Farmers' Report No. 155

Costs and Returns from Egg Production in 1959-60.

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FOREWORD

This report completes a series of three which deals with the costs of producing eggs on some Yorkshire farms between 1957 and 1960.

The University takes this opportunity of thanking warmly the farmers and poultry keepers who have provided the information which has gone into these reports. Any questions or comments on them will be welcomed and should be addressed to the undersigned.

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CONTENTS

I N T R O D U C T I O N

Egg production costs were collected for 61 flocks in Yorkshire for the year ending 30th July 1960. This was the third and last year of the investigation.

The costing method is given at the end of this report (see page 17). It should be noted that homegrown foods and home-reared pullets have been charged at their estimated cost of production; that no share of general farm overheads has been charged to the laying flock; and that only a nominal rent has been charged where the layers were housed in some part of a farm building which otherwise would not have been used at all. In calculating averages in this report, each flock has been given the same weight, unless it is otherwise stated. Costs per bird have been taken to the nearest halfpenny.

THE SAMPLE

The costed flocks were on holdings which varied greatly in size and type, so that the quality and availability of food, labour, buildings and land were also very varied.

Most of the flocks produced only table eggs, but there were six flocks which sold some hatching eggs: the quantity of eggs sold for hatching from these flocks varied from 19 to 63 per cent of all sales off the farm.

TABLE.1. Size distribution and types of housing

	Under 250 birds	250-499	500-749	750-999	1000-1499	1500 & over	Total
Battery	4	6	6	1	3	3	23
Deep litter	7	13 (incl. 2 Ha)	5 (incl. 1 Ha.)	3	1 (incl. 1 Ha)	-	29
Straw yard	1 (incl. 1 Ha¤)	1	1	-	2	1	6
Free range	2	1 (incl. 1 Ha)	-	-	-	-	3
Total	14	21	12	4	6	4	61

¤ Ha = a flock producing eggs for hatching

The size of the flocks in the sample, and the main methods by which they were housed are shown in Table 1. More than half of the flocks had an average of less than 500 birds. The distribution of the different types of breeds is given in Table II.

TABLE.II. Main types of breeds used in the costed flocks

	No.flocks
Light x heavy with less than 10% other breeds	16
" " " " more " " " "	9
Heavy, and heavy x heavy, with less than 10% other breeds	13
" " " " " more " " " "	5
"Hybrids" ¤ " less " " " "	13
" " more " " " "	5
TOTAL	61

¤ This is a general term, and does not refer to the birds from any particular breeder.

COSTS,RETURNS & PROFITS IN 1959/60

The average results for all the flocksare given in table III; these average figures cover a wide range of costs and performance in the individual flocks. The extent of this variation can be seen in the distribution tables in table IV. Although the average margin was 5s.3d per bird, 30 per cent of the flocks made a loss, and 31 per cent made a profit of over 10s per bird.

TABLE III. Average results, per bird, for all flocks in 1959/60

	per cent	Av.cost
		s. d.
Foods - purchased	59.0	30. 1½
homegrown	2. 2	1. 1½
total	61. 2	31. 3
Labour - paid	3. 5	1.10
unpaid	10. 3	5. 3
total	13. 8	7. 1
Miscell.expenses - land rent	0. 0	0
building rent	0. 2	1
equip.depreciation & repairs	4. 3	2. 2½
horse,tractor work	0. 2	1
electricity	0. 7	4½
sundries	0. 8	5
Total	6. 2	3. 2
Flock replacement	18. 8	9. 7
Total costs	100. 0	51. 1
Total returns		56. 4
Margin		+ 5. 3
No.of flocks		61
Av.size of flock		664
Av.yield per bird		193
Food per bird per week		2 lbs 3 oz.
Food per doz.eggs produced		7 " 1 "
Cost per cwt of food fed		31s.6d.
Time spent per 100 birds per day		32½ mins
Av.sale price of birds		8s.3d.
Mortality		17%
Total costs per dozen eggs produced		3s.3d.
Returns " " "		3s.6d.
Margin " " "		3d.

TABLE IV Distribution of results for all 61 flocks, 1959/60

Costs per bird (shillings)					
20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80
1	12	14	21	11	2

Returns per bird (shillings)					
20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80
1	1	13	23	23	0

Margin per bird (shillings)							
..... Loss		Profit.....					
Over 5	5 to 0	0 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30
8	10	11	13	8	5	5	1

Yield per bird (eggs)					
Under 160	160-179	180-199	200-219	220-239	Over 240
7 +	10 ++	16 +	17	9	2

Food fed per bird per week (lbs)							
Under $1\frac{3}{4}$	$1\frac{3}{4}$ to $1\frac{7}{8}$	$1\frac{7}{8}$ to 2	2 to $2\frac{1}{8}$	$2\frac{1}{8}$ to $2\frac{1}{4}$	$2\frac{1}{4}$ to $2\frac{3}{8}$	$2\frac{3}{8}$ to $2\frac{1}{2}$	Over $2\frac{1}{2}$
4	6	12	5	11	9	4	10

Food fed per dozen eggs produced (lbs)									
Under 5	5 to $5\frac{1}{2}$	$5\frac{1}{2}$ to 6	6 to $6\frac{1}{2}$	$6\frac{1}{2}$ to 7	7 to $7\frac{1}{2}$	$7\frac{1}{2}$ to 8	8 to $8\frac{1}{2}$	$8\frac{1}{2}$ to 9	Over 9
2	7	3	15	9	6	4	8	3	4

x represents 1 flock in existence for less than 42 weeks

COMPARISONS WITH 1958/59 and 1957/58

During the costing year 1959/60, there were changes in some costs compared with 1958/59.

Egg prices were lower from August 1959 to April 1960, after which they were higher, to the end of July 1960, than they had been in the same months in 1958/59. The average of the weekly B.E.M.B. prices for the two costing years shows that the standard egg price dropped by $1\frac{1}{2}$d per dozen.

TABLE VI Averages of weekly B.E.M.B. prices, per dozen.

1. from the beginning of August 1958 to the end of July 1959

	High priced period (23 weeks)	Low priced period (29 weeks)	Year
Premium on large eggs	1s. 0½d	5d	8¼d
Price of standard eggs	4s. 1¼d	2.11¼d	3s.5½d
Reduction on medium eggs	10d	5½d	7¾d
Reduction on small eggs	1s. 5¼d	10½d	1s. 1½d

2. from the beginning of August 1959 to the end of July 1960

	High priced period (16 weeks)	Low priced period (36 weeks)	Year
Premium on large eggs	10¼d	7½d	8½d
Price of standard eggs	3s.11½d	3s.0¾d	3s.4d
Reduction on medium eggs	8¼d	6½d	6¾d
Reduction on small eggs	1s. 3¾d	8¾d	10d

"High price" taken as 3s.8d or more for standard eggs

In 1958/59 this was August 2nd, 1958, to January 9, 1959.

In 1959/60 this was August 1st, 1959, to September 4th, 1959, and October 24th, 1959 to December 18th, 1959, and July 9th, 1960 to July 29th, 1960.

The period in 1959/60 during which egg prices were relatively high was shorter than in 1958/9, and in the summer of 1960 it started a month earlier than in 1959. (see Table VI). The average standard egg price in 1959/60 was a little lower during the high priced period, and a little higher during the low priced period, than it had been in 1958/9. The difference between the average price for eggs in the standard grade and those in the medium and small grades was not quite as big in 1959/60 as it had been in 1958/9. The premium paid for eggs in the large grade was not as high in 1959/60 during the high priced period, but was 2½d higher in the low priced period, than it had been in the corresponding periods in the previous year. In other words, the difference in price at various times of the year, and between grades of egg was not quite so great in 1959/60 as in 1958/59. The minimum wage rate was increased halfway through the 1959/60 costing year, on 22nd February, 1960, to 160s for a 46 hour week, with overtime at 5s.3d per hour, having stood at 156s per 47 hour week, with overtime at 5s.0d per hour, since 27th October, 1958.

The market price for cull hens began to fall during the 1959/60 costing year: the reported price for hens over 5 lbs, sold live on the farm, dropped by 2½d per lb, compared with the 1958/59 price, and the market gradually lost interest in hens under 5 lbs liveweight after December 1959.

The standard poultry ration prices show the trend of food prices at the main grain ports; the average for 1959/60 was nearly 9d per cwt below that for 1958/59.

The results for the 32 flocks which were in the sample in both 1958/59 and 1959/60 are given in table V. These flocks had increased in size but egg yields were slightly reduced. The breed type distribution had not changed significantly. The flocks in this sample showed a drop in returns per dozen of only ½d per dozen, which was less than the fall in the average price of standard quality eggs. In spite of adverse changes in the cost of labour and the price of cull hens, the labour and flock replacement costs per bird were slightly reduced. The biggest improvement however was in the use of food; the amount fed per bird per week was reduced, and the yield nearly maintained, so that a better food conversion ratio was obtained, and the food cost per bird reduced by nearly 3s. Thus, although returns per bird were reduced by 2s.1d on average, the reduction in costs of 3s.8d increased the margin per bird. In fact, 19 of the flocks showed an increased margin per bird: of these 19, 9 had a lower, and 8 a higher, return per dozen than in the previous year. Of the 13 flocks with a decreased margin per bird, 9 had a lower, and 3 a higher, return by dozen than in 1958/59.

TABLE.V. Average results for an identical sample of 32 flocks in 1958/59 and 1959/60

		1958/59	1959/60
		s. d.	s. d.
Costs per bird ..	purchased food	31. 6.	29. 5.
	homegrown "	1. 6.	9.
	Total "	33. 0.	30. 2.
	labour	8. 0.	7. 9.
	miscellaneous	3. 1.	3. 1.
	flock replacement	10. 5.	9.10.
	Total costs	54. 6.	50.10.
	total returns	58. 1.	56. 0.
	margin	3. 7.	5. 2.
Av.size of flock		453	485
Av.yield per bird		198	194
Food per bird per week		2 lb 4 oz	2 lb 1 oz
Food per dozen eggs produced		7 3	6 10
Cost per cwt.of food fed		31s.11d.	32s.0½d.
Time spent per 100 birds per day		36½ mins	35 mins
Av.sale price of birds		9s.1d	8s.2d
Mortality		18%	16½%
Total costs per dozen		3s.4¼d	3s.2½d
Returns "		3s.6¼d	3s.5¾d
Margin "		2d	3½d

There were 15 flocks which were costed in both 1957/58 and in 1959/60. The comparative results are given in table VI. Again, flock size was increased, and costs reduced by improved food conversion. All the flocks, of course, had lower returns per dozen. Nine of the flocks however had managed to reduce their costs per bird by 1959/60.

TABLE VI Average results for 15 flocks costed in 1957/8 and 1959/60

	1957/8	1959/60
	s. d.	s. d.
Costs per bird - food	33. 8.	28. 5½d
labour	5.11.	6. 1.
miscellaneous	2. 7.	2. 9½
flock replacement	7.11.	9. 8½
total costs	50. 1.	47. 0½
total returns	66. 7.	56.10½
margin	16. 6.	9. 9.
Av.flock size	564	672
Av.yield per bird	198 eggs	198 eggs
Returns per dozen	4s.0¾d	3s.5½d½
Food per bird per week	2 lb. 6 oz	2 lb. 0 oz
Food per dozen eggs produced	7 lb 10 oz	6 lb. 5 oz
Cost per cwt. of food fed	31s.0½d	30s.11d.
Time spent per 100 birds per day	168 hrs	163 hrs
Av.sale price of culls	9s.7d.	8s. 0d.
Mortality	12 per cent	14 per cent

AVERAGE RESULTS OF BATTERY & DEEP LITTER FLOCKS

The average results for the flocks which were kept in batteries and on deep litter are given in table VII (The deep litter flocks producing hatching eggs have been omitted from this table). The table shows a small advantage to the deep litter flocks in this sample, as although the battery flocks used less food than the deep litter flocks, their other costs were higher. The deep litter flocks also had higher returns, but this was due to a larger percentage of their production being sold retail. Table VIII shows the wide range of margin per bird obtained in both groups. It should be remembered that the average size of these flocks is different. (see table I).

The difference between the miscellaneous costs in these two groups was mainly due to a difference of 9d in the charge for equipment depreciation and repairs, and 3d for electricity.

TABLE VII Average results for battery and deep litter flocks in 1959/60

	Battery	Deep litter
Costs per bird -	s. d.	s. d.
food	30. 5.	30. 9½
labour	7. 3.	7. 1.
miscellaneous	3.10.	2. 8½
flock replacement	10. 1.	9. 6.
total costs	51. 7.	50. 1.
total returns	57. 2.	57. 8.
margin	5. 7.	7. 7.
No.of flocks	23	25 ¤
Av.flock size	832	391
Av.yield per bird	199 eggs	198 eggs
No.flocks with yield per bird of 200 eggs or more	13	14
Food fed per bird per week	2 lb 2 oz	2 lb 3 oz
Food fed per dozen eggs produced	6 7	6 14
Cost per cwt of food fed	32s.5½d	30s.4½d
Time spent per 100 birds per day	33 mins	31 mins
Av.sale price of culls	8s. 6d.	8s. 5d.
Mortality	18%	14½%
Predominant Breed type - L & H	35%	45%
H	35	27.5
"Hy"	30	27.5

¤ i.e. excluding flocks producing hatching eggs

TABLE VIII Distribution of margin per bird for battery and deep litter flocks, 1959/60

	..... Loss		Profit.....				Over 20s	total no. flocks
	Over 5s	5s to 0s	0s to 5s	5s to 10s	10s to 15s	15s to 20s		
Battery	4	2	4	7	2	2	2	23
D.L.	5	4	2	4	4	3	4	25

COSTS & RETURNS FOR FLOCKS OF DIFFERENT SIZES

Analysis of the 1959/60 costs according to size of flock showed that the larger flocks had lower labour costs, and that the smaller flocks included a bigger percentage of family labour. (Table IX). In fact, total costs decreased as flock size increased, but this change was also affected by varying percentages of the different breed types, and varying proportions housed in the different ways. (For housing see table I again).

TABLE IX Average results for the different flock size groups in 1959/60

	Under 300 birds	300 - 499	500 - 999	1000 birds and over
	s. d.	s. d.	s. d.	s. d.
Costs per bird - food	32. 6.	31. 7.	29. 6.	30. 7½
labour	8. 7½	7. 2½	6. 2.	4.10.
miscellaneous	3. 3½	2. 8.	3. 7.	2. 9.
flock replacement	9. 9.	10. 3½	9. 5½	8. 6.
total costs	54. 2.	51. 9.	48. 8½	46. 8½.
total returns	55. 7½	59. 1½	55. 9.	55. 3.
margin	1. 5½	7. 4½	7. 0½	8. 6½
No.of flocks	23	12	16	10
Av.flock size	220	353	681	2031
Av.yield per bird	191 eggs	198	192	190
No.flocks with yield per bird of 200 eggs or more	10	7	8	3
Food fed per bird per week	2 lb 5 oz	2 lb 2 oz	2 lb 1 oz	2 lb 1 oz
Food fed per dozen eggs produced	7 lbs 12oz	6 lb 13 oz	6 lb 13 oz	6 lb 15oz
Cost per cwt of food fed	31s.10d	31s.8d.	30s.8½d.	31s.10s.
Time spent per 100 birds per day	41½ mins	32 mins	27 mins	22 mins
Av.sale price of culls	8s.7½d.	8s.2½d.	7s.8d.	8s.3d.
Mortality	18 per cent	15½ per cent	17½ per cent	17 per cent
Predominant Breed types - L & H	48 " "	42 " "	38 " "	30 " "
H	35 " "	41 " "	18 " "	20 " "
"Hy"	17 " "	17 " "	44 " "	50 " "
Proportion offamily labour included in labour cost	84 " "	68 " "	79½ " "	37 " "
Margin per bird excluding charge for family labour	8s.8½d.	12s.3d.	11s.11d.	10s.2d.

COSTS AND RETURNS FOR DIFFERENT BREED TYPES

The costed flocks were classified according to the predominant type of breed used, and the results of this are given in tabl. X.

TABLE X. Average results per bird in 1959/60 grouped according to breed type

	Mainly L & H	Mainly H	Mainly "Hy"
	s. d.	s. d.	s. d.
Costs per bird - food	32. 5.	31. 4.	29. 5½d
flock replacement	10. 8½	8. 5.	9. 2.
total costs	54. 3½	48. 9.	48.10.
returns	56. 7.	53. 2½	58.11½
margin	2. 3½	4. 5½	10. 1½
Number of flocks.	25	18	18
Av.flock size	503	460	1093
Av.yield per bird	193	180	205
No.flocks with yield per bird of 200 or more eggs	13	5	10
	s. d.	s. d.	s. d.
Costs per dozen - food	2. 0½	2. 1½	1. 9.
flock replacement	8½	7.	6½
Returns per dozen	3. 6¼	3. 7.	3. 5¾
Margin per dozen	1.	3.	7¼
Food fed per bird per week	2 lb 4 oz	2 lb 3 oz	2 lb 1 oz
Food fed per doz.eggs produced	7 6	7 6	6 5
Cost per cwt of food fed	31s. 2d.	32s. 4d.	31s. 1½d
Av.cost of incoming pullets	16s. 5d.	15s. 9d.	15s. 4d.
Av.sale price of culls	8s. 1d.	9s. 1d.	7s. 8d.
Mortality	22 per cent	15 per cent	13 per cent
Range in margin per bird	- 29s.3d. to + 24s.7d.	- 11s.3d. to + 28s. 2d.	- 3s.5d. to + 23s.2d.

The percentage of large plus standard eggs in the total quantity sold off the farm varied slightly between the groups: the approximate figures being 80 per cent for the L & H group, 77½ per cent for the H group, and 73 per cent for the "Hy" group.

It should be noted that the average size of the "hybrid" flocks was more than twice that of the other groups, and a contributory factor to the good results of the "mainly hybrid" flocks.

It will be seen that the predominantly "hybrid" flocks had a better food conversion ratio, and a higher egg yield on average, than the other two groups, so that although the returns per dozen were lower for these "hybrid" flocks they showed a better margin whether measured per bird or per dozen. However, in all the breed groups there were very similar ranges in yield per bird and quantity of food fed per dozen eggs produced, and consequently in the costs, returns and margins per bird.

The wide range of margin in each group suggests that the quality of management is more important than breed in making a good profit.

RETURNS FROM EGGS AND THEIR EFFECT ON FLOCK PROFITS

Returns are determined firstly by the yield per bird and secondly by the average price obtained per dozen. Yields of over 200 eggs per bird are not associated with any particular breed types, nor are they more certainly achieved with any one housing arrangement (type or size) rather than another. Genetic egg laying potential, adequate lighting and adequate food are obvious prerequisites for a good yield of eggs. However, although a good yield may demonstrate technical efficiency it does not necessarily demonstrate economic efficiency, which involves matching yield per bird and cost per bird. The food conversion ratio improves as yield per bird increases, but total food costs per bird tend to increase, and other costs (flock replacement, labour and miscellaneous costs) also tend to rise as the yield increases. Nevertheless, a flock with a reasonably high yield is more likely to show a profit than a flock with a low yield because certain expenses are inevitably incurred. Table XI shows that a profit can be made at very different levels of yield and cost.

TABLE XI. Distribution of profitable flocks at various levels of yield and cost per bird, 1959/60

Yield per bird (eggs)	Total cost per bird							
	Under 40s		40 to 50s		50 to 60s		Over 60s	
	profit	loss	profit	loss	profit	loss	profit	loss
under 180	4 xx	1	2	2	1	3	-	4 x
180 to 200	4	-	6 x	-	3	2	1	-
200 to 220	2	-	2	-	9	-	1	3
over 220	2	-	2	-	3	-	1	3

x represents 1 flock in existence for less than 42 weeks

Returns per dozen are affected by the percentage of eggs sold at a premium above wholesale prices, by the percentage sold in any relatively high-priced months, and by the percentage sold in the larger packing-station grades if and when there are substantial price differentials. In the 1959/60 costs, the percentage sold retail varied from 0 to 100, the percentage sold in the high-priced months from 16 to 43½, and the approximate percentage of large and standard eggs sold from 58 to 92½. The range of costs, returns and margins per dozen eggs produced is shown in table XII, and as a matter of interest the results from flocks which sold for hatching have been kept separate. It will be seen that although they showed high returns, their costs per dozen were high, so that their profit per dozen was only average. On a per bird basis their costs were not much above average, but as they had only fair yields, the margin per bird was rather less than average.

TABLE XII Range of Costs, returns and margins per dozen, 1959/60

	Costs per dozen eggs produced								Total No. flocks
	under 2s.6d.	2s.6d to 2s.8d	2s.9d to 2s.11d	3s. to 3s.2d.	3s.3d to 3s.5d	3s.5d to 3s.8d	3s.9d to 3s.11d	4s and over	
Table	8	7	7	14	6	6	1	6	55
Hatch.	-	-	-	-	-	2	1	3	6

	Returns per dozen						
	under 3s	3s to 3s.2d	3s.3d to 3s.5d	3s.6d to 3s.8d	3s.9d to 3s.11d	4s and over	
Table	1	9	24	14	6	1	55
Hatch.	-	-	-	-	1	5	6

	Margin per dozen								
	.....Loss			Profit.....					
	more than 6d	5d to 3d	2d to 0d	0 to 2d	3d to 5d	6d to 8d	9d to 11d	1s and over	
Table	6	4	6	8	10	6	6	9	55
Hatch.	1	-	1	3	1	-	-	-	6

The range in the average price received by the flocks which sold them for the eggs sold in different markets is shown in table XIII. Sales were not necessarily made regularly throughout the year.

TABLE XIII Range of returns per dozen for eggs sold in different ways, 1959/60

	Under 3s	3 s to 3s.3d.	3s.3d to 3s.6d	3s.6d to 3s.9d	3s.9d to 4s	4s to 4s.3d.	4s.3d to 4s.6d	4s.6d and over
wholesale	-	11	27	16	2	-	-	-
retail	5	5	2	6	7	9	9	1

	4s.6d to 5s	5s. to 5s.6d	5s.6d to 6s	6s. to 6s.6d
hatching	1	2	1	2

TABLE XIV Distribution of labour use, 1959/60 (Minutes /100 birds/day)

	10 - 19	20- 29	30 - 39	40 - 49	50 - 59	60 and over	Total
Battery	4	10	3	2	1	3	23
Deep litter	6	8	6	6	3	-	29
Straw yard	1	4	1	-	-	-	6
Free range	-	1	-	1	-	1	3
Flock size:							
Under 300 birds	1	4	6	8	2	2	23
300-499	2	5	2	1	-	2	12
500-999	4	10	-	-	2	-	16
1000 & over	4	4	2	-	-	-	10

L A B O U R

The use of this varied greatly as can be seen in table XIV. Amongst the battery flocks there was a concentration (i.e. 8 of the 23 flocks) between 20 and 25 minutes per day per 100 birds. Even if the time spent cleaning the eggs is deducted from the total time spent, the range is still extremely wide. For the flocks for which the detailed information was available, the time spent cleaning eggs varied from nothing up to 40 and 50 minutes per 100 birds per day, For the group which damp - (or wet-) cleaned the eggs, the average time spent with battery flocks was $7\frac{1}{4}$ minutes, (15 observations, 1958/59 and 1959/60 together), and with deep litter flocks, 12 minutes (28 observations).

FLOCK REPLACEMENT COSTS

This is the second most important factor in the costs, being nearly 19 per cent of the average cost per bird. The flock replacement cost is the balance of the cost of incoming birds and the return from any culls which are sold, plus or minus any change in the livestock valuation. It is, therefore, affected by variations in the cost of rearing pullets to point-of-lay, by cull prices, and by mortality in the laying flock. Table XV shows how these factors vary in the different flock replacement cost groups. It will be seen that increasing flock replacement costs go with an increasing difference between incoming and outgoing prices, and with increasing mortality. Mortality varied from nothing up to 52 per cent in the laying flocks.

Rearing costs were collected from 40 farms in 1959/60. The average cost of rearing to point-of-lay was 15s.$4\frac{1}{2}$d, varying from 10s.10d to 21s.5d. The distribution is shown in table XVI.

TABLE XV Factors affecting flock replacement costs, 1959/60

Flock replacement cost per bird.	No.flocks	Av.incoming price (1)	Av.sale price (2)	Difference between (1) & (2)	Mortality
		s. d.	s. d.	s. d.	per cent
Under 6s	8	13.10½	9.10.	4. 0½	13
6s to 7s.11d	11	15. 5.	9. 1.	6. 4.	15
8s to 9s.11d	17	14. 9.	7. 6½	7. 2½	18
10s to 11s.11d	12	16. 6.	9. 0.	7. 6.	17
12s and over	13	18. 5.	7. 4.	11. 1.	21

TABLE XVI Distribution of the cost of a pullet at P.O.L.

Cost per bird @ P.O.L.	Under 11s	11s to 12s.11d	13s.to 14s.11d	15s to 16s.11d	17s.to 18s.11d	19s.to 20s.11d	21s and over	Total
No.flocks	2	9	6	11	5	5	2	40

Percentage structure of 37 rearing costs, 1959/60
(calculated on total costs)

	per cent
Purchased food	76.5
Homegrown food	1.5
Total food	78.0
Labour	13.5
Miscellaneous costs: rent, equip.depcn. repairs	5.5
other costs	3.0
	100.0

The average cost of a day-old chick in these costs was 3s.5d, and the mortality during the rearing period was 10.4 per cent. The average cost of chicks was therefore 3s.9½d per pullet at P.O.L. (This is included in the average cost at P.O.L. given above)

Sometimes a decision may have to be made on the relative advantages of rearing replacements or using the capital and labour involved to extend the laying flock, but this is not likely to be necessary where there is a small flock, and consequently a short rearing season, adequate existing equipment, and where mainly family labour is involved.

COSTS OF FOODS

This is by far the biggest single item of costs, being just over 60 per cent of the average cost per bird. The wide range in the amount of food fed per bird per week, and the food fed per dozen eggs produced, was shown in Table IV, and the importance of a good food conversion ratio does not need to be emphasised. Although food is the biggest single item in the costs, and the relationship of food cost to eggs produced must always be kept in mind, efficiency with this cost item can be nullified by inefficiency elsewhere i.e. with flock replacement costs, labour costs or miscellaneous costs.

Flock owners who do not calculate costs of production for their layers can make a rough assessment of the efficiency of their laying flock by calculating the gross output per £100 food i.e.

$$\frac{\text{Egg returns - flock replacement costs}}{\text{food cost}} \times 100$$

Taking the 1958/59 and 1959/60 costed flocks, there was a general trend of increasing margin per bird with increasing gross output per £100 food, but at all levels of gross output there was a wide range in the margin per bird, due to variations in labour and miscellaneous costs. Table XVI shows the extent of this variation. A gross output of £150 per £100 food could be taken as an average value for 1958/9 and 1959/60. This was related to a margin per bird which ranged from a loss of 4s.6d to a profit of 11s.

TABLE XVI Distribution of margins at various levels of Gross output per £100 food, 1959/60

Gross Output per £100 food	Margin per bird						
	.... Loss	Profit.....					
	5s or more	4s.11d. to 0s	0s to 4s.11d	5s to 9s.11	10s to 14s.11d	15sto 19s.11d	20s and over
Under £100	3						
£100-124	5	2	2				
£125-149	2	4	6	6	1		
£150-174		2	3	7	3		
£175-199					4	4	1
£200-224							1
£225-249						1	2
Over £250							2

COSTS RETURNS AND MARGINS PER BIRD SPACE

The intensity of stocking in the costed flocks varied, and so the costs, returns and margins were calculated as a housing capacity basis for the battery and deep litter flocks. The results are given in table XVII. The capacities were calculated on the basis of 4 square feet per bird for the deep litter flocks, and 1 bird per single 2 per double, cage. It will be seen that there was no significant difference in margin per bird between the two housing systems in this sample. If the housing of a new or extended poultry enterprise were being considered, it would be necessary to take account of many factors, including the possible size of the unit, and the capital requirements.

TABLE XVII Average results per bird space, 1959/60

	Intensity of stocking	Costs	Returns	Margin	Yield
	per cent	s. d.	s. d.	s. d.	eggs
Battery flocks	111	58. 2.	65. 2.	7. 0.	226
Deep litter flocks	112	57. 0.	63.10.	6.10.	215

HOUSING & EQUIPMENT VALUATIONS

The amount of capital involved in special buildings, conversions, and equipment was also calculated per bird space, on the basis given above. The results are given in table XVIII.

Table XVIII Housing & Equipment Valuation per bird space, 1959/60

	Written-down Value	Original Cost
Battery flocks (layers)	25s. 6d.	38s. 6d.
Deep litter flocks (layers)	18s. 0d.	23s. 0d.
Rearing equipment	7s. 0d.	9s. 6d.

The valuation of rearing equipment was related to the capacity to house the laying flock i.e. calculated per laying bird space for all the flocks where the rearing was costed.

These figures show the amount of capital involved on these particular farms, but there is such a wide variation in age and type of equipment involved in both the deep litter and battery groups that they are not directly comparable. Current housing costs, at the chosen level of intensity of stocking, should be used for budgeting.

POSTSCRIPT

Since the end of this costing period, wage rates have risen, cull prices have fallen, and latterly there has been a fall in price received for eggs.

For the 1960/1 costings year the average weekly price for standard eggs was 3s.4$\frac{3}{4}$d per dozen. For the year ending April 1962 the average price will be approximately 2s.8$\frac{1}{4}$d, and as a result of the 1962 price review, the price is likely to fall still further, possibly to 2s.6d, the fall depending largely on the level of production. At this level of returns (2s.6d per dozen), only 8 of the 61 flocks in this survey would have shown a profit over their 1959/60 costs.

S U M M A R Y

1. Costs and returns were calculated for 61 flocks, representing a wide range in flock size, type of housing and breed.

2. The average margin was 5s.3d per bird, but there was a wide range, from 8 flocks with losses exceeding 5s.0d per bird, to 6 flocks with profits of more than 20s. 0d per bird.

3. The pattern of egg prices changed between 1958/59 and 1959/60. The high price period was shorter, and throughout the year prices fluctuated less in 1959/60 than in 1958/59. The relative prices of different sizes of egg also changed. It is obvious that attempts by producers to increase production at the most profitable periods are being successful, and that it will be increasingly difficult, in the future, to forecast the best periods for maximum production.

4. A comparison of the records of 32 flocks available for 1958/59 and 1959/60 show that costs per bird had been reduced by 3s.8d per bird, so that although returns had fallen, profits were up by 1s.7d per bird. A comparison with 1957/58 also shows an average reduction in costs, but the returns are much lower in the later year as a result of the big fall in egg prices between 1957/58 and 1958/59.

5. The deep litter flocks in this sample were slightly more profitable on average than the battery flocks.

6. Costs, especially labour costs, show a steady decline, and profits a steady increase with increasing flock size.

7. Comparison between different breed types showed that on average the mainly light-heavy crosses did least well, the mainly heavy flocks were intermediate, and the mainly "hybrid" flocks were most profitable. (Part of the mainly "hybrid" flocks higher profit was due to the inclusion of a high proportion of large flocks in this group). However, there were similar ranges in the margin per bird in each breed group, suggesting that breed is not the most important factor in determining profits.

8. Although flocks with reasonably high egg yields are more likely to show a profit than flocks with low yields this tendency is not strong. Profits and losses were made at all levels of output. It is interesting to note that miscellaneous costs rise with increasing egg yields.

9. Labour time showed a wide variation in all types and sizes of flock, but with definite savings on the larger flocks.

10. Replacement costs also showed a wide range. Important factors contributing to the level of replacement costs are: the difference between cost at point-of-lay and cull price, and the mortality among the layers.

11. Feeding costs are the biggest single cost item. Food economy must be considered in relation to output.

In general profit increases with increasing gross output per £100 foods, but there is a great variation in profit at all levels of gross output due to variations in the level of miscellaneous and labour costs.

12. There was considerable variation in the intensity of housing the costed flocks. Using standard capacities (4 square feet per bird on deep litter; 1 bird per single and 2 per double battery cage), average margins per bird space were 7s.0d for batteries and 6s.10d for deep litter.

THE COSTING METHOD USED

FOODS No residual manurial values were deducted from the cost of foods, and no credit allowed for poultry manure, whether sold or used on the farm.

Purchased foods were entered at cost delivered on the farm, and included such items as grit, and cod liver oil and so on.

Homegrown foods were entered at estimated cost of production.

LABOUR Hired labour was charged at cost, and family labour at an hourly rate based on the corresponding cost for hired labour.

FLOCK REPLACEMENT Home-reared pullets were transferred into the laying flock at actual or estimated cost of production; all purchases were entered at their cost delivered to the farm.

MISCELLANEOUS EXPENSES Special houses and equipment were usually depreciated at 10 per cent, and repairs to equipment were charged.

Rent was charged if farm buildings were used, and land rent if this was considered to be necessary for free-range flocks, or in the rearing costs.

Horse and tractor work was charged at standard rates per hour.

Fuel, medicines and other consumable stores were charged here.

Only direct costs were charged: no allowance was made for interest on capital, and no share of general farm overheads has been charged.

RETURNS Eggs sold wholesale, semi-wholesale, retail or for hatching were entered at the price realised. Eggs used on the farm were entered at the corresponding wholesale price, if there was one, or at salvage value.

THE AVERAGE SIZE OF FLOCK was calculated from the average number of birds for each month during which the flock was considered to be in existence.

THE AVERAGE YIELD PER BIRD was obtained by dividing the total production by the average size of flock.

STANDARD APPENDIX — 2nd August 1959 to 30th July 1959

LAYING FLOCKS

Average costs and returns per bird and per dozen eggs

	per bird		
Costs	lbs	s. d.	s. d.
(A) Foods (a)purchased (1) compounds	82.0	25. 0.	
(2) cereals	15.9	3. 3½	
(3) other	2.7	1. 3.	
(b)homegrown (1) cereals	7.6	1. 5	
(2) other	-		
Total foods	108.2		30.11½.
	hrs		
(B) Labour (a) hired	0.6	2.1½	
(b) family	0.9	3.5¾	
Total labour	1.5		5.7¼
(C) Livestock depreciation			8.10½
(D) Deadstock depreciation & repairs x			2. 2.
(E) Miscellaneous			9½
Total costs			48.4½
	eggs		
Returns - eggs (a) market	189	53.6½	
(b) hatching	4	1.8¼	
(c) used in farmhouse	3	6	
Total returns	192		55.8¾
Margin			7.4¼
	Per dozen eggs produced		
Total returns	3s.5¾d		
Total costs	3s.0¼d		
Margin	5½d		

Number of flocks	61
Average size of flock	664 birds
Average length of flock season	51 weeks
Average yield per bird	192 eggs

x includes rent for land and farm buildings