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FINANCIAL RESULTS ON ELEVEN MARKET GARDEN HOLDINGS IN CORNWALL, DEVON AND DORSET

5-Year Summary 1952/53 to 1956/57

by

HELEN M. COLE, B.Sc. (Econ.)

Price Two Shillings and Sixpence

I, COURTENAY PARK,
NEWTON ABBOT,
DEVON.

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ACKNOWLEDGEMENTS

On behalf of the Department of Agricultural Economics at Newton Abbot I offer grateful acknowledgement to the Horticulturists of the area who supplied the information on which this report is based. We need the help of more such growers in order to improve the representativeness of the data relating to the organisation of this most valuable segment of primary food production in South West England.

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Provincial Agricultural Economist.

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INTRODUCTION

The sample of market garden holdings, within the group of 200 to 300 farms included annually in the Farm Management Survey, has so far been very small. Although the sample reached nearly twenty in the early 1940's its composition changed and the number fell towards the end of the decade but in 1952 the group was again enlarged.

From 1952/53 to 1956/57 the financial results of eleven identical holdings were studied and it was thought that a summary of them and the trends emerging over the period, would prove interesting to those concerned.

THE SAMPLE

Location

Six out of the eleven* holdings were scattered over the southern part of Devon; three were in the Wimborne to Bournemouth district and the remaining two in Cornwall, of these one was situated on the Cornish side of the Tamar Valley and the other further west.

Size of Holding and of Business

All the holdings, except one of over 40 acres, came within the range of from 1 to 14 acres, see Table 1.

However, size of holding did not always bear much relation to size of business, measured in terms of gross output. The largest five-year average gross outputs, of over £10,000, were obtained from two holdings of 13 and 14 acres; the smallest, of less than £2,000, from three holdings in the middle of the acreage range.

These highest and lowest gross outputs were reflected in high and low average net farm incomes, though annual variations were very wide in some instances, in one case it ranged from £400 to £1,900. The lowest gross output was accompanied by an average negative net farm income. It is perhaps interesting to note that on holdings 9, 10 and 11 the paid labour input was less than the family labour input, suggesting that on some family holdings the owners seem content with a less ambitious income.

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* This group of eleven holdings is too small a sample to be regarded as representative of market gardening in the three counties.

Table 1. Five-Year Average Gross Output; Total Costs and Net Farm Income per Holding, 1952/53 to 1956/57

11 Market Gardens

Grower	Acres	Gross Output	Total Costs	Net Farm Income
		£	£	£
1	46¾	8610	6927	1683
2	13½	11465	10163	1302
3	13	10102	9069	1033
4	½	3354	2484	870
5	3¼	3994	3346	648
6	7	2148	1572	576
7	1	2194	1767	427
8	1	2158	1742	416
9	7¼	1437	1202	235
10	4	1230	817	413
11	3½	1421	1687	-266

Types and Intensity of Production

Five of the eleven holdings produced only outdoor crops but on two of them there was a small additional livestock enterprise. Financially flower crops made by far the largest contribution to the total gross output, with soft and top fruit second, followed by vegetables and finally livestock.

The remaining six holdings produced glasshouse crops covering about 5¼ acres, half of which was heated and their gross output ranged from an average of 40% to 100% of the total. Livestock featured on three of these holdings. On one of them, it was very small, on another it was introduced during the period of this study and on the third the livestock enterprise increased appreciably over the five years.

In presenting the analysis of type of production, Table 2, the holdings have been grouped according to intensity of production, that is, of average gross output per acre in ascending intervals of £250. It is not surprising to find the greatest intensity on the smallest acreages and the lowest gross output per acre on the largest holding.

The gross output figures in Table 2, ranging from just under £200 to

over £7,000, show an extraordinarily wide variation in intensity of land use.

Table 2. Five-Year Average Gross Output per Acre and Analysis of Type of Production per Holding, 1952/53 to 1956/57

11 Market Gardens

Grower	Acres	Gross Output per Acre	Output Group	Type of Production					Total
				Vegetables	Fruit	Glasshouse	Outdoor flowers	Livestock	
		£		%	%	%	%	%	%
1	46¾	185)	Under	65	22	-	3	10	100
9	7¼	198)	£250	-	4	-	96	-	100
6	7	307)	250-500	6	43	-	51	-	100
10	4	308)		2	24	-	68	6	100
11	3½	406)		12	28	-	60	-	100
-	-	-	500-750	-	-	-	-	-	-
3	13	777)	750-1000	10	2	59	29	-	100
2	13½	849)		14	-	66	20	-	100
5	3¼	1229)	Over 1000	37	-	41	6	16	100
8	1	2158)		6	-	72	13	9	100
7	1	2195)		-	-	98	-	2	100
4	½	7378)		-	-	100	-	-	100

As output per acre increased there was a parallel but smaller increase in labour input. On the holding with the lowest output per acre one man equivalent was employed per 4 acres but the highest output required the employment of one man equivalent for a quarter of an acre. Thus the range in output per man equivalent was relatively small—from £600 to £800 on all but three holdings. These figures are shown in Table 5.

GROUP TRENDS OVER THE 5 YEARS. 1952/53 to 1956/57

Taking the groups as a whole, net farm incomes fluctuated over the five years but showed no definite tendency to rise or fall. If, however, one reduces the net farm income by a sum covering the labour input of the

grower and his wife (on the minimum wage rate basis) the figures for the return to management and to the capital invested in the business do show a small downward trend.

Table 3. Five-Year Group Average Net Farm Income and Management and Investment Income on 11 Holdings, 1952/53 to 1956/57

	1952/3	1953/4	1954/5	1955/6	1956/7
	£	£	£	£	£
Net Farm Income	666	508	802	667	693
Grower and Wife	293	300	310	345	365
Management and Investment Income	373	208	492	322	328

This five-year period was one of considerable inflation, the Central Information Office Cost of Living Index shows a 12% increase. The net farm incomes of these growers did not, therefore, rise, on average, with the rise in the cost of living. Thus one can either say that with roughly the same income they were able to buy less in the fifth than in the first year or, if one allows for an increasing reward for the grower's own labour, in line with the increase in wages, then the margin of return over costs fell in value during the period.

Over the five years two kinds of trends could be distinguished within the group of eleven growers; first a slight fall in the amount of labour input and, secondly, increases in the gross outputs of three of the five types of production, especially in livestock, and a reduction in that of fruit.

Five growers reduced the amount of labour employed. In two instances this was accompanied by a slight downward trend in total output and in output per man equivalent, although the latter fell less than the output per acre. On the other two holdings a reduction in labour was accompanied by an increase in total output and therefore an even larger increase in output per man equivalent. Thus a genuine increase in labour efficiency took place.

The livestock output showed the largest expansion, but the group average reflects developments that occurred mainly on two holdings. On one of them this increased from 2% to 20% of the total gross output; on the second, livestock was introduced during the period and by the fifth year accounted for 19% of the total output.

It was on these holdings and especially on one of them that the most significant changes took place. In addition to expanding the livestock enterprise a very diverse cropping programme was gradually simplified and a few successful crops were intensified. This resulted in a large increase in output per acre and per man equivalent and converted a management and investment income loss into a positive and useful surplus.

Trends in the annual average outputs of the horticultural enterprises were less well defined and reflect seasonal price changes in addition to changes in crop production. On balance there was a slight increase in the acreages devoted to vegetables and a slight decrease in that producing soft and top fruit.

The total area of glass increased over the five years by 2% and the heated area by 14 % or from 2¼ to nearly 3 acres. Tomatoes accounted for about two-thirds of the glasshouse output.

Table 4. Five-Year Trend in Man Equivalents Employed and in Average Types of Production Outputs

Year	Man Equivs. Employed	Av. Gross Output/ Man £	Average Gross Output per Holding											
			Outdoor Vegs.		Fruit		Glass-house		Outdoor Flowers		Live-stock		Total	
			£	Ix. No.	£	Ix. No.	£	Ix. No.	£	Ix. No.	£	Ix. No.	£	Ix. No.
1952/53	67¾	662	965	100	363	100	2033	100	703	100	86	100	4151	100
1953/54	70½	661	846	88	435	120	1971	97	760	108	108	126	4119	99
1954/55	67¾	755	920	95	386	106	2151	106	820	117	155	180	4432	107
1955/56	64¾	743	881	91	306	84	2436	120	728	104	215	250	4567	110
1956/57	63¼	791	984	102	282	78	2263	111	817	116	233	271	4600	111

FIVE-YEAR TRENDS ON THE INDIVIDUAL HOLDINGS

A five-year average of each holding's results has its value for comparative purposes but it obscures the important year to year changes that occurred on each one. For this reason an indication not only of the level of production intensity but of trends in labour input, gross output and net farm incomes over the five years for the individual holdings is given in this section.

In spite of the diversity in size and type of production represented in this small group, comparisons will be more meaningful if it is divided into two sub-groups.

(a) Outdoor Production Only

Five holdings produced only outdoor crops with an average input and output of £500 an acre or less.

(b) Glasshouse Production with or without some Outdoor Crops

Six holdings with varying proportions of glasshouse production had an average input and output of well over £500 an acre.

Table 5 shows the comparative five-year average levels of land and labour input, intensity of production, labour efficiency and net farm incomes obtained on the individual holdings in each sub-group.

Table 5. Five-Year Average Land & Labour Inputs, Gross Outputs & Net Farm Incomes - Eleven Holdings, 1952/53 to 1956/57

Outdoor Production Only

Grower	Acres	Gross Output per Acre	Total Cost per Acre	Man Equivalents	Acres per Man Equivalent	Gross Output per Man Equiv't	Total Net Farm Income
		£	£			£	£
1	46¾	185	149	12·2	3·83	707	1683
6	7	307	227	3·4	2·04	626	576
10	4	308	204	1·8	1·80	704	413
9	7¼	198	166	2·4	3·06	603	235
11	3½	406	484	4·1	·86	347	-266
Group Av.	13½	281	246	4·8	2·32	597	528

Glasshouse Production with or without some Outdoor Crops

2	13½	849	753	16·1	·84	714	1302
3	13	777	698	13·5	·96	757	1033
4	½	7378	5464	3·3	·15	1018	870
5	3¼	1229	1030	4·2	·77	957	648
7	1	2194	1767	3·1	·33	711	426
8	1	2158	1741	2·7	·37	802	417
Group Av.	6½	2917	2291	8·6	·68	992	939

(a) Outdoor Production Only

This small group of growers provides a remarkably wide variation in five year average net farm incomes ranging from nearly £1,700 to a loss of over £250. A five-year average of the growers' "wage" amounted to £330. Consequently holdings 10 and 11 did not even earn a full remuneration for the grower's own labour, let alone a reward for managerial skill or interest return on capital invested in the business.

In comparing growers' results it should be remembered that their policies and performances reflect varying income needs, production preferences and capital resources as well as managerial and technical abilities. For instance, a grower with a young family will have very different income needs from one who is nearing retiring age, while growers with few family commitments again differ in the standards they set themselves. In this 'outdoor only' group, holding 1 has to provide a living for two households, but the owners of holdings 10 and 11 have relatively modest requirements. The position on number 10 is, therefore, less serious than the figures might suggest.

Comparisons on the basis of even this simple analysis reveal the basic problems on holdings 10 and 11. A low level of costs on holding 10 produces a low gross output per acre, but it is evident that a level of gross output per acre that brings a high total net income on a holding of 40 to 50 acres is hardly adequate on one of 7 acres. If a higher net income is desired it will be attained by an intensification of land use, by producing higher value crops, or perhaps increasing yields of crops already being grown.

On holding 11 it is clear that, per acre, the total costs are too high for the gross output achieved. Labour appears to be the unduly large input item and gross output per man equivalent is lower on holding number 11 than on any of the other holdings in the group. A glance at the acres per man equivalent column in Table 5 also reveals that the small area of less than one acre worked per man is nearer that of the more intensive glasshouse producer than that of the grower engaged only in outdoor production.

On three holdings in this group, numbers 1, 9 and 11, there was a small reduction in labour input, see Table 6. The effect of this on gross output per acre and per man equivalent is only partially revealed because of the fluctuations that occurred in market prices for, and yields of, some horticultural crops. However, in the case of holdings 9 and 11 it would appear that a slight fall in labour input was accompanied by a slight fall in gross output per acre and per man equivalent. The fall in gross output per acre on holding number 1 was due to a small increase in acreage in 1955/56; gross output per man equivalent actually rose in the last two years.

Table 6. Annual Variations in Labour Input, Gross Output and Net Farm Income - Five Holdings

Outdoor Production Only

	Year	Gross Output per Acre	Man Equivalents	Gross Output per Man Equiv't	Total Net Farm Income
		£		£	£
Grower No. 1.	1952/53	180	12.4	649	1253
Acres - 46¾	1953/54	197	12.6	700	1916
Acres per Man Equivalent - 3.83	1954/55	196	13.2	664	1948
	1955/56	177	11.8	732	1156
	1956/57	173	11.3	791	2142
Grower No. 6.	1952/53	261	3.4	535	286
Acres - 7	1953/54	312	3.4	641	705
Acres per Man Equivalent - 2.04	1954/55	356	3.5	709	904
	1955/56	336	3.5	672	698
	1956/57	270	3.3	565	289
Grower No. 10.	1952/53	285	1.9	612	385
Acres - 4	1953/54	366	1.7	887	640
Acres per Man Equivalent - 1.80	1954/55	317	1.7	745	485
	1955/56	240	1.8	542	174
	1956/57	333	1.8	732	380
Grower No. 9.	1952/53	252	2.6	716	666
Acres - 7¼	1953/54	217	2.7	588	- 27
Acres per Man Equivalent - 3.06	1954/55	189	2.4	561	186
	1955/56	152	2.1	529	131
	1956/57	181	2.1	623	219
Grower No. 11.	1952/53	385	4.1	333	-220
Acres - 3½	1953/54	495	4.9	356	-213
Acres per Man Equivalent - 0.86	1954/55	495	4.1	421	- 12
	1955/56	359	3.8	330	-494
	1956/57	296	3.5	293	-389

(b) Glasshouse Production with or without some Outdoor Crops

The individual results on these six holdings have been sub-divided into two sections—one section relating to three holdings maintaining a relatively constant level of physical output over the five years and the other section, also of three holdings, where expansion programmes were being carried out.

The five-year average net incomes on holdings 2, 3 and 4 appear to be relatively high but, as was the case on number 1, the holdings with the highest incomes, namely numbers 2 and 3 had to provide a living for two households.

A large annual variation in net farm incomes was the most striking feature of the five years' results on these three holdings—a variation of up to £1,000 between one year and the next occurred on all three of them.

Table 7. Annual Variations in Labour Input, Gross Output and Net Farm Incomes - Three Glasshouse Holdings

Level Production

	Year	Gross Output per Acre	Man Equiva-lents	Gross Output per Man Equiv't	Total Net Farm Income
		£		£	£
Grower No. 2.	1952/53	841	15.8	721	1513
Acres - 13½	1953/54	779	16.9	624	517
Acres per Man Equiv-alent - 0.84	1954/55	867	16.4	713	1733
	1955/56	879	16.1	737	1556
	1956/57	880	15.2	781	1192
Grower No. 3.	1952/53	817	14.6	729	1915
Acres - 13	1953/54	751	15.4	634	821
Acres per Man Equiv-alent - 0.96	1954/55	735	14.1	680	429
	1955/56	834	11.7	929	1486
	1956/57	748	11.9	815	515
Grower No. 4.	1952/53	6672	2.7	1115	883
Acres - ½	1953/54	6518	3.2	915	685
Acres per Man Equiv-alent - 0.15	1954/55	8422	3.4	1126	1440
	1955/56	8112	3.6	1019	902
	1956/57	7166	3.6	915	438

Another feature was the larger increase in costs than in gross output from a relatively constant level of production, see Table 8.

Manual labour was a very large input item. On these three holdings it accounted for 44% of total costs over the five years and in that period the minimum wage rose by 25%. Another major input item, fuel, accounting for 16% of total costs on these holdings increased even more. The price of large anthracite rose by 52% and that of coke by 66%.

Table 8. Five Years' Total Costs and Gross Output - Three Glasshouse Holdings

Level Production

	Total Costs		Total Gross Outputs	
	£	Index No.	£	Index No.
1952/53	20705	100	25016	100
1953/54	21217	102	23240	93
1954/55	21489	104	25091	100
1955/56	22450	108	26394	106
1956/57	22719	110	24864	99

Of the holdings engaged in expansion programmes, numbers 7 and 8 made, on average, relatively low net farm incomes, less than £100 over and above the standard wage. Expansion from positions giving low net incomes was less rapid than on holding 5, where gross output nearly doubled in five years.

Table 9. Annual Variations in Labour Input, Gross Output and Net Farm Incomes - Three Glasshouse Holdings

Expanding Production

	Year	Gross Output per Acre	Man Equivalents	Gross Output per Man Equiv't	Total Net Farm Income
		£		£	£
Grower No. 5. Acres - 3¼ Acres per Man Equivalent - 0.77	1952/53	864	4.5	628	64
	1953/54	955	4.3	724	252
	1954/55	1143	3.5	1073	732
	1955/56	1473	4.3	1103	914
	1956/57	1710	4.4	1257	1280
Grower No. 7. Acres - 1 Acres per Man Equivalent - 0.33	1952/53	1945	3.1	629	377
	1953/54	1604	2.8	575	21
	1954/55	2167	2.8	782	490
	1955/56	2323	3.4	681	377
	1956/57	2934	3.3	886	871
Grower No. 8. Acres - 1 Acres per Man Equivalent - 0.37	1952/53	1755	2.9	616	205
	1953/54	1656	2.7	623	270
	1954/55	2188	2.6	829	489
	1955/56	2408	2.7	895	432
	1956/57	2782	2.7	1046	685

The expansion on one holding, number 7, was brought about wholly through the introduction of heating to previously unheated glasshouses, A different kind of change took place on the other two holdings. On number 5 a complex cropping programme was gradually simplified; a considerable increase in glasshouse production occurred (the area of heated glass was extended slightly) and a small livestock enterprise was expanded until in the last year it made up one-fifth of total gross output. Thus, although the financial return from outdoor vegetable and flower crops was similar throughout, its contribution to total gross output fell from about one-half to one-quarter.

There was also an increase in gross output from the glass section on number 8, resulting from an intensification of production, rather than from amy increase in area or proportion heated. A livestock enterprise was introduced and by the last year it had increased to one-fifth of the total gross output. Finally, a small amount of outdoor vegetable production was dropped and outdoor flower production increased.

Table 10. Five Years' Total Costs and Gross Output - Three Glasshouse Holdings

Expanding Production

	Total Costs		Total Gross Outputs	
	£	Index No.	£	Index No.
1952/53	5862	100	6508	100
1953/54	5822	99	6365	98
1954/55	6358	108	8069	124
1955/56	7796	133	9519	146
1956/57	8437	144	11273	173

To achieve, in five years, an overall increase of 73% in total gross output, total costs on these three holdings rose by 44%. For number 7 the main input increases occurred in the items fuel and plant and machinery (involving increased depreciation charges). For the other two holdings, feedingstuffs increased more than any other item. In addition, number 5 incurred increased costs for depreciation on new plant and machinery, fuel seeds and plants etc. Labour costs did not increase beyond the rise in minimum wage rates over the period on any of these three holdings.

CAPITAL INVESTMENT AND RETURN TO MANAGEMENT ON SIX GLASSHOUSE HOLDINGS

The highly intensive production practised on market garden land is

reflected in high land values and, therefore, in high rents or rental values. Where, in addition, there is glass, either as permanent structures, portable houses or frames and Dutch lights, the capital investment per acre is also high. When an allowance for interest on capital is made and deducted from the management and investment income how much is left over for managerial skill?

An attempt has been made in Table 11 to assess this figure for each of the six glasshouse holdings after allowing 5% interest on a five-year average of the overall capital investment and deducting it from the five-year management and investment income.

Table 11. Five-Year Average Capital Investment; 5% Interest; Management and Investment Income and Return to Managerial Skill on Six Glasshouse Holdings 1952/53 to 1956/57

Grower	Glass Acreage	Capital* Invested	Interest @ 5%	Management & Investment Income	Return to Management
		£	£	£	£
2	2.77	9907	495	964	469
3	.97	5415	271	678	407
4	.40	4510	226	546	320
5	.27	2861	143	328	185
8	.20	1934	97	25	- 72
7	.63	4122	206	62	-144

* An annual 10% depreciation of the capital invested in glass (1952 values were written down ones) plant and implements on each of the six holdings has been included in costs, as has also a rental value charge of 5% on the purchase price of the land. The five-year average of the overall capital investment has been arrived at by averaging the opening and closing valuations for glass structures (including improvements) plant and implements, growing crops, live and dead stock. No allowance is made for cash to finance the year's operations.

On three of the holdings, as already mentioned, expansion was taking place and for two of them the management and investment income was not even sufficient to cover a 5% interest charge on the invested capital

Variations in the annual return to management are similar, of course,

to the variations on the management and investment income, as set out in Tables 6, 7 and 9, but at a level reduced by the amount of interest in each case.

The management income which for two holdings was negative on average had, by the fifth year, been converted to a positive one but two others that year showed a loss of between £100 and £200.

CONCLUDING NOTES

To draw conclusions from a general analysis of such a small group, even over a five-year period, would be rash. The best that can be done is to sum up what has occurred and state one or two questions that suggest themselves.

During the five years covered by this study there was a considerable increase in costs, particularly in wages which accounted for about 50% of total costs on most holdings; also in fuel, of major importance on those carrying glasshouses.

The three glasshouse growers who operated throughout at maximum production in their particular lines appeared to suffer most from rising costs, since the gross output from their exclusively horticultural enterprises hardly increased at all while total costs rose by 10%. For them the question arises—is there scope of further intensification, or substitution of some higher return crops for the existing ones?

Prospects looked brighter for the three glasshouse growers who expanded their businesses, provided that for two of them, at least, the trend continues. Gross output increased each year by a larger amount than total costs. On two of the holdings salvation lay partly in the development of a livestock enterprise. For intensive market gardens this has two advantages. Compared with horticultural crops the labour requirements are relatively small and on both these holdings the livestock was handled by the same labour staff. Secondly, the intensively worked land benefits greatly from the organic manure produced as a residual or by-product of the livestock section.

For the five holdings producing only outdoor crops changes in gross output and in total costs were smaller than on those with glasshouses. For the group as a whole gross output rose approximately 10% then fell back to about the 1952/53 level. Total costs followed the same pattern. That the increase in total costs did not outstrip that in gross returns was due to the fact that the input of paid labour was reduced on three out of the five holdings.

The question suggested by the results in this last group is whether

a grower with less than five acres can make a financial success without the greater intensity that some additional glass could bring. The most obvious need of three of the five growers who produced only outdoor crops and made an average management and investment loss, is to intensify their production. Without a detailed analysis it is impossible to do more than suggest á few ways in which this could be done. For example, input resources may not be organised to the best advantage, yields may not be high enough, the marketing of crops may not be sufficiently well timed or the chosen crops may not bring a sufficiently high return to cover the relatively fixed overhead charges. This could apply particularly to the smallest producer (in acreage) of only outdoor crops where the introduction of a little glass or even some livestock might prove a solution.