ISSUE NO.2

PRODUCTION IN RELATION TO CAPITAL AND COSTS

FEBRUARY 1931

BASED UPON ACCOUNTS FOR CROPPING YEAR 1929

CONTENTS

INTRODUCTION

THE PROBLEM STATED.

Some men love the normal, others the abnormal; some stress the importance of what is usual and regular, others of what is exceptional and irregular; some risk their lives upon the "long run", others upon the "short run".

The man who loves the normal knows that the costs incurred by him upon his farm bear some relation to the capital invested, and that the production he obtains will be in some way related to the investment of capital and to the expenditure upon various items of cost. He knows that an increase in milk production can be attained by increasing his capital in dairy cows and at the same time, up goes the bill for feeding stuffs. He is sure that, in the long run, at least, the richer the land, the greater the rent, the more intensive the cultivation, the heavier the costs and the more bountiful the production.

The other man dislikes the normal; dislikes the long run. He loves the exceptional; loves the immediate. He knows that the most important factors determining the production of a farm are the management, good or bad, and the particular local and individual circumstances and conditions, lucky or unlucky. He says it is the good man or the lucky man who gets the favourable result, and it is the bad man or the unlucky man who gets the unfavourable result.

The problem consists in determining the degree of importance attaching to each of the contentions. We will not say that the problem consists in demonstrating which is right and which is wrong, for we hope to show that they are quite compatible with one another, and not in conflict at all. We venture in this issue to indicate a line of approach. We set forth our new material in columns in Chapter 1, and proceed to relate the abnormal and the normal in diagrams in Chapter 2. As yet Chapter 3 must be accepted in a tentative way, subject to limitations, as therein set forth. In Chapter 4 are outlined our own intentions for future work.

IMPORTANT

Please note that Issue Number 3 will be out in May. For inclusion in this issue, it is essential that accounts for the cropping year 1929 be sent to 22,Berkeley Square by May 1st.

In November next, we shall deal with the 1930 results on similar lines to the treatment of 1929 results in this issue; we should like as many 1930 results by November 1st.

CHAPTER 1

STATISTICS FOR CAPITAL, COSTS, PRODUCTION, & PROFIT OR LOSS

REFERENCE NOTES ON TABLE 1

(1) Farms are placed in order of Production per 100 acres. The farm with the highest production per 100 acres is found at the top, and the farm with the lowest is found at the end. (Refer to column headed "Production").

(2) The five counties of the Bristol Province are mixed together; they are not separately listed.

(3) The figures for Capital, Costs and Production are given per 100 acres.

(4) The figures for Profit or Loss per 100 acres, per £100 Capital and per £100 Costs are indicated thus :

P for Profit
L for Loss

Although the farms are placed in order of the intensity of production, they also place themselves in a rough way, in order of intensity both of capital and of costs. A glance down the respective columns will show this to be so, costs falling more in order than capital.

Those farms which clearly fall out of line upon the assumption that capital and costs figures fall gradually from one end of the table to the other, deserve close attention. At this stage we cannot pretend to be able to make important deductions from the irregularities in these gradual falls. Nevertheless it is these irregularities which must ultimately be accounted for. It will be readily seen that they have a deal to do with the figure for profit or loss. We already begin to feel that in some way the gradual fall is connected with the normal, whilst deviations are contrarily somehow connected with the abnormal.

TABLE 1

FIGURES PER 100 ACRES

FARM NUMBER	CAP-ITAL	COSTS	PROD-UC-TION	PROFIT OR LOSS		
				PER 100 ACRES	PER £100 CAPITAL	PER £100 COSTS
R.6G.1	2733	3320	2913	L 407	L 15	L 12
W. 275	1653	2070	2044	L 26	L 2	L 1
W. 266	1516	2415	1880	L 535	L 35	L 22
W. 9	2472	1545	1808	P 263	P 11	P 17
S. 317	1878	1215	1721	P 506	P 27	P 42
S. 315	1649	1297	1442	P 145	P 9	P 11
G.6D.1	1485	1238	1421	P 183	P 12	P 15
G.4E.3	1124	814	1374	P 560	P 50	P 69
S. 19	1344	1216	1366	P 150	P 11	P 12
S. 49	1589	1123	1259	P 136	P 9	P 12
S. 40	1994	1413	1243	L 170	L 9	L 12
W. 301	1266	1114	1241	P 127	P 10	P 11
W. 10	1203	1142	1205	P 63	P 5	P 6
W. 300	1308	1246	1185	L 61	L 5	L 5
S. 56	2092	1044	1135	P 91	P 4	P 9
G.5D.2	1089	1219	1059	L 160	L 15	L 13
W. 305	2855	1115	1053	L 62	L 2	L 6
S. 97	1279	1021	1038	P 17	P 1	P 2
S. 31	1433	899	1024	P 125	P 9	P 14
S. 312	1170	910	1023	P 113	P 10	P 12
S. 275	1313	914	1011	P 97	P 7	P 11
W. 11	1382	902	1009	P 107	P 8	P 12
W. 18	1177	951	964	P 13	P 1	P 1

TABLE 1 (contd.)

FIGURES PER 100 ACRES

FARM NUMBER	CAP-ITAL	COSTS	PROD-UC-TION	PROFIT OR LOSS		
				PER 100 ACRES	PER £100 CAPITAL	PER £100 COSTS
W. 28	1384	1042	959	L 83	L 6	L 9
S. 64	1852	774	951	P 177	P 10	P 23
H.3E.2	1378	557	915	P 358	P 26	P 64
H.4E.1	852	662	899	P 237	P 28	P 36
W. 4	1575	899	886	L 13	L 1	L 1
H.3E.1	800	763	863	P 100	P 13	P 13
G.7D.3	1059	849	847	L 2	L 0	L 0
W. 43	1127	552	832	P 280	P 25	P 51
W. 304	918	843	827	L 16	L 2	L 2
G.6C.2	822	568	816	P 248	P 30	P 44
S. 80	1302	1181	814	L 367	L 28	L 31
W. 7	1159	646	806	P 160	P 14	P 25
W. 29	1116	724	790	P 66	P 6	P 9
G.4E.5	714	695	781	P 86	P 12	P 12
S. 118	1487	1069	773	L 296	L 20	L 28
G.4A.1	694	615	772	P 157	P 23	P 26
S.329	1745	779	768	L 9	L 1	L 1
W. 6	1241	646	732	P 86	P 7	P 13
W. 3	897	652	727	P 75	P 8	P 12
S. 279	782	699	722	P 23	P 3	P 3
W. 284	1339	767	721	L 46	L 3	L 6
W. 35	1106	689	693	P 4	P 0	P 1
G.7C.1	784	493	685	P 192	P 24	P 39

TABLE 1 (contd.)

FIGURES PER 100 ACRES

FARM NUMBER	CAPITAL	COSTS	PRODUCTION	PROFIT OR LOSS		
				PER 100 ACRES	PER £100 CAPITAL	PER £100 COSTS
G.6C.1	1160	712	658	L 54	L 5	L 8
S. 106	1262	808	652	L 156	L 12	L 19
S. 91	935	614	632	P 18	P 2	P 3
S. 196	1588	790	625	L 165	L 10	L 21
S. 92	1204	702	597	L 105	L 9	L 15
W. 34	960	673	595	L 78	L 8	L 12
W. 163	1013	579	557	L 22	L 2	L 4
W. 41	909	568	549	L 19	L 2	L 3
W. 1	492	532	548	P 16	P 3	P 3
W. 91	624	535	540	P 5	P 1	P 1
W. 318	1056	504	536	P 32	P 3	P 6
G.8C.1	636	505	518	P 13	P 2	P 3
W. 52	555	510	508	L 2	L 0	L 0
S. 198	1182	446	506	P 60	P 5	P 13
W. 31	711	309	506	P 197	P 28	P 64
W. 272	1029	554	496	L 58	L 6	L 10
W. 115	914	514	494	L 20	L 2	L 4
W. 30	808	486	492	P 6	P 1	P 1
W. 36	1015	588	472	L 116	L 11	L 20
W. 258	708	331	471	P 140	P 20	P 42
W. 134	813	421	459	P 38	P 5	P 9
W. 280	969	439	452	P 13	P 1	P 3
W. 53	589	347	445	P 98	P 17	P 28

TABLE 1 (contd.)

FIGURES PER 100 ACRES

FARM NUMBER	CAP-ITAL	COSTS	PROD-UC-TION	PROFIT OR LOSS		
				PER 100 ACRES	PER £100 CAPITAL	PER £100 COSTS
G.5E.1	921	807	434	L 373	L 40	L 46
W. 278	841	468	411	L 57	L 7	L 12
W. 15	707	411	403	L 8	L 1	L 2
G.2B.1	990	611	378	L 233	L 24	L 38
W. 283	823	413	369	L 44	L 5	L 9
W. 303	803	472	348	L 124	L 15	L 26
G.7D.4	717	361	330	L 31	L 4	L 9
W. 320	731	439	322	L 117	L 16	L 27
W. 138	665	287	300	P 13	P 2	P 5
G.7D.2	336	206	282	P 76	P 22	P 27
W. 281	314	194	229	P 35	P 11	P 18

1930 CROPPING YEAR

W. 9	2575	1549	1942	P 323	P 15	P 25
W. 307	1790	1389	1900	P 511	P 29	P 37
G.6D.1	1640	1289	1427	P 138	P 8	P 11
G.7C.2	950	427	990	P 563	P 59	P 132
G.7D.3	1063	774	952	P 178	P 17	P 23
H.3G.2	1047	575	877	P 302	P 29	P 52
G.7D.1	1015	477	752	P 275	P 27	P 58
G.8E.1	786	473	592	P 119	P 15	P 25
G.2B.1	1271	635	470	L 165	L 13	L 26
G.7D.4	723	303	376	P 73	P 10	P 24
W. 315	656	685	257	L 428	L 65	L 62

CHAPTER 2

THE RELATION OF PRODUCTION TO CAPITAL AND COSTS

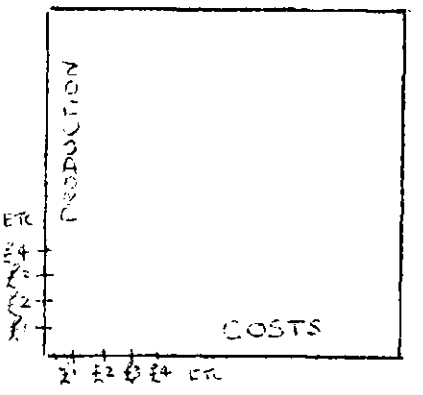
Given the figures presented in the first chapter, our foremost need in this is a form of diagram which can provide us with a picture at one glance, of the relations that we are endeavouring to analyse. We must have something of greater value and greater interest than a collection of columns and figures, which are boring to look at and meaningless as they stand, which through their very tediousness menace their examination, confuse thought and when finally attacked may give rise to innumerable doubts and misinterpretations.

On the contrary, our diagram is very simple; simple both in form and understanding, and so we proceed to explain its construction :

It is in form a square; from left to right we measure (say) costs in £s per acre, and upwards from the bottom we measure (say) production, also in £s per acre.

UPWARDS

Mark off "Production in £s per acre", starting with nothing, proceeding to £1, £2, £3 etc., and going as far as will be necessary to get all farms in.



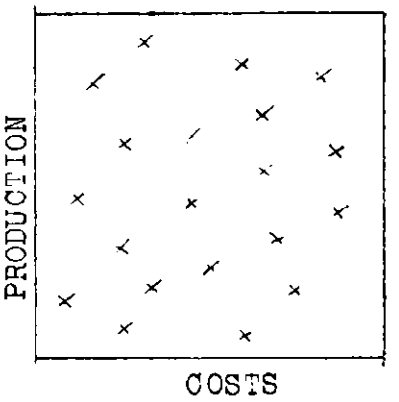
LEFT TO RIGHT

Similarly mark off "Costs in £s per Acre", again commencing with nothing and going far enough to include all individual cases.

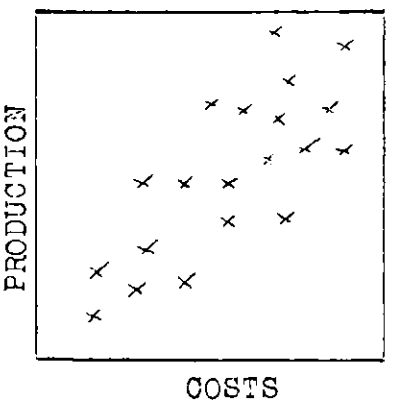
We now have a space in which can be marked the position of any or all farms, and by entering all farms, we can show what, in actual practice, is the relation between costs and production. For instance, if we wish to enter farm G.60.1, given at the top of page 7, we find costs are £7 per acre (just over, the figure given is £712 per 100 acres), and production is £6½ per acre (again just over, the figure given being £658 per 100 acres). Then we locate £7 (and a wee bit more) along the line from left to right, and move upwards until we are level with £6½ (and a wee bit more) on the scale from bottom to top. A cross, dot or circle, or anything else, marked here will give you the position of the farm. By filling in

all farms, we get a very simple diagram, giving at a glance the relation between costs and production. The resulting scattering of farms may give very different sorts of diagrams, as we pass from one experiment to another. Here are several imaginery cases,with their interpretations :

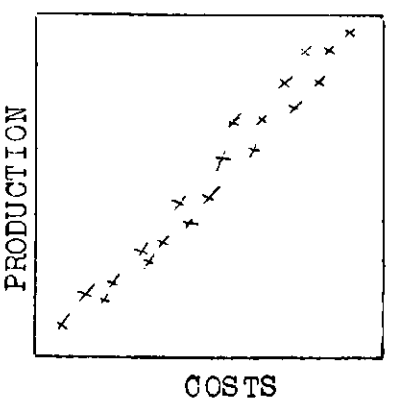
The diagram may turn out like this, indicating the absence of normal relation. Abnormal conditions or outside influences decide the matter :



Or it may come like this, indicating some sort of connexion, though the uncertain element is still very marked :



Or again, the diagram may appear thus, and then we could conclude that abnormal factors have very little play :



FOUR SPECIAL POINTS TO NOTICE.

(1) The line which appears to drive straight through the middle of the group of crosses on the diagram shows the normal or average relation between the two factors being compared. Whenever the position of this line is easy to find, there is greater significance attaching to the average. Whenever the position of the line is difficult to locate, there is less significance attaching to the average. (The line in question is to be found on Tables 2a and 2b).

(2) A tendency for the crosses to diverge from this line indicates the existence of factors which are local or individual. The more the divergence is marked, the greater the influence of such factors ; the less marked is the divergence, the smaller is the influence of these factors.

(3) Although individual management and circumstance may cause very considerable variation - producing great divergences on the diagram - there will still be cases where the skill and luck are average. In spite of a marked tendency to scatter on the diagram, individual cases of average skill and luck will bring the farm close to, if not actually on, the normal line. In other words, upon the normal line itself, the abnormal factors are themselves average and normal.

(4) An outside factor influencing the entire, or a very large section of the agricultural industry, will be revealed by the change in the position of the normal line from time to time. General weather conditions, trade and price conditions, volume of imports, are examples of such factors. The normal line showing the relation between production and costs may be one of profit or of loss, according to these outside influences.

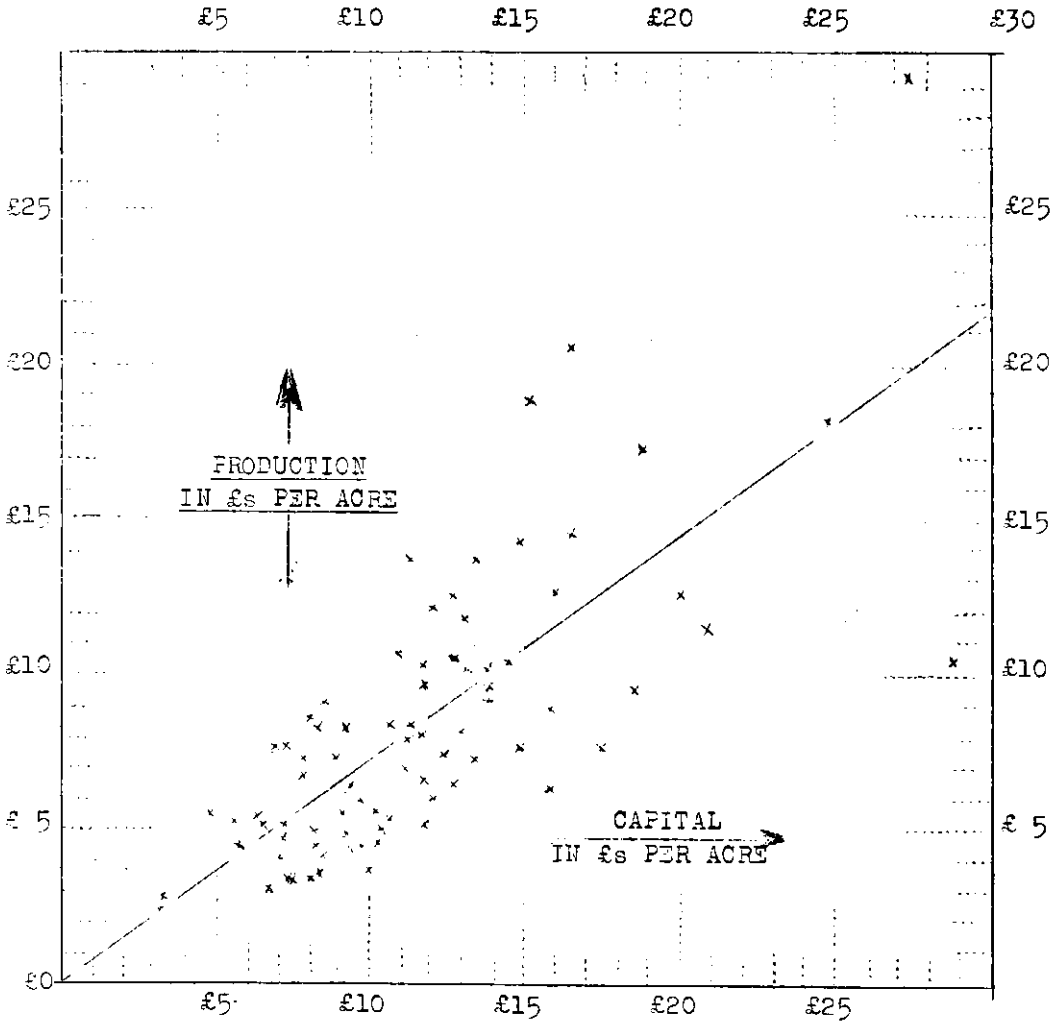
Finally : we have calculated the exact position of the normal line by an accurate mathematical process, and not by sight. We have thought it advisable to stress the deductions as given above, rather than say anything about the way in which we have carried out the calculations.

TABLE 2a

THE RELATION OF PRODUCTION TO CAPITAL

EACH CROSS REPRESENTS ONE FARM, AND

YOUR FARM IS MARKED WITH AN ARROW.



NOTES ON THE TABLE OPPOSITE.

This table is drawn up according to the plan we have just explained. From left to right is measured Capital per Acre up to £30, and upwards Production per Acre up to £30.

Notice that the highest capital is £27 and the lowest £3, about 9 times. The greatest production is £29 and the smallest £2¼, about 13 times. A general tendency for production to increase as capital increases can be observed. The normal line gives a capital turnover of 72%. The average production to correspond to any particular capital can be worked out according to the formula :

PRODUCTION = .714(CAPITAL) + 0.06 in £s per acre.

The degree of divergence is very considerable. We have to be very careful here since an artificial error is introduced due to the varying dates upon which different farmers make their valuations. We shall tackle this problem seriously in the near future. Otherwise, however, we can demonstrate the importance of the variable factors, giving an idea in the following way :

FOR FARMS OF CAPITAL	PRODUCTION VARIES FROM	TO	GIVING A VARIATION OF
£ 5	£ 4	£ 5	£ 1
£ 6	£ 3	£ 7	£ 4
£ 7	£ 3	£ 7	£ 4
£ 8	£ 3	£ 8	£ 5
£ 9	£ 4	£ 8	£ 4
£10	£ 4	£10	£ 6
£11	£ 5	£13	£ 8
£12	£ 5	£12	£ 7
£13	£ 7	£13	£ 6
£14	£ 7	£14	£ 7
£15	£ 6	£18	£12
£16 - £20	£ 7	£20	£13
over £20	£10	£29	£19

For farms of low intensity, the degree of variation is high compared with the amount of capital. As the intensity of cultivation increases, the degree of variation becomes even greater. This indicates that variable factors have a greater influence, the more intensive the farming.

Notice furthermore, that the lower productions give a capital turnover of about 50%. The higher productions give a turnover of about 100% - another way of illustrating the broadness of the band. The average, as already stated, is 72%.

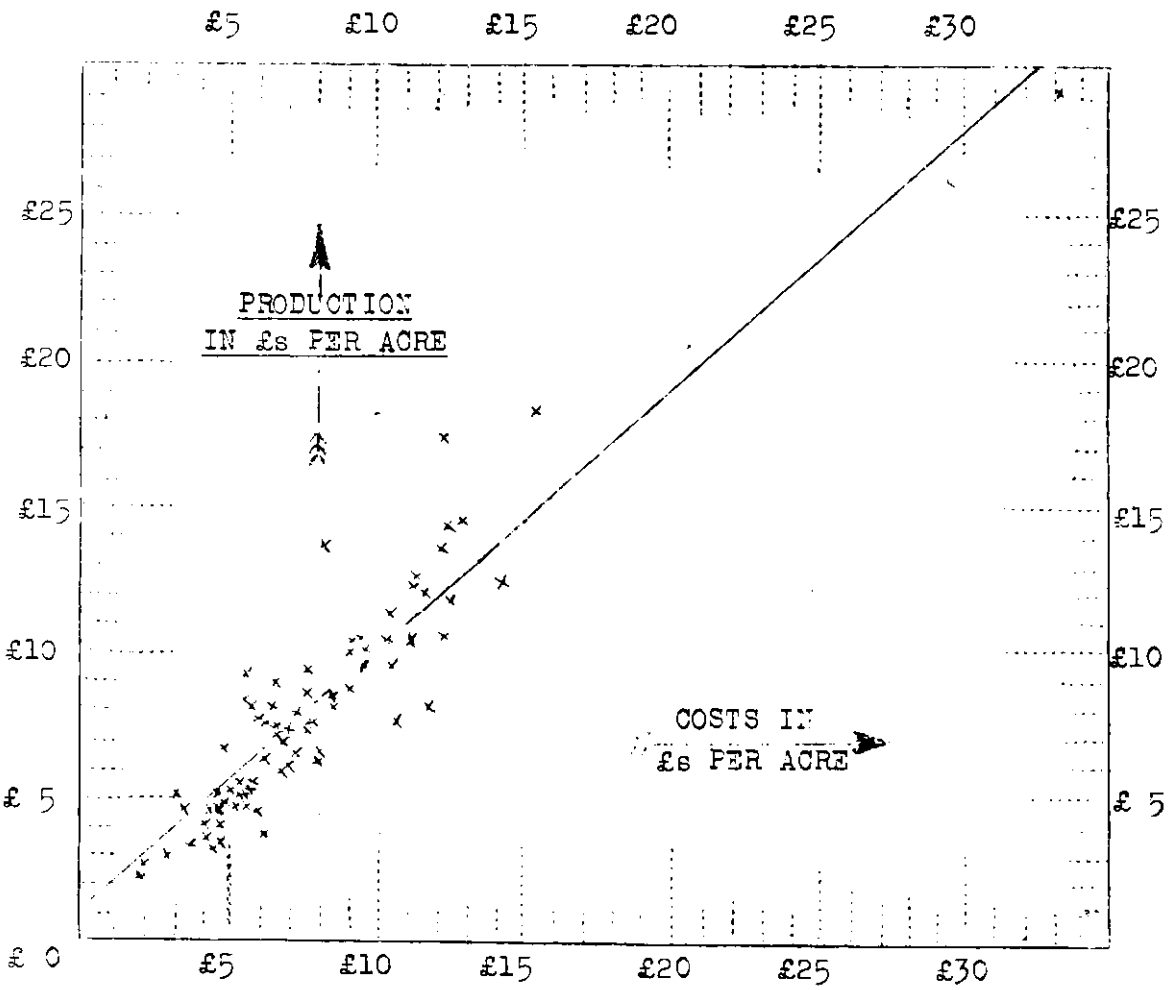
Yet, in spite of this, the existence of a normal still remains apparent. A high degree of variation can be attained before the normal becomes really indistinguishable.

TABLE 2b.

THE RELATION OF PRODUCTION TO COSTS

EACH CROSS REPRESENTS ONE FARM, AND

YOUR FARM IS MARKED WITH AN ARROW



NOTES ON THE TABLE OPPOSITE

This table is similar in construction to the last one. Instead of comparing production with capital, production is compared with costs. The highest cost per acre that we find amongst our selection of farms is one of just over £33, whilst the lowest is just under £2, the highest being, therefore, about 17 times the lowest.

The general tendency for production to rise as the total costs rise, appears at first sight, to be more marked than in the case of capital. Farms scatter themselves rather less away from the normal line.

The turnover of production on costs averages out at about 102½% giving a small profit of 2½% on costs.

The normal figure for production corresponding to given figure for costs can be obtained from the formula :

PRODUCTION = .877(COSTS) + 1.18 in £s per acre.

The degree of variation will be seen from this table :

FOR FARMS WITH COSTS OF	PRODUCTION VARIES FROM	TO	GIVING A VARIATION OF
£ 2	£ 2	£ 3	£ 1
£ 3	£ 3	£ 5	£ 2
£ 4	£ 3	£ 6	£ 3
£ 5	£ 4	£ 9	£ 5
£ 6	£ 3	£ 8	£ 5
£ 7	£ 5	£ 9	£ 4
£ 8	£ 4	£13	£ 9
£ 9	£ 9	£10	£ 1
£10 - £15	£ 7	£18	£11
over £15	£18	£29	£11

The degree of variation is still very great, as will be seen from a comparison of the first and last columns. The lowest productions drag a little behind the costs, whilst the highest productions are a pound or two ahead of the costs.

CHAPTER 3

ESTIMATES OF PRODUCTION COMPARED WITH ACTUAL PRODUCTION.

NOTES ON TABLE 3.

Figures are given to the nearest £10 per 100 acres

FARM NUMBER Farms are arranged in numerical order, county by county.

ACTUAL PRODUCTION As in Table 1.

ESTIMATE OF PRODUCTION BASED ON CAPITAL

This is the figure we have obtained for the normal production we should expect from your given capital.

ACTUAL ABOVE ESTIMATE + : ACTUAL BELOW ESTIMATE -.

If we have found your actual production to be in excess of our estimate, we have calculated the difference and labelled it + ; if short of our estimate, we have calculated the difference and labelled it - .

ESTIMATE OF PRODUCTION BASED ON COSTS.

The normal production expected from your given costs.

ACTUAL ABOVE ESTIMATE + : ACTUAL BELOW ESTIMATE -.

The difference, calculated and labelled as above.

On page 21, you will find diagrams intended to make the meaning of the above clearer.

TABLE 3

FIGURES PER 100 ACRES — SOMERSET FARMS

FARM NUMBER	ACTUAL PRODUCTION	ESTIMATE OF PRODUCTION BASED ON CAPITAL.	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -	ESTIMATE OF PRODUCTION BASED ON COSTS	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -
S. 19	1370	960	+ 410	1190	+ 180
S. 31	1020	1030	- 10	910	+ 110
S. 40	1240	1430	- 190	1360	- 120
S. 49	1260	1140	+ 120	1100	+ 160
S. 56	1140	1500	- 360	1030	+ 110
S. 64	950	1330	- 380	800	+ 150
S. 80	810	930	- 120	1150	- 340
S. 91	630	670	- 40	660	- 30
S. 92	600	870	- 270	730	- 130
S. 97	1040	920	+ 120	1010	+ 30
S. 106	650	910	- 260	830	- 180
S. 118	770	1070	- 300	1060	- 290
S. 196	620	1140	- 520	810	- 190
S. 198	510	850	- 340	510	0
S. 275	1010	940	+ 70	920	+ 90
S. 279	720	560	+ 160	730	- 10
S. 312	1020	840	+ 180	920	+ 100
S. 315	1440	1180	+ 260	1260	+ 180
S. 317	1720	1350	+ 370	1180	+ 540
S. 329	770	1250	- 480	800	- 30

TABLE 3 (contd.)

FIGURES PER 100 ACRES — WILTSHIRE FARMS

FARM NUMBER	ACTUAL PRODUCTION	ESTIMATE OF PRODUCTION BASED ON CAPITAL.	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE −	ESTIMATE OF PRODUCTION BASED ON COSTS	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE −
W. 1	550	360	+ 190	580	− 30
W. 3	730	650	+ 80	690	+ 40
W. 4	890	1130	− 240	910	− 20
W. 6	730	890	− 160	680	+ 50
W. 7	800	830	− 30	680	+ 120
W. 9	1810	1670	+ 140	1470	+ 340
W. 10	1210	860	+ 350	1120	+ 90
W. 11	1010	990	+ 20	910	+ 100
W. 15	400	510	− 110	480	− 80
W. 18	960	850	+ 110	950	+ 10
W. 28	960	990	− 30	1030	− 70
W. 29	790	800	− 10	750	+ 40
W. 30	490	580	− 90	540	− 50
W. 31	510	510	0	390	+ 120
W. 34	590	690	− 100	710	− 120
W. 35	690	790	− 100	720	− 30
W. 36	470	730	− 260	630	− 160
W. 41	550	660	− 110	620	− 70
W. 43	830	810	+ 20	600	+ 230
W. 52	510	400	+ 110	570	− 60
W. 53	450	430	+ 20	420	+ 30

TABLE 3 (contd.)

FIGURES PER 100 ACRES — WILTSHIRE FARMS

FARM NUMBER	ACTUAL PRODUCTION	ESTIMATE OF PRODUCTION BASED ON CAPITAL.	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -	ESTIMATE OF PRODUCTION BASED ON COSTS	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -
W. 91	540	450	+ 90	590	- 50
W. 115	490	660	- 170	570	- 80
W. 134	460	590	- 130	490	- 30
W. 138	300	480	- 180	370	- 70
W. 163	560	730	- 170	630	- 70
W. 258	470	510	- 40	410	+ 60
W. 266	1880	1090	+ 790	2240	- 360
W. 272	500	740	- 240	600	- 100
W. 275	2040	1190	+ 850	1930	+ 110
W. 278	410	610	- 200	830	- 420
W. 280	450	700	- 250	500	- 50
W. 281	230	230	0	290	- 60
W. 283	370	590	- 220	480	- 110
W. 284	720	960	- 240	790	- 70
W. 300	1180	990	+ 190	1210	- 30
W. 301	1240	910	+ 330	1090	+ 150
W. 303	350	580	- 230	530	- 180
W. 304	830	660	+ 170	860	- 30
W. 305	1050	2040	- 990	1100	- 50
W. 318	540	760	- 220	560	- 20
W. 320	320	530	- 210	500	- 180

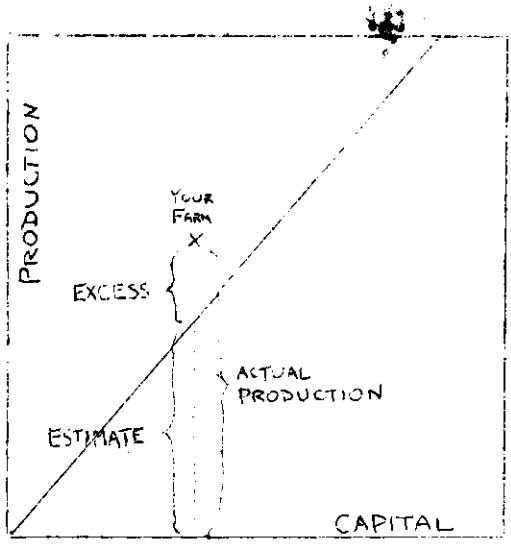
TABLE 3 (contd.)

FIGURES PER 100 ACRES GLOUCESTER, HEREFORD & WORCESTER FARMS

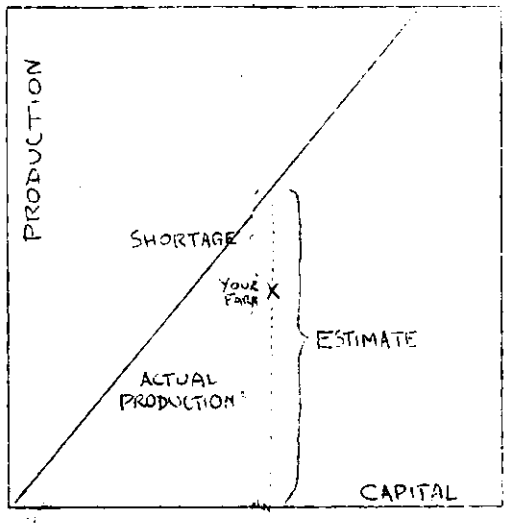
FARM NUMBER	ACTUAL PRODUCTION	ESTIMATE OF PRODUCTION BASED ON CAPITAL.	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -	ESTIMATE OF PRODUCTION BASED ON COSTS	ACTUAL ABOVE ESTIMATE + / ACTUAL BELOW ESTIMATE -
G.2B.1	380	710	- 330	650	- 270
G.4A.1	770	500	+ 270	660	+ 110
G.4E.3	1370	810	+ 560	830	+ 540
G.4E.5	780	510	+ 270	730	+ 50
G.5D.2	1060	780	+ 280	1190	- 130
G.5E.1	430	660	- 230	830	- 400
G.6C.1	660	830	- 170	740	- 80
G.6C.2	820	590	+ 230	620	+ 200
G.6D.1	1420	1070	+ 350	1200	+ 220
G.7C.1	680	560	+ 120	550	+ 130
G.7D.2	280	240	+ 40	300	- 20
G.7D.3	850	760	+ 90	860	- 10
G.7D.4	330	520	- 190	430	- 100
G.8E.1	520	460	+ 60	560	- 40
H.3E.1	860	580	+ 280	790	+ 70
H.3E.2	920	990	- 70	610	+ 310
H.4E.1	900	610	+ 290	700	+ 200
R.6G.2	2910	1960	+ 950	3030	- 120

As a guide in understanding the connexion between the figures in this chapter and the diagrams in the last, the following two examples are appended :

(1) Suppose we are dealing with production and capital and your actual production exceeds our estimate; then the estimate and excess appear thus : (measurements are according to the units on the production scale).



(2) On the other hand, if your actual production falls short of our estimate, then the position is thus :



CHAPTER 4.

THE FIELD FOR FURTHER INVESTIGATION

We have now arrived at the end of the first stage in our journeyings into the realms of statistical enquiry. The time is therefore opportune for us to take our bearings and to summarize exactly the position we have attained.

In the Introduction to this issue it is stated that we hoped to show what relation exists between two principles, at first hearing, contradictory, namely, the principle (shall we say) of "proportionate factors", in which it is believed that the various factors of production are determined the moment the scale of farming is decided upon, and the principle of (shall we say) "it all depends on his skill and his fortune" in which it is believed that there are certain factors which are sure to throw out all calculations.

Our evidence so far seems to indicate that, although a large amount of irregularity exists, nevertheless the normal is by no means destroyed; it exists in spite. And also that although the normal can be detected, the irregularities continue to make an appearance; they, too, exist in spite. Just as the question of free will or predestination falls into the background when we realise the tremendous band between them, passing through all shades of possibility, through all shades of probability, on the way from perfect freedom of choice to absolute certainty - so we must realise the importance of the wide band which exists between the assertion that everything works according to natural law, and the assertion that all is determined by individual caprice. It is hoped that in our diagrams, the full significance of the great width that separates the two extremes, within which the two distinct principles operate together, is realised. It is in this wide space that British Agriculture speeds on its way; neither principle has despotic sway over happenings, probably at no place and at no time.

Furthermore, we do not discriminate in our likings between the normal and the irregular. We like them both. If there were no irregularities, we should have no variations to measure; farming would be a matter of mechanical routine with the door closed for evermore to the human factor. If there was not a trace of the normal, we should have no starting point from which to measure the omniscent variations; the human factor would be far too strong for us to be able to cope with it.

And since it is upon our diagrams that these contentions are most easily made apparent, there is every reason why their importance should be stressed. We do not wish to trouble you with details of the mathmatical process

by means of which we have located the normal line; yet we feel that there is everything to be gained from a careful study of the method that has been adopted. If it is well received, we shall consider the possibility of preparing a special issue dealing with the features and characteristics of the relation-diagram,developing along the line adopted on page 11, with as many references and illustrations as possible.

Once the principles of the method are understood, there is a tremendous scope for investigation. As given here, the measurement of individual variations is of the greatest interest, even though we have stopped at the point which leaves the farmer to apply whatever interpretation he may please in order to explain the variation. We have already,in the Introduction, mentioned the existence of limitations upon the significance of the variations, and on page 13, have pointed out one of them - namely, that due to the differences that exist in the dates of valuation. With such a problem, it will be our immediate duty to grapple. The whole subject of the way to interpret the variations is so vast, that it will need a booklet of its own. For the moment, then, we leave the problem of interpretation open.

Again, attention has, as yet, been confined to the three total items of capital, costs and production. There is plenty of room to study the relations of the subdivisions of these factors, such as plant, implements, machinery, livestock carried, labour costs, feeding stuffs, rent, milk produced, livestock sold, crops,etc.

Finally, the approach to greater detail will necessitate the discovery of some basis for classification. One or two preliminary experiments have shown the importance of this. It becomes clear that immense possibilities open themselves out as we progress along the lines we suggest. With this in view we intend preparing such booklets as this one. We shall attempt to push on with them as quickly as we can, but one thing is essential - we must have sufficient farms to make the scheme work properly. In our next issue, we shall give further information on all the farms herein included, and in addition, for any farms that we get in by the first of May.

We invite enquiries and criticisms regarding these publications. Correspondence should be addressed to either C.V.Dawe or J.E.Blundell, Economics Branch, Department of Agriculture and Horticulture, 22,Berkeley Square, Bristol.