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Egg Production Costs and Returns¹

Leonard Benning, Phillip E. Plumart and Boyd J. Bonzer²

Methods of producing and marketing eggs have changed rapidly. Egg producers must adopt practices that reduce production costs per dozen eggs. Even then, they generally cannot be successful unless they can sell their eggs through stable and well-organized market outlets.

In the not too recent past, the egg industry was based largely on farm flocks of a few hundred layers. Although some of these small flocks still exist, they are no longer considered efficient unless they utilize surplus family labor and low cost feeds, share overhead costs with other farm enterprises and are near a specialized market.

Operators with large commercial flocks and whose production standards result in uniform quality eggs produce a high percentage of the total eggs going into market channels.

Efficient marketing is a must, but it will not insure profits if production costs are too high. One of the most important factors in keeping costs down is flock size. A producer can make more efficient use of his labor, buildings and equipment if he has 10,000 or preferably 30,000 or more hens. He can usually find better markets if he has a large volume of high quality eggs to sell.

The data presented here were obtained from interviews with building and equipment dealers, from feed companies and from the Laying Flock Record Program Progress Reports. Since these are widely different sources, the data represent no particular individual enterprise but are considered average costs for setting up a new operation. Because of extreme variability, investments in land are not included.

Application of sound management techniques combined with careful attention to cost controls and marketing outlets could provide even greater income than that shown in the example. The production of market eggs has shown alternating periods of wide and narrow margins.

¹This paper plus data for a 26,880-bird unit will be published as a fact sheet designed to help the reader determine the feasibility of establishing egg production facilities. It will be updated periodically.

²Extension Economist-Marketing, Extension Poultryman and retired Extension Poultryman, respectively.

Estimated Costs

Estimated costs, based on early 1977 data, in the following tables are for a 10,440-bird flock producing at the rate of 22 dozen eggs per hen housed for a 14-month period. Assuming a producer develops a 10,440-bird unit, his permanent investment would be about \$4.34 per bird for the laying house and \$2.45 per bird for equipment. Pullet costs would be approximately \$2.20 per bird, making a total start-up cost of about \$9.00 per bird. Purchase of 20-week-old pullets is assumed.

Feed Costs

The largest single cost item in egg production is feed, more than 60% of all production costs. In Table 2, feed costs are based on a conversion rate of 4.25 pounds per dozen eggs and a value of \$130,000 per ton. Under these conditions, total costs for feed would be \$63,440 or 27.62 cents per dozen eggs. Feed costs can be reduced (1) by improving the feed conversion rate, (2) by reducing the cost of feed per ton or (3) both.

Building and Equipment Depreciation

Building cost for a 10,440-bird flock was estimated at \$45,360.00 and depreciated over a 20-year period. Building cost is calculated to be 1.15 cents per dozen eggs. Equipment was estimated to cost about \$25,578 and depreciated over an 8-year period. Equipment cost equals 1.62 cents per dozen eggs.

Total building and equipment costs appear to be quite high at first glance. However, they are relatively small per dozen eggs when depreciated over a long period. Annual repairs and maintenance on the building and equipment are figured at 2% of their new cost or 0.62 cents per dozen eggs for this example.

Interest

Interest on all money invested in housing, equipment and birds was calculated at 9% on one-half of the new cost. Interest costs for the birds are 0.53 cents per dozen eggs and for housing and equipment 1.62 cents. Interest costs for these three items amounted to 2.15 cents per dozen eggs.

Other Costs

Other costs (such as utilities, taxes, insurance and miscellaneous costs) will vary from one farm to another and from year to year. These costs are estimated to be about 1.81 cents per dozen eggs.

Returns

In our example, if eggs are sold for 50 cents per dozen, a producer having a production cost of 44.97 cents per dozen would have a return to labor and management of \$14,418. Also, any portion of the charges for interest and labor not used for borrowed capital and hired labor would represent a return to

management and labor. Annual income can be increased by lowering the feed conversion rate, increasing the number of eggs per bird, lowering mortality, holding down the costs of feed and birds and by following a sound marketing program. A producer with a 10,440-bird laying flock can increase annual income:

1. \$3,770 for every 1/4 pound reduction in feed consumed per dozen eggs
2. \$2,610 for every 1/2 dozen increase in egg production per bird
3. \$2,440 for every \$5 decrease in feed costs per ton
4. \$1,044 for every 10 cents saved in pullet costs
5. \$4,594 for every 2 cent increase in average price received per dozen eggs sold

The poultryman of the future will be the person who is willing to follow quality production and marketing programs. It is generally advisable to produce eggs for a specific market and to stay with that market throughout the year.

Table 1. Building and Equipment Costs for a
10,440-Bird Cage Laying Unit

| | 10,440 layers |
|--|------------------|
| Building dimensions (feet) | 42 x 180 |
| Total square feet (including egg cooler and workroom) | 7,560 |
| Building cost per square foot | \$ 6.00 |
| Equipment cost per bird | 2.45 |
| Building and equipment cost per bird | 6.79 |
| Total cost of building | \$45,360.00 |
| Total cost of equipment | \$25,578.00 |
| Total cost of building and equipment | \$70,938.00 |
| Pullet cost @ \$2.20 | \$22,968.00 |
| Total investment | \$93,906.00 |

Table 2. Estimated Costs and Returns of Table Egg Production With 10,440 Commercial Layers Producing 22 Dozen Eggs Per Hen Housed on a 14-Month Basis With 1% Mortality Per Month

| | Total cost (dollars) | Your estimate (dollars) | Cost/doz. eggs (cents) | Your estimate (cents) |
|---|-------------------------|----------------------------|---------------------------|--------------------------|
| EXPENSES | | | | |
| OPERATING COSTS | | | | |
| Pullets (10,440 @ \$2.20) | 22,968 | | 10.00 | |
| Feed (4.25 lb./doz. = 488 T @ \$130) | 63,440 | | 27.62 | |
| Utilities and misc. (\$0.25 x avg. hens ¹) | 2,427 | | 1.06 | |
| Repairs and maintenance | | | | |
| Building (1%/yr.; \$45,360) | 529 | | .23 | |
| Equipment (3%/yr.; \$25,578) | 895 | | .39 | |
| Insurance (\$0.60/\$100) | 656 | | .28 | |
| TOTAL OPERATING COSTS | 90,915 | | 39.58 | |
| FIXED COSTS | | | | |
| Depreciation | | | | |
| Building (\$45,360 @ 20 yr.) | 2,646 | | 1.15 | |
| Equipment (\$25,578 @ 8 yr.) | 3,730 | | 1.62 | |
| Interest on investment | | | | |
| Building and equipment (9%/yr.) | 3,724 | | 1.62 | |
| Pullets (9%/yr.) | 1,075 | | .53 | |
| Taxes (\$1.30/\$100; \$70,938) | 1,075 | | .47 | |
| TOTAL FIXED COSTS | 12,380 | | 5.39 | |
| TOTAL PRODUCTION COSTS (excluding labor and management) | 103,295 | | 44.97 | |

RECEIPTS AND RETURN TO LABOR AND MANAGEMENT

Old hen salvage (8,978 hens x 4.0 lb. @ \$0.08/lb.) = \$2,873 or 1.25¢/doz. eggs
 Eggs (22 doz. x HH or 23.7 doz. x avg. hens) = 229,680 dozen

| | Receipts (dollars) | | | Returns to labor and management | |
|-----------------|--------------------|-----------|------------------|---------------------------------|------------------|
| | Total egg receipts | + Salvage | = Total receipts | Total (dollars) | Per doz. (cents) |
| Eggs @ 48¢/doz. | 110,246 | 2,873 | 113,119 | 9,824 | 4.28 |
| 50¢/doz. | 114,840 | 2,873 | 117,713 | 14,418 | 6.28 |
| 52¢/doz. | 119,434 | 2,873 | 122,307 | 19,012 | 8.28 |
| 54¢/doz. | 124,027 | 2,873 | 126,900 | 23,605 | 10.28 |
| 56¢/doz. | 128,621 | 2,873 | 131,494 | 28,199 | 12.28 |

For each additional 1 cent increase or decrease in egg price, total receipts and returns are increased or decreased \$2,296.80.

¹ HH = hens housed (10,440), Avg. hens = HH - 1/2 mortality
 = 10,440 - 731 = 9,709