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COSTS AND RETURNS OF GROWING POTATOES

South West Province, 1949 Crop.

by

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&

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FOREWORD.

K.G. Tyers and S.A. Bradburn were responsible for much of the field work and the subsequent analyses of the data for this investigation.

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Any queries arising out of the information contained in this report should be addressed to the Provincial Agricultural Economist, 1, Courtenay Park, Newton Abbot.

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An investigation into costs, returns and margins of growing potatoes in certain districts of the South West Province was undertaken in the 1949 Crop Year, and the results of this investigation are summarised in this report, the late appearance of which is regretted. However, a preliminary statement summarising very briefly the principal financial data relating to the early potato crop was prepared in the Autumn of 1949. This was possible because the growing and marketing of the early potato crop occupies a very much shorter space of time than does that of main crop potatoes, the final results of which, in a number of instances, are not available until a much later date. In fact, the whole process of growing and marketing early potatoes often takes only a few weeks, compared with a period of up to 18 months for main crop potatoes.

This report sets out the results of two investigations: (a) Costs, Returns and Margins of producing 'Early' potatoes on 21 farms in Cornwall and (b) Costs, Returns and Margins of producing 'Main crop' potatoes on 50 farms located in two districts of Devon and one district of Cornwall. A similar investigation was undertaken, covering approximately the same localities, in 1942, but was confined to main crop potatoes only. Despite some differences in both the composition of the sample and the methods used in computing costs in the two periods, the figures have been made sufficiently comparable, for all practical purposes, to suggest in very general terms the extent to which profitability of growing main crop potatoes in the South West has changed since the early war years.

Broadly, the figures indicate an increase in the cost per acre from £33 in 1942 to £47 in 1949, an increase of 42%. However, for the farms studied the average yield per acre in 1949 was a little over ½ ton more than it was in 1942. This was contrary to the National position when the yield in 1949 was less than that of 1942, as might have been expected considering the very dry Summer of 1949. Measured per ton, cost increased by 23% (£6.2.10d. to £7.14.6d), returns increased by 31% (£8.6.2d. to £10.18.1d) and profitability by 46%(£2.3.4d. to £3.3.7d.) Allowing for the increased yield, returns per acre increased from £44.9.0. in 1942 to £65.17.0. in 1949 and profitability from £11.11.9d. to £19.3.4d.*

The figures obtained from the Investigation carried out in 1949 show that a much greater margin of profit was given by the early potato crop as compared with the main potato crop. However, it might be pointed out that the 1949 season was an exceptionally favourable one for the early potato crop while the yield from the main crop in that year was affected by the very dry summer. On the other hand, the advantage in favour of early potatoes is greater than these figures would suggest since a second crop is usually grown on the land in the same year, and it can be assumed that some profit will accrue from this crop. In West Cornwall the additional crop is frequently broccoli while in East Cornwall a catch crop of cow feed such as Kale is usual.

That the farmers in these counties, outside the traditional early potato growing localities of the extreme South West coastal area of Cornwall, have responded to the relatively more favourable economic returns obtained from growing early potatoes as compared with main crop potatoes is evidenced by reference to the acreage statistics given in Appendix C at the end of this report. The acreage devoted to early potatoes has increased by more than 15 times in Cornwall and nearly 7 times in Devon over the pre-war figures compared with a three-fold increase in the acreage devoted to main crop potatoes. In Cornwall, early potatoes now account for nearly two-thirds of the total potato acreage. Their relative importance has increased in Devon also, but not to the same extent.

The further West, the more favourable are conditions for growing early potatoes and for double cropping. Cornish potato growers, blessed with this advantageous climate, have been in a better position to cash in on the relatively favourable early potato market and to adjust their cropping accordingly compared with Devon potato growers, but it is obvious that Devon growers have also been responding to the economic incentive of the early potato market.

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*These figures are calculated on the basis of the data used in the 1942 Report in which 'chat' potatoes were ignored.

SECTION 1.

EARLY POTATO CROP, 1949.

(1) GENERAL

Location of Farms studied and acreage costed.

The number of farms supplying data together with the acres costed and location of farms are as follows:-

Table 1. Location etc. of Crops costed.

	No. of Farms	Acres Costed	Number of Lots costed.
Penzance area	11	52	16
The Lizard	3	19¼	6
S.E. Cornwall	7	24¼	10
Total	21	95½	32

The Penzance area covers the coastal region leading around to Lands End. The Lizard area follows the coast from Penzance eastwards. The climate in these areas is very mild and the land is low-lying. The traditional cropping is Early Potatoes following Broccoli. The Liskeard area is bounded by the South East corner of the Bodmin Moors and the coastal region. The topography of the ground is hilly and the height above sea level on the average 400 - 500 feet. In some instances the yield of potatoes are low, but the farmers regard 'earlies' as a catch crop before planting Kale.

The acreage grown by farms and the size distribution of lots are shown in Tables 2 and 3.

Table 2. Distribution according to acreage costed per Farm.

Size range (acres).	Number of Farms
1 - 2	1
2 - 4	6
4 - 6	10
6 and over	4
Total	21

Altogether, data relating to 32 lots covering 95½ acres were obtained, the lots costed varying in size from ¼ acre to 7 acres. The costs do not necessarily refer to the whole acreages grown on these farms, but generally all the potatoes grown were costed. In some cases this meant costing two, three or more small lots, either whole fields or parts of fields. Acreages costed per farm ranged from 1 to 12¼.

Table 3. Size Distribution of Lots.

Size Range	Penzance	Lizard	Liskeard	Total
Acres	Lots	Lots	Lots	Lots
Under 1	-	1	-	1
1 - 2	6	1	5	12
2 - 4	5	2	4	11
4 - 6	4	2	1	7
Over 6	1	-	-	1
Total	16	6	10	32

Preceding Crop.

An analysis of the preceding crop has been made and the data is set out in Table 4.

Table 4.

Previous Cropping

Pasture & Ley	Corn	Roots		Fallow	Potatoes	Total
		Carted	Grazed			
Acres	Acres	Acres	Acres	Acres	Acres	Acres
24·75	12·35	37·65	6·75	2·50	11·50	95·50
%	%	%	%	%	%	%
25·9	12·9	39·4	7·1	2·6	12·1	100

The Penzance area is traditionally a district of intensive cropping and it is not surprising to find that the main rotation consists of two crops only - Broccoli - Early Potatoes. In the Lizard area, the potatoes followed Ley or Pasture mainly, whereas in the Liskeard area the acreage is evenly preceded by Pasture, Corn and Roots.

Nearly 47% of the total acreage followed a root crop other than potatoes, 12% followed directly on potato land left fallow during the winter, and over a quarter of the crop followed Pasture or Ley, ploughed early and allowed to rot well down. This is to cash in on the high fertility already left in the soil by these crops. Of the 13% which followed corn some farmers grew early potatoes to utilise the ground prior to planting Kale. Although the yield was less than normally expected, the crop was still considered worthwhile.

(2) ANALYSIS OF FINANCIAL DATA.

(a) Summary of Financial Results.

The main financial results relating to the 21 early potato cost crops are summarised in Table 5.

Table 5. Costs, Returns and Margins. 21 Early Potato Crops.

	Total			Per Acre			Per Ton		
	£	s	d	£	s	d	£	s	d
Gross Cost	6844	15	4	71	13	0	16	11	9
Cash Receipts*	13469	17	5	141	0	11	32	13	0
Cash Margin	6625	2	1	69	7	11	16	1	3
Add Manurial & Cultural Residues	313	16	8	3	5	6		15	2
Presumed Real Margin	6938	18	9	72	13	5	16	16	5
Yield (tons)	412·8			4·3.					

* includes subsidy.

The margin of £72.13.5d. per acre has to cover interest on capital and some charge for management. Allowing for these uncharged items it is obvious that the early potato crop in Cornwall in 1949, as far as this sample of farms can be assumed to fairly represent early potato production in this area, was highly profitable. The value of the crop sold including the acreage subsidy was just about double the cost. This was achieved despite the late planting on many farms as a result of a very favourable late broccoli season, and some frost damage to crops in the more exposed fields. It is probable that the 1950 crop, which has since been harvested, and for which a 'free' market operated, was equally profitable. Total income, however, was probably much less due to a quite substantial reduction in acreage by growers in anticipation of less favourable market conditions which, of course, did not materialise.

The highest margin per acre was £118 and the lowest £28. Many factors account for these differences, some of which will be apparent in the following analysis. In general, the size of the margin per acre is determined by a combination of costs per acre, yield per acre and return per ton. High yields and high costs per acre tend to be associated, but some growers obtain high yields with low costs per acre. Again there is, as might be expected, an association between yield and returns per ton. The price declines as the growing period lengthens and yields increase. The grower must estimate the optimum point for lifting the crop, that is, the point when the yield/price ratio will give him the greatest monetary return allowing for additional costs in respect of the heavier crop. In practice other factors, such as labour, transport, etc. frequently determine the point at which the crop is lifted.

(b) Analysis of Costs.

Average costs per acre on an "Operational" and "Other Costs" basis for all 21 crops studied, together with the average yield per acre and net cost per ton, are given in Table 6.

Table 6. Operational and Other Costs per Acre.

	21 Farms		
	£	s	d
Operational Costs:			
Ploughing	1	4	11
Working Down	1	5	10
Applying F.Y.M.	1	2	4
" Artificials	1	6	3
Chitting etc.	1	13	5
Planting	3	4	6
Inter-row Cultivations	1	11	9
Hand Hoeing	2	8	9
Total Cultivations	13	17	9
Lifting	11	16	1
Marketing	1	0	3
Total Harvesting	12	16	4
Total Operational Costs	26	14	1
Other Costs:			
Manures:			
F.Y.M.	2	6	8
Artificials	13	11	4
Gross Cost	15	18	0
Seed	20	14	6
Rent	1	16	2
Overheads, Implement Depreciation and Field Upkeep	6	10	3*
Gross Cost	71	13	0
Less Net Manurial and Cultural Residues	2	16	9
		18	9
NET COST	68	7	6
Yield (tons)	4.3		
Net Cost per ton	15	16	10

* This figure differs from that given in the preliminary statement already circulated, the basis of calculation having been changed.

Since the crop frequently only occupied the ground for a proportion of the year, rent and other costs, where appropriate, have been apportioned.

The total net cost per acre averaged £68.7.6d. and the cost per ton £15.16.10d. after allowing for manurial and cultural residues.

Labour accounted for nearly 40% of the total net cost, the next largest item being 'Seed' which accounted for just over 30% of the total. Manures account for just under one quarter of the total or about one-fifth after allowing for manurial and cultural residues. The net cost of applying manures has, of course, been included in the labour cost.

Table 7. Cost Structure.

	Cost £ s d	%
Labour		
Manual*	22 0 9	32·3
Horse	1 6 4	1·9
Tractor	2 7 2	3·4
Contract	19 10	1·4
	26 14 1	39·0
Manures:		
F.Y.M. £2 6 8		
Artificials 13 11 4	15 18 0	23·3
Seed	20 14 6	30·3
Other Costs	8 6 5	12·2
Total Direct Cost	71 13 0	104·8
Less Net Manurial and Cultural Residues	3 5 6	4·8
NET COST	68 7 6	100·0

* The manual labour of £22.0.9d. per acre, is made up of £16.6.4d. for men, 10/11d for youths, £2.2.10d. for women and girls and £2.0.8d. for gang labour.

On 15 farms with no gang labour the labour and power input per acre were Manual 198, Horse 30 and Tractor 10 hours, or 46, 7 and 2·3 hours per ton.

Manures.

The average gross cost per acre of Farmyard Manure and Artificial Manure was £2.6.8d. and £13.11.4d. respectively. Farmyard Manure was applied on 10 of the 21 farms at rates varying from 5 to 30 tons per acre, although the average dressing on those farms was in the 10 - 15 tons region.

All farmers applied Artificials, usually in compound form. The average amount sown was just over a ton per acre. One farmer sowed 30 cwts. per acre plus 10 cwts. of Hydrated Lime. Top dressing of either Nitro Chalk or Sulphate of Ammonia was applied by 10 of the 21 farmers. Normally, 1 - 2 cwts. was sown, but 8 cwts. and 6 cwts. per acre were used in two cases. Five farmers applied Farmyard Manure and top dressing as well as the normal Artificial sowing.

Cultural benefits have been calculated on the basis shown in Appendix A.

Seed.

The cost of seed averaged nearly £21 per acre: it varied from £9 to £29 as between farms, a very wide range indeed.

The majority of the seed was Scottish certified, although Lincoln and Irish were used. Own once grown seed was occasionally sown.

The varieties grown were Homeguard, Arran Pilot, Epicure, May Queen, Sharpes Express, Vanguard and Ulster Chieftain. Over 80% of the total seed sown was made up of the first three varieties.

The average cost of purchased seed was just under £20 a ton. The majority was purchased in the range of £17 - £20 a ton.

The average seed rate was 23 cwts. per acre.

Other Charges.

These include rent, overheads, implement depreciation and field upkeep. The overheads etc. have been calculated at 10% of the gross farm costs. Together these costs amount to only about £8 per acre or 12% of the total costs.

Range in Net Costs.

The range in net costs per acre and per ton on the 21 farms are shown in Tables 8 and 9.

Table 8. Range in Net Costs per Acre by Farms.

£s. 30-40	£s. 40-50	£s. 50-60	£s. 60-70	£s. 70-80	£s. 80-90	£s. 90-100	Total
1	4	3	3	6	3	1	21

Table 9. Range in Net Costs per Ton by Farms.

£s. 8-10	£s. 10-12	£s. 12-14	£s. 14-16	£s. 16-18	£s. 18-20	Over 20	Total
2	3	4	2	1	4	5	21

(c) Analysis of Returns.

Yield and Net Cash Receipts.

The price received for early potatoes depends on the date of lifting and sale. The yield is also influenced by this factor.

A sliding scale was in operation for all sales to the Ministry, the highest price being realised on June 1st., the payments dropping progressively on later sales, but the heavier crop expected later compensates for the lower prices than prevailing. The details are set out in Appendix B.

The average yield per acre and the net cash receipt per acre and per ton together with ranges are shown in Table 10.

Table 10. Yield and Net Cash Receipts.

	Average 21 Farms	Range
Average yield per acre (tons)	4·3	2·6 - 6·2
Average net cash receipt per acre	£141 0 11	£86 - £186
Average net cash receipts per ton	£ 32 13 0	£28 - £37

Yield per acre ranged from 2·6 tons to 6·2 and averaged 4·3 tons which must be considered very satisfactory and probably above the annual average.

The data show a wide range in return per acre, the extreme range varying from £86 to £186. Yield per acre was the factor most responsible for determining income per acre there being a close and direct association between yield and income. On the other hand, the price per ton tends to go dowh as yields increase, (the price per ton for the five crops having the highest yield per acre was more than £3 per ton less than the price per ton for the five crops having the lowest yield per acre). The drop in price, however, was not sufficient to cancel out the additional income deriving from the higher yield.

The crop showing the highest return per ton - £37.5s. inclusive of subsidy - had a yield of only 2·75 tons per acre giving a total return of £102.8s. On the other hand, the crop having the lowest return per ton - £27.15s. inclusive of subsidy - had a yield of 4·3 tons per acre giving a total return of £118.11s. The highest return per acre(£186) was for a crop having a yield of 6·1 tons giving a return per ton of £30.9s. The lowest return per acre(£86) was derived from a crop with the low yield of only 2·6 tons which, however, realised £33.16s. per ton including subsidy, a higher than average return per ton. The return per ton for this crop would have needed to have been very much higher to make up for the low yield.

~~The individual results for all 21 farms are given on page 9.~~

SECTION 2.

MAIN POTATO CROP, 1949.

(1) GENERAL

The farms studied.

Some 50 farms co-operated in the Investigation. The location of the farms as well as the acres costed are set out in Table 11.

Table 11. The Sample.

	North Devon	Mid Devon	South East Cornwall	Total
No. of Farms	18	19	13	50
No. of lots costed	20	21	16	57
Acres Costed	64·0	80·4	57·6	202·0

In the majority of cases the acreage costed covered the entire potato crops grown on these farms, but a few fields were omitted in some instances. The lots costed do not cover large areas but they are certainly representative of the districts in which the information was obtained.

The size distribution of the lots is shown in Table 12.

Table 12. Size Distribution of Lots.

Size Range	North Devon	Mid Devon	South East Cornwall	Total
0 - 5 acres	18	18	13	49
5 - 10 acres	2	3	3	8
TOTAL	20	21	16	57

The North Devon Group is situated mainly around South Molton and Hatherleigh. Rainfall is rather high and the area is mainly given up to stock-raising and milk production. Oats is the chief crop. Pre-war, few potatoes, beyond the requirements of the farm household, were grown in these districts.

The Mid-Devon Group has Moretonhampstead as its centre. The land is light and easy to work but the typical field is small, steep, contains surface rocks and a large proportion of the farmers hand lifted the crop. The soils are hungry and little dung is available on these farms to compensate for the inherent lack of fertility. Potatoes have been grown in this area for at least 200 years and potato growing is an important feature of the farming, but its relative importance in the farm economy is probably not so great now as formerly.

South East Cornwall is suited by climate and topography to potato growing and has for long had a good market in Plymouth. The Group is centred on Liskeard. The soil is light to medium and manuring with artificials is on a more generous scale than in the other districts. It has a higher yield per acre than the other groups. Incidentally, the only farmer who sprayed his crops against blight was in this group.

Preceding Crops.

An analysis has been made of the crops preceding the potato crop and the information is set out in Tables 13 and 14.

Table 13. Analysis of Preceding Crops.

Group	Ley & Pasture		Corn	Roots		Derelict Land	Other Crops	Total
	Hay	Grazed		Carted	Grazed			
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
N.Devon	1·50	-	50·50	3·00	-	-	9·00	64·00
M. Devon	-	22·20	46·95	8·25	-	3·00	-	80·40
S.E.Cwll	10·25	18·00	16·00	9·55	3·80	-	-	57·60
All Groups	11·75	40·20	113·45	20·80	3·80	3·00	9·00	202·00

Table 14 Previous Crop as a % of Potato Acreage.

	North Devon	Mid Devon	South East Cornwall	All Groups
	%	%	%	%
Leys & Pasture (Hay)	2·3	-	17·8	5·8
(Grazed)	-	27·6	31·3	19·8
Corn	78·9	58·4	27·8	56·2
Potatoes	-	-	-	-
Roots (Carted)	4·7	10·3	16·5	10·3
(Grazed)	-	-	6·6	1·9
Derelict Land	-	3·7	-	1·5
Other Crops	14·1	-	-	4·5
	100·0	100·0	100·0	100·0

In North Devon it is apparent that the potato crop is being used as the traditional cleaner and restorer after exhaustive corn crops. The more recent practice of following pasture or ley to cash in on the humus and fertility built up is favoured in South East Cornwall where nearly 50% of the crops is grown after grass. A comparison with data collected in the 1942/43 Investigation shows that there has been a distinct tendency for more farmers to introduce potatoes into the rotation after pasture and ley.

The comparative figures are:-

	1942/43 %	1949/50 %
Corn	94·6	27·8
Pasture	5·4	49·1
Roots	-	23·1
	100·0	100·0

This trend is also evident in Mid-Devon, but here the ley has taken the place of potatoes following potatoes, the percentage following corn remaining roughly constant. Whether this is due to a better understanding of rotations, fear of the appearance of say the potato root eel worm, a virus disease or a change in sample cannot be determined.

Too much must not be read into these figures as there is no guarantee that the same farms or farmers are costed in both cases, and there is no real continuity between the two Investigations.

(2) ANALYSIS OF FINANCIAL DATA.

(a) Summary of Financial Results (All Farms)

The Costs and Returns per acre and per ton of all the crops costed are set out in Table 15.

Table 15. Costs, Returns and Margins Per Acre & Per Ton.

50 farms. 1949/50.

	Per Acre			Per Ton		
Yield of Ware & Seed Potatoes	6·0 tons			-		
	£	s	d	£	s	d
Gross Cost	50	19	4	8	8	9
Cash Receipts	65	17	0	10	18	1
Cash Profit	14	17	8	2	9	4
Add Value of Chats	2	9	3		8	2
Manurial Residues	2	17	0		9	5
Cultural Residues	1	8	8		4	9
Presumed Real Profit	21	12	7	3	11	8

Over all 50 farms the yield of Ware and Seed averaged just over 6 tons per acre. Cash receipts exceeded cost by £14.17.8d. per acre or £2.9.4d. per ton. Allowing for the value of 'Chat' potatoes and manurial and cultural residues, the margin is increased to £21.12.7d. per acre or £3.11.8d. per ton, which represents a return on production costs of 42%. As was pointed out in discussing the results of the early potato crop, this figure of profit has to cover interest on capital and a charge for management. About a half of this profit was derived from the acreage subsidy. It will be apparent from a study of Tables 16 and 17 that the rate of profit was very much less in the Mid-Devon group (Moretonhampstead)

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than it was in both the other groups. Within the groups, of course, profitability varied widely as between farms.

Table 16. Summary of Costs, Returns and Margins per Acre.

	North Devon			Mid Devon			South East Cornwall		
Yield (Tons)	6·3			5·2			7·0		
	£	s	d	£	s	d	£	s	d
Gross Cost	49	5	11	51	17	5	51	11	4
Cash Receipts	68	19	2	57	5	10	74	7	0
Cash Profit	19	13	3	5	8	5	22	15	8
Add Value of Chats	2	18	3	2	15	5	1	10	8
Net Manurial	2	14	3	2	6	7	3	14	8
and Cultural Residues	1	15	8	1	10	8		18	2
Presumed Real Profit	27	1	5	12	1	1	28	19	2

Table 17. Summary of Costs, Returns and Margins per Ton.

	North Devon			Mid Devon			South East Cornwall		
	£	s	d	£	s	d	£	s	d
Gross Cost	7	17	6	9	18	9	7	8	3
Cash Receipts	11	0	4	10	19	6	10	13	8
Cash Profit	3	2	10	1	0	9	3	5	5
Add Value of Chats		9	4		10	7		4	5
Net Manurial		8	8		9	0		10	9
and Cultural Residues		5	8		5	10		2	8
Presumed Real Profit	4	6	6	2	6	2	4	3	3

(b) Analysis of Costs.

The Costs per acre for the three groups are analysed in Table 18 on a basis of operational and other costs.

Table 18. Operational and Other Costs Per Acre.

	North Devon	Mid Devon	S.E. C'wall	All Groups
	£ s d	£ s d	£ s d	£ s d
Ploughing	1 6 1	2 3 5	19 9	1 11 2
Working Down & Ridging	1 2 1	1 11 5	19 2	1 5 0
Applying Manures (Net)				
(a) F.Y.M.	19 11	15 5	11 6	15 9
(b) Lime & Artificials	10 0	10 4	12 7	10 11
Sorting Seed & Planting	1 13 9	2 2 5	2 2 0	1 19 6
After & Inter-row Cults.	1 14 11	2 1 2	1 9 0	1 15 9
Hand Hoeing	14 11	1 14 4	17 5	1 3 4
Total Cultivations	8 1 8	10 18 6	7 11 5	9 1 5
Total Harvesting	9 12 0	15 0 1	10 17 8	12 2 4
Unclamping & Disposal	4 13 2	3 13 1	2 6 5	3 11 10
Manures Applied:				
(a) F.Y.M.	3 12 10	1 7 11	1 7 6	2 2 0
(b) Lime & Artificials	8 19 2	6 14 2	13 9 2	9 6 11
Total Manures (Gross)	12 12 0	8 2 1	14 16 8	11 8 11
Seed	8 2 10	7 13 10	9 9 5	8 6 10
Other Costs:				
(a) Rent	1 11 8	1 11 5	1 13 9	1 12 1
(b) Misc. Expenses	3 0	4 2	2 3	3 3
(c) Overheads, Implement Depreciation & field upkeep.	4 9 7	4 14 3	4 13 9	4 12 8
Total Other Costs	6 4 3	6 9 10	6 9 9	6 8 0
Total Gross Costs	49 5 11	51 17 5	51 11 4	50 19 4
Less Manurial Residues (Net)	2 14 3	2 6 7	3 14 8	2 17 0
Less Cultural Residues (Net)	1 15 8	1 10 8	18 2	1 8 8
Total Net Cost (Ware, Seed & Chats)	44 16 0	48 0 2	46 18 6	46 13 8
Less Chats	2 18 3	2 15 5	1 10 8	2 9 3
Total Net Cost (Ware & Seed)	41 17 9	45 4 9	45 7 10	44 4 5
Yield in Tons	6·3	5·2	7·0.	6·0
Net Cost Per Ton (Ware & Seed)	6 13 9	8 13 6	6 10 5	7 6 5

The highest average cost per ton is found in the Mid-Devon Group and this is brought about by a high cultivation and harvesting cost linked with a low yield per acre. Although there is a wide variation between costs and yields in each group (this will be dealt with later) it is clear that the low yield is caused by a combination of low seed and very low manure rates per acre. That the cultivation charges are high in every operation may well be due to the small acreage and difficult slope of the fields. The high charge for harvesting is probably due to a traditional care in the lifting and grading of ware and seed in this area. Although spinners were used, nearly half the acreage was dug by hand.

South East Cornwall has the lowest cultivation charges, but heavy manuring and seed rate gives this district the highest net cost per acre. The higher yield of marketable ware obtained, however, is the reason for the lowest cost per ton of all groups.

Table 19. Analysis of Prime Costs per Acre.

	North Devon		Mid Devon		South East C'wall	
	£ s d	%	£ s d	%	£ s d	%
Labour:-						
Manual	17 16 4	42·5	24 2 2	53·3	16 7 7	36·1
Horse	15 11	1·9	1 8 7	3·2	15 11	1·7
Tractor	3 11 8	8·6	3 0 8	6·7	3 9 9	7·7
Total Labour	22 3 11	53·0	28 11 5	63·2	20 13 3	45·5
Contract Work	2 11	0·3	1 0 3	2·2	2 3	0·3
Seed	8 2 10	19·4	7 13 10	17·0	9 9 5	20·9
Manures - Gross	12 12 0	30·1	8 2 1	17·9	14 16 8	32·7
Rent	1 11 8	3·8	1 11 5	3·5	1 13 9	3·7
Miscellaneous Expenses	3 0	0·4	4 2	0·4	2 3	0·2
Overheads	4 9 7	10·7	4 14 3	10·4	4 13 9	10·3
GROSS COST	49 5 11	117·7	51 17 5	114·6	51 11 4	113·6
Less						
Value of Chats	2 18 3	7·0	2 15 5	6·1	1 10 8	3·4
Net Manurial Residues	2 14 3	6·5	2 6 7	5·1	3 14 8	8·2
Net Cultural Residues	1 15 8	4·2	1 10 8	3·4	18 2	2·0
NET COST	41 17 9	100·0	45 4 9	100·0	45 7 10	100·0

Labour and power are the highest single charge in the growing of the crop with manures and seed following. Rental value of the land is a very small item of cost amounting to not more than 4% of the net cost.

The value of the non cash credits with this crop is much larger than the majority of cash crops due to the bonus effect of chats and the high cultural and manurial residues carried forward to the following crop. These amount to roughly 15% of the net cost.

Labour Analysis.

Table 20. Analysis of Labour and Contract Cost per Acre.

	North Devon				Mid Devon				South East Cornwall			
	Hrs	£	s	d	Hrs	£	s	d	Hrs	£	s	d
Cultivations:												
Manual	45·9	5	6	6	66·4	7	8	5	45·0	5	2	11
Horse	8·5		10	7	15·0		18	9	7·2		9	0
Tractor	14·4*	2	2	6	14·1	2	2	3	12·4	1	17	3
Contract	-		2	1	-		9	1	-		2	3
Total	-	8	1	8	-	10	18	6	-	7	11	5
Harvesting & Marketing												
Manual	107·6	12	9	10	149·0	16	13	9	103·1	11	4	8
Horse	4·2		5	4	7·9		9	10	5·6		6	11
Tractor	9·7	1	9	2	6·2		18	5	10·8	1	12	6
Contract	-			10	-		11	2	-		-	
Total	-	14	5	2	-	18	13	2	-	13	4	1
TOTAL	-	22	6	10	-	29	11	8	-	20	15	6
All Operations:												
Manual	153·5	17	16	4	215·4	24	2	2	148·1	16	7	7
Horse	12·7		15	11	22·9	1	8	7	12·8		15	11
Tractor	24·1*	3	11	8	20·3	3	0	8	23·2	3	9	9
Contract	-		2	11	-	1	0	3	-		2	3
TOTAL	-	22	6	10	-	29	11	8	-	20	15	6

* Includes 0·3 lorry hours charged at 2/6d. per hour.

Mid-Devon has the largest labour and power charges per acre, the majority of this cost arising from manual labour. North Devon and South East Cornwall used about 45 manual hours on cultivations against 66 hours by Mid-Devon. Tractor power is reasonably constant in each group at about 14 hours, but it is very noticeable that the Horse labour in Mid-Devon is nearly double that of the other two districts. It may be that this use of horse labour is the factor causing the higher expenditure on manual labour.

In harvesting and marketing, North Devon and South East Cornwall are again roughly comparable with 107 and 103 hours of manual labour per acre respectively. Mid-Devon used over 40 hours more than either. This would be due to the majority of crops in this area being dug by hand, whereas the majority of farmers in the other areas used a spinner or elevator to lift the crop. It is very doubtful if the low average yield obtained in the Mid-Devon group warrants this high labour input, the

/labour

labour requirements in man hours per ton being nearly 80% higher in this group as compared with the other groups. The figures are: 24·8 man hours per ton, 41·2 and 21·3 in the North Devon, Mid-Devon and South East Cornwall groups respectively.

Manures and Cultural Benefits.

The percentage application of manures and costs are set out in Tables 21 and 22.

Table 21. Direct Manuring of Potato Crop.

Group	Total Acreage	Percentage of Acreage Receiving			
		Dung only	Arts. only	Dung & Arts.	
		%	%	%	%
N. Devon	64·0	-	53·9	46·1	100.0
M. Devon	80·4	1·2	70·8	28·0	100·0
S.E. Cornwall	57·6	-	69·9	30·1	100·0
All Groups	202·0	0·5	65·2	34·3	100·0

Table 22. Cost of F.Y.M. and Artificials Applied, by Districts.

	North Devon			Mid Devon			South East Cornwall			All Groups		
	£	s	d	£	s	d	£	s	d	£	s	d
F.Y.M.	3	12	10	1	7	11	1	7	6	2	2	0
Lime & Artificials	8	19	2	6	14	2	13	9	2	9	6	11
Total	12	12	0	8	2	1	14	16	8	11	8	11
Manurial Residues	- 2	14	3	- 2	6	7	- 3	14	8	- 2	17	0
TOTAL NET	9	17	9	5	15	6	11	2	0	8	11	11

Although the percentage application of artificials and artificials and dung on the Mid-Devon and South East Cornwall districts are roughly comparable, the cost (and therefore the actual amounts used) are very much higher in South East Cornwall. This is possibly the major reason for the poor yield of the former group compared with the latter, although it must be remembered that 50% of the South East Cornwall crop followed Ley or Pasture whereas in Mid-Devon nearly 60% followed a Corn crop. However, bearing in mind that agricultural advisers recommend heavy application of dung and artificials to the potato crop and that in North Devon nearly 80% of the potato crop followed corn, it may reasonably be assumed that, compared with the other groups of costed farms, there was insufficient manuring of the crops in Mid-Devon.

Cultural Residues which include beneficial cultivations and manurial benefits not included in manurial residues, have been allowed at the net rates shown in Table 18. The higher allowances for North and Mid Devon are due to the large proportion of the acreage in these districts following corn. No residual allowance is brought forward in this case, the potato crop being credited with the full value of 40/- per acre carried forward. The rates allowed are shown in Appendix A.

Seed.

A large number of varieties of main crop potatoes are on the market and the farmers in the districts make full use of this range. However, Arran Banner stands supreme as first choice, sown to 110 of the 202 acres costed, followed by Majestic 44 acres, and Gladstone 30·4 acres. None of the other varieties have been sown on more than 5 acres, but more than one variety is usually grown on the same farm. The choice in these three main varieties between districts is as follows:-

	N. Devon	M. Devon.	S.E. Cornwall
	%	%	%
Arran Banner	24·1	67·7	69·8
Majestic	36·7	20·5	7·0
Gladstone	25·9	6·5	14·9
Other Varieties	13·3	5·3	8·3
	100·0	100·0	100·0

Although Arran Banner is regarded as a Grade B variety for sale purposes and is penalised by a deduction of 20/- per ton as against a Grade A, the grower's faith in its yielding propensity is markedly shown. Do the results justify this faith? The figure for Mid-Devon would hardly suggest that they do, but other factors undoubtedly affect the position.

The seed rates and acreages involved are set out in Table 23 and the average costs in Table 24. The figures corroborate previous experience that a lower rate of seeding is a feature of potato growing in Devon as compared with Cornwall. This is reflected in the cost of seed per acre which is highest in the S.E. Cornwall group and lowest in the Mid-Devon group.

Table 23. Distribution of Acreage by Seed Rates.

Group	Cwts. of Seed per Acre							
	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20	20 - 25	Over 25	Average
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Cwts.
N. Devon	17·0	8·0	29·5	-	9·5	-	-	14·3
M. Devon	26·0	12·5	27·2	6·7	8·0	-	-	14·2
S.E.Cornwall	1·5	-	18·0	7·0	11·0	9·6	10·5	19·3

Approximately 33% of the seed used in South East Cornwall and Mid-Devon, and 40% in North Devon was purchased.

The range in cost per ton of purchased seed was from £10.10.0d. to £21.0.0d., but the majority was purchased between £15 - £18.

The average seed rate for all groups was 15·7 cwts. per acre.

Table 24. Type and Cost of Seed per Acre by Groups.

	North Devon			Mid Devon			South East Cornwall			All Groups		
	£	s	d	£	s	d	£	s	d	£	s	d
Home-Grown	3	10	7	3	18	9	5	14	3	4	6	3
Purchased	4	12	3	3	15	1	3	15	2	4	0	7
Total	8	2	10	7	13	10	9	9	5	8	6	10

Other Charges

These include rent, overheads and miscellaneous expenses. The overheads, depreciation of machinery and field upkeep have been estimated at 10% of the Gross Farm Costs. Miscellaneous Expenses include straw for covering, seed dressing etc. It is noticeable that there is very little average variation between the rent charged in the three areas, although the rent per acre in South East Cornwall is highest.

Range in Net Costs.

Net Costs per acre were highest in the South East Cornwall group and lowest in the North Devon group, the difference between them being £3.10.1d. The range in individual crop costs per acre was much greater.

Table 25. Range in Net Costs per Acre in £s.

Group	Under 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	Over 65	Total farms
N. Devon	1	4	4	2	2	4	-	-	1	18
M. Devon	-	3	2	4	4	2	4	-	-	19
S.E. C' wall	-	-	2	5	1	2	1	1	1	13
All Groups	1	7	8	11	7	8	5	1	2	50

On the other hand, the net cost per ton (£6.10.5) was lowest in the S.E. Cornwall group, due to the higher yield, and highest in the Mid-Devon group (£8.13.6d). The cost per ton in the North Devon group (£6.13.9d) was very similar to that in the South East Cornwall group. The North Devon group contained some very high cost per ton crops.

The range in net costs per ton of Ware and Seed is set out in Table 26.

Table 26. Range in Net Costs per Ton in £s.

Group	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	Over 20	All Crops
N. Devon	5	5	5	-	-	1	-	1	1	18
M. Devon	1	6	6	-	3	2	1	-	-	19
S.E. C'wall	5	2	5	1	-	-	-	-	-	13
All Groups	11	13	16	1	3	3	1	1	1	50

(c) Analysis of Returns.

Yield and Returns.

Variations in receipts per acre for the crop are due mainly to variations in yields of ware and seed, the month of sale which affects the price per ton of ware sold, and the variety grown. The data are summarised in Table 27.

Table 27. Yields and Returns (Including Subsidy)

	North Devon			Mid Devon			South East Cornwall			All Groups		
Average Yield per acre (Tons)	6·3			5·2			7·0			6·0		
Average Net Cash Receipt per acre*	£ 68	s 19	d 2	£ 57	s 5	d 10	£ 74	s 7	d 0	£ 65	s 17	d 0
Average Net Cash Receipt per ton	11	0	4	10	19	6	10	13	8	10	18	1

* includes value of ware and seed used on farm.

A more detailed analysis of the returns from the potato crop for each group is made in Table 28.

Table 28. Disposal of Crop. £'s Per Acre.

	North Devon			Mid Devon			South East Cornwall			All Groups		
	£	s	d	£	s	d	£	s	d	£	s	d
Ware	50	0	9	38	3	8	59	17	9	48	2	6
Ware Retained	4	3	6	1	14	4	1	8	1	2	8	1
Seed Sold		9	4		16	2		-			9	5
Seed Retained	2	6	11	4	15	4	1	1	10	2	19	1
Subsidy	11	18	8	11	16	4	11	19	4	11	17	11
Total Returns	68	19	2	57	5	10	74	7	0	65	17	0

Due to the higher yield of Ware and Seed per acre, returns were highest in the South East Cornwall group. The return per ton, however, was lowest in this group and this may be accounted for by the earlier disposal of the crop in this area. On the other hand, there would be less waste and some part of the higher yield in this group may be attributed to this factor.

That the subsidy (paid at £12 per acre for the first 10 acres on a farm, and £8 per acre thereafter) is in each case nearly £12 per acre, shows that few farmers grew more than 10 acres in any one year.

SUMMARY.

This report summarises the principal financial and physical data obtained from an investigation into the Costs, Returns and Margins of growing potatoes in the South West Province in the 1949 Crop year.

The investigation included both Early and Main Crop potatoes.

Altogether, 95½ acres of early potatoes were costed in 32 lots on 21 farms and representing three areas in Cornwall, viz. Penzance, The Lizard and South East Cornwall.

202 acres of main crop potatoes were studied in 57 lots on 50 farms located in three distinct areas of the South West, viz. South East Cornwall, Mid-Devon (Moretonhampstead) and North Devon.

Taking the country as a whole, the 1949 crop year was less favourable to the main potato crop than the average season due to the prolonged drought. However, drought conditions probably had a less adverse effect on the crop in the South West, particularly North Devon, than it had in many other districts. It was a distinctly good season for early potatoes and yields were almost certainly above normal.

On an average the early potato crop left a margin of receipts over expenses nearly 3½ times greater than the margin obtained from growing the main crop - £72.13.5d. as compared with £21.12.7d. Even if the comparison is confined to the Cornwall group of main crop potatoes, the margin in favour of the early potatoes is seen to be 2½ times greater - £72.13.5d. as compared with £28.19.2d. An additional advantage accrues to the grower of early potatoes in so far as the crop occupies the land for only a part of the year.

Net Cost, Return and Margin per acre for the early potato crop was £68.7.6d, £141.0.11d and £72.13.5d respectively. The average yeild per acre was 4·3 tons. Costs, Returns and Margins per ton were £15.16.7d, £32.13.0 and £16.16.5d respectively.

Net Cost, Return and Margin per acre for the main potato crop (Ware and Seed) was £44.4.5d after allowing £2.9.3d as the value of the Chats, £65.17.0 and £21.12.7d respectively. The average yield was 6·0 tons per acre. Net Cost, Return and Margin per ton were, therefore, £7.6.5d, £10.18.1d and £3.11.8d respectively.

The difference in profitability as between districts was considerable, the Margin per acre in the North Devon and South East Cornwall group being more than twice that of the Mid-Devon group (£27.1.5d, £28.19.2d and £12.1.1d respectively). The low average profitability shown by the Mid-Devon farms arises from a low yield since the costs per acre in the three groups do not vary materially. The lower yield in the Mid-Devon group would appear to be the result of a combination of factors including lower seeding and manuring rates. Relatively high labour costs in this group had an adverse effect on the rate of profitability.

Labour, (manual, horse and tractor) accounted for about 40% of the total net cost of producing early potatoes and 53·0%, 63·2% and 45·5% for the main crop in North Devon, Mid-Devon and South East Cornwall respectively. Manual labour requirements per acre averaged 198 hours for early potatoes and 177 hours for the main crop. As between groups manual labour input in producing main crop potatoes was 154, 215 and 148 hours in North Devon, Mid-Devon and South East Cornwall.

Manual labour requirements per ton averaged 46 hours for early potatoes and 24·8, 41·2 and 21·3 respectively in the three groups producing main crop potatoes, from which it will be observed the input of manual labour per unit of production was 80% higher in Mid-Devon as compared with the other two main crop groups, and were nearly as high as the manual labour of the early potato crop. It is interesting to note that the Mid-Devon group used nearly double the horse labour per acre than did the other groups and, to some extent, this may account for the higher expenditure on manual labour, but traditional care in the lifting and grading of the ware and seed in this area, allied with small, steep and rocky fields making resort to hand lifting much more frequent than is usual in these days, all combine to inflate labour costs in this area.

OBSERVATIONS AND CONCLUSIONS.

Care must always be exercised in drawing conclusions which are both sound and capable of future application from figures based on one year's experience of any aspect of farming activity, an observation which applies especially to the results given in this report derived as they are from a relatively small and narrowly drawn sample of potato growers, particularly the sample of early potato growers which was confined to the County of Cornwall and limited to some 20 farms, representative of old-established and more recent growers. Also, the results refer to a crop year in which production conditions tended to favour the early potato crop but were less favourable for the main potato crop.

After making due allowances for any possible limitations of the data, the results of this investigation emphasise the very considerable disparity in the rewards obtained by the growers of early and main crop potatoes respectively; early potatoes showing a very real direct economic advantage over main crop potatoes, a feature of the industry which, in the later-war and post-war years, goes far to explain the large relative expansion in the acreage devoted to growing early potatoes as compared with that given up to the production of main crop potatoes in the country generally, but particularly in the county of Cornwall and, to a lesser extent, in Devonshire. The inevitable result of this expansion in acreage was the creation of a surplus of early potatoes to market requirements. In the 1949 crop season the surplus assumed serious proportions amounting to approximately one-third of the total crop in Cornwall the purchase of which, at the guaranteed price, involved the Government in a loss of about half-a-million pounds. Without this sum, the estimated profit margin of £72 per acre, given in this report, would have been very materially reduced.

The prime cause of the disparity in net income of the two groups of growers which led to this disproportionate increase in early potato production was the much higher prices which have been fixed for early as compared with main crop potatoes. It could be argued, of course, that the difference in net incomes of the two groups does not derive altogether from the differential in the price scales for early and main crop potatoes, but is the result of differing standards of production efficiency. It can be further argued /that

that these differing production standards are themselves the result of the method of making payments to potato growers. The incentive of a high price for early potatoes can be claimed to have resulted in a higher level of physical efficiency through the development of special skills and techniques among the growers of early potatoes, a feature which has not been so generally observable among main crop potato producers whose remuneration has come partly through price but also, to quite a considerable degree, through the flat rate acreage subsidy.

What of the future? The freeing of the early potato market which began with the 1950 crop has already had some serious repercussions on the potato growing industry in the South West. Because of their experience with the 1949 crop, Cornish early potato growers drastically reduced their acreage in 1950 and supply failed to meet the demand. Producers prices remained high throughout and profits per acre were probably equal to, if not higher than, those of the previous season. But growers had many fewer acres and total income from the early potato crop was probably well below that of the previous year. On the other hand, the acreage 'saved' would have been used for some other enterprise. It is difficult to assess the producers net relative position which resulted from the freeing of the early potato market without much more information than is available. However, there is little doubt that the consumer lost by the change (except, of course, as a tax-payer) in so far as there was an actual physical shortage and retail prices remained high. "In a free market, price regulates the potato acreage." Will a better adjustment be achieved in 1951?

As regards Main crop potatoes it will be interesting to observe the effect of the change in the basis of payment. The acreage subsidy method of payment probably served a useful purpose in the early war years but its replacement by a method giving a greater degree of incentive was long overdue. Henceforth, producers of main crop potatoes will be operating under the influence of price incentive. Will main crop potato production tend to concentrate in areas where soil and climate are most favourable and/or in the hands of growers who know how to apply the results of science, engineering and labour organisation and to build up a really efficient industry? In the past, the potato has not been a popular crop with a high proportion of West Country farmers. On the other hand, an increasing number of farmers have shown that the crop can be grown successfully and profitably in these counties and that it can be a most valuable source of cash income in an area where opportunities for cash cropping have not been so great as they are in many other parts of the country. What is needed is a general all round improvement in production efficiency and the most promising means of achieving this would be by raising yields. Supplies of the necessary requisites - fertiliser, seed and equipment - are in fairly ample supply at the present time, and if it is a question of having the most up-to-date knowledge, there is now available to every grower, free of charge, the services of experts, a facility which is fully utilized by the majority of successful growers.

APPENDIX A.

Costing Method.

The details of the Costs were collected by survey, each farmer being visited three times in the case of main crop - after the spring cultivations, after harvest, and after disposal of the crop, and twice for earlies, - during cultivations and after harvesting and disposal.

Labour.

Ordinary time was charged at 2/4d. per hour for male labour, 1/8d per hour for females and 1/7d for youths. Overtime work was charged at the appropriate rates. Horse labour was charged at 1/3d per hour. Most of the tractor work was done by Medium Tractors for which 3/0 per hour was charged.

Manures.

All Artificials were charged at Cost Price. Dung has been charged at 10/- per ton. The labour of carting and spreading has been included in the cultivation costs.

In addition to the normal bringing and carrying forward of the usual allowances of unexhausted manures, cultural residues were charged at the following rates per acre.

Ley	20/-	per acre.
Mangolds	30/-	" "
Roots folded	70/-	" "
Roots not folded	30/-	" "
Fallow at 50% of cost of fallow		
Corn	Nil	

The cultural value carried forward for the potato crop was 40/-.

Seed.

Purchased seed at charged cost. Home Grown seed charged at £8.0.0d. per ton. Any seed treatment has been included in cultivation costs.

Other Charges.

Overheads and machinery depreciation have been charged at a flat rate of 10% of total growing costs.

Ware, Seed and Chats Retained.

Ware and Seed retained have been charged at cost of production. Chats have been allowed at £3.0.0d. per ton.

Averages.

The weighted average has been used in all cases.

APPENDIX B.

(1) Early Potato Prices - 1949.

District 1. Restricted Area.+ District 2. Devon.*

Date of Delivery	Sale Forwarded on Rail to M. of Food.	Sale to Lic. Merchant or Buyer	Sale by a Grower.
	Per Cwt.	Per Cwt.	Per Cwt.
1949	s d	s d	s d
June 1st	34 0	)	)
" 2	33 0	)	)
" 3	32 0	)	)
" 4	31 6	) 31 6	) 31 6
" 5 - 7	31 0	)	)
" 8	30 0	)	)
" 9	29 0	)	)
" 10	28 6	) 28 0	)
" 11	28 3	)	)
			)
" 12 - 13	28 0	)	) 28 0
" 14	27 9	) 27 6	)
" 15	27 6	)	)
" 16	26 9	)	)
" 17	26 0	) 24 6	) 26 0
" 18	25 3	)	)
" 19/20	24 9	)	)
" 21	24 0	) 22 6	) 24 0
" 22	23 3	)	
" 23	22 9	)	)
" 24	22 0	) 20 6	) 22 0
" 25	21 3	)	)
" 26 - 27	20 9	)	)
" 28	20 0	) 18 6	) 20 0
" 29	19 3	)	)
June 30 - 2 July	-	16 6	18 0
July 3 - 6	-	14 6	16 0
" 7 - 9	-	13 0	14 6
" 10 - 13	-	12 0	13 6
" 14 - 20	-	11 6	12 0
" 21 - 27	-	11 0	11 6
" 28 - 3 Aug.	-	10 6	10 9

+ Restricted Area - Isles of Scilly, Cornwall, Plymouth and parishes of Tavistock Hamlets, Bere Ferrers, Tamerton Foliot, St. Budeaux, Egg Buckland, Compton Gifford, Plympton St. Mary, Plympton St. Maurice, Plymstock, Brixton, Wembury, Newton and Noss and Holbeton in Devonshire.

* Devon - other than parts mentioned in Restricted Area.

(2) Ware Potato Prices - 1949 to 1950.

District 1. Devon and Cornwall.

Date of Selling	Per Ton	
	Grade A.	Grade B.
	s d	s d
August 4 - 10	220 0	200 0
" 11 - 17	200 0	180 0
" 18 - 31	190 0	170 0
September	175 0	155 0
October Classes 1, 2, 4.	180 0	160 0
Class 5.	165 0	-
November Classes 1, 2, 4.	185 0	165 0
Class 5.	170 0	-
Dec - Jan. Classes 1, 2, 4.	192 6	172 6
Class 5.	177 6	-
February Classes 1, 2, 4.	202 6	182 6
Class 5.	187 6	-
March Classes 1, 2, 4.	212 6	192 6
Class 5.	197 6	-
April onwards Classes 1, 2, 4.	225 0	205 0
Class 5.	210 0	-

Variety Classification.

Grade A.

Class 1. Golden Wonder.
Class 2. King Edward, Red King, Gladstone, (grown on Limestone, silt, warp or red soils).
Class 3. King Edward, Red King, Gladstone (grown on skirtland soil).
Class 4. King Edward, Red King, Gladstone (not grown on Limestone, silt, warp, red or skirtland soils).
Class 5. Kerr's Pink and Redskin.

Grade B.

Class 1. Any other variety (grown on Limestone, silt or warp soils).
Class 2. Any other variety (grown on red soils).
Class 3. Any other variety (grown on skirtland soil).
Class 4. Any other variety (not grown on limestone, silt, warp, red or skirtland soils).

APPENDIX C.

Table 1. Acreage of First Early Potatoes.

Year	Cornwall	Devon	Dorset	S.West	England & Wales	Cornwall as a per-centage of Total
						%
1937-39	1052	660	276	1985	57000	1·8
1940	1615	1121	368	3104	61000	2·6
1941	2748	2742	535	6025	88000	3·1
1942	4687	3145	614	8446	103000	4·5
1943	7657	3868	709	12233	125000	6·1
1944	10624	4088	923	15635	141000	7·5
1945	12574	4196	1004	17774	147000	8·6
1946	13327	4516	1057	18900	165000	8·1
1947	13711	4288	1068	19067	167000	8·2
1948	16220	4959	1578	22757	222000	7·3
1949	16374	4471	1418	22263	217000	7·5
1950*	9700	3932	1249	14881	183000	5·3

Table 2. Acreage of First Earlies as a Percentage of Total Acreage of Potatoes. (Earlies and Main crop).

Year	Cornwall	Devon	Dorset	S.West	England & Wales
	%	%	%	%	%
1937-39	23·1	10·1	21·8	16·1	12·3
1940	21·0	9·0	23·0	14·3	11·4
1941	16·9	9·9	11·0	12·3	11·4
1942	22·4	9·3	9·8	12·8	11·5
1943	33·8	10·8	10·9	18·8	13·1
1944	44·4	12·9	13·6	25·1	14·4
1945	54·9	15·3	13·9	30·8	15·0
1946	56·3	16·2	14·9	32·2	16·4
1947	56·4	15·8	16·5	32·9	17·7
1948	56·8	15·8	19·4	33·5	19·9
1949	63·2	18·0	24·4	39·4	23·4
1950*	50·8	17·6	25·2	32·1	21·1

Table 3. Increase in acreage of First Early Potatoes. 1937 - 39 = 100.

Year	Cornwall	Devon	Dorset	S.West	England & Wales
1937-39	100 %	100 %	100 %	100 %	100 %
1940	153·5	169·8	133·3	154·7	108·1
1941	261·2	415·4	193·8	303·5	154·7
1942	445·5	476·5	222·5	425·5	182·6
1943	727·9	586·0	256·9	616·3	221·0
1944	1009·9	619·4	334·4	787·7	249·0
1945	1195·2	635·7	363·8	895·4	259·6
1946	1266·8	684·2	383·0	952·1	291·4
1947	1303·3	649·7	387·0	960·6	294·9
1948	1541·8	751·3	571·7	1146·5	392·0
1949	1556·5	677·4	513·8	1121·6	383·2
1950*	922·1	595·8	452·5	749·7	321·1

* Provisional

Table 4. Acreage of Second Earlies and Main Crop Potatoes.

Year	Cornwall	Devon	Dorset	S.West	England and Wales	Cornwall as a Per-centage of Total
						%
1937-39	3496	5881	992	10369	404695	0•9
1940	6085	11310	1231	18626	475983	1•3
1941	13550	25063	4328	42941	689423	2•0
1942	16229	30538	5651	52418	794974	2•0
1943	14994	32061	5783	52838	832000	1•8
1944	13301	27499	5852	46652	839000	1•6
1945	10345	23270	6197	39812	836000	1•2
1946	10338	23383	6020	39741	844000	1•2
1947	10607	22797	5402	38806	774000	1•4
1948	12317	26358	6572	45247	895000	1•4
1949	9535	20342	4392	34269	711000	1•3
1950*	9410	18358	3716	31484	683000	1•4

Table 5. Acreage of Second Earlies and Main Crop Potatoes as a Percentage of Total Acreage of Potatoes.

Year	Cornwall	Devon	Dorset	S.West	England & Wales
	%	%	%	%	%
1937-39	76•9	89•9	78•2	83•9	87•7
1940	79•0	91•0	77•0	85•7	88•6
1941	83•1	90•1	89•0	87•7	88•6
1942	77•6	90•7	90•2	86•2	88•5
1943	66•2	89•2	89•1	81•2	86•9
1944	55•6	87•1	86•4	74•9	85•6
1945	45•1	84•7	86•1	69•2	85•0
1946	43•7	83•8	85•1	67•8	83•6
1947	43•6	84•2	83•5	67•1	82•3
1948	43•2	84•2	80•6	66•5	80•1
1949	36•8	82•0	75•6	60•6	76•6
1950*	49•2	82•4	74•8	67•9	78•9

Table 6. Increase in Acreage of Second Earlies and Main Crop Potatoes. 1937 - 39 = 100.

Year	Cornwall	Devon	Dorset	S.West	England & Wales
1937-39	100%	100%	100%	100%	100%
1940	174•1	192•3	124•1	179•6	117•6
1941	387•6	426•2	436•3	414•1	170•4
1942	464•2	519•3	569•7	505•5	196•4
1943	428•9	545•2	583•0	509•6	205•6
1944	380•5	467•6	589•9	449•9	207•3
1945	295•9	395•7	624•7	384•0	206•6
1946	295•7	397•6	606•9	383•3	208•6
1947	303•4	387•6	544•6	374•3	191•3
1948	352•3	448•2	662•5	436•4	221•2
1949	272•7	345•9	442•7	330•5	175•7
1950*	269•2	312•2	374•6	303•6	168•8

* Provisional