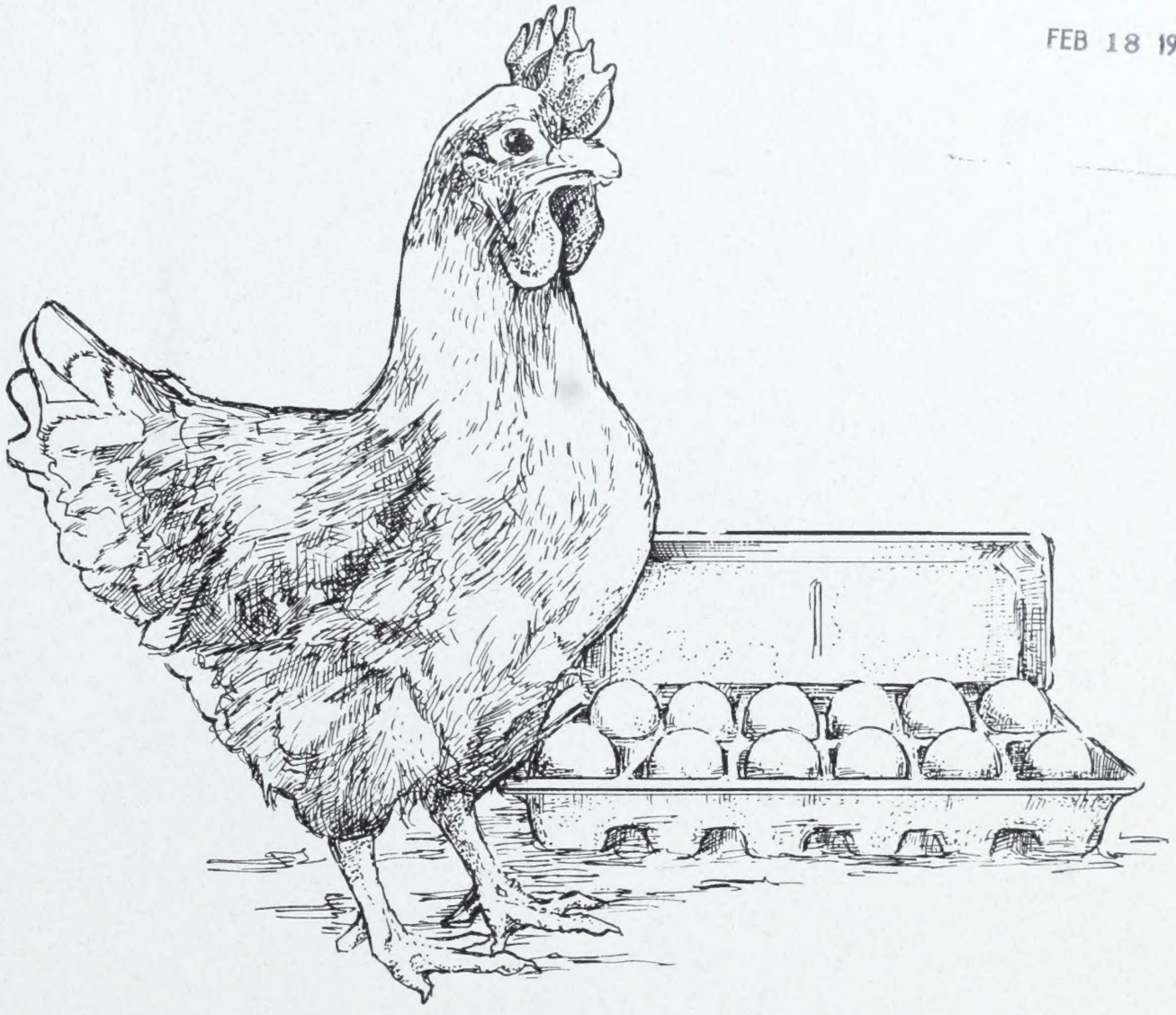
A Cost Analysis of Egg Production in Alberta 1994



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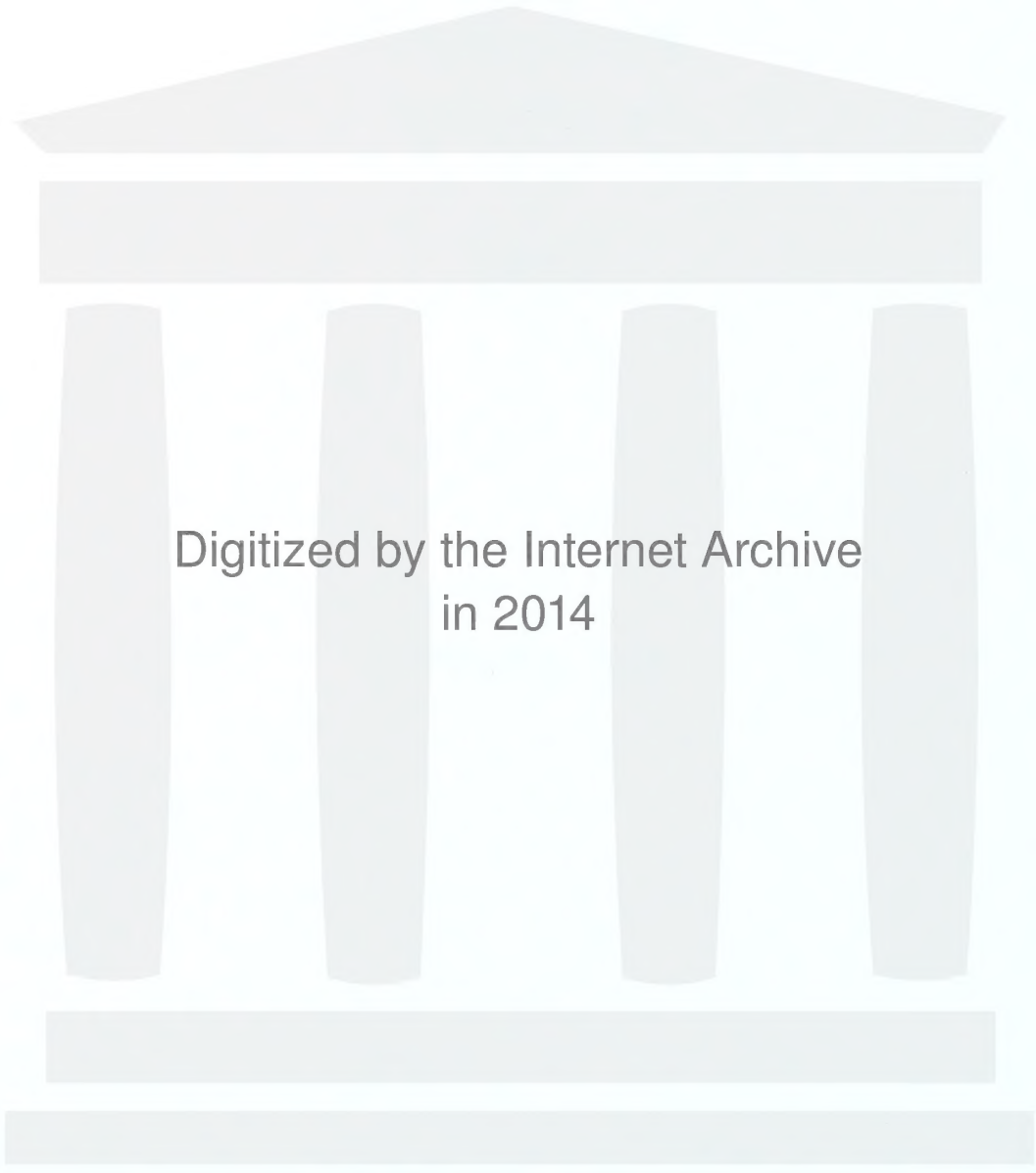
1994

By
Richard Heikkila

Production Economics Branch
Economic Services Division
Agriculture, Food & Rural Development
November, 1995



FOREWORD

The Production Economics Branch conducts cost and return studies for the major agricultural commodities produced in Alberta. In addition to table eggs, these commodities include grains, oilseeds, specialty crops, cow-calf, dairy, hogs, sheep and broilers. The studies provide an economic benchmark of current costs and returns which the industry can use to assess current performance, and to measure improvements in performance over time.

This is the twelfth table egg costs and returns study undertaken by the Production Economics Branch. The first was completed for the 1983 production year.

The study includes 23 table egg farms, which represent 11.6 percent of Alberta table egg operations. The high sample ratio raises the degree of confidence that the sample averages (costs and returns) are close to Provincial averages.

A potential limitation of the study is the sample distribution. The graph on page 6 shows that the sample does not include representation from the Province's largest producers. The twelve producers with more than 17,000 birds represent only 6 per cent of Alberta producers, but they account for over 23 per cent of total birds. However, the graph shows that the survey sample has a higher representation in the mid size range, which helps to mitigate the absence of very large enterprises.

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SUMMARY

- The study assessed 23 table egg farms.

- The average cost of producing table eggs in 1994 was 80.2¢ per dozen eggs, slightly lower than the 1993 average cost of 80.5¢.

- The largest cost component was feed, which averaged 32.1¢ per dozen eggs. Pullet costs ranked second at 16.9¢ per dozen eggs. Unpaid family labour was valued at 9.2¢ per dozen eggs. Other variable costs totalled 11.3¢. Capital costs amounted to 10.7¢ per dozen eggs.

- Feed was 40 per cent of total costs, pullets 21 per cent, unpaid family labour 12 per cent, and capital costs 13 per cent.

- Gross income averaged 94.8¢ per dozen eggs, after a levy of over 13.8¢ (per dozen eggs sold, including private sales) was deducted. The return to equity and management amounted to 14.6¢ per dozen eggs.

- The current market value of buildings, equipment, machinery, land and quota averaged $419,268. Quota accounted for 58 per cent of the total market value of assets, or $245,011 per farm.

- The level of indebtedness averaged 20.0 per cent of total assets and the debt to equity ratio was 25.0 per cent.

- The average return to equity and management was 7.8 per cent, or $26,009 per farm. Excluding quota value, return to equity and management averaged 14.9 per cent.

INTRODUCTION

Study Objectives

- Table Eggs in Alberta are priced by the Canadian Egg Marketing Agency (CEMA) using national estimates of production costs.

- Alberta Agriculture, along with the Alberta Egg Marketing Board, initiated a provincial cost study in 1983 to monitor the relation between the national cost and the provincial (Alberta) cost.

- The main objective of this study is to determine the cost of producing eggs in Alberta. The primary concern of the Production Economics Branch is to provide producers with information on the economics of egg production so that they can improve their productive efficiency.

- More specifically, the objectives of the study are:

  - to provide an account of the costs and economic conditions encountered in the production of commercial eggs in Alberta;

  - to analyze the present price efficiency in Alberta;

  - to provide the participating producers with their individual farm analysis and appropriate group averages to compare and improve management performance; and

  - to provide data for Alberta Agriculture staff to use in extension education, and policy and program analysis.

Method of Analysis

Economic Measures

- Two alternative methods are commonly used to estimate the economic well being of farm enterprises. Alternative A determines the return to family labour, including the operator labour input; alternative B determines the return to equity invested in each enterprise. Each method involves an assumption being made about one category of production cost, either the cost of capital or the cost of operator/family labour (Table 1).

Table 1: Alternative Methods of Analysis	
A. Labour	B. Capital
Gross Income	Gross Income
Variable Cost Feed Other Hired Labour - - -	Variable Cost Feed Other Hired Labour Family Labour (estimated)
Capital Cost Rent Depreciation Paid Interest Equity Interest (estimated)	Capital Cost Rent Depreciation Paid Interest - - -
Return to Family Labour	Return to Equity

- In alternative A, a capital interest charge is applied (to the equity capital) in order to arrive at the total cost of production. The residual difference between total revenue and total cost is the return to family labour. The return to family labour is measured in terms of dollars per hour of labour or dollars per bird.

- In alternative B, a cost estimate is assigned to family labour since there is usually no explicit market or monetary value attached to this input The residual is the return to capital (eg, return to equity).

- In this study, the objective is to determine the return to equity (alternative B). The estimated cost of family labour is included in variable costs.

Enterprise Analysis

- The cost and return analyses in this study are based on enterprise analysis. The table egg enterprise includes all activities associated with the laying operation.

- The questionnaire used in the survey identified all expenditures and income that were directly associated with the table egg enterprise. Some inputs, however, such as family labour, machinery and utilities, are often shared by other farm enterprises. In this study, the farmer estimated the proportion of these shared inputs that were devoted to the table egg enterprise.

- Some operators raise their own feed. This study does not attempt to estimate the costs of producing the homegrown grain used by the table egg enterprise. Instead, it assumes that the table egg enterprise "buys" grain from the cropping enterprise at regional market prices. In other words, homegrown grains were priced at market value.

- Similarly, costs associated with home raised pullets were not considered in the layer operation; home raised pullets were priced at market value.

- Grading costs (where reported) were excluded from the cost estimation.

Study Sample and Survey Method

- The 1994 table egg study sample consisted of 27 producers randomly selected from a provincial total of 198 producers. Four participants were excluded from the study due to incomplete data, leaving 23 represented in the final report.

- Study participants were interviewed on their farms using a prepared questionnaire. The survey occurred in January through March of 1995.

- The smallest table egg operation in the study had a quota of less than 2,500 birds, while the largest had a quota of over 16,000 birds

- The average quota size was 7,512 birds.

- Table 2 and Figure 1 show that the study sample reflected fairly well the provincial distribution, except for the largest producers in the province.

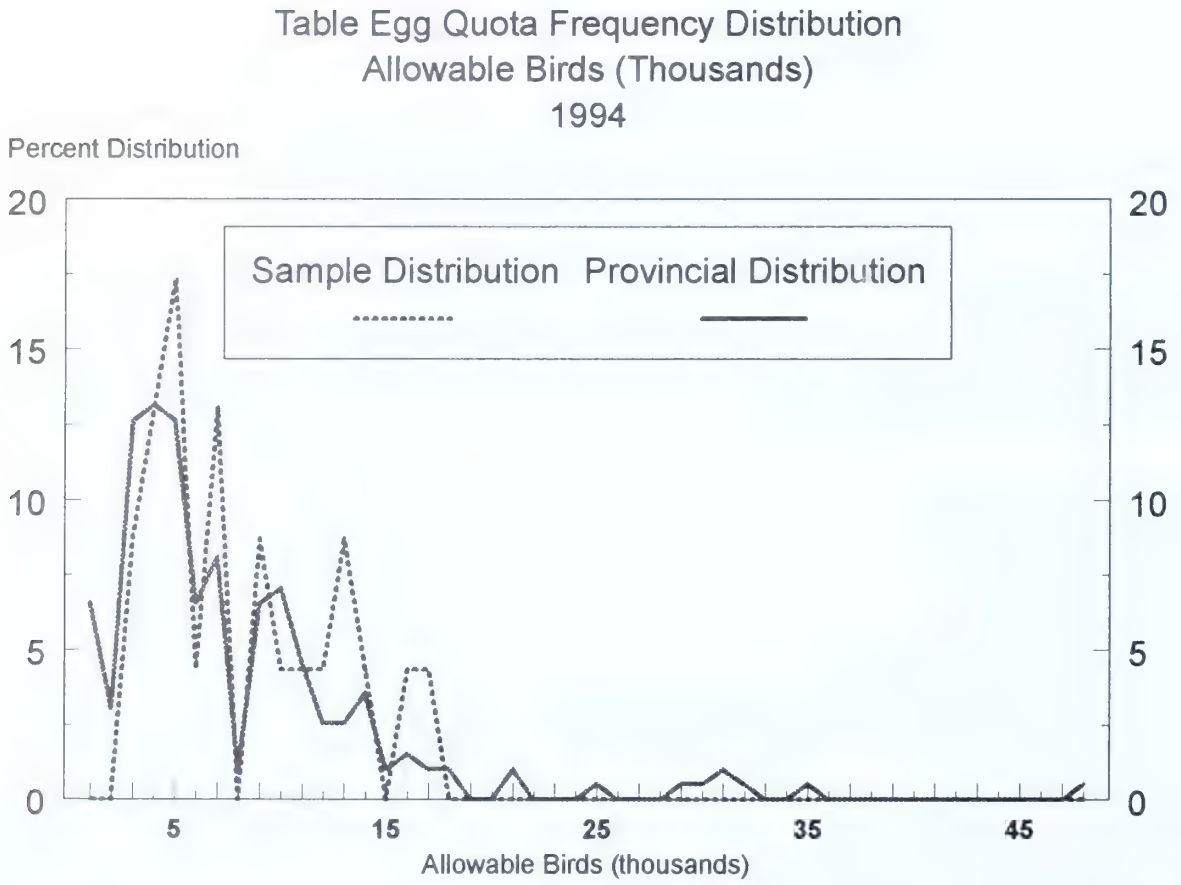
- The percentage of producers in the 2,000 to 5,000 bird range was about the same for the study (39 per cent) and the Province as a whole (38 per cent).

- The percentages for the 5,000 to 10,000 bird range were also roughly equal, 30 per cent for the study and 29 per cent for the Province.

- The study had a higher percentage of producers in the 10,000 to 15,000 bird range, and the same percentage over 15,000 birds

Table 2: Sample and Provincial Distributions				
Quota Size Class	Sample		Province	
Square Feet	Number	Per cent	Number	Per cent
< 2,000	0	0	19	10
2,000 - 4,999	9	39	76	38
5,000 - 9,999	7	30	58	29
10,000 - 14,999	5	22	28	14
> 15,000	2	9	17	9

Figure 1



SUMMARY OF RESULTS

- Table 3 lists in detail average costs and returns of production for the 23 table egg producers in the study.

Income

- The average gross income in 1994 was 94.8¢ per dozen eggs, or $22.54 per hen (Table 3).

- Gross income received by producers is net of the Marketing Board levy, which was 13.8¢ per dozen eggs sold (including private sales) in 1994.

Variable Costs

- Variable costs are made up of pullet costs, feed costs, unpaid family labour costs, and other non-capital cash expenses. These costs vary with the volume of production. In 1994, they averaged 69.5¢ per dozen eggs, or 86.7 per cent of total production costs.

Feed Costs

- The largest cost item was feed costs, which averaged $7.64 per bird, or 32.1¢ per dozen eggs. Feed comprised 40.0 per cent of total production costs.

- The average price of feed was $193.50 per tonne. This is a blended price of complete feed, feed supplements as well as home grown grain.

- The feed conversion rate averaged 1.66 kilograms per dozen eggs.

Pullet Costs

- Pullet costs were the second largest cost input. Pullets averaged 3.69¢ per bird, or 16.9¢ per dozen eggs. They accounted for 21.1 per cent of total costs.

- Over half of the producers in the study raised their own pullets. To enable the calculation of group averages, the accounting procedure for this input needed to be standardized. Home raised pullets were therefore priced at market value.

Table 3: 1994 Table Egg Production Costs and Returns
23 Enterprises

			TOTAL	PER HEN $	PER DOZEN	% OF COSTS
	REVENUE:					
	1. Egg Sales	178,711 dozen	193,290	25.73	1.08	
	2. Board Fees/Levies		(24,652)	-3.28	-0.14	
	3. Other Receipts		709	0.09	0.00	
A.	GROSS INCOME		169,347	22.54	0.95	
	OPERATING EXPENSES:					
	1. Pullet Costs	3.69 / pullet	30,216	4.02	0.17	21.1%
	2. Feed Costs	193.50 / tonne	57,387	7.64	0.32	40.0%
	CHICK & FEED COSTS		87,603	11.66	0.49	61.1%
	3. Freight		2,352	0.31	0.01	
	4. Medication		280	0.04	0.00	
	5. Barn Supplies		629	0.08	0.00	
	6. Utilities		4,947	0.66	0.03	
	7. Fuel, Oil and Lube		985	0.13	0.01	
	8. Mach & Bldg Repairs		1,829	0.24	0.01	
	9. Paid Labour	722 hours	6,433	0.86	0.04	
	10. Interest - Operating Loans		597	0.08	0.00	
	11. Other Operating Costs		2,178	0.29	0.01	
	OPERATING COSTS EXCL. CHICK & FEED		20,229	2.69	0.11	14.1%
B.	**DIRECT CASH COSTS**		107,833	14.36	0.60	75.2%
	UNPAID LABOUR:					
	1. Operator Labour	1,247 hours	11,224	1.49	0.06	
	2. Family Labour	755 hours	5,227	0.70	0.03	
C.	**UNPAID LABOUR COSTS**		16,451	2.19	0.09	11.5%
D.	**TOTAL VARIABLE COSTS (B+C)**		124,284	16.55	0.70	86.7%
	FIXED COSTS:					
	1. Rent		2	0.00	0.00	
	2. Insurance & Taxes		1,846	0.25	0.01	
	3. Depreciation		10,253	1.36	0.06	
	4. Interest - Capital Loans	8.28%	6,953	0.93	0.04	
E.	**TOTAL FIXED COSTS**		19,055	2.54	0.11	13.3%
F.	**TOTAL PRODUCTION COSTS (D+E)**		143,338	19.08	0.80	100.0%
	CASH COSTS (B+E-D.3)		116,634	15.53	0.65	
	GROSS MARGIN or GROSS PROFIT (A-B-E+D.3)		52,713	7.02	0.29	
	RETURN TO INVESTMENT (A-F+D.4)	7.86 %	32,962	6.00	0.25	
	RETURN TO EQUITY & MANAGEMENT (A-F)	7.76 %	26,009	3.46	0.15	
	INVESTMENT:					
	Buildings	18.10 years	133,742	17.80	0.75	
	Machinery	7.84 years	35,661	4.75	0.20	
	Land		4,854	0.65	0.03	
	Quota		245,011	32.62	1.37	
G.	**TOTAL INVESTMENT**		419,268	55.82	2.35	

MANAGEMENT

Years Farming	12.70 years	Hours Per Bird	0.363 hours
Number of Flocks	1.30	Feed Conversion Factor	1.66 kg/dozen
Number of Layers	7,511.7	Equity	79.97 %
Productivity Per Bird	23.8 dozen/hen	Debt	20.03 %
Mortality	4.4 %	Capital Turn Over	2.48 years

Labour Costs

- The cost of labour refers to work performed solely in the layer operation. When more than one enterprise was present on the farm, working time spent in the table egg operation had to be estimated from total farm labour hours.

- The total labour cost was 12.8¢ per dozen eggs.

- Three types of labour were recognized in this study; operator, unpaid family labour, and paid labour (hired). The cost of paid labour is the actual cash wages paid to hired workers, including wages paid to family members.

- Since the operator and other family members are usually not paid, the cost of their labour was estimated based on industry averages. Operator and unpaid family wage rates used in the study were $9.00 and $6.00 per hour, respectively.

- Operator and unpaid family labour averaged 9.2¢ per dozen eggs, and accounted for 73 per cent of total labour used in the table egg enterprise.

- Some studies use an arbitrary cost estimate for management. In this report, there is no specific charge for management. Management is rewarded in the bottom line residual return to equity.

- Paid labour averaged 3.6¢ per dozen eggs.

- On average, 0.363 hours of labour were required per bird.

Other Operating Costs

- Other operating costs amounted to 7.7¢ per dozen eggs. The largest component was utility costs, followed by freight (egg shipments), "other operating costs", and machinery and building repairs. Smaller amounts went toward fuel/oil, barn supplies, medication, and interest on operating loans.

- Operating interest, the average interest paid on outstanding operating loans during the year, was about 8¢ per bird.

Capital Costs

- The cost of capital is defined as the annual expenses associated with resource ownership. It consists of depreciation, term interest payments, insurance, taxes and rent for capital assets.

- The cost of capital has to be borne regardless of whether production is taking place. As the production volume for a given investment rises, the unit capital cost of production declines.

- The average capital cost was 10.7¢ per dozen eggs, 13.3 per cent of total costs.

- Depreciation was based on the estimated market value. A depreciation rate of 5 per cent was applied to buildings and 10 per cent to machinery.

- The estimated current market value of the total assets used in table egg production was $55.82 per bird, or $2.35 per dozen eggs. Excluding the value of quota, the investment amounted to $23.20 per bird. On average, 20 per cent of the total assets was financed and the rest (80 per cent) was owner's equity. Invested equity totalled $44.64 per bird.

Total Costs

- The total production cost was 80.2¢ per dozen eggs.

Returns

- Return to equity is the final amount of revenue left after all expenses are deducted from gross income.

- Table egg production in 1994 generated an economic return of $3.46 per bird, or 14.6¢ per dozen eggs. Average income of 94.8¢ per dozen eggs exceeded average costs of 80.2¢ per dozen by 14.6¢. This represents an average rate of return to equity (assets) of 7.8 per cent. When the value of quota is excluded, the estimated rate of return to investment was 14.9 per cent.

- A summary of average costs, returns and investment for 1993 is provided in Tables 4 and 5, and is shown in Figure 2.

Management Indicators

- The average productivity within the sample was 23.8 dozen eggs per bird, fractionally higher than the 1993 average of 23.6.

- Feed, labour and capital efficiency are measured by feed conversion, hours per bird and capital turnover. The 1994 values for these resources were: 1.66 kg/dozen eggs, 0.363 hours per bird, and 2.48 years for capital turnover. The values for 1993 were 1.76, 0.364 and 2.60, respectively.

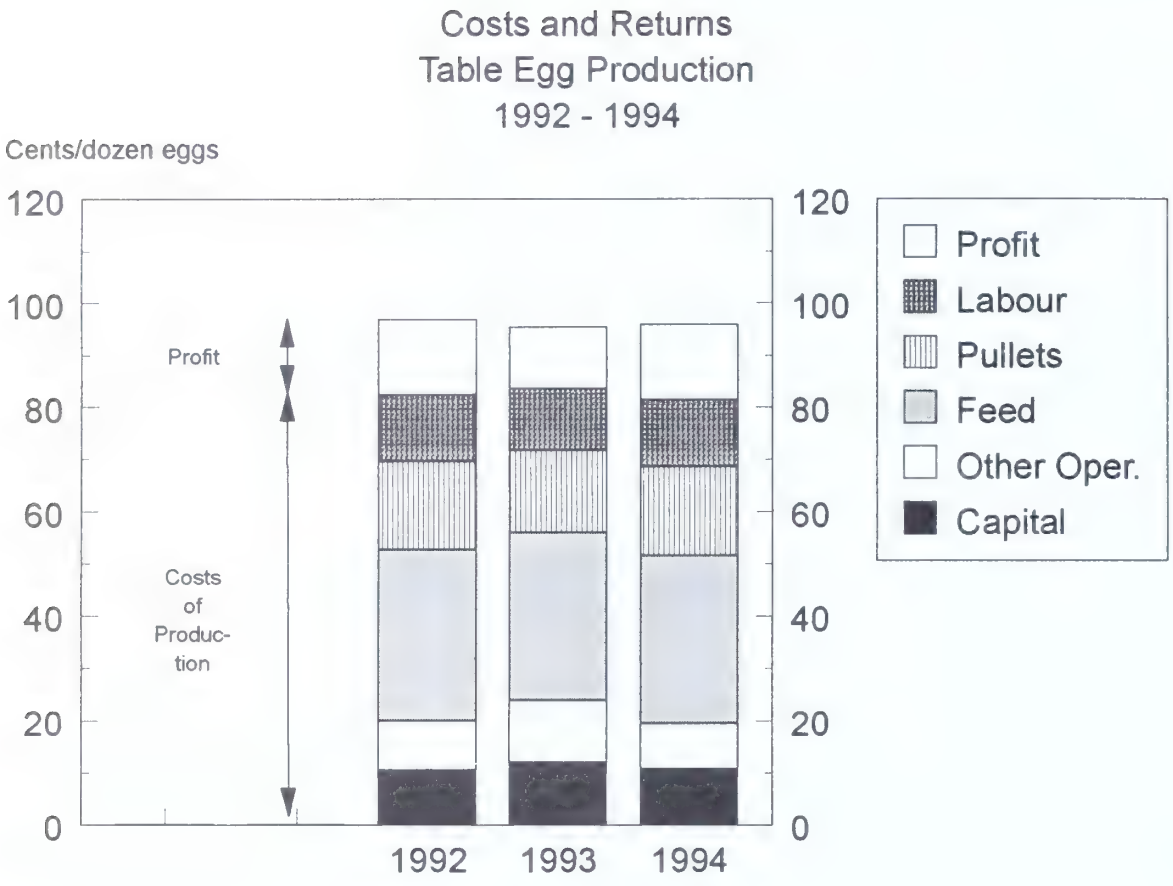
Table 4: Costs and Returns Summary

	¢ Per Dozen Eggs					
	1992	1993	1994	1994 - Allowable Birds		
				< 4,600	4,600 - 10,000	> 10,000
Blend Price	111.7	106.3	108.2	109.3	105.1	109.4
Other Receipts, Bird Salvage Value	0.9	0.6	0.4	0.4	0.7	0.2
Levy	-15.8	-14.6	-13.8	-14.0	-12.3	-14.5
Gross Income	96.8	92.4	94.8	95.7	93.5	95.1
Pullet Cost	16.9	15.6	16.9	17.3	17.1	16.6
Feed Cost	32.7	32.1	32.1	34.3	29.7	32.7
Other Cash Costs	9.5	8.8	7.7	8.7	6.1	8.3
Labour Cost	12.7	11.9	12.8	19.4	11.4	11.4
Capital Cost	10.5	12.0	10.7	13.4	7.7	11.4
Total Cost	82.3	80.4	80.2	93.1	72.1	80.3
Return to Equity (¢)	14.6	11.9	14.6	2.6	21.4	14.8
Return to Equity (%)	16.6	11.8	14.9	1.7	23.7	18.2
Including Quota (%)		6.5	7.8	1.1	10.4	9.3
Return to Invest't (%)		6.8	7.9	2.0	10.1	9.3

Table 5: Investment Summary

	$ Per Bird					
	1992	1993	1994	1994 - Allowable Birds		
				< 4,600	4,600 - 10,000	> 10,000
Total Assets		56.72	55.82	34.58	25.42	20.78
Excluding Quota	24.90	24.03	23.20	67.14	58.22	53.45
Debt		13.07	11.18	17.24	10.84	13.23
Equity		43.66	44.64	49.90	47.38	40.23
	$ Per Farm					
Total Assets		434,553	419,268	272,304	349,187	667,319
less Quota	166,174	184,079	174,251	143,304	135,483	253,294

Figure 2



- Flock mortality is the number of deaths during the production year from the total number of pullets placed, and is expressed as a percentage. In 1994, flock mortality averaged 4.4 per cent compared to 5.2 per cent in 1993.

- The level of indebtedness was 20.0 per cent and the debt to equity ratio was 25.0 per cent.

TREND ANALYSIS

- This section presents the distribution of results amongst individual study farms.

- All of the figures compare two factors on each farm (e.g., size of operation versus labour hours per bird). For instance, the first two bars in Figure 3 (dark and light) represent a) the return to investment (assets) and b) the return to equity for one producer; the second pair of bars represent the return to investment (assets) and return to equity for a second producer; etc.

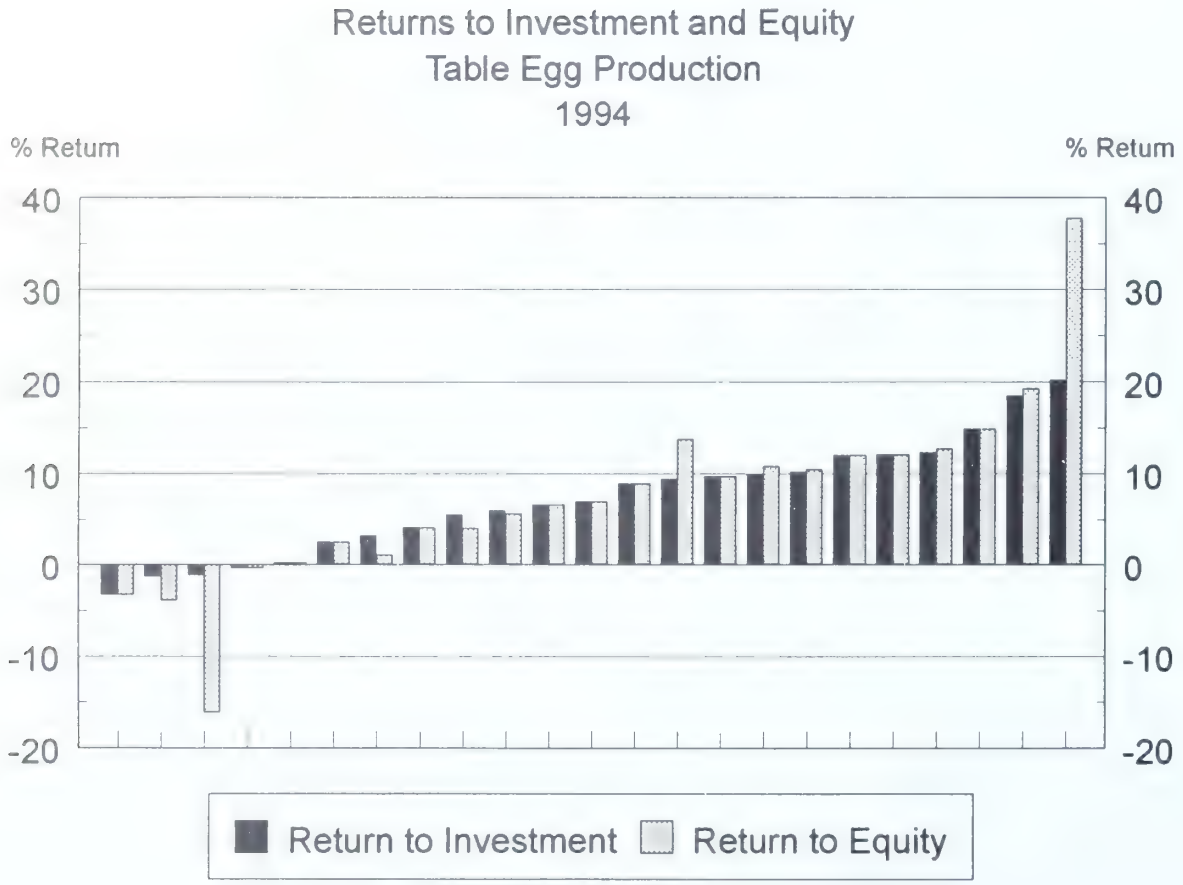
- The first factor, return to investment, is ordered from lowest to highest reading from left to right. Its scale is shown on the left-hand axis.

- The second factor, return to equity, is shown on the right-hand axis. The "shapes" of the factors provide an indication of how well the two factors are related.

Returns to Investment (Assets) and Equity

- Return to investment indicates the ability of a business to earn a return on its total asset base. It is the return before payment of term interest and income taxes.
- Return to equity measures the financial performance of a producer's own capital invested in the enterprise plus the return to his management.
- Returns to investment on individual table egg farms ranged from minus 3 per cent to 20 per cent (Figure 3), with the majority of enterprises falling between plus 3 per cent and 12 per cent.
- Returns to equity for table egg farms ranged from minus 16 per cent to 38 per cent.

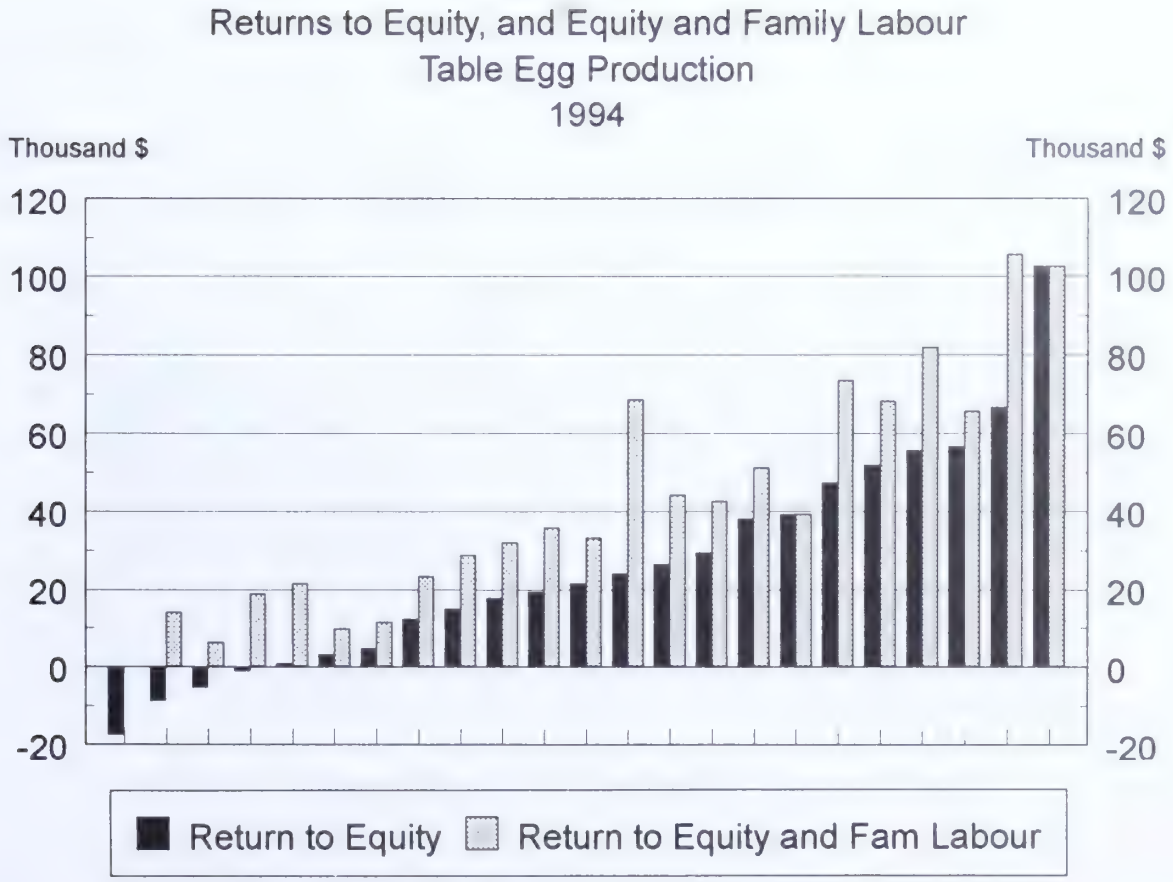
Figure 3



Returns to Equity, and Equity and Family Labour

- Figure 4 describes the economic returns for each study farm in terms of thousand dollars instead of as a percentage of the capital investment.
- The figure illustrates the effect of excluding unpaid family labour costs from the cost profile.
- Returns to equity ranged from minus $17,500 to $102,500.
- Returns to equity and family labour ranged from zero dollars to $106,000.

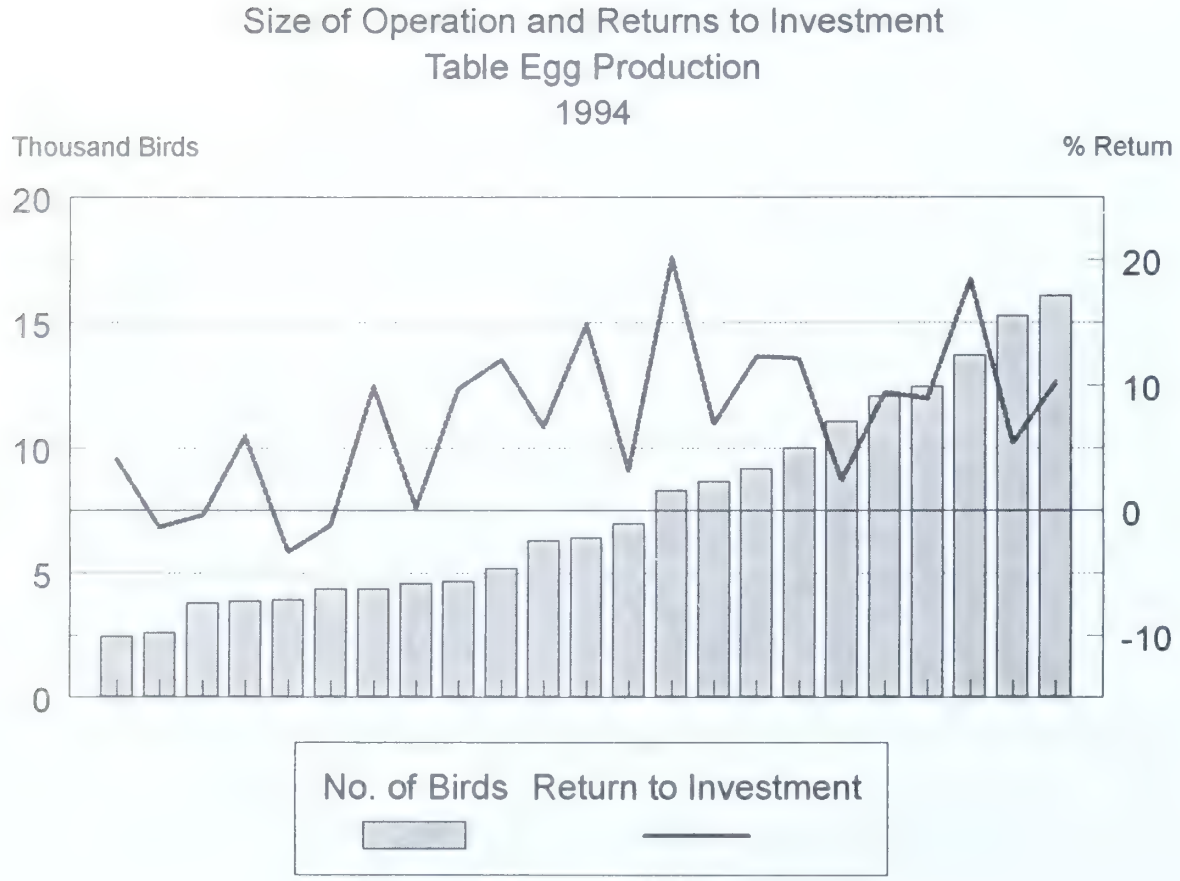
Figure 4



Size of Operation and Return to Investment (Assets)

- In Figure 5, size of operation is represented by the bars. The size is read on the left-hand axis and is measured in thousand birds.
- Return to investment, represented by the jagged line, is read on the right-hand axis as per cent return.
- The table egg enterprises ranged in size from just under 2,500 layers to over 16,000 layers.
- The figure shows that enterprises below 5,000 layers generally had lower returns to investment than enterprises above 5,000 layers.

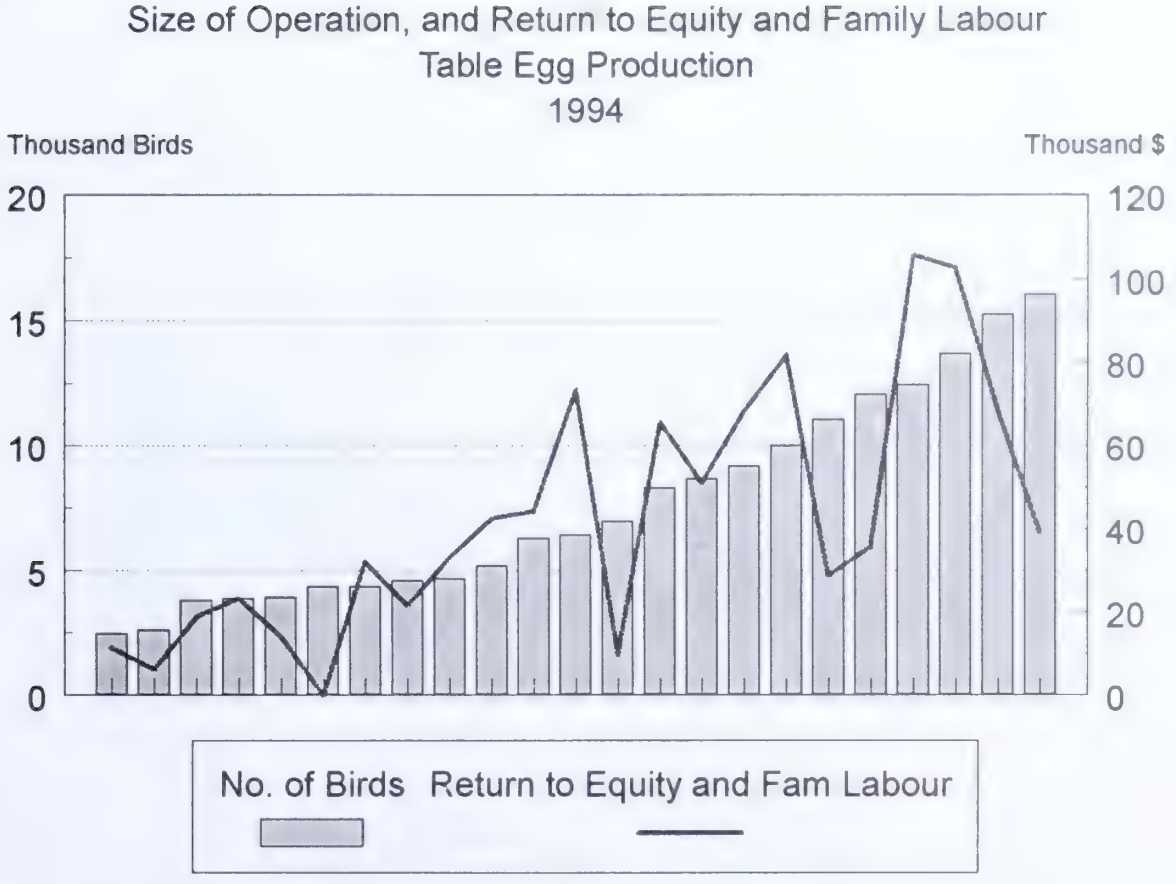
Figure 5



Size of Operation, and Return to Equity and Family Labour

- Figure 6 shows that total financial returns to the table egg enterprise are directly proportional to the size of the operation.
- The rate of return to equity and family labour was higher for larger operations, however substantial variation in returns was demonstrated.
- Smaller operations generated smaller revenues, and tended to be part of a mixed farm.

Figure 6

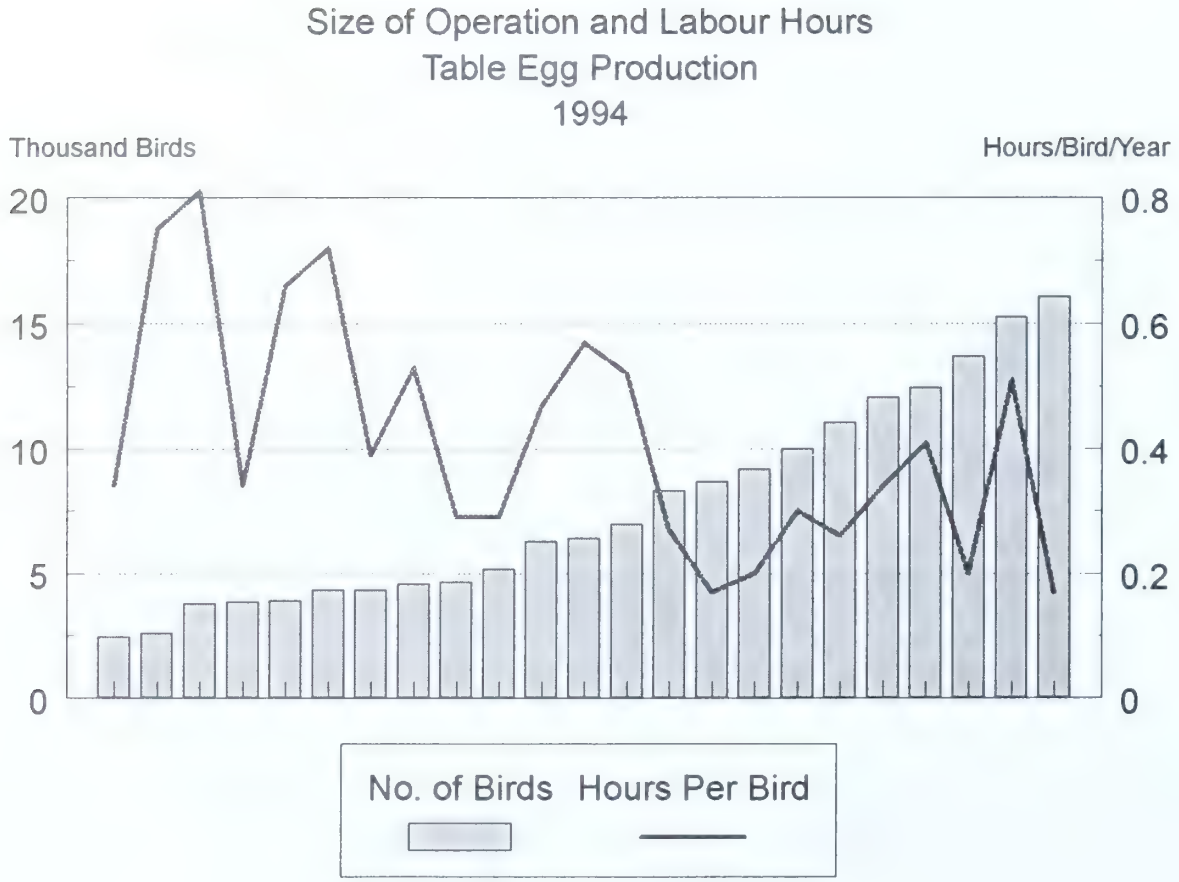


Size of Operation and Labour Hours

- Annual labour requirements ranged from about 0.2 hours per bird to 0.8 hours per bird. The weighted average was 0.363 hours per bird.

- The figure shows that a majority of the smaller enterprises had higher than average labour requirements per bird.

Figure 7

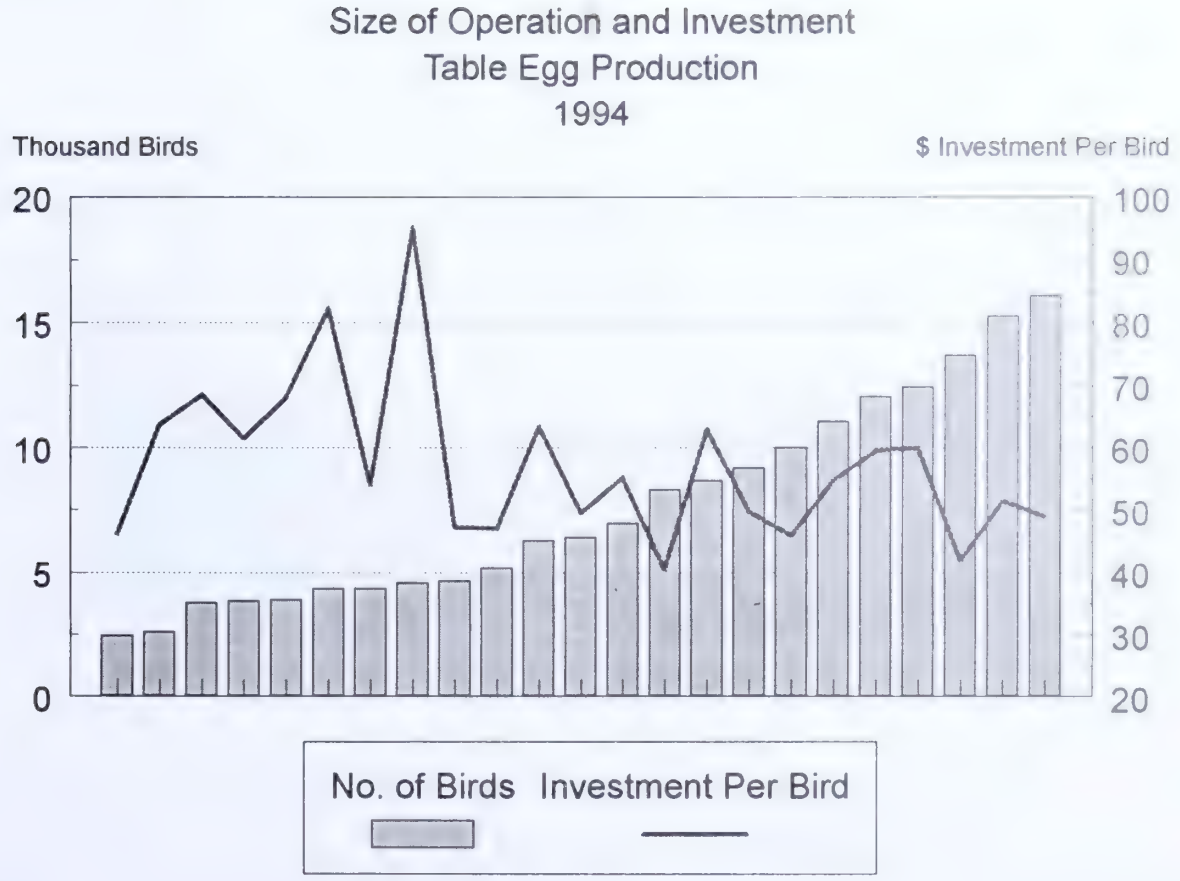


Size of Operation and Investment (Assets)

- The estimated capital value of buildings, equipment, machinery and quota generally ranged from $40 per bird to $70 per bird (Figure 8). Two farms had higher values at $80 and $95 per bird.

- The figure does not show any discernible trend between size of operation and the capital investment per bird.

Figure 8



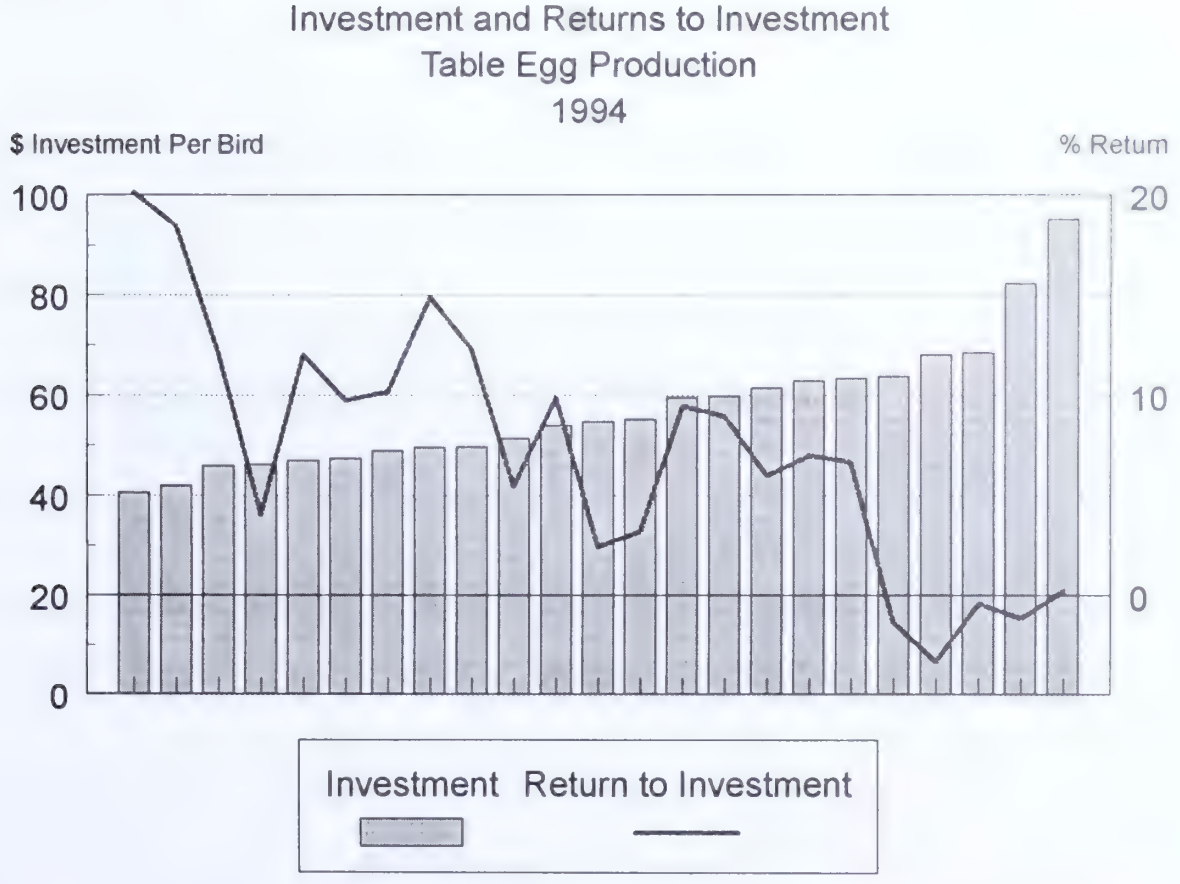
Size of Operation and Total Cost

- The total cost of table egg production averaged 80¢ per dozen eggs.
- Total production costs ranged from 66¢ per dozen eggs to $1.20 per dozen eggs. These costs represent variable and fixed costs, including the estimated value of unpaid family labour.
- As with the previous figure, Figure 9 does not show any discernible relationship between size of operation and the unit cost of production.

Figure 9

- The following two figures relate current market value of assets or investment (capitalization per bird) to other variables.
- Figure 10 relates investment per bird to the rate of return to investment. Investment (the bars) is ordered from smallest to largest and is read on the left-hand axis.
- As previously shown in Figure 8, investment generally ranged from $40 to $70 per bird, for an average of $55.82 per bird.
- The rate of return to investment (the jagged line) generally ranged from slightly negative to over 20 per cent.
- The figure suggests that as the level of investment per bird increases, the rate of return to investment decreases. The trend line is statistically significant.

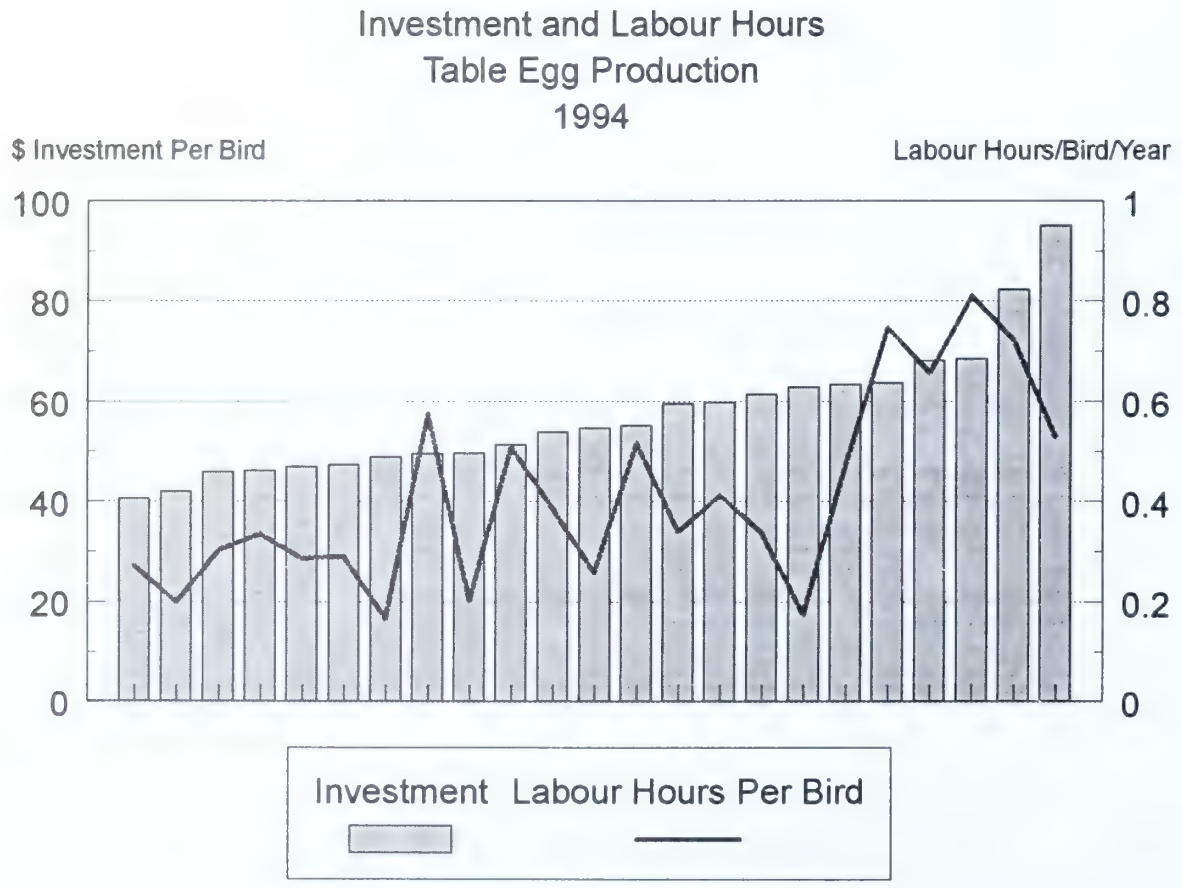
Figure 10



Investment and Labour Hours

- The labour hours trend line in figures 11 appears to rise slightly as the investment level per bird increases. However, statistical analysis did not confirm any relationship between labour hours per bird and level of investment (i.e., the trend line was not statistically significant).

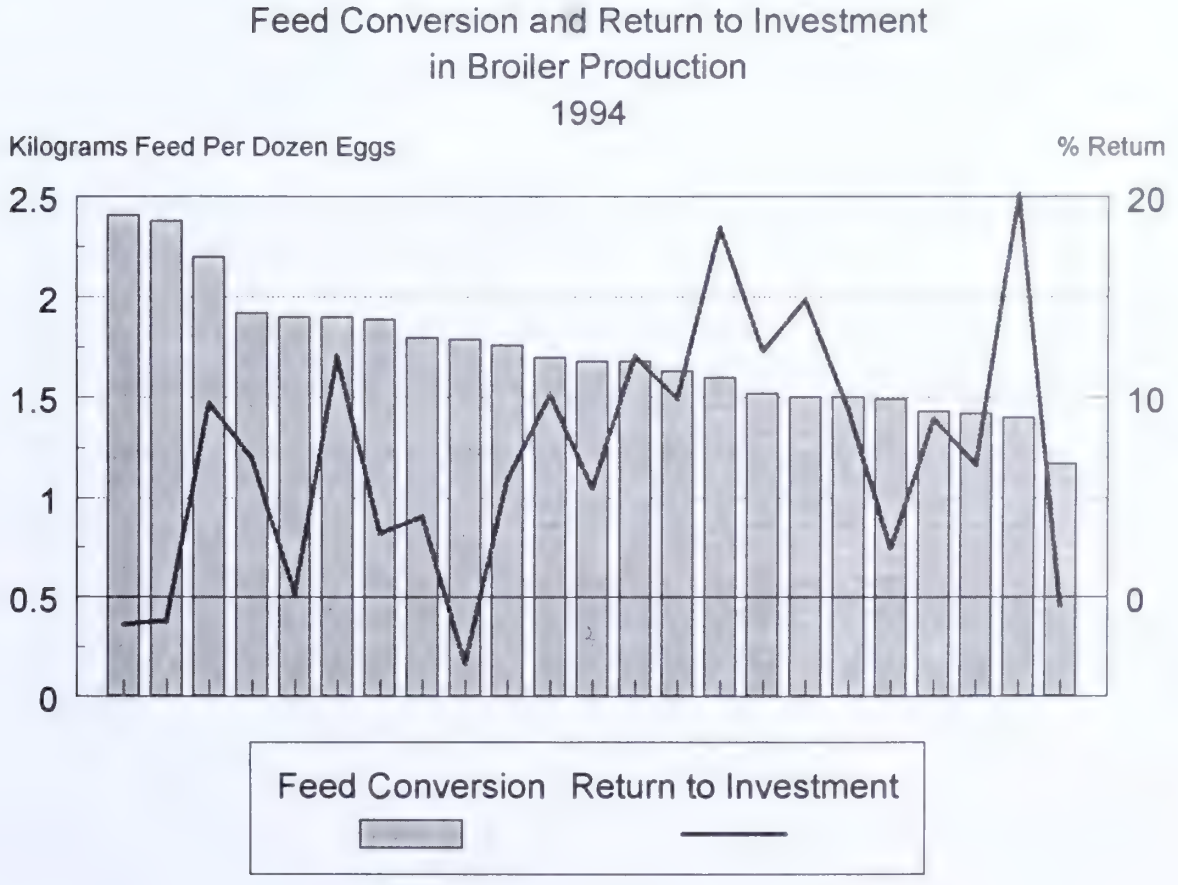
Figure 11



Feed Conversion and Return to Investment

- In this figure, feed conversion rates (the bars) are ordered from highest to lowest, and are read on the left-hand axis.
- Returns to investment (the line) are read on the right-hand axis.
- Feed conversion rates generally varied between 1.4 and 1.9 kilograms of feed per dozen eggs.
- The figure suggests an inverse relationship between feed conversion rates and profitability (rate of return to investment). As feed conversion rates decline (improve) from left to right, the rate of return to investment rises (improves).

Figure 12



MANAGEMENT ANALYSIS

- Figure 13 provides a management profile of table egg farms in Alberta. Each bar measures the range of observations (i.e., maximum and minimum) for each of the management factors considered. For instance, barn mortality on farms ranged from 0.7 per cent to 11.9 per cent.

- From the range of observations, farms were divided into Top One-Third and Bottom One-Third management categories based on **return to investment**. The two lines in each diagram trace out the performance of these two management groups with respect to the remaining management factors.

- The results with respect to return to investment are listed below:

    - The Top One-Third averaged 14.3 per cent return to investment.
    - The Bottom One-Third averaged 0.5 per cent.
    - The highest return to investment was 18.4 per cent.
    - The lowest return to investment was -3.3 per cent.

- The lines through the remaining bars show how the two groups performed in relation to other management factors. For instance, the Top One-Third with respect to return to investment also outperformed the Bottom One-Third in terms of total costs. The Top One-Third averaged $0.70 per dozen eggs whereas the Bottom One-Third averaged $0.95 per dozen eggs.

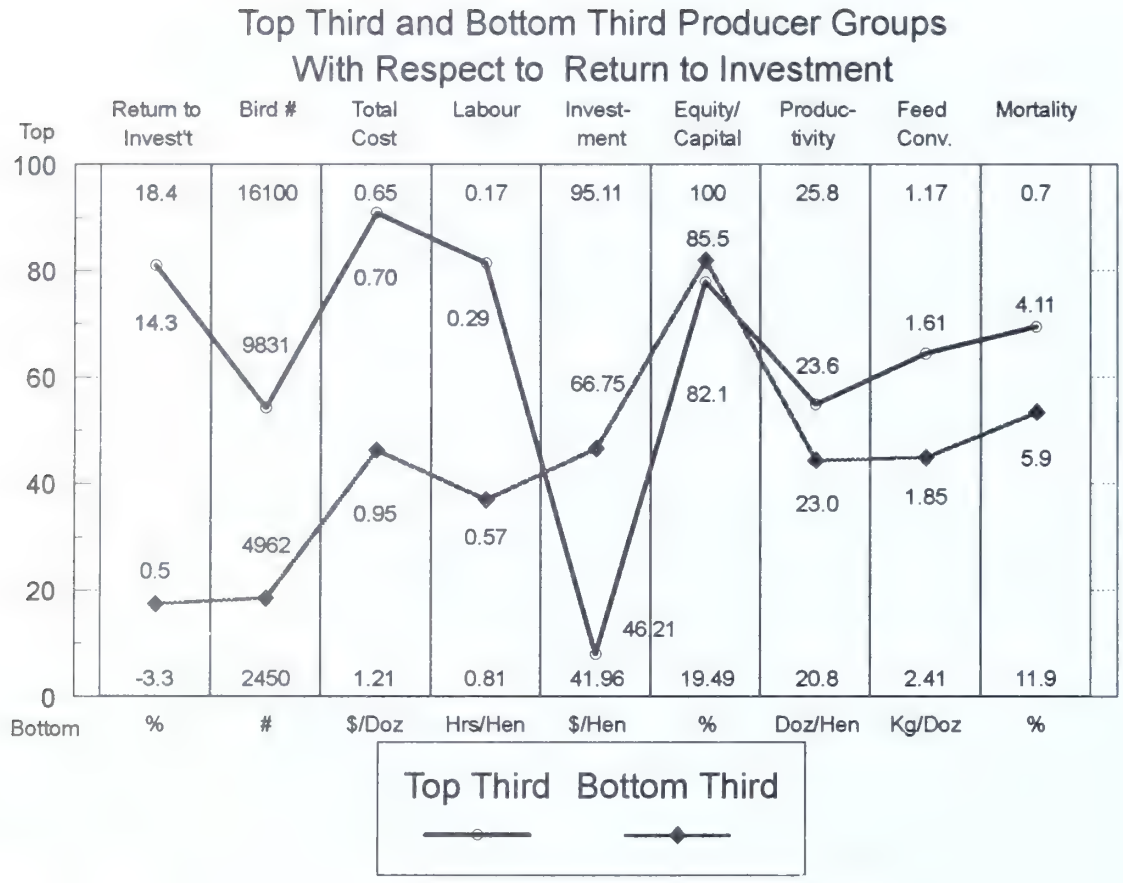
- The Top One-Third tended to be larger farms averaging over 9,800 birds, almost twice the average size of the Bottom One-Third.

- Investment on Top One-Third farms averaged $46.21 per bird compared to $66.75 per bird for the Bottom One-Third, a difference of 30.8 per cent.

- The level of indebtedness was not appreciably different averaging 17.9 per cent on farms in the Top One-Third and 14.5 per cent in the Bottom One-Third. The respective debt to equity ratios were 22 per cent and 17 per cent.

- Overall, the Top One-Third outperformed the Bottom One-Third in most management factors, including throughput, total cost, labour cost, feed conversion, productivity and mortality.

Figure 13


Top Third and Bottom Third Producer Groups
With Respect to Return to Investment
Return to Invest't
Bird #
Total Cost
Labour
Invest-ment
Equity/ Capital
Produc-tivity
Feed Conv.
Mortality
Top
Bottom
100
80
60
40
20
0
18.4
16100
0.65
0.17
95.11
100
25.8
1.17
0.7
14.3
9831
0.70
0.29
66.75
85.5
82.1
23.6
1.61
4.11
0.5
4962
0.95
0.57
46.21
23.0
1.85
5.9
-3.3
2450
1.21
0.81
41.96
19.49
20.8
2.41
11.9
%
#
$/Doz
Hrs/Hen
$/Hen
%
Doz/Hen
Kg/Doz
%
Top Third
Bottom Third

APPENDIX A

GLOSSARY

Debt to Equity Ratio

This ratio is the total liabilities divided by the owner's equity in the business. Sometimes called leverage ratio, it measures the extent of outside credit financing relative to the owner's equity (internal) financing of the business.

Feed Conversion

Feed conversion is the amount of feed consumed by the table egg hens divided by the number of dozen eggs marketed.

Gross Margin

Gross margin is the gross income minus cash costs. Gross margin indicates funds available to cover unpaid family labour, depreciation, management, and owner's equity.

Investment in Quota

Investment in quota is the estimated current market value of the farm's table egg quota. The value does not necessarily indicate what the quota holder paid for the quota.

Labour Per Bird

The total amount of labour hours (excluding management hours) used on the farm divided by the number of hens.

Mortality

Mortality is the number of hens that have died in the barn during the production year and is expressed as a per cent of total placement.

Rate of Return to Equity

This ratio is the return to equity (see below) divided by the owner's total farm equity and is expressed as a percentage.

Rate of Return to Investment (Assets)

This ratio is the return to investment divided by the total value of assets (owner equity plus debt) and is expressed as a percentage.

Return to Equity

Return to equity is the gross income minus total production costs. In this study, this residual return to equity includes a return to management. It provides the owner with a measure of the return on his own investment in the business.

Return to Investment (Assets)

Return to investment is the gross income minus total production costs excluding the capital interest payments. In this study, the return to investment, which includes the return to management, gives an indication of the business's ability to earn a return on its assets.

Total Production Costs

Total production costs is the sum of all cash costs (including capital interest payments) plus the estimated cost of unpaid family labour and depreciation.

Unpaid Family Labour

Unpaid family labour is the hours spent by family members working in the poultry business (e.g. barn, barn yard) which are not compensated for by wages or salary. Unpaid family labour hours are valued at $9.00 per hour for family members 16 years and older, and $6.00 per hour for family members under 16 years. Unpaid family labour in this study does not include an allowance for management.