

S.S.e.12. AJOY MATHEW—A study of the Coconut Economy of Kerala, 1956–1983; 1988—Dr. K.C. Sankaranarayanan.

Introduction

India is the third largest producer of coconuts. She accounts for nearly 16 per cent of the world production. Coconut culture and industry provide full or part-time employment to over 10 million people in India and contribute about Rs. 6000 million worth of agricultural and industrial goods. Coconut is essentially a crop of the small holder. The average size of the coconut holding in India is as small as 0.20 hectares.

Kerala is the leading state with reference to area and production of coconut among the various states in the Indian Union. The economic strength and weakness of the state, to a considerable extent, depend upon the strength and weakness of the coconut economy. Hence an understanding of the trends in growth in area, production, productivity, market structure, etc. in the case of coconut is of great importance in formulating policy measures with a view to strengthen the economy of Kerala. Hence the significance of the study.

Objectives of the study

The objectives of the study are the following:

- (1) to analyse the area, production and productivity of coconut cultivation in Kerala and to identify the relative importance of area and productivity in production and the factors that influence these parameters,
- (2) to assess the changes in cost of production and profitability of coconut cultivation,
- (3) to estimate the marketed surplus of coconut for each category of farmers, viz., large, medium, small and tiny, and
4. to study the economics of coconut prices and marketing of coconuts.

Methodology.

Both primary and secondary data are used for the study. Primary data were collected using structured schedules. Kottayam and Alleppey districts were selected for the field survey. Two hundred farm households from four panchayats - two each from Alleppey and Kottayam districts were surveyed for detailed analysis.

Scheme of the study

For the purpose of analysis the thesis is divided into seven chapters. In the

introductory chapter the importance of coconut cultivation to the economy of Kerala state is highlighted. The second and third chapters contain analysis of changes in area, production and productivity of coconut cultivation in the state. The use of modern agricultural practices by coconut farmers is analysed in chapter four. The fifth and sixth chapters cover analysis of cost of production and profitability and diseases affecting coconut. The last chapter presents the summary and findings of the study.

Findings of the study

Analysis of data relating to area under coconut over the years clearly shows an increasing trend during 1955-56 to 1982-83 except in the years 1975-76 to 1979-80. The most substantial increase took place in the period 1965-66 to 1969-70 when the area under coconut increased by 20.3 per cent. The increase in area was due to conversion of paddy lands into coconut gardens against the backdrop of higher profitability of coconut.

Coconut had a clear price advantage during the 1960s. But during the 1970s this price advantage was lost to other crops such as cashewnut and rubber. However, substantial areas under different annual crops were converted into coconut gardens.

Analysis of trends in district-wise area under coconut shows that there was decline in area in four out of eleven districts. Quilon and Cannanore witnessed faster growth rates compared to other districts. On the other hand, Alleppey and Kottayam districts registered negative growth rate in area; these are incidentally the districts which are intensely affected by root-wilt disease.

The trend in yield during the period 1955-56 to 1982-83 has been analysed by breaking the period into five year sub-periods. These sub-periods have been analysed by studying the data for average cumulative percentage variations, absolute percentage variations and by fitting linear equations of the form $y = a + bx$. From our analysis it is seen that yield has been declining continuously till 1979-80. It was only during 1980-81 to 1982-83 that we see a surprising increase in yield.

The causes for decline in productivity has to be explained with reference to several factors. Important among them are the rainfed nature of coconut culture and the prevalence of root-wilt disease.

Studies on the effect of irrigation on coconut production reveal that poor yielding coconut palms (below 20 nuts per year) respond significantly to summer irrigation; they are found to increase their post-irrigation yield by more than 210 per cent. Coconut palms which are low yielders (20-40 nuts per year) show increase in their post-irrigation yield by about 130 per cent. Considering that the average yield in Kerala now is in the poor and low yield categories, it can be concluded that summer irrigation would benefit production of coconut to a considerable extent.

The Government of India's policy of import of copra and coconut oil has seriously affected the coconut cultivators of Kerala.

Kerala is slowly, but steadily, losing the prime position it enjoyed as the leading coconut producing state in the country. The monopoly it has in coconut is being challenged by states such as Tamil Nadu and Karnataka which are contributing their might in terms of increasing area and production.

There have been occasions when coconut trees were cut under the pretext.

of an "unremunerative" crop to give way to more "profitable" crops such as rubber and cocoa. This was a feature in the southern pockets of the state. The farmers did this in the background of low prices during 1982 when other edible oils like groundnut were recording higher levels of prices.

Coconut farmers are realising under the grip of middlemen who control and monopolise the market scene with the result that a reasonable price is denied to the farmers for their produce. Uneconomic prices and unsteady market, because of multinationals and monopoly procurers, are playing havoc with the livelihood of the average coconut farmer. The conditions of coconut farmers have been aggregated by the inability of our science and technology institutions to find a remedy for a killer disease such as rod-wilt despite years of extensive research.

An analysis of the trends in production in various districts of Kerala shows that, out of the eleven districts, six have witnessed decline in coconut production. The decline in production was quite sharp in Alleppey district. Of the remaining five districts, which showed an increasing trend, Ernakulam had the biggest increase. For analysing the trend three measures were used: average cumulative percentage variation, absolute percentage variation and the values obtained by fitting a linear trend equation of the form $y = a + bx$. Till 1969-70 the rate of increase in production was faster than that in the subsequent periods. Since 1970-71 the rate of change in production has been negative, with an improvement only after 1980-81.

Data relating to changes in production were decomposed into yield effect, area effect and interaction effect for the period 1955-56 through 1982-83 using the following formula

$$P = A_1 xy + Y_1 x A + y \times A$$

where P is change in production (between t_1 and t_n), A_1 is initial area (in t_1), A is change in area (between t_1 and t_n), y_1 is initial yield (in t_1) and y is change in yield (between t_1 and t_n). Our analysis shows that the yield effect or contribution of yield to change in production has been negative throughout the period except in the last period 1980-81 to 1982-83. It was mainly the increase in the area which contributed to increase in production till 1969-70 and which continued to have a positive contribution even during the period 1970-71 to 1974-75.

With better farming practices, which require ploughing, digging basins and applying adequate quantities of fertilizers, the total returns of coconut gardens in general, and those of small farmers in particular, can be increased. But the additional cost involved is often beyond the capacity of small farmers. Further, the existence of certain cultivation practices such as over crowding of palms in small plots of land have their own rationale so far as small cultivators are concerned. It appears that plots with density of cultivation above that prescribed by scientists as optimum, give larger net income.

Research findings that D X T and T X D hybrids start yielding earlier than the local variety and that they can be planted much closer than the local variety, thus increasing income per plot. But the practical experience of farmers shows that the hybrids are high risk varieties. They are more prone to failure in establishing into grown-up palms than the local varieties and require intense care, without which they would have problems in bearing and growth. Moreover, the hybrids have a major disadvantage in the short life-span it has, which is a major disincentive to the farmers.

The argument that the inverse relation between size and productivity is due to the impact of irrigation was examined in the present study. For this purpose, sample coconut gardens which had irrigation were separated from those which were unirrigated. The productivity of unirrigated holdings was examined and the correlation co-efficient between size of the holdings and productivity in such cases worked out. This worked out to -0.234 . The result shows that a weak negative correlation exists between size and productivity without the effect of irrigation. Thus, it can be concluded that the existence of the inverse relationship, as seen in the case of coconut, is not due to irrigation.

In order to study the relationship between size of coconut farms and per capita output values we fitted a simple linear regression and got the correlation co-efficient of 0.64 . This value, which is positive and above moderate, shows that per capita output increases moderately with increase in size of coconut holdings.

Primary data collected through field survey shows that, according to the farmers who were given multiple choices, the main reasons for decline in yield of coconut were: (i) disease (94.35 per cent) (ii) declining quality of soil (55.37 per cent); (iii) rise in input prices (23.73 per cent); and (iv) ageing of palms (23.73 per cent).

The present study has thrown up data regarding the relationship between size of coconut farms and productivity. The findings show that holdings between 0–200 cents have the highest range of yield of 34–48 nuts while holdings between 201–500 cents have the next highest range of 29–31 nuts. While holdings between 501–600, 601–700, 701–800 cents give 23, 50, 19 nuts respectively, in the case of 901–1000 and more than 1000 cents respectively the yield is 31 and 19 nuts (Here the yield rate for holding size group 601–700 cannot be taken as representative as the number of cases in this group is not statistically significant). Thus, if we leave out the size-group 601–700, we see that yield has been coming down as the size of holdings increases. This reasoning may indicate a negative relationship between size and productivity. A more sophisticated approach of using regression analysis may be more acceptable. The correlation co-efficient size and productivity is -0.496 which is inverse and quite strong.

Some economists have opined that the inverse relationship is due to differences in the quality of land. On the basis of the data collected from the field survey this hypothesis was analysed. We took value of land in rupees as a proxy for quality of land. The correlation co-efficient worked out to -0.264 . This means that, though an inverse relation exists, it is not strong.

Some researchers have opined that analysis of only productivity per unit of land is inadequate. They argue that, instead, output per unit of labour should also be analysed in relation to size of holdings. We adopted this method and got a correlation co-efficient of 0.586 . Thus, it is clear that productivity of labour is higher in bigger farms.

Profitability as a criterion of efficiency of coconut farms was considered in the present study. For most of the coconut farms, income from coconut sales is only a small portion of their net income; substantial portion of their produce is for domestic consumption. Size-wise comparison of average profit of sample cultivators shows a weak positive correlation, giving the value of 0.0631 which implies that there are no differences in profitability between various sizes of coconut holdings.

The distribution of households of various sizes according to profit range reveals

quite interesting facts. For sizes below 200 cents profit per acre is below the range of Rs. 501-750. Incidentally, the size 101-200 cents shows 11 cases above Rs. 5000 per acre and, as expected, sizes above 600 cents have profitability above Rs. 5000 per acre. These findings are not unexpected as they are mainly large-size holdings which can high profits per acre as the size of their marketed surplus is larger.

The share of marketed nuts in total production was found to be about 79 per cent. The number of nuts marketed declined by more than 18 per cent between 1981 and 1983. Analysis of marketed surplus per acre in relation to size of the coconut gardens gave only a weak correlation co-efficient of 0.003. This implies that marketed surplus is uniformly distributed among different size-groups.

Most of the coconut farmers who were interviewed in the present study opined that modern practices have no advantage over traditional methods as far as their impact on profits was concerned.

Analysing the results of our field survey, it was found that 86 per cent of the respondents used the local variety for replanting. There were many reasons which they listed for using mainly the local variety. These included better establishing record of the local varieties their greater tolerance to disease and the adulteration of hybrid seedlings available. Moreover, the hybrid seedlings were found to be erratic bearers and tended to perform badly under lesser care.

The opinion of the sample respondents regarding the effect of mixed cropping of cocoa on the productivity of coconut was examined. Out of those who responded about the impact of cocoa on the productivity of coconut, only 7.69 per cent claimed that cocoa cultivation benefited coconut productivity, albeit indirectly, that is, through the benefit of manure given to cocoa which was also utilised by coconut. Over 67 per cent of those for whom the question mattered opined that cocoa cultivation reduced coconut productivity and 24 per cent could not discern much change. This finding is quite important because certain scientists have been promoting the theory of nutrient contribution by certain intercrops.

Study of paid maintenance costs shows that holdings above sizes of 600 cents have a lower proportion of their total paid maintenance costs spent on soil improvement such as application of manure and tilling of soil. It is mainly the holdings in size groups 51-600 cents that do substantial expenditure on tilling and application of manures. For all holdings, cost of plucking was quite substantial ranging from 21 to 56 per cent of total paid maintenance cost. This is because plucking is a semi-skilled job and all planters require hiring in of climbers.

The field survey also revealed that, among cultivable crops, coconut was still the most profitable one. This is because other crops which are profitable such as rubber and coffee cannot be grown on coconut land. Competing crops such as tapioca, oil palms, yams, pepper, nutmeg ginger, banana, plantain etc do not offer better profits.

Primary data showed that the cost-return ratio was more favourable in the case of bigger farms. The co-efficient of correlation between size of farms and cost-return ratio was found to be 0.704. In the bigger farms cost is lower.