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# THE WEST OF SCOTLAND AGRICULTURAL COLLEGE ECONOMICS DEPARTMENT REPORT 

## POULTRY FLOCKS, 1948-49.

## SOME FIGURES FROM POULTRY ACCOUNTS.

## FOREWORD.

During the year ended in Autumn, 1949, twenty-eight farmers and smallholders supplied information to this Department about their poultry flocks. Although this number is greater than that covered by the previous report in this series (No. 2-1947) the flocks concerned cannot be considered fully representative of poultry in the Province. It is expected that a larger number of completed records will result from the investigation started on Ist October, 1949, at the request of the National Farmers' Union of Scotland ; but figures from still more flocks will be needed in the year commencing Ist October, 1950. The Department would therefore welcome word from any farmer or poultry-keeper who is interested and who is concerned rather with market egg production than with the production of hatching eggs or stock for sale.

This report, which has been drawn up along the lines already established in the Department, could not have been prepared without the co-operation of the farmers and smallholders who supplied the information, the help of the Poultry Instructresses in obtaining co-operators, and the field-work of Miss H. C. McIver and other members of the Department, to all of whom grateful acknowledgment is made.
C. W. Roberts.

## SUMMARY.

On 21 flocks, nearly all of which were on Accredited Breeding Stations, the average profit after charging all labour was $£_{175}$ a flock of 359 laying birds, or 12/7 a laying bird.

On the same flocks labour cost 19/7 a laying bird. The time spent corresponded to employing a full-time worker on a flock of 280 laying birds with young stock. Most of the work was done by the holders and their wives.

Feeding-stuffs consumed cost 31/9 a laying bird on these flocks. Grain and meals cost, on average, $21 /$ II a cwt.

On the 17 flocks giving information about the weight of foods, 156 lbs . of grain and meals were consumed a laying bird, and the total costs of food were $31 /-$

Egg yields averaged 141 a laying bird on 21 flocks, and 137 a bird on a wider group of 25 flocks. Average selling prices of eggs were $4 / 3 \frac{1}{2}$ a dozen on the 2I flocks and $4 / 5^{\frac{1}{2}}$ on the 25 flocks.

Culled laying birds realised $\mathrm{II} / 7$ a head. In the year about I layer in 15 either died or was stolen.
On the average enterprise approximately $80 \%$ of the profit, or $33 \%$ of the combined profit and charge for family labour was used for improving the equipment or increasing the livestock.

The figures relate to a year ending in Autumn, 1949: since that date there have been changes in the price and volume of supplies, particularly of feeding-stuffs, and the price of poultry.

## THE FLOCKS.

The 28 records collected included three in which income and expenditure on the poultry were so closely shared with other activities that they have been completely omitted from the statements which follow. Four others included some income and expenditure relating to other activities than poultry-keeping, but contribute to some parts of the report. The remaining 2I, about which the greater part of this report is concerned, can be divided into nine which sold for hatching or used for hatching more than $25 \%$ of their eggs and are therefore called breeding flocks, and 12 flocks which sold for table or used for table more than $75 \%$ of their eggs, and are therefore called market egg flocks.

Amongst the nine breeding flocks, four were associated with other agricultural activities on either a dairy farm or on a small holding and five represented the only enterprise on the holding. Amongst the twelve market egg flocks the corresponding numbers were eight and four respectively.

Only one flock was battery-housed, and on only three others were the houses semi-intensive. Thus all except four had ample range and could be expected to derive some nutriment from the pasture.

All flocks except four of the market egg flocks associated with other agricultural activities were on Accredited Breeding Stations. Apart from these four, the flocks had access, therefore, to larger supplies of purchased feeding stuffs than non-accredited flocks in general. Presumably the quality of poultry stock and the standard of management was higher than average, and labour and some other items of expenses and sales would be on a higher level than average.

The average numbers of laying birds carried by the market egg flocks varied from 94 to 1116 , the middle size being 208 and the average 298; whilst the numbers carried by the breeding flocks varied from 152 to 726 , the middle size being 328 and the average 439. The table shows the distribution of flocks by size.

| Average Number of Laying Birds. |  |  |  |  | Market Egg Flocks. | Breeding <br> Flocks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 90 to 200 | $\ldots$ | $\cdots$ | ... | $\ldots$ | 3 | 1 |
| 200 to 400 | ... | ... | ... | ... | 7 | 3 |
| 400 to 1000 | ... | ... | $\cdots$ | ... | I | 5 |
| Over 1000 | ... | ... | ... | ... | I | ... |
|  |  |  |  |  | 12 | 9 |
|  |  |  |  |  | = | $\underline{=}$ |

## THE ACCOUNTING METHODS.

For this report the accounts have been prepared in such a way that, whether the flock was part of a mixed undertaking or the sole enterprise of a holding, the recorded expenditure and revenue is that fairly attributable to the poultry alone. All enterprises with ducks, geese or turkeys or having substantial revenue from other activities than those connected with fowls and chickens and eggs have been omitted. Where a few sheep were used for grazing the poultry ground, or where ponies were kept for working the holding, they have been included amongst Other Livestock. In no included case did any Other Livestock eat any of the recorded feeding-stuffs.

Most of the valuations were made on the basis of current market values rather than actual costs incurred. They are, therefore, somewhat lower than the amounts that would be necessary to purchase going concerns, but are substantially higher than normal accounting practice would show.

Feeding-stuffs grown on the holdings have been charged at estimated cost; and a share of general expenses has been charged, at approximately $3 /-$ per $£$ of labour, in the cases where poultry form part of a mixed holding.

No initial allowances have been written off equipment bought, but ordinary wear and tear allowances have been deducted. The charge for rent excludes the rental value of the residential part of the farmhouse.

Family labour has been charged at the following hourly rates :-

| Farmer | ... | ... |  | 2/3 | Wife | ... | $\ldots$ | I/9 or 2/2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Adult sons | $\ldots$ | ... | . | 2/2 | Adult daughters | ... |  | I/8 |
| Sons, 19-20 down to |  |  |  | I/II | Daughters, 19-20 down to | ... | ... | I/7 |
| Sons, 15-16 | ... | ... | . | IId. | Daughters, 15-16 |  | .. | IId. |

Hired labour has been charged either at cost, if known, or at the above rates.
Produce used in the house has been credited at estimated cost.
No credit has been given for manurial values of foods. Had such credit been given it would have raised revenue by about $\mathrm{I} / 6$ a laying bird on farms where the poultry manure was used for the improvement of grazing for other stock or of other crops.

All the averages quoted are those arrived at by giving each flock equal importance in the particular calculation. For example, in the "per bird" series the flock with 94 laying birds on average counts equally with the flock with III6 laying birds; and in the calculation of costs and returns per dozen eggs, the figures for a dozen eggs from the flock producing 1067 dozen eggs are as important as those from a flock producing ten times as many.

It is to be noticed that the expenditure per laying bird of 3 I/II on feeding-stuffs is not the cost of feedingstuffs which a single laying bird would eat in a year, but what she and her share of the cockerels and growing stock would eat. Similarly, for every dozen eggs produced the labour used cost $\mathrm{I} / 9 \frac{1}{4}$; but this labour included the share of attention to incubation and the growing stock and to repairs and new construction.

The number of laying birds used in the calculations is that obtained by averaging the numbers or estimated numbers of laying birds at the ends of each month. It therefore differs from the divisor used in Report No. 2, 1947, which was normally the average of the numbers, at the beginning and the end of the year, of adult birds, including male birds.

These numbers are, in general, much lower than the numbers of laying birds which could be carried with the existing equipment; and it follows that the resulting figures for eggs produced, for example, are higher than would be shown if this latter standard of capacity was used. The capacity standard is, indeed, what the owner of a laying battery employs when he speaks of selling, say, 250 eggs a cage ; but it cannot be used in this report because the present capacity of the plants is not known. However, it can be said that it appears that on average the number of laying birds after culling in autumn was $7 \%$ higher than the average numbers throughout the year.

Egg yields include neither eggs used in feeding mashes nor those which were completely useless; they are therefore slightly lower than the numbers actually collected from the laying houses.

## SOME INTERESTING FIGURES.

Some of the interesting points which have emerged are discussed below, while detailed figures for the two groups of flocks are set out in the tables on pages 5, 6 and 7, namely :-

Page 5-Expenditure, Revenue and Profit, per flock.
Page 6-Expenditure, Revenue and Profit, per laying bird.
Page 7-Expenditure, Revenue and Profit, per dozen eggs.
Purchases of stock and hatching eggs varied from 9/7 a laying bird to nothing, the middle rate being 1/5.

Feeding-stuffs consumed by the 21 flocks cost $31 / 9$ a laying bird and consisted very largely of grain, meals and pellets. On a third of the flocks grit, potatoes and similar foods accounted for less than $\mathrm{I} \%$ of the food bill, the proportion varying from nil to $22 \%$ around a middle figure of $1.5 \%$.

The weight of grain and mash (including pellets) was recorded on all except four of the 21 flocks. This varied from the surprisingly low figure of 75 lbs . a laying bird (the egg yield of this flock was also low) to 230 lbs.; the middle rate being 156 lbs. for both groups. The average cost of food consumed on these same 17 flocks was $3 \mathrm{I} /-$; only 9 d . below the general average. The table shows the range of grain and meal consumption rates.


Feeding-stuffs prices.-Together, bought grain and mash cost on average $2 \mathrm{I} / \mathrm{II}$ a cwt. on all flocks, and varied between the very low rate of $17 / \mathrm{I}$ and $25 / 9$, the middle average price being $21 / 10$.

Electricity consumption was relatively high on the holdings selling large numbers of day-old chicks.
Labour Used.-Next to feeding-stuffs, labour was the biggest expense. The cost per laying bird on the 12 market egg flocks varied from $7 / 8$ to $45 / 2$ around a middle figure of $16 / 4$ and an average of $19 / \mathrm{I}$; while on the breeding flocks the range was from $8 / 7$ to $32 / \mathrm{II}$ around a middle figure of 20/9 and an average of 20/4. On all except one flock the work of the farmer and his family cost more than the paid labour. Indeed, on the average market egg flock the charge for the labour of farmer and wife at $£ 147$ a flock amounted to $60 \%$ of all labour ; and on the breeding flocks the corresponding charge was $£ 357$, or $75 \%$ of all labour. There is some probability that on several of the holdings recording much family work the family could have handled more birds with very little increase in labour cost, had the necessary feeding-stuffis been obtainable at a profitable price. Only five of the flocks carried more than 450 laying birds on average. Hours of work a laying bird on the 2 I flocks varied from 4.I to 20.1 around a middle rate of $8 \frac{3}{4}$ hours and an average of $10 \frac{1}{4}$ hours in both groups. On the basis of a $55 \frac{1}{2}$ hour week this average corresponds to 280 laying birds a full-time person. The table shows the range of hours recorded. None of the enterprises approached the economy of labour claimed for some methods of housing.


Eggs Produced.-Among the 21 flocks egg yields per laying bird varied from 183 (a little over 15 dozen) down to 97 (approximately 8 dozen), the middle yield being 146 eggs. The distribution of average egg yields is shown in the table.


Average yields were a dozen-and-a-half lower in the breeding flocks than in the market egg flocks, due partly to the retention of birds as breeders beyond their most productive period. Over the 25 flocks the average yield was 137.

Egg Prices.-During the year the producer's fixed price per dozen for eggs to packing stations was 4/up to 3 Ist March, $3 / 9$ from Ist April to 21 st September, and $5 /-$ from 22nd September to 30 th September. Apart from two flocks in Argyll, where egg prices were uncontrolled, about half the flocks attained higher average prices for market eggs than the estimated national average. Presumably they achieved slightly higher proportionate winter sales than the national average.

Average prices for eggs were as follows:-
12 Market Egg flocks.

|  |  |  |  | All Flocks. | All except Argyll. | 9 Breeding Flocks. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Market eggs, per dozen | $\ldots$ | ... |  | 4/2-1 | 3/10.8 | 3/9•4 |
| Hatching eggs, per dozen | ... | ... |  | 6/6.5 | 6/1.2 | 7/3 |
| All eggs, per dozen . | ... | ... | . | 4/3.9 | 4/0.9 | $4 / 3 \cdot 3$ |

Sales of Laying Birds.-On average one laying bird was sold off for every two laying birds kept for a year. They made II/-a head from the market egg flocks; and I2/-a head from the breeding flocks, the higher figure being due to the inclusion of birds sold as layers.

Losses of Laying Birds.-On average within the year, just under $6 \frac{1}{2}$ laying birds either died or were missing for every 100 laying birds on hand at the beginning of the year or added to the flock during the year. Expressed as a proportion of the average numbers of birds carried, this is about $10 \frac{3}{4}$ per 100. The middle proportion was $8 \frac{1}{2}$ per 100, and the extremes were nil and $30 \%$. It is noteworthy that when culled laying birds sell for 12/-, a loss of three birds for every ten average birds means a loss of income of $3 / 6$ a bird, apart from the losses of profit consequential on the reduced number of stock.

The table shows the incidence of deaths or thefts. The high proportion of flocks showing losses of less than $15 \%$ indicates that stocks were generally healthy.

| Hens died o \% of averag of he | issing, umber |  |  |  | Number of Flocks. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| O to 5 ... | ... | $\ldots$ | $\ldots$ | $\cdots$ | 5 |
| 5 to $10 . .$. | ... | ... | ... | $\ldots$ | 8 |
| 10 to 15 | ... | ... | ... | ... | I |
| 15 to 20 | ... | $\ldots$ | ... | ... | 3 |
| Over 20 | $\ldots$ | ... | $\ldots$ | $\cdots$ | 3 |
| Not known | ... | $\cdots$ | $\cdots$ | $\cdots$ | 1 |
|  |  |  |  |  | 21 |

Valuation Changes.-Although nearly half the flocks spent more on equipment than was needed merely to make up for the year's depreciation in terms of past expenditure, prices of materials were so high that it is doubtful if the expenditure on many of the farms (apart from two which installed substantial brooding equipment) was sufficient to improve the physical standard of their plant.

The valuation of equipment increased by $£ 62$ a flock ( $12 \%$ ); or by $£ 3$ a flock (under $1 \%$ ) on the flocks other than the two mentioned above. On the other hand seven out of the twelve market egg flocks and six out of the nine breeding flocks had more fowls or chickens at the end of the year than at the beginning and the valuation of the fowl stock therefore increased by $£ 68$ a flock ( $14 \%$ ). The total valuation increased by $f_{\mathrm{I}} 42$ a flock ( $\mathrm{I} 4 \%$ ).

Profit before charging labour.-The surplus of revenue and valuation increase over expenditure before charging any wages varied on the 21 flocks from $13 / 3$ a laying bird to $54 / \mathrm{II}$, and averaged $32 / 2$.

The table shows the distribution of these surpluses.


Profits.-Average profits after charging all labour were $£_{175}$ a flock, $12 / 7$ a laying bird or $11 \frac{2}{3}$ pence a dozen eggs. They varied from a loss of $10 / 7$ a laying bird to a profit of $47 / 3$. The $12 / 7$ a laying bird and the $I I_{3}^{2}$ pence a dozen, of course, include the profit on table and stock poultry.

The range of profits is indicated in the following table:-


Expressed in terms of capital employed, using for this purpose the average of the valuations at the opening and closing of the year, increased by $25 \%$, the profits, after charging wages but before charging any managerial work not included in the manual labour charge, varied from $96 \%$ to minus $7 \frac{1}{2} \%$, around a middle rate of $14 \%$. The average was about $27 \%$.

In terms of the average flock, over $80 \%$ of the profit or approximately $33 \%$ of the profit plus family wages was used for improving the equipment or increasing the livestock.

Table I.
EXPENDITURE, REVENUE AND PROFIT, 1948-49: AVERAGES PER FLOCK.


Table 2.

EXPENDITURE, REVENUE AND PROFIT, 1948-49: AVERAGES PER LAYING BIRD.


Table 3
EXPENDITURE, REVENUE AND PROFIT, 1948-49: AVERAGES PER DOZEN EGGS PRODUCED.


