



Research Article

## Analysis of diversifications in coconut based small homesteads of Kerala

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**SUMMARY :** An ICAR *ad hoc* scheme on possible diversifications and restructuring of coconut based homesteads was implemented in the six agro-ecosystems of Central zone of Kerala with the holistic approach in coconut based homesteads by the participation of all the stakeholders. One of the objectives of the research project was to identify the extent of diversification existing in coconut based homesteads. The representative Panchayats of three agro ecological situations of Palakkad District was considered for this research paper. Various socio-economic issues emerged out of high literacy rate such as increased awareness level, drive for earning money quickly with less effort, non-availability of labour etc. forced majority of the farmers to limit diversified activities.

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### BACKGROUND AND OBJECTIVES

Kerala, the land of coconut by its name gains that the traditional cropping system in homesteads is coconut based, an unique system of cultivation where a family cultivate a variety of crops of seasonal and perennial nature in the land surrounding the dwelling place along with allied activities like dairying, rearing of goats, poultry birds, pigs etc. They may also take up activities like retail trade and cottage industries. The homestead farming is unique since there is livestock-crop integration with flow of inter activity of resources making it an integrated production system. The system might probably have evolved because of the climatic conditions, the nature of precipitation and the soil conditions and the low per capita availability of land. The system enables the farmers to maximize their productivity from the limited land holdings. This practice of farming enables the cultivator to primarily meet the family requirements of food, fuel, medicines, fodder for the animals and the green manure required for the crops. The surplus of domestic requirements can be sold to meet other consumption requirements. Traditional

practice was to maintain a variety of flora and fauna intact and self sustained in the homesteads by utilizing the available resources optimally. Diversification in homesteads is a rich source of species diversity, helps in soil building, preserve and improve ecological condition essential to long-term sustainability (Kuruville and Mathew, 2009).

### RESOURCES AND METHODS

Palakkad district was selected for the implementation of the project. Three Panchayats were selected representing an agro-ecological situation on the basis of discussion with the Assistant Director of Agriculture of the respective block. Two wards from each selected Panchayats were selected after having discussions with respective Agricultural Officers, Panchayat Presidents, Chairpersons of the agricultural development council and board members, with the criteria of intensive coconut based homestead farming in the panchayat. Sixty farmers, mainly involved in coconut based homestead farming, representing the selected two wards, were invited for participatory rural appraisal (PRA) sessions

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and household surveys were conducted to identify the extent of diversifications in the coconut based homesteads.

## OBSERVATIONS AND ANALYSIS

Agro-ecological situation : High elevation medium rainfall  
Selected Panchayat : Kizhakkanchery  
Average area of surveyed : 0.31ha  
homesteads

Farming was the major occupation of 98.33 per cent of the households in Kizhakkanchery Panchayat with majority of the households with livestock maintenance (85.00 %) whereas only 38.33 per cent of the households depended on farming alone. Cultivation of crops alone was practiced by 16.67 per cent of the households (Table 1).

Out of the sixty homesteads surveyed, 46 combinations of enterprises with fifteen enterprises were identified. Quail and piggery were the units found in this area, but adopted by

**Table 1 : Distribution of households based on occupation in Kizhakkanchery Panchayat (n=60)**

Sr. No.	Occupation	Frequency	Per cent
1.	Agriculture	59	98.33
2.	Livestock maintenance	51	85.00
3.	Dependent on farming alone	23	38.33
4.	Labour	11	18.33
5.	Business	10	16.67
6.	Crops alone	10	16.67
7.	Private service	9	15.00
8.	Government service	4	6.67
9.	Employment abroad	1	1.67

\* Multiple responses

**Table 2 : Homestead components and their distribution in Kizhakkanchery Panchayat (n=60)**

Sr. No.	Type of enterprise	Frequency	Per cent
1.	Fruit crops	59	98.33
2.	Cash crops	47	78.33
3.	Vegetables	44	73.33
4.	Spices	39	65.00
5.	Timber trees	36	60.00
6.	Poultry	33	55.00
7.	Medicinal plants	32	53.33
8.	Dairy	26	43.33
9.	Fodder	11	18.33
10.	Biogas plant	9	15.00
11.	Goat rearing	9	15.00
12.	Duck farming	2	3.33
13.	Vermicomposting	1	1.67
14.	Quail farming	1	1.67
15.	Piggery	1	1.67

\* Multiple responses

**Table 3: Contribution of major enterprises to the net income of coconut based homesteads in Kizhakkanchery Panchayat (n=60)**

Sr. No.	Type of enterprise	Income (Rs.)	Expenditure (Rs.)	Net income (Rs.)	Share of income (per cent)
1.	Dairy(1cow/homestead)	18179	13098	5081	44.05
2.	Pepper	4032	1800	2232	19.35
3.	Arecanut	1824	375	1449	12.56
4.	Coconut	4725	3750	975	8.45
5.	Other crops	1451	1000	451	3.91
6.	Banana	1800	1350	450	3.90
7.	Poultry (7 birds/homestead)	2099	1709	390.4	3.38
8.	Goat (2 goats/homestead)	2622	2356	266	2.31
9.	Nutmeg	1740	1500	240	2.08
	Total	38472	26938	11534	100.00

single household each. Fruit crops were found in all the households except one. Majority of the households (78.33 %) were having cash crops, vegetables (73.33 %) and spices (65.00 %) as the major intercrops in coconut based homesteads. Poultry (55 %) and dairy (43.33 %) were the livestock enterprises adopted by majority of the households. (Table 2) According to the Table 3, dairy was the enterprise, which contributed the major share of their annual net income (44.05 %). Among crops, pepper was the major contributor of the annual net income (19.35 %) and surprisingly coconut contributed only 8.45 per cent of the annual net income. Farmers reported that yield from coconut was very less because of the incidence of red palm weevil, rhinoceros beetle, mite, yellowing of leaves and tapering of crown. There was a scope for profitable cultivation of medicinal plants as intercrops in coconut as a medicinal plant oil extraction unit is situated in Kizhakkanchery.

Agro-ecological : Medium elevation- black soil- low rainfall.  
Selected : Eruthenpathy Panchayat  
Average area of : 0.67ha surveyed homesteads

Average area of surveyed homesteads was the highest (0.67 ha) in medium elevation-black soil-low rainfall situation among all other situations. Among the sample households, 98.33 per cent of the households were involved in farming as the primary occupation, 76.67 per cent of the homesteads were having livestock components, 56.67 per cent of the families were depending only on agriculture and 18.33 per cent of the homesteads were cultivating crops alone. (Table 4).

In the situation of medium elevation- black soil -low rainfall, 49 combinations of enterprises with eight enterprises

**Table 4 : Distribution of households based on occupation in Eruthenpathy Panchayat**

(n=60)

Sr. No.	Occupation	Frequency	Per cent
1.	Agriculture	59	98.33
2.	Livestock maintenance	46	76.67
3.	Dependent on farming alone	34	56.67
4.	Crops alone	11	18.33
5.	Labour	6	10.00
6.	Business	4	6.67
7.	Private service	4	6.67
8.	Government service	4	6.67

\* Multiple responses

**Table 5: Homestead components and their distribution in Eruthenpathy Panchayat**

(n=60)

Sr. No.	Type of enterprise	Frequency	Per cent
1.	Dairy	41	68.33
2.	Vegetables	37	61.67
3.	Fruit crops	36	60.00
4.	Medicinal plants	32	53.33
5.	Fodder	10	16.67
6.	Goat rearing	9	15.00
7.	Poultry	8	13.33
8.	Timber trees	5	8.33

\* Multiple responses

**Table 6 : Contribution of major enterprises to the net income of coconut based homesteads in Eruthenpathy Panchayat**

(n=60)

Sr.No.	Type of enterprise	Income (Rs.)	Expenditure (Rs.)	Net income (Rs.)	Share of income (per cent)
1.	Dairy (2 cows/homestead)	26290.91	15832.1	10458.9	91.56
2.	Goat (3 goats/homestead)	2562.5	1625	937.5	8.21
3.	Poultry (21 birds/homestead)	2724.37	1975	749.37	6.56
4.	Coconut	9778.39	10501.7	-723.28	-6.33
	Total	41356.18	29933.7	11422.5	100.00

were noticed among 60 sample households. Dairy was the major component adopted by 68.33 per cent of the households contributing 91.56 per cent of the income. Vegetable cultivation was adopted by 61.67 per cent followed by fruit crops (60 %) and medicinal plants (53.33 %). But these crops were cultivated only for home consumption in majority of the households and hence not contributing any income. Cash crops and spices were not cultivated in this situation (Table 5).

Coconut was cultivated as pure crop in major area of the homestead and net income from coconut was worked out as loss because of low rainfall, inadequate ground water, heavy incidence of pests and diseases and high cost of labour.

(Table 6).

Agro-ecological situation : High elevation- low rainfall  
Selected Panchayat : Muthalamada  
Average area of surveyed : 0.24 ha  
homesteads

Among the sampled households, 91.67 per cent of the households' primary occupation was farming, 65 per cent of the households were rearing livestock components, 46.67 per cent of the families were depending on farming alone and 35 per cent of the families were cultivating crops alone in homesteads. (Table 7).

In Muthalamada Panchayat, 50 combinations of enterprises were noticed among sampled 60 households with

**Table 7 : Distribution of households based on occupation in Muthalamada Panchayat (n=60)**

Sr. No.	Occupation	Frequency	Per cent
1.	Agriculture	55	91.67
2.	Livestock maintenance	39	65.00
3.	Dependent on farming alone	28	46.67
4.	Labour	22	36.67
5.	Crops alone	21	35.00
6.	Government service	12	20.00
7.	Private service	11	18.33
8.	Business	8	13.33
9.	Self employment	3	5.00

\* Multiple responses

**Table 8 : Homestead components and their distribution in Muthalamada Panchayat (n=60)**

Sr. No.	Type of enterprise	Frequency	Per cent
1.	Fruit crops	52	86.67
2.	Medicinal plants	39	65.00
3.	Vegetables	35	58.33
4.	Timber trees	34	56.67
5.	Dairy	29	48.33
6.	Poultry	25	41.67
7.	Cash crops	10	16.67
8.	Spices	7	11.67
9.	Goat rearing	3	5.00
10.	Green manure crops	1	1.67
11.	Duck	1	1.67

\* Multiple responses

**Table 9: Contribution of major enterprises to the net income of coconut based homesteads in Muthalamada Panchayat (n=60)**

Sr. No.	Enterprise	Income (Rs.)	Expenditure (Rs.)	Net income (Rs.)	Share of income (per cent)
1.	Coconut	8371.00	5006.56	3364.44	33.15
2.	Dairy (2 cows/homestead)	16989.74	13746.40	3243.35	31.95
3.	Goat rearing(6 goats/ homestead)	6667.00	3850.00	2816.67	27.75
4.	Poultry (23 birds/homestead)	1239.23	513.85	725.38	7.15
	Total	33266.97	23116.81	10150.16	100.00

11 components. Fruit crops (86.67 %) occupied the major share as intercrops in coconut followed by medicinal plants (65 %). Cash crops (16.67 %) and spices (11.67 per cent) were found very less in the surveyed homesteads when compared to other situations. (Table 8). These intercrops were cultivated only to satisfy family requirement. Homestead garden with an area of 200 m<sup>2</sup> near farmhouse involving vegetables, fruit trees (guava, papaya and banana) and greens would supplement the family food requirement. (Jayanthi *et al.*, 2009).

Coconut crop was raised in this situation along the bunds of paddy field. Coconut formed 33.15 per cent of the net income followed by dairy (31.95 %) and goat rearing (27.75 %) (Table 9). Krishnakumar *et al.* (2010) opined that the change in lifestyles consequent to urbanization, migration in search of jobs, the attitude of farmers in general towards livestock rearing was not encouraging.

### Conclusion:

The existing situation in coconut based homestead farming was assessed with the participation of sixty farmers each from three agro ecological situations of Palakkad district of Kerala. Farmers depending on farming alone were found in distress with low and fluctuating income. It could not be denied that there was a crisis in maintaining the age old tradition of integrated farming in coconut based homesteads. Because of the socio economic development among the farming community in terms of increased literacy level and Gulf earned money by family members pave the way for withdrawing from labour intensive enterprises, especially livestock components. Even though major income contribution was from dairy farming in all the situations,

farmers preferred to have the intercrops and allied enterprises with less management practices and less labour demanding activities. Research and development efforts with more emphasis on the socio-economic aspects of farmers should be intensified to revive the prevailing situation of coconut based homesteads under various agro-ecological situations in the country. To sustain the coconut based homesteads, it is an urgent need to demonstrate the economic viability of the successful combination of enterprises in homesteads suited to the specific micro farming situations so that farmers can readily adopt the required models. A sustained effort is needed for the subsistence farmers to uplift them from their marginal existence.

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