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Farm economics branch

PIG MANAGEMENT SURVEY

Interim Report

COSTS and RETURNS 1953

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PIG MANAGEMENT SURVEY

Interim Report

COSTS and RETURNS, 1953

Towards the end of 1952, the Department of Agricultural Economics at King's College instituted a Pig Management Survey, for the purpose of investigating the general profitability of pig feeding and also to obtain information showing which aspects of management had most influence on profits.

Although about thirty co-operators were enrolled at the start, usable returns were obtained from 14 co-operators only - a disappointing result for the time and work involved, and one which limits the conclusions to be drawn from the results obtained.

The results from the 14 sets of usable records, which relate mainly to the year 1953, are presented in this brief interim report. The investigation is being continued over a larger number of farms and further reports will be issued in due course.

The 14 sets of records divide into two groups of seven. One group relates to batches of fattening pigs costed from weaning, or purchase as stores, to sale, mainly as bacon pigs. The second group are records for the whole pig enterprise on seven farms where the output was too mixed to enable costs to be determined for any one category. The two sets of results are therefore presented separately.

- (1) **FATTENING PIGS.** On the seven farms, at the beginning of the recording period, the batches of pigs being costed totalled 247 pigs. 145 were home-bred and 102 were purchased. During the period 7 pigs died, 235 were sold and 5 were on hand at the end of the period.

Table 1 analyses the costs and ingoing values of the store pigs, and Table 2, the returns from pigs sold and retained. It will be seen that the pigs sold were mainly baconers. The porkers were sold from 2 farms only and the 5 gilts sold for breeding purposes were all from one farm.

TABLE 1. ANALYSIS OF COST OF STORE PIGS

	<u>No.</u>	<u>Total</u>	<u>Average per Pig</u>
		£. s. d.	£. s. d.
Valuation (Home-bred Stock)	145	1174. 0. 0.	8. 2. 0.
Price of Bought Pigs	102	844. 9. 6.	8. 5. 7.
	247	2018. 9. 6.	8. 3. 5.

TABLE 2. ANALYSIS OF PRICES AND VALUES
OF PIGS SOLD AND RETAINED

SALES:	No.	Total	Average per Pig
		£. s. d.	£. s. d.
Fat Pigs: Bacon	198	4488.18. 5.	22.13. 5.
Pork	28	495.18. 5.	17.14. 3.
Casualties	2	19.12. 6.	9.16. 3.
Condemned	2	-	-
Gilts for Breeding	5	125. 0. 0.	25. 0. 0.
VALUATION OF PIGS RETAINED			
Gilts for Breeding	3	66.18. 0.	22. 6. 0.
Fat Pigs for Household Use	2	40. 0. 0.	20. 0. 0.
TOTAL	240	5236. 7. 4.	21.16. 5.

The difference between the returns for pigs sold and retained and the cost of the store pigs, in other words the Output, is related to the costs incurred (Net Input) in the following table.

TABLE 3. OUTPUT AND COSTS FOR FATTENING PIGS

	Total for 240 Pigs	Average per Pig
	£. s. d.	£. s. d.
RETURNS (Sales and Closing Valuation)	5236. 7. 4.	21.16. 5.
<u>Less</u> COST OF STORE PIGS (Purchases and Opening Valuation)	2018. 9. 6.	8. 8. 2.
OUTPUT	3217.17.10.	13. 8. 3.
COSTS INCURRED IN OBTAINING THIS OUTPUT:		
Foods (a) Home-grown 609 cwt.	762. 7. 9.	3. 3. 6.
(b) Bought 644 cwt.	1104. 1. 2.	4.12. 0.
Total 1253 cwt.	1866. 8.11.	7.15. 6.
Labour	115. 3. 4.	9. 8.
Other Costs	9.14. 6.	10.
TOTAL COSTS (INPUT)	1991. 6. 9.	8. 6. 0.
PROFIT	1226.11. 1.	5. 2. 3.
OUTPUT PER £100 INPUT	161.12. 0.	
INPUT PER £100 OUTPUT	61.17. 0.	

Results from so small a sample can only hint at the general level of the profitability of pig fattening. They are more useful for showing the make-up of production costs, and when individual farm results are compared on a suitable unit basis, they reveal the substantial differences in economic results achieved. Taking 'output' as the value added to the in-

going pigs, and relating this output to the costs of obtaining it (foods, labour, miscellaneous items and overheads), then on the average of these seven farms, each £100 of input produced an output of £161.12. 0. One may be tempted, in the absence of a broader sample of information, to look upon this average as a standard against which individual farm results may be assessed. The individual results are set out in Table 4 and they show that, between the seven farms concerned, the range in output per £100 input was from £147. 9s. to £212. 9s. The range is more significant than the average or standard.

In computing costs here no charges have been included for general farm overheads (such as rent of buildings or feeding courts, and other miscellaneous expenses not directly related to pig keeping); nor for interest on the capital used; nor for bedding straw. No credit has been given for manure produced.

The home-grown foods have been charged at estimated selling prices. All such foods were cereals and the average price charged was 25/- a cwt. At this price there was an element of profit assigned to the crops at the expense of the pigs. If cereals had been charged at the estimated cost of production (15/- per cwt.) the charge for home-grown foods would have been reduced by about 25/- per pig, the profit per pig being increased by this amount. Bought foods averaged 34/2d. per cwt.

From the total weight of pigs sold or retained, it may be calculated that the Average Cost per score dead-weight (including the cost or value of the store pigs) was 44/- and the range over the seven farms was between 39/- and 49/-.

The period to which all these figures relate is now past history and changes have occurred both in pig prices and in food costs. The general structure of costs however, has changed very little. Food costs remain the most significant item and the rate at which foods are converted to bacon or pork is one of the most useful measures of economic performance and of efficiency in pig management which can be made.

Spreading the total foods consumed over the 240 pigs sold gave an average of $6\frac{1}{2}$ cwts. per pig. It would be extremely useful to be able to relate this quantity to a measured live weight gain per pig and so express the gain result either as so many lbs. of food per lb. of live weight, or as so many lbs. of live weight gain per lb. of food used.

For this calculation to be made it is necessary to have (a) the weights of pigs at the start of the feeding period and (b) the weights immediately before sale. These weights were available from only one or two of the farms, and this is unfortunate, to say the least, since it deprives us of one of the most important efficiency measures in pig management.

For the pigs concerned in this study a rough estimate of the food conversion rate can be made, by changing the known dead weights to live weights (using estimated killing out percentages) and estimating ingoing weaner weights, where actual weights were not known. The result so calculated shows that, on average, approximately 4 lbs. of food were used to produce one pound of live weight increase.

Admittedly, there are practical difficulties in weighing pigs periodically, especially when breeding and feeding are carried on together or where pigs are variously sold as weaners, stores, porkers, baconers, and breeding gilts or sows. Efficiency of feeding is then difficult to measure with any precision unless considerable trouble is taken, and we have to fall back on overall measures of outputs and costs. This has been done for the seven farms producing mixed outputs of pigs.

It is important to recognise that all averages of costs and returns relate to particular scales of operation. If 50 pigs are sold, an average cost per pig will relate to that scale of production. It does not follow that if 500 pigs are kept on the same farm, the average cost per pig for 500 will be the same as that for 50. Nor does it follow that the cost of keeping 500 pigs will be 10 times the cost of keeping 50. Changing the scale of operations does not change all items of cost in the same proportions. With pig feeding, however, the cost of food is by far the dominant cost item and total food cost will obviously vary in close ratio with the numbers being fed.

- (2) COSTS AND RETURNS FOR FARM PIG ENTERPRISES. For the seven pig enterprises having a mixed output, costs have been related to £100 worth of output. The sample was very mixed indeed, individual farm outputs varying from £7640 to £52. For all but the lowest output the records relate to one year's output; for the lowest they relate to six months only. Because of the wide range in scales of operation, no averages have been struck for the group, but the comparative figures of Output per £100 Input will command attention because of the wide range revealed between farm and farm - from £107 to £205.

In Table 5, the individual farm results are arranged in descending order of size of total output or scale of operations.

The accounting methods used are similar to those used for fattening pigs, with the exception that, where applicable, rent charges have been made for buildings and pastures, and included in "Other Costs".

For both groups the farm to farm differences in the relationship between value of output and value of food input, expressed as Output per £100 Food Cost, are given in Tables 4 and 5 for fattening pigs and for mixed outputs of pigs respectively.

For the benefit of those who prefer to have home-grown foods charged at cost of production, Tables 4 and 5 have been re-calculated on this basis and the results are given in the appendix.

TABLE 4. COSTS and RETURNS PER PIG FOR FATTENING PIGS 1953
(Home-grown foods charged on basis of market prices)

Farm No. - - - - -	1	2	3	4	5	6	7
No. of Pigs - - - - -	92	41	29	29	20	16	13
Total Returns (Sales & Closing Valuation)	£. s. 22. 2.	£. s. 20. 0.	£. s. 22. 8.	£. s. 25. 2.	£. s. 20. 7.	£. s. 22.16.	£. s. 17.16.
Cost of Store Pigs (Purchases & Opening Valuation)	8.15.	10. 0.	5. 0.	12. 2.	5.17.	7. 0.	6. 0.
OUTPUT	13. 7.	10. 0.	17. 8.	13. 0.	14.10.	15.16.	11.16
Costs Incurred in Obtaining This Output:							
Foods:	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
*Home-grown	3.5 4. 7.	2.6 3. 6.	2.5 3. 3.	3.0 3.11.	- -	- -	1.9 2. 6.
Bought	3.0 4. 4.	1.5 3. 4.	2.7 5. 5.	1.0 2. 4.	5.2 9. 7.	4.4 8.12.	1.9 3.13.
Total	6.5 8.11.	4.1 6.10.	5.2 8. 8.	4.0 5.15.	5.2 9. 7.	4.4 8.12.	3.8 5.19.
Labour							
Other Costs							
TOTAL COSTS (INPUT)	£8.18.	£6.15.	£9. 2.	£6. 2.	£10. 6.	£10. 4.	£6.11.
PROFIT	£4. 9.	£3. 5.	£8. 6.	£6.18.	£4. 4.	£5.12.	£5. 5.
Weight of Home-grown Foods as % of Total Foods ...	53.6%	62.5%	48.7%	75.4%	-	-	50%
Output per £100 Input ...	£150. 0.	£147. 9.	£185. 0.	£212. 9.	£140.15.	£154.13.	£180. 0.
Input per £100 Output ...	£66.13.	£67.10.	£52. 6.	£46.18.	£71. 0.	£64.12.	£55. 5.
Output per £100 Feed Cost	£156.	£154.	£207.	£226.	£155.	£184.	£198.

* See Table 7 for effect of charging home-grown foods at estimated cost of production.

TABLE 5. COSTS AND RETURNS FOR PIG ENTERPRISES ON 7 FARMS 1953/4

(Home-grown foods charged on basis of market prices)

Farm - - - - -	A		B		C		D		E		F		G	
Output - - - - -	£7643. 8.		£4971.17.		£3299. 0.		£1691. 6.		£1152.18.		£637. 9.		£52. 0.	
<u>Costs incurred in obtaining</u> <u>£100 Output</u>	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost
1. Foods, Home-grown *	36. 0.	38.6	15. 4.	18.9	27. 7.	37.0	15.15.	22.9	15. 8.	30.3	26. 5.	35.0	6. 2.	12.5
2. Foods, Bought	51.14.	55.3	57.13.	71.9	39. 7.	53.2	46. 6.	67.2	29.16.	58.5	29.19	39.9	25.10.	52.3
3. Total	87.14.	93.9	72.17.	90.8	66.14.	90.2	62. 1.	90.1	45. 4.	88.8	56. 4.	74.9	31.12.	64.8
4. Labour	5. 4.	5.6	4. 4.	5.3	4. 8.	6.0	6.17.	9.9	3.19.	7.8	17.18.	23.9	16. 7.	33.6
5. Other Costs	9. .5		3. 4.	3.9	2.17.	3.8	-	-	1.15.	3.4	19. 1.2		15. 1.6	
COSTS PER £100 OUTPUT	93. 7.	100	80. 5.	100	73.19.	100	68.18.	100	50.18.	100	75. 1.	100	48.14.	100
PROFIT PER £100 OUTPUT	£6.13s.		£19.15s.		£26. 1s.		£31.2s.		£49. 2s.		£25.18s.		£51.6s.	
OUTPUT PER £100 INPUT	£107.2s.		£124.11s.		£135.3s.		£145.4s.		£196.8s.		£133.4s.		£205.6s.	
OUTPUT PER £100 FEED COST	£114.		£137.		£150.		£161.		£221.		£178.		£316.	

* See Table 8 for effect of charging home-grown foods at estimated cost of production.

A P P E N D I X

In the following tables, costs have been re-calculated, charging home-grown foods at estimated cost of production (Cereals 15/- per cwt., Beans 25/- per cwt.)

TABLE 6. OUTPUT AND COSTS FOR FATTENING PIGS

	<u>Total for</u> 240 Pigs	<u>Average</u> per Pig
	£. s. d.	£. s. d.
RETURNS (Sales and Closing Valuation)	5236. 7. 4.	21.16. 5.
<u>Less</u> COST OF STORE PIGS (Purchases and Opening Valuation)	<u>2018. 9. 6.</u>	<u>8. 8. 2.</u>
OUTPUT	<u>3217.17.10.</u>	<u>13. 8. 3.</u>
COSTS INCURRED IN OBTAINING THIS OUTPUT:		
Foods (a) Home-grown 609 cwt.	456.15. 0.	1.18. 1.
(b) Bought 644 cwt.	<u>1104. 1. 2.</u>	<u>4.12. 0.</u>
Total 1253 cwt.	1560.16. 2.	6.10. 1.
Labour	115. 3. 4.	9. 8.
Other Costs	<u>9.14. 6.</u>	<u>10.</u>
TOTAL COSTS (INPUT)	<u>1685.14. 0.</u>	<u>7. 0. 7.</u>
PROFIT	<u>1532. 3.10.</u>	<u>6. 7. 8.</u>
OUTPUT PER £100 INPUT	190.18. 0.	
INPUT PER £100 OUTPUT	52. 8. 0.	
OUTPUT PER £100 FEEDS	<u>206. 3. 0.</u>	

TABLE 7. COSTS and RETURNS PER PIG FOR FATTENING PIGS 1953.

(Home-grown foods charged on basis of estimated cost of production)

Farm No. - - - - -	1	2	3	4	5	6	7
No. of Pigs - - - - -	92	41	29	29	20	16	13
Total Returns (Sales & Closing Valuation)	£. s. 22. 2.	£. s. 20. 0.	£. s. 22. 8.	£. s. 25. 2.	£. s. 20. 7.	£. s. 22.16.	£. s. 17.16.
Cost of Store Pigs (Purchases & Opening Valuation)	8.15.	10. 0.	5. 0.	12. 2.	5.17.	7. 0.	6. 0.
OUTPUT	13. 7.	10. 0.	17. 8.	13. 0.	14.10.	15.16.	11.16.
Costs Incurred in Obtaining This Output							
Foods	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
*Home-grown	3.5	2.6	2.5	3.0	-	-	1.9
Bought	3.0	1.5	2.7	1.0	5.2	4.4	1.9
Total	6.5	4.1	5.2	4.0	5.2	4.4	3.8
Labour							
Other Costs							
TOTAL COSTS (INPUT) ...	7. 3.	5. 7.	7.18.	4.16.	10. 6.	10. 4.	5.14.
PROFIT	6. 4.	4.13.	9.10.	8. 4.	4. 4.	5.12.	6. 2.
Weight of Home-grown Foods as % of Total Foods ...	53.6%	62.5%	48.7%	75.4%	-	-	50%
Output per £100 Input ...	£186.14.	£186.18.	£220. 5.	£270.17.	£140.16.	£154.13.	£207. 0.
Input per £100 Output ...	£53.11.	£53.10.	£45. 8.	£36.19.	£71. 0.	£64.12.	£48. 6.
Output per £100 Feed Cost	£196.	£196.	£242.	£292.	£155.	£184.	£231.

* See Table 4 for effect of charging home-grown foods on basis of market prices)

TABLE 8. COSTS AND RETURNS FOR PIG ENTERPRISES ON 7 FARMS 1953/4

(Home-grown foods charged on basis of estimated cost of production)

Farm - - - - -	A		B		C		D		E		F		G	
Output - - - - -	£7643. 8.		£4971.17.		£3299. 0.		£1691. 6.		£1152.18.		£637. 9.		£52. 0.	
Costs incurred in obtaining £100 Output	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost	£. s.	% of Total Cost
1. Foods, Home-grown *	29. 3.	33.7	7. 5.	10.0	19. 3.	29.1	9.19.	15.8	8. 1.	18.5	17.18.	28.8	6. 2.	12.5
2. Bought	51.14.	59.8	57.13.	79.8	39. 7.	59.9	46. 6.	73.4	29.16.	68.4	29.19.	44.9	25.10.	52.3
3. Total	80.17.	93.5	64.18.	89.8	58.10.	89.0	56. 5.	89.2	37.17.	86.9	47.17.	71.7	31.12.	64.8
4. Labour	5. 4.	6.0	4. 4.	5.8	4. 8.	6.7	6.17.	10.8	3.19.	9.1	17.18.	26.9	16. 7.	33.6
5. Other Costs	9. .5		3. 4.	4.4	2.17.	4.3	-	-	1.15.	4.0	19. 1.4		15. 1.6	
COSTS PER £100 OUTPUT	86.10.	100	72. 6.	100	65.15.	100	63. 2.	100	43.11.	100	66.14.	100	48.14.	100
PROFIT PER £100 OUTPUT	£13.10s.		£27.14s.		£34. 5s.		£36.18s.		£56. 9s.		£33. 6s.		£51. 6s.	
OUTPUT PER £100 INPUT	£107 2s.		£124.11s.		£135. 3s.		£145. 4s.		£196. 8s.		£133. 4s.		£205. 6s.	
OUTPUT PER £100 FEED COST	£107. 0s.		£111. 8s.		£112. 8s.		£112. 4.		£115. 1s.		£139. 8.		£154. 2s.	

* See Table 5 for effect of charging home-grown foods on basis of market prices.

