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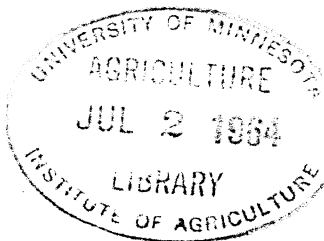
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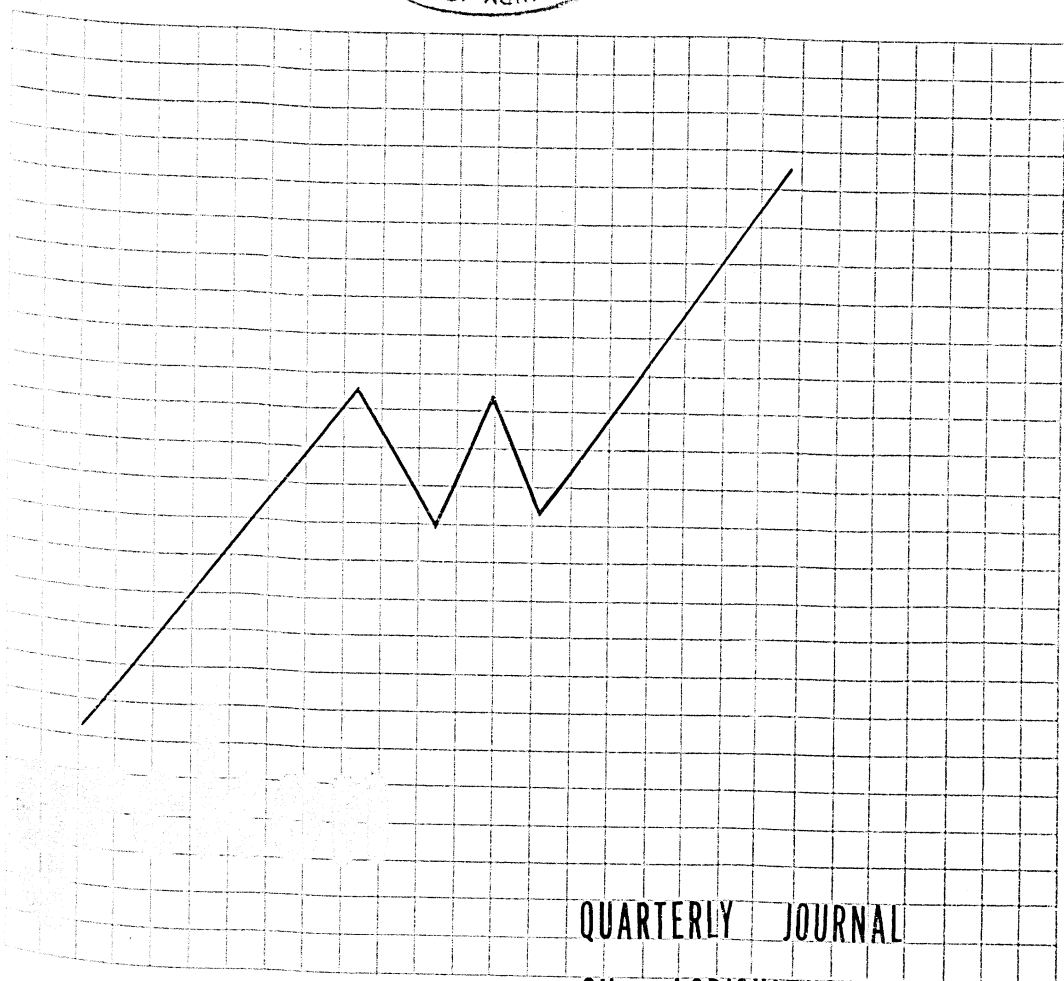
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An Economic Study of the Poultry Industry in Northern and Southern Rhodesia

by

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INTRODUCTION

This economic study of the poultry industry in Northern and Southern Rhodesia has been directed along two lines: Firstly a production cost survey has been attempted and, secondly, a study has been made on the marketing of eggs.*

The intention with the production cost survey (for the year 1961/62) was to obtain details of stock numbers and poultry expenses monthly for eggs and broiler records was prepared, which it was hoped would this purpose a rather detailed schedule as prepared, which it was hoped would be filled in by interested poultry keepers. Some 140 poultry enterprises were visited and 70 of these expressed interest in maintaining these records.

It was soon apparent, however, that the recording scheme was not going to be successful. In fact, only 10 of the original 70 producers were eventually keeping the records. Accordingly it was decided that on the call-back overall financial records would be obtained from the poultry keepers. It was hoped that this would give some idea of the cost structure and the profitability of the industry. The financial records used were the profit and loss accounts of the poultry keepers which are prepared annually for Income Tax purposes.

It will be appreciated that this does not make it possible to arrive at the production costs of a dozen eggs or a pound

of poultry meat. Profit and loss accounts frequently showed an item classed merely "poultry sales". It was extremely difficult therefore to apportion costs, etc. to the broiler meat section, the egg production section and the breeding section.

Bearing this in mind, the production cost survey can only give a very broad indication of the nature of the various cost items and some idea of profit margins. This is highly regrettable but was inevitable as the majority of producers kept totally inadequate records, particularly of feed utilisation and mortality, and felt unable to keep additional records for the purpose of this survey.

METHOD

In very few cases indeed was the poultry enterprise the sole occupation of the producer. Consequently indirect costs were apportioned in the proportion of direct poultry costs to total farm direct costs. In the case of peri-urban producers, who operate on a part-time basis, costings were complicated by the tendency to apportion all transport costs to the poultry enterprise. An attempt was made to arrive at a fair allocation of transport costs but it is by no means precise. A cost structure has therefore been drawn up for 'on farm costs' which excludes transport. A structure which includes transport has also been shown.

The averages used in the cost structure calculations are averages of averages.

*The production cost survey only will be dealt with in this article. - Editor.

This was adopted in order that the very few large enterprises would not unduly influence the results of the whole sample. The interpretation of the cost structure results must take into account the fact that the farmer's time has been excluded as well as the interest on his capital. No precise estimate can be made on these items for presumably salary requirements would vary according to the magnitude of the enterprise. The margins are therefore a reward for the poultryman's labour, capital and enterprise.

THE SAMPLE

The sample of 47 producers was drawn from producers visited previously on the cost recording scheme. Generally, it was the intention of the investigator to approach poultry keepers who ran a flock of over 1,000 layers. However, due to the ease with which stock can be so drastically reduced, there have been included in the sample producers with as few as 500 laying birds.

Several of the producers visited had very little detailed financial information, and in mixed farm enterprises it was often impossible to distinguish feed purchased for poultry from that purchased for pigs and cattle. Table 1 shows the geographical distribution of the sample. By way of explanation it should be pointed out that Bulawayo and districts includes all Matabeleland, Midlands and districts

includes Gwelo, Que Que, Gatooma and Hartley. Northern Rhodesia Central Province includes Broken Hill, Chisamba, and Lusaka.

COST OF PRODUCTION

Table 2 shows the cost structure for the sample. As mentioned earlier "on farm" costs have been given as well as total costs. This was necessary owing to the unsatisfactory manner of apportioning transport costs.

"Purchased Feeds" are, as one would expect, the highest cost item, amounting to 63% (or 67% of "on farm" costs). When combined with home-grown feeds, the total feed item is 65% (69%). Feed is followed by stock and hatching egg purchases, and African wages and rations.

In order to see if costs altered significantly according to the magnitude of the enterprise, the sample was stratified according to the size of sales. It was felt that sales figures would be a valid yardstick for assessing the size of the operations.

Stratification of the sample into sections, which are as homogeneous within themselves as possible, allows a study to be made of the different size aspects of the industry. Table 4 shows a cost structure of the sample according to the five strata.

TABLE 1. - Geographical distribution of the sample

Areas	No. of producers	%	Sales £	%
Salisbury and districts	9	19	197,409	49
Bulawayo and districts	10	21	80,242	20
Midlands and districts	9	19	52,778	13
Umtali and districts	6	13	26,753	7
N.R. Central Province	9	19	30,528	7
N.R. Copperbelt	4	9	15,905	4
Total	47	100	403,615	100

Stratum I comprises breeding farms, which also sell eggs and poultry meat. Smaller breeders and a few large broiler producers appear in Stratum II. The remaining strata are general multi-purpose poultry farms of varying magnitude. It is significant that there is an increased use

of home-grown feeds in Strata III, IV and V. Rent is a higher cost item in Strata I and II. The item "Egg Purchases" is distinct from "Hatching Egg Purchases". This is a purchase by egg producers of eggs required to meet contract obligations. This item figures more in the smaller

TABLE 2. - Cost structure for the poultry industry in the Federation (1961/1962)

Cost items	Total cost structure	On farm cost structure
	%	%
Purchased feeds	63.12	66.61
Home-grown feed	2.33	2.54
Stock (hatching egg purchases)	8.08	8.56
Vets and medicines	0.75	0.79
Chick sexing	0.38	0.39
Packaging	1.09	1.14
African wages and rations	7.21	7.62
European wages	0.85	0.89
Advertising	0.22	0.22
Electricity and/or fuel *	1.43	1.51
Rent	1.30	1.39
Repairs and renewals	1.48	1.59
Interest and bank charges	0.92	0.97
Depreciation	2.39	2.54
Egg purchases	0.86	0.91
General expenses	2.20	2.33
Transport	5.38	
Total	100.00	100.00

* Fuel and power for brooding and incubating chicks, dressing poultry and pumping water.

TABLE 3. - Stratification of the sample

Strata	Sales range	Number of sample in the stratum
Stratum I	Over £20,000	5
Stratum II	£10,001 to £20,000	7
Stratum III	£4,001 to £10,000	8
Stratum IV	£3,001 to £4,000	12
Stratum V	£3,000 and under	15
Total		47

TABLE 4. - Cost structure for the poultry industry, stratified according to the magnitude of the enterprise (1961/62)

Strata Gross sales range (£)	Stratum V 3,000 and under		Stratum IV 3,001 to 4,000		Stratum III 4,001 to 10,000		Stratum II 10,001 to 20,000		Stratum I over 20,000	
	Total cost struc- ture	On farm cost struc- ture	Total cost struc- ture	On farm cost struc- ture	Total cost struc- ture	On farm cost struc- ture	Total cost struc- ture	On farm cost struc- ture	Total cost struc- ture	On farm cost struc- ture
Purchased feed	61.82	66.33	70.48	69.04	65.50	69.04	64.05	66.15	53.19	54.92
Home-grown feed	4.92	5.42	2.36	0.83	0.77	0.83	-	-	0.66	0.68
Stock and hatching egg purchases	8.82	9.52	8.86	7.67	7.33	7.67	3.74	3.87	12.31	12.94
Vets and medicines	0.55	0.59	0.71	0.87	0.83	0.87	0.90	0.94	1.20	1.24
Chick sexing	-	-	-	-	-	-	2.00	2.08	0.77	0.79
Packaging	0.41	0.44	0.33	2.04	1.93	2.04	1.36	1.41	3.26	3.37
African wages and rations	6.02	6.44	8.15	8.64	8.09	8.64	9.43	9.77	5.11	5.29
European wages	-	-	-	0.75	0.71	0.75	1.75	1.82	4.45	4.63
Advertising	-	-	0.06	0.01	0.01	0.01	0.77	0.80	0.75	0.80
Electricity and/or fuel *	1.05	1.12	1.37	1.40	1.31	1.40	2.72	2.83	1.24	1.29
Rent	0.61	0.71	0.74	0.03	0.02	0.03	3.48	3.65	3.83	3.99
Repairs and renewals	1.22	1.34	1.80	1.47	1.39	1.47	1.46	1.51	2.03	2.10
Interest and Bank charges	1.14	1.22	0.10	1.36	1.28	1.36	1.04	1.08	1.49	1.53
Depreciation	2.12	2.30	2.43	3.57	3.34	3.57	1.73	1.78	2.53	2.62
Egg purchases	1.71	1.80	0.61	0.89	0.84	0.89	-	-	0.24	0.25
General expenses	2.59	2.77	1.88	1.43	1.35	1.43	2.22	2.31	3.41	3.56
Transport	7.02	-	-	-	5.30	-	3.35	-	3.53	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

* Fuel and/or power for brooding and incubating chicks, dressing poultry and pumping water

producer groups. If the transport item is accepted, it is apparent that transport as a percentage of total costs increases as the enterprise becomes smaller.

On five of the farms it was possible to make a rather imprecise estimate of costs per dozen eggs. These five were principally egg producers and merely sold culls as poultry meat. The costings

TABLE 5. - Total costs of production per dozen eggs on five "principally egg producing" enterprises

Producers	Cost per dozen	Territory
1	2/2 ³ / ₄	S.R.
2	2/3 ¹ / ₂	S.R.
3	2/5 ³ / ₄	N.R.
4	3/1 ¹ / ₂	S.R.
5	3/5 ¹ / ₄	S.R.
Mean cost	2/8 ¹ / ₂	

estimate assumed that the present costs of producing a 'point of lay bird' were the same as the cost of bringing the present 'laying birds' to point of lay.

PROFIT MARGINS

An attempt was made to extract the magnitude of profit margins from the 47 poultry enterprises examined. These margins were related to the total expenditure of the enterprises and expressed as percentages. This attempt at arriving at margins makes the assumption that the opening and closing values of poultry stock for the 47 enterprises were comparable throughout. Unfortunately this was not always a valid assumption, but few poultry keepers kept precise stock details.

Table 6 shows a two-way frequency table showing the magnitude of profit margins and the margins expressed as a percentage of total expenditure for the enterprises examined.

TABLE 6. - Frequency distribution of margins for 47 poultry enterprises in Northern and Southern Rhodesia (1961/62)

Profit or loss (£)	-40 to -31	-30 to -21	-20 to -11	-10 to -1	0 to +9	+10 to +19	+20 to +29	+30 to +39	+40 to +49	Total
Loss										
1,001 and over		2								2
1,000 to 501	1	1								2
500 to 1		1	1	2						4
Profit										
0 to 499					7	4	3			14
500 to 999					1	1	3	1		6
1,000 to 1,499					1	3	1	2	1	8
1,500 to 1,999								2	1	3
2,000 to 2,499							1			1
2,500 to 2,999								1		1
3,000 to 3,499										0
3,500 to 3,999							1		1	2
4,000 and over						1	2	1		4
Total	1	4	1	2	9	9	11	7	3	47

By way of explanation, it is apparent from Table 6 that the cell, showing the most observations, is that in which margins fall into the group £0 to £499, and in which such margins represent 0% to 9% return on total expenditure. Only 40% of the poultry enterprises enjoyed a margin of over £1,000 per annum. These 40% showed a mean percentage margin over total expenditure of 27.6%. An examination of these 40% showed that 63% were breeders, either for the purpose of selling day-old chicks as the major enterprise or as a means of providing their own stock for a principally egg or broiler producing enterprise. The remaining 37% of this groups were broiler and/or egg producers.

Of the remaining 60% of the total sample, 17% showed an overall loss. Two of the enterprises experienced a loss of over £1,000. In the case of one of these, the loss coincided with the owner's absence on holiday.

From Table 6 it appears that 10 of the poultry enterprises made a margin representing over 30% on total expenditure. This figure is indeed a high percentage return when compared with the mean percentage margin for the sample of 14.6%. However, of these 10 enterprises, seven showed a margin of under £2,000 per annum, indicating that their operations were on a comparatively small scale. A study of these 10 enterprises showed an "on farm cost structure" as shown in Table 7.

For the 10 enterprises the principal item which is lower than the total sample mean is the stock and hatching egg purchases. Some 50% of this group were operators who bred stock, either for sale as day-old chicks or for the purpose of restocking their egg and broiler enterprises. Of the 10 enterprises only two utilised home-grown feeds; and of these two, home-grown feeds represented just

TABLE 7. - "On farm cost structure" for the 10 enterprises showing a margin of over 30% of total expenditure, compared with the mean for the whole sample

Cost-items	Mean for the 10 enterprises	Sample mean
	%	%
Purchased feed	68.36	66.61
Home-grown feed	1.23	2.54
Stock and hatching egg purchases	2.98	8.56
Vets and medicines	0.73	0.79
Chick sexing	1.06	0.39
Packaging	1.82	1.14
African wages and rations	8.36	7.62
European wages	2.20	0.89
Advertising	0.25	0.22
Electricity and/or fuel	2.40	1.51
Rent	1.00	1.39
Repairs and renewals	3.13	1.59
Interest and bank charges	1.23	0.97
Depreciation	2.61	2.54
Egg purchases	0.18	0.91
General expenses	2.46	2.33
Total	100.00	100.00

under 11% of the cost structure for one of the two enterprises. Two of the 10 operators undertook general mixed farming operations and the poultry enterprise was by no means the principle source of income.

FEED COSTS

The "on farm" cost structure for poultry reveals that feed costs, at 69% of total "on farm" costs, are far and away the most vital in any considerations of economising in operations. Consequently the return to poultry producers is in no small way governed by the cost of feedstuffs. Any alterations in the consumer price of maize are of immediate concern to the poultryman, since on average the general types of poultry feed have a maize content of from 50% to 60%.

Out of the total 47 operators, 12 grew maize and purchased concentrates for mixing their own rations; the remainder purchased their feed requirements in a ready-mixed form. With the present, comparatively high, domestic maize price, it is perhaps surprising that so few operators grow their own maize requirements. Home-grown feeds as a percentage of the 'on farm cost' structure is 2.5% as compared with some 19% for the dairy industry. The majority of the larger producers operate on relatively small holdings and in many cases have no machinery for maize cultivation. About 47% of the sample operated on acreages less than 300, and of the 12 major producers in Strata I and II (Table 3) the largest acreage was 352 acres. Thus the lack of suitable and sufficient land, together with the lack of machinery in many cases, accounts for the extremely low percentage cost of home-grown feeds.

For the purposes of this exercise the value of the home-grown maize utilised for the poultry enterprise has been taken as 25/- per bag. It was not possible to cost out each producer's maize production cost, but any error that arises from this assumption will be small, since the percentage cost of home-grown feeds is itself so very small. For the operator

whose home-grown feeds represented 11% of his "on farm cost" structure, the arbitrary figure of 25/- per bag might have a greater effect on his margins. It was, in fact, this operator who showed the highest percentage margin of receipts over expenditure, at 44.4%.

Without doubt home-grown feeds can considerably reduce the feed cost item of the poultry producer, where such feeds can be grown at a reasonable cost. The purchase of farm machinery by a small holder for the sake of providing home-grown maize off a few acres is unlikely to help reduce poultry feed costs.

CONCLUSIONS

1. A cost structure for the Rhodesian poultry industry, calculated from financial records of 47 poultry producers, reveals that poultry feed is the highest cost item, representing 69% of "on farm" costs. It is significant to point out that home-grown feeds constitute a very small item indeed in total feed costs.
2. Stock and hatching egg purchasers (9%) are followed by African wages and rations (8%).
3. About 40% of the sample enjoyed a margin of over £1,000 per annum; the majority of these were breeders. Some 17% of the sample showed an overall loss.
4. The mean percentage margin over total expenditure was just under 15%.
5. Feed costs are the most vital in any considerations of economising in operations. As maize constitutes over 50% of the general type of ration, the price of maize is of immediate concern to the poultryman. The breeding of suitable stock can also help in making the enterprise more economical.
6. The lack of sufficient and suitable land, together with the lack of farm machinery, accounts for the extremely low percentage of home-grown feeds utilised in the industry.