



## Integrated Farming in Coconut Holdings for Productivity Improvement- a Programme which led to Cluster Approach in Coconut Sector

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The programme for “Integrated farming in coconut holdings in Kerala for productivity improvement” had its beginning in an area of 10,000 ha during 1987-88 which was the third year of the VII Plan Period. The technical content of the programme was to cut and remove the disease affected, senile and unproductive coconut palms at an average rate of 2.8 percentage of the palm population, and replant with genetically superior planting material preferably hybrids, promotion of irrigation facilities, multi species cropping system and extending technical support including institutional credit to the farmers for adopting different enterprises. Incentive subsidies

were envisaged at Rs.75 per palm for cutting and removal, Rs.4 per seedling for replanting, Rs.1000 for irrigation facilities like pumpsets/irrigation sources and Rs.50 per ha for promotion of multi-species cropping. The institutional support proposed was for the purchase of milch animals and also for starting other enterprises like bee keeping, piggery, poultry etc. Multispecies cropping were envisaged at 60 per cent of the operational area i.e. in 6000 ha. No financial assistance was extended for fertiliser application. The programme was implemented by the Department of Agriculture, through the Panchayat level Krishi Bhavans. Field level staff for the state was also provided for implementing the programme.

The total financial outlay of Rs.56.775 lakhs, was to be shared on 50:50 basis by the Board and the State Government. A credit component of Rs. 227.5 lakhs also formed part of the financial outlay of the programme.

The Government of Kerala implemented the programme and achieved the target fully. However, no conspicuous impact could be brought out in view of the low targets set in when compared to the gravity of the root wilt disease prevailed in the state. The programme was originally envisaged for four years commencing from 1987-88 to 1990-91. Since the VII plan period was over by 1989-90, there was a spill over year for

implementation. Incidentally the years 1990-91 and 1991-92 were Plan holidays and were treated as Annual Plans. Thus the programme commenced during the VII Plan was completed by 1991-1992 and the scheme was continued in an additional area of 10,000 ha during 1991-92 with the same mode of implementation and pattern of assistance.

### Expansion of the Programme

**A national seminar on 'Production and productivity of coconut in India' was held at Trivandrum on 27<sup>th</sup> September 1986 jointly by the Ministry of Agriculture, Government of India and the Government of Kerala. The recommendations emanated from the seminar formed the basis for formulating future production and productivity oriented programmes under the State and Central sectors.** By this time the root wilt disease was spread in more than 4 lakh hectares in Kerala. It was however experimentally proved that considerable yield increase could be achieved through adequate management of the affected gardens. The basic requirements identified necessary for maintaining optimum productivity were irrigation, optimum use of manures and fertilisers, cutting and removal of senile, unproductive and disease affected palms, promotion of intercropping, mixed farming etc. These practices not only improve the income and employment from the existing holdings but also enrich

the fertility status of soil. The importance of providing irrigation facilities in coconut as a means of increasing the production and productivity even in the disease affected areas was emphasised by the participants in the above seminar. Irrigation facilities would also facilitate intercropping and mixed cropping in the gardens. Therefore an integrated programme encompassing provision of irrigation facilities, replacement of senile and disease affected palms, replanting with quality planting material, optimum use of fertilisers and promotion of multispecies cropping was, therefore felt imperative. Thus the recommendation of the seminar was, to expand the integrated farming scheme which was being implemented by the Board in 10,000 ha to a wider area of 1,00,000 hectares.

**A massive programme with coverage of 1,00,000 ha was thus formulated by the Board during the VIII Plan Period which commenced from 1992-93.** With the implementation of the programme from 1986-87 to 1991-92 an area of 20,000 ha only could be covered in the state, with a subsidy component of Rs.106.496 lakhs. From the field level experiences gained and the feed back received from the implementation till then, the quantum of subsidy under various components was increased and mode of implementation modified during VIII Plan period. There was a directive from the Government of

India to explore the possibility of extending the programme to other major coconut growing states as well. This was in the context that diseases similar to the rootwilt disease in Kerala, like Thanjavur wilt, Tatipaka wilt and Ganoderma wilt were causing damages to the coconut cultivation in Tamilnadu, Andhra Pradesh and Karnataka respectively. Though these diseases were not so widespread, eradicating the foci of infection and thereby arresting further spread of the disease to neighbouring areas was a matter of great concern. Therefore a decision was taken by the Government of India to extend the programme for integrated farming in coconut holdings for productivity improvement to other traditional belts viz. Karnataka, Tamilnadu, Andhra Pradesh, Goa, Maharashtra, Andaman & Nicobar Islands, Lakshadweep and Pondicherry during the VIII Plan period. The technical content remained more or less same as that of the programme implemented during the VII Plan period, excepting the additional inclusion of components like assistance for fertilizer application and plant protection measures. Quantum of subsidy was enhanced to Rs.200 per palm for cutting and removal, Rs. 5 per palm for replanting, Rs. 5 and Rs. 3 per palm for fertilizer use and plant protection and Rs. 200 per ha. for multi species cropping. The programme was to be funded at 100 per cent by the Board instead of the pattern of 50:50 adopted during the VII Plan period.

Irrigation component was, however, kept out of the purview of the programme under the pretext that it would be a duplication of the effort of the State Governments as well as that of National Commission for Plastics in Agriculture (NCPA), Government of India. The implementation of the programme without including the irrigation component was however, a major impediment experienced in the field adoption. The integrated farming programme therefore, could not bring in the expected impact without the irrigation component. The area covered under the programme was 1,36,800 ha of which one lakh was for Kerala.

### **Direct Implementation by Coconut Development Board**

Though the programme was under implementation since 1987-88, the impact of the programme was not yet assessed. Therefore, to make an assessment as to whether the programme had any impact on improving the productivity of coconut holdings, the Board had taken up the implementation directly in selected panchayaths in Ernakulam District, utilizing the then existing manpower. A socio - economic survey for collecting the household details of 11 wards of Kumbalam Panchayat and one ward of Kadamakudy Panchayath was conducted in 1994-95 by engaging 38 enumerators. The survey covered 4945 households in Kumbalam Panchayat and 455 households in Kadamakudy Panchayath. Disease affected/unproductive

palms were marked for removal directly by Coconut Development Board. During 1995-96 the cutting and removal of palms and disbursement of subsidy started. Seminars were conducted in these areas to create awareness among the farmers in association and active involvement of Krishi Bhavans, Panchayaths, Kerakarshaka Sangham and Ernakulam Social Service Society. In Moolampilly 438 palms were removed and subsidies amounting to Rs. 87,600 were released. Of these, 431 palms were cut in 1995-96 by disbursing a total subsidy of Rs. 86,200, In Kumbalam, 2925 palms were removed and a total subsidy of Rs. 5,85,000 was released. In 1996-97 alone, 2104 palms were cut and a total subsidy of Rs. 4,20,800 was disbursed. Planting materials of intercrops were also distributed to farmers to adopt inter cropping in coconut holdings and thereby increasing the income from unit holdings.

### **Impact of the Programme**

An analysis of the productivity increase in the country as a result of implementation of the programme from 1987-88 to 1996-97 is relevant. While the national productivity was 5179 nuts per ha in 1986-87, this could be elevated to 7779 nuts per hectare by the end of the VIII Plan (1996-97). The corresponding figures in case of Kerala were 4493 nuts and 6013 nuts per hectare.

The increase in the national productivity was mainly attributed

to the conspicuous hike in the productivity recorded by the States like Andhra Pradesh, Tamilnadu, Maharashtra, West Bengal etc. Though the Integrated Farming Programme was under implementation in these states, the productivity increase might not be from the salutary effects of the programme alone. Exorbitantly higher productivity level existed in certain holdings of many states was a clear indication of the potential for increasing the productivity.

Disease eradication through removal of disease advanced palms was given importance under productivity improvement programme. Number of palms that could be removed under the programme was however quite low when compared to the gravity of the disease intensity. However it was encouraging to note that the intensity of the disease had come down considerably than in the mid 80's. Among the eight districts, in 1985, the highest disease incidence was recorded in Kottayam district, which was 75.63 percent; while in the latest survey conducted in 1996, Alappuzha district recorded the highest disease incidence, but it was only 48.03 percent. While the mean intensity of disease occurrence in the eight districts was 32.37 per cent in 1984, the corresponding figure as per the 1996 survey is only 24.05 per cent. This reduction in the disease intensity could definitely be attributed to the beneficial impact of the programme.

## Introduction of Cluster Approach

During the IX Plan period under the integrated farming programme a consolidated financial assistance of Rs.35,000 was approved solely for adopting integrated management practices which was to be disbursed in two years in equal installments. Cutting and removal component was thereafter treated separately. This modification enabled to bring the northern districts of Kerala also under the productivity improvement programme. It also helped eradicate the foci of infection by removing the stray palms located beyond the border districts of Trichur and Thiruvananthapuram.

It was generally accepted that fragmented holdings do not render themselves viable for the optimum utilization of resources and the adoption of improved technologies. To overcome the unremunerative nature of small holdings and to augment the production and productivity of smaller holdings group management of resources is a welcome approach which would help overcome the inherent weaknesses of the fragmented holdings. Due to the highly disorganized nature, impact of development programmes at the field level does not become entirely visible. Transfer of technology is not reaching to the farmers well in time. It was therefore felt essential to create a platform for a group approach for overcoming these problems. Various frontline

demonstrations indicated that the yield of coconut can be improved by more than 100 percent through collective approach. This realization led to think of a cluster approach in implementation of integrated farming programme. Thus the cluster programme under integrated farming was introduced on trial basis in 2005-06 in Alappuzha district in limited area with an objective to assess the impact of the programme when the intervention of the Board is direct and more farmer friendly. Taking the success of the programme as the pivotal pointer, the scheme was extended to other districts in Kerala and other potential states through the network of field offices of the Board utilizing the state department machinery as well, in implementation process. The implementation was in contiguous areas of 25ha to 50ha to make the cluster the vehicle for dissemination of technology and adoption of management practices for achieving higher productivity and increased income.

### Objectives and mode of implementation of the cluster programme

Reducing cost of production, augmentation of farmer's income, improving the marketable surplus, promotion of value addition through promoting processing, promoting group dynamism, promoting farmer participatory technology transfer and achieving maximum efficiency by harnessing and sharing the strength and wisdom of farmers were the

immediately envisaged objectives of the cluster approach. The strategy helped in improving the efficiency of land and water use, adoption of a community approach in plant protection, procurement, application of inputs and raising of intercrops. The clusters will also form the basic unit for primary processing of coconut which will result in enhanced income accruing to the coconut farmers. The cluster involves the participation of nearly 200 farmers and all the farmers become beneficiaries of the programme. This arrangement was an important tool for overcoming the problems associated with scarce resources, fragmentation and dispersion of coconut cultivation and inadequate levels of marketable surpluses. Utmost transparency was assured in the entire implementation which encourages the participating farmers as well as other implementing agencies.

Within each cluster, Chairman, General Convener, Group leaders, and other committee members are selected for easy and smooth implementation by dividing the total cluster area into sub groups of 5 ha each. Community Pest and Disease control programme is carried out against common pests and diseases to reduce the cost. Red palm weevil, a common, but very serious pest, is trapped on group basis using pheromone traps in contiguous areas. Field visits and interactions are done on weekly, fortnightly and monthly basis, which enable easy and quick exchange of

ideas for adoption of technologies. All farmers in the cluster become beneficiaries of the programme irrespective of the area they possess. **The cluster approach has become more acceptable among the farming community and so far 822 clusters in 27725 ha have formed till 2011-12 all over the country. .**

### Benefit of the Cluster programme.

Coconut Clusters through group activities ensure profitability of coconut cultivation through assured yield increase and other sources of income. Reduction in cost of cultivation, regular employment, and decline in pests and disease problems are the major advantages. The farmers can fetch higher income by the sale of multiple products like vegetables, fruits, planting material, vermi-compost, milk and other animal products.

The reduction in cost of cultivation to the extent of 25% was visible as a result of collective procurement of inputs and group effort in production management. Application of systematic organic and inorganic inputs coupled with regular irrigation enriches the fertility status and water holding capacity of the soil. The input use efficiency in the small homesteads increases manifold. The farmers are able to sell the produce from main crops, intercrops and livestock and can fetch regular income. By consuming the non-saleable or surplus vegetables and animal products, the nutritional status of the family members also improves. Technology adoption becomes a regular practice of the farmers. Ensuring regular supply of produces to the government and private outlets sustains the local markets and marketing activity.

**Now the Board is spearheading one step ahead in a revolutionary pathway of forming Coconut Producers' Societies, Federations and Coconut Producers Companies. The experiment which made a kick start in Kerala in 2011-12 has witnessed 100 per cent success in its challenging journey, and has moved forward to other states. As on today 1761 CPSs and 39 Federations have been formed. The forward and backward linkages among various stakeholders in coconut sector have thus come true and a time is not far away where the coconut farmers' collectives built a strong base with powerful bargaining power and influential voice as never seen before.**

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## Import of Edible Oil 2008-2012 (November to October)

Edible Oil	2008-09	2009-10	2010-11	2011-12	Percentage variations over previous year
RBD Palmolein	1240018	1213409	1081686	1577356	45.82
Crude Palmoil	5187063	5169445	5374333	5993665	11.52
Crude Olein	745	4428	6501	500	-92.31
Sun Flower Oil	590175	630005	803593	1134881	41.23
Rape Seed Oil	46362	13950	11122	90758	716.02
Soybean Oil	989613	1666492	1006691	1079004	7.18
Cotton Seed Oil	5069	9438	0	0	
Coconut Oil	16693	4198	2967	1999	-32.63
Crude Palm Kernel Oil	107622	111973	84566	97903	15.77
Safflower Oil	0	0	0	5400	
<b>Total</b>	<b>8183360</b>	<b>8823338</b>	<b>8371459</b>	<b>9981466</b>	<b>19.23</b>

During the year 2011-12 import of RBD palmolein has registered an increase of 45.52% over the previous year (2010-11). Crude palm oil recorded an increase of 11.52% during the corresponding period. The total edible oil import during the year 2011-12 has registered an increase of 19.23% over the previous year(2010-11).