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The second banana costing survey in St. Lucia — B. Persaud

The method of the survey

Aims and Methods

This paper reports on a survey on banana cost of production which was carried out on a small sample of banana farms in St .Lucia in 1965. Thirty farms were investigated by regular visits throughout 1965. This survey followed one which took place in early 1965 and which covered a sample of 122 farms. In that survey, information was requested from farmers on the whole of their previous year's (1964) operation. This second survey was intended to provide more detailed and accurate information from individual farms.

The restriction of the sample size to 30 was due to the need for frequent visits to the farms and to limited financial resources which allowed the employment of only one field worker to undertake the interviewing.

In view of the small sample, it was decided to confine the investigation to the important banana growing area in the north of the island. This area includes the valley areas of Roseau, Cul=de=Sac and Dennery and the nothern central areas of Babonneau,Monchy, Garrand, Fond Assau and Marquis. It was also decided to restrict the number of size groups to two — under 10 acres and 10 acres and above. These size groups referred not to the acreage of the farm but to the acreage under banana cultivation.

Only 'pure banana farms' were included. These were farms with bananas only or with bananas and other crops but with bananas grown separately. 'Pure banana farms' are only a small proportion of banana farms in the island. Mixed cropping was not however included in the survey in order to avoid the problem of the separation of joint costs.

The sample was not adequate to give representative results for all pure banana farms in the survey area. The selection was not also done on a random basis. The farms were selected from the forty=five farms in the survey area which co=operated in the first survey. In that survey random selection was done from slected districts in each of four geo= graphical areas. The survey area for the second survey formed parts of two of these geographical areas and the farms chosen for the second sur= vey were from the selected districts in these parts. The selected districts were Cul=de=Sac=Bexon, Dennery=Mabouya, Monchy and Babonneau. Form the forty=five farms in these districts, selection of thirty was done with a view to obtaining farms which were likely to maintain co=opera= tion throughout the year. This may have led to a bias towards the better farms since it is likely that greater interest would have been shown by owners of the these farms in the survey.

Twelve farms were selected from the small size group and eighteen from the larger. The greater number in the latter was due to the wider range in farm size and the possibility therefore of a greater variation in the values which were being investigated among the farms.

It was not possible to raise the results to provide data for the island as a whole. This is because of the method of selection, the confinement of the survey to 'pure banana farms' and the lack of data on the extent of each type of cultivation and the importance of each size group.

Despite these handicaps, the total lack of information on the data which were being sought made these limited efforts useful. The survey

was aiming at providing general information on the orders of magnitude involved in the important variables of yields, total costs, costs of individual inputs and operations and returns.

Factors Affecting Profitability

Climatic conditions were favourable during 1965 for banana cultivation. Neither the amount of rainfall, nor its distribution was regarded as unusual. There was a high incidence of windstorms. However, production increase in the island of 32% over the previous year was relatively high and reveals that climatic and weather conditions were on the whole fair.

Market conditions were not very favourable. The average price received by growers in the island of 4.46 cents per lb. was a little lower than in previous years. This fall in price was seen as the beginning of a downward trend.

On the whole, 1965 could not be regarded as an unusually good or bad year for banana cultivation.

Approach to Cost/Return Estimation

All the land was owned and rent was not imputed. What is regarded as profit in the results, therefore, includes rent. Family labour was costed at the prevailing wage rates. No cost was however included for managerial work performed by unpaid members of the farm family.

No attempt was made to make beginning and end-of-year valuations for crops and other farms improvements. In the case of sheds and machinery and other equipment, a depreciation charge was included. To the extent therefore that the value of crops and improvements on the land changed over the year the financial results were distorted. However, the main cause of changes in the value of improvements is the rate of establishment* and this was not regarded as unusually high or low during the year.

THE RESULTS

Profits

Average profits were $141 per acre in the small farms and $257 per acre in the larger farms. There was a tendency for the larger farms to occupy the valleys and the small farms the hillsides. This gave an advantage to the larger farms in banana cultivation. However, the main reason for the difference in results seems to be management. This is brought out in the more intensive cultivation that was undertaken in the larger size group. More fertilisers, fixed capital and labour were used per acre in this size group.

Yields

Average yields were 286 stems per acre in the small farms and 427 stems per acre in the larger. Yields in tons per acre were 3.53 and 5.6, respectively. The larger farms did better when yields were measured by weight because of the higher average weight of the stems. In the small farms, the average was 28.3 lbs. and in the larger 29.5. The stem/

*Establishment is used here to include both planting and replanting.

mat ratio was 45 : 100 in the smaller size group and 50 : 100 in the larger size group. The higher yield of the larger farms is no doubt one of the important reasons for their larger profits.

Fertiliser Use

The avergae amount of fertiliser used was 680 lbs. per acre in the small farms and 1,629 lbs. per acre in the larger farms. The latter is more than double the former. This is not so, however, when fertiliser use is shown per mat. The use per mat in the small size group was 1.1 lbs. and in the larger size group 1.9 lbs. This is because of the higher average mat density per acre in the larger farms. The density was 640 per acre in the small size group and 859 per acre in the larger size group. The higher average mat density in the large farms is another indication of better management levels since farmers have been advised in recent years to increase their density.

Fertiliser inputs per acre was 139 per cent higher in the larger size group. However, yields were only 59 per cent higher. This points to the possibility of diminishing returns from the use of additional units of fertiliser at the higher levels of application in the large farms. The fact that the higher fertiliser application in the large farms took place on land of better quality and was associated with higher levels of use of the other factors of production lends support to this argument.

It does not seem however, that fertiliser use was approaching an optimum level on the average in the larger size group. On the assumption that fertiliser use is one of the important variables affecting yields, a comparison between the extra and additional fertiliser cost in the larger farms can be used to throw light on this matter.

Additional sales receipts were $222 per acre in the larger size group. Fertiliser cost averaged $80 more per acre. A true comparison necessitates a deduction of the extra harvesting costs which resulted from the higher yields. However, these are only a small amount per acre do not affect the position shown of high returns from additional fertiliser use. This comparison indicates that profits could have been increased by additional fertiliser applications both in the large and small size group. This supports the recommendation of the Windward Islands Banana Growers" Association (WINBAN) Research Scheme of fertiliser use of one ton per acre.

Net Income

Profits were added to the imputed value for unpaid family work in order to give net incomes accruing to farm families from their banana cultivation. The average net ncome was $229 per acre in the small farms and $261 per acre in the larger farms. The fact that larger farms gave a higher net income per acre despite their much lower application of familiy labour per acre is a reflection of their much better financial performance.

Net income per farm was $748 in the small size group and $19,102 in the larger. The average farm size was 3.3 acres and 73.2 acres, respectively. The net income of $748 for a farm of about 3.3 acres reveals the low incomes which accrue to the large number of farms which are about this size or less. According ot the 1961 Agricultural Census, 78.3% of the holdings reporting banana cultivation were under five acres.

Cost and Receipt Per Pound

Average cost per lb. was 2.93 cents in the small farms and 3.44 cents in the larger farms. It should be pointed out that most of the larger farmers sold wrapped stems at the reception depot (at the Wharf), whereas most of the small farmers sold unwrapped stems at buying points which are near to their farms. The additional operations of wrapping and transporting fruit raised costs, but they could not affect profits to any significant extent because refunds were given for these operations at rates which were intended to cover costs.

Even when costs for these additional operations were subtracted average cost per pound was still higher in the larger size group. This does not mean less efficient cultivation. Higher profit per acre need not coincide with lower cost per pound. With intensive cultivation, profit per acre increase while cost per pound is decreasing.

This point is made because of the mistaken view which is almost generally held in banana circles in the island that low cost per pound is the most important indicator of efficiency.

Sales receipts per pound (excluding refunds) were 4.46 cents on the smaller size group and 4.65 cents in the larger size group. Since prices were the same for all growers each week, this difference seems to point to a better seasonal pattern of production in the larger farms which enabled them to benefit from the higher prices that are paid from April to September.

Net Output

The cost of materials used on the farms — fertilisers, herbicides, etc. — were subtracted from gross output to give net output; in other words, the value added on the farms. Capital consumed in the production process was not however subtracted.

Gross output was $380 per acre in the small size group and $686 per acre in the larger size group. Net output was $319 in the former and $508 in the latter. While gross output was 80% higher in the larger size group, net output was 59% higher. This is evidence in another form of decreasing returns to inputs of materials at the higher levels of application.

The Structure of Costs

Labour was responsible for 69.6% of total cost in the small farms and 51.9% in the larger farms. Fertilisers were the next important item — 24.4% in the former and 31.1% in the latter.

The importance of labour in total cost has important implications for the future of the industry. A rise in wage rates would have a large impact on cost per unit of production. An increase in yields or a change in factor proportions could be offsetting factors. Price prospects in the industry do not seem good. A change in wage rates in the future would therefore assume great importance.

Recurrent operations accounted for 71.3% of total cost in the small size group and 66.8% in the larger size group. Establishment costs 23.4% and 13.9%, respectively. Recurrent costs per acre were $170 in the small size group and $287 in the larger size group. Establishment costs were $54 per acre in the former and $60 per acre in the latter. (To arrive at these, establishment costs were divided by the total acreage and not by the acreage established.)

While both establishment and recurrent costs per acre were higher in the large farms, the difference was much larger in recurrent costs. This indicates that the larger farms paid much more attention to those practices which enable a farm to get the best results from established fields. In this way, the larger farms were able to obtain higher yields and thus to lower costs by spreading their fixed costs over a larger output.

Labour Input

Employment according to persons per acre was 1 in the small size group and 6 in the larger size group. This does not mean, however, higher labour intensity in the small farms. The application of manual labour per acre was 469.2 hours in the small size group and 524.5 hours in the larger size group. Non-manual labour was more important in the large farms. If, therefore, it were taken into account, the difference between the two size groups in hours per acre would have been larger.

The reversal of the position on hours per acre was due to the short working week and working days in the small farms. In many cases, labourers were only hired on harvesting days.

The capitalisation of the small farms was very low. The average value of sheds, machinery and other equipment was $9 per acre compared with $67 per acre in the larger farms.

Conclusion

On the whole, the financial results were much better on the larger farms. This farms were chosen from the seme area, hence climatic conditions were the same. The larger farms would have had some advantage in terrain, soil and moisture because of their prevalence in lower areas. It appears, however, that management was the main factor responsible for the difference in performance. Unlike physical factors, the human factor could be improved upon, hence great scope is revealed for improving the efficiency of banana cultivation in the island.

Note : Tons = long tons.
$ = EC$ = US$. 60 = 4s. 2d.