, non-GMO	\$4.75	Off-farm, USDA inspected; processing covers slaughtering, cleaning, eviscerating, and packaging	3.85	-
E	KS	2003	\$2.22	\$459	Composite feed including corn, soybeans, fish meal, nutri-balancers, aragonite, and kelp	\$3.94	Custom, off-farm processing	3.75	15.00 percent

Table 6.4: Key assumptions of pastured poultry production cost studies, off-farm processing

Retail Prices and Consumer WTP

Does reality match the projections given in the previous section? What is the actual retail price per pound of pastured poultry? What are consumers willing to pay for it?

Table 6.5 below provides five sample online retail price quotes for pastured poultry of various types, sourced from five different US states and regions (California, Virginia, Minnesota, New Jersey, and South Carolina). Online retail prices for pastured poultry range from \$2.85 per pound in Virginia to \$6.80 per pound in New Jersey. All prices refer to whole chickens only; prices of individual cuts, such as thighs, drumsticks, or boneless skinless breasts, tended to be higher. Each source cites slightly different, though overlapping, production systems. Two were certified organic; three claimed no antibiotics; four claimed non-GMO feeds. One (D’Artagnan) claimed to source from Amish and Mennonite family farms.



Business Name	Location	Production System	Price (\$/lb.)
Grass Roots Meats/Petaluma Poultry (Grass Roots Meats, 2013)	California	Organic, free-range: no GMO feeds, no antibiotics	\$4.99
Polyface Farm Buying Club (Polyface Farm, 2015)	Virginia	Pastured, no GMO feeds	\$3.65
Local Harvest/Prairie Pride Farm (Local Harvest, 2015)	Minnesota	Pastured, no GMO feeds, no antibiotics	\$6.49–\$6.65
D'Artagnan (D'Artagnan, 2015)	New Jersey	Organic, free-range; non-GMO feeds, no antibiotics	\$5.75–\$6.80
Free Range Chicken (Free Range Chicken, 2015)	South Carolina	Free-range	\$2.85–\$3.08

Table 6.5: Pastured poultry for sale online: retail prices, dollar/pound whole chicken

6.10.5. Conclusion

Production costs for pastured poultry differ dramatically by feed type, scale of production, bird mortality rate, and average dressed bird weight. In general, “four dollars a pound” appears to be a reasonable rule of thumb in evaluating average per-pound production costs for small-scale (one thousand birds) pastured poultry. “Five to seven dollars a pound” appears to be a reasonable range of estimates in evaluating average retail prices. In all cases, production costs for pastured poultry greatly exceed those of conventional chicken. Not surprisingly, the retail price of pastured poultry also differs dramatically. Differences in production systems, certifications, feed types, and processing methods may also be compounded by systematic regional differences in production costs, labor costs, wholesale and retail markups, and consumer behavior. In particular, costs for feed, purchased chicks, and processing of birds constitute a large portion of production costs and are key determinants of the final price at retail. Efforts to address the high cost of these inputs are likely to benefit small producers and create opportunities for them to scale.