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Specialized Soft Fruit
Holdings

by

W. L. HINTON

Wye college

DEPARTMENT OF AGRICULTURAL ECONOMICS

1959

ECONOMICS OF FRUIT FARMING

Report No. 4

Specialized Soft Fruit Holdings

A study of the operation of certain small horticultural units in East Sussex
producing soft fruit for the fresh market.

*Copies of this report may be obtained, price 2/6 post free,
from the Secretary, Wye College, near Ashford, Kent*

March 1959

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FOREWORD

This report, dealing with some of the business aspects of soft fruit production on specialized holdings will, it is hoped, be of value to two kinds of growers, to those who concentrate on the growing of soft fruit and to the larger numbers for whom soft fruit is only a part of their horticultural business.

The growing of such fruit is a specialized form of husbandry and though certain of the growers' problems may vary as between particular parts of the country and for different kinds of markets, there are many other problems common to them all. The information on investment outlays and on output may also be a useful guide to those interested in becoming soft fruit growers as in some cases such persons have little prior knowledge so that they may be influenced more by fancy than by fact.

We would particularly like to thank the growers who allowed us to record the performance of their holdings and Dr. E. H. Wilkinson of Wye College and Mr. W. S. English of the National Agricultural Advisory Service, who have been very helpful in criticism and advice.

G. P. WIBBERLEY,
Reader and Head of Department.

SUMMARY

1. This report is concerned with the economic performance of specialized soft fruit production, based on ten holdings centred around Newick in East Sussex. This area is unique for its specialization and concentration on soft fruit, and is best known for dessert gooseberries (p. 8).

2. Capital requirements for soft fruit growing (£2,800 per holding or £700 an acre) are lower than those for market gardening (£3,000) or dairy farming (£4,000) both of which give a comparable livelihood (p. 12).

3. Labour expenses amount to £200 an acre, or two-thirds of total expenses. Soft fruit growing employs twenty times more labour per acre than farming and over three times more than market gardening (p. 12).

4. Intensity of labour use is high but productivity of labour is low. A net output of £150 on soft fruit holdings, per £100 labour, falls far short of the £270 for large farms and £214 for small farms (p. 13).

5. An acre of land in soft fruit adds £250 to national output. On this basis soft fruit production is five times more intensive than small scale farming and ten times more intensive than large scale farming (p. 14).

6. Average net income per holding for 1955 and 1956 was £557. This is better than that on small farms, but on individual holdings profits vary widely, those on half the holdings being insufficient to cover family labour. Average return on investment was 4 per cent., while return on expenditure was 7 per cent. This rate of return is similar to that of market gardens with an equal turnover (p. 19).

7. Highest profits arise where labour costs per £100 net output can be reduced to £20 or £30 below average. It is the ability to spread labour and equipment costs over higher outputs per acre which leads to financial success (p. 20).

8. Some holdings were using labour at the rate of $1\frac{1}{4}$ acres per man while on the more efficient ones 2 acres were covered by one man. Assuming wage rates at £370 per annum and receipts per acre of £400, in the former case revenue per man is £500 and the surplus over labour expenses is £130 only per man, while in the latter case revenue per man is £800, and the surplus is £430 per man. In the first case no profit may emerge, but in the second profit can be as much as £300 per man employed (p. 20).

9. Output affects profits more than expenses. Individual results show that a revenue of £350 an acre will give a surplus over unpaid labour, providing total labour expenses per acre do not exceed £240. Where revenue reaches £450 an acre and total labour charges are kept at £250 a surplus of £50 per acre of soft fruit may be expected (p. 21). Plans for raising output depend on the choice of high revenue crops, balanced to give reasonable picking demands (Fig. 2, p. 22).

10. On the smaller holdings where labour is not fully occupied, income can be increased either by keeping livestock, or by growing soft fruit more intensively (p. 23).

11. Low capital requirements make this one of the least difficult types of farming to take up, but high growing risks make financial success uncertain. In some cases it is a desire for independence rather than the profit motive that determines a grower's interest in soft fruit production.

INTRODUCTION

A good deal of thought and research has been devoted to the desirable size and structure of the agricultural industry in Great Britain, consistent with its value in the national economy. Less thought has been given to the contribution of horticulture, which has been expanding its output at the same rate as agriculture though it has had much less "official" incentive to do so. Now, however, more attention is being given to horticulture to establish its output, profitability and use of resources, and whilst the major types of production have already been examined the less significant ones have not. Soft fruit growing, on which some growers depend completely for a livelihood, is one of these.

New light has been thrown on the British glasshouse industry by the studies carried out by R. R. W. Folley at Wye College in recent years.* It was the results of this particular enquiry which prompted a request for similar work to be done among the soft fruit specialists in East Sussex. A small survey was therefore designed and carried out.

Because their acreage is extremely small and their output almost entirely soft fruit, the East Sussex specialist growers differ greatly from other horticulturists in this country who are also engaged in the production of open ground crops, including soft fruit. In the West Cornwall area, which is known for its vegetable production, the holdings are much larger, and horticultural produce is only a part of the sales. In the Wisbech district, another prominent horticultural area, the holdings are again much larger in size and on most of them soft fruit represents a minor part of the output.†

THE PROBLEMS FACING SOFT FRUIT GROWERS

Little is known about the intensity of production and the profitability of specialized soft fruit holdings, or how they compare with ordinary farms in the way they use land, labour and capital. Such specialized production raises problems in the supervision and use of labour for fruit picking, and it calls for difficult management decisions regarding cropping arrangements which are usually planned so as to give as long a picking season as possible. The smaller growers also have to decide whether or not to supplement their income from fruit by keeping small livestock.

The risks in soft fruit production are considerable. Damage from pests and diseases, and sometimes frost, may all result in substantial loss of crops. Growing and harvesting expenses, at an average of £350 an acre, are high and exceed those incurred in the production of the majority of crops grown in the open. Finally, the market price for fresh fruit is uncertain and variable. The large-scale grower can sell on contract for processing at a firm price, but the smaller grower must aim to produce quality fruit for the better prices in the fresh market. All this may explain why so few growers rely entirely on soft fruit for a living.

The small-scale growers with whom this report is concerned have to face the problems of producing fruit for the fresh market. Because their holdings are so small, they are less able to reduce their high labour bill, amounting to three-quarters of annual expenses, by introducing machinery. Where capital is available to buy machines, the wider spacing of plants for mechanized working tends to reduce the income from a given area.

The peak acreage of soft fruit in the area studied was reached in 1950 under the stimulus of good prices in the previous three years. Subsequently, prices have not risen

* Folley, R. R. W. "Studies in the Economics of Intensive Horticultural Holdings", Reports No. 1, 2 and 3, Wye College, 1957-58.

† Bennett, L. G., "The Marketing of Horticultural Produce Grown in Bedfordshire, West Cornwall, Wisbech and the Lea Valley", University of Reading, 1957.

in proportion to wages. In spite of this there has been little movement away from the specialist holdings or from the traditional system of production. In this position of having to maintain the same labour requirements as before and receiving lower relative prices for his fruit, the grower often finds himself working harder for a smaller return.

DESCRIPTION OF THE FRUIT HOLDINGS

THE DEVELOPMENT AND NATURE OF PRODUCTION

The soft fruit industry in East Sussex, centred on the village of Newick, and concentrated on the parishes of Chailey, Danehill, Newick and Lindfield, goes back to the beginning of the century when there was only a handful of growers. Gooseberries for the dessert trade have continued to be the most important crop.* In the early days Brighton was the main market outlet but now most of the fruit goes to the London markets. Today the only variety of dessert gooseberry grown is Leveller and this area grows 30 per cent. of the total acreage of dessert gooseberries in England and Wales. Though centred on the gooseberry crop, the local industry developed to include other soft fruits, among which strawberries and raspberries are the most important. The circumstances making this development possible were the favourable conditions for production and the expanding markets, followed by the growth of marketing services in the locality. The soils, developed mainly on the Tunbridge Wells sandstones of the Hastings Beds, are well known for their suitability for fruit growing. The relatively high situation on the High Weald avoids the danger of spring frosts, and the broken wooded countryside provides shelter from winds.

Specialized holdings are defined as those on which more than half of the revenue is soft fruit. On the majority of the holdings studied soft fruit revenue is between 80 and 100 per cent. of the revenue of the holding.

In 1956, the county production of soft fruit was 1,063 acres, most of which was grown on farms as opposed to specialist holdings. In the four parishes centred on Newick, which represents the area of specialized production, 240 acres of soft fruit were grown. This was produced on 80 holdings and comprised dessert gooseberries (one-half), strawberries (one-third); the remainder being raspberries, blackcurrants and red and white currants. These soft fruit holdings vary in size from 2 to 10 acres. The majority are about 5 acres and on these a business turnover of £2,000 is usual. Many of the larger growers use most of their land for gooseberries and strawberries, some growing these crops only, in roughly equal proportions. The smaller holdings usually grow four or more kinds of soft fruit though, again, strawberries and gooseberries predominate.

This concentration has given rise to the formation of a special branch of the National Farmers' Union with good marketing standards as a principal aim. For example, their most important product, dessert gooseberries, is now marketed under a brand label, with good results in the trade. Over seventy growers are members, which gives a measure of the interest among this small isolated body of specialized growers in the better marketing of their fruit.

The general criterion for entry to the survey was that the particular holding should concentrate on soft fruit growing. So as to diminish the effect of annual changes in output the records for two years' results were recorded. Satisfactory complete records were obtained from seven holdings around Newick and from a further three holdings, with the same type of production pattern, a little farther away from this village.

SIZE AND TYPE OF HOLDING

The ten holdings studied varied considerably in size, the average area amounting to $7\frac{3}{4}$ acres, though if the one large holding is omitted, this average drops to 5 acres. Three

* See English, W. S. "East Sussex Gooseberries", *The Commercial Grower*, 30th August, 1957, pp. 364-65.

holdings were 2 acres or less, one was slightly under 5 acres while five were between 5 and 10 acres in size, the remaining holding being over 10 acres. Two types of holdings emerged, part-time holdings on 2 acres and less, and more mechanized full-time holdings on 5 acres and over.

On these holdings soft fruit production provided 85 per cent. of the total income and occupied the same proportion of the acreage. Most of the remaining area was cropped with fruit orchards and vegetables, and the smaller part was made up of agricultural crops and grassland. Six of the holdings, scattered throughout the range in size, were cropped completely with soft fruit. On another two, where the land and the cost of grubbing old apple trees was a limiting factor, only 55 per cent. of the acreage was under soft fruit. The remaining two holdings kept small livestock and 60 per cent. of their acreage was in soft cultivation. The average pattern of production of the different kinds of soft fruit grown on the holdings is given in the table below.

TABLE I
Distribution of Soft Fruit Cropping

	Percentage Cropping	Average Acreage*	Number of Holdings Growing the Crop
Gooseberries	23	1.5	10
Strawberries	15	1.1	9
Raspberries	31	2.5	8
Blackcurrants	12	1.0	8
Red and White Currants ..	7	0.8	6
Blackberries	10	3.4	2
Loganberries	2	1.8	1

* On holdings growing the crop.

The greater popularity of gooseberries, strawberries, raspberries and blackcurrants is evident. Raspberries occupy one-third of the area cropped, but on many individual holdings the acreage of raspberries was less than that of gooseberries or strawberries.

ORGANIZATION OF PRODUCTION

SYSTEMS OF CROPPING

It appears that soft fruit holdings of 2 acres and less, which predominate in the Newick area, have a different pattern of soft fruit cropping from the larger ones. On these smaller holdings strawberries and gooseberries together brought in 80 per cent. of the revenue, in equal proportions, and used 80 per cent. of the land. The gooseberries used twice as much land area as the strawberries in order to produce the same income. Blackcurrants, redcurrants, and raspberries occupied the remainder of the land, and the output per acre from these subsidiary crops was roughly equal to that produced by the principal crops.

In contrast to the smaller holdings recorded, the larger ones showed more variability in their cropping system. Three different systems were distinguishable, based on the two main crops grown. These were found on holdings which grew, as principal crops, strawberries and gooseberries, raspberries and strawberries, and raspberries with blackcurrants or blackberries. The two main crops again accounted for 80 per cent. of the soft fruit income, their contribution being roughly equal. On some of the larger holdings output per acre from the main crops exceeded that of the subsidiary crops, which suggests that better use can be made of some of their land.

THE USE OF LABOUR

The cost of labour, whether hired or family, is the largest expense in the production of soft fruit. It amounted, on the holdings studied, to an average of two-thirds of all expenses, but more significantly it ranged in importance from 40 to 80 per cent. of the total expenses.

On all ten holdings the labour of the proprietor and his wife was particularly important. Four of the holdings studied employed no labour on a regular basis. Three of these holdings produced only soft fruit but on all four the acreage involved was less than four and a half.

Regular paid labour was employed on the other six holdings, all of which grew 4 acres or more of soft fruit. Of the two holdings with small livestock, both about 8 acres, one holding where livestock amounted to roughly half the sales employed three regular men, and casual workers equivalent to one full time man. The other holding with less emphasis on livestock (one-quarter of the sales), employed one regular man and casual labour equivalent to another full-time man. The four other holdings employed two or more regular men who were supplemented by casuals.

The total labour force working on these holdings was responsible for from $1\frac{1}{4}$ to 2 acres of soft fruit per man. Casual labour earnings were one-third of total labour earnings, £240 an acre, payments for picking slightly exceeding other casual labour expenditure on pruning and weeding. All this casual support comes at the peak working periods of spring cultivations and July and August picking. Many casual workers pick fruit after their day's work and to make full use of this, arrangements have been made for late collection of fruit. Total picking labour costs, including regular labour, amount to nearly one-third of the total labour costs.

THE USE OF CAPITAL

The value of the fixed assets, mainly equipment, worked out at an average of £488 per holding, or 30 per cent. of total assets, including established fruit. All of the holdings

with more than 4 acres of soft fruit possessed a tractor but the others relied entirely on small engine-driven inter-row cultivators and hoes. The total value of equipment including motor vehicles was £400 per holding. Other fixed assets amounted to a value of £88 per holding. The principal items here were packing and implement sheds, and occasionally cloches and dutch lights. As indicated by these figures there are no elaborate packing facilities, a garage or general purpose shed usually being used for the purpose.

Current assets, which include livestock on hand in the case of two holdings, amounted to £77 per holding. One-half of this was livestock and the remainder packing materials.

From the above figures it appears that the capital needs of these growers is low, but this is not the case in relation to their investment in established fruit plantations. With an average soft fruit acreage of $4\frac{1}{2}$, investment in established fruit plantations amounted to £1,261 per holding, or £328 per acre of soft fruit (see page 12).

The scope for increasing the use of machinery is limited by the type of crops and the overall importance of getting high yields per acre. This means that labour continues to be the most important resource. Investment in established fruit plantations, though representing 70 per cent. of the total assets, comprises mainly the "cost" of past labour which in many cases is that of the grower himself. Capital needs for entry are low, as represented by the fixed assets alone. Investment in establishing fruit plantations is high, but here cash resources take second place to labour, most of which is unpaid, which greatly eases the financial problem of establishing plantations. The problem can be further reduced because two to five years, depending on the crops grown, elapse before the fruit comes into full bearing, so those who are keen enough to develop small fruit plantations can carry out a full-time job elsewhere for the first two years and transfer to part-time work as the plantation develops, finally becoming full-time growers. These persons maintain an independent source of income until income from fruit becomes significant.

INTENSITY OF PRODUCTION: COMPARISONS WITH FARMING

INVESTMENT

Intensity in agricultural and horticultural production may be measured in several ways, but perhaps the most practical guide is the amount of money invested in the business both to set it up and to keep it running.

The valuation of the holdings surveyed was split up into fixed and current assets and the value of the established fruit plantations. The investment in fixed and current assets together was £565 per holding. The largest item in the valuation, the value of the established fruit bushes, was a calculated figure since few growers put a value on their fruit plantations, and where this was done values of bushes only were recorded. These values were calculated at the following rates per acre: gooseberries £400, raspberries £350, blackcurrants £300, red and white currants £300, and loganberries £350. Cost of establishment included labour, services and materials expended on the plantation before the first profitable crop is picked.

The working capital necessary to run the holding was taken as half the total expenses (including unpaid labour) for the year, which amounted to £1,646 or £404 per acre of soft fruit. It was assumed that the total outlay for the year is partly offset during the year by sales. The following table shows investment with and without allowing for interest on capital at 5 per cent. This is expressed per holding, per acre of holding, and per acre of soft fruit.

TABLE II
Investment on Soft Fruit Holdings

	Per Holding	Per acre	Per acre soft fruit
	£	£	£
Fixed assets	488	86	112
Current assets	77	11	16
Value of established fruit	1,261	263	328
Working capital	823	152	202
Investment not allowing for interest ..	2,649	512	658
Interest at 5 per cent. per annum ..	133	25	33
<i>Total investment</i>	2,782	537	691

Since it is possible to obtain a living from a comparatively small area of soft fruit, these figures show that relatively little capital is necessary to enter commercial soft fruit production. Thus the capital required to equip and bring into production a holding of 4 acres of soft fruit is about £2,800, or £700 an acre, half of which is investment in fruit plantations.

The total investment per holding compares favourably with other small farm businesses offering a similar standard of living. Market gardens show a book investment of £3,000 to be the minimum effective capital, and on small specialized livestock farms total investment runs at a minimum of £4,000.

LABOUR

Comparison with farms and market gardens shows that soft fruit holdings use twenty times more labour per acre than farms, and over three times that on market gardens

(see Table III). This rate of labour use, 46 men per 100 acres, is only surpassed by the highly intensive glasshouse holdings which employ 104 men per 100 acres.* Here, however, the rate of investment is at a much higher level, £2,150 per man employed as against £1,400, in soft fruit production.

TABLE III
Labour Compared with that on Farms and Market Gardens

	Soft Fruit Holdings	Farms (excluding Specialist)*	Market Gardens*
Size of holding—acres	7.70	199	41
	£	£	£
Total labour cost per 100 acres	18,480	911	5,862
Total labour cost per holding	1,285	1,718	2,450
Unpaid labour per 100 acres	10,197	168	692
Unpaid labour per holding	403	317	290
Paid labour per 100 acres	8,283	742	5,170
Paid labour per holding	882	1,401	2,160
Casual labour £'s per holding	421	145	380

* Derived from *Farm Incomes England and Wales 1955-56* H.M.S.O., 1957.

TABLE IV
*A Comparison : Specialized Soft Fruit Production and Farming**

	Soft Fruit Holdings	Farms (excluding Specialist)†	Farms 50 acres or less†
	Acres	Acres	Acres
Size of holding	7.70	199	35
	£	£	£
<i>Gross Output</i>			
Per Holding	2,273	6,659	2,767
Per 100 acres	31,706	3,346	7,907
Per £100 Expenditure (including unpaid labour)	107	115	106
Per £100 Rent	5,682	1,986	2,530
Per £100 labour (including unpaid labour)	177	370	345
<i>'Net' Output</i>			
Per Holding	1,930	4,870	1,731
Per 100 acres	25,097	2,447	4,946
Per £100 Expenditure (including unpaid labour)	109	121	110
Per £100 Rent	4,825	1,433	1,566
Per £100 Labour (including unpaid labour)	150	270	214

* Based on results relating to 1954-55 and 1955-56.

† Derived from *Farm Incomes in England and Wales 1955-56*. H.M.S.O. 1957.

While the intensity of labour use is high, the productivity of labour in soft fruit production is low (Table IV). A 'net' output, per £100 labour, of £150 in soft fruit, falls far short of the £270 obtained on large farms and £214 for small farms. Though this can be looked upon as a characteristic of soft fruit production rather than a criticism, it is in labour use where the greatest scope for increasing efficiency lies.

* See Folley, R. R. W., "Business Aspects of Horticultural Production Under Glass," Wye College, 1957.

A COMPARISON WITH ORDINARY FARMING

The intensity of production on these holdings is best observed by comparison with the output figures on other classes of holdings. The output of soft fruit holdings, together with that for large and small farms, is shown in Table IV. It is first necessary to define the meanings of the terms which describe output. Gross output is total production with no deduction made for resources brought on to the holding, other than that for livestock and livestock products purchased. 'Net' output is the production due only to the agricultural or horticultural operations on the holding itself, and it is defined as gross output less seeds and plants, feedingstuffs and packing materials.

Table IV shows that the gross output per holding on these soft fruit holdings is much smaller than that on large farms, but it amounts to 80 per cent. of that on farms of 50 acres or less. On the basis of 'net' output, however, production on the fruit holdings is 12 per cent. better than that on farms of 50 acres or less. This difference arises because these fruit holdings are more self-sufficient; less is spent on purchased resources. Almost all the operations consist of growing and picking, whereas on farms a large proportion of the output comprises livestock and livestock products for which outside resources are brought in. Looking at it another way the value per acre added to the national product by soft fruit holdings is more than that contributed by farms. Gross output per 100 acres is £31,706 for soft fruit holdings, £7,907 for small farms, and £3,346 for large farms. 'Net' output per 100 acres taken in the same order is £25,097, £4,946 and £2,447. Output per £100 rent again emphasizes the very intensive use of land cropped by soft fruit. Yet in relation to the return on labour used, the soft fruit holding shows up badly compared with the general farm, whether that farm be large or small.

Regarding intensity as a whole, soft fruit holdings use the basic resources, labour and capital in conjunction with land, to obtain high output per acre. Compared with farming, land, in relation to capital and labour used with it, has a greater value in production under soft fruit, yet return on expenditure is no greater than that on small farms and much less than that on large farms.

THE PROFITABILITY OF SOFT FRUIT HOLDINGS

YIELDS IN ENGLAND AND WALES

The achievements since the war in increased yields and production of farm crops have also occurred in soft fruit production.

TABLE V
Yields and Acreage of Soft Fruit, England and Wales

	Yields per acre		Acreage	
	1944-45-46	1954-55-56	1944-45-46	1954-55-56
	cwt.	cwt.	ooo's	ooo's
Strawberries	27·6	32·8	11·1	17·3
Raspberries	14·1	35·0	2·3	3·2
Blackcurrants	17·8	27·5	8·8	10·7
Red and White Currants	23·8	40·7	1·6	0·9
Gooseberries	30·1	48·2	6·4	5·9
Loganberries and Black-berries	23·9	29·2	1·5	1·2
Total Soft Fruit ..	—	—	31·7	39·2

Source.—Agricultural Statistics England and Wales. H.M.S.O.

In ten years, yields of all soft fruit have increased by a fifth or more with raspberries showing the most spectacular rise. This can be attributed mainly to improved husbandry but also to the availability of healthy planting materials.

The increase in yields per acre over the ten years, however, conceals the often violent fluctuations from year to year, with consequent effects on prices and on the incomes of the growers. Year to year changes in yields are shown below.

TABLE VI
Seasonal Variations in Yields of Soft Fruit, 1947-56
Percentage Change from Previous Year

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Strawberries	+12	+1	+22	-31	+40	-11	-5	+8	+11	-32
Raspberries	+73	0	-11	+27	+40	0	-5	+9	+1	-2
Blackcurrants	+35	-21	-18	+14	+47	+18	-13	-12	+30	-42
Red and White Currants	+33	+6	+7	-45	+108	+4	-18	+2	+5	-1
Gooseberries	-4	+16	+2	-43	+79	+16	-14	-57	+30	-16
Loganberries and Black-berries	-55	+226	-10	-12	+43	-8	+4	-9	-30	-13

Source.—Agricultural Statistics England and Wales. H.M.S.O.

With the exception of raspberries and blackcurrants, seasonal yields over the period moved up and down in sympathy. The most violent fluctuations in yields occurred between 1950 and 1951. In 1950 low yields were common to all fruits and the average rise in yields was 50 per cent. in the following year. In 1952 yields rose further in the case of most fruits and in 1953 yields dropped sharply. Yields in 1955 showed a large increase, resulting in another peak similar to that of 1951.

Over the ten-year period all fruits showed two or more peaks in yield and two or

more sharp drops in yield. Fluctuations in crop revenues are much less than fluctuations in yield because on a short crop prices tend to be high, while for a heavy crop prices tend to be low (p. 18).

The acreage figures for soft fruit (Table V) show an increase over the ten years in the case of strawberries, raspberries and blackcurrants, and a decline in the area under other soft fruit crops. In 1950 the peak acreage, 51,000 acres, was reached. The acreage under soft fruit has since fallen by about a quarter to 38,000 acres in 1956.

Production, in tons, of soft fruit in England and Wales followed the trends in acreage under soft fruit but it is evident that major fluctuations in yield bring about equally large fluctuations in production. Changes in output, however, are due both to changes in yield and to changes in planned production. (This is well demonstrated in an article by G. R. Allen.*) Production rose from 33,000 tons in 1945 to 86,000 tons in 1951 and by 1956 production had fallen to 52,000 tons valued at £6,522,470, following the trend in acreage.

YIELDS ON THE SUSSEX HOLDINGS

For producers on a small scale to gain an adequate living in the industry, high yields and high value sales per acre are a necessity. How far are the specialist growers doing this? The following table shows comparison of the average recorded yields on the Sussex holdings with estimated yields for England and Wales, for the two years covered by the study.

TABLE VII
Yields per Acre. Sussex Holdings and England and Wales

	1955		1956	
	Sussex Holdings	England and Wales*	Sussex Holdings	England and Wales*
	lb.	lb.	lb.	lb.
Gooseberries	9,168†	6,194	5,861†	5,219
Strawberries	4,855	4,368	3,691	2,699
Raspberries	3,959	3,976	3,279	3,886
Blackcurrants	4,017	3,931	2,768	2,285
Red and White Currants	5,765	4,648	7,467	4,063
Blackberries	3,920	2,979‡	4,126	2,587‡

* Source.—Agricultural Statistics, England and Wales. H.M.S.O.

† Leveller only.

‡ Loganberries and Blackberries.

On the specialized holdings yields of gooseberries, strawberries and raspberries, crops which bring in 35 per cent., 32 per cent. and 20 per cent. of the revenue respectively, compare reasonably with the estimates for the whole country, though one would expect the specialists to do better than this.

CROP REVENUES

The high quality of fruit produced by these growers is shown by the fact that in the two years studied the prices received were identical with the officially published prices for fresh fruit. An interesting comparison which includes prices, yields, and revenues per acre can be made with the 1955 crop results for mixed horticultural holdings in the Vale of Evesham, as in Table VIII.

* Allen, G. R. "Short-term Production Variations for Horticultural Products and the Marketing System." *The Farm Economist*, Vol. VIII, No. 6, 1956.

TABLE VIII

Prices Received, Yield and Revenue in 1955 as between the Sussex Holdings and those in the Vale of Evesham

	Net Price per lb.		Yield Per Acre		Revenue per Acre	
	Sussex	Evesham*	Sussex	Evesham*	Sussex	Evesham*
			lb.	lb.	£	£
Gooseberries	9½†	7½	9,168†	2,616	338	81
Strawberries	1/7¼	1/2¼	4,855	4,841	407	286
Raspberries	1/6¼	1/5½	3,959	2,927	327	215
Blackcurrants	1/2¾	1/2¼	4,017	2,604	246	154
Red and White Currants	1/0¼	8½	5,765	7,714	271	269
Blackberries	1/1¼	1/2¼	3,920	2,518	224	155

* *Source.*—Bristol University. Vale of Evesham Broadsheets for the cropping year 1955.

† Leveller only.

The value of sales per acre on the specialized holdings compares very favourably with the sales of the Evesham growers who sell to the Midland markets, all prices except those for blackberries being superior as also are the yields, with the exception of red and white currants. The higher prices of the Sussex fruit reflect both its quality and the advantageous London market on which the local industry is based. The Evesham growers, however, have twice the acreage of the specialist growers and a much smaller proportion under soft fruit, so that soft fruit does not feature so significantly in their total revenue. High value of sales per acre appears to be the fundamental of success and probably survival of the specialist growers.

Individual revenues per acre fluctuated widely about the average. In any one year there was little variation in price from one holding to another: the major variation was in yield. Price is affected both by time of sale (see Fig. I, Weekly prices of Soft Fruit in England and Wales, p. 18), and by the grading.

To complete the picture of sales from these holdings the prices received, yields and revenue per acre for 1956 are given below:

TABLE IX
Prices Received, Yield and Revenue, 1956

	Net Price per lb.	Yield per Acre	Revenue per Acre
		lb.	£
Gooseberries	1/0¼	5,861	333
Strawberries	2/5¼	3,611	472
Raspberries	1/10	3,279	305
Blackcurrants	1/11	2,768	268
Red and White Currants	1/0¼	7,467	413
Blackberries	1/5½	4,126	292

Prices were so much better in 1956 that despite a general fall in yields, revenue per acre from soft fruit increased from £298 in 1955 to £336.

These fluctuations in value of output per acre on the specialized holdings illustrate how the incomes of these growers can vary. The success of their business hinges on high sales per acre. The long-term nature of the rotation gives little room for manoeuvre in type of crop, and the degree of concentration on soft fruit together with limited acreage further reduces alternatives of different sources of income.

GROWERS' INCOMES

Table X shows the average net income received by the soft fruit growers over two years, compared with that in farming. The net income of the proprietors is defined as

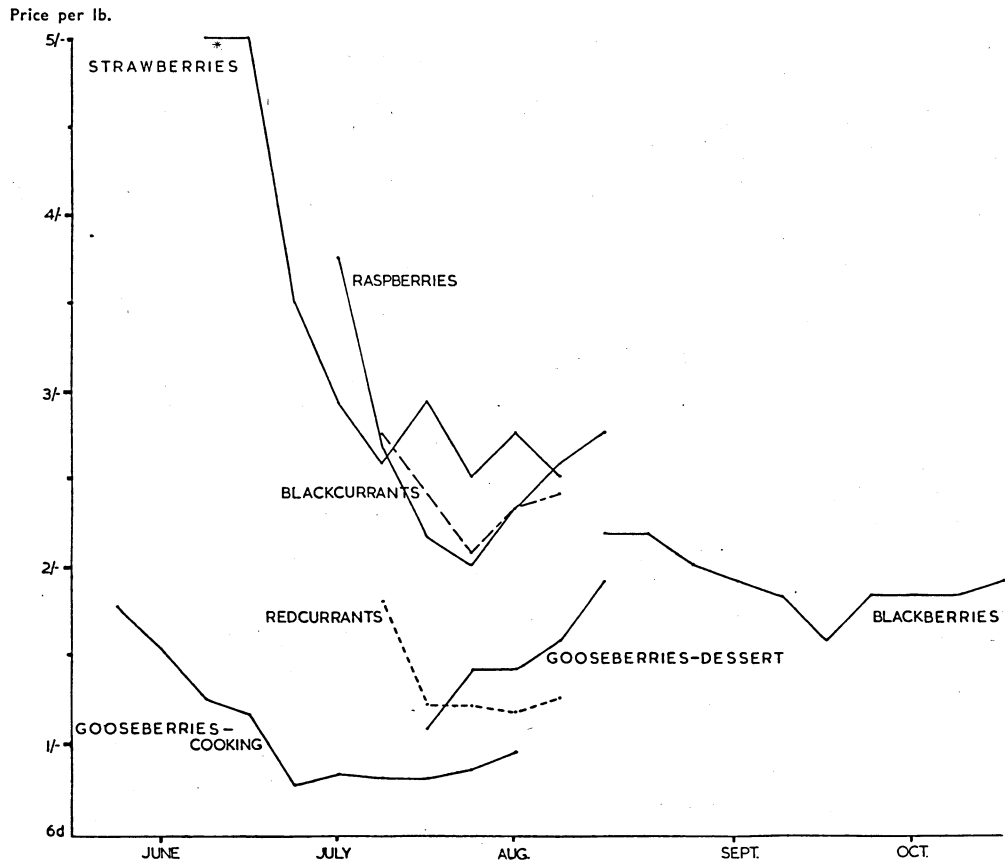


FIG. 1. WEEKLY PRICES OF SOFT FRUIT IN ENGLAND AND WALES, 1956.
1ST QUALITY.

Source.—Prices of Agricultural Produce, England and Wales. M.A.A.F.

* Royal Sovereign only.

the surplus of revenue over expenses, leaving out of account the amount due to the grower for his own manual work. The soft fruit grower is shown to be receiving a higher return than the small farmer, but his total expenditure, including unpaid labour, is greater by the same proportion. Net income in relation to cash expenditure and paid labour is much higher on the fruit holdings but this arises because of the much higher proportion of unpaid labour in total expenditure on the fruit holdings. Returns per £100 total expenditure on the fruit holdings and the small farms are similar, both being lower than those on large farms, while returns per £100 total labour are much lower on the soft fruit farms as shown in Table IV.

Management income is the residual profit when the value of the grower's and his wife's own labour has been deducted. This is the measure of the reward to the grower for his own management and investment and from this sum amounts due for repayment of interest would come. The following figures show the net incomes and management incomes, per holding, per acre of holding and per acre of soft fruit.

	Per Holding	Per Acre	Per Soft Fruit Acre
Net Income	£ 557	£ III	£ 120
Management Income	£ 154	9	—5

TABLE X

Net Income per Holding 1954-55 and 1955-56

	Soft Fruit Holdings	Farms (excluding Specialist)*	Farms 50 acres or less*
Size of Holding—acres ..	7.70	199	35
	£	£	£
'Net' Income	557	1,260	460
Per £100 Expenditure† ..	87	20	24
Per £100 Labour†	252	88	145
Per 100 Acres	11,074	648	1,276
Per £100 Rent	2,573	392‡	539‡

* Derived from *Farm Incomes England and Wales 1955-56*. H.M.S.O., 1957.

† Excluding unpaid labour.

‡ 1954-55 only.

The distribution of net and management incomes is as follows :

	Over £1,000	£500-1,000	£0-500	Loss	Number of Holdings
Net Income ..	2	2	5	1	10
Management Income	1	1	3	5	10

One holding shows an actual financial loss, but five would have shown "losses" if the value of the grower's own labour were shown as an expense.

It was clear from the individual results that though the smaller holdings received lower net incomes, increase in net income was not consistent with increase in size of holding. The losses resulting when unpaid labour is charged show that on half the holdings studied the growers could earn more by working elsewhere.

For the ten holdings together the management income as a return on investment not allowing for interest was 4 per cent. As a proportion of the year's expenses management income was 7 per cent. This return on capital and annual expenditure is almost equal to that on market garden holdings which have a similar turnover.*

In both cases, holdings of least intensity show no return on capital while holdings with a higher level of capital investment show an increasingly better return on capital.

* See Dorling, M. J. and R. R. W. Folley, "East Kent Horticulture," Wye College, 1957.

CAN PROFITS BE IMPROVED ?

COSTS AND PROFITABILITY

Examination of revenue and costs per acre on the individual holdings shows that as output rises costs do not increase at the same rate, thus establishing output as the factor which has the greater influence on profits. Since costs do rise with increase in output, however, the most suitable measure of efficiency on separate holdings is costs per £100 'net' output.

TABLE XI
Costs per £100 'Net' Output—Specialized Holdings

ALL HOLDINGS :					SELECTED HOLDINGS :				
Average Acreage 7.69 Soft Fruit Acreage 6.59 'Net' Output per Acre £330.3. 10 Holdings.					Average Acreage 3.22 Soft Fruit Acreage 3.02 'Net' Output per Acre £329.6. 5 Holdings.				
		Average	Range				Average	Range	
		£	£	£			£	£	£
<i>Prime Costs</i>									
Labour	79.9	47.7-130.2				76.4	47.7-102.7	
Manures	4.3	2.4- 5.6				4.3	3.3- 5.4	
Power and Equipment		17.2	6.6- 30.0				17.7	7.3- 30.0	
Other	2.6	1.0- 6.4				2.7	1.5- 6.4	
<i>Overhead Costs</i>									
Rent	2.2	0.9- 4.2				1.8	0.9- 3.1	
Other	6.6	1.0- 17.8				4.9	1.0- 8.2	
		112.8					107.8		

Perhaps the most striking feature of the analysis is the extreme range in costs per £100 'net' output. This alone indicates the possibilities for improving profits on the holdings with poor results and the lines along which improvement can be made. Of all costs, labour deserves the most attention. Four out of the five holdings showing profits insufficient to pay for the grower's manual work had above average labour costs, while on the three holdings with the highest profits labour costs per £100 'net' output were £20-£30 below average. High labour costs were associated on four of the unsuccessful holdings with high costs of the next most important factor, power and equipment, and on the fifth with good labour efficiency, excessive machinery costs were mainly responsible for an adverse result in spite of good labour efficiency.

Costs in relation to 'net' output show little difference for the five holdings selected for their small size and greater concentration on soft fruit, than for the ten. The selection does illustrate that the great variations in management ability occur on the larger as well as the smaller holdings. It is the ability to spread labour and equipment costs over higher outputs per acre which leads to financial success.

Success in soft fruit growing can be expressed by the difference between labour costs and the sales, so that the possibilities of profit can be stated on the following basis. As shown on page 10 one man can cope with from 1¼ to 2 acres of soft fruit. Assuming wages to be £370 per annum and receipts to be £400 an acre the following results become evident. At the one extreme of labour use, 1¼ acres per man, revenue per man is £500, and £130 only is left to cover charges above that of labour. At the other extreme, 2 acres per man, revenue per man is £800, and £430 is left to meet other expenses and leave a surplus. In the first instance no profit at all may emerge, but in the second, profit can be as much as £300 per man employed.

Individual results indicate that those growers receiving a revenue of £350 per acre of soft fruit make a surplus over the value of unpaid labour. These growers must not incur expenses on labour (including unpaid) of more than £240 an acre in order to achieve this. Where revenue reaches £450 an acre and total labour costs are kept at £250 an acre, a surplus of £50 per acre of soft fruit may be expected.

OUTPUT AND PROFITABILITY

The most successful holdings (net incomes over £700) each achieved high incomes by adopting a system of cropping which varied from the general pattern. Each decided on high output for the holding and associated this with efficient use of labour and equipment, taking care to match the picking burden with the labour supply. One cropped gooseberries, raspberries and blackberries, giving a picking season from July to October. Another cropped gooseberries only, and a third had a succession of cloche strawberries, raspberries and blackcurrants, giving a picking season lasting from May to August. On the other holdings which were less successful, the principal crops were gooseberries and strawberries with raspberries increasing where gooseberries declined, giving a picking season from June to August with a peak in July.

All holdings, whether successful or not, were growing a combination of crops giving a fairly high revenue, but the more successful growers, with the exception of the gooseberry specialist, had a more extended picking season. The more general cropping pattern gives a picking season of two months with a peak lasting four weeks.

The smaller holdings tended to grow a higher proportion of gooseberries because of the exceptional yields. The most successful growers were either those with a large acreage, specialists in certain crops, or those on the smaller holdings who could get very high yields.

ORGANIZATION FOR HIGH REVENUE

A plan for high output on a holding must start with a consideration of revenues per acre of the different kinds of soft fruit. On the assumption of high levels of production which are seen in practice and which could reasonably be expected from growers living entirely on the proceeds of soft fruit, the following are given as reasonable targets per acre for different types of fruit (1956 prices, net of marketing charges).

		<i>Size of Crop</i> lb. per acre	<i>Revenue</i> £
Gooseberries (dessert)	..	10,080	545
Strawberries	5,600	642
Raspberries	4,480	383
Blackcurrants	4,480	410
Red and White Currants		6,720	314
Blackberries	8,960	701

How far is it possible for a holding of a fairly typical size, say 6 acres, to achieve better results? For example this holding might well have five bearing acres, comprising gooseberries 3, strawberries 1, raspberries $\frac{1}{2}$ and blackcurrants $\frac{1}{2}$, leaving an acre for replacement. The net revenue for the holding at the prices and weights given above would be approximately £2,700 or £540 per bearing acre. The next step is to consider how the production can be organized and here the feature presenting most difficulty is the supply of adequate labour for picking. The total picking period is nine weeks, ending June 23rd to August 18th (see Fig. 2. Per Acre Weekly Picking Requirements) and the

picking requirement 2,000 hours.* In the four-week peak period from weeks ending July 14th to August 4th, 1,440 hours in total or 360 hours per week are required. Though the grower and his regular staff may well do some of the picking, they will be occupied mainly in the packing shed and in supervision so that at least five or more women working 50 hours per week will be required for the peak and one or two for the rest of the period. Such a large picking force, even if augmented by evening workers, may be difficult to secure at the peak period in a district where so many gooseberries are grown.

Labour requirement,
hours per acre.

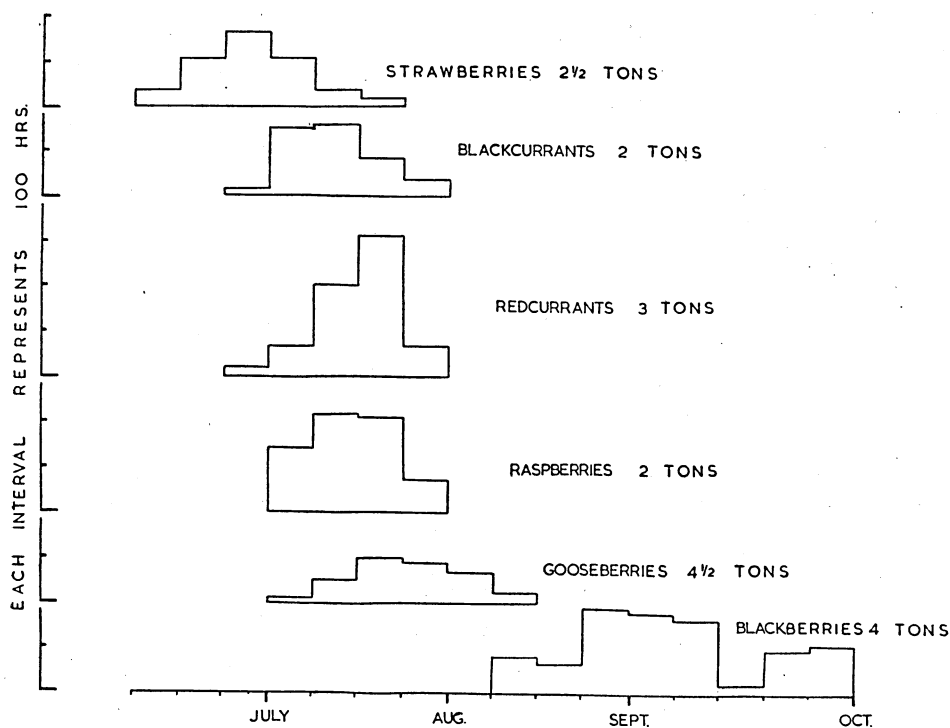


FIG. 2. PER ACRE WEEKLY PICKING REQUIREMENTS

NOTE.—These figures apply to South-East England

Let us assume that so much help in the peak period is not so readily available. By replacing one acre of gooseberries with one of blackberries (net revenue £701) the total revenue becomes £2,830 and picking requirements for the whole period 2,600 hours (blackberries 10 lb. per hour). Of this amount only 1,190 hours or 300 per week are required for the four-week peak period, reducing the pressure at this time by one-sixth and extending the picking season to October. The greatest demand for blackberry pickers—170 hours per week—comes in the weeks ending September 1st to 15th. This programme would provide work for two women continuously from June to October and the additional revenue would more than compensate for the extra picking wages and packing costs.

An alternative giving higher total revenue and further easing the July picking peak would be to replace the raspberries and blackcurrants with blackberries, retaining the

* The assumed picking rates, in lb. per hour, are: dessert gooseberries 30, strawberries 12, raspberries 7, and blackcurrants 10. These are average rates for the season. They have been calculated from records supplied by growers covering two seasons.

gooseberries at 3 acres. This gives a total revenue of £2,980. Net picking requirements for the whole season become 2,370 hours and requirements for the four peak weeks 900 hours or 225 hours per week. Following the July peak, picking requirements are the same as in the previous example.

Because costs other than casual labour are more or less fixed, returns earned from an hour's picking should have a strong influence on cropping decisions. An hour's picking results in the following values* : dessert gooseberries 32s. 6d., strawberries 23s. 1d., blackcurrants 18s. 4d., raspberries 17s. 1d., blackberries 15s. 8d., and red and white currants 9s. 3d. On a good crop, picking wages amount to at least one-third of total labour costs. Piece rates usually work out to give pickers similar earnings per day from each crop.

Selection of varieties, too, helps to achieve high revenue per acre. Varieties can be chosen with an eye on the higher early prices as in the case of strawberries or perhaps the higher late prices as in the case of raspberries. A succession of varieties of one crop may give, as in the case of strawberries, a picking period of up to six weeks. Where fruits grown result in a different picking peak, varieties can often be selected which reduce the weekly competition for picking. For example, where dessert gooseberries, raspberries and strawberries are the main fruits, early strawberry varieties and early raspberry varieties precede the dessert gooseberry picking, picking demands for one fruit falling as that for another increases (see Fig. 2).

CONCLUSION

Perhaps the most revealing feature brought out by this small scale study is the low level of profitability of soft fruit growing on small specialized holdings. Average profits are similar to those on small dairy farms but profits on individual holdings vary widely, those on half the holdings being insufficient to cover family labour.

Profits are influenced more by output per acre than by expenses. On holdings similar in size profits vary, and the same holding may experience good and bad seasons. The most successful growers are either those with a large acreage, specializing in certain crops, or those on a smaller acreage who can get very high yields. On the smaller holdings where labour is not fully occupied throughout the year, consideration should be given to keeping livestock, especially poultry, or to raising fruit output. For example, egg production will bring in £1 per bird, over all expenses other than labour ; and net receipts from cloche strawberries amount to 10s. per yard run and exceed £1,000 an acre. It is notable that on these smaller holdings, gooseberries, the least intensive crop, predominate.

The specialized holdings are hardly big enough to become "mixed" on the market garden pattern. The growers have to compete with market gardeners who sell soft fruit and with soft fruit grown on general and fruit farms. Success is linked with the production of high value crops in units which fully absorb the regular labour supply.

Low capital requirements for entry make this one of the easiest types of farming to take up, but high growing risks make financial success less certain. In many cases other motives than profit, such as desire to supplement income, or the sheer love of producing soft fruit, influence a grower's choice of occupation and even very low financial returns do not seem to deter established growers from remaining in production.

* At 1956 net prices.

APPENDIX

TABLE A

Expenditure and Revenue per Holding
Average of 1955 and 1956 Seasons. 10 Holdings
Holding acreage 7.69. Soft Fruit Acreage 6.59

<i>Expenditure</i>	£	£	<i>Revenue</i>	£	£
<i>Labour</i>			<i>Soft Fruit</i>		
Unpaid	403		Strawberries	338	
Regular	461		Raspberries	543	
Casual—picking	231		Blackberries	260	
Casual—other	190		Blackcurrants	152	
		1,285	Red and White Currants	25	
<i>Seeds, Plants and Packing</i>			Gooseberries	557	
<i>Materials</i>			Other	53	
Seeds and Plants	31				1,928
Packing Materials	107		<i>Top Fruit</i>		34
		138	<i>Vegetables</i>		55
<i>Other Materials</i>			<i>Livestock Receipts</i>		222
Manures	78		<i>Sundries</i>		34
Sprays	13				
Sundries	25				
		116			
<i>Power and Equipment</i>					
Repairs	56				
Depreciation	98				
Petrol and Oil	54				
Small Tools	27				
Transport	16				
Contract	8				
		259			
<i>Livestock Expenses</i>	205				
		205			
<i>Overhead Costs</i>					
Rent	40				
Telephone	14				
Insurance	13				
Bank and Accounting	14				
Water and Electricity	5				
Sundry	30				
		116			
<i>Total Expenses</i>		2,119			
<i>Management Income</i>		154			
		<u>£2,273</u>			<u>£2,273</u>
Unpaid Labour	403				
Other Expenses	1,606				
Management Income	154				
		<u>£2,273</u>			<u>£2,273</u>

TABLE B

*Expenditure and Revenue per Soft Fruit Acre
Average of 1955 and 1956 Seasons. 10 Holdings
Holding Acreage 7.69. Soft Fruit Acreage 6.59*

<i>Expenditure</i>				<i>Revenue</i>			
<i>Labour</i>				<i>Soft Fruit</i>			
		£	£			£	£
Unpaid		135.7		Strawberries		101.6	
Regular		62.0		Raspberries		53.7	
Casual—picking		28.0		Blackberries		5.6	
Casual—other		20.8		Blackcurrants		26.8	
			246.5	Red and White Currants		3.7	
<i>Seeds, Plants and Packing</i>				Gooseberries		123.8	
<i>Materials</i>				Other		1.8	
Seeds, Plants		6.5					317.0
Packing materials		16.0		<i>Top Fruit</i>			12.8
			22.5	<i>Vegetables</i>			13.0
<i>Other Materials</i>				<i>Livestock Receipts</i>			50.9
Manures		12.8		<i>Sundries</i>			5.8
Sprays		3.0					
Sundries		4.1					
			19.9				
<i>Power and Equipment</i>				<i>Total Revenue</i>			399.5
Repairs		10.6		<i>Deficit</i>			7.6
Depreciation		19.3					
Petrol and Oil		11.6					
Small Tools		4.2					
Transport		0.7					
Contract		3.3					
			49.7				
<i>Livestock Expenses</i>			46.7				
<i>Overhead Costs</i>							
Rent		6.3					
Telephone		3.4					
Insurance		2.1					
Bank and Accounting		2.7					
Water and Electricity		0.9					
Sundry		6.4					
			21.8				
			£407.1				£407.1

TABLE C

Selected Holdings. Expenditure and Revenue per Holding
Average of 1955 and 1956 Seasons. 5 Holdings
Holding Acreage 3.22. Soft Fruit Acreage 3.02*

<i>Expenditure</i>	£	£	<i>Revenue</i>	£	£
<i>Labour</i>			<i>Soft Fruit</i>		
Unpaid	362		Strawberries	227	
Regular	82		Raspberries	49	
Casual—picking	98		Blackberries	—	
Casual—other	45		Blackcurrants	9	
		587	Red and White Currants	2	
<i>Seeds, Plants and Packing</i>			Gooseberries	677	
<i>Materials</i>			Other	—	
Seeds and Plants	19				964
Packing Materials	27	46	<i>Top Fruit</i>		33
			<i>Vegetables</i>		7
<i>Other Materials</i>			<i>Livestock Receipts</i>		—
Manures	40		<i>Sundries</i>		9
Sprays	5				
Sundries	22	67			
<i>Power and Equipment</i>					
Repairs	41				
Depreciation	67				
Petrol and Oil	37				
Small Tools	8				
Transport	3				
Contract	9	165			
<i>Livestock Expenses</i>	—	—			
<i>Overhead Costs</i>					
Rent	15				
Telephone	11				
Insurance	11				
Bank and Accounting	8				
Water and Electricity	5				
Sundry	17	67			
<i>Total Expenses</i>		932			
<i>Management Income</i>		81			
		<u>£1,013</u>			<u>£1,013</u>
Unpaid Labour		362			
Other Expenses		570			
Management Income		81			
		<u>£1,013</u>			<u>£1,013</u>

* Size 2-5 acres. Output almost entirely soft fruit. Labour mainly family.

TABLE D

Selected Holdings. Expenditure and Revenue per Soft Fruit Acre
Average of 1955 and 1956 Seasons. 5 Holdings
Holding Acreage 3.22. Soft Fruit Acreage 3.02*

<i>Expenditure</i>			<i>Revenue</i>		
<i>Labour</i>	£	£	<i>Soft Fruit</i>	£	£
Unpaid	187.3		Strawberries	106.8	
Regular	6.3		Raspberries	13.6	
Casual—picking	24.1		Blackcurrants	6.4	
Casual—other	18.2		Red and White Currants	10.3	
		235.9	Gooseberries	184.3	
<i>Seeds, Plants and Packing</i>					321.4
<i>Materials</i>			<i>Top Fruit</i>		18.7
Seeds and Plants	6.0		Vegetables		2.9
Packing Materials	11.2		Sundries		3.8
		17.2			
<i>Other Materials</i>					
Manures	13.1				
Sprays	1.8				
Sundries	4.7				
		19.6			
<i>Power and Equipment</i>					
Repairs	10.3				
Depreciation	18.0				
Petrol and Oil	13.2				
Small Tools	1.3				
Transport	0.3				
Contract Work	4.8				
		47.9			
<i>Overhead Costs</i>					
Rent	4.9				
Telephone	4.1				
Insurance	2.3				
Bank and Accounting	2.2				
Water and Electricity	1.1				
Sundry	4.4				
		19.0			
<i>Total Expenses.. ..</i>		339.6			
<i>Management Income</i>		7.2			
		346.8			346.8
<i>Unpaid Labour</i>		187.3			
<i>Other Expenses</i>		152.3			
<i>Management Income</i>		7.2			
		£346.8			£346.8

* Size 2-5 acres. Output almost entirely soft fruit. Labour mainly family.

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