

Coconut cluster – a step towards coconut revolution: Cheramanthuruthu experience

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As a test model 'coconut clusters' were experimented in the four panchayats of Alappuzha district viz., Kanjikuzhy, Pattanakkad, Uzhuva and Muthukulam during the period 2005-06 to 2006-07. The programme could bring about perceptible change in production, productivity, employment and income of the people involved in the cluster programme.

Introduction

The Travancore State Manual accounts that coconut is the chief money crop of the State and forms one of the main sources of revenue. Coconut products constitute the bulk of our exports, the tree supplies raw materials for several industries. The taxes on this palm bring in more than a fourth of the land revenue and the export duties on coconut products about one half of the customs revenue. The crop occupies more than a fourth of the total cultivated area, (T.K.Velupilla, 1940). This shows that coconut sector played a dominant role in the growth and development of the State. However, present scenario gives a dismal picture. Though a series of projects and programmes have been introduced both by the State Government and the Coconut Development Board, they could not create any spectacular improvement in the situation. It is then that this programme of direct intervention of coconut Development Board is launched. As a test model 'coconut clusters' were experimented in the four panchayats of Alappuzha district viz., Kanjikuzhy, Pattanakkad, Uzhuva and Muthukulam during the period 2005-06 to 2006-07. Experts from the Board directly

monitored the programme from the very beginning. The programme could bring about perceptible change in production, productivity, employment and income of the people involved in the cluster programme. It is this success which persuaded the Coconut Development Board to give a wider coverage to the programme through including eight districts of the State in it. Cheramanthuruthu of Kadinamkulam panchayat in Thiruvananthapuram district is one such cluster.

Cheramanthuruthu – Again in the forefront

Cheramanthuruthu, which witnessed a twist in Cheraman Perumal's history, is now experiencing twists and turns in its own coconut economy. People across all socio-economic categories are partakers in the cluster development programme of the Coconut Development Board operated here from July 2007. Thiruvananthapuram has been one among the eight districts of Kerala where the cluster development programme is initiated by the Coconut Development Board in 2007. Cheramanthuruthu is a ward of Kadinamkulam panchayat in Thiruvananthapuram district. Indifferent attitude towards coconut palms is now a thing of the



Presidential Address by Smt. Minnie Mathew, IAS, Chairman, CDB in the seminar conducted at Kadinamkulam Cluster, Cheramanthuruthu, Thiruvananthapuram on 28th January, 2008

past for the people here. When the 'coconut cluster' message of the Coconut Development Board was taken to them by the Centre for Tropical Studies, Thiruvananthapuram, they had little faith in it, and without hesitation they spelt out that "coconut cluster is just another gimmick to fool coconut farmers." The Coconut Development Board and the administering voluntary Organization took it as a challenge. All households in the 'Thuruthu' except a few who could not produce ownership titles, are members in the cluster. There are 250 registered members in the cluster. The total area of coconut gardens under the cluster programme comes to 30.66 hectares.

Area wise classification of the cluster

Areawise classification of cluster households shows that 149 (59.6%) households belong to less than or equal to ten cents which bear witness to the inclusive nature of the programme. When 18.8 per cent belongs to 11 to 20 cents category, only 6.8 per cent belongs to the category of above 75 cents. Unique feature of the cluster programme is that, when it insists on the contiguity of the cluster area, it limits the benefits of the programme to a maximum of one hectare. This

means that when large farmers are not excluded, their benefit is strictly monitored and limited. Thus, farmers with one hectare or less are given 100 per cent coverage of benefits, whereas farmers with more than one hectare get the benefits only for one hectare.

What is a cluster?

A 'coconut cluster', is a contiguous area of coconut palms extending to 25 to 50 hectares. The 'cluster scheme' is well designed with an 'inclusive' approach towards coconut development vis-à-vis human development. The cluster scheme envisages that every household under the cluster should get inputs worth Rs.100/- per palm per year in two-split dozes, all in the

data gives a vivid picture of the coconut palms in the cluster. Type and intensity of the disease afflicting the palms, type of pests attacking the palms, macro-micro nutrient deficiency of the soil, irrigation facility, intercropping possibilities, manuring habits, personal particulars of the cluster members etc. are collected in the baseline survey.

The normal density of coconut palms per hectare is scientifically fixed at 175 standing trees. In Cheramanthuruthu cluster, total standing palms are 273 per hectare. Hence, though there are 8371 standing palms in the cluster, only 5241 palms were eligible to get Rs.100/- worth inputs a year. Even then, a hectare will be enjoying inputs worth Rs.17,500/- a year. The project will be continued for two years.

In the cluster, out of the 8,371 palms, 1,279 were found infected by diseases. Types of diseases and the palms affected by each disease are given in Table 2.

Realising the magnesium deficiency of soils in the cluster, input programme was started with the distribution of dolomite. Severe pest attack was also noticed and pheromone traps were installed in

Table 1. Area wise classification of the cluster

Classification - Area under coconut cultivation in cents	No. of households under the cluster
1- 10 cents	149
11-20 cents	47
21-40 cents	27
41-75 cents	10
Above 75 cents	17
Total	250

form of fertilizers, pesticides, bio-fertilizers etc. As a prelude to integrated coconut management, baseline data of the proposed cluster area was collected. This base line

Table 2: Types of diseases and the palms affected

Types of disease	No. of infected trees	Percentage
Yellowing	451	35.26
Mite	388	30.34
Crown Chok	230	17.98
Root Wilt	89	6.96
Leaf Rot	76	5.94
Stemleeding	25	1.95
Others	20	1.56
Total	1,279	100.00



the early days of November 2007. A total number of around 900 rhinoceros beetles and red palm weevils together were trapped by early February 2008.

When the Coconut Development Board provides inputs like organic and inorganic manures, pesticides, pest traps etc., soil preparation, application of organic manures like cow dung, green manure, irrigation etc. must be unfailingly undertaken by farmers. Similarly, a farmer with more than one hectare of palms is expected to follow the same integrated input management practices in the area over and above the area included in the cluster. The rationale behind this is that he is a farmer endowed with more resources than those with less than one hectare, and therefore, while enjoying the limited subsidy, more investment must come from him/her.

Objectives of the Cluster Programme

Cluster Programme, as envisaged by the Coconut Development Board has certain lofty objectives such as

- to improve the area, production, productivity and quality of nuts in the project area,
- to enhance the average farm income of the farmers through inter/mixed cropping and integrated crop management strategy,
- to facilitate value addition through technology transfer, financial assistance etc.
- to provide better marketing network
- to create additional employment through the above mentioned multi-pronged programmes, and

- to improve the socio-economic status of the cluster members.


All inputs are made available through accredited agencies, but are distributed only after getting certified from authorized quality testing laboratories.

Cluster programme of Cheramanthuruthu went on well and all the farmers slowly understood that this programme was quite distinct from various other programmes. Thus, when the first year operations were almost over, it was decided to conduct a farmers' seminar. Seminar meant to transfer the message of a better coconut farming culture to the partakers of the cluster programme. Hence, a well designed technical session was arranged in which Shri. R. Jnanadevan, Asst. Director, Coconut Development Board elaborated the cluster programme and gave lessons to the participants on crop diversification and integrated pest management. In his presentation, he could elucidate various diseases affecting coconut palms and the scientific methods to fight against

them. He also highlighted the unlimited possibilities of inter/mixed cropping in the coconut garden under canopy cultivation method. A remarkable achievement in coconut cropping system is the possibility of multi-storied high intensity cropping which paves the way to use the air space in which coconut with its canopy at 10.30 meters height from the ground forms the top floor, black pepper on the coconut trunk up to 6 meters height that forms the second floor, cocoa with a canopy of 5.4 meters forms the first floor and pineapple forms the ground floor₂ (Report of the High Level Committee on Land and Water Resources, State Planning Board, Government of Kerala, 1984, p.59). He tried to substantiate these with supporting evidences from field experiments. History of coconut farming with intercropping evidences that plantains, yams and many other kinds of catch crops are often grown between the palms. Arecanuts, jacks and mango trees compete with them perpetually₃ (Travancore State Manual, Vol. III, p.352).



Prof. (Dr.) James George engages the Class



Dr. James George, Senior Scientist, CTCRI took class on the possibilities of cultivation of tuber crops as intercrops in the coconut gardens. He explained the income and employment generation potential of inter/mixed cropping. He described that coconut and tuber crops are predominantly cultivated in Kerala, and their association is very much established. However, both are often under the tremendous pressure of diminishing the size of land holdings. Cultivation of tuber crops like cassava, yams, elephant foot yam (*Amorphophallus*), tannia, taro and arrowroot in the interspace of coconut garden is a traditional practice in Kerala. Various studies conducted reveal that food production can be substantially enhanced by integrating tuber crops in the existing coconut gardens. It is reported that most of the roots of coconut palms, planted at the recommended spacing of 7.5 x 7.5m are distributed laterally within a radius of 2 m from the base and vertically within 30 to 120 cm depth, which in effect, utilize only 22.3 per cent of the land area. This indicates that about 77.7 per cent of the land is available for cultivation of intercrops. It has also been reported that about 65 to 75 percent light infiltrates into the interspace of a well-grown and systematically planted coconut garden. Under such ideally spaced coconut garden, around one palm 20 cassava could be planted as inner row and 28 cassava plants could be planted as outer row totaling 48 cassava plants per palm. In the inner row, cassava could also be substituted with elephant foot yam. In between the inner and outer row, one row of cowpea could be planted which

would enhance the total income per unit area. The extent of light transmission varies with the age of the coconut palm, the number of functional leaves on the crown, distance between palms and system of planting. Studies have revealed that in coconut garden below the age of 8 years, cassava, elephant foot yam and yams could be profitably cultivated while in plantations in the age range of 8 – 25 years elephant foot yam, taro, tannia and arrow root could be effectively grown; however, in plantations above 25 years almost all the tuber crops could be grown viably. Studies further indicated that in an intercropped garden, 5– 15 per cent yield increase could be obtained when intercrops like cassava, elephant foot yam, greater yam, lesser yam, taro and coleus were rotated. Performance of cassava, elephant foot yam and yams have been well documented and most of those reports indicated additional net returns of Rs. 17,000 to Rs. 25,000 per ha, when intercropped.

Dr. Stephen Devanesan, Professor and Principal Scientist, All India Co-ordinated Research Project on Honeybees and Pollinators, Kerala Agricultural University, Regional Agricultural Research Station (Southern Zone), College of Agriculture, Vellayani elaborated the scientific relevance and economic importance of Bee-keeping in coconut gardens. Bee keeping according to him, by improving the pollination of coconut raises coconut productivity, while raising income through honey and increased coconut production. He narrated that pollen and nectar are consumed by honeybees. Coconut inflorescence is



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a good source of pollen to bees. Healthy palm produces 12-18 inflorescences annually. It is estimated that each spadix provides 272 million pollen grains. In Thiruvananthapuram district coconut is grown in an area of 84,078 ha (Farm Guide 2008) and hence there is ample potential for beekeeping in coconut plantations during the brood rearing season, and then could be migrated to Rubber plantations during honey flow. He also explained that wind and insects were the major agents for pollination in coconut in which insects played a vital role. The studies conducted at AICRP on Honeybee, Vellayani Centre revealed the association of 51 different species of insects with the opening of spadix in which honeybees play a vital role for pollination. Lack of sufficient pollinators in coconut garden is one of the reasons for nut fall in plantations. Conservation of insect fauna in coconut crown by reduced application of chemical pesticides will help ensure pollination by insects and thus enhancement in yield. Hence he advocated beekeeping in coconut plantations as a good practice to be adopted by coconut growers.



Concluding session of the seminar was presided over by Smt. Minnie Mathew I.A.S., Chairman, Coconut Development Board. While delivering the welcome speech, Panchayat President Shri. F. J. Tennyson complimented the Board for introducing the novel programme of coconut cluster which was implemented through local Self Government Bodies and NGOs under the strict monitoring of the Coconut Development Board.

While delivering the presidential address, Smt. Minnie Mathew explained the existing crisis in coconut farming sector in the country, especially in Kerala. She narrated how the sector was entrapped by the Exim policies under the World Trade Organization (WTO). At a time when coconut price was determined by factors which are beyond the control of national / state governments, the prevailing crisis could be overcome only through raising production, productivity, additional income by value addition, intercropping and pursuing improved marketing network. 'Coconut Cluster' is an innovation in this context and it will

help a smooth take off of the coconut economy if implemented in the right perspective and direction. Through product diversification and intercropping, dependence on coconut as the sole source of income for a coconut farmer can be overcome. Diversified coconut products like virgin coconut oil, desiccated coconut powder, coconut milk, snow ball tender coconut, vinegar etc, would add flavour in the coconut market, she hoped. In the clusters, integrated input management was bringing slow and steady improvement in production and productivity and integrated pest management was in progress and root-wilt disease was being kept under control. Through inter / mixed cropping, income of the coconut growers could be enhanced substantially. Field experiments have proved that there was great scope for canopy based cultivation in coconut gardens through which, in addition to income enhancement, employment up to 960 man days per hectare might also be created.⁴ She reiterated the fact that whatever steps were taken by the Government, it was only half way. It is the co-

operation and concerted efforts of the coconut growers in the cluster which determine the success of the programme, she said.

At the backdrop of massive crop shifting from coconut to other perennial or seasonal crops, a multi-pronged approach to re-energize the sector is essential. Area under coconut has declined from 9.26 lakh hectares in 2000-01 to 9 lakh hectares in 2005-06. Since area decline has started and cost of coconut farming in Kerala is much higher than that in the neighbouring states, productivity increase is the key to safeguard the coconut sector from crisis. Per palm productivity in Kerala has been declining for the past few decades for reasons like higher age of the palm,⁵ (Bavappa 1982, Thampan 1986), incidence of diseases, poor cultivation practices, low input use,⁶ (Narayana *et al*, 1991), high cost of labour and non availability of timely labour, limited value addition inspite of unlimited potential, low and fluctuating coconut prices etc. Coconut cluster is the child of the constructive thinking of the Coconut Development Board. It has miles to go before it attains the target.

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Kadinamkulam Cluster Members