ROOT CROPS IN THE BARBADIAN ECONOMY

— *by* —

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It may be difficult to assess the precise importance of locally grown root crops in the Barbados economy, but there can be no doubt that their contribution to the local diet is considerable. Their value in terms of calories is approximately 323 per head per day or about one-fifth of the calories obtained by the local population from all carbohydrate foods consumed, other than from sugar.[1]

The gross value of the crop is over 2¼ million dollars. Official statistics for 1965-66 show that on plantations of 10 acres and over, some 6,000 acres of root crops were planted and these were expected to yield over 24,000 tons. When however, peasant holdings are included, the total cultivated area rises to some 7,000 acres and the total expected yield to 27,000 tons.[2]

II

The root crops provide cheap food in Barbados. They are sold ex-field at 3 to 4 cents per pound. This low cost is the direct result of the system under which they are grown, a system that is unusual and of more than passing interest, and which is related to the system of cultivation of sugar cane that has developed over the centuries in Barbados.

Barbados is a classic example of a one-crop economy. Virtually all the cultivable land is devoted to sugar cane. The crop is normally planted in late October to November, at the end of the rainy season, and is not harvested until about 15 months later in February or March. The rootstocks of the cut cane are allowed to shoot again and produce a second crop, the so-called first ratoons, harvested twelve months later. This cycle may be repeated three or four times, so that one planting of cane may give several crops, usually four or five. The number of ratoons for each field is determined by the yield of the last crop. When the yield has declined beyond a certain level the field is prepared for replanting. This land preparation has to be completed in the dry season, normally by the end of May, as otherwise the ground may be too wet for machine operations. So we now have a tilled, prepared field, awaiting the planting of a new crop of cane in November, six or seven months later.

Before the Second World War ratooning was usually not carried very far ; sometimes there may not even have been any ratooning, and one half of a sugar plantation may have been in preparation for the next crop of cane. Traditionally, and dating back to the necessity of growing food to feed the labour force living on the plantation, some form of catch crop was planted on at least some of this land :

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1 See Appendix Table I

2 See Appendix Table II

it had to be a crop of relatively short duration to fit in the period between harvesting and replanting, and it had to require no special cultivation, as the land was already cultivated for cane and it was unlikely that re-tilling could be undertaken later in the year owing to the wet condition of the ground at the end of the rainy season.

Many food crops were cultivated in this way : the soil preparation and spacing (rows 5 feet apart) imposed by the requirements of the subsequent crop of sugar cane, were probably not ideal for any one of them, but obviously to grow a crop of this kind was better than leaving the ground unused and exposed – although, it may be mentioned in passing, only a few decades ago it was supposed that there were great virtues in leaving land fallow, and there was much doubt as to the wisdom of the "catch-penny practice" of growing food crops on good cane land.

The catch-crops commonly grown included maize and various pulses, but by far the greater proportion were the root crops yams, sweet potatoes, eddoes of several kinds, and cassava.

During the Second World War came legislation requiring all estates of 10 acres and over to plant a minimum of 35% of their acreage in food crops – a grim necessity in the days of heavy U-boat activity in the Caribbean.[3] The law, "The Local Food Production (Defence) Control Order 1942", has been retained on the statute books but now requires only 12% to be planted in food crops annually, 10½% in preparation land and 1¼% in "thrown-out land" – this being land that will not be planted in cane in the year in question, but must be devoted to a specified food crop, usually sweet potatoes, late planted for harvesting in the crop season (February to May), a period when other root crops are normally not available.

The provisions of the present law are quite realistic, so far as root crops are concerned. The supply of root planted to the law's requirements just about meets the domestic demand. Some excess acreages are planted, especially of yams, but an export trade in this commodity amounting to about 1,000 – 1,500 tons per year, and bringing in over half a million dollars of foreign exchange, is now developing. In 1965 the minimum acreage compulsorily required for planting in food crops was 5,862, though in fact 6,938 acres were actually planted on those estates to which the law applied. Of this, some 5,500 acres were planted in root crops; the distribution is indicated in Appendix Table II.

It may be noted in passing that the increased ratooning attainable with modern canes and cultivation practices has reduced the proportion of sugar land in preparation from one-third, as it was before the war, to one-fifth or less of the plantation's acreage and thus the land available for catch crops is much less than it was twenty or thirty years ago.

Let us consider now how this system of catch-cropping of foodstuffs, hallowed by law, affects the cost of the root crops grown on sugar plantations.

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3 It is of interest to note that legislation on food crop production is not new. As far back as 1631, when tobacco was the main commercial crop, an Order of Council had to be passed restricting the planting of tobacco until such time as more food was produced.

Except for the late planted sweet potatoes (locally called "fall potatoes"), land preparation is done specifically for the following crop of cane. The land lying fallow, is inevitably attracting its share of plantation overheads. These costs are carried by the subsequent crop of sugar cane ; the argument is that these costs are being necessarily incurred by the cane crop. So, if a food crop is grown during what would otherwise be a fallow period it makes no difference to the costing of the cane; the only costs incurred by the food crop are those of planting, weeding, fertilising (if any), disease control and harvesting, and a rather arbitrary figure compensating for the reduction in sugar cane yield supposedly caused by the presence of the food crop in its early stages. (Canes are planted in October/ November ; most of the yams are not harvested until January.) Thus the costs attributable to the food crop are relatively low and the food crop can be sold cheaply : 3 to 4 cents per pound ex-field is the usual price to hucksters, who come with carts and lift the crops themselves. If estate-labour lifts the crop the price is usually about 1 cent higher. Typical costings for yams and sweet potatoes grown under this system are shown in Appendix Tables III and IV. (Note that in all costings the labour contains an addition of approximately 5.76% which covers 3 weeks holiday with pay, compulsory under Barbadian law.)

A rather different situation exists with "fall sweet potatoes", for in this case the land has been specifically put aside for this crop, and there can be no question as to whether preparation and over-heads should be charged to the potatoes – they *are* so charged. A typical costing sheet is shown in Appendix Table V.

III

The developing export trade in yams has already been mentioned. This is of recent origin, approximate quantities exported during the past few years being :

1963-64	2,106,445 lb.
1964-65	3,515,772 lb.
1965-66	2,949,646 lb.

Prices of five to seven cents per pound (sometimes more) are obtained by the growers for carefully selected tubers. About 70% of the crop from any one field is, under good condition, suitable for export; the remainder includes about 12% damaged during lifting and 18% small yams, which are often used as seed the following year. With good yields and prices the gross value of an acre of yams for export can exceed $1,000 which is satisfactory for a catch crop. It must be emphasised, however, that the export business is a high-risk venture. In 1965 growers received only 3 cents per pound because of the occurrence of hitherto negligible disease, which severely affected quality ; in 1966 partly as a result of this, growers reduced their plantings and exports showed a fall instead of the hoped-for increase.

Of course the value of such crops depends largely upon the yields per acre, and recent agronomic studies have shown that the average yields of 5 tons per acre for yams and 3 tons for early planted sweet potatoes can be considerably raised. For example, only recently has the practice of fertilising yams become widespread and very few plantations are willing to "waste fertiliser" on such a low value crop as sweet potatoes. However, it has now been shown that moderate fertilising will increase the yield of early planted sweet potatoes by an average of 2,000 pounds

per acre, which at 4 cents per pound is worth $80.00.

Plant densities per acre are traditionally low, dating from the days of inter-planting between cane holes, and possibly also related to the shallow ploughing and inadequate land preparation of the pre-tractor age. Yams are normally planted at 5ft. x 5 ft. (1,742 plants per acre). Planting at 5 ft. x 2 ft. 6 in. has given from 50 to 90% increases in yield (details have been given in another paper already presented to this Conference) at relatively little extra cost; a typical comparison of the cost and returns is made in Appendix Table VI.

Increasing the density of sweet potatoes by planting closer on the ridges also gives increases in yield, but not nearly as great increases as increasing the density per acre by doubling the number of ridges. By reducing the spacing between ridges from 5 ft. to 2 ft. 6in., virtually twice the yields per acre can be obtained. This, however, departs from the preparation system usual for cane, though the possibility of ridging at 2ft. 6 in. and planting cane in alternate furrows is being seriously considered by some planters. Certainly such a system would enable the cash crop value of the land to be greatly enhanced, and, if it is valid not to charge the 5 ft. ridging to the sweet potatoes, it is valid to charge only the relatively slight additional cost of ridging at 2 ft. 6 in. in this case.

New problems loom in the more distant future. It is quite possible that mechanical harvesting of sugar cane may become essential if the sugar industry is to survive. If this should be so, it is quite certain that the topography of Barbados will not permit full mechanisation on all areas in which slopes are too steep for any currently known harvesting machines. In order for the acreage under cane to be maintained, the system of preparation in the early months of the year followed by late planting, may have to be abandoned. In its place would have to be substituted the "force back" system in which a field is tilled and planted within a month or so of reaping: the resulting crop is harvested within the next 10 to 12 months. The sugar yield per acre from the first crop is reduced but yields from subsequent crops are similar to those on the usual Barbadian system and there is, of course, a higher production of sugar per acre of land devoted to cane, as there is no land that is not harvested every year.

Such a system drives food crops out of the rotation with sugar cane on to land, which for some reason or other, may be unsuitable for full mechanisation — probably due to steepness. This would be, to say the least, unfortunate. Sugar cane, with its thick, fibrous root system and heavy fall of trash, with major cultivation only once every five or six years, is an exceptionally good crop for combating soil erosion. By contrast, a sequence of relatively short term food crops is asking for trouble. Further, there is doubt as to whether the profit to be made from "forced back" cane will be as great as that from the root crops that could be grown instead and this matter is the subject of a separate study now under way. However, assuming that the average tonnage of sugar produced in recent years must be maintained, we must face the implications of the new situation envisaged above.

On the agronomic side then, we have to consider rotations including the several root crops – yams, sweet potatoes, eddoes, cassava – pulses, corn, okras and other vegetables, perhaps tomatoes, string beans, cabbage, etc. We have to try to devise suitable systems of cultivation on contour banks or terraces that will minimise erosion, and we have to study the costs involved in such systems. So far we have little information and we cannot really predict what operations will be

necessary, nor how well the various crops will perform under these new conditions. Field experiments have only just started; but, at any rate, a beginning has been made.

On some plantations the forcing back of the cane could leave areas of "good land" (not steeply graded land) for continuous food cropping. This will, of course, be an easier situation and one for which the operations will be more easily predictable, but the probable costings have not yet been fully worked out. However, food crops will attract all land preparation costs and a proportion of the plantation overheads. It seems doubtful whether these charges would be offset by the higher yields that may in some cases be obtained as a result of divorcing these crops from the cultivations and spacing imposed upon them by their association with sugar cane.

We may perhaps carry this a little further and attempt a hypothetical costing based on "reasonable assumptions". In the rotations envisaged, yams, for example, are in the ground from May to January. When they are lifted the land has to be re-tilled, to prepare for the following crop. As the severest part of the dry season is January to April nothing can be planted until the following May, so yams carry the full year's costs. It is just possible that a catch crop of okras might be planted in November to carry through until February or March, but this is by no means certain, nor is there likely to be a demand for all the okras that could be planted in all the yam fields. So we may attempt a costing on yams as the major crop. We can argue that subsoiling will be necessary only once in two or three years, depending upon the locality. Rome harrowing will probably not be necessary at all except when the cane land is first converted to food crop land. Disease control is more likely to be a problem when the land no longer has long periods of sugar cane in the rotation. With considerations of this kind in mind, Appendix Table VI was constructed. It can be seen by comparison between Appendix Tables VII and that part of Table VI referring to yams at 5 ft. x 2 ft. 6 in., that the cost now is $91.00 per acre higher, an increase of almost 50%. It is unlikely that in the face of such figures any commercial concern would continue to sell at the former price of 3 cents per pound. Even so, for purposes of comparison gross value and profit have been calculated on this basis; these may be compared with the figures for the present system shown in Appendix Table III. For tonnages of 3 to 4 tons per acre, a substantial profit is now turned into a loss.

So far we have considered the two major root crops that have been grown in Barbados for centuries. Sporadic attempts have been made to grow Irish potatoes but without any continued success. In recent years, however, Irish potatoes have assumed some importance in the local economy : in 1954 some 5,000 tons worth $630,000 were imported ; the figure for 1965 is estimated at about one million dollars' worth. To eat Irish potatoes in preference to sweet potatoes is becoming a status symbol. I think, therefore, it is not out of place to mention this commodity in a Conference on Tropical Root Crops.

Recent experiments in both Trinidad and Barbados have given promising results, suggesting that with irrigation and with the right cultivar, yields of about 8 tons per acre (modest by temperate climate standards, but probable economic here), may be obtained. On the basis of the limited information so far obtained in Barbados a forecast of the probably costing has been made (Appendix Table VIII). This is, of course, very preliminary. For example, planting is by dibble. Until we are quite satisfied that commercial areas can be successfully grown, we will not seriously consider mechanised planting. Similar remarks apply to

mechanised harvesting. Bearing in mind the reductions in cost that would result from mechanisation we have some hope that cultivation of this crop could become an economically attractive proposition.

This paper has, of course, been limited in scope to one island, and has dealt with only three crops – the fact is that little in the way of either costings or field research has been done on eddoes and cassava under Barbadian conditions. However, I hope this discussion has put forward some points of interest, and if it has done no more I am sure it has shown you how important root crops are in our economy and why we are devoting a considerable amount of our research effort to studying these commodities.

APPENDIX TABLE I

Carbohydrates in the Barbadian Diet

Commodity	Imported or Local	Quantity[1] (tons)	Approximate calorific value[2] (per lb.)	Total calorie content per head[3] (per day)
Yams	Local	15,700	500	163
Sweet potatoes	"	7,500	570	87
Eddoes	"	1,200	570(?)	14
Cassava	"	400	570(?)	5
Irish potatoes	Imported	7,000	380	54
Breadfruit	Local	10	570(?)	0.1
Bananas	Local & Imp.	500	400	4
Maize & Maize Products	Local & Imp.	9,000	1,650	380
Rice	Imported	8,000	1,650	340
Wheat flour, etc.	Imported	14,500	1,660	620
Biscuits & other prepared cereal products	Imp. & locally made from imp. ingredients	900	1,820	42
Beans & Peas (dry basis)	Local & Imp.		1,550	16
Miscellaneous	Relatively small quantities			
Total				1,725

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1 These are estimated quantities of consumption in Barbados based on import figures, and estimates of local production based on the figures of the Government Agricultural Inspector, provision merchants and the Barbados Marketing Corporation.

2 Calorific values calculated from various published sources (mainly the Heinz Book of Nutritional Data) except for those marked (?), which are estimated.

3 Calculated from the following formula:

$$\frac{\text{No. of tons of foodstuff} \times 2240 \times \text{Calorific value}}{365 \times 240{,}000}$$

(The population of Barbados is approximately 240,000.)

The figure so obtained has then been reduced by 20% to allow for preparation losses and other forms of wastage in the case of root vegetables and fruit.

APPENDIX TABLE II

Acreage and yields of root crops on plantation of 10 acres and over in Barbados 1965 – 1966[1]

Commodity	Acreage	Expected yield per acre (tons)	Expected total yield (tons)
Yams	3,056	5.05	15,433
Sweet potatoes (early planted)	1,060	3.11	3,297
Sweet potatoes (late planted)	769	5.0	3,845
Eddoes	508	2.0	1,016
Cassava	59	5.0	295
Mixed Crops[2]	410	2.5	820
Total	5,862	—	24,706

1 Figure derived from report of Government Food Crop Inspector. These refer to plantations of 10 acres and over. No figures are available for small holdings, but it is estimated that root crops on these occupy a further 1,200 acres with a yield of about 2,400 tons, bringing the total to about 7,000 acres and 27,000 tons.

2 Frequently yams or sweet potatoes interplanted with corn or other food crops.

APPENDIX TABLE III

Cost of Production per acre of yams in Barbados

Operations	Cost ($)	Remarks
Harrowing		All essential operations for the following sugar cane crop and so not charged to the yams
Lining		
Ridging		
Digging yam holes	1.78	1,742 holes per acre @ 10c. per 100 holes
Cutting, carting, leading and dropping yam plants	11.70	
Cost of yam plants	27.00	
Filling in yam holes	3.50	
Fertilising	13.55	
Weeding	52.50	
Sub-total	110.03	This is the *actual cost* of growing an acre of yams
Estimated cane loss	39.00	See note (iii)
Overall Total	149.03	

Notes: (1) Selling price ex-field (with hucksters doing the lifting) is 3 to 4 cents per lb. The following is based on the minimum price of 3 cents per lb.

(ii) Yield 3 tons ; gross value — $202 ; Profit — $53 per acre

4	"	"	"	—	270	"	— 121	" "
5	"	"	"	—	336	"	— 187	" "
6	"	"	"	—	403	"	— 252	" "
7	"	"	"	—	470	"	— 321	" "
8	"	"	"	—	537	"	— 388	" "
9	"	"	"	—	604	"	— 455	" "
10	"	"	"	—	672	"	— 523	" "

(iii) It is commonly considered that the presence of a yam crop in the field among young canes during the first two months of their growth reduces the yield by about 1½ tons ; the trampling and general mishandling when the yams are harvested by hucksters reduces yield by a further 1½ tons — viz. there is an estimated less yield of 3 tons of cane at an ex-field price of $13.00 — $39.00 to be set against the yams.

(iv) If yams are harvested by estate labour and stored on the plantation, production costs are the same as above, except for the estimated cane loss, now 1½ tons at $13.00 per ton — $19.50

Total cost of production, therefore — $129.53

Harvesting, carting, cleaning, sorting, etc. — 69.28

Total cost $199.21

(v) Stored yams are normally sold at 4 to 5 cents per pound. On the basis of 4 cents per pound we have :

Yield —	3	tons;	Gross Value	$269;	Profit	—	$ 70	per	acre
	4	"	"	339	"	—	160	"	"
	5	"	"	449	"	—	250	"	"
	6	"	"	538	"	—	339	"	"
	7	"	"	627	"	—	428	"	"
	8	"	"	717	"	—	518	"	"
	9	"	"	807	"	—	608	"	"
	10	"	"	896	"	—	697	"	"

(vi) Note that no land preparation costs nor estate overheads (including salaries) have been charged against the yam crop.

APPENDIX TABLE IV

Cost of production per acre of sweet potatoes in Barbados (early planted i.e. "Spring Potatoes")

Operation	Cost ($)	Remarks
Harrowing		All essential operations for the following sugar cane crop and so not charged to the sweet potatoes
Subsoiling		
Lining		
Ridging		
Digging holes for slips	5.59	5,226 holes @ 10c. per 100 holes
Cutting and planting slips	9.15	
Supplying	3.49	Especially in dry weather there may be high mortality among the slips and a considerable amount of supplying is necessary
Carting slips	1.16	
Weeding	28.26	
Pest control	5.49	One spraying of insecticide against armyworm
Clearing slips before planting canes	2.27	
Sub-total	55.41	This is the *actual cost* of growing an acre of sweet potatoes
Estimated cane loss	52.00	See note (iii)
Overall Total	107.41	

Notes : (i) Selling price ex-field (with hucksters doing the lifting) is normally 4 cents per pound.

(ii) On the basis of 4 cents per pound we have :

Yield			Gross value		Profit		
2	tons;		$179;		$ 72	per	acre
3	"	"	269	"	162	"	"
4	"	"	359	"	254	"	"
5	"	"	448	"	341	"	"
6	"	"	538	"	431	"	"

(iii) It is commonly estimated that the 'Spring potato' crop reduces the yield of the subsequent crop of cane by 4 tons per acre, which at $13.00 per ton, ex-field, is worth $52.00. This loss may in part be due to the fact that spring sweet potatoes are often not fertilised and so the crop may reduce the nutrient status of the field quite substantially.

(iv) Note that no estate overheads have been charged.

APPENDIX TABLE V

Cost of production per acre of sweet potatoes in Barbados (late planted i.e. "fall potatoes")

Operation	Cost ($)	Remarks
Ploughing and rotovating or harrowing	60.00	Full cost now charged to the potatoes (see text)
Ridging at 5′ 0″	24.00	" " "
Digging slip holes	5.89	Remarks as for Appen. Table IV
Cutting and planting slips	9.15	" " "
Supplying	3.49	" " "
Carting slips	1.16	
Weeding	52.44	
Pest control	5.49	" " "
Estate overheads	83.00	Buildings, water, roads, salaries, taxes, insurance and interest
Total	$244.32	*Actual cost* of growing the crop

Notes : (i) Selling price ex-field (with hucksters doing the lifting) averages 4 cents per pound.

(ii) On the basis of 4 cents per pound we have:

Yield 3 tons;	Gross value $269;	Profit	–	$ 25	per acre
4	"	"	"	359	"	–	115	"	"
5	"	"	"	448	"	–	204	"	"
6	"	"	"	538	"	–	194	"	"
7	"	"	"	628	"	–	386	"	"
8	"	"	"	717	"	–	473	"	"

APPENDIX TABLE VI

Cost of production and returns of yams at different planting densities in Barbados (dollars)

Operation	Planted 5′O″ x 5′O″	Planted 5′O″ x 2′6″	Remarks
Harrowing			All essential operation for the following sugar cane crop and so not charged to the yams
Subsoiling			
Lining			
Ridging			
Digging yam holes	1.78	3.56	1,742 & 3,484 holes respectively
Cutting, carting, leading and chopping yam plants	11.70	23.40	
Cost of yam plants	27.00	54.00	
Filling in yam holes	3.50	7.00	
Fertilising	13.55	20.40	
Weeding	52.50	52.50	
Sub-total	110.03	160.86	Total cost of growing crop
Estimated cane loss	39.00	52.00	See note (iv)
Total	$149.03	$212.86	

Notes : (i) In the 1966/67 experiments (a low yielding year due to excessive rainfall) the average yields in experiments for Crop Lisbon yams were :
Planted 5' O" x 5' O" — 5.6 tons per acre
" 5' O" x 2' 6" — 7.7 " " "

(ii) On this basis, and at the minimum price of 3 cents per pound, average values and profits were :
Planted 5' O" x 5' O" Gross value $375; Profit $226 per acre
" 5' O" x 2' 6" " " $516 " $303 " "

(iii) In actual commercial practice the following results were obtained on one plantation (the only one making such a comparison):

Planting distance	Yield per acre	Gross value per acre
5' O" x 5' O"	13,600	$476.00
5' O" x 2' 6"	24,000	$720.00

(iv) An increase of 1 ton per acre in cane loss is estimated for the closer planted material.

(v) Planting at 5' O" x 2' 6" must give an increased yield of 2,124 pounds to cover the additional cost of $63.83 above that of the material planted at 5' O" x 5' O".

APPENDIX TABLE VII

Hypothetical costing for yams grown in its own right, Barbados

Operation	Cost ($)	Remarks
Light harrowing	10.00	Contract price
Subsoiling	12.00	$24.00 per operation, once every two years
Ridging 5′ O″ x 5′ O″	12.00	Contract price
Digging yam holes	3.56	Spaced at 2' 6" along ridges 3,484 holes at 10c. per 100
Cutting, carting and dropping yam plants	23.40	
Cost of yam plants	54.00	
Filling in yam holes	7.00	
Fertilising	20.40	
Weeding	52.50	
Disease control	16.00	2 applications of Cupravit, and labour
Estate overheads	83.00	
Total	$293.86	

Notes : (i) It is assumed that the crop will be lifted by hucksters.

(ii) On the basis of a selling price of 3 cents per pound we have :

Yield	3	tons;	Gross value	$202;	Profit	— loss of	$	92	per acre
	4	"	"	270	"	— "		23	"
	5	"	"	336	"	— "		42	"
	6	"	"	403	"	— "		109	"
	7	"	"	470	"	— "		176	"
	8	"	"	537	"	— "		243	"
	9	"	"	604	"	— "		310	"
	10	"	"	672	"	— "		388	"

APPENDIX TABLE VIII

Probable costs per acre of Irish potatoes, Barbados

Operation	Cost ($)	Remarks
Harrowing	12.00	Rome harrow to cut up the cane stumps. ½ of contract price (4 month crop) See note (i)
Light harrowing	10.00	Contract price; See note (iv)
Ridging at 2′6″	12.00	" " "
Cost of seed potatoes	220.00	Based on quotations from Florida
Cutting, dipping, Carting and dropping seed potatoes	26.00	Estimated
Planting and filling holes	90.0	17,000 holes per acre by dibbling at 5 cents per 100 holes
Weeding	33.90	Estimated at $2.00 per acre per week for 16 weeks. Possibly efficient pre-emergent spraying, costing $20.00, could eliminate further hand weeding
Disease and insect control	42.00	4 sprayings with Cupravit, 1 with Sevin
Fertilising	60.50	6 cwt. 8 : 12 : 25; $57.00 approx. + $3.50 for labour
Irrigation	48.00	See note (v)
Plantation overheads	27.70	1/3 of $83.00 for a 4 month crop
Total	$582.20	*Actual cost* of producing the crop

Notes : (i) Probable selling price 7 to 8 cents per pound ex-planation (though 10 cents is commonly obtained ex-field for un-harvested potatoes with the present experimental production).

(ii) On the basis of 7 cents per pound revenue from 15,000 pounds is $950.00, giving profit per acre of $200.00 for a 4-month crop.

(iii) In experiments in 1966 yields from small experimental plots (irrigated in coastal areas in the dry season, unirrigated in the wet season on both coastal and highland areas — 1,000 ft. elevation) lay between 15,000 and 20,000 pounds per acre .

(iv) If the Irish potatoes are grown as a catch crop these costs might not apply (compare the argument for yams and sweet potatoes when grown as catch crops). It is envisaged that Irish potatoes would be grown on irrigated land primarily devoted to food crops, not as a rotation crop with sugar cane.

(v) Irrigation : Estimated capital cost for well, pump, pipes, etc. for 25 acres is $15,000. On 10 year depreciation basis this gives annual depreciation per acre of $60.00. An Irish potato crop takes less than 4 months : proportion of depreciation on irrigation equipment is thus approximately $20.00 Some 16 inches of water are required for the crop; assume half to be supplied by rainfall, then irrigation must supply 8 inches. One acre inch — 23,000 gallons, so 184,000 gallons will be required. The cost of pumping and distributing water (including labour) is approximately 15c. per thousand gallons; thus the cost would be $27.50, bringing the total cost of irrigation to $47.50.