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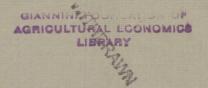
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THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

(overing)

(ECONOMICS DEPARTMENT)

POULTRY COSTS INVESTIGATION

Year Ended 30th September, 1952

By C. W. ROBERTS

REPORT No. 5

6 BLYTHSWOOD SQUARE,

April, 1953

GLASGOW, C.2

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Cost per dozen eggs sold or used in house 1950/51 and 1951/52 11 Efficiency in use of resources 11

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POULTRY COSTS INVESTIGATION

REPORT FOR THE YEAR ENDED 30th SEPTEMBER, 1952

Introduction and acknowledgments

This report is concerned with 21 poultry flocks out of about 25 for which accounting information was obtained by the Economics Department of the College over the year ended 30th September, 1952. This number compares unfavourably with the 44 and 40 in 1950-51 and 1949-50 and represents a falling back to the levels of 1948-49. Although, clearly, no claim can be made that the average results are typical of those for the province or the country, the figures and comments which follow are, nevertheless, likely to be of some interest to the farmer-cooperators, to students, and to others connected with the poultry industry.

To those farmers who have so painstakingly and kindly provided the information from which this report has been prepared and to those who have helped similarly in previous years but have been unable to continue, the warm thanks of the members of the staff of the department are given. Several members of the department have shared the work of collecting and analysing the records.

Types of flock Covered by the report

Accredited breeding flocks are the most numerous, 13 in all. Of these, 11 gave information for both 1950-51 and 1951-52. All these flocks, except for a part of one flock which was kept for commercial egg production in cages, were on free range or in semi-intensive houses.

Of the 13, 2 were devoted principally to the production and sale of dayold chicks, 7 produced substantial proportions of eggs for sale for hatching and did not set many eggs, and 4 were concerned with both the hatching of eggs and the sale of eggs for hatching.

In the tables which follow and refer to both 1950-51 and 1951-52 the grouping of the breeding flocks is based on the objectives of 1951-52, even if there was a change of emphasis during the two years.

Of the 8 market-egg producers, 4 had their birds on free range and form a separate group, 1 had both cages and built-up litter, throughout the year, 1 had cages throughout the year and started a built-up litter house additionally towards the end of the year, 1 had some birds on built-up litter and some on free range, and 1 who had both cages and range houses provided information about the cages alone. These 4 form another group. In previous years the lastmentioned producer had given details about his range birds. 8 records for 1950-51 about birds in cages were not continued in 1951-52.

The desirability of increasing the number of records from flocks in cages or on built-up litter is constantly in mind, and the Economics Department would welcome any offers to supply information starting in September, 1953.

The accounting year

For all except two of the flocks the accounting year ended on 30th September; for one it ended on 31st October and for one on 30th November. As the tendency to earlier commencement of laying continues it becomes more desirable to put the beginning of the accounting year forward into September or even August. This is however inconvenient for a variety of reasons.

Sizes of flock

The table on the next page shows that, in general, the flocks were small, only 5 consisting of more than 500 layers.

In this table the size of flock has been measured on the basis of the numbers of layers on hand from day to day, which have been converted to an average number for the year. Unless otherwise stated all "per layer" figures in this report have been based on this average number. In some tables however, a note of the highest number of birds carried at any one time before the spring of the year but after the sale of old hens in October or November, is also given. This corresponds very roughly to the number "hen-housed" at the beginning of the year, a number which is generally useful in planning ahead. Sizes of Flock

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	·	No.of layers	Br	eeding Flock	s	Market Egg Flocks			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					Others	Battery or Deep Litter	Free Range		
		101 - 200 201 - 300 301 - 400 401 - 500 501 - 600	2	- 1 3 1 - 1 1	1 - 1 - 2 -	- - 3 - - 1	1 3 - - -		

The financial results

The profit or loss on the 18 poultry flocks represented in both 1950-51 and 1951-52 is summarised on page 5 and further details are given in the table This profit or loss is the result after taking into account all on page 6. expenses reasonably chargeable against the poultry, and after pricing all market eggs at packing station rates. Except where stated otherwise homegrown foods have been charged at estimated cost. It will be realised that since much of the charge for labour is for that of the farmer and his wife, the actual net income received from the poultry is substantially higher than this profit. This actual net income is not stated in this table but is indicated in later tables.

The figures quoted below for Operating Surplus have been arrived at by adding together the charges for labour, rent, rates and insurance, share of /and general expenses,/equipment depreciation and the profits. They thus measure very roughly the extent to which these farmers were better off financially as a result of keeping these poultry than they would have been if they had left their poultry equipment unoccupied, had done nothing else with their labour, and had sold the home-grown food they used for the poultry.

On average all three groups of producers received less profit and less operating surplus in 1951-52 than in 1950-51, whether this is measured in terms of the flock or the average bird.

That these averages mask wide variations is demonstrated by the table on page 4 which shows that there were in 1951-52 both profits and losses of over 30/- a layer and that operating surplus varied from less than 10/- to over 60/a layer. These wide variations indicate how speculative poultry-keeping may be; but comparison of the two years demonstrates that the most profitable flocks in one year are likely to be the most profitable in the next year. For instance, when the flocks are arranged in order of profit per layer, first in 1950-51 and then in 1951-52, only 6 flocks out of 18 change their position by more than 4 places, (and only 1 by more than 5 places); and when arranged by operating surplus per layer only 3 move by more than 4 places, (and only 2 by more than 5). Thus it appears that the uncertainty of profits is connected more closely with the choice of system and the skill with which the system is followed, than with the vagaries of fortune which the individual is likely to meet.

The wide range of profits is to be expected amongst so varied a group of flocks: for example, while some of these flocks consisted almost entirely of laying birds, others included many young growing stock. Or, again, even within the group of battery and deep litter flocks the capital equipment varied so much that its valuation ranged from 66/- to 15/- per layer.

The averages around which these variations have occurred are set out in detail in the summary of expenditure and revenue on page 6 . This compares 1950-51 with 1951-52 for the 18 flocks represented in both years. The form of this table differs slightly from that used in the tables in the appendix, which are in the form normally used in this series of reports. The main difference is that the effects of valuation changes have been allowed for in each line of the table, so that, for instance, The Gross Profit on Stock consists of the sales of birds, plus the closing stock of birds and less the opening stock of birds and less purchases of birds: similarly with eggs.

3

Numbers of flocks showing profits	or losses and operating surpluses	per layer of the stated amounts:
the figures for 1951-52 cover all	the 1951-52 flocks and those for	1950-51 are for the flocks
represented in both years.		

Profits and Losses and Operating Surpluses: 1950-51 and 1951-52

					Breedin	ng flocks				Market e	gg flocks	
	All f	locks	Day - sell		Hatc supp	hery Liers	Sellers eggs &			ery or litter	Free R	ange
	1950–1	1951-2	1950-1	1951-2	1950 -1	1951-2	1950-1	1951 - 2	1950 1	1951 - 2	1950 - 1	1951-2
<u>Profit per layer</u> <u>30/1 or more</u> 20/1 to 30/- 10/1 to 20/- -/1 to 10/-	3 2 4	1 3x 2 3x			1 1 2	1 2 x 2	1 1	1 1 1 x	1	1	1	
Loss per layer -/1 to 10/- 10/1 to 20/- 20/1 to 30/- 30/1 or more	5 2 1 1	6 x 3 1 2	1	1	2	2	1	1	1	2x 1	1 1	1 2 1
Operating surplus per layer 60/1 or more 50/1 to 60/- 40/1 to 50/- 30/1 to 40/- 20/1 to 30/- 10/1 to 20/- -/1 to 10/-	1116522	2 x 2 6 x 4 5 x 2	1	1 1	1 1 3 1	1x 1 3 1 1	1	1 3x	1 1 1	1 2x 1	1 1 1	1 1 1 1
No. of flocks	18	21	2	2	6	7	3	4	3	4	4	4

x includes 1 not represented in 1950-51.

Profits or Losses on the flocks represented in both 1950-51 and 1951-52

				(- = Loss)	·
				£'s per floo	<u>ck</u>
11	Breeding flocks	1950–51 1951–52	•	166 107	692 604
3	Battery or Deep litter market egg flocks	1950–51 1951–52		141 74	414 359
4	Free range market egg flocks	1950-51 1951-52		- 66 - 108	188 126
			1.1	s./d. per la	iyer
11	Breeding flocks	1950 - 51 1951 - 52		8/7 5/8	35/9 32/1
3	Battery or Deep litter market egg flocks	1950-51 1951-52		7/4 3/4	21/5 16/2
4	Free range market egg flocks	1950-51 1951-52		- 8/1 - 15/9	23/1 18/4

Food consumption

The cost of foods consumed is the most important item of expenditure, accounting for some 73% of net expenditure in the battery group and 60% in the breeding group, though only 51% in the free range group where labour was exceptionally heavy.

Although there is no very close relationship over the whole group between the cost of foods fed and the profit, it is noticeable that the low profits and low yields of the free range flocks are associated with the lowest rate of food consumption, whether measured in cost or weight. Indeed within the two market egg groups, if allowance is made for the food eaten by growing stock, it is noticeable that profits are lower per layer where food consumption is lower. It is true that this lower profit per bird may be associated with the lower annual rate of egg production which is bound to occur if birds are kept on when egg production has dropped and results are measured on the usual hen-day basis: and it is true that, in general, the free range flocks did not cull heavily and would therefore be likely to show lower egg production per layer.

This is not to say that it is necessarily unprofitable to keep birds on when their rate of laying has fallen; for they may still be yielding a profit, though at a lower rate. Nevertheless it is also fairly certain that the less profitable of these farms fed less food than was desirable. While visible waste is obviously to be avoided, it seems that the invisible waste of underfeeding does occur.

The estimated quantities of foods eaten by the layers themselves are substantially higher than the feeding rates of prewar days; whether the coming decontrol of feeding stuffs will allow the compounding of higher quality foods which will be more economical of quantity and cost remains to be seen. Details of these estimates are given in the supplement. The amounts range from 72 lbs to 137 lbs per layer, (3.1 ozs to 6 ozs a day). The estimates are subject to a wide margin of error because quantities of food eaten by the young stock vary substantially from farm to farm. Only rarely were these recorded.

Total quantities used of grain, mashes and pellets together with the meal equivalent of other foods, divided by the average numbers of layers, varied from 95 lbs to 261 lbs. Here as elsewhere in this report, except where otherwise stated, all items of expenditure cover the expenditure on the young stock associated with the laying stock.

As is to be expected there is a close relationship between total food consumed and total net revenue; but as stated above, the relationship between food

Summary of Net Expenditure & Net Revenue per layer, for flocks common to both 1950/1 and 1951/2

				1750/1 4114	1))/2	
			Battery	and deep	Market	egg
그 가는 그는 사람이 있는 것을 많은 것이 것을 못 같아. 가지 방법이 있어요.	Breeding	flocks	litter	flocks	range f	
Net Expenditure	1950/1	1951/2	1950/1	1951/2	1950/1	1951/2
Food used	43/9	49/10	37/3	42/11	35/10	
Labour charged	19/3	19/2	9/10	9/1	24/9	39/4 26/4
Sundry expenses	6/-	6/11	1/9	3/1	4/3	6/-
Share of general expenses	2/10	1/9	1/1	1/-	2/9	3/6
Equipment depreciation	4/6	6/2	2/8	2/6	2/2	2/4
Total States and the second	76/4	83/9	52/8	58/6	69/9	77/6
Profit	8/7	5/8	7/4	3/4		11/0
	84/11	89/5	60/-	61/10	69/9	77/6
Net Revenue				01/10	09/9-2	77/6
				• •		
Gross profit on eggs	59/9	62/2	, 59/8	56/1	49/2	45/2
STOCK AND STOCK	23/7	25/6	(loss) - $1/3$	4/3	11/4	14/11
Miscellaneous revenue	-/1	-/1	-/4	-/4		-/6
Manurial residues of foods	1/5	1/8	1/2	1/3	1/2	1/3
Total	84/11	89/5	60/-	61/10	61/8	61/9
$\underline{\text{Loss}}$	-	-	-	-	8/1	15/9
	84/11	89/5	60/-	61/10	69/9	2 77/6
Profit plus labour	27/10	24/10	17/2			
Operating surplus	35/9	32/1	21/5	12/5 16/2	16/8	10/8
Number of flocks	11	11	21/5	10/2	2 3/ 1 4	18/4
Average number of layers per flock	388	375	386	441	163	137
Estimated winter peak number of layers, per flock	438	406	437	517	193	168
Proportion of pullets at that time, %	55	55	74	74	57	61
Number of eggs produced	151	149	169	148	144.	132
"" sold or used in house Average price of all eggs per dozen	140	136	168	147	143	130
" " culled layers	$5/2\frac{1}{2}$	$5/6\frac{3}{4}$	4/4	4/8	$4/2\frac{3}{4}$	4/312
Food other than grit consumed, in terms of grain or mash, lbs	10/8	9/9	8/1	9/3	8/3	8/6
Number of eggs to pay for all food used	165 101	167	126	132	126	126
Number of hours of labour	8.6	107 7.8	103 4.6	111 3.8	102	110
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consumed and profit is less close. This weaker relationship between net revenue and net profit is due to the wide variety of other expenses and charges.

Food Prices

Average prices of grain bought varied from 24/9 to 35/1 per cwt. and averaged 30/2; and bought mashes, meals and pellets together varied from 34/2 to 43/- and averaged 38/0; and all grain and mash together, including homegrown grain at selling price, cost 34/8 a cwt. In the previous year the averages were 28/3, 33/2 and 30/5. In the main tables of this report home grown grain, chiefly oats, has been charged at the estimated cost of 20/- a cwt.

Egg/feed ratio

Roughly 14 to 19 lbs of food could be provided for the price of a dozen eggs, against 15 to 20 in 1950-51; In terms of lbs of food per dozen market eggs the figures are 14 to 16, against 15 to 17 in 1950-51.

Foods consumed per dozen eggs

Total food fed per dozen usable eggs (i.e.eggs sold, set or used in house) amounted to 10.8 lbs. for the battery and deep litter group and 10.2 lbs. for the free range group. This includes some food fed to young stock. In each group it took some 9 dozen eggs per layer to pay for all the food eaten.

Depreciation of layers

The table does not show the cost of depreciation as a separate item, because the costs of rearing the young stock were neither ascertained nor, as a general rule, estimated. If these accounts had covered the laying flocks alone this item of cost would have appeared and would probably have been next in importance amongst expenditure to foods. The battery and deep litter group's results suggest that if point-of-lay pullets cost on average 19/-, (allowing for all being bought and most being reared from day-old), the depreciation per layer was about .9.6. If this item were to be shown in the accounts there would have to be corresponding reductions of the other various items of expense.

Labour

Although the labour time used per layer was lower in all three groups than in 1950-51, it continues to be much higher in many flocks than one would expect. Some of the excess may be due to treating managerial work or even the time spent on 'leaning on the gate' as chargeable, but in some cases it is largely due to the inclusion of the labour of rearing and to difficulties of tending small lots. The highest charge was 43/10d. for nearly 16 hours on a small free range flock and the lowest was 2/11d. for about 1 hour on a fairly large battery and deep litter flock organized remarkably effectively so far as labour is concerned.

The rates charged per hour were: for farmer 2/10d., other adult men 2/9d. farmer's wife 2/1d, other adult women 2/- and corresponding rates for younger workers. The adult rates charged were about 3d. higher than in 1950-51.

The averages of 7.8 hours, 3.8 hours and 9.8 hours for the three groups compare with 8.6, 4.6 and 10.1 for 1950-51 on the same farms and correspond, on a conventional 50 hours a week basis, to flocks of 320, 660 and 255 layers together with the associated young stock per full-time worker.

Depreciation of equipment

This varied from 3d. (where range equipment was fairly old and simple) to 25/3d.where housing and batteries had been recently installed and were not yet fully stocked). On average this charge was equivalent to rather more than the price of a dozen eggs in the breeding group and about the price of half a dozen eggs for the other two groups. The charge includes, in more than one case, the depreciation of a motor car.

The share of general expenses

This is a conventional charge made on farms where poultry are only one of the sources of income. It is based chiefly on the labour employed. No such charge has been made where poultry were the only enterprise.

					Breedi	ng flocks			1			
Eggs per layer	All fl	colra			1					Market e	gg flocks	
TEES For Taylor.			Day-0 sell		Hatc supp]		Seller: eggs &	s of H. stock		ry or litter	Free	
	1950-1	1951-2	1950-1	1951-2	1950-1	1951-2	1950-1	1951-2	1950-1	1951-2	1950-1	1951-2
192 to 214 180 to 191	1	3x				1				1 x	1	1
168 to 179 156 to 167	2	1 x 4 x	•		1	1x 1	.1	2x.	1	1	1	
144 to 155	6 3	2 3	1		3	1	1	1	2	1		
132 to 143 120 to 131	2	1 3		- 1.	1	1	1	1		1		
Below 120	· 2 18 ·	4 21	2	1	1	1 7x					1	2
							3	4x	3	4 x	4	- 4
Unweighted average yield per layer	154	4 5 4	A ===		л — 1 							
The same for	•	151	153	106	147	158	150	163	172	164	157	142
identical flocks	154	145	153	106	147	153	150	158	172	153	157	- 142
										•		

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Egg production per layer : Numbers of flocks producing and disposing of the stated numbers of eggs per layer

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Total expenditure

This varied from 45/- (where labour was very low) to 140/6 in a dayold producing flock.

Egg production

As the table on page 6 shows, the average numbers of eggs laid per layer for the three main groups were 149, 148 and 132 against 151, 169 and 144 in 1950/51, and the table on page 8 shows how widely the individual flock averages varied from this, up to roughly 16 dozen and down to 7 dozen. To some slight extent the lower yields in the market egg flocks were due to lighter early culling. From the limited number of flocks it is impossible to say whether this did in fact result in higher total profits (as distinct from higher profits per layer) than would the heavier culling of the previous year have done.

The seasonal distribution of egg production is shown in two ways in page10. For the upper table the monthly production has been divided by the highest number of laying birds on hand at any time after the disposal of old hens in October or November (roughly corresponding to the hen-housed number for the main season), while for the lower table the layings in each month have each been divided by the average number of laying birds in that month. As the upper table shows, the battery and deep litter flocks produced nearly twice as many eggs per hen-housed layer in the high-priced months of October to January and September than did the free range group and 12% more than the breeding group, which is less concerned with production at the time when table eggs are most valuable.

The highest total monthly production was, on average, in April, (March in the range group), and so was the highest rate of production.

Culling

The average pattern of culling and deaths is shown on page 12. Since few of the flocks were wholly of pullets, these averages do not show what would have happened in pullet flocks; and again the grouping of these figures masks the clear cut lines of the culling in some of these flocks. They are, however, reproduced here because of their general interest. The table on page 10 shows that even in the battery flocks culling had barely secured monthly averages of so much as 4 eggs a week $(17 - 17\frac{1}{2} \text{ a month})$.

Results on the one flock in which birds were kept after their profitable laying period was ended until they could be sold on the Christmas market were not attractice. It is almost certain that the food fed to these birds could have given greater returns from egg production from pullets: on the other hand, had there been abundant food supplies, then this method of avoiding depreciation on layers would have been profitable.

The prices per head for culled layers varied from 6/3d. to 15/9d., the variation being due to differences in dates of culling, the quality of the live birds and the extent to which the birds were or were not dressed for the consumer. Average prices for the three groups were 9/9d., 9/3d., and 8/6d. against 10/8d., 8/1d. and 8/3d. in the 1950-51.

The value and price of eggs

In all groups the output of eggs was in both years more valuable than any other group of revenue or expenditure; but only in the breeding group was the average output of eggs as valuable in 1951/52 as in 1950/51. The actual avera The actual average packing station prices on a daily basis in 1951/52 exceeded those of 1950/51 by about $3\frac{1}{4}d$., while on the basis of the seasonal pattern of sales in 1951-52 the increases were $2\frac{1}{4}d$. for the breeding flocks, $3\frac{1}{4}d$. for the battery and deep litter flocks and 2d. for the range flocks. Both the breeding and the battery and deep litter group secured a greater improvement in average seasonal price than they would have done had they not changed the pattern of egg_production and sale; but the free range group only secured a rise of about $\frac{3}{4}d$. a dozen against the 2d. a dozen extra which they would have received from an unchanged pattern. It is to be noted however, that just as the effect of culling on egg yield per bird may be to raise yield per layer but reduce total profit from the flock, so, too, culling may raise the average price of eggs and yet reduce total profit. On the other hand an increase in average price which results from appropriate lighting and attention to other points in management for winter

Seasonality of egg production (I)

-	Breed	ing flo	cks (2)	Battery	& deep	litter	Market free r	
	1950/1 1	1951/2	1951/2	1950/1	1951/2	1951/2	1950/1	1951/2
	Identical f	locks	All flocks	Identical	flocks	All flocks		
Oct. Nov. Dec. Jan. Feb. March April May June July Aug. Sept.	16.2 17.0 15.0 11.5 10.3 10.1 8.6	7.2 5.2 8.0 9.1 12.3 17.1 17.1 15.0 11.8 10.6 10.3 9.1	6.9 5.1 8.1 9.6 12.6 17.2 17.3 15.2 11.7 10.6 10.1 9.0	8.1 10.3 13.7 13.9 12.0 13.8 14.9 14.1 12.1 12.0 12.4 11.8	8.8 9.8 11.9 8.9 8.6 12.6 13.4 13.4 13.4 11.0 10.4 10.0 7.6	9.2 9.4 11.9 9.8 9.3 13.6 14.2 13.8 10.9 9.8 11.0 8.7	5.5 3.8 5.0 7.8 9.7 16.3 18.4 15.7 12.8 11.2 9.9 5.9	3.5 3.0 5.6 7.4 10.2 15.5 14.6 13.6 11.1 10.2 7.6 5.0
Total	131.3 1	32.5	133.6	149.1	126.2	131.8	122.1	107.5
Tot. Oct. -Jan.& Sept.	39.6	38. 6	38•7	57.8	47.0	49.0	28.0	24.5
Factor to raise the above rates to "Fer layer" basis (approx.)	1.13	1.11	1•16	1.14	1.17	1,17	1.18	1.23

No. of eggs laid month by month per bird (approximate henhoused basis)(1)

(1) The divisor is the sum of the estimated no. for each farm, of layers on hand when fully stocked for the year, including any hens kept on for more than 2 months.

(2) The figures are not available for one of the farms represented in both years. Seasonality of egg production(II)

	Bre	eeding flo	ocks (1)	Battery	v& deep 1	itter	Market free r	egg ange
	1950/1	1951/2	1951/2	1950/1	1951/2	1951/2	1950/1	1951/2
	Identica	al flocks	All flocks	Identical	flocks	All flocks		
Oct. Nov. Dec. Jan. Feb. March April May June July Aug. Sept. Total of these Actual	6.7 7.0 8.5 9.4 13.5 17.3 19.4 18.6 16.3 14.9 13.6 10.3	7.5 5.2 8.2 9.6 13.1 18.3 19.3 17.9 14.0 13.2 12.6 10.1	7.5 5.3 8.5 10.1 13:3 18.5 19.4 18.1 14.3 13.2 12.9 10.5 151.6	8.6 10.8 14.1 14.0 16.0 17.4 19.2 18.8 15.3 14.3 13.0 10.6 172.1	9.3 10.3 13.2 10.6 10.3 15.7 17.3 17.6 14.8 12.6 11.3 7.8 150.8	9.6 9.9 13.2 11.4 11.0 16.5 18.0 18.1 15.3 12.5 11.8 9.2 156.5	7.5 5.0 6.0 7.9 11.4 17.4 19.7 17.9 15.2 13.6 12.3 7.8 141.7	4.4 3.5 6.3 8.5 11.1 17.5 17.4 17.0 14.3 13.9 10.8 7.3 132.0
annual average	152	147	150	169	148	155	144	132

No. of eggs laid month by month per bird on hand in the month

(1) The figures are not available for one of the farms represented in both years.

production is almost certainly associated with an increase in total value of output from the flock and in total profit from flock.

The cost of egg production

Although the table on page 15 sets out the various items of revenue and expenditure for the two groups of market egg flocks as a whole divided by the number of dozens of eggs sold or used in the house it does not conveniently indicate the costs of producing the eggs themsalves. As an indication of the approximate cost of producing the eggs themselves the following short statement may therefore be of interest.

The method involved has been to share total expenses between eggs sold or used in house on the one hand and fowls other than culls on the other hand in proportion to value, and to treat culls, sundry receipts and manurial values as by-products.

<u>Cost per</u>	dozen egg	s sold o	r used in	house		
		eding ocks		y and litter		ree nge
	1950-1	1951-2	1950-1	1951-2	1950-1	1951-2
No. of flocks	11	13	3	4.	4	14.
Total Expenditure & Opening						
Val'n less Closing Val'n & Equipment sold	$6/5\frac{1}{4}$	$7/2\frac{1}{4}$	4/3	5/-	6/31	6/11콜
Less share to other fowls	$1/4\frac{1}{2}$	1/74	$-/0^{\frac{1}{2}}$	$0/0\frac{1}{4}$	$\frac{0}{1/1\frac{1}{2}}$	$-/10^{\frac{1}{2}}$
	$5/0_4^3$	5/61/2	$\frac{1}{4/2\frac{1}{2}}$	4/11=		$\frac{1}{6/1\frac{1}{4}}$
Less by-products	8 <u>1</u>	$7\frac{3}{4}$	5	6 <u>3</u>	$6\frac{3}{4}$	8 <u>3</u>
Net cost of eggs sold or used in house	4/42	4/10 3	3/91/2	4/5	4/74	5/4 ¹ /2
Value of these eggs	5/14	5/5 ¹ /2	$4/3\frac{3}{4}$	4/63	4/13	4/5
Profit on eggs	8 <u>3</u>	$6\frac{3}{4}$	64	13		
Loss on eggs	-		-	-	5 <u>1</u>	11늘
No.of eggs sold or used in house per layer.	140	139	168	154	143	130

Efficiency in use of resources

While profit is in general a good indication of the efficiency of the organization and management of an undertaking, some interest is to be found in relating the net revenue (almost equivalent to gross output less purchases of livestock and eggs) to the principal resources used. In general one would expect those farms which show high output per £100 of food or of labour to be most profitable; and the individual flock results do in fact show a very definite relationship between output per £100 labour and profit, and between output per £100 food and profit.

A similar close relationship exists between profit and efficiency in the use of resources measured by comparing net revenue with the resources (taken as the sum of the rent, the value of labour used, and one-tenth of the average valuations). Profit per layer was also fairly closely associated with egg price and with the total value of egg sales.

Some figures relating to these measures of efficiency are set out below. For this purpose homegrown grain has been valued at 26/- a cwt as representing the approximate selling price.

	•	•	•
		Market egg	flocks
	Breeding Flocks	Battery and deep litter	Free Range
Net revenue per £100 foods (£) Net revenue per £100 labour (£) Net revenue per £100 of resources)	174 485	143 680	156 234
listed above (\mathfrak{L})	337	44 0	185
Profit + labour + rent per £100 resources(£)	91	78	35

From this table one would conclude that on average breeding flocks were 10%

	1						·	-			9.01.5			•		
			Breeding				· E	Battery	and Deep	Litte	r flocks		Marke	t egg P	ange flo	
	The second secon	And the second se	l flocks	(1)	All fl	ocks (1)			l flocks	and the second se	All fl	ocks			l flocks	
	1950		1951/		1951/	2	1950/	1	1951/	2	1951/		1950/1			
	Culls & deaths	0n hand	Culls & deaths	0n hand	Culls &	On hand	Culls & deaths	On hand	Culls &		Culls &	On	Culls &		1951/ Culls &	
October	9	105	13	106					deaths	hand	deaths	hand	deaths(1)	hand	deaths	hand
November December	2	111	6	109	· 12 · 5	104 108	13	106 108	4	111 112	<u>1</u> 1 1 1	112 113	8 2	88 90	7	99
January	6	113 112	3	107 106	3 2	106 107	4	110 102	12	106	.11	104	6	101.	6 19	104 110
February March	1 5	107 109	1	104 104	1	106	4	90	1	- 99 97	2	101 100	neg. 1	106 108	1 1 1	108 113
April May	8	101	6	.98	- 6	105 100	谱) 曾1	90 88	5 1	94 91	5 二年	97 93	neg. 4	112 111	□ □ 7	109 103
June	12 8	94 83	5 5	.9 3 92	5 7	94 92	-4	85 89	- 1-	90 87		89	9	104	5	97
July August	4	80 86	8	90. 91	9 8`	89 89	9	95	6	97	8 8	85 93	2	100 97	6	95 90
September Year	7	96	9	99	9	97	9	107 126	11 15	101	10 15	101 110	12 27	. 96 . 90	5 28	86 84
	72	100	70	100	71	100	73	100	- 67	-100	72	100	73	.100	90	100
Deaths Culls	10 62		12 58	en Last	12 59		18 55		11 56	•	10 62		8		13	
No. of hens on hand at start.	68	7	64.	5 - A -	63								-65		77	
Conversion factors (2)	.76	. 86	•77	00			42		42		36		64		72	
	.,.	•00	• []	•90	•77	•89	.81	.88	.85	•85	• 84	.85	,76	• 84	.68	• 82 [·]

Culling & deaths: No. of birds dying, lost, sold or used in house, month by month; and average number of layers on hand during the month per 100 layers

(1) The figures are not available for one flock.

A. ...

(2) To relate culls and deaths to the number of layers at the beginning plus the number introduced in the first six months multiply each figure by the factor in the same/column. To relate numbers on hand to the peek numbers for the winter multiply each figure by the factor in the same second column.
(3) Deaths include losses and thefts.

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better than the range flocks in converting foods into output and 20% better than the intensive flocks. In the conversion of labour into output, however, the intensive group was by far the best. The same applies to the use of land, labour and capital.

Alternatively, the sum of the rewards of the farmer, worker and laird compared with the land labour and capital used was highest in the range fielding flocks.

Summary

Note: the figures in brackets in this summary are for the year 1950/51.

On 11 Breeding flocks, profits averaged 5/8 a layer in 1951-52 against 8/7.in 1950-51; on 3 Battery and Deep litter flocks they averaged 3/4 against 7/4; and on 4 Market egg Range flocks losses averaged 15/9 against 8/1. There were wide variations.

Labour plus profit averaged for the same groups 24/10 (27/10): 12/5 (17/2) and 10/8 (16/8).

The operating surplus (measuring the extent to which the farmers were better off for having kept these poultry than they would have been had they let their equipment stand empty, had sold the homegrown food they fed and had done nothing else with the labour) for the same groups was about 32/1(35/9): 16/2, (21/5) and 18/4, (23/1).

Food costs represented 60% (57), 73% (71) and 51% (51) of net expenditure on the three groups. Food prices averaged 30/2 (28/3) per cwt, for bought grain and 38/0 (33/2) for mashes and pellets and 34/8 (30/5) for all foods.

Total food consumed by the whole flock, per layer, cost on average 49/10(43/9), 42/11(37/3) and 39/4(35/10).

The total quantity of food, excluding grit, consumed per layer in terms of meal equivalent, was 167 lbs (165), 132 lbs (126) and 126 lbs (126)

For flocks for which an estimate could be made of foods eaten by the layers themselves the estimated quantities varied from 72 lbs. with a yield of 100 eggs to 137 lbs. with a yield of 155 eggs.

It took about 9 dozen eggs per layer to pay for all the food eaten by layers and young stock together.

A dozen eggs would buy between 14 and 19 lbs. of food, (1 lb. less than in the previous year).

Labour on the whole flock averaged 7.8 hours (8.6), 3.8 hours (4.6) and 9.8 hours (10.1). It cost 19/2 (19/3), 9/1 (9/10) and 26/4 (24/9).

Equipment depreciation cost 6/2 (4/6), 2/6 (2/8) and 2/4 (2/2). A new car pushed up the first of these figures.

The rate of egg production was lower than in 1950-51 in all three groups, whatever basis of measurement is used.

Eggs produced per layer were 149 (151), 148 (169) and 132 (144), and the value of eggs fell in the two market egg groups. Values were 62/2 (59/9), 56/1 (59/8) and 45/2 (49/2).

April continues to be the month of highest daily total production in two groups, March however taking first place for the range group; and April also continues to show the highest production per bird on hand.

All groups failed to secure as many eggs in the autumn and winter months as in 1950/51.

Culling of battery birds was not as severe as is commonly recommended. Some points about culling are discussed.

Culled layers made on average 9/9 (10/8), 9/3 (8/1) and 8/6 (8/3).

Deaths per 100 layers averaged 12 (10), 11 (18) and 13 (8).

It is estimated that the cost of hen depreciation in one group was probably in the region of 9/6 a layer.

Costs of producing a dozen eggs were on average $4/10\frac{3}{4}(4/4\frac{1}{2})$, $4/5(3/9\frac{1}{2})$ and $5/4\frac{1}{2}(4/4\frac{1}{4})$.

Profits per dozen on eggs were on average $6\frac{3}{4}d.(8\frac{3}{4}d)$, $1\frac{3}{4}d.(6\frac{1}{4}d)$ and loss $11\frac{1}{2}d$. $(5\frac{1}{2}d.).$

Efficiency in terms of output per unit of

- (a) land, labour and capital and(b) foods and
- (c) labour is examined in passing.

Detailed figures for individual flocks are set out in a supplement to this report (Statement B, 1953) which is available on request.

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	Undr bur C, 1	tevenue an	U LIOLIC (DI LOSS: AVER	ages per dozen eggs (pen	(96			,
	Battery and deep litter		Free range			Batter deep 1	itter	Free range	
	1950/51	1951/52	1950/51	1951/52		1950/51	1951/52	1950/51	1951/52
Opening Valuation	•				Closing Valuation				
Equipment	19.2	22.3	20.7	24.1	Equipment	16.9	22.3	18.5	31.1
Fowls	17.4	19.1	28.5	33•7	Fowls	18.6	20.3	25.9	39•1
Other	1.4	1.0	1.1	2.1	Other	1.2	9	1.6	1.9
	38.0	42.4	50.3	59.9		36.7	43.5	46.0	<u>1.9</u> 72.1
		Colorinano		Sittergraphy		<u> </u>		4000	12.01
Purchases and expenses				· · · ·	Sales and other revenu	е			
Fowls and hatching eggs	6.6	5.3	2.4	3•9	Market eggs	50.2	53.0	46.9	49.5
Purchased feeding-stuffs	31.8	39.5	35.6	43.1	Hatching eggs	_	neg	•1	42•5 1
Home-grown feeding-stuffs	•4	•5	1.3	•3	Culls from flock	3.4	5.2	4.8	6.6
Hired labour	•9	1.0	neg.	neg.	Day-olds	•2	neg	•5	1.0
Family labour	7.6	7•5	25.0	29.0	Other fowls	.4	•1	10.4	6.6
Rent, rates and insurance	•5	•4	1.7	2.2	Sundry receipts	•3	•3	· _ ·	•1
Fuel, light and power	.2	•3	.6	•6	Eggs used in house	1.5	1.7	2.8	3.4
Equipment repairs	.2	1.7	•4	•2	Fowls used in house	.2	•2	8	•7
Sundry expenses	.6	•6	1.6	3.7	Manurial values	1.0	1.2	1.2	1.3
Share of general expenses	•9	1.2	2.7	3.9	Equipment sold	-	· - ·	- .	•5
Equipment bought		3.1		9•5				· · ·	
Total	49.7	61.1	71.3	96.4	Total	57.3	61.7	67.5	69.8
Profit	6.3	1.7	, -	-	Loss		_	8.1	14•4
	94.0	105.2	121.6	156.3		94.0	105.2	121.6	156.3
Number of flocks	3	4	4	4	Number of dozen eggs		19, 533	7 71.5	
	2	· •	7		TIMINOT ()T GOTOTI OBBD	الله مر الون ا	ررر وري	7,745	5,945

Expenditure, Revenue and Profit or Loss: Averages per dozen eggs (pence)

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						-	4 C
							•
	Breeding Flocks	Deep Litter	Free Range <u>Flocks</u>		Breeding Flocks	Battery and Deep Litter	Free Range
Opening Valuation		and the second sec		Closing Valuation		Flocks	Flocks
Equipment Fowls Other	24/11 24/2 <u>2/3</u> <u>51/4</u>	22/3 20/2 <u>1/7</u> <u>44/-</u>	20/6 28/3 <u>1/1</u> 49/9	Equipment Fowls Other	34/3 26/5 <u>2/8</u> <u>63/4</u>	19/7 21/7 <u>1/4</u> <u>42/7</u>	18/4 25/7 <u>1/7</u> 45/6
Purchases and Expenses				Sales and other revenue			
Fowls and hatching eggs Purchased feeding-stuffs Home-grown feeding-stuffs	1/3 38/11 5/3	7/8 36/11 5	2/5 35/3 1/3	Market eggs Hatching eggs Clear eggs	35/- 23/4	58/3 -	46 <u>/5</u> 1
Hired labour	3/6	1/1	neg.	Culls from flock	6/1	1./-	4/9
Family labour	15/9	8/9	24/9	Day-olds	4/4	- 3	6
Rent, rates and insurance Fuel, light and power	1/-	6	1/8	Other fowls	12/1 .	6	10/3
Equipment repairs	1/8		7	Sundry receipts	1	4	
Sundry Expenses	2/5	9	り 1 /7	Eggs used in house Fowls used in house	1/4	1/8	2/9
Share of general expenses	2/10	1/1	1/7 2/8	Manurial values	2 1/5	1/2	10 1/2
Equipment bought	14/1	•		Equipment sold	.75		1/2
	87/7	57/9	70/7		84/2	66/6	66/9
Profit	8/7	_7/4		Loss	-	-	8/1
	<u>147/6</u>	109/1	120/4		147/6	109/1	<u>8/1</u> 120/4
Number of layers (daily aver		1158 ·	652	Market eggs sold, number	93•9	161.0	131.8
Estimated maximum number of	layers 4821	1310	771	Hatching eggs sold, number		-	•2
Number of flocks	11	3	4	Own eggs set, number	10.8	1.4	1.8
	•	•		Eggs laid, number	152	169	144

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Expenditure, Revenue and Profit or Loss 1950/51: Averages per laying bird (shillings) (excluding results from flocks not represented in 1951/52)

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Operating Wolvetien	Breeding Flocks	Battery and Deep Litter Flocks	Free Range Flocks	Closing Valuation	Breeding Flocks	Battery and Deep Litter Flocks	Free Range Flocks
Opening Valuation Equipment Fowls Other	35/8 27/9 2/8 66/1	23/9 20/4 1/0 45/1	21/9 30/6 1/11 <u>54/2</u>	Equipment Fowls Other	37/1 30/4 <u>3/2</u> 70/7	23/10 21/8 11 <u>46/5</u>	28/1 35/4 1/8 65/1
<u>Purchases and expenses</u> Fowls and hatching eggs Purchased feeding-stuffs Home-grown feeding-stuffs Hired labour Family labour Rent, rates and insurance Fuel, light and power Equipment repairs Sundry expenses Share of general expenses Equipment bought	2/0 46/2 5/- 1/8 17/1 1/0 1/- 1/2 3/7 1/8 8/1 88/5	5/8 42/1 7 1/1 8/- 5 3 1/10 8 1/4 3/4 65/3	3/6 38/11 3 neg. 26/4 2/0 6 1 3/4 3/4 3/6 8/7 87/-	Sales and other revenue Market eggs Hatching eggs Clear eggs Culls from flock Day-olds Other fowls Sundry receipts Eggs used in house Fowls used in house Manurial residues Equipment sold	35/2 26/8 2 5/3 6/4 12/10 2 1/5 4 1/8 <u>6</u> 90/6	56/7	42/- 1 6/- 11 5/11 6 3/- 8 1/3 - 60/5
Profit	<u>6/7</u> <u>161/1</u>	<u>1/10</u> <u>112/3</u>	141/2	Loss	161/1	 112/3	<u>15/8</u> <u>141/2</u>
Number of layers (daily average Estimated maximum number of lay Number of flocks		1526 1790 4	548 672 4	Market eggs sold, number Hatching eggs sold, number Own eggs set, number Eggs laid, number	91.3 r 42.2 11.9 152.3	146.4 - .9 155	117.7 .1 1.8 132

Expenditure, Revenue and Profit or Loss 1951/52: Averages per laying bird (shillings) (All flocks, including two not represented in 1950/51)

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THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

ECONOMICS DEPARTMENT

STATEMENT B. 1953

POULTRY COSTS INVESTIGATION Year ended 30th September,1952

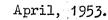
Individual **f**lock results

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6, Blythswood Square, Glasgow, C.2.

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Flock Number	A	В	C	D	Е	F	G	H	\mathbf{J}	K	L	
Average number of layers to the nearest hundred Estimated peak number of layers, per 100 layers System (1) Homegrown food as % of total food, by weight) of meal equivalent)	400 107 Br 2 11	100 105 R 1	300 109 Br 3 12	600 n.a. Br 3 55	500 118 Br 3 0	200 123 Br 2 0	200 127 Br 2 0	500 102 Br 2 52	300 113 Br 2 0	100 127 R 0	800 116 B&DL 5	•
Net revenue per layer (2) Food used per layer (3) Difference Labour per layer Profit or Loss (-) per layer (3) Profit plus labour " " (3) Operating surplus " " (4)	102/11 48/6 54/5 9/4 35/7 44/11 52/-	63/8 31/4 32/4 16/4 - 1/2 15/2 21/9	109/8 50/8 59/- 31/- 9/5 40/5 48/4	95/6 48/7 46/11 11/- 17/8 28/8 39/5	112/6 59/5 53/1 23/9 - 4/2 19/7 39/2	101/8 57/11 43/9 10/5 24/6 34/11 43/1	80/3 45/10 34/5 18/- 9/6 27/5 34/1	81/3 46/8 34/7 10/11 17/6 28/5 33/1	82/4 47/9 34/7 19/5 5/6 25/- 30/10	138/9 84/11 53/10 43/10 - 14/3 29/7 47/5	57/10 37/1 20/9 2/10 14/10 17/8 20/9	
Net revenue per £100 foods, £ (3) "" # £100 labour, £ """ £100 resources, £ (5) Net output per £100 resources, £ (6)	212 1103 759 339	202 389 320 78	217 352 261 101	196 866 526 161	189 473 337 60	176 972 54 <i>3</i> 188	175 447 340 121	174 745 546 192	172 423 316 102	164 318 227 51	156 2000 989 305	
Total meal equivalent used per layer (lbs.) " grit " " (") Hours of labour per layer Estimated meal equivalent used for layers	155 3•6 4•0 118	95 5•5 7•9 75	167 1.2 11.8 n.a.	171 6.2 4.1 n.a.	190 3-8 9-3 118	170 n.a. 4.0 n.a.	156 2.7 9.3 n.a,	169 5•5 3•9 .137	133 5.4 7.0 n.a.	255 10.0 15.8 117	114 2•1 1•5 90	
per layer (lbs.) Number of pullets reared, 1952, for flock per 100 layers (7)	53	32	134	69	91	84	66	69	74	401	71	
Eggs laid per layer Eggs sold or used in house per layer	194 189	154 149	1 37 1 16	168 153	177 152	187 180	129 120	1 55 1 52	173 172	196 196	144 144	
Av. price of market eggs, per dozen """ all eggs, """ """ culled layers """ grain bought, per cwt. """ mashes & pellets bought, per cwt. """ all foods (M. Eqt.) used per cwt (3	4/6½ 5/11½ 6/8 35/- 36/9 34/11	4/34 4/34 10/9 35/1 37/6 36/6	4/8 6/0 1 15/9 33/- 37/- 34/4	4/11 ¹ /2 5/4 ¹ /2 13/3 34/7 37/4 31/2	4/7 ³ ₄ 5/ <i>3</i> ‡ 9/11 29/4 39/1 34/8	4/34 5/51 7/6 28/2 41/2 38/1	4/11 ³ 4 6/3 ¹ 2 10/5 29/6 34/2 32/9	4/7 5/9 8/6 28/8 36/6 30/5	4/7 5/3 9/2 28/7 40/11 39/9	4/6 4/6 8/9 24/9 38/- 36/9	4/7 4/7 9/- 35/5 36/1	

For notes, see over

М	N	0	P	ନ୍	R	S	T	U	W	Flock nos.
100	200	200.	300	200	200	700	200	300	200	Av. no.
142	125	126	122	124	118	96	130	115	122	Peak No. %
Br 3	Br 2	R	Br 1	B	B	Br 2	R	B.&R	Br 1	System
0	21	3	0	neg.	0	0	0	0	0	Hg. food %
125/10 84/10 41/- 23/4 3/10 27/2 34/3	98/11 66/9 32/2 29/3 - 10/7 18/8 23/9	42/- 29/4 12/8 18/1 - 10/6 7/7 12/2	115/10 82/8 33/2 35/2 - 17/11 17/3 24/7	72/11 52/9 20/2 8/11 - 4/1 4/10 12/1	58/7 42/9 15/10 9/- - 7/11 1/1 1/1	53/9 39/8 14/1 16/- - 4/2 11/10 13/5	45/6 35/2 10/4 35/- - 33/10 1/2 8/8		60/11 39/11 21/- 32/4 - 53/8 - 21/3 10/6	Net rev. Foods used Difference Labour Profit or Loss Profit + Labour Op. surplus
148	148	143	140	138	1 37	1 36	130	124	116	N.R./foods
538	339	232	320	818	651	337	130	252	220	N.R./labour
325	262	189	262	492	330	264	107	199	100	N.R./resources
72	52	39	42	33	6	61	5	13	- 34	N.O./resources
261	216	98	246	153	107	125	120	164	167	Meal eqt.
8.0	3.3	1.8	3•4	1.6	10•3	2.3	0	5•6	•6	Grit
8.7	10.5	6.5	12•9	4.3	3•4	7.1	12•4	9•8	12•3	Hours
n.a.	n.a.	78	n•a•	123	107	.n.a.	72	130	78	M.E. to layers
150	127	73	153	1 <u>38</u>	0	44	58	25	200	Pullets reared %
177	161	117	1 <u>3</u> 0	176	196	110	100	1 39	82	Eggs laid
164	154	117	90	176	196	106	99	1 34	55	Eggs sold etc.
4/10 ³	4/6 <u>4</u>	4/2	4/5 <u>3</u>	4/8 <u>1</u>	4/6½	4/6½	4/2	4/9 ³ 4	4/8	Egg price. mkt.
5/8 ¹ /2	5/6 <u>7</u>	4/2	4/93	4/8 <u>1</u>	4/6½	5/8₄	4/2 1	4/9 ³⁴	4/8 3	" all.
9/10	9/4	6/3	9/7	10/8	10/9	7/9	9/2	7/5	15/6	Cull price
25/7	26/11	25/6	28/2	25/10	27/8	31/3	26/7	31/1	25/10	Grain price
43/-	39/3	38/1	40/10	39/1	37/4	35/3	38/10	36/7	39/-	Bt.food price
36/-	34/6	33/2	37/6	38/5	37/2	35/5	32/9	35/7	36/8	All food price

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The following notes apply to the statement within.

- 1. System: Br 1 represents flocks mainly concerned with day-old production. Br 2 " " " " " " batching and colo
 - Br 2 " " " " hatching egg sale. Br 3 " " concerned with both the sale and the cotting
 - Br 3 " concerned with both the sale and the setting of hatching eggs.
 - B. represents flocks mainly kept in cages,
 - D.L. " " " on built-up litter. R. " market egg flocks on mange
 - R. " market egg flocks on range.
- 2. Net Revenue = Sales (except equipment sales) and credits for produce to house and manurial values, plus closing valuation of livestock and sundries, less purchased livestock and eggs, and less opening valuation of livestock and sundries.
- 3. For this statement all homegrown grain has been charged at 26/- a cwt to represent the selling price.
- 4. Operating Surplus = Profit plus labour, rent, rates, insurance, share of general expenses and equipment depreciation.
- 5. Resources = Labour plus rent plus one-tenth of average valuations.
- 6. Net Output = Labour plus rent plus profit.
- 7. Number of pullets reared excludes pullets bought (or transferred in) at or near point of lay.
- 8. Food used for layers; some of the estimates are subject to a wide margin of error, mainly associated with the estimating of the food eaten by the young stock.
- 9. The flocks are arranged in order of Net Revenue per £100 foods, homegrown foods charged at estimated selling price.
- 10. n.a. = not available.
- 11. The terms used correspond to those used in Report No 5, 1953.