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An Economic Inquiry into the Production of Strawberries.

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F O R E W O R D

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C O N T E N T S

AN ECONOMIC INQUIRY INTO THE PRODUCTION OF STRAWBERRIES

I INTRODUCTORY

1. AREAS INVESTIGATED

During the year 1932 an investigation was made into the economic position of the strawberry growing industry in the Bristol Advisory Province. Three areas were chosen, namely, the Cheddar Valley in Somerset, the small market garden area around Bromham in Wilts, and the large fruit and vegetable growing areas to be found in Herefordshire and Worcestershire. Gloucestershire, the remaining county comprising the Bristol Province was not included in the enquiry because the conditions are very similar to those found in Herefordshire and Worcestershire.

2. TOTAL ACREAGE OF STRAWBERRIES

The acreages of strawberries grown in England and in the counties of the Bristol Province are given below for the three dates 1921, 1926 and 1931 :

TABLE 1

Acreage of Strawberries

	1921	1926	1931
England	18,981	25,935	22,595
Gloucestershire	198	296	156
Herefordshire	386	371	293
Somerset	203	310	326
Wiltshire	30	41	24
Worcestershire	1,119	1,754	1,206
Total Bristol Province	1,936	2,772	2,005
As % of England	10.2 %	10.7%	8.9 %

It will be observed that while the acreage for England is appreciably higher in 1931 than in 1921, that for the Bristol Province is practically the same. Somerset has increased its acreage during the decade by something over 50% while Worcestershire has increased by about 10%. Heavy

relative decreases are to be noted for Gloucestershire, Herefordshire and Wiltshire, the percentage falls being 21.2%, 24.1% and 20% respectively. It is true that the 20% fall in the case of Wiltshire represents only 6 acres, but the importance lies in the fact that the "Bromham area" as it is called possesses soil and climatic conditions very favourable to the production, not only of vegetables, but of soft fruits. Worcestershire, it will be noted, grows almost four times the acreage of strawberries found in the next largest county, namely, Somerset or Herefordshire. According to the 1931 statistics, the other counties in England possessing a four-figure acreage of strawberries are Essex 1,198; Hampshire 2,302; Lincoln (Holland Division) 2,409; Isle of Ely 2,609; Norfolk 3,830 and Kent 3,946.

3. MARKETS

There are really three types of markets for strawberries, as there are in the case of most soft fruits. They may be sold for dessert, for canning, or for jam. The primary object in the case of strawberries is to grow them for dessert purposes, although, at the same time, the growers, especially in Herefordshire and Worcestershire, where there are several canning and jam factories, attach considerable importance to these other outlets.

Because of the perishable nature of strawberries, the crop is usually marketed locally, that is to say, within easy rail or road distance, and this applies equally whether the crop is intended for dessert or for canning. Distance is not so important in the case of jam manufacture, although the factories are usually found within equally easy reach. There are, of course, exceptions, for several small consign-
ments of dessert grade were found to have been sent from

the Cheddar Valley, Somerset, to Ireland and Scotland.

In the Bristol Province, however, disposal of dessert grade fruit is fairly easy, for the growers in Herefordshire and Worcestershire find themselves within easy reach of the industrial towns of the Midlands and of South Wales. Those in the Cheddar Valley are situated in the centre of a favourite holiday region, with a number of seaside towns not far away, while the few isolated growers in Wiltshire can easily dispose of their crops to local towns and large villages, although the two holiday centres of Bath and Salisbury call for a large proportion of the output from Wiltshire.

4. TYPE OF AREA.

The Cheddar Valley, because of its topography and southern aspect is an early district, and always reckons to be at least a fortnight earlier with the harvest than the other districts, thus obtaining the earliest and consequently the highest prices.

It is characterised by extremely small holdings, which are cultivated by the householders themselves with the use of scarcely any hired labour. Furthermore, the great majority of growers are not dependent upon the produce of their land, of whatever it may consist; they are part time growers usually engaged in some other occupation during the day, as for example, postmen, railway workers, clerks, or labourers on neighbouring farms. This made it difficult to obtain reliable records of time spent in cultivating and picking a crop of strawberries for, with the best of intentions, it is not always possible to write down the exact time involved. When, as in some cases, the strawberry bed merely formed part of the kitchen garden, the difficulty of keeping accurate records of work done on the strawberries

distinct from work elsewhere in the garden, is still more real. It was mainly because of these considerations that a survey was first undertaken in this area and full cost records were asked only from some of the largest growers. The compact nature of this area also made it ideal for survey work.

To a certain extent, of course, all attempts at finding costs of production (by the full costing method) of market garden crops are more difficult, and liable to more error, especially in regard to the keeping of labour records than costing carried out on ordinary farms. The highly intensive nature of the work, the great variety of crops, and the rush times experienced at harvests, all combine to make accurate recording extremely difficult. Even in Herefordshire and Worcestershire, where the strawberry beds are larger than in the Cheddar Valley (Somerset) or in the Bromham area (Wiltshire) the growers met similar troubles. The two first named counties, however, are characterised, because of their larger acreages, by the employment of more hired labour. The growers, too, through being entirely dependent upon their holdings, are able to organise such hired labour and to give more attention to the recording of time spent on different crops, for this consideration is, in itself, part of the task of labour organisation.

II THE SURVEY IN THE CHEDDAR VALLEY, SOMERSET

1. INTRODUCTION

For convenience, it will probably be best to deal with the results obtained from a survey of growers in this area. Although 129 growers were visited, fairly satisfactory results were only obtained from 70, and in

the majority of these cases, a considerable amount of data was found to be lacking because of the complete absence of any written records. Even the buyers' notes, which are returned to the growers showing prices and market conditions, were non-existent, and reliance had, therefore, to be placed upon the growers' powers of recollection. However, it was possible to show a few growers the importance of keeping records of costs and returns, and these will be examined in the next section. For the present, it is proposed to examine the 70 survey schedules which relate to the 1931 crop.

2. ACREAGE SURVEYED

Four growers gave no information concerning the total size of their holdings, but in the case of the remaining 66, it is possible to state that they occupied 554 acres, of which 205 acres were owned and 349 were rented. Twenty five growers stated they owned the whole of their holdings, 27 rented entirely, while 14 partly owned and partly rented. The average size of holding per occupier (whether owned or rented) thus amounts to just under 8½ acres.

The acreage of strawberries surveyed amounted to 118 acres of nine different varieties as follows :

TABLE 2

Variety	Acres	No. of Growers of the particular variety
Madame Kooi	68¼	59
Royal Sovereign	32¾	39
Mixed varieties	9¼	14
Noble	2¾	7
Favourite	2	4
Oberschlesien	1¼	4
Leader	⅞	2
Sir Joseph Paxton	½	1
Goldfinder	¼	1
Madame Lefebvre	⅛	1
	118	

The table shows that both in acreage and in the number of growers the variety Madame Kooi is most popular. Royal Sovereign occupies the second place, although at one time this variety was easily the first. Madame Kooi replaced Royal Sovereign because it was a heavier cropper, although it is not on the same level in regard to quality for dessert purposes. Even this variety is now falling into disfavour, because, during the last two or three seasons, it has not come up to expectations in weight of yield. It is interesting to note that research carried out by Bristol University shows that the variety Royal Sovereign "is a very early cropper, and is one of the best varieties to grow in early districts ..... is a very popular dessert variety and has rather large conical or wedge-shaped fruit"*. It would therefore appear to be well suited to the early district of Cheddar. From the point of view of canning, however, the Bulletin* goes on to state that "the canning trials have not given consistent results. The flavour is generally good, but the canned product is often pale and uneven in colour". With regard to the variety Madame Kooi, the only statement made is, "This variety is useless for canning, as the berries are too deeply wrinkled and generally very large. The colour is also very poor".* On the other hand, the two varieties placed first in order (in the Bulletin) as suitable for canning purposes are Sir Joseph Paxton and Oberschlesien which are grown only to a very small extent in Cheddar.

In the course of the survey, information was collected upon drainage and topography. Of the 70 strawberry beds, 26 were on flat and 44 on sloping land and drainage varied considerably. Fifty two growers were reported as having good drainage while 9 others spoke of it as being

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* Canner's Bulletin No.3 (pp 7, 8 & 9) by Hirst and Adam of the Universith of Bristol Research Station, Campden, Glos.

"too good". Five more stated that drainage was "fair" and four acknowledged it to be definitely bad.

3. SOILS

The soils varied considerably. Some were reported as "black", others as "red" with or without stonebrash. Of the 70 growers, 26 had light soils and 13 of these merely stated the soil to be "brashy", from the limestone cliffs. Twenty eight stated that their soils were fairly heavy or medium, while the remaining 16 had heavy soils. Admittedly soil classification in an inquiry of this nature is difficult, and the various grades of soil shade into one another, but in the absence of a fully scientific classification, it is hoped that the above grouping will be sufficiently adequate for the purposes of this report.

4. RENTALS

Rents of land vary considerably according as to whether the strawberry bed forms part of a fairly large holding or whether it is a small and more or less isolated piece of ground. The following table gives the variations in the rent per acre.

TABLE 3

Rent per acre	NO. of Growers	Acreage
£ 1:10:0 and under £ 2:10:0	2	3
2:10:0 " " 3:10:0	8	14¼
3:10:0 " " 4:10:0	12	21
4:10:0 " " 5:10:0	9	13¼
5:10:0 " " 6:10:0	12	18
6:10:0 " " 7:10:0	10	17½
7:10:0 " " 8:10:0	1	6½
8:10:0 " " 9:10:0	3	3½
9:10:0 " " 10:10:0	4	7¼
10:10:0 " " 11:10:0	3	5
11:10:0 " " 12:10:0	1	2
	65*	111¼

* Records not available from the other 5 growers.

By taking a simple average of the rents per acre as paid by the growers (regardless of size of strawberry bed) the figure of £5:15:8 per acre is the result; but if the rentals are weighted in each case according to the acreage under strawberries, the effect is to raise the average rent to £6:2:5 per acre. It may be seen that the average acreage of strawberries per grower is very small, and this factor is, of course, of considerable importance when one attempts to arrive at economic data which shall be reliable in regard to such matters as costs and sales.

There is only one grower of any size, namely, the one having a rental between £7:10:0 and £8:10:0 per acre, and he grows 6½ acres; the remainder average between 1½ and 2 acres each.

5. OTHER FARM ACTIVITIES

As has been stated earlier, the majority of the strawberry growers in Cheddar have occupations other than farming. Information obtained, however, showed that a number of growers were also farmers in a larger way of business. In 59 cases out of the 66 who gave information on this point, the strawberry grower's holding is greater than his acreage of strawberries and the following table has been constructed to give an indication of the sizes of total holdings of this nature :

TABLE 4

HOLDINGS OF A GREATER ACREAGE THAN THAT DEVOTED TO STRAWBERRIES.

Size	NO. of Growers
Under 3 acres	23
3 and under 6 acres	11
6 " " 10 "	9
10 " " 20 "	9
20 " " 50 "	3
50 " " 100 "	3
300 " " 400 "	1
	59

The size of these holdings will naturally affect the rent per acre for the strawberry beds, although it should not be assumed that high rents in certain cases are due to the fact that the strawberry bed forms part of a garden and that the land also bears the rent of the farmhouse. Good land in the Cheddar Valley is relatively scarce and is in considerable demand for fruit and market garden crops, so that rents of small patches tend to be high.

6. CULTIVATION METHODS

Strawberries, like most other crops, have to fit into some kind of rotation even though a bed once planted may remain down for anything up to 6 or 7 years, although the great majority do not go beyond 3 or 4 years. An analysis of the returns to ascertain the crop grown previously to strawberries gives the following results :

TABLE 5

Previous Crop	No. of Growers
Potatoes	44
Peas	9
Summer Fallow	7
Kidney beans	3
Mustard (for green manuring)	3
Spring cabbage	2
Broad beans	1
Winter fallow	1
	70

One grower opined that it was useless to plant strawberries after peas, although he sometimes planted after broad beans. Another grower when fallowing, allows his poultry to run over the old bed. A number of growers at the end of three years of strawberry growing break up the land and take a crop firstly of turnips and then of potatoes before replanting. Some adopt the plan of burning old

strawberry plants then green manuring with mustard; potatoes are planted in the following Spring, which, when lifted, are immediately followed with fresh strawberry runners.

On one of the larger holdings, sheep are folded on turnips, which in turn are followed by potatoes and then by strawberries.

7. PLOUGHING AND DIGGING BEFORE PLANTING.

Because of the small size of a considerable number of the strawberry beds, digging is often resorted to instead of ploughing. Seventeen growers dug their ground, and 53 ploughed. The following statement classified the growers according to the number of times the operation was performed.

TABLE 6

	No. of Growers		No. of Growers
Dug once	8	Ploughed once	10
" twice	8	" twice	25
" three times	1	" three times	6
		" four times	3
		" "several" times	9
	17		53

The depth of ploughing varied considerably as shown below :

TABLE 7

Depth of Ploughing	No. of Growers
Inches	
4	5
5	10
6	16
7	9
8	8
9	4
10	1
	53

Two of these growers stated they ploughed between

3" and 6", one between 2" and 6", one between 6" and 9" and the other ploughed between 9" and 12".

Other preliminary operations are those known locally as a "scubble"* and a "drag". Rolling is resorted to very occasionally. The table given below enables comparison to be made of the way in which the operations are actually performed. The figures in the squares denote the number of growers in each case.

TABLE 8

		NUMBER OF SCUBBLES					
NUMBER OF DRAGS		0	1	2	3	Several	Total
	0	19			2		21
	1	6	11				17
	2	5	1	1			7
	3	6			1		7
	4	1					1
	Several	2				3	5
	Total	39	12	1	3	3	58

8. MANURING BEFORE PLANTING.

Apparently very little manuring is done in preparation for the planting of runners beyond the application of Farmyard Manure. Out of 70 growers, 24 used no manures of any kind, but simply relied upon the manurial value of the previous crop. Those who applied Farmyard

* A local term used to denote working the soil by a Planet type hoe.

Manure used varying quantities per acre as may be seen from the following figures :

TABLE 9

FARMYARD MANURE

Tons per Acre	No. of Growers
0 and under 5	2
5 " " 10	3
10 " " 15	2
15 " " 20	5
20 " " 25	5
25 " " 30	1
30 " " 35	2
	20

In addition, nine growers stated that they applied some farmyard manure, but could give no satisfactory figures. The remaining 17 growers out of the 70 made various replies. Some applied farmyard manure in the second year, others manured through poultry running over the land in the previous year, while others used farmyard manure in patches over the strawberry bed.

The only instances of manures other than farmyard manure were those used by 6 growers. One of these used 1 ton of soot per acre in place of farmyard manure, while another avoided farmyard manure by the application of 1 ton of artificial fertiliser plus 3 cwt. of soot. Two others used soot with farmyard manure. Of the remaining two, one used 4 cwt. of a compound manure at £10 per ton, and no farmyard manure, while the other used 30 cwt. of fish manure at £12 per ton with some farmyard manure. In many cases, the farmyard manure was purchased and the price paid varied from 8s.0d. to 15s.0d. per ton.

9. TIME OF PLANTING

Summer planting is the rule. Out of the 70 growers no less than 50 plant in August, or in the two

months, August and September. Twelve growers like to plant somewhat earlier, namely in July, while two prefer October. One who is growing both Sir Joseph Paxton and Madame Kooi, plants the former variety in February and the latter in November. The remaining 5 growers gave no satisfactory information on this point.

More than two thirds of the growers use their own runners, but a number made purchases, and these were usually from Herefordshire and Worcestershire, the price ranging from 15/- to £2 per 1000. One grower, who had several varieties, paid 25/- per 1000 for Madame Lefebvre, 30/- for Royal Sovereigns, £2 for Oberschlesien and used his own grown Madame Kooi.

The spacing of the plants may be judged from the following table ;

TABLE 10

	DISTANCES BETWEEN PLANTS IN THE SAME ROW									
DISTANCES BETWEEN ROWS	Inches	5	6	7	8	9	10	11	12	Total
	20				2	3				5
	22		2			1			1	4
	24		6		6	20	7		4	43
	25			1		3				4
	26		1	1	3	1			2	8
	27	1	1		1	5	6	1	9	24
	28	1	1		1	2	3		1	9
	30		3	1					2	6
	36								1	1
	42								1	1
	Total	2	14	3	13	35	16	1	21	105

The total number of 105 records is due to the fact that several growers gave particulars relating to each variety grown. The table shows the wide range of distances, but also makes clear that the favourite distance between rows was 2 feet,while the second preference was 2ft.3ins. Similarly, 9" between plants in the row was mostly favoured, so that about one fifth of the number of crops recorded were grown at the spacing of 24" x 9". The 12" distance between plants in a row was second favourite. Naturally, the spacing of the plants depends somewhat upon variety,but the growers were by no means consistent. Thus Madame Kooi was planted from 24" x 12" to 30" x 12" and even 30" x 6". Royal Sovereign was planted from 24" x 6" to 24" x 12" and from 25" x 7" to 25" x 9", Oberschlesien from 27" x 6" to 28" x 9", and so on.

From the above table, it may be calculated that the number of runners per acre varied from 47,520 (22" x 6") to 12,445 (42" x 12"), in other words, one grower was planting almost four times as many runners to the acre as another.

It is difficult to give with any preciseness,the speed at which planting is done,but generally, it may be said that the rate varies from 1500 to 2000 plants per day of 10 hours. From general observation made at the time of the survey,it was evident that the number of plants per acre was much higher on the thin "brashy" soil found on the hillsides than on the flat ground.

After the plants are in, the chief cultivational operation which is carried out year by year is that of hand-hoeing,which is usually done by means of an ordinary garden hoe,often supplemented by a Planet type hand hoe. Because of the fact that the majority of the strawberry growers regard the work as a part time occupation, hoeing

was performed as often as the grower had the inclination. One third stated that they hoed continuously, a statement which means that any spare time was devoted to hoeing, although naturally the whole bed would not be completed each time the grower decided to do some hoeing, and it was not possible to obtain reliable information from such growers as to how many times during the season the bed was completely hoed. Where definite records were available, it was found that the number of times the beds were completely hoed varied from twice to twelve times, although half the total number of growers hoed anything from twice to six times. On some of the larger plots some horse-hoeing was carried out, and the rate varied from 1 acre to 2 acres per day, while the number of times the plot was completely covered varied from once to 4 times.

In addition to hoeing, the operation known locally as "peeking" is carried out. This consists of shallow digging between the rows, with a small and narrow type of spade. This operation is usually done during the Autumn and has practically the same result as an additional hoeing. Some growers do "peeking" during Spring or Winter.

10. MANURING DURING GROWTH

Various kinds of manures are used during the growing period and these are, of course, in addition to those applied when the bed is first being prepared. Soot is a favourite, but the following are also used : farmyard manure, superphosphate, fish manure, sulphate of ammonia, salt, poultry manure, bone meal, sulphate of potash, kainit, lime, also Fisons, Procters, and Hadfields compound manures. Twenty growers out of 70 used soot and 7 of these applied nothing else. Eleven other growers used farmyard manure and five of these used nothing else.

The following table shows how the various manures were used :

TABLE 11

Manure	No. of Cases	Application per acre	
		Range	Average
Soot	20	2 cwt - 20 cwt	7 cwt
Farmyard Manure	11	4 tns - 22 tns	13 tns
Fish	8	2 cwt - 10 cwt	4½ cwt
Superphosphate	7	1 cwt - 6 cwt	3 cwt
Procter's	5	5 cwt - 10 cwt	8 cwt
Sulphate of Ammonia	4	1 cwt - 3 cwt	1¾ cwt
Fison's	4	3 cwt - 9 cwt	5¼ cwt
Poultry Manure	3	1 cwt - 5 cwt	2 cwt
Bone Meal	3	1 cwt - 2 cwt	1⅔ cwt
Sulphate of Potash	3	1 cwt - 4 cwt	2⅓ cwt
Salt	1	-	1 cwt
Lime	1	-	4 cwt
Hadfields	1	-	2½ cwt
Kainit	1	-	5 cwt
	72		

Fourteen growers used no manures at all.

11. STRAWING.

The operation known as "strawing" is carried out on the great majority of holdings, although certain substitutes for straw are used, such as hay and bracken. Where straw itself is used, the amount applied varied from 7 cwt. to 2 tons per acre, and is usually purchased at anything from £3 to £4:10:0 per ton. Hay is sometimes purchased, although some rough hay is available merely for the cost of cutting and carting. Bracken is available in considerable quantities and usually for the mere cost of cutting and carting from the hillsides. For this reason no records were available as to the quantities used on the beds, except in the case of one grower who stated he

used from 3 to 3½ tons per acre. Strawing at the rate of one ton to the acre seems to occupy one man for 3 or 4 days, but when 2 tons per acre are used the labour increases to about 12 days.

Of the 70 growers from whom records were obtained, 35 used straw, 13 used bracken, 8 hay, while 14 used nothing.

12. DISEASES AND PESTS

During the course of the inquiry, information was collected concerning the incidence of disease. The chief troubles seem to be with maggots and slugs. The following summary gives an idea of the relative importance of the various pests and diseases :

TABLE 12

Nature of Pest or Disease	No. of Growers
Maggots	11
Blight	8
Beetles	5
Leatherjackets	4
Eelworms	4
Slugs	3
Rot	3
Red Spiders	1

In addition, five growers reported themselves to be fairly free from trouble, 16 very free, and ten quite free. There is evidence that the growers are insuffiently active in combating pests and diseases, for while both spraying and dusting are known, only a small proportion of the growers carry out these operations. Similarly the purchase of certified runners is not resorted to sufficiently.

13. HARVESTING

Picking commenced in the second or third week in June and lasted until the second or third week in July. Because of the compact nature of the area, the period of picking on all the holdings surveyed was almost precisely the same in every case. As has been already stated, the varieties Madame Kooi and Royal Sovereign are predominant, and the latter was ready for picking from five to ten days earlier than the former.

Because of the lack of records and the part time nature of the industry, it is not possible to give the total labour costs of picking. A considerable amount is done by the grower and his wife, and twelve or fourteen hours a day may be put in by each. On some of the larger holdings hired labour is employed, and is paid for at various rates. Men obtain from 9d. to 1/- per hour, women from 6d. to 10d., boys and girls 6d. to 8d. The packages used are the punnet and the 2, 3 and 4 lb. chip basket.

14. YIELD

It was not possible to ascertain the yield of strawberries according to variety, but the total yield from the 118 acres surveyed amounted to almost 146 tons, corresponding to 24¾ cwts. per acre. This quantity was packed for market as follows :

TABLE 13

	Tons	cwt	lbs.
Chip Baskets - 4 lbs.	113	4	80
" " - 3 "	7	9	16
" " - 2 "	22	5	56
" " - 1 lb.	2	18	8
	145	17	48

Of the chip baskets, it will be seen that the 4 lb. size is favoured most, in fact nearly all the crop goes into this size package. The 3 lb. chip is not used much at all, and the 2 lb. size is used by most growers for the crop picked during the first two or three weeks; for example, the 2 lb. size was not used after 23rd June. The 1 lb. punnet is used, although it does not account for a very large proportion of the total crop. The use of this type of package is not confined to any particular date; it is used for both the first and the last pickings. One or two growers use the 1 lb. punnet for the whole of their crop. The prices paid by the growers for their chips vary from 18/- per gross for the 2 lb. size to 21/- for the 4 lb. size. Punnets cost 12/- a gross.

Other purchases made by the growers are those for sticks or rods to sling 4 lb. chip baskets, and string for tying the basket handles to the rod. In addition, some growers used paper covers which are secured to the baskets with rubber bands. The rods cost 1/- for 50, paper covers 12/6 per 1000 and elastic bands 5/6 for 1 lb.

15. SALES

Only in two or three cases were records available to show the prices realised week by week. A few growers stated they obtained from 1s.6d. to 1s.9d. a lb. for their first berries, but by the end of the season the price had fallen to 9d. or 10d. a 4 lb. chip. From 3d. to 4d. per lb. was considered to be the general average price for the season. Five growers, however, stated their average to be 6d. per lb. and these accounted for $5\frac{3}{4}$ acres. One holding of $\frac{1}{4}$ acre realised an average of 9d., while one holding of $\frac{3}{4}$ acre averaged over 1s.0d. per lb., this high price being the result of selling entirely in 1 lb. punnets, which were

supplied by the buyer.

Practically the whole of the crop is sold wholesale to various towns, and as a result a commission charge (usually of 7½%) is incurred. Market tolls occur fairly frequently as well as porterage and cartage. Unfortunately, scarcely any records of these charges were obtainable from the growers. Railway rates naturally vary according to weight and distance. The following table gives the rates for the important markets for Cheddar strawberries; the weights are merely representative, for the actual schedule used by the railway company is much more detailed, and in fact shows the charge for each additional lb.

TABLE 14

RAILWAY CHARGES ON CHEDDAR STRAWBERRIES. (In pence per lb.)

Consignment	Bristol	Taunton	Cardiff	Birmingham	Swansea	Manchester	Liverpool	Leeds	Edinburgh Glasgow
14 lbs.	.71	1.00	1.00	1.14	1.14	1.14	1.14	1.21	1.21
28 lbs.	.35	.54	.64	.89	.86	.96	.96	1.10	1.18
56 lbs.	.17	.27	.32	.44	.43	.71	.71	.71	1.05
112 lbs.	.15	.23	.31	.41	.41	.61	.62	.67	1.04

There is, it will be noticed, a considerable reduction per lb. as the total weight of the consignment increases. There also seem to be one or two anomalies. For instance, the charge per lb. for a 14 lb. consignment is the same for Birmingham, Swansea, Manchester and Liverpool, but they are not the same for the larger consignments, and in fact, for 1 cwt. loads the charge for Manchester and Liverpool is 50% greater than for Birmingham and Swansea. The rates for Leeds may also be compared with those for Edinburgh and Glasgow.

For the sake of interest, the following table shows the additional cost incurred over and above the rate to Bristol when consignments are sent elsewhere :

TABLE 15

INCREASE IN CARRIAGE COST AS COMPARED WITH BRISTOL RATES

Consignment	Taunton	Cardiff	Birmingham	Swansea	Manchester	Liverpool	Leeds	Edinburgh Glasgow
14 lbs.	.29	.29	.43	.43	.43	.43	.50	.50
28 lbs.	.19	.29	.54	.51	.61	.61	.75	.83
56 lbs.	.10	.15	.27	.26	.54	.54	.54	.88
112 lbs.	.08	.16	.26	.26	.46	.47	.52	.89

Thus a 14 lb. consignment to Glasgow or Edinburgh incurs an additional ½d. per lb. for carriage compared with a 14 lb. consignment to Bristol but a hundredweight sent to Scotland incurs nearly 1d. (i.e. ·89d.) per lb. more than if it were sent to Bristol, so there is a greater inducement for him to send his larger consignments to Bristol rather than to Edinburgh or Glasgow. Similar considerations will show that this inducement in regard to large consignments exists when Cardiff, Birmingham and Swanses are compared with Manchester, Liverpool and Leeds. As a matter of fact, it is the usual practice to send the early, and hence smaller, consignments to the distant markets in the north and to dispose of the bulk of the crop in the nearer markets of Bristol, Birmingham, Cardiff and Swansea.

Three local railway stations handle the crop and for the season now under review, namely 1931, and the previous year 1930, the particulars, kindly furnished by the Great Western Railway Co. are :

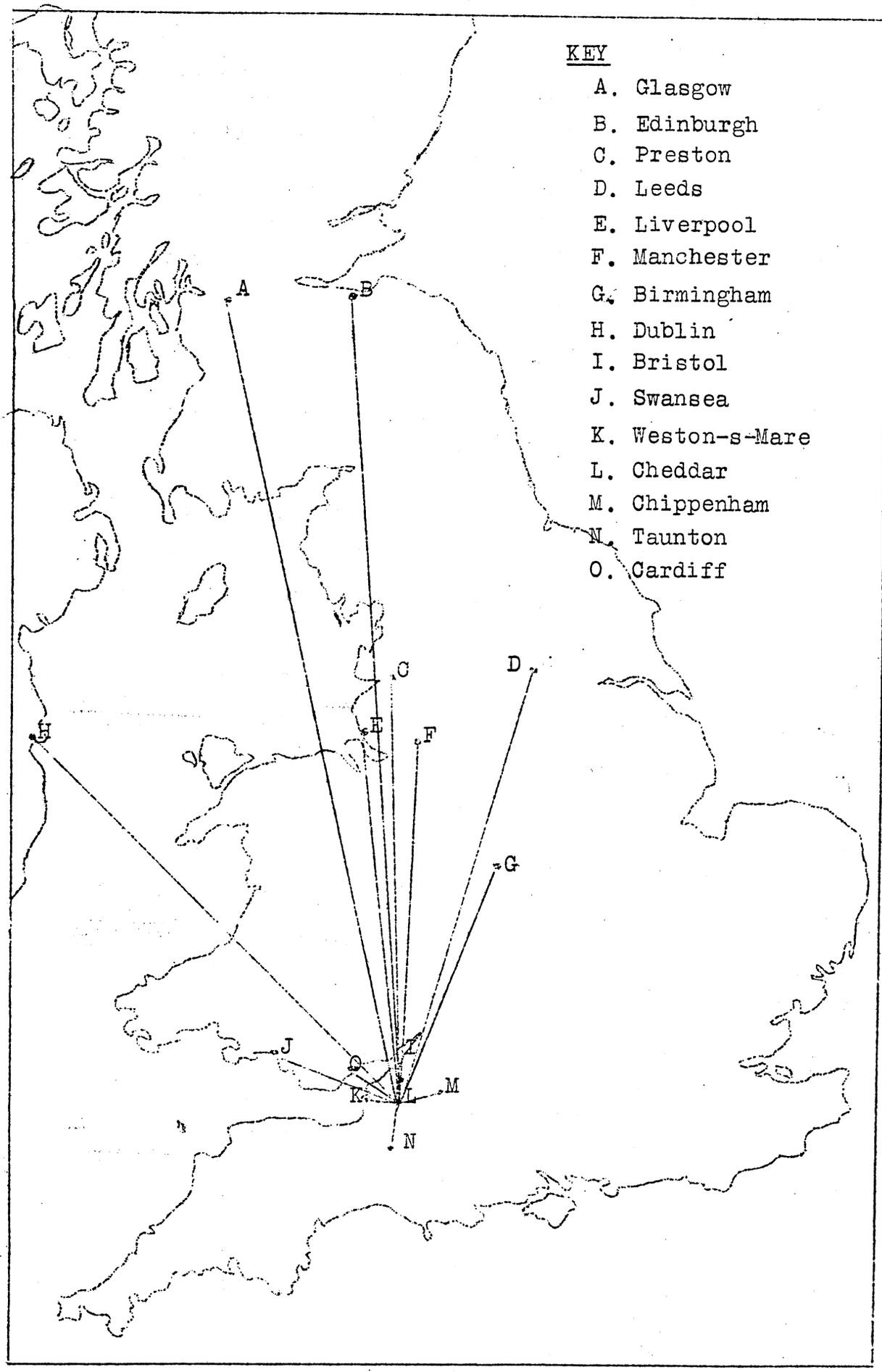
KEY
A. Glasgow
B. Edinburgh
C. Preston
D. Leeds
E. Liverpool
F. Manchester
G. Birmingham
H. Dublin
I. Bristol
J. Swansea
K. Weston-s-Mare
L. Cheddar
M. Chippenham
N. Taunton
O. Cardiff
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

TABLE 16

Name of Railway Station	Strawberries handled 1930 tons	1931 tons
Axbridge	35	57
Cheddar	119	229
Draycott	68	89
	222	375

Thus in 1931, the crop was nearly 70% heavier than in 1930. The average cost of railway carriage borne by the fruit worked out at .359d per lb. in 1931 as compared with .470d per lb. in the preceding year. Similar figures for 1932 were not available.

16. DISPOSAL OF CROP

Of the 70 growers surveyed, five gave no information concerning the disposal of their crop. Of the remaining 65, 40 sold all their crop wholesale to dealers, 22 sold a small portion retail and the bulk wholesale, while 3 sold their crop direct to consumers. Retail sales are mainly to sightseers visiting the Cheddar Gorge and although no complete figures are available, it is estimated that only 5% of the total crop is disposed of in this manner.

The map shows the wholesale markets, and the chief, in order of importance, are Bristol, Birmingham, Manchester, Glasgow and Liverpool. The complete list of markets is as follows :

TABLE 17

Market	No. of Growers sending
Bristol	51
Birmingham	45
Manchester	19
Glasgow	18
Liverpool	11
Cardiff	4
Preston	4
Taunton	1
Chippenham	1
Edinburgh	1
Leeds	1
Dublin	1
Weston-s-Mare	1
Swansea	1
	159

The total of 159 growers is due to the fact that many growers send to more than one market. Thus, of the 70 growers surveyed :

9	sent to one market each
23	" " two markets each
19	" " three markets each
9	" " four markets each
1	" " five markets
1	" " six markets
3	sold wholly by retail
5	gave no information
70	

Thus one grower may not only deal with more than one town, but in many cases may deal with more than one salesman in the same town.

This concludes the survey of the Cheddar area. In the next section an account is given of the results of detailed cost records kept during 1932 by a number of selected growers both in Cheddar and in the fruit areas of Herefordshire and Worcestershire.

III COST ACCOUNTS IN HEREFORDSHIRE AND WORCESTERSHIRE AND IN THE CHEDDAR VALLEY, SOMERSET.

In the foregoing pages no attempt has been made to calculate for the body of growers surveyed, an average cost of production nor an average profit. The lack of precise data in the form of written records prevented this being done, and even apart from the absence of such records the part time nature, one might almost say the spasmodic nature of the work, made the ascertainment of costs still more difficult. Furthermore, only two or three growers even had records available to show the results of their sales. Considerations such as these caused the writers to omit any cost tables which might give what is sometimes termed "false accuracy". It was, however, decided to

persuade a number of growers to commence keeping accurate records of costs for the following (1932) season.

Thus 18 growers in Cheddar and 10 in Herefordshire and Worcestershire kept costs and their average results are shown in tables 18 and 19. The average size of the strawberry bed in the latter area was nearly four times that in the former, and in spite of the smaller acreage per grower, the yield per acre in Cheddar was only about 3/5ths of that obtained in the other area. It is difficult to account for this poorer yield, but there is no doubt that it may partly be ascribed to more efficient management on the larger plots. One must, in this connection, remember the part time nature of the work in Cheddar as compared with the whole time work in Herefordshire and Worcestershire, for in this latter region, the strawberry bed forms part of a fruit farm or market garden, whereas in Cheddar, the strawberry bed is often part of a mixed smallholding.

One may say, that in Herefordshire and Worcestershire, it is the rule, because of the larger size of the holding, to make use of hired labour, whereas in Cheddar, it is the rule to use family labour*, and because it is family labour it often tends to be used to excess. This is borne out in the tables, where it will be seen that while the cost of hired labour per acre is £11:3:3, in Herefordshire and Worcestershire, it is only £4:17:3 in Cheddar. But family labour accounts for an additional £13:8:3 in Cheddar. Another difference arises from the fact that more horse and mechanical labour is used in Herefordshire and Worcestershire, mainly on account of the larger size of the holding found there.

The net result of all this is that the total cost

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*Throughout this inquiry family labour has been charged at rates current for hired labour.

TABLE 18

AVERAGE COSTS OF STRAWBERRY GROWING IN THE CHEDDAR AREA

1932 CROP

No. of Growers		18	
Total Acreage		21.24 acres	
Acreage per grower		1.18 acres	
Average yield per acre		1379 lbs.	
		Cost per acre	d.per lb.
Labour Cost	Paid	4:17: 3	.84
	Unpaid	13: 8: 3	2.34
	Horse	: 8: 1	.07
	Mechanical	: 4: 7	.04
Total Labour up to time of picking		18:18: 2	3.29
Other Costs	F.Y.M.	2: 2:11	.37
	Artificials	:17: 4	.15
	Plants	: 8: 6	.07
	Bedding	:15: 0	.13
		23: 1:11	4.01
Picking and Marketing :			
Labour Cost	Paid	4:15: 1	.83
	Unpaid	1: 4: 2	.21
Total Labour		5:19: 3	1.04
Other Costs	Packages etc.	3:19: 0	.69
	Rail Carriage	1:17: 0	.32
		11:15: 3	2.05
	Rent	5: 3:10	.90
	Overheads	:15: 1	.13
		5:18:11	1.03
TOTAL COST		40:16: 1	7.09
RECEIPTS	Fruit	38: 5: 5	6.66
LOSS		2:10: 8	.43

TABLE 19

AVERAGE COSTS OF STRAWBERRY GROWING IN HEREFORD & WORCESTER.

1932 CROP

No. of Growers 10

Total Acreage 43.78 acres

Acreage per grower 4.38 acres

Average yield per acre 1987 lbs.

		Cost per acre	d.per lb.
Labour Cost	Man	11: 3: 3	1.35
	Horse	:11:10	.07
	Mechanical	:10: 7	.06
Total Labour up to time of picking		12: 5: 8	1.48
Other Costs	Plants	:17:11	.11
	Straw	1: 7: 3	.16
	Sprays	: 6: 7	.04
	F.Y.M.	2: 2: 7	.26
	Artificials	1: 4:11	.15
		18: 4:11	2.20
Picking and Marketing :			
Labour	Man	6:17:11	.83
Other Costs	Packages and Market Exs.	3: 9: 5	.42
	Transport	1: 5: 5	.15
		11:12: 9	1.40
	Rent	1:15: 4	.21
	Overheads	1: 4: 5	.15
		2:19: 9	.36
TOTAL COST		32:17: 5	3.96
RECEIPTS	Fruit	43:11: 7	5.26
	Runners	4: 4: 0	.51
	Total	47:15: 7	5.77
PROFIT		14:18: 2	1.81

of all forms of labour up to the time of picking amounts in Cheddar to £18:18:2 per acre and in Herefordshire and Worcestershire to £12:5:8 per acre. Because of the low yield in Cheddar this labour cost works out at 3.29d. per lb. as compared with only 1.48d. in the other area.

In regard to the next group of costs, the value of farmyard manure applied per acre is approximately the same in both areas, but Herefordshire and Worcestershire spend 50% more on artificials than Cheddar. Similarly the former area pays twice as much for its plants as Cheddar and, in view of the yields per acre in the two areas, this additional cost is more than justified. Sprays, too, are an item in Herefordshire and Worcestershire, but are insignificant in Cheddar and this fact alone will have its effect upon yield. Costs of bedding vary between the two areas largely on account of the substitutes for straw such as hay and bracken which are used to a considerable extent in Cheddar. Thus, the net result of this group of costs is that Cheddar spends £4:3:9 per acre and Herefordshire and Worcestershire almost 50% more, i.e. £5:19:3, but because of the difference in yields, the cost per lb. becomes the same, namely .72d.

The next important item of cost is that of labour employed in picking. Again the use of family unpaid labour in Cheddar is noticeable, but a considerable amount of reliance is placed upon casual hired labour, with the result that the total labour cost for picking amounts to £5:19:3 per acre or to 1.04d. per lb. This cost may be compared with that for Herefordshire and Worcestershire, where hired labour is entirely used, the cost amounting to £6:17:11 per acre or to .83d. per lb.

Packages and market expenses amount to £3:19:0 per acre in Cheddar as compared with £3:9:5 in the other area,

while railway carriage involves £1:17:0 and £1:5:5 per acre respectively. Thus, the total costs of picking and marketing amount in Cheddar to £11:15:3 per acre and in Herefordshire and Worcestershire to £11:12;9 per acre, equivalent to 2.05d. and 1.40d. per lb. respectively.

The difference in the rental value of the land is very noticeable. Cheddar growers are paying roughly 3 times the rent paid by growers in Herefordshire and Worcestershire, and this can be accounted for in the following ways. In the first place, Cheddar Valley is much more densely populated so that the demand for land is more intense. Secondly rents are higher per acre because the holdings are smaller, and thirdly the area is an "early" one for strawberries and rents tend to be kept up because of this advantage. The area too has a certain amenity value, partly on account of the large number of tourists visiting the Gorge. The net result is that rent accounts for nearly 1d. per lb. in Cheddar as compared with less than ¼d. per lb. in Herefordshire and Worcestershire. The latter area, however, bears a heavier cost on account of overhead charges, largely because of the additional machinery and equipment used.

Thus, summing all items, the total cost of growing an acre of strawberries, amounts to £40:16:1 in Cheddar and to £32:17:5 in Herefordshire and Worcestershire. These correspond to 7.09d. and 3.96d. per lb. respectively.

But for the fact that Cheddar obtains on the average a higher price per lb. for its fruit than the other area, the result of the high costs would be a much heavier loss than is actually the case. It will further be noticed that the sale of runners is so unimportant in Cheddar that it is not shown in the tables, whereas it is an appreciable amount in

Herefordshire and Worcestershire, so that the latter area makes a profit of £14:18:2 per acre or 1.81d. per lb. compared with a loss in Cheddar of £2:10:8 per acre or :43d. per lb. In view of these figures, Cheddar growers need either to reduce costs, by better organisation, or to increase the yield per acre by employing more efficient methods of combating diseases and pests and by making use of more certified runners.

The number of cost records kept in either area is too small for any generalisations to be made according to variety. Moreover, in some cases, growers having more than one variety on the same bed found it impossible to keep separate costs. The ten records from Herefordshire and Worcestershire relate to three plots of Sir Joseph Paxton, four plots of Royal Sovereign, one of Stirling, one of Royal Sovereign with Tardive de Leopold, and one of Royal Sovereign with Oberschlesien.

The following table summarises the results :

TABLE 20

VARIETY	Yield of Fruit per acre	PER ACRE				Selling price per lb. of fruit
		Cost	Sales		Profit	
			Fruit	Runners		
	lbs.	£: s: d	£: s: d	£: s: d	£: s: d	
Paxton	3,920	54:19: 4	78:15: 0	: :-	23:15:8	C 4.82d.
"	2,647	39: 4: 0	53: 3: 8	-	13:19:8	C 3.56d.
"	676	16: 5: 9	11: 9: 6	9: 0:0	4: 3:9	C 4.0 d.
Royal Sovereign	3,820	25:15:11	64:16: 2	-	39: 0:3	D 4.07d.
"	3,673	57: 7: 7	90:14: 5	2:17:2	36: 4:0	D 5.93d.
"	2,806	20:13: 5	47:12: 0	-	26:18:7	C 4.0 d.
"	1,389	40:14: 8	33:15: 6	-	Loss 6:19:2	D 5.84d.
Stirling	961	18: 0: 8	19: 6: 3	2:11:5	Profit 3:17:0	C 4.82d.
Royal Sovereign & Oberschlesien	6,601	101:12: 7	199: 9:11	-	97:17:4	D 7.25d.
R. Sovereign & Tardive de Leopold	1,970	43: 0: 9	51:16: 6	14:10:1	23:5:10	D 6.31d.

D = Dessert. C = Canning.

In the Cheddar Valley of Somerset, the eighteen cost records may be grouped as follows :

Madame Kooi	11
Royal Sovereign	3
Royal Sovereign with Kooi	2
Royal Sovereign with Kooi and Oberschlesien	1
Royal Sovereign with Kooi and Noble	1
	18

The following table gives the individual financial results :

TABLE 21

COSTS IN CHEDDAR

Variety	Yield per acre. lbs.	Cost £: s: d	Sales £: s: d	Profit £: s: d	Loss £: s: d	Average Selling price per lb. Pence
Madame Kooi	3120	45: 5: 0	79: 6: 8	34: 1: 8	-	6.10
	2100	34: 2: 0	55: 7: 9	21: 5: 9	-	6.23
	1069	29: 2: 3	40:18: 2	11:15:11	-	9.18
	1620	31:11: 0	40:10: 5	8:19: 5	-	6.00
	1667	26:15: 6	35: -: 3	8: 4: 9	-	5.04
	930	20:19: 2	26: 9: 9	5:10: 7	-	6.83
	1311	28:10: 8	30: 2: 9	1:12: 1	-	5.50
	408	12:12:10	13:11: 8	:18:10	-	7.99
	869	23:18: 0	20: 4: 0	-	3:14: 0	5.58
	1214	43: 1: 2	31:12: 5	-	11: 8: 9	6.25
	347	32:15: 7	8: 3: 8	-	24:11:11	5.65
Royal Sovereign	3213	40:15: 1	115: 5: 1	74:10: 0	-	8.61
	2916	76:11: 2	90: 9:10	13:18: 8	-	7.45
	968	40: 7: 2	47: 0: 0	6:12:10	-	11.65
	1103	30:19: 9	26:12: 9	-	4: 7: 0	5.79
Madame Kooi + R.Sovereign + Others	1249	44:17: 2	38:12: 5	-	6: 4: 9	5.11
	1354	53:11:10	34: 5: 0	-	19: 6:10	6.07
	1378	54:16:10	28:10: 2	-	26: 6: 8	4.96

The Cheddar produce may be regarded as going almost entirely for dessert purposes, while that from Herefordshire and Worcestershire is largely disposed of for canning purposes under definite contracts. The variations from grower to grower in the matter of yields, costs, sales and profits or losses are very considerable, more especially in the case of Cheddar. The range in the selling price per lb. is smaller in Herefordshire and Worcestershire because of the influence of these contracts.

IV COST ACCOUNTS IN WILTSHIRE

The position of strawberry growing in Wiltshire is at present insignificant, the Agricultural Returns (1931) showing a total of only 24 acres for the whole county. Further, it must be noted that even this small acreage is widely scattered, although there are two regions within the county in which practically all the strawberries are produced. The first region is that known as the Bromham area which is found around the town of that name. The other region is the Redlynch and Downton district found in the extreme south-east tip of the county, below Salisbury, and is geographically part of the strawberry growing area of Hampshire. The Bromham area has great possibilities for soft fruit culture, partly on account of its soil, and partly because it forms a flat circular plain sheltered from the East winds by the escarpment of Salisbury Plain.

Eight growers were surveyed in Wiltshire, four of whom were located in the Bromham area and four in the Redlynch area. The total acreage of strawberries found on these holdings amounted to 11 acres, somewhat less than half the quantity returned in Agricultural Statistics.*

*Since Agricultural Statistics deal with holdings of more than 1 acre, there will of course be strawberries grown on "garden plots", but this consideration applies obviously to all the counties.

The four growers in the Bromham area grew 5¾ acres of strawberries on holdings totalling 35¾ acres, while the four growers in the Redlynch area grew 5½ acres of strawberries on holdings totalling 53½ acres. None of these eight growers had much experience in strawberry growing; they regarded it as an innovation, although were inclined to grow more in future. They could not be compared, for example, with the specialist strawberry growers of Cheddar, nor with the large scale growers of Herefordshire and Worcestershire.

Both the Wiltshire areas are well situated for the disposal of strawberries by retail, for around Bromham there are, within a few miles, the towns of Bath, Trowbridge, Chippenham, Melksham and Devizes, while Salisbury forms a good retail market for the growers in the other area. This brings out another point of contrast, for the Cheddar area exports to distant wholesale markets. The Herefordshire and Worcestershire area does the same, as well as supplying local canning factories.

In order to ascertain the cost of production of strawberries in Wiltshire, three growers kept detailed records for the crop picked in 1932. Two of these grew one acre and ¼ acre respectively, in the Bromham area, and the other grew 2 acres in the Redlynch area. In the case of the one-acre plot, the yield amounted to 2765 lbs., all of which was sold as dessert at an average price of approximately 6¾d. per lb. The cost per acre, including a rent of £4, amounted to £39: 5:10 and the profit to £38:15: 5, since the total sale value of the fruit amounted to £78: 1:3. The quarter-acre plot produced 550 lbs. dessert quality and 100 lbs. for jam, thus giving a total yield at the rate of 2600 lbs. per acre. The average price per lb. realised for the whole crop was 7⅓ d.

this high price being due to the special facilities the grower had for retailing. The total cost of growing the quarter-acre plot amounted to £12:14:1, the fruit fetched £19:15:10, thus resulting in a profit of £7:1:9, equivalent to £28:7:0 per acre.

The grower in the Redlynch area was not so successful. Unfortunately, it was not possible to calculate his total yield of fruit, for when picking was about to commence, a two days rainstorm damaged a large part of the crop. The value of the sales of fruit amounted only to £12 from the two acres and, but for the sale of runners amounting to £17, his position would have been still worse. On the basis of a single acre, his results were as follows : Total cost per acre £32:12:1; Sales of fruit £6 per acre; Sales of runners £8:10:0 per acre; thus resulting in a net loss of £18:2:1 per acre. This land is rented at 15s.0d. per acre, being only of recent years reclaimed from part of the New Forest. The other two plots referred to above, both carried a rent of £4 per acre.

The following table has been compiled in order that some comparison may be made with the two similar tables given previously. Obviously because it represents the average results of only 3 growers, too much reliance cannot be placed upon it, although as a matter of fact, the total cost per acre approximates to that for Herefordshire and Worcestershire.

No column is given showing the cost per lb. because of the heavy damage caused by rain to one of the grower's fruit at the time of picking.

TABLE 22

AVERAGE COST OF STRAWBERRY GROWING IN WILTSHIRE

1932 CROP

No. of Growers	3	
Total Acreage	3.25	
Acreage per grower	1.08	
		Cost per acre
Labour Cost	Paid	3:14: 4
	Unpaid	5:13:11
	Horse	1: 9: 6
	Mechanical	-
Total Labour up to time of picking		10:17: 9
Other Costs	F.Y.M.	5: 1: 6
	Artificials	1:17: 6
	Plants	2: 7: 8
	Bedding	1:11: 5
		21:15:10
Picking and Marketing :		
Labour	Paid	2: 0: 6
	Unpaid	:10: 6
Total Labour		2:11: 0
Other Costs	Packages	2:15: 5
	Transport, rail & road	: 7: 2
		5:13: 7
	Rent	2: 0: 0
	Overheads	1:11:10
		3:11:10
TOTAL COST		31: 1: 3

V CONCLUSION

One of the most noticeable facts in this inquiry was the absence of any really effective organisation among the growers. It is true there exists in the Cheddar Valley the Cheddar Valley Fruit Growers' Association, but as the chairman and secretary would probably be the first to admit, the association is prevented, through lack of active support, from being as useful as it was at first hoped. In Herefordshire and Worcestershire some of the strawberry growers belong to various fruit growers' associations and such bodies have been of greater assistance than the Cheddar association. In Wiltshire, however, no organisation exists among fruit growers on account of the relative unimportance of fruit culture. In the case of strawberries, the Wiltshire growers usually sell retail locally, and any part of the crop suitable for canning or jam manufacture is also disposed of by sale to local village factories.

An inquiry into financial results of a single fruit crop such as strawberries is made difficult on account of the large proportion of family (unpaid) labour involved in producing the crop. It is true that such labour can be valued at certain rates of remuneration and so a total assumed figure of cost arrived at, but even this can only be done when the hours of labour are accurately recorded. In the present investigation it was found that the majority of growers worked on their strawberry beds at all kinds of odd moments, often just when the fancy took them, and there was consequently experienced a great difficulty in obtaining reliable records of time spent in cultivating or even in picking the crop. Naturally as the size of the holding increased, so the dependence upon hired labour became greater and the labour records more reliable.

The investigation is, however, being continued for

another year and a number of growers who have appreciated the desirability of knowing the value of their labour in connection with strawberry-growing have agreed to keep careful records of the time spent on this crop. The results of this later enquiry will be issued in due course.

ADVISORY WORK.

The University of Bristol co-operates with the Staffs of the Department of Agricultural Education of the Counties of Gloucester, Hereford, Somerset, Wiltshire and Worcester in providing free advice to farmers, growers and landowners under the Advisory Scheme of the Ministry of Agriculture. Requests for advice should, in the first instance, be addressed to the Agricultural Organiser for the county concerned. The Organisers for the five counties in the Western (Bristol) Province are:-

E. REA, Esq., N.D.A., N.D.D.,
Agricultural Education Office,
2, College Street,
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J. Ll. EVANS, Esq., B.Sc.,
Agricultural Education Sub-Committee,
Shire Hall,
Hereford.

W. D. HAY, Esq., B.Sc.,
Somerset Farm Institute,
Cannington,
Nr. Bridgwater.

W. T. PRICE, Esq., M.C., N.D.A., N.D.D.,
Agricultural Department,
Polebarn House,
Trowbridge, Wilts.

R. C. GAUT, Esq., M.Sc.,
Department of Agricultural Education,
County Buildings,
Worcester.

PUBLICATIONS BY THE DEPARTMENT.

BULLETIN NO. 1. Sugar Beet Trials 1926.

BULLETIN NO. 2. Sugar Beet Trials 1927 and Report of Sugar Beet Conference, February 1928.

BULLETIN NO. 3. The Effect of Different Balanced Rations on the Yield and Composition of Milk from Dairy Cows.

BULLETIN NO. 4. Mole Destruction Experiments.

BULLETIN NO. 5. The Wiltshire Agricultural Accounting Society – Analysis of Four Year's Financial Accounts.

BULLETIN NO. 6. Cost of Production of Sugar Beet in Hereford and Worcestershire (1925-6 – 1929-30).

BULLETIN NO. 7. A Bulletin for Somerset Farmers, 1925–1929.
Part I. Introduction; Cropping, Marketing.

FARM ACCOUNTS: Continuous Series.

ISSUE NO. 1. List of Farms.

ISSUE NO. 2. Production in Relation to Capital and Costs. 1929 Crop.

ISSUE NO. 3. Influence of Arable upon Production, 1929 Crop.

ISSUE NO. 4. Factors affecting Wiltshire Profits. 1930 Crop.