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Potatoes — Cost of production

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OCTOBER 1957

ECONOMIC REPORT No. 46

THE 1956 POTATO CROP

by

J. D. NUTT, B.A., N.D.A.

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PUBLICATIONS

A. Annual Reports on Financial Results of East of Scotland Farms :-

Hill Sheep Farms Stock-Rearing Farms	Reports for the years 1948-49 to 1955-56.
Stock-Raising and Feeding Farms Arable Farms Dairy Farms	Reports for the years 1948-49 to 1955-56.

B. Enterprise Studies :-

Milk Production (Annual Reports).
Commercial Egg Production.
Cattle Rearing.
Silage Making.
Wheat, Barley, Oats and Potato Costs.
Etc.

C. Miscellaneous :-

Dairy Labour in the East of Scotland.
Economics of Bracken Eradication, 1951-53.
Team Work in Grass Silage Making.
Economics of Small-Scale Farming.
Piece-Work Potato Gathering.
Blackface or Cheviot, 1946-53?
Hill Farming in the East and South-East of Scotland During the Post-War Period.

Inquiries regarding the above publications should be addressed to either the Secretary of the College or the Advisory Economist.

THE 1956 POTATO CROP

1. INTRODUCTION

The 1954 crop was the last to be covered by the system of fixed prices whereby the sale of ware potatoes was governed by a scale of prices which varied according to grade, class, district grown and time of sale. In addition, the market was assured by the Ministry of Food undertaking to buy unsold stocks of ware and sub-ware potatoes provided growers offered them within prescribed periods. Similar regulations were not applied to the seed potatoes which constitute such an important part of the Scottish potato crop. But there is no doubt that the conditions affecting the sale of ware potatoes must have had an effect on prices for seed. Thus it may be said that the prices for the whole output of potatoes was on a very firm basis.

Selling conditions for the 1955 crop were changed. The Potato Marketing Board took over general responsibility for marketing the crop with growers free to obtain the best prices they could on an open market with, however, the introduction of a system of support prices operated through the Board as part of the official policy towards agriculture. The Board undertook to buy at specified prices any acceptable potatoes offered by growers who could not sell elsewhere to better advantage. The experiences of selling the 1955 crop, when the fear of short supplies sent prices soaring and also led to increased importations and the subsequent debacle in the potato market, are still fresh in mind. This change in the conditions affecting the market for potatoes has given rise to more interest in the place of this crop in the economy of Scottish farms and, in particular, the arable farms in the east and south-east. It has been found that the output of potatoes on arable farms in this area comprises nearly one quarter of the total net output and even on farms more interested in livestock production the potato crop may account for as much as 15 per cent of the total net output.

It was decided, therefore, to initiate a comprehensive enquiry into the economic conditions affecting the production of the 1956 potato crop on arable farms in this area. Records have been obtained for a total of 83 crops covering a wide range of conditions and management.

Difficulties in disposing of the crop have been experienced by many growers and this has led to delays in obtaining the final details of dressing and yields. Some potatoes, indeed, have never left the farm or been used for any purpose whatsoever. While this may suggest a degree of waste, the position is largely fortuitous as far as the individual farmer is concerned. No blame can be laid at the door of the farmer or the Board. Given a system of support prices, the farmer is entitled to be paid the appropriate price for any stocks which the market cannot absorb, either for human consumption or for the alternative markets which the /

the Board has been at pains to develop - exporting, processing or as stock feed on farms at home. In connection with the latter there was the fact that an open winter in 1956-57 coincided with more than adequate supplies of the usual feed crops. Furthermore, it must be remembered that the farmer is not in a position to suddenly increase his livestock to cope with an unforeseen and unspecified surplus of a type of food which he may not be accustomed to using. Similarly, it would be invidious to blame the Board for not providing adequate outlets to dispose of the surplus completely. The basic troubles of the potato crop are still present. There is the uncertainty of what the total production will be of a crop with so variable a yield, the inelastic nature of the demand for human consumption and the difficulties of providing outlets for a commodity (surplus potatoes) which may or may not be present in any particular year.

In assessing the final result of growing the crop the farmer is concerned not only with the price he will get but equally with the factors which affect his costs. The farmer as an individual can do little to affect the price he may have to accept for his crop, but this is not equally true of the costs incurred.

2. COSTS AND RETURNS

The production costs of any crop will vary very widely as the results of the physical conditions met with on the farm and the managerial and technical ability of the farmer, but an overall picture of the average costs and returns does provide a basis for considering the various factors involved. In general, it is advisable to consider costs on the basis of the productive unit concerned which, in the case of crops, is the land used. Various elements of cost - seed, labour, manures, power etc. - are applied to the land and by looking at these on the basis of costs per acre it is possible to avoid the confusion which is bound to arise in connection with costs per ton. There is some stability about land and the techniques of growing crops; there is no corresponding stability about the yield of any crop and the potato crop is particularly susceptible to variations in yield which arise from uncontrollable factors. The fact that the yield on a particular farm may be 6 tons per acre one year and, possibly, 12 tons per acre the following year does not mean that the costs of growing the crop will have differed very much and to say that the cost of production is £2x per ton in one year and £x per ton in the other is not very significant.

Costs /

Costs per Acre - 82 Crops*

	Total	Per Cent
	£ s. d.	%
Rent	1:15: -	2.1
Seed	15: 2: 8	18.3
Manures Applied (Net)	13:16: 1	16.7
Manurial Residues (Net)	2: 8:10	3.0
Other Crop Costs	2: 6: 8	2.8
Labour and Power :-		
Cultivations	8: 6: 3	10.1
Harvesting	16: 2: 5	19.5
Dressing	7:13: 7	9.3
Specialised Equipment	-:18: 5	1.1
Overheads	14: 1: 3	17.1
TOTALS	£82:11: 2	100.0%

* One crop lifted and sold off the field has been omitted.

The above Table shows the average costs per acre giving each crop equal weight in the calculations. The total is somewhat lower than might have been expected, but the greatest care has been taken to ensure that all items of expenditure were checked, and it may be noted that a charge has been included for general farm expenses (overheads) equivalent to 17.1 per cent of the total cost as shown and to 20.5 per cent of the total of the other costs incurred. This figure has been calculated on the best data available and should represent a reasonable charge for this item.

Total costs ranged from as low as £58:15s. per acre to as high as £113:8:6d. per acre, and such a wide range can only result from equally wide differences in the various factors which affect the costs of individual crops. These will be discussed in more detail later, but the incidence of differing costs can be illustrated by showing the distribution of the total costs per acre for the 82 crops.

Distribution of Total Net Costs per Acre

Net Cost per Acre	Less than £60	£60 -£70	£70 -£80	£80 -£90	£90 -£100	£100 -£110	More than £110
Number of Crops	5	16	16	19	13	10	3

There /

There is no definite concentration of total net costs at any particular level and it can only be said that these figures demonstrate the very wide range of conditions, and hence costs, under which potatoes are grown. Thus the average cost of just over £82 per acre is in some ways a dangerous figure to quote. It does not by any means represent the cost at which most potato crops are grown.

The individual costs call for some comment. The average rent at £1:15s. per acre is little more than 2 per cent of the total. This underlines the relatively unimportant nature of this cost under conditions of intensive cropping where it is the direct inputs of seed, manures, labour and power and the charge for overheads which are significant in building up the total cost. Rent is also a cost which is not easily modified.

The Table shows one other small item of cost. The accumulation of smaller items such as repairs to potato baskets, straw (although this may be a major item on the individual farm) etc. gives an average of £2:6: 8d. per acre or just under 3 per cent of the total. Again there is not much room for modification. Other direct costs involved include the costs of seeds and manures which possibly offer the most scope for modification and together with the costs of labour and power are the most important in growing the crop. The cost of seed averages out at £15:2:8d. per acre or just short of one-fifth of the total, the cost of manures at approximately one-fifth and the costs of labour and power to two-fifths. The latter costs fall naturally into three phases, the operations prior to harvest, the harvesting and the dressing out of the pit or store. The costs comprising each phase average out at approximately one-tenth, two-tenths and one-tenth of the total costs. The fore-going proportions, if applied to total costs, can give a rough check on the division of costs in individual cases. Any drastic departure from these proportions should give rise to scrutiny to see if it is justified.

The other side of the picture into which the yield, the variety, the time of sale, whether seed or ware, the quantities sold and the prices obtained all enter, is shown in the following averages.

Costs, Yields, Returns and Margins per Acre

		82 Crops, 1956	33 Crops, 1954
Average cost per acre	=	£82:11: 2	£77: -: -
Average yield per acre	=	11.34 Tons	9.8 Tons
Average return per acre	=	£124:8: 6	£126: 2: 9
Average margin per acre	=	£41:17:4	£49: 2: 9

The /

The corresponding figures for an investigation into the costs of 33 crops in 1954* offer a brief but pointed commentary on the position of the 1956 crop when a higher average yield produced a lower average return and a very much lower average margin per acre. In the earlier period prices were fixed for ware potatoes, in the second there was the stabilising effect of the guaranteed support price. In both periods the actual yields must have had a predominant effect on the returns to the farmer. But this is the aspect of potato growing which shows the widest fluctuation, not only from year to year, as shown by the above averages, but also from farm to farm, as shown by the following figures.

Distribution of Yield per Acre - 1956

Tons per Acre	Below 7 Tons	7-8 Tons	8-9 Tons	9-10 Tons	10-11 Tons	11-12 Tons	12-13 Tons	13-14 Tons	Over 14 Tons
Number of Crops	1	6	4	15	11	13	15	8	9

There were 11 crops (or 13.4 per cent) with yields of less than 9 tons to the acre, 54 crops (or 65.8 per cent) with yields between 9 and 13 tons to the acre, and 17 crops (or 20.8 per cent) with yields over 13 tons to the acre. The lowest yield was 5.15 tons per acre and the highest 18.65 tons; the next highest was 15.7 tons per acre. This sort of distribution suggests that under most farming conditions and reasonably good management a yield of 10 to 11 tons per acre should be possible. Where conditions and management are good a yield of 13 tons to the acre should not be too high a standard.

3. SOME ASPECTS EXAMINED

Manuring and Proportion Sold as Seed

It has already been suggested that costs of growing potatoes may be influenced by a variety of factors; similarly, the returns from the crop may be influenced by an equally wide range. Two of these factors, each of which has a fairly general application, have been selected for particular attention; these are the level of manuring and the proportion of the crop disposed of as seed. The level of manurial inputs chosen is an arbitrary one which has taken the manuring of previous crops into account and perhaps the most that can /

* Economic Report No. 37 - Edinburgh and East of Scotland College of Agriculture

can be said is that it has divided the 82 potato crops into those which are well (or more than well) manured and those which are not. The division on the basis of the proportion of the crop sold as seed was based on sales above and below 40 per cent of the total sales, as indicating a greater or lesser interest in the seed market. The costs per acre are shown in the following tables :-

A. Costs of Growing Potatoes per Acre: High Manures : 58 Costs

	58 Crops		More than 40% Seed 24 Crops		Less than 40% Seed 34 Crops	
	£ s. d.	%	£ s. d.	%	£ s. d.	%
Rent	1:16:10	2.1	1:19: 4	2.1	1:15: 1	2.2
Seed	15: -:10	17.8	16: 6: 7	17.6	14: 2: 9	17.9
Manures Applied	15:17:11	18.8	18: 6: 3	19.8	14: 3: 9	17.9
Manurial Residues	2: 8:10	2.9	2:11: 3	2.8	2: 7: 2	3.0
Other Crop Costs	2: 4: 1	2.6	2:11: 7	2.8	1:18:10	2.4
Labour and Power :-						
Cultivations	8: 6: 5	9.8	8:18: 4	9.6	7:17:11	10.0
Harvesting	16: 3: 1	19.1	17: 2: 4	18.5	15: 9: 5	19.6
Dressing	7:15: 8	9.2	9: 1: 5	9.8	6:17: 6	8.7
Specialised Equip.	-:12: -	.7	-:13: 8	.8	-:10: 8	.7
Overheads	14: 7: 7	17.0	15: -: 1	16.2	13:18:10	17.6
TOTALS	£84:13: 3	100.0%	£92:10:10	100.0%	£79: 1:11	100.0%

Yield per Acre	11.53 Tons	11.9 Tons	11.3 Tons
Cost per Ton	£7: 6:10	£7:15: 6	£7: -: -
Returns per Acre	£126:13: 4	£139:17: 9	£117:6:10
Margin per Acre	£42: -: 1	£47: 6:11	£38:4:11

B. /

B. Costs of Growing Potatoes per Acre : Moderate Manures : 24 Crops

	24 Crops		More than 40% Seed 8 Crops		Less than 40% Seed 16 Crops	
	£ s. d.	%	£ s. d.	%	£ s. d.	%
Rent	1:10: 5	2.0	1: 9: 5	1.7	1:11: -	2.1
Seed	15: 7: 3	19.8	16:11:11	19.7	14:14:11	19.9
Manures Applied	8:15: 3	11.3	10: 6: 8	12.2	7:19: 7	10.8
Manurial Residues	2: 8: 8	3.1	2:19:10	3.5	2: 3: 2	2.9
Other Crop Costs	2:13: 2	3.4	3: 4: 1	3.8	2: 7: 9	3.2
Labour and Power :-						
Cultivations	8: 6: -	10.7	9: 5: 8	11.1	7:16: 2	10.5
Harvesting	16: 1: 1	20.7	17: 2: -	20.2	15:10: 7	21.0
Dressing	7: 8: 8	9.6	7:11: -	8.9	7: 7: 5	10.0
Specialised Equip.	1:14: 4	2.2	1:14: -	2.0	1:14: 7	2.3
Overheads	13: 6: 4	17.2	14: 6: 1	16.9	12:16: 5	17.3
TOTALS	£77:11: 2	100.0%	£84:10: 8	100.0%	£74: 1: 7	100.0%

Yield per Acre	11.09 Tons	11.02 Tons	11.12 Tons
Cost per Ton	£6:19:11	£7:13: 5	£6:13: 5
Returns per Acre	£118:15: 6	£131:10:10	£111:19: 3
Margin per Acre	£41: 4: 4	£47: -: 2	£37:17: 8

The average figures for all the crops shown in the first columns of Tables A and B show what would have been expected from the type of division used. The crops with high manuring cost more per acre than the crops with moderate manuring, the difference being £7:2:1d. per acre. The difference in the costs of manures is £7:2:10d. In short, although there are minor differences of a few shillings per acre either way between the other items of costs in these two groups, the difference in cost is almost entirely due to the difference in the level of manuring.

Another interesting point may be noted. When the average yields are compared there is a difference of only 0.44 tons per acre in favour of the high manure crops. And even although the average realisation value of the high manure crops was slightly higher at £10:19:9d. per ton compared with £10:14:2d. for the moderate manure crops, these two factors in favour of the high manure crops have done little more than compensate for the higher level of cost. The final margins of returns over costs worked out at £42:-:1d. and £41:4:4d. per acre respectively.

These /

These figures pose a problem. Are some farmers spending more than necessary on manures? Could an equivalent margin per acre have been achieved on these high manure cost farms by applying less to already fertile ground even at the risk of a very slight diminution in yield?

The figures for the two sub-groups of farms in Tables A and B bring out the same problem. In each case the higher costs of manures are largely responsible for the difference in total costs. The seed-producing farms in the high manure group have achieved a higher yield by 12 cwt. per acre, but their average margin per acre is very little better than that for the seed-producing farms in the lower manure group. When the low seed-producing sub-groups are compared there is virtually no difference in the average yield or the average margin between costs and returns.

In both groups of farms the tendency is for the seed-producing farms to run at a higher level of direct costs and, although the average yields are higher only in the case of the high manure farms, the results of aiming at the more specialised seed crop are definitely in favour of the seed-producing farms in both groups, the advantage being in the order of £9 per acre in the margin accruing to the farmer.

Place in Rotation

The rotation of crops has always played an important part in the economy of farming and the long established rotations have served the dual purpose of maintaining or building up the farm fertility and of enabling the farmer to maximise his production and, he hopes, his profits. It would, however, be wrong to accept any rotation as being inviolable in the farming conditions under which it was established. Thus, rotations are modified to meet current conditions and variations are probably as common as the rule.

The potato crop offers the opportunity of replenishing fertility by heavy applications of dung and artificial manures and can well function as a cleaning crop. Thus, the common place in the rotation is following one or other of the grain crops, usually barley or oats. The 82 crops dealt with in this report support the view that this is the usual place for potatoes in the rotation. Twenty of the crops followed barley and 29 followed oats; there were also 4 crops after wheat. Five crops taken after roots, 2 after potatoes and one after peas indicate deviations from the usual practice but the main alteration has been to take potatoes after grass, usually a ley, but occasionally after old grass ploughed out. The principle appears to be to recognise the way in which the potato crop can absorb the accumulated fertility of the grass and do so without the harvesting problems which may follow when a grain crop follows the ley. Of the 21 crops taken after grass, one was taken after hay and grazing, one after silage and grazing, and 19 after grazing. There is the possi-:bility that yield might be affected by such modifications in the rotation. The /

The following are the relevant figures :-

	No. of Farms	Average Yields per Acre After Grass	Average Yields per Acre After Other Crops
High Manure Group	11	12.2 Tons	
" " "	47		11.7 Tons
Moderate " "	10	11.3 Tons	
" " "	14		10.9 Tons

There is a small margin of tonnage in favour of taking potatoes after grass and this again raises the problem of efficient manuring and whether adequate yields could be obtained after grass with lower applications of artificials at less cost.

Labour and Power

The importance of labour and power, comprising 40 per cent of the total costs, cannot be gainsaid and the following Table shows the extent to which manual and tractor work has been employed on these crops. The hours shown include an estimate of the number of hours put in where gangs were employed on a contract basis.

Labour and Tractor Hours per Acre : 82 Crops

		Hours per Acre	Per Cent
Manual Labour -	Man	91	50.0
	Woman	44	24.0
	Boy	10	5.5
	Gang	37.5	20.5
	TOTAL	182.5	100.0

Tractor Work .. 31.7

The average labour and power requirements for these 82 crops were 182.5 hours of manual work and 31.7 hours of tractor work. The importance of /

of non-regular labour is emphasised by the extent to which women and gang workers are employed, particularly at harvest time. A rough estimate would place casual labour as at least one-third of the total labour employed on this crop, and one of the biggest problems in potato growing is to find ways and means of alleviating the growing difficulty of finding adequate supplies of casual labour.

The labour and power requirements do not seem to vary very much between the group of farms classed as high manuring and those farms classed as using moderate manures. The average total labour and tractor hours for each group were :-

	Labour Hours Per Acre	Tractor Hours Per Acre
High Manuring Farms	179¼	32½
Moderate Manuring Farms	190½	29¼

But there appear to be marked differences in the requirements for manual labour when these two groups of farms are divided into the high seed and low seed-producing farms.

Labour and Power Requirements : Hours per Acre

58 High Manuring Farms

	Man	Woman	Boy	Gang	TOTAL	Tractor
	- - - - - - Hours - - - - - -					
More than 40% Seed	101	55½	10	32	198½	33½
Less than 40% Seed	77½	41	11	37	166½	32
All Farms	87¼	47	10½	34½	179¼	32½

24 Moderate Manuring Farms

	Man	Woman	Boy	Gang	TOTAL	Tractor
	- - - - - - Hours - - - - - -					
More than 40% Seed	149	32	11	43	235	32
Less than 40% Seed	73	39½	11½	44	168	28
All Farms	98½	37¼	11¼	43½	190½	29¼

Both /

Both groups of high seed-producing farms had appreciably higher total labour requirements than the low seed-producing farms. Taking all the high seed and all the low seed farms together the total labour hours averaged out at 208 hours for the former and 167 hours for the latter. The overall averages for tractor hours were 32.8 and 30.7 per acre.

Storage

Year by year more attention is being given to methods of storing potatoes until such time as they need to be dressed and sold as seed and ware or used on the farm. Eighteen of the crops included in the investigation were stored in some form of potato shed, either a new building or some existing building adapted for the purpose. The costs of harvesting, dressing and the charge for special storage facilities together with the yields per acre and costs per ton for the two methods, pit or storage shed, are shown below.

	Handling Costs			
	In Pits		In Sheds	
	Per Acre	Per Ton	Per Acre	Per Ton
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Cost per Acre:-				
Harvesting	15:17: 5	1: 7:10	17: 8: 2	1:11: 8
Dressing	8: 6: 5	-:14: 7	7: 7: 3	-:13: 5
Storage Charge	-: -: -	-: -: -	1: 2: 3	-: 2: -
TOTAL	£24: 3:10	£2: 2: 5	£25:17: 8	£2: 7: 1
Average Yield per Acre	11.4 Tons		11.0 Tons	

On the face of it there appears to have been no monetary advantage in favour of providing specialised storage facilities but there are a number of points which need to be considered. The difference in cost is only 4s.8d. per ton which many people might consider well worth while in view of the recognised greater convenience and pleasantness of handling the crop indoors rather than from a pit in the open. The cost of harvesting is higher when stored in sheds, a matter of 3s.10d. per ton. Some higher cost would be expected in view of the inescapably longer haul when the crop is taken out of the field to be stored. The subsequent handling in the shed cost rather less per ton than outside but the charge for /

for storage facilities pushed the cost up by another 2s.0d. per ton.

It may be suggested that the mild, open conditions of the past winter did not bring out the full usefulness of indoor storage facilities; under more stringent conditions those using special storage might well have had more than pleasantness and convenience to compensate for any extra cost. Indeed, with more difficult outdoor conditions the costs might well have been in favour of the specialised storage.

Seeds and Manures Used

The costs of seed and manures applied directly to the potato crop are the two items of cost which are the most easily variable at the discretion of the grower. The extent of cultivation costs is mainly determined by the nature of the crop itself, soil conditions and the weather. Similarly, the extent of harvesting and dressing costs is largely outside the control of the grower; the crop is there and has to be dealt with. He is, however, much freer to make decisions as to the quantities of seed or manures he will use. Such decisions will be affected by a variety of factors of which the objective aimed at in growing the crop and the attitude to general fertility are probably the most important. The following figures give the average weights of seed planted and of the manures applied directly in the four sub-groups into which the 82 crops have been divided.

Average Weights of Seed Planted per Acre

	High Manure Crops				Moderate Manure Crops			
	More than 40% Seed		Less than 40% Seed		More than 40% Seed		Less than 40% Seed	
		cwt.		cwt.		cwt.		cwt.
Home-Grown	(17)	30.2	(19)	26.0	(6)	29.0	(9)	21.4
Purchased	(7)	24.2	(15)	20.4	(2)	26.0	(7)	19.6
All	(24)	28.5	(34)	23.6	(8)	28.3	(16)	20.5

(The numbers in brackets are the number of crops)

All the 32 crops grown primarily for the production of seed were planted at a relatively high weight per acre, averaging just over 28 cwt. Those crops planted with home-grown seed averaged a rate of nearly 30 cwt. per /

per acre compared with an average of under 25 cwt. for crops planted with purchased seed. No doubt the relatively high cost of the latter would account for the difference.

Compared with these figures the average rate of planting of the 50 crops where seed production was not the primary objective was much lower at 22.6 cwt. per acre. But in these cases, too, the rate of planting with home-grown seed at 24.5 cwt. per acre averaged out appreci-:ably higher than the rate where purchased seed was used, 20.1 cwt. per acre.

Comparing the high manure crops as a whole with the moderate manure crops the rate of planting tended to be slightly higher.

The following are the average weights of F.Y.M. and compound manures applied directly to the crops.

Average Weights of F.Y.M. and Compounds per Acre

	High Manure Crops				Moderate Manure Crops			
	More than 40% Seed		Less than 40% Seed		More than 40% Seed		Less than 40% Seed	
		per acre cwt.		per acre cwt.		per acre cwt.		per acre cwt.
F.Y.M.	(22)	295	(24)	266	(4)	240	(4)	211
Compound	(24)	11.9	(33)	11.6	(8)	9.6	(16)	9.7

(The numbers in brackets are the number of crops)

These figures suggest that the high manure crops have been getting some 50 cwt. of F.Y.M. and some 2 cwt. of compounds more per acre than the moderate manured crops. It may be accepted that the quantities of F.Y.M. applied are the amounts actually available on the farm and the heavier dressings for the one group reflect a somewhat higher level of cropping and fertility. The interesting point is the overall uniformity of the applications of compounds in the two main groups and which show a difference of almost exactly 2 cwt. more for the heavy group. Again the question of possible over-manuring comes up. Was this difference of 2 cwt. per acre necessary on farms where fertility would already be relatively high?

ACKNOWLEDGMENT

The writer wishes to acknowledge fully the co-operation of all the farmers who have made this enquiry possible. Without their help in keeping the necessary records and in providing additional information when visited by members of the staff of this Department, it would not have been possible to get together the data concerning this crop. It is hoped that the details of their own crops and the overall data contained in this report will be of interest and value to them.

J.D.N.

APPENDIX

COSTING PROCEDURE

Manual Labour

All labour, including farmer's own, was charged at the hourly rates ruling on each farm.

Horse Work

Charged at 1s.6d. per hour.

Tractor Work

Charged at 3s.9d. per hour for wheeled tractors and 5s.9d. per hour for track-laying.

Seed

Purchased seed was charged at cost on the farm.
Home-grown seed was charged at estimated cost of production.

Manures and Manurial Residues

a) Dung was charged at 17s.6d. per ton plus cost of application.
b) Artificials were charged at cost plus cost of application.
c) Residual Values brought forward and carried forward were calculated at standard rates.

Other Crop Costs

These include straw, baskets, spraying material etc.

Rent

This is charged at the average rental for arable land on the farm.

Overheads

These were charged at rates agreed by the Scottish Conference of Agricultural Economists. No charge has been included for interest on capital or for the managerial work of the farmer.