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FOURTH REPORT ON PIG PRODUCTION ENTERPRISES

IN DEVON AND CORNWALL.

A Comparative Study of 26 Pig Enterprises
for the year 1939

by

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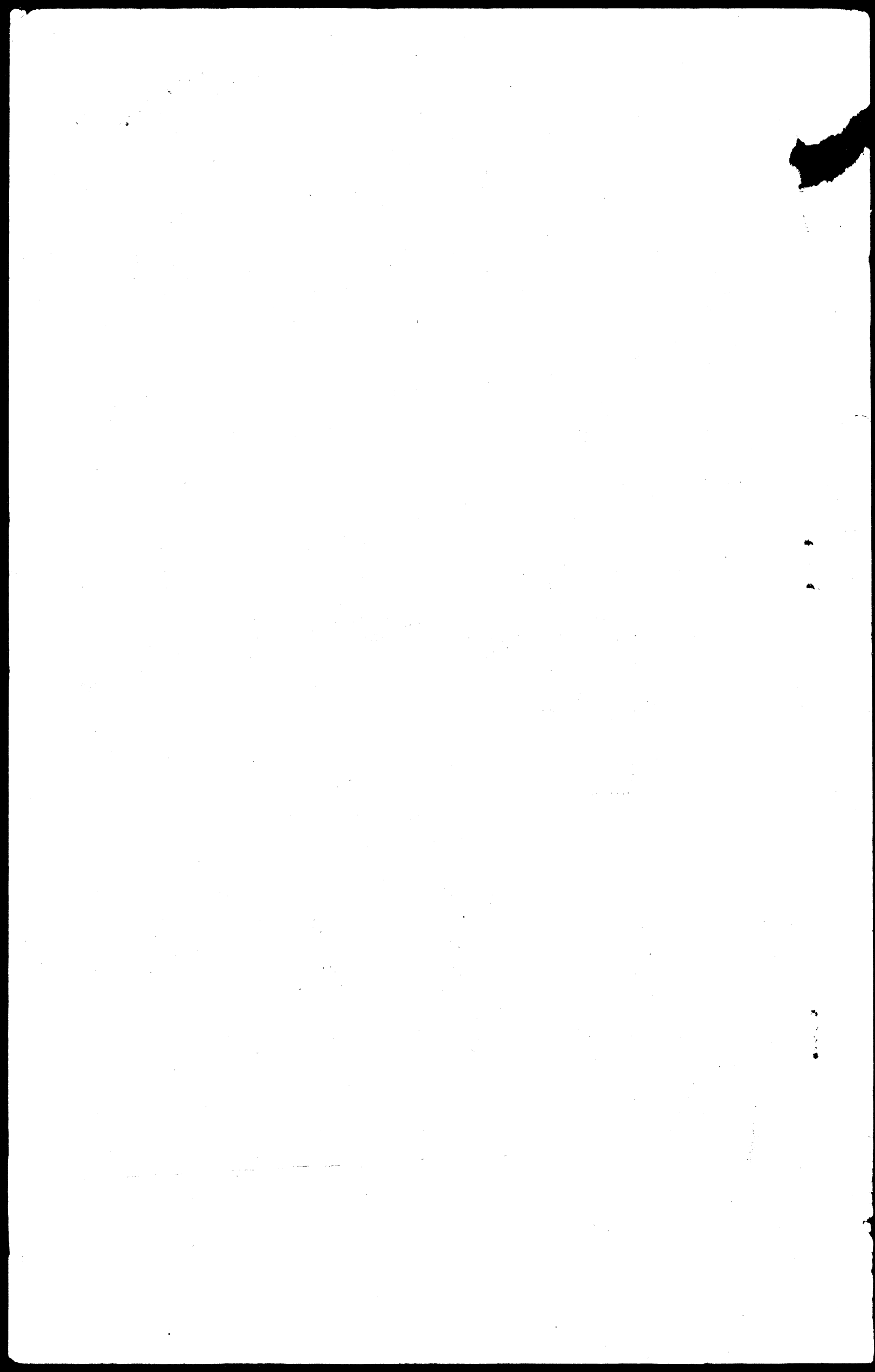Seale-Hayne Agricultural College
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PART 1.

INTRODUCTION.

This Report is the fourth of a series of studies of pig production enterprises in Devon and Cornwall, and is based on financial and physical data collected from weekly recordings of 26 herds for the year 1939. For reasons of economy the results are presented in less detail than in previous reports. A detailed statement has, however, been supplied to each co-operating farmer.

This investigation, initiated in 1936, was designed to secure data which would be of assistance to individual farmers in increasing the efficiency of their pig production enterprises, to the general body of pig producers and to the industry as a whole. The drastic restrictions in the supply of feeding stuffs experienced during the late Autumn and early Winter months of 1939 came as a great blow to pig producers. The present over-riding claims of the National War effort will cause even greater disruption within the industry.

The whole outlook of the industry has been completely changed. The specialist development which has taken place in recent years, not only of the large factory types of production, but also on ordinary mixed farms, must now give way to a more general but smaller scale type of enterprise. It is desirable that every farmer should keep enough pigs to utilise fully all waste materials and by-products such as skim milk, small potatoes, tail corn, acorns, and any other kind of food stuffs which might otherwise be wasted.

The part which the pig industry can play in the food production campaign is still an important one. The manner in which farmers have faced up to the situation and some of the expedients adopted is an encouraging indication of the ability of farmers to adapt their production methods to conform with war-time food production economy.

In peace time the need for greater efficiency in production methods was realised and much progress had been achieved. The need is much greater now. The conversion of what foodstuffs are available into pig meat should be undertaken with the minimum of waste. The standard of efficiency demands that only the more prolific sows should be kept and every effort should be made to maintain the health of the pig stock, for unhealthy pigs are not efficient converters of food. Quality of pig meat must be sacrificed for quantity.

War time pig production with its attendent problems will require study and investigation and every effort should be made to continue recording. It is almost certain that much of the experience which will be gained will be of great benefit when the time comes to rebuild the Pig Industry in this country.

Table 1.

AMALGAMATED FINANCIAL RESULTS OF 26 HERDS FOR 1939.

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No:-	Opening Valuation.	£	s	d	£	s	d
17	Service Boars	94	17	0			
186	Sows and gilts	1111	10	0			
375	Suckling pigs	237	0	0			
2195	Feeding pigs	6046	14	10	7490	1	10
	Purchases:-						
4	Boars	29	14	6			
37	Sows and gilts	318	19	3	348	13	9
1277	Suckers and weaners	1537	15	0			
1529	Stores	3429	6	3	4967	1	3
3187	Pigs born alive					X	
					12805	16	10
	Pig Output c/down				23163	6	3
8807					35969	3	1

	Costs:-	£	s	d	£	s	d
	Meals (36118 Cwts)	14809	2	0			
	Other foods	296	2	8	15105	4	8
	Labour				918	1	8
	Miscellaneous Expenses				230	5	3
					16253	11	7
	Gross Profit ⁑				6909	14	8
					23163	6	3

Cr.

No:-	Closing Valuation:-	£	s	d	£	s	d.
14	Service Boars	75	0	0			
196	Sows and gilts	1214	10	0			
470	Suckling pigs	251	15	6			
1998	Feeding pigs	6617	13	0	8158	18	6
	Sales:-						
7	Boars and Service fees	72	6	11			
68	Sows and Gilts	648	16	1			
42	Suckers & Weaners	30	15	0	751	18	0
239	Stores	715	14	2			
866	Porkers	3362	3	11			
4132	Baconers	22980	8	6	27058	6	7
	Deaths:-						
534	Pre weaning					X	
234	Post weaning					X	
7	Sows					X	
8807					35969	3	1
	Pig Output b/down				23163	6	3
					23163	6	3

⁑ No charge has been made for buildings, interest on capital in livestock, for management, or for litter.
No credit has been allowed for manure.

PART 2.

GENERAL FINANCIAL RESULTS.

(1) PROFIT STATEMENT.

The aggregate financial results of 26 herds for the year 1939= are presented in Table 1. The data in this table may be summarised as follows:-

		£'s
Total receipts from sale of pigs	=	27,810
Less cost of purchased pigs	=	5,316
Net receipts	=	22,494
Add increase in valuation	=	669
Pig Output	=	23,163
Deduct Costs of production	=	16,253
Profit	=	£6,910
Profit per £100 of Pig Output	=	£29.8

As in previous years profits varied widely as between individual herds. No farm showed a loss in 1939. The five most profitable herds returned a profit of 42.4% on Pig Output while the five least profitable returned a rate of profit of 13.4%. The extreme range was from 4.0% to 57.8%. Contrary to the experience of the preceeding three years the more self-contained herds were, on an average, slightly less profitable than those purchasing Store pigs.

Of the 26 herds studied, four were wholly dependent on purchased weaners and stores; seven purchased more than 50% as weaners and stores; and in the remaining herds from two thirds to all the incoming pigs were homebred. Over all 26 herds, of the pigs added to the feeding stock during the year 47.3% were homebred and 52.7% were purchased. Of the purchased pigs 45.5% were purchased as weaners (8-10 weeks old) at an average price of 24/1, and 54.5% as stores at an average price of 44/10d.

In the 26 herds 83% by value of total receipts was represented by bacon pigs. This form of output accounted for more than two thirds (by number) of all pigs sold in 20 of the 26 herds, and represented a proportion of the output in all herds. The production of porkers was important in 5 herds, while one herd specialised chiefly in the sale of store pigs and young breeding stock.

The size of the enterprise varied considerably as between different herds from the smallest with an Output of £272 to the largest with an Output of £2020. The Output averaged £891 per herd over all herds. The average capital investment in livestock was £301 and ranged from £71 to £915. Thus the capital invested was turned over nearly 3 times during the year.

(2) Analysis of Costs.

The chief items of direct expenditure in producing the Pig Output in these 26 herds are summarised in Table 2.

Of the items of direct expenditure, foodstuffs represents more than 90% and corresponds closely with the percentage composition of this item in previous years. The bulk of foods fed consist of purchased meals. Home-grown corn was fed on 6 farms only and was relatively unimportant. Some skim milk was fed on 8 farms, but on only four of them was it important three of which, situated in West Cornwall, have skim milk returned from the factories.

Table 2.   Items of Cost and Percentage
                              composition.

	Total £'s	Per Cent
Foodstuffs	15105	92.9
Labour	918	5.7
Other Costs x	230	1.4
Total	16253	100.0

x Carraige (not already deducted), service fees,
veterinary and medicines, equipment charges and
miscellaneous expenses.

The average price of purchased meals in all herds for the
year was 8/2½, and ranged as between herds from 7/3 per cwt to
9/5 per cwt.

Table 3.   Analysis of Foods Fed.

	Price		Average price per cwt.
	Total	Per Cent	
	£'s		s. d.
Purchased meals	14461	95.7	8 2½
Home-grown "	348	2.3	8 2
Total	14809	98.0	8 2½
Skim Milk	207	1.4	x
Other foods	89	0.6	x
	15105	100.0	x

(3) Analysis of Income.

The classes of pigs marketed are set out in Table 4.
Of pigs marketed during the year 77.2% by number was marketed
at bacon weight, and 16.2% as porkers.   The value of pigs sold
at bacon weight represented 82.6% of all pigs sold.

Table 4.   Distribution of Sales by Market Class.

Class	Number		Total Value			
	Total	%	£	s	d	%
Boars & Service Fees	7	0.1	72	6	11	0.3
Sows	68	1.3	648	16	1	2.3
Weaners & Suckers	42	0.8	30	15	0	0.1
Stores x	239	4.4	715	14	2	2.6
Porkers	866	16.2	3362	3	11	12.1
Baconers	4132	77.2	22980	8	6	82.6
Total	5354	100.0	27810	4	7	100.0

x Including young breeding stock.
The principal data relating to the sales of porker and
bacon pigs is summarised in Table 5.

Table 5.   Summary of Pork and Bacon Pig Sales
                           26 Herds. 1939.

	Porkers	Baconers
Number Sold	866	4132
Total dead weight (scores)	4242	34249
Total Value (£'s)	3362	22980
Average dead weight (sc. lbs.)	4Sc 18lbs	8Sc 6lbs
Average price per Score	15/10	13/5
Average value per head	£3 17 8	£5 11 2

Price per dead score for bacon pigs ranged, as between
individual herds specialising chiefly in the production of baconers,
from 12/4 to 14/3.   While the grading system which was in oper-
ation until the outbreak of war was to a certain extent responsible
for differences in Unit prices, the factor chiefly responsible for
the wide range in unit prices is the Seasonal distribution of the
Sales over the year, particularly in a year such as 1939 when
average monthly prices varied by as much as 6/- per score.
The monthly sales of bacon pigs is presented in Table 6.

Table 6.   Seasonal distribution of Bacon Pig Sales.
                           26 Herds. 1939.

Month	Number sold	Av. dead weight. sc. lbs.		Av. price per score s d		Av. value per pig £ s d			No. as a % of total
1939									
Jan x	173	8	19	12	1	5	8	5	4.2
Feb:	273	8	5	12	8	5	4	8	6.6
Mar:	343	7	19	12	9	5	1	3	8.3
April:	340	7	17	12	4	4	16	9	8.2
May	450	8	1	12	3	4	18	7	10.9
June	296	8	5	12	2	5	0	4	7.1
July	373	8	0	12	1	4	16	10	9.0
Aug:	309	7	17	12	0	4	14	5	7.5
Sept:	228	8	3	12	10	5	4	3	5.5
Oct:	428	8	14	13	5	5	16	7	10.4
Nov:	404	9	1	14	9	6	13	10	9.8
Dec:	413	8	10	17	10	7	11	6	10.0
1940									
Jan x	102	8	4	17	11	7	7	5	2.5
t									
Total	4132	8	6	13	5	5	11	2	100.0

x For 13 of the 26 herds, the recording year is Jan. - Dec 1939
and for the remaining 13 herds Feb. 1939 - Jan. 1940.

The supply of bacon pigs from these herds was largest in the
second and last quarters of the year, and smallest in the first and
third quarters.   The least number marketed in the first quarter
and the greatest number in the last quarter corresponds with the
position in 1938, but in 1939 the supply of baconers in the period
July - Sept. was very little more than in the period Jan - March.
In particular the supply was lower in Sept. than for any month in
the year.
The supply of porkers was chiefly confined to a few farms and
were heaviest in the month of December. (30.0%).   The 6 Summer
months (April - Sept.) accounted for only 18% of the total supplies
of porker pigs.

PART 3.

SOME PHYSICAL DATA.

1. Breed Distribution and Herd Replacements.

(a) Distribution of breeds.

The breed composition of the Sows and Boars in the herds studied in this investigation is summarised in Table 7.

Table 7.	Breed Distribution	20 herds.
	Sows %	Boars %
Wessex Saddleback	51.5	14.3
Large White	22.2	85.7
Large Black	17.7	-
Cross Breeds	8.6	-
	100.0	100.0

More than half the Sows in these herds are Wessex Saddlebacks, while the majority of Boars are Large Whites. Consequently the majority of pigs produced on these farms are cross breeds.

(b) Replacement of Breeding Stock.

Sows. The number of Sows in 20 herds which kept breeding stock increased from 186 at the beginning of the year to 196 at the end of the year.   During the year 68 Sows and gilts were sold, 4 transferred to feeding pig stock, and 7 died. Sales, transference out and deaths thus amounted to 42.5% of the original number in the herd, a high rate of turnover and equivalent to a herd life of 2½ years.

Boars. The number of boars in these 20 herds was 17 at the beginning of the year and fourteen at the end.   Seven boars were sold and one transferred to feeders during the year. Thus the rate of turnover is nearly 50% equivalent to a herd life of 2 years.

2. Analysis of Farrowing Records.

(a) Litter Averages.

A summary of litter averages data for 20 herds for which data are available and for the 5 best herds and 5 worst herds (for factor of pigs reared per litter) is given in Table 8.   The average number of pigs reared per litter was 7¼ with a range of from 5.4 to 10.8.   The range in death rate was from none to 32.5% of pigs born alive.   The highest death rate corresponds to the lowest litter average. Comparable data relating to average litter production for the four years 1936 - 1939 are set out below:-

	1936	1937	1938	1939
Number of herds	11	20	24	20
" pigs born alive per litter	9.5	9.3	9.7	9.0
" " died per litter	1.8	1.8	2.2	1.5
" " weaned per litter	7.7	7.5	7.5	7.5

It would appear that the weaning average depends more on

death rate than on the number of pigs born alive.   The number of pigs born alive per litter was lower in 1939 than in either the three previous years.

Table 8.   Summary of litter average data.

	All herds	Five best herds [x]	Five worst herds [x]
No. of herds	20	5	5
" " litters produced	352	25	100
" " pigs born alive	3187	259	868
" " " " "per litter	9.0	10.4	8.7
" " deaths	534	25	202
" " " per litter	1.5	1.0	2.0
" " pigs reared	2653	234	666
" " " " per litter	7.5	9.4	6.7
Deaths as a % of pigs born alive	16.8	9.7	23.3

(b)   Pigs produced per Sow.[Ø]

The production rate of pigs per Sow for 20 herds in 1939 is summarised in Table 9.

Table 9.   Summary of yearly production of pigs per sow.

	All herds	Most profitable [/]	Least profitable [/]
Number of herds	20	5	5
Average number of Sows per herd	10.2	10.3	9.9
Pigs born alive per Sow per annum	15.6	17.5	14.4
Pigs weaned per Sow per annum	13.0	15.0	11.3
Litters produced per Sow per annum	1.72	1.92	1.57
No. of months to produce 2 litters	14.0	12.5	15.2

On an average the Sows (and gilts) in these herds produced slightly less than 1¾ litters in the year.   The average number of pigs produced per Sow (and gilt) was 13 and ranged from 7.9 to 20.4.   The five least profitable herds returned an average of 3¾ fewer pigs per Sow than the five most profitable.

The figures for 1939 are compared with those for 1936, 1937, 1938 in Table 10.

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[x] For factor of pigs weaned per litter.
[Ø] Includes gilts.
[/] Profitability measured over the whole pig enterprise and relates to those farms where the majority of incoming pigs are homebred.

Table 10.   A four years comparison of number
              of pigs produced per sow per annum

	1936	1937	1938	1939
Number of herds	11	20	24	20
Average number of Sows per Herd	9.2	9.1	9.1	10.2
Pigs born alive per Sow per annum	15.6	17.0	17.0	15.6
Pigs weaned " " " "	12.6	13.6	13.2	13.0
Litters produced " " " "	1.58	1.81	1.75	1.72
Number of months to produce 2 litters	15.2	13.3	13.7	14.0

Seasonal distribution of farrowing and mortality rates are
summarised in Table 11.   Farrowings were fairly evenly distrib-
uted over the year.   The winter death rate is more than double

Table 11.   Seasonal distribution of farrowings, deaths
              and weanings.   20 herds 1939.

	No. of litters	Pigs born alive		Deaths		Weaned	
		Total	Per litter	Total	Per litter	Total	Per litter
Jan - March	91	860	9.45	217	2.38	643	7.07
Apl. - June	90	787	8.74	84	0.93	703	7.81
July - Sept.	89	821	9.22	87	0.97	734	8.25
Oct - Dec.	82	719	8.77	146	1.78	573	6.99
Total	352	3187	9.05	534	1.51	2653	7.54
Apl - Sept.	179	1608	8.98	171	0.95	1437	8.03
Oct - March	173	1579	9.13	363	2.10	1216	7.03

that of the Summer months and on an average 1 pig more was
weaned per litter during the Summer months compared with the
Winter months.   These results correspond closely with those
for 1938.

3. Mortality

The numbers of deaths in each class in 26 herds are set out below:-

	Number	%
Sows and Gilts	7	0.9
Suckling Pigs	534	68.9
Feeding Pigs	234	30.2
	775	100.0

More than two thirds of all deaths are accounted for by suckling pigs.   The net effect of pre-weaning mortality in 20 herds in 1939 was to reduce the number of pigs reared per sow per annum by 2½.   Considering the small size of litters produced by the sows in these herds, the death rate is high and an attempt should be made to increase the number of pigs weaned per sow since the maintainance requirements of the sow in foodstuffs is much about the same whatever the number of pigs reared.   Under war-time conditions maximum output per unit of feeding stuffs must be aimed at.   The effect of small litters on profits has already been dealt with.

During the year deaths after weaning average 4.4%, a slightly higher average death rate than in the two previous years.   The range between individual herds was from 0.0% to 14.3%.   The relationship between high death rate and low profits is very marked.   High mortality rates also correspond closely with high meal consumption rates.   That is, not only do deaths affect profits directly, but a high post weaning death rate is frequently an indication of unthrifty pigs which require larger quantities of meal to reach bacon weight.   In fact it may be sound economy to increase the actual death rate by culling and killing all such unthrifty pigs as soon as possible after weaning.

4. Meal Consumption.

Considerable emphasis has been placed on the importance of the meal consumption /live weight gain ratio in previous reports.   Unfortunately the number of herds for which it is possible to arrive at this factor is still small and is confined chiefly to those farms purchasing all incoming pigs.   In addition, in two herds the feeding and breeding stock are recorded separately and actual data are thus available for these herds.   In this year's analysis, however, an estimation of the meal consumption factor has been undertaken for a number of herds based on an assumed consumption of 23 cwts of meal per sow and by transferring the weaners to feeding stock at an estimated live weight of 30lbs.   The two groups are tabulated separately, and the data are considered sufficiently accurate for advisory purposes.   The results are summarised below.

	Group 1. (Actual)	Group 2. (Estimated)
Number of herds	6	9
Meals fed (lbs)	1282699	1096760
Live weight increase (lbs)	296498	264065
Ratio of meal to live weight increase (lbs)	4.32	4.15

In group 1, individual results range from 4.08lbs to 4.73lbs; in group 2, the range is from 3.4lbs to 4.73lbs.

SUMMARY.

This report is based on data collected from 26 Pig enterprises in Devon and Cornwall for the year 1939. It does not claim to represent 'average' conditions in pig production, but states the results obtained on a mixed group of herds operating under varying systems of management, and refers to one year and to a particular set of price conditions, and complicated by war conditions in the latter part of the year.

The average rate of profit over the 26 herds for the year was £29.8 per £100 of Pig Output. All herds returned a profit, but the rate of profitability varies widely as between herds. The extreme range was from 4.0% to 57.8%. On an average herds largely dependent upon purchased weaners and stores showed an improvement in the rate of profitability as compared with 1938 greater than herds practising home-breeding.

The average cost of purchased meals for the 26 herds was 8/2½ per cwt, with a range as between herds of 2/3 per cwt. The amount of meal required to add 1 lb of live weight increase varied considerably. While the rate of conversion of food to pig meat was very satisfactory in some herds, in others it was most unsatisfactory. Wherever possible the cause of these variations has been ascertained.

In the majority of herds, the bulk of the receipts came from the sale of bacon pigs. Supplies of baconers was heaviest in the second and last quarters of the year (particularly the last quarter) and lightest in the first and third quarters. The average price received for all baconers was 13/5 per score (dead weight) and ranged from 12/- in August to 17/11 in January 1940. The range as between individual herds chiefly concentrating on bacon pig production was from 12/4 per score to 14/3. The average margin in the price of the bacon pig per score over cost of meal per cwt was 5/3 and ranged as between individual herds from 3/10 to 6/4.

There were wide variations between herds in the number of pigs reared per litter and per Sow per Annum. The number reared per litter averaged 7.5 pigs and ranged as between individual herds from 5.4 to 10.8. On an average 16.8% of pigs born alive died before weaning. The number of pigs weaned per sow per annum averaged 13.0 and ranged as between individual herds from 7.9 to 20.4 pigs. On an average it took 14 months to produce two litters. Farrowings were fairly evenly distributed over the year, but the winter death-rate amongst suckling pigs was more than double that of the Summer period, and on an average one pig per litter more was weaned in the summer period compared with the winter period.

Mortality amongst feeding pigs over the year averaged 4.4% and ranged as between herds from 0.0% to 14.3%. During the year 42.4% of the original sows left the herd and were replaced giving an average life in the herd of just over 2 years. Of the sows used 51.5% were Wessex Saddlebacks, 22.2% Large White, 17.7% Large Black and 8.6% cross-bred. Twelve of the fourteen boars used were Large White.

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