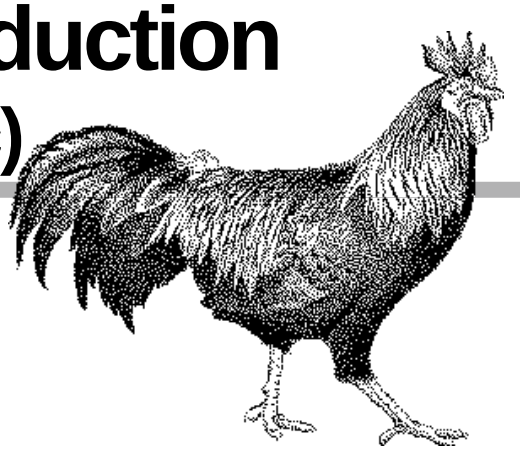
AGRICULTURAL ALTERNATIVES

Small-Scale Egg Production (Organic and Nonorganic)



Egg production on a small scale is one of the oldest animal farming enterprises in recorded history. In this system, birds are fed a small amount of grain and allowed to forage for the balance of their diet. Birds can be used for egg production or may be killed for food.

In the United States, egg production followed these principles until early in the 20th century. Then new systems emerged for producing eggs in more confined facilities, making the operation more efficient. In addition, population shifts from farms to towns and cities increased the demand for fresh produce. These changes encouraged many dairy farmers to include egg production as an additional enterprise.

The late 1950s and 1960s saw drastic changes in the industry. Co-ops, feed companies, and other private firms organized egg production into a vertically integrated industry. This meant that egg production on a farm changed from a secondary to a primary enterprise with specialized production methods. The result was virtual elimination of small-scale egg farming.

In the 1980s and 1990s small-scale layer production has made a comeback mainly because of changing consumer demands. New markets are continually being developed to supply specific niche market needs, especially for organically produced brown eggs (although white eggs also are popular). Layers raised organically and used for producing organic eggs are much more valuable at the end of their production cycle; they can be sold as roasters. Nonorganic layers are sold to make protein supplements for dog and cat food.

While there are no federal organic food standards (at present being developed), many states and private organizations certify organically produced meat and eggs. To obtain organic enterprise certification in Pennsylvania, contact Pennsylvania Certified Organic at (814) 364-1344 for further information.

Budgeting

We have included sample budgets for both production systems. The assumptions are as follows:

Nonorganic small-scale production. Assume birds are housed at 18 weeks of age, molted at 70 weeks of age (52 weeks of production), and sold at 110 weeks of age (an additional 30 weeks of production). Feed for the entire period amounts to 142 pounds per bird. Layers are sold as stewing hens.

Organic small-scale production. Assume birds are housed at 18 weeks of age and sold at 70 weeks of age (52 weeks of production). Feed for the 52 weeks amounts to 90 pounds per bird. Birds may be sold as organic roasting chickens and are more valuable than commercial stewing hens. Mortality is estimated at 0.15 percent per week.

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Marketing

As with any small business, you should research markets before starting production. The major markets for eggs from small flocks are specialty stores, farmers' markets, roadside stands, and neighbors. Additional niche markets exist for people who want organic, fertilized, or free-range eggs. Since very little information about these markets is available, developing them requires time.

Getting Started

One of the most practical ways to get started is to begin with a flock of 1,000 birds and use existing facilities when feasible. A unit of this size allows you to learn the necessary production and marketing skills without making a large investment. Costs are limited to a layer house, nests, and feed and watering equipment.

Start with young pullets (16 to 18 weeks old) from a reputable dealer. Buy birds that are ready to begin producing eggs. Make sure they are certified by the National Poultry Improvement Plan (NPIP) to be free of *Salmonella pullorum, Salmonella typhoid,* and mycoplasma. Before pullets arrive check that the litter is dry and all feeders and drinkers are in good working order.

Establishment

Provide at least 1.5 square feet of floor space per bird. Cover with clean straw, wood shavings, or sawdust. One feed pan usually provides enough space for 20 birds. Sufficient watering equipment should be available for 20 birds per cup, 12 birds per nipple, or 1 bird per linear inch of trough space. Birds do not lay eggs at the same time, so nests can be supplied at the rate of one nest per five hens.

Lighting stimulates the pullet to lay eggs. Gradually increase the length of time hens are exposed to light once they arrive at your farm. Start with 12 hours of light per day at an indoor intensity that just allows you to read the fine print of a newspaper at night. Increase daylight length by 30 minutes per week until you reach 16 hours of light per day. Additional outside light exposure is fine; just have the 16-hour program begin and remain on before and after dawn and dusk.

Conventional layer mash feed can be purchased at your local feed store. Certified organic feeds are available, but they may be more difficult to find and are more costly. All hen mash should contain at least 3.5 percent calcium. Additional free-choice calcium may be provided after birds are 45 weeks old to aid in good shell formation.

Disease Problems

Biosecurity and sanitation are necessary to prevent disease outbreaks. Biosecurity involves isolating birds by age group, restricting human access to buildings, keeping the buildings clean, and properly disposing of dead birds. Isolate new birds for one month before contact with other birds to prevent the introduction of diseases.

Regulations for Selling Eggs

The Pennsylvania Department of Agriculture regulates the sale of eggs from small flocks. The regulations state:

If an egg producer has fewer than 3,200 laying hens, sells eggs within five days from the date of lay, and sell eggs predominantly within a 100-mile radius of their production or processing facility, then the following summary of regulations will apply when selling eggs to the consumer.

1. All eggs must be maintained at 60°F or less from the time of gathering to the time of sale. This also applies to eggs sold at farmer markets or at roadside stands.
2. Each carton, flat, or container of eggs must be labeled with the producer's name and address, date of lay, statement of identity (eggs), net contents (in 3/16-inch-high letters), and "Keep Refrigerated."
3. If you do not weigh the eggs or if they are of mixed size, and you do not wish to assign a grade, they must be labeled as unclassified. You also must remove dirty, leaker, or loss eggs.

Weight Class

Size	Per dozen	Per 30 dozen	Individual egg	Minimum wt
Jumbo	30 oz	56 lb	29 oz	2.42 oz
Extra large	27 oz	51 lb	26 oz	2.17 oz
Large	24 oz	45 lb	23 oz	1.92 oz
Medium	21 oz	39.5 lb	20 oz	1.97 oz
Small	18 oz	34 lb	17 oz	1.42 oz
Peewee	15 oz	28 lb	—	—

There are three consumer grades of eggs—Grade AA, Grade A, and Grade B. To market your eggs on these terms, they must meet the requirements for the consumer grade. If you would like to grade your eggs and need further information for consumer graders, contact the Pennsylvania Department of Agriculture's Egg Division at (717) 787-3294, or write to Pennsylvania Department of Agriculture, Eggs, Fruits and Vegetables Division, 2301 North Cameron Street, Harrisburg, PA 17110.

Sample Budgets

Our sample budgets summarize costs and returns for small-scale production of conventional and organic eggs plus an initial resource requirement. The budgets assume the purchase of 1,000 birds, a 1,500-square-foot building, nests, and feed and watering equipment.

These budgets should help ensure that you include all costs and receipts in your calculations. Costs may be difficult to estimate in budget preparation because they are numerous and variable. Therefore, think of these budgets as an approximation, then make appropriate adjustments using the "your estimate" column to reflect your specific production situation. More information on using livestock budgets can be found in *Agricultural Alternatives: Enterprise Budgeting Analysis.*

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For More Information

Bureau of Food Safety and Laboratory Services
Pennsylvania Department of Agriculture
2301 North Cameron Street
Harrisburg, PA 17110-9408

Department of Poultry Science
The Pennsylvania State University
213 Henning Building
University Park, PA 16802

Associations

Penn Ag Industries Association
Poultry Council
P.O. Box 329
Ephrata, PA 17522-0329

Pennsylvania Organic Farming Association
Leslie Zook
P.O. Box 452
Centre Hall, PA 16828
Phone: 814-364-1344
Fax: 814-364-2330
E-mail: paorganic@aol.com

Mills selling organic feed

Powls Feed Mill
1934 Lancaster Pike
P.O. Box 15
Peach Bottom, PA 17563

Kreamer's Feed Mill
P.O. Box 38
Kreamer, PA 17833

These mills sell organic pullets to potential small organic layer producers, but they probably will not sell to producers whose goal is less than a 1,000-bird laying flock.

Popular Web site on small flock production

http://www.apsc.vt.edu/faculty/clauer/resource/pspec/LayChick#Flock Management

This site links to the following articles:

Home Laying Flock Management I: Getting Started. Earl W. Gleaves, Extension Poultry Specialist, University of Nebraska. Tells what is involved in starting a home laying flock.

Home Laying Flock Management II. Earl W. Gleaves, Extension Poultry Specialist, University of Nebraska. Contains suggestions for managing the home laying flock.

N.C. State Small Poultry Flocks. Thomas A. Carter, Extension Poultry Specialist, North Carolina State University.

Raising Fowl and Small Animals in Urban Areas. Phillip J. Clauer, Poultry Extension Specialist, Virginia Tech. Provides guidelines for owners of birds and small animals in urban areas. By following the guidelines you can avoid conflict with others in your community and prevent the development of ordinances banning the raising of certain animals in your community.

Rearing Chicks and Pullets for the Small Laying Flock. Melvin L. Hamre, Department of Animal Science, University of Minnesota. Good layers develop from healthy, well-bred chicks raised under good feeding and management programs. Buying the right type of chick is important for the most economical production.

Small Laying Flock. Melvin L. Hamre, Department of Animal Science, University of Minnesota. A well-planned and well-managed small laying flock can be a source of fresh eggs, personal pleasure and, sometimes, profit.

Small Poultry Flocks (requires Acrobat Reader 3.01). Very good older USDA publication. Covers all aspects of small-scale poultry production.

The Small Laying Flock. Fred Thornberry, Extension Poultry Specialist, Texas A&M.

Sample Budget for Conventional White Egg Flock

1,000 hens molted at 70 weeks and sold at 110 weeks. Budget is for 1.6 years.

Item	Quantity	Unit	Price	Total	Your Estimate
Receipts					
Jumbo and extra large	9,806	doz			_____
Large	15,043	doz			_____
Medium	7,431	doz			_____
Receipts from eggs	32,280	doz	$0.90	$29,052	_____
Fowl sold: 862 @ 3.65 lb	3,146	lb	$0.05	$157	_____
Total receipts				$29,209	_____
Variable costs					
Pullets	1,000	bird	$2.75	$2,750	_____
Feed	1,322	cwt	$11.00	$14,542	_____
Advertising				$450	_____
Electricity				$200	_____
Auto, truck, misc. supplies				$550	_____
Repairs and maintenance				$175	_____
Egg cartoning and packing				$3,874	_____
Total variable costs				$18,667	_____
Returns above variable costs				$10,542	_____
Fixed costs					
Labor	820	hr	$0.00	$0	_____
Insurance and taxes				$155	_____
Egg cooler	$2,500	10 yr		$400	_____
Building	$6,600	10 yr		$1,056	_____
Equipment	$4,052	10 yr		$648	_____
Total fixed costs				$2,259	_____
Total costs				$20,926	_____
Net returns				$8,283	_____

Assume birds are housed at 18 weeks of age, molted at 70 weeks of age (52 weeks of production), and sold at 110 weeks of age (an additional 30 weeks of production).

Feed for the entire period—142 lb/bird.

Mortality estimated at 0.15% per week.

Initial resource requirements

- Land: 2 acres (needed land includes buildings and waste disposal)
- Labor: 820 hours
- Harvesting costs: $800 per acre
- Capital

Pullets: 1,000 birds X $2.75 = $2,750

Buildings, equipment (including egg cooler): $13,152

Total capital investment: $15,902

Sample Budget for Organic Brown Egg Flock

1,000 organic hens kept to 70 weeks of age.

Item	Quantity	Unit	Price	Total	Your Estimate
Receipts					
Jumbo and extra large	8,311	doz			_____
Large	9,638	doz			_____
Medium	3,981	doz			_____
Receipts from eggs	21,930	doz	$2.00	$43,860	_____
Fowl sold: 922 @ 4.85 lb	4,472	lb	$0.70	$3,130	_____
Total receipts				$46,990	_____
Variable costs					
Organic pullets	1,000	bird	$3.35	$3,350	_____
Organic feed	865	cwt	$16.00	$13,840	_____
Advertising				$400	_____
Electricity				$185	_____
Auto, truck, misc. supplies				$450	_____
Repairs and maintenance				$150	_____
Egg cartoning and packaging				$3,289	_____
Total variable costs				$21,664	_____
Returns above variable costs				$25,325	_____
Fixed costs					
Labor	1,040	hr	$0.00	$0	_____
Insurance and taxes				$125	_____
Egg and cooling room	$2,500	10 yr		$250	_____
Building	$6,600	10 yr		$660	_____
Equipment	$4,052	10 yr		$405	_____
Total fixed costs				$1,440	_____
Total costs				$23,105	_____
Net returns				$23,885	_____

Assume birds are housed at 18 weeks of age and sold at 70 weeks of age (52 weeks of production).

Feed fed during the 52 weeks = 90 lb/bird.

Mortality estimated at 0.15% per week.

Initial resource requirements

- Land: 2 acres (needed land includes buildings and waste disposal)
- Labor: 1,040 hours
- Harvesting costs: $800 per acre
- Capital

Pullets: 1,000 birds X $3.35 = $3,350

Buildings, equipment (including egg cooler): $13,152

Total capital investment: $16,502

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This publication is available in alternative media on request.

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