

The Economics of Natural, Free-Range Chicken Production in Idaho

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There seems to be a growing demand for “natural” food products in Idaho, and elsewhere in the nation. Farmers markets and special “natural” and organic food stores are prospering. Chain supermarkets are handling more and more “natural” and organic items, and in some cases are opening special “natural” and organic areas in their stores.

Demand for “natural” and organic foods extends to meat products in addition to plant based foods. A number of livestock producers in Idaho are producing “natural” meat products – especially beef and chicken.

Chicken producers in several Idaho locations have expressed interest in information on the economics of “natural, free-range” production operations. Based on conversations with producers, it seems that **“natural” chickens** means **chickens that are produced with locally purchased feeds and no antibiotics** after they are beyond the “chicks” stage (two or three weeks old). **“Free-range” chickens** seems to mean **chickens that get a significant amount of their feed from grazing on pasture.**

The authors of this report have conducted analyses to estimate costs and returns from producing and marketing natural, free-range chickens, and the potential economic impacts on Idaho’s economy from the development of a natural, free-range chicken industry in the state. Results of these analyses are presented below.

Costs and Returns

Estimates of costs and returns for producing free-range chickens are shown in Table 1. Cost estimates are for purchasing, growing and processing the birds, and are based on information from producers in Idaho and in other states, and from other sources such as input suppliers. Assumptions on which cost estimates are based are shown in Table 2. Estimated revenues are based on 4.75 pound birds (dressed weight) selling for \$2.50 per pound. This price of \$2.50 per pound is based on what several small producers in Idaho are currently getting for their birds. As production of natural, free-range chickens increases, prices may fall. Both supply and demand for such products are still developing, so it is not at all clear what prices will be for natural, free-range chickens in the future.

Also, in the natural, free-range chicken industry, prices of inputs and products vary over time and geographically. Consequently, each individual producer faces his or her own unique situation and should customize price estimates to match his or her own operations and markets. In addition, they should be ever vigilant to changes in those markets that can affect the profitability of their operations.

While it is difficult, if not impossible, to predict the prices that small Idaho producers of natural, free-range chickens will get for their birds in the future, there are some guidelines relative to marketing specialty products that can be useful to such producers as they work to maximize their economic returns from marketing their birds. Some of these guidelines are presented below:

- Do not get stuck in a commodity market where --
 - You are a price taker.
 - The only competition is price competition.
 - Small scale is at a price disadvantage.
 - There is no room for an individual small firm to “shine.”

- Differentiate your product and your firm from other products and firms.
 - Separate yourself from competition in the minds of customers.
 - Insulate yourself from pure price competition.
 - Differentiate based on value added –
 - product quality.
 - Product uniqueness
 - Product assortment
 - Further processing
 - Service
 - Convenience
 - Location

- Be proactive!
 - As much as possible, create your own position/niche in the market.
 - Make sure there is a match between what you can do and what customers want.

Potential Impacts on Idaho's Economy

Economies are built on what economists call basic business activity. Basic business activity in a local economy is sales and related activity (wages paid, taxes paid, profits made) by firms that sell their products outside the economy (export). Common exporting firms in an economy are farms and manufacturing firms. Non-exporting firms in an economy provide goods and services to the basic firms, the people who are employed in the basic firms, and other non-basic goods and services providers. Common non-exporting firms in an economy are retail stores, service firms (doctors, lawyers, hair dressers, accountants, mechanics, ...), and firms that supply inputs to basic firms.

There are however, lots of exceptions to the general cases specified above. A large retail trade mall or a big car dealership may draw customers from an entire state, or even from a multi-state region. The same may be true for the health care workers in a large hospital. So retail trade and services can be basic (exporting) firms. Also, a firm that starts-up in an area to provide goods or services that were previously purchased outside the area (import substitution) can have the same types of impacts on the area's economy as a firm producing exports.

The authors of this report used input and cost information for raising natural, free-range chickens, along with an economic model of Idaho's economy¹, to estimate the economic impacts that a natural, free-range chicken industry would have on Idaho. It was assumed

¹ The model used is an Implan input/output model. A technical discussion of the model, and supporting mathematics can be found in M.C. Guaderrama, N. Meyer, and R.G. Taylor, *Developing Coefficients and Building Input/Output Models*, University of Idaho Department of Agricultural Economics and Rural Sociology, September 2000.

that such an industry would export product or would sell to local people who would otherwise purchase product imported from outside Idaho.

Since it is very difficult to predict how large such a new industry might be, impacts were estimated for 10,000 birds per year. A few, fairly small producers (1,000 to 2,000 birds per year per producer) could easily produce this amount. Estimates presented here could be increased (or decreased) proportionally to estimate the impacts of different scenarios of industry size.

Estimates of potential impacts on Idaho's economy of a natural, free-range chicken industry are shown in Table 3. Economic impacts are presented in terms of:

- Sales or gross revenues of business firms;
- Value-added, which is the value of Idaho inputs (as opposed to inputs imported from outside Idaho);
- Earnings, which include wages and salaries of workers and profits of proprietors;
- Jobs; and
- Indirect business taxes, which are all taxes paid by firms except income taxes.

The total estimated annual economic impacts on Idaho can be read across the bottom row of Table 3. Each of the columns in Table 3 indicate the estimated annual amount of that type of economic activity in each sector that would be attributable to a 10,000 bird natural, free-range chicken industry in Idaho. So 10,000 natural, free-range chickens produced in Idaho would mean total increased annual sales in the state of \$442,099,

increased annual value-added of \$208,179, increased annual earnings of \$134,579, about 5 new jobs, and increased annual indirect business taxes of \$15,904. These sales, value-added, earnings, jobs and indirect business taxes would occur in various industries as indicated in Table 3.

Table 1
Estimates of Costs and Returns for Natural, Free-Range Chickens
(600 bird flock)

	Weight		Total Number			
	Each	Unit	of Head	Price or	Total Value	Value or
			or Units	Cost/Unit		Cost/bird
1. Gross Receipts						
Fryers	4.75	lb	540	2.50	6412.50	11.88
Total Receipts					6412.50	11.88
2. Operating Costs						
Chick Feed		lb	300.00	0.20	60.00	0.11
Chicken Feed		lb	11,400.00	0.14	1,596.00	2.96
Brooding expense		Flock	1.00	35.00	35.00	0.06
Pasture maintenance		Bird	540.00	0.49	264.60	0.49
Chicks		Bird	600.00	0.57	342.00	0.63
Slaughter		Bird	540.00	1.80	972.00	1.80
Inspection Charge		Flock	2.00	20.00	40.00	0.07
Veterinary Medicine		\$	0.00	1.00	0.00	0.00
Machinery (fuel, lubrication, repair)		\$	45.28	1.00	45.28	0.08
Vehicles (fuel, repair)		\$	179.10	1.00	179.10	0.33
Equipment (repair)		\$	131.51	1.00	131.51	0.24
Housing and Improvements (repair)		\$	0.00	1.00	0.00	0.00
Hired Labor		hour	0.00	0.00	0.00	0.00
Owner Labor		hour	64.00	8.50	544.00	1.01
Interest on Operating Capital		\$	406.99	0.06	25.44	0.05
Total Operating Costs					\$4,234.92	\$7.84
3. Income Above Operating Costs					\$2,177.58	\$4.03
4. Ownership Costs						
Capital Recovery:						
Purchased Livestock		\$	24.23	1.00	24.23	0.04
Housing and Improvements		\$	0.00	1.00	0.00	0.00
Machinery		\$	57.14	1.00	57.14	0.11
Equipment		\$	182.66	1.00	182.66	0.34
Vehicles		\$	216.55	1.00	216.55	0.40
Interest on Retained Livestock		\$	0.00	0.07	0.00	0.00
Taxes and Insurance		\$	19.79	1.00	19.79	0.04
Overhead		\$	190.00	1.00	190.00	0.35
Total Ownership Costs					\$690.37	\$1.28
5. Total Costs					\$4,925.28	\$9.12
6. Returns to Risk and Management					\$1,487.22	\$2.75

Table 2

Technical and Economic Assumptions Incorporated Into Estimates of Costs and Returns for Natural, Free-Range Chickens

The farm grows a total of 1,800 birds for the season on 3 acres, or 600 per acre.
The costs in this budget pertain to a 600 bird flock, 1/3 of total production.
The growing season is about 5 months and 3 batches of 600 birds will be raised during that time.
Death loss is 10% for a total of 60 birds leaving 540 birds for market.
Chicks are fed starter for 2 weeks and consume about ½ lb during that time.
Chicks are put out to pasture for 7 weeks after 2 weeks of brooding.
The birds consume 5 lbs of feed per lb of gain when on pasture.
Pasture supplies about 15 to 20 percent of the diet.
Field labor runs about 1 hour per day.
The birds roost on the ground under coups made of steel tubing, 150 birds per coup.
The sides of the coups are chicken wire and the tops are tarped.
The coups are moved periodically by hand to freshen the pasture and the birds move with the coup.
The chickens will roam, but typically stay close to their coup.
Watering stations are moved with the coups.
The operation owns 4 chicken coups, 2 watering stations and 12 feeders.
The coups accommodate 150 chickens each, and the feeders accommodate 50 birds each.
Total costs for the coups, watering stations, and feeders are \$1,100, \$700, and \$350 respectively.
One third of the costs for equipment listed above pertain to the 600 birds in this flock.
Labor in April pertains to brooding the young, and labor in May and June is field labor.
Labor listed for July is for loading and hauling chickens to slaughter.
The operation has one pickup and one small tractor.
Twenty five percent of the pickup costs and 25% of the tractor costs are attributed to the 1,800 chickens.
The operation also owns a trailer to haul the birds to the processor.
Overhead charge is based on 2.5% of cash costs.
The operation uses 700 feet of V-mesh to enclose the pasture. It sells for about \$265/165' roll.
It takes 25 hours of labor at \$8.50 per hour to install the fence.

Table 3

**Total Economic Impacts on the State of Idaho of
a Natural, Free-Range Chicken Industry
of 10,000 Birds (per year)**

Industry	Sales	Value-Added	Earnings ^a	Jobs	Indirect Business Taxes ^b
Agriculture/Food Processing	\$183,595	\$ 60,045	\$ 37,910	1.5946	\$ 3,334
Mining	\$ 224	\$ 148	\$ 76	0.0011	\$ 10
Construction	\$ 13,251	\$ 4,479	\$ 3,957	0.1189	\$ 73
Manufacturing	\$ 48,382	\$ 19,562	\$ 13,468	0.2286	\$ 510
TCPU ^c	\$ 21,441	\$ 9,991	\$ 6,363	0.1818	\$ 729
Utilities	\$ 7,222	\$ 5,179	\$ 1,335	0.0108	\$ 811
Trade	\$ 38,427	\$ 28,998	\$ 17,789	0.7376	\$ 5,765
FIRE ^d	\$ 32,785	\$ 22,699	\$ 4,800	0.2036	\$ 2,924
Services	\$ 82,808	\$ 48,365	\$ 42,330	1.5832	\$ 1,166
Recreation/Eating Drinking/Lodging	\$ 10,178	\$ 5,199	\$ 3,633	0.3051	\$ 580
State and Local Govt	\$ 2,440	\$ 2,251	\$ 1,947	0.0611	\$ -
Federal Govt	\$ 1,346	\$ 1,264	\$ 971	0.0234	\$ -
Total	\$442,099	\$ 208,179	\$134,579	5.0497	\$ 15,904

^a Wages and profits.

^b All taxes paid by businesses, except income taxes.

^c Transportation, communications and public utilities.

^d Finance, insurance and real estate.