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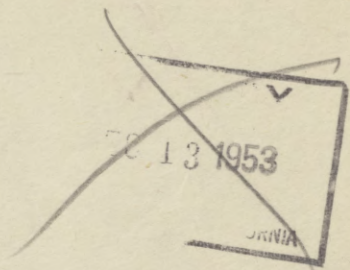
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PROFITS IN PIG PRODUCTION



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FOREWORD

With the recent increase in pig population to a figure in excess of the pre-war total, fat pig production has again become one of the major enterprises in British Farming. This report, in which G.B. Clarke reviews the results of the Cambridge Food Recording Scheme for the past year, should therefore be of interest at the present time.

This should be so for two reasons. Firstly, pigs if properly managed are reasonably profitable. A pigman provided with moderately convenient buildings should be able to manage 20 sows and their progeny to bacon weight. Such an enterprise should net the farmer a profit of £750 which is at least as much as the average dairy farmer makes from 20 milk cows at the present time.

Secondly this report shows the vital importance of efficiency in production. Thus, in the 20 sow herd postulated above, a good pigman could easily save his employer the equivalent of his own wages by feeding efficiently.

To measure efficiency, some records are necessary, but the time spent in compiling them is well worth while. Some 60 farmers do so by co-operating with the Cambridge Food Recording Scheme, but this number cannot be very greatly increased. Fortunately, pigs are one of the easier enterprises to costs and to assist farmers who wish to carry this out on their own, a work book has been prepared (see list of publications at the end of this bulletin).

Finally, the present writer wishes to thank those farmers taking part in this investigation whose co-operation has made the preparation of this report possible.

F.G. STURROCK.

Provincial Agricultural Economist.

PROFITS IN PIG PRODUCTION

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I. INTRODUCTION

The results presented here come from recording and costing 47 pig enterprises in the Eastern Counties for one year from 1st October 1951 to 30th September 1952. The piggeries have in no way been specially selected save that the farmer was prepared to maintain the records and supply the information required. The number of pigs kept on these farms ranged from 4 or 5 sows to nearly 100 and from a score of fattening pigs to over 300.

There was great variety in the types of piggeries used including Danish type houses and converted cattle yards but the most popular was a separate sty with or without a small open run. The latter was constructed by converting existing buildings, or was built from some cheap material to hand such as wood, straw or breeze blocks. Such accommodation was used both for the breeding of pigs and for fattening. In most cases dry sows were with the boar in a paddock. Only a few of the farmers in the present sample were specialist pig keepers; the majority had mixed arable farms on which pigs were not the major enterprise.

Rations and methods of feeding were varied but, in fattening pigs, three quarters of these farmers fed 95 per cent or more (by value) of their ration in the form of meal, potatoes and fodder beet. Only a quarter of them used an appreciable amount of supplementary foods other than potatoes or fodder beet.

The profits earned from pigs have been calculated as a percentage of Gross Output. Briefly, Gross Output is a measure of production and is the value added to the pigs with which the farmer started, and to those which he has purchased or bred during the year. (See Appendix I). If the costs incurred in adding this value are deducted from the output, the remainder is profit. These costs include food, labour, veterinary attendance, repairs to buildings, rent and other minor expenses.

(2)

No charge has been made for management nor for capital invested in stock. In passing it might be mentioned that profit per £100 Gross Output must not be confused with profit per £100 capital invested.

II. THE GENERAL COST STRUCTURE

For every £100 of pig production (i.e. Gross Output), costs averaged £84 on these 47 farms; the remaining £16 were profit. (See Table I). The best farmers however made profits of more than 30 per cent of Gross Output while the worst made losses of nearly 10 per cent. In pig production, high output is no cure for inefficient production. For if costs are too high, increased production simply means the multiplication of losses. The first requirement is efficiency and, if this is maintained, increased output means increased total profit.

TABLE I

ANALYSIS OF COSTS AND PROFIT PER £100 GROSS OUTPUT OF PIGS

<u>Analysis of Costs</u>	Average (47 Farms)	Best (5 Farms)	Worst (5 Farms)
	£	£	£
Food	71	59	87
Labour	8	7	12
Miscellaneous Costs	5	3	9
Total Costs	84	69	108
Profit	16	31	-8 (Loss)
Gross Output	£100	£100	£100

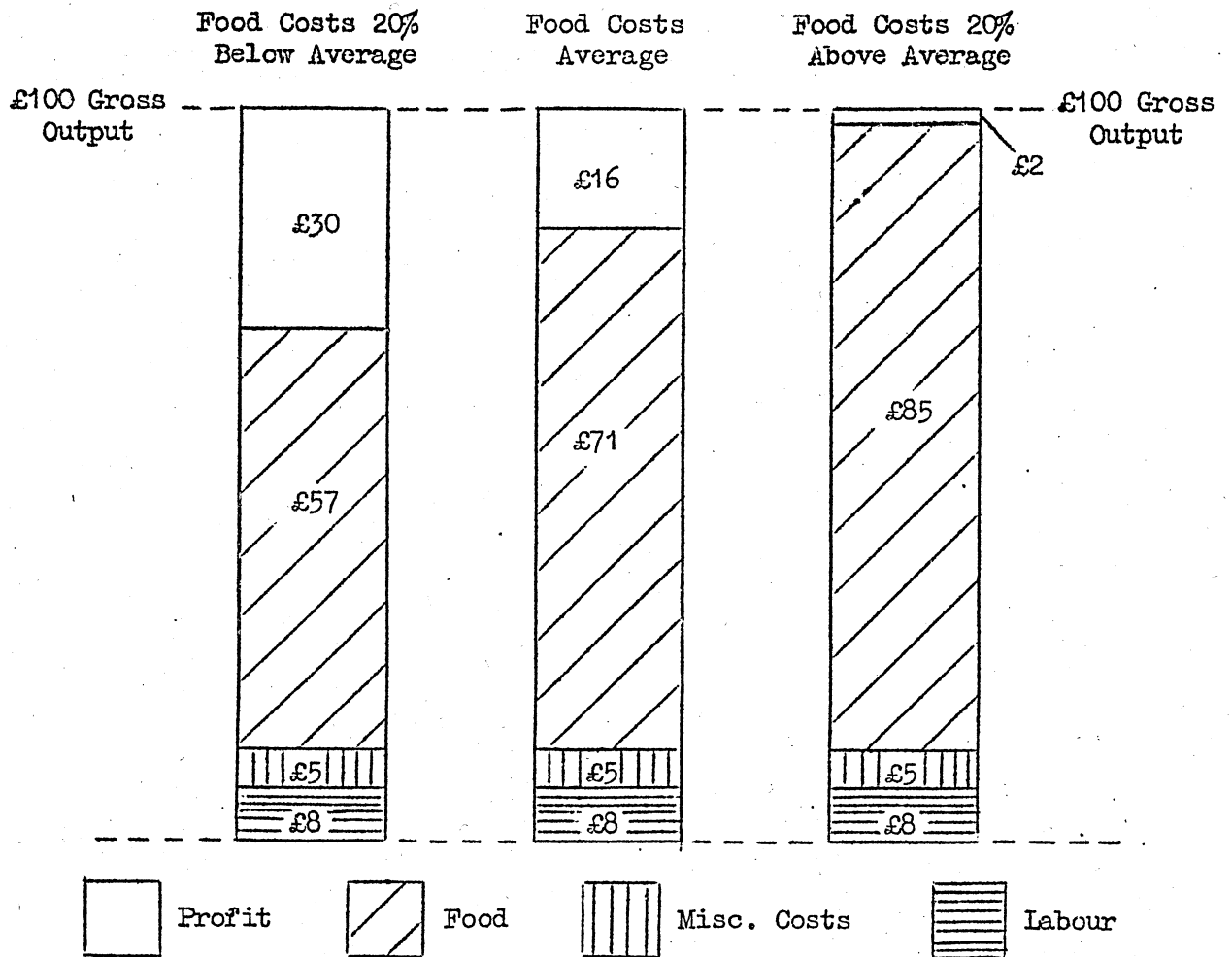
CFRSP 1951/2

The quickest guide to efficiency in pig production may be obtained by reference to food costs. For every £100 worth of Gross Output, all costs amounted to £84. Of this sum £71 was for food, both purchased and home grown; labour accounted for £8, and all other costs for £5.

It thus follows that food costs are all important in determining profitability. It is shown in Diagram I that an increase of 20 per cent in food costs above this average figure would cut profits from £16 to £2 per £100 of Output. Similarly a reduction of 20 per cent in food costs would raise profits from £16 to £30 per £100 of Output - and this approximates to the standard attained by the most efficient members.

DIAGRAM I

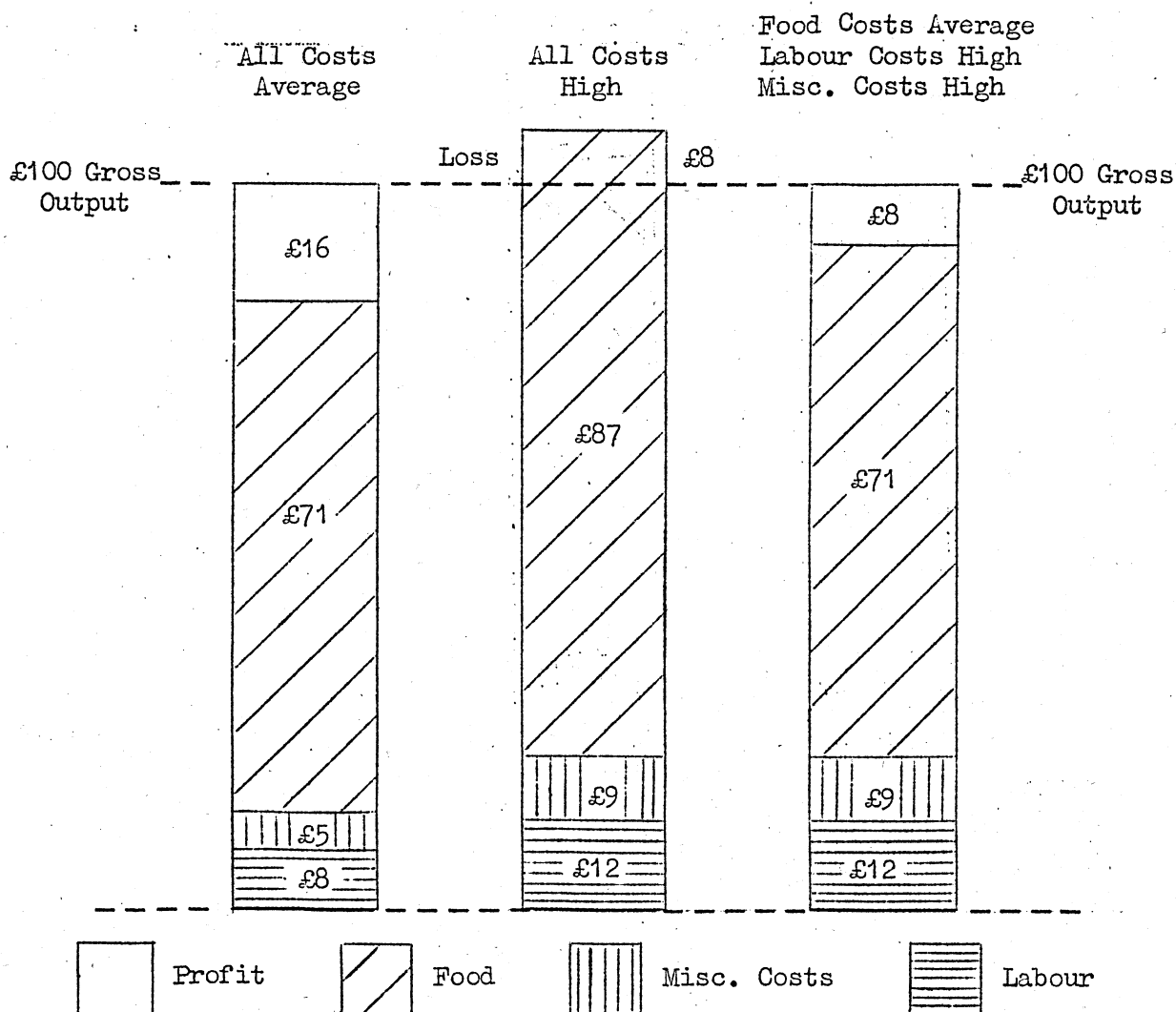
THE EFFECT OF VARYING FOOD COST PER £100 GROSS OUTPUT OF PIGS



Labour costs and miscellaneous costs although small should not be neglected. While the average labour cost per £100 Gross Output was £8 the range was from £7 to £12. Miscellaneous costs ranged from a total of £3 to £9 per £100 of Gross Output. But even so, these costs are of minor importance in comparison with food costs. Thus even if a farmer spends £12 on labour and £9 on other costs, and can hold his food costs down to the average of £71, he will still make £8 profit in every £100 of Gross Output or some 30/- per fat pig. Food is the critical factor in pig production. This point is illustrated in Diagram II.

DIAGRAM II

THE EFFECT ON A HIGH COST FARM OF REDUCING FOOD COSTS TO THE AVERAGE



For farmers that plan to grow some or all of their cereal pig food high yields per acre are of great importance. Not only do high yields keep down the cost of food per cwt. but they also allow the farmer to keep more pigs. Many improved seed varieties have become available within recent years. Doubtless the new French wheats are by now well known to most farmers and the Scandinavian feeding barleys have become increasingly popular. Furthermore the latest variety of barley, "Proctor", bred at the Plant Breeding Institute at Cambridge has, in trials, out-yielded existing varieties by more than 10 per cent while producing a grain of equal or better quality. With this new barley comes an opportunity to get 10 per cent more cereal food for pigs at no additional expense, save a slight extra fertiliser cost, and with just as good a prospect of a malting sample if the farmer should decide to sell for cash.

We have covered the general assessment of a pig enterprise but that does not tell us all we should like to know. If profit is say £30 per £100 Gross Output, we may feel fairly satisfied that all is well. But if it is less, then it is useful to know exactly why.

Fundamentally the production of bacon pigs involves two stages. The first is the breeding of weaners; the second is the fattening of weaners to bacon weight. Either stage can vary in efficiency more or less independently of the other and profits will be affected accordingly. Thus a good breeding policy may be spoiled by inefficient fattening methods and vice versa. This granted, it nevertheless remains true that ultimate profit depends on the sum of the cost of getting the weaner and the cost of fattening it.

III. BREEDING

Let us look first at the breeding stage. In this sample the average cost of producing one weaner was £4 10s. 0d. but for the best farms it was only £2 10s. 0d. Some of this difference may be due to exceptional advantages not available to all farmers such as the availability of spare grazing or stubbles for dry sows. But most of the

factors responsible for these costs variations are well within the control of every individual farmer.

The average weaner came from a sow farrowing once every $7\frac{1}{2}$ months whereas sows of the better farmers farrowed every six months. This meant that the average weaner had to carry a share of the cost of maintaining the sow for $1\frac{1}{2}$ months longer than necessary. In the average litter one or two piglets died before weaning while the better farmers took measures to reduce this toll and weaned 9 piglets per litter instead of the average of 7 or 8. In this connection it is interesting to note that it is no longer necessary to have electricity in order to provide warmth for piglets. Farrowing lamps are now available which burn paraffin and calor gas.

The cost per cwt. of food for the breeding stock varied considerably as did the amount required per sow per year. Since only one farmer omitted creep feeding as a matter of policy, this food is included with other breeding stock meal which then cost on the average between £34 and £35 per ton. The total amount of food required per sow depends of course on the availability of grazing, bulkier foods, waste products, etc. But for a sow kept on an all-meal ration, the amount normally required for one year (including the creep feed and a share of the boar's ration) should not exceed 25 cwt., in fact the averages in the Scheme for the past two years have been 24.09 cwt. and 26.24 cwt. per sow.

The whole of this cost must be borne by the weaners produced. It follows therefore that the cost of producing a weaner is markedly affected by the number produced per sow in the year. This is demonstrated in Table II.

TABLE II

THE EFFECT OF NUMBERS WEANED PER SOW IN A YEAR ON TOTAL
AVERAGE AND MARGINAL FOOD REQUIREMENT

1. No. of Pigs Weaned per Sow	14	15	16	17	18
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
2. Maintenance of the Sow	16.3	16.3	16.3	16.3	16.3
3. Share of Boar's Ration	2	2	2	2	2
4. Sow's Extra Food for Lactation	4.0	4.5	5.0	5.5	6.0
5. Creep Feed	2.5	2.7	2.9	3.1	3.3
6. Total Food per Sow	24.8	25.5	26.2	26.9	27.6
7. Marginal Food for One Extra Weaner	-	.7	.7	.7	.7
8. Average Food per Weaner Produced	1.8	1.7	1.65	1.6	1.5
9. Food Cost per Weaner	£3.3.0	£2.19.6	£2.17.9	£2.16.0	£2.12.6

Note The sows maintenance ration has been calculated as 5 lb. of meal per day. The total daily ration during 4 months of suckling (2 litters per year) is at the rate of a basic 2 lb. of meal plus 1 lb. for each suckler. 20 lb. of creep feed has been allowed each piglet. Food cost has been taken as £35 per ton.

Every sow on the farm has to be accommodated, tended, fed and watered whether she produces 10 weaners a year or 20. Thus most of the costs of the breeding herd are fixed and must be met irrespective of weaner numbers. The main cost likely to vary is food and from an examination of this item comes an indication of the saving obtainable from increased weaner numbers. It is clear (line 7, Table II) that the unavoidable extra cost of each additional weaner is only 0.7 cwt. of meal which is a relatively small proportion of the total (line 6, Table II). This applies throughout the range of 14 to 18 weaners per year in which the actual number produced is likely to depend far more on management than

on any other factor, such as breed or strain. It is this low additional or marginal cost of each extra weaner that causes the well known fall in average cost per weaner as numbers rise (lines 8 & 9, Table II).

Within this narrow range of 14 to 18 weaners per year the marginal cost of a weaner in terms of food is constant at 0.7 cwt. of meal which at 35/- per cwt. would cost 24/6d. If weaners are worth £5 each this leaves a surplus of £3 15s. 6d. which allows a generous margin to pay for bonuses, farrowing lamps, extra labour, improvements to buildings and other measures to increase the number weaned.

Although it is reasonable to assume that the marginal food cost of a weaner between the range of 14 to 18 weaners per sow per year is constant this will not necessarily be so above this range. Weaner numbers over 18 per sow per year might require an expensive system of selective breeding and drastic culling. This could cause a rapid rise in the marginal cost. Even so, it would in fact pay to carry on trying to increase the number of weaners per sow per year until the marginal cost rose to equal the normal market price of a weaner.

IV. FATTENING

Looking now at the fattening stage, we find that the average cost of meal was between £33 and £34 per ton. Some farmers used home grown rations, others bought proprietary meals and yet others used some of each. In all cases home grown food was valued at the price it would have fetched if offered for sale. If a farmer is using home grown foods, the "profit" as shown in this scheme represents the addition to his income which he has gained by feeding these home grown cereals instead of selling them - and this, on an arable farm, is the crucial test in deciding whether pigs increase the farm income.

TABLE III
EFFICIENCY AND COST IN FATTENING

	<u>All "Meal" Herds</u> (Supplementary Food Other Than Fodder Beet & Potatoes Less Than 5% by Value of Total Foodstuffs) (33 Farms)		<u>"Meal" Plus Supplementary Food</u> (Supplementary Food Other Than Fodder Beet & Potatoes Between 5% & 20% by Value of Total Foodstuffs) (11 Farms)	
	Lb. of Meal [ⓧ] per lb. Live Weight Gain	Cost of All Food per lb. Live Weight Gain (Pence)	Lb. of Meal [ⓧ] per lb. Live Weight Gain	Cost of All Food per lb. Live Weight Gain (Pence)
Average	4.77	17.00	3.87	15.45
Best	3.64	12.64	3.24	11.80

[ⓧ] In this calculation potatoes and fodder beet are converted at the following standard rates.

4 lb. potatoes = 1 lb. meal
5 lb. fodder beet = 1 lb. meal

CFRSP 1951/2

Three quarters of the farmers costed preferred to fatten their pigs almost exclusively on meal, potatoes and fodder beet. In this group the average requirement was $4\frac{3}{4}$ lb. of meal equivalent costing 17d. to get one pound of live weight gain. This figure offers no grounds for complacency since the better farmers required slightly less than 4 lb. costing 13d. for each pound live weight gain. This cheaper ration and more economical use of food enabled the farmers to make an additional profit of £3 on each fat pig sold. Broadly speaking if meal costs 33/- per cwt., a decrease of one-tenth of a pound (0.1 lb.) in the amount of meal per pound live weight gain, would increase profits by 5/- per baconer.

In the smaller group of farmers who supplemented meal, potatoes and fodder beet with swill, pulp, etc., the average required was just over $3\frac{3}{4}$ lb. of meal equivalent costing $13\frac{1}{2}$ d. to produce one pound of live weight gain. Supplementary food apart from potatoes and fodder beet raised this cost to $15\frac{1}{2}$ d. In the more efficient herds, however, the total cost was only 12d. per pound live weight gain.

For purposes of comparison and profit calculations it may be noted that the average sale price of bacon pigs was 25d. per pound for a pig slightly over 210 lb. in weight.

A reduction in the quantity or cost of food required is reflected in a corresponding increase in profit. Granted that a pig must eat to breed and eat to grow, it is nevertheless true that both the quantity and cost of food can be controlled to a large extent by the farmer himself. The hoary adage that "it is cheaper to warm a pig with coal than with corn" may no longer be strictly true - nevertheless the job of providing the pig with comfortable housing and conditions conducive to an economical use of food becomes more and more necessary as food costs rise.

The conditions appropriate to economy of food conversion are fairly generally known although, in some cases, more careful attention to this aspect of husbandry would be well rewarded. It is unduly cynical to accept the comment that the "practical" farmer is all too often the one who makes the same mistakes as his forefathers, for the genuinely practical farmer would be the first to agree that the prompt application of fresh knowledge has a real cash value.

Much publicity has recently been devoted to possible savings in consumption by incorporating antibiotics in pig rations. Certain legal formalities need to be overcome before antibiotics can be made available to pig feeders for general use. More definite information may be expected in due course to confirm the accuracy of estimated savings of the order of 5 per cent in the amount of meal required to fatten a weaner to bacon weight and of 10 per cent in the time taken to reach

that weight.⁽¹⁾

Duckworth⁽²⁾ of the Rowett Research Institute, Aberdeen, suggests that the standards of animal protein supplements (usually fish meal) recommended before the war were to some extent based on the policy of including plenty to make up for possible deficiencies in other ingredients of the ration. With fish meal costing today £50 per ton any reduction in the required amount of this ingredient will have a marked effect on the food costs of pig production. For instance if the amount of fish meal in a fattening ration could be reduced by one-tenth and replaced by barley the profit per fat pig would be increased by about two shillings.

Although all the beneficial elements contained in animal protein are not yet known, recent work has isolated and identified vitamin "B 12" from the group of unknowns, sometimes called the "animal protein factor". For the pig, supplies of "B 12" may come from the soil, from dung fermenting in litter and from the ration. The more obtained from one source, the less is required from another. For young pigs the need for "B 12" is greatest in the early days after birth and gradually declines as growth proceeds. Sows and Gilts also have a high requirement in order to transmit supplies to their litters.

It appears that the advantage of animal as opposed to vegetable protein is partly due to its higher content of vitamin "B 12" and partly to the presence of certain "amino-acids" which the pig cannot manufacture for itself from other elements in the diet. The peak requirement for these essential amino-acids and vitamin "B 12" is thus during the later stages of pregnancy, while suckling, and in the early life of the piglet prior to weaning. It would therefore be unwise to economise on animal protein at these stages.

(1) Reference: Farmer & Stock-Breeder, December 9 - 10th, 1952, article by Douglas E. Fraser.

(2) Reference: J. Duckworth, N.A.A.S. Quarterly Review No.17, Autumn 1952.

Nevertheless it may be possible to make economies at other stages and in this connection the feeding trials of Woodman and Evans⁽³⁾ carried out at Cambridge are of interest. There is no space to describe these results in detail here but an example may be given. It was found that a pig over 90 lb. live weight could maintain normal growth on the following ration:-

	Parts		
Barley Meal	75	} Crude protein content	12.4%
Fine Bran	23		
Lucerne Meal	2	} Digestible crude protein content	9.1%
Minerals	2		

Fishmeal, the scarest and most expensive ingredient of the pig's diet has thus been eliminated altogether. The advantage of such a ration lies not only in lowering the cost of the fattening ration but also in releasing the limited supplies of animal protein for use at the stages where they can do most good. As a matter of interest, the finishing ration given above would cost only about £27 per ton at current prices whereas the average cost of fattening meal for the year 1951/2 in the Food Recording Scheme was £33 5s. Od. per ton. This is a matter of importance for four-fifths of the pig's total food consumption from weaning to bacon weight is consumed after it has attained 90 lb. live weight.

It is necessary to sound a note of warning before recommending fattening rations consisting almost entirely of mixtures of barley, bran and oats. Firstly, oats fed to pigs should be finely ground and secondly the protein content of the cereals should not be below 12 per cent. Some home grown cereals have less than this and a farmer intending to use home grown cereals without animal protein supplement would be well advised to have his stocks sampled for protein. If deficient he could then add the smallest protein supplement necessary. In this country the average protein content of wheat, oats and barley is 12.1 per cent, 10.3 per cent

(3) Reference: H.E. Woodman & R.E. Evans, J. Agric. Sci. 1945, pp 133.

and 10.0 per cent respectively but the range around the average may be quite large especially with cereals grown on light dry soils.

It thus appears that there is a good prospect of reducing both the quantity of food required to fatten a baconer and the cost per ton.

V. GRADING

In the process of rebuilding the pig industry to its pre-war size, the main emphasis has so far been on quantity. In June 1951 the number of sows and gilts kept for breeding in U.K. exceeded for the first time the total in 1939. In September 1951 the total pig population also passed the pre-war figure. It was perhaps coincidence that September 1951 was also the date on which the educational grading system was introduced.

It is certain however that the time is rapidly approaching when more consideration must be given to quality. Gradings were awarded on an educational basis for over a year and during that time farmers had the opportunity to study the assessment of their ability to produce not merely pigs of a certain weight but also of the conformation required for bacon.

The only aspect taken into account in grading is the measurement of back fat and many experienced pig producers as well as the managers of bacon factories claim that present grade limits err on the side of leniency. The standards for the various grades are set out in Table IV on page 14.

23 members of the Cambridge Food Recording Scheme for Pigs supplied details of gradings for the past 6 months and the results are summarised in Table V.

TABLE IV
EDUCATIONAL GRADINGS 1952

Grade	Weight Range	Back Fat Measurement
A	7 sc. 1 lb. to 9 sc.	$\frac{3}{4}$ " to $2\frac{1}{4}$ "
AT	6 sc. 16 lb. to 7 sc. or 9 sc. 1 lb. to 9 sc. 5 lb.	$\frac{3}{4}$ " to $2\frac{1}{4}$ "
B	7 sc. 1 lb. to 9 sc.	$\frac{3}{4}$ " to $2\frac{1}{2}$ "
BT	6 sc. 16 lb. to 7 sc. or 9 sc. 1 lb. to 9 sc. 5 lb.	$\frac{3}{4}$ " to $2\frac{1}{2}$ "
C	6 sc. 16 lb. to 9 sc. 5 lb.	over $2\frac{1}{2}$ "
L	6 sc. 16 lb. to 9 sc. 5 lb.	less than $\frac{3}{4}$ "

TABLE V
GRADINGS OF BACON PIGS SOLD DURING THE PERIOD 1st APRIL
TO 30th SEPTEMBER 1952 AS RECORDED BY 23 FARMS

Grade	Number Sold	Percentage of Total Sold
A	2284	65
AT	164	5
B	388	11
BT	59	2
C	98	3
No Grade	313	8
Not Recorded	225	6
Total	3531	100

After 12th January, 1953, the quality premium, at present paid on all pigs of appropriate dead weight, will be spread over the grades as follows.

Grade	Premium
A	4/5d.
AT	2/-
B	3/-
BT	1/6d.
C	Nil

If the generous assumption is made that all the 225 pigs for which gradings were not recorded were in fact "A" then almost £1 3s. 0d. would have been knocked off the average price received for each of the remaining pigs graded other than "A". The significance of this sum becomes apparent when it is remembered that the average profit per "standard" baconer for all members of the Cambridge Food Recording Scheme for Pigs for the year 1951/2 was £3 2s. 7d.

As from 12th January, 1953, pigs under 7 sc. 1 lb. will not qualify for grading at all and this would increase the loss figure as calculated above.

The actual prices to be paid per score of bacon carcasses are set out in Diagram III. 7 sc. 1 lb. to 9 sc. 6 lb. is the weight range within which grading will affect price per score. Outside this range as far as 10 sc. 10 lb. weight only will determine the price per score and after 10 sc. 10 lb. the total price per pig is constant at £25 18s. 11d.

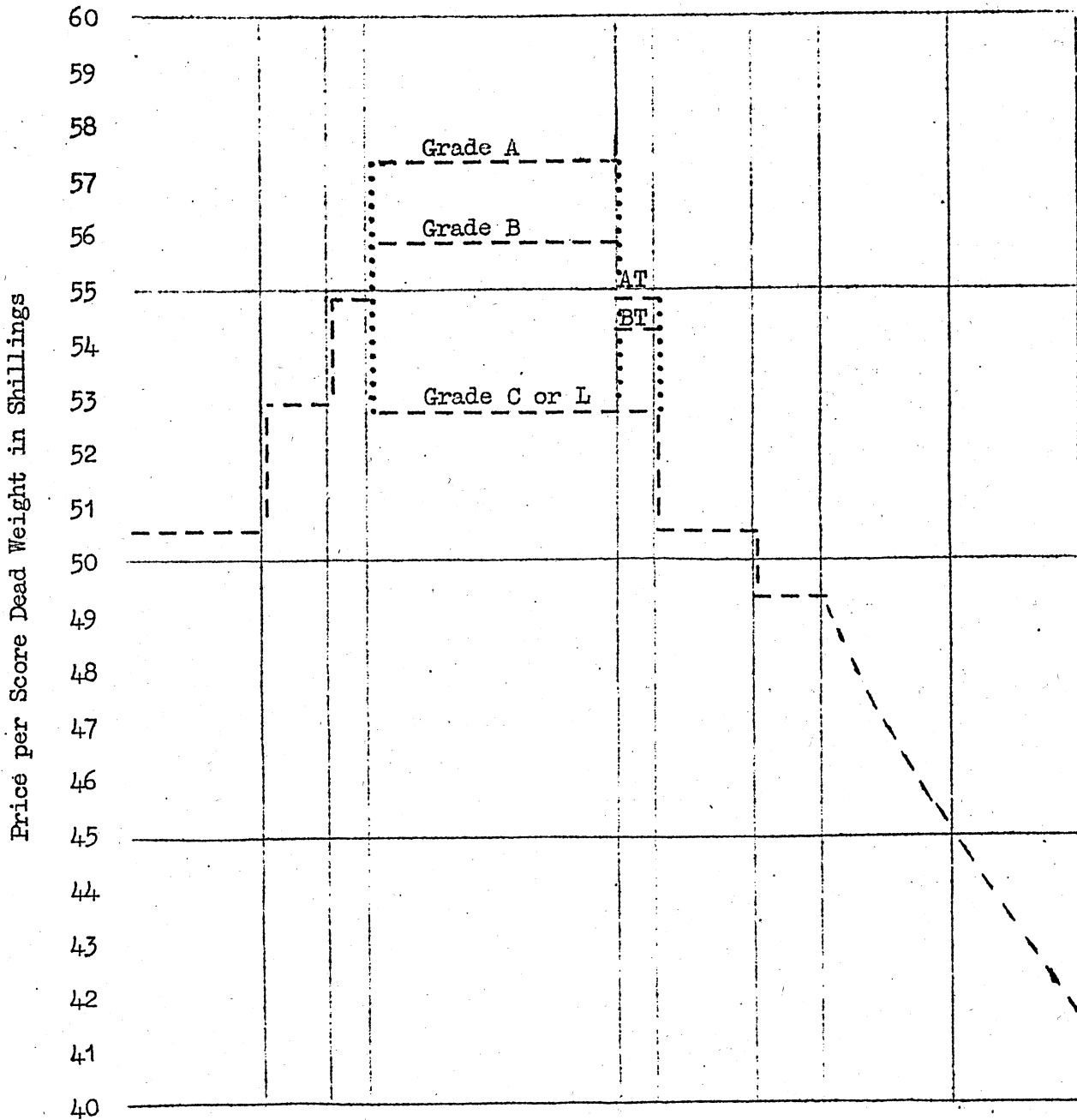
DIAGRAM III

PRICE PER SCORE OF BACON PIG CARCASS AS AFFECTED BY WEIGHT AND GRADE

AS FROM 12th JANUARY, 1953

Dead Weight (Score)

Up to $6\frac{1}{4}$ $6\frac{3}{4}$ 7 9 $9\frac{1}{4}$ 10 $10\frac{1}{2}$ $11\frac{1}{2}$ $12\frac{1}{2}$



VI. MARKET PROSPECTS

It is obviously inadvisable before the official policy has been announced to attempt a forecast of future prospects. Nevertheless there are some general considerations which may be of interest to farmers producing bacon pigs. Perhaps the most important factor is the price per score dead weight. Since the war this price has been manipulated to encourage a rapid expansion in the number of bacon pigs produced. Changes in prices since 1948 are listed in Table VI together with the corresponding figure for the average cost of pig meal obtained by the Food Recording Scheme.

TABLE VI

BACON CARCASE PRICE AND MEAL COST 1948 - 1952

Date	(1) Price per Score dead weight of a 7. 1 - 9 sc. baconer incl. quality premium	(2) Average Cost per cwt. pig meal (CFRSP)	(3) Increase in bacon price per score over the previous year	(4) Increase in meal cost per cwt. over the previous year
April 1948	36/-	16/6	-	-
" 49	42/9	19/11	6/9	3/5
" 50	49/6	24/9	6/9	4/10
" 51	54/6	29/-	5/-	4/3
" 52	56/4	33/7	1/10	4/7
" 53	?	?		

The comparison between bacon carcase price and food cost is of course only one of the relationships in determining the profitability of pig production but as food costs amount to 85 per cent of the total costs in a bacon pig enterprise, it is obviously the most important one. Since no pig keeper should require more than 8 cwt. of meal to fatten a weaner up to 8 score dead weight (5 lb. meal per pound live weight gain) any changes in price per score of an 8 score bacon pig when related to the change in meal cost gives a rough indication of the effect on

fattening profit. If the rise in cost per cwt. of meal exceeds the rise in price per score of bacon carcase then fattening profits may be expected to fall.

It will be seen that in 1952 the increase in the bacon pig price (col. 3, Table VI) did not cover the rise in food cost (col. 4, Table VI) by 2/9d. Multiplying this amount by 8 to take account of the dead weight of a baconer being 8 score and the meal required to fatten it from weaning being 8 cwt. we get

$$8 \times 2/9d. = \text{£}1 \text{ 2s. od.}$$

We should thus expect that if weaner, labour and miscellaneous costs remained unaltered, profit per baconer fattened on meal would fall between 1951 and 1952 by something like this sum.

To assist the pig fattener who also breeds weaners it is useful to know that the food requirement per sow per year, including a share of the boar's ration and an allowance for creep feed, approximates to 25 cwt. If the sow produces 12 to 13 piglets in a year, which is an average result, each weaner must bear a food cost of some 2 cwt. In this case to assess the effect on profit per baconer bred and fattened, twice the rise in food costs per cwt. must be added to the figure of £1 2s. 0d. calculated above. Thus

YEARS 1951 and 1952

Rise in meal cost per cwt.	4s. 7d.					
LESS Rise in bacon price per score	1s. 10d.					
	2s. 9d.	x 8	=	£	s.	d.
				1	2	0
Rise in meal cost per cwt.	4s. 7d.	x 2	=		9	2
				1	11	2

The change in the relation between meal cost and bacon price between 1951 and 1952 as set out above thus indicates for the breeder/fattener a fall in profit per baconer of some thirty-one shillings.

Every farmer must make his own assessment of the significance of any price change on his profits after making due allowance for possible improvements in efficiency or economy in the composition of his pig rations.

A rough yardstick as indicated may well be of use in the near future since prices are reviewed in February, and in April the cost of purchased feeding stuffs may change. The present official undertaking to stabilise the price of imported feeding stuffs irrespective of their cost expires in March 1953.

The 1953 bacon prices have not been entered in Table VI since they have not been fixed at the time of writing. Many farmers will nevertheless be making their own estimates of possible changes and looking even further ahead at the long term prospects. Production in agriculture does not lend itself to rapid change so that such a forward looking attitude is wholly appropriate.

The present price structure is such as to encourage the home production of food but the era of pig production irrespective of cost may well be over. Under the 1947 Act a satisfactory profit margin is likely to continue but only for the farmer who seriously attempts to control his inputs at a reasonable level. Profits per £100 of output for the past year as shown by the Food Recording Scheme are already down to the pre-war level. Hence efficiency is likely to become steadily more important if profits are to be maintained. Payment for grade is a clear indication of the trend toward the buyers' market.

In attempting to assess future prospects many factors need to be considered but certain figures, fundamental to an appraisal of the prospects for bacon pigs, are set out in Table VII.

It is estimated that bacon and ham production for 1952 has reached a total of 257 thousand tons which exceeds the pre-war figure and is likely to tax the present capacity of our bacon factories. When curing facilities are fully occupied it is wasteful to employ them on inferior pigs and it is now necessary to select from the total number of pigs

slaughtered those suitable for bacon. The surplus although unsuited in conformation for the purpose is diverted to the pork market.

TABLE VII

U.K. PIG POPULATION AND THE SUPPLY AND CONSUMPTION
OF BACON & HAM 1938 - 1952

Year	Total U.K. Pig Popn. June '000s	Total U.K. Sow Popn. June '000s	Home produced bacon and ham '000s tons	Imported bacon and ham '000s tons	Total bacon and ham '000s tons	U.K. consumption bacon & ham '000s tons
1938	4383	521	215	377	592	542
1946	1955	221	139	179	318	303
1947	1628	197	98	132	230	196
1948	2151	318	115	135	250	207
1949	2823	345	194	139	333	258
1950	2986	387	225	244	469	451
1951	3891	560	215	221	436	414
1952	4923	591				

Source: Annual Abstract of Statistics 1952.

The time may soon come when the pork market will not rest content with the unwanted surplus of the bacon factories particularly if numbers continue to increase. We may therefore see the introduction of differential prices aimed at encouraging an improved quality of porker.

Now is the time for farmers to start assessing the relative appropriateness of "bacon pig" as opposed to "pork pig" production, particularly if they produce breeding stock for sale.

The main factor likely to delay the opening up of a separate pork trade would be an official decision that feeding stuffs were not justified for light weight pork pigs. In that case price changes might be aimed at stabilising the pig population at about its present level.

This does not mean that U.K. consumers have all the bacon they would like. Table VIII indicates a distinct possibility of attaining higher consumption levels.

TABLE VII

BACON CONSUMPTION PER HEAD OF U.K. POPULATION

Year	lb.
1938	27.3
1947	10.1
1948	10.8
1949	13.5
1950	22.0
1951	21.8

Source: Food Consumption Levels Inquiry.

U.K. producers however are not the sole suppliers of bacon to the U.K. market. Indeed in 1951 as much bacon and ham was imported as was produced at home. Furthermore the latest announcement by the Minister of Food estimates that for 1952/3 the average price paid for imported bacon and ham will be only £267.2 per ton whereas home produced is likely to cost £373.8 per ton. This difference in cost is the basis of such comments as:- "At present it would pay us to send the Danes feeding stuffs and let them finish (pigs) for us".⁽⁴⁾ With home production costing nearly 50 per cent more than its competitors there is little prospect of increased profits through increased prices.

A farmer may add to his profit by producing more but even if imports of bacon are not increased there is the bottle neck of factory capacity which will set a limit on expansion. This fact has already led to proposals for erecting new co-operative bacon factories in Essex and Norfolk.

(4) Reference: Sunday Observer, 24th August, 1952. "Re-thinking our future No. 3".

VII. CONCLUSION

This report presents the results in the pig enterprises of 47 farms in the Eastern Counties. There is a wide range in the profits achieved and detailed analysis has indicated the Efficiency Factors by which performance can usefully be assessed. Briefly these are:

1. General The cost and quality of all food in relation to the class of pig for which it is required.
2. Breeding (a) The amount of food required by breeding stock.
 (b) The number of litters per year from sows.
 (c) The number of pre-weaning deaths.
 (d) The numbers weaned per litter.
3. Fattening The food requirement per pound of live weight gain.

With the knowledge of these factors^x and the overall relationship of costs to Gross Output it should be possible to keep a close check on both the standard of management and the level of profitability of any bacon pig enterprise. To get this knowledge some records are necessary. While this may take a little trouble the time spent can be amply rewarded. When a difference of one-tenth of a pound (0.1 lb.) in the fattening food conversion factor makes a difference of 5/- to the profit on every fat pig, it seems unduly optimistic to hope that sound information on which to base policy and management decisions will be forthcoming without accurate records.

The current standards achieved in practice for each of the Efficiency Factors has been presented and an indication given of the extent by which an average producer might hope to increase his efficiency in attaining the level of the better farmers.

^x For purposes of comparison standards of efficiency in these factors are set out in Appendix II.

For instance, the effect of improving the conversion factor alone will have a considerable effect. 20 sows form a popular size of enterprise and will normally produce some 250 pigs for fattening in a year. If the average of $4\frac{3}{4}$ lb. of meal per pound live weight gain could be reduced to the modest figure of $4\frac{1}{4}$ lb. then profits would be increased by over £300 per year.

The impact of differential prices for various grades of baconer has not yet been felt but an analysis of a sample of gradings indicates that in future careful attention to carcass conformation will have a marked effect on profit.

With the pig population at the present high level it is unlikely that bacon pig prices will be raised to increase the current profit margin. Any increase in profitability is only likely to come through increased efficiency and concentration on producing a high quality product. The significance of the recent reduction in prices paid for imported bacon, which are below those paid to the U.K. producers should not be overlooked. Every pig producer will need to keep fully informed of practical developments likely to affect the technical efficiency of his enterprise and to consider the possibilities of pork production. Good quality and a high level of efficiency are essential if the bacon industry is to flourish in a healthy condition in the face of strong overseas competition.

Note

Since the Bulletin was written the Minister of Food has issued a statement saying that "to encourage the marketing of more suitable pigs for pork a premium will be introduced (to apply from 30th March 1953) for pigs for pork weighing between 5 sc. 16 lb. and 6 sc. 15 lb."

(i)

APPENDIX I

COSTS PER £100 GROSS OUTPUT

How can a farmer calculate his costs per £100 Gross Output? He must fill in the figures on the following table.

Value of all pigs at beginning of period	£	Value of all pigs at end of period	£
Purchases of pigs during the period	£	Sales of pigs during the period	£
Total (1)	<hr/>	Total (1)	<hr/>
Total (2)	£		
Less Total (1)	£		
		<hr/>	= GROSS OUTPUT
Total Cost Food	£		
Total Cost Labour	£		
Total Cost Other	£		
		<hr/>	= TOTAL COSTS

Calculations

1. Profit = Gross Output less Total Costs = £
2. Profit per £100 G.O. = $\frac{\text{Profit} \times 100}{\text{Gross Output}}$ = £
3. Costs per £100 G.O. = $\frac{\text{Total Costs} \times 100}{\text{Gross Output}}$ = £
4. Food Costs per £100 G.O. = $\frac{\text{Food Costs} \times 100}{\text{Gross Output}}$ = £

(ii)

APPENDIX II

EFFICIENCY FACTORS IN PIG PRODUCTION

	Good	Average	Poor
<u>BREEDING</u>			
Food per sow per annum	-	26 $\frac{1}{4}$ cwt.	-
Pre-weaning deaths per litter	0	2	3
Weaned per litter	10	8	6
Litters per sow	1 every 6 months	1 every 7 $\frac{1}{2}$ months	1 every 9 months
<u>FEEDING</u>			
Lb. meal per lb. live weight gain	4	4 $\frac{1}{2}$	5

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