

## Categorization and Analysis of Indigenous Horticultural Practices in Kerala

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### ABSTRACT

*This study attempted to collect and document different indigenous horticultural practices (IHPs) prevailing in Kerala. One hundred and sixty farmers representing four agro-climatic regions were contacted to collect the IHPs. Consequently, 1159 IHPs were collected and documented as part of the study. The collected IHPs were further categorised using different dimensions of classification such as spatial distribution of the IHPs, zone wise distribution of the IHPs, crop category wise classification of the IHPs, crop wise categorization of the IHPs, and technology dimension wise categorization of the IHPs. The collected IHPs were categorized under 33 crops containing 1006 items, Vegetables (General) containing 57 items, Cucurbits (General) containing 29 items, Tubers (General) containing four items, and General Horticulture covering 63 items. More number of IHPs were related to the crop coconut (22.52%) followed by banana (18.35%).*

Today, the attention of mankind is shifting to a sustainable form of agriculture to ensure the attainment and continued satisfaction of human needs for the present and more importantly for the future generations. In this context, planners and policy makers have started thinking of alternatives to the so called modern farming. Organic farming has been suggested by many as the best alternative, which is almost a revival of the traditional agriculture practiced by our forefathers, with some modifications.

As defined by IIRR (1996), Indigenous knowledge is the knowledge that the people in a given community have developed over time and continue to develop. It is i) based on experience ii) often tested over centuries of use iii) adapted to local culture and

environment and iv) dynamic and changing. According to ICAR (2002), indigenous knowledge is the participant's knowledge of their temporal and social space. Indigenous knowledge as such refers not only to knowledge of indigenous peoples, but to that of any other defined community.

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knowledge of indigenous peoples, but to that of any other defined community.

Kerala's agriculture is predominantly occupied by horticultural crops as it is evident from the area under different crops. Coconut is the crop having maximum area in Kerala (899270 ha) followed by Rubber (480660 ha), Paddy (289970 ha), Pepper (237670 ha) and Banana (113480 ha). Area under cultivation of cereals (excluding paddy), millets, pulses and other field crops are negligible as compared to that of horticultural crops. The area under cereals and millets excluding paddy is just 4900 ha in 2004-05 (Government of Kerala, 2007).

Somasundaram and Seetharaman (2001) collected and documented 876 indigenous knowledge items (IKIs) from seven agro-climatic zones of Tamil Nadu, and these IKIs were further categorized and analysed. Similarly Sundaramari et al. (2005) also collected, categorized and analysed 1203 indigenous agricultural practices, collected from Dindigul district of Tamil Nadu. However, there has been no such extensive study so far undertaken for the collection and documentation of Indigenous Horticultural Practices (herein after called as IHPs) in Kerala.

Hence, there is an urgent necessity to systematically document the indigenous practices related to horticulture existing in the state of Kerala, before they become extinct. This is much more important in the present context of IPR regime. Along with its documentation, an in-depth analysis of such knowledge including the rationality and validation studies would also be of high value.

In this backdrop, the present study was undertaken with the following objectives.

i) To collect and document different indigenous horticultural practices (IHPs) existing in Kerala.

ii) To categorise and analyse the collected IHPs using different dimensions of classification.

Indigenous horticultural practices were operationalised for this study as those practices developed and/or adopted by the farmers of a specific geographical area to solve and/or fulfill their problems and requirements in the cultivation of horticultural crops, with much reliance on local inputs and internal solutions.

## METHODOLOGY

As the study was an attempt to collect and document the indigenous knowledge in horticulture crops of Kerala, the state of Kerala constituted the locale of the study. For the purpose of research, Kerala has been divided into five agro climatic zones under National Agricultural Research Project (NARP) viz. Southern zone, Central zone, Northern zone, High altitude zone, and Problem area zone. Excluding the problem area zone, which is scattered in many districts of Kerala, one district each, from these four agro climatic zones was selected based on the larger area covered under major horticultural crops such as coconut, spices and condiments, vegetables, banana and other fruit crops. Thus four districts out of the fourteen districts of Kerala were selected. From each district, two blocks each having predominant area under major horticultural crops were selected, and from each block two village panchayats (grama panchayats) were identified in the same manner. Thus, a total of 16 village panchayats spread over the state of Kerala were selected based on stratified sampling for the purpose of the study.

From each of the 16 selected village panchayats, 10 aged and experienced farmers were identified through judgement sampling, in consultation with the agricultural extensionists of the concerned Agricultural

Office (Krishi bhavan), thus forming a total of 160 farmers for identifying the indigenous horticultural practices (IHPs).

The IHPs were collected through informal interview method. Eight PRA sessions were also conducted i.e. two in each of the above agro climatic zones to cross check and refine the collected IHPs. The main tool adopted was Focused Group Interview, using a semi-

structured interview guide. A total of 153 farmers had attended in the eight PRA sessions.

Indigenous horticultural practices were also collected from secondary sources to a limited extent, apart from the above mentioned primary data collection. Percentage analysis was used to analyse the collected data.

Table 1.

Geographical Distribution of the Respondents Selected for Collecting IHPs

District (Agro-Climatic Zone)	Name of Block	Name of the Village Panchayat	No.of Farmers
1. Thiruvananthapuram (South Zone)	1. Kilimanoor	1. Pulimath	10
	2. Nemom	2. Kilimanoor	10
	3. Ollukkara	3. Kalliyoor	10
2. Thrissur (Central Zone)	4. Cherpu	4. Pallichal	10
	5. Valanchery	5. Puthur	10
	6. Perinthalamanna	6. Pananchery	10
3. Malappuram (North Zone)	7. Kalpetta	7. Cherpu	10
	8. Mananthavadi I	8. Vallachira	10
		9. Kuttippuram	10
		10. Aathavanad	10
4. Wayanad (High range Zone)		11. Vettathoor	10
		12. Melattur	10
		13. Pandinjarethara	10
		14. Kaniyambetta	10
		15. Panamaram	10
		16. Vellamunda	10
<b>TOTAL</b>			<b>160</b>

## FINDINGS AND DISCUSSION

In the attempt to collect the indigenous horticultural practices (IHPs), the practices were recorded as such, as explained by the farmers. Thus a total of 2688 entries were made from all the selected agro-climatic zones. The categorization of the collected indigenous horticultural practices is described below.

### Spatial distribution of the IHPs

Though a total of 2688 IHP items were recorded from all the four agro-climatic regions, there were duplications in many cases. Hence, the actual number of IHPs documented was 1159, when excluded the duplications. Of these, majority were available in more than one agro-climatic region. Some

**Table 2.**  
**Number of Farmers Participated in Various PRA Sessions**

PRA-No.	Name of the Block	District	No. of Farmers
PRA-I	Kilimanoor	Trivandrum	27
PRA-II	Nemom	Trivandrum	17
PRA-III	Olukkara	Thrissur	21
PRA-IV	Cherpu	Thrissur	11
PRA-V	Valanchery	Malappuram	16
PRA-VI	Perinthalmanna	Malappuram	14
PRA-VII	Kalpetta	Wayanad	24
PRA-VIII	Mananthavadi	Wayanad	23
<b>TOTAL</b>			<b>153</b>

were available in all the four agro-climatic regions.

Out of the 1159 IHPs collected, 415 IHPs were reported from only one agro-climatic region. At the same time, 293 IHPs were reported from any two agro-climatic regions, and 117 IHPs from any three agro-climatic regions. However, a total of 334 IHPs were reported from all the four agro-climatic regions. Such IHPs reported from all the agro-climatic regions may be common for the State of Kerala, where as the IHPs reported from only one agro-climatic region may be specific to the particular agro-climatic region.

#### Zone wise distribution of the IHPs

The total number of IHP items recorded from the four agro-climatic zones was 2688.

It was observed that out of the 2688 IHP items collected, 709 (26.38 %) were reported from Central zone, 688 (25.59 %) from High range zone, 673 (25.04 %) from Southern zone, and 618 (22.99 %) from Northern zone. This

reveals that, out of the four zones, Central zone had recorded the highest number of indigenous practices, followed by High range and Southern zones. The higher share of IHPs in Central zone and Southern zone (more than 25 % of IHPs each) might be due to the advanced educational background of these zones. Where as comparatively lesser number of IHPs was reported from the Northern zone, might be because of the backwardness of this zone in terms of education and infrastructure, which might have reduced the diffusion of such practices. As mentioned above, more than 25.00 percent of IHPs were reported from the High range zone also, and this might be due to the presence of more number of settler farmers in this zone who had migrated and settled in this zone, some decades back, with the intention of farming.

#### Crop category wise classification of the IHPs

The collected IHPs were also categorized under 33 crops containing 1006 items, Vegetables (General) containing 57 items, Cucurbits (General) containing 29 items,

Tubers (General) containing four items, and General Horticulture covering 63 items. Then, they were further categorized into different technological dimensions. The crop category wise distribution of the collected IHPs is portrayed in Table 3.

It could be seen from Table 3 that majority of the IHPs were reported from the categories of vegetables, oilseeds, and fruits. Exactly 65.14 percent of the IHPs were reported in these three categories. Many vegetables are being cultivated in various parts of all the agro climatic zones, though in small in

**Table 3.**  
**Crop Category Wise Distribution of the IHPs**

Sl. No.	Crop categories	IHPs	
		No.	%
1.	Oil seeds	250	21.57
2.	Fruits	217	18.72
3.	Vegetables	288	24.85
4.	Tubers	53	4.57
5.	Spices and condiments	142	12.25
6.	Beverages and stimulants	106	9.15
7.	Commercial crops	40	3.45
8.	General Horticulture	63	5.44
	<b>Total</b>	<b>1159</b>	<b>100.00</b>

quantities. This might be the reason for more number of IHPs in vegetables. More than one fifth (21.57 %) of the IHPs collected were in oilseeds, and nearly one fifth (18.72 %) were in fruits and this was due to the presence of the two major crops in these two categories viz. coconut and banana respectively. A clear picture in this regard will be obtained in the crop wise categorization of IHPs.

#### Crop wise categorization of the IHPs

Of various crops, coconut and banana registered very high number of IHPs as compared with all other crops. Exactly 24.85 percent of the crop specific IHPs were recorded in coconut. This was because of

the fact that coconut was the age old traditional oilseed crop of Kerala, the land of coconuts, and was available in almost all parts of the state. Similarly, 19.98 percent of the crop specific IHPs were recorded in banana, since banana was one of the major traditional crops of Kerala cultivated by almost all the farm families in their homesteads, atleast in limited numbers, in addition to the commercial cultivation by the farmers.

#### Technology dimension wise categorization of the IHPs

The collected IHPs under different crops/subheads were further categorized under appropriate technology dimensions such as

varieties, soil and climate, seeds and seedlings, preparatory cultivation, planting in main field, manuring, cultural operations, irrigation, intercrops, plant protection, yield and harvest, post harvest etc. It is summarized in Table 4.

Table 4 explains the technological dimensions in which more number of IHPs was available. Majority of the IHPs was registered in the technology dimension of pest management (26.75%) followed by seeds and seedlings (18.46%), and disease management

**Table 4.**  
**Technology Dimension wise Classification of the IHPs**

Sl. No.	Technology Dimensions	IHPs	
		No.	%
1.	Varieties	23	1.98
2.	Soil & Season	57	4.92
3.	Seeds and seedlings	214	18.46
4.	Preparatory cultivation	14	1.21
5.	Planting in main field	59	5.09
6.	Manuring	70	6.04
7.	Cultural operations	74	6.38
8.	Water management	31	2.67
9.	Intercrops	21	1.87
10.	Pest management	310	26.75
11.	Disease management	130	11.22
12.	Yield & Harvest	41	3.54
13.	Post harvest	67	5.78
14.	Others	48	4.14
	<b>Total</b>	<b>1159</b>	<b>100.00</b>

(11.22%). Comparatively lesser number of IHPs was registered in the technology dimensions such as preparatory cultivation, intercrops, varieties, and water management. Of these, the least number of IHPs was recorded in preparatory cultivation. This may be because of the fact that farmers in general

do not give much importance to preparatory cultivation, and rather give such consideration while the crop is standing in the field. In short, it is clear that more than one third (37.97%) of the IHPs collected were related to plant protection aspects (pest and disease management) which might due to the

fact that long before the development of synthetic organic substances, our ancestors had successfully employed natural substances derived from plants and animals for crop protection. As Banerji *et al.* (1985) reported, about 17,000 species of angiosperms were grown in our country, and about 2000 plants containing insecticidal properties were known. To protect the crop from pest menace, definitely, our forefathers would have tried these plants and hence more IHPs were available in these aspects.

## CONCLUSION

Altogether, a total of 1159 indigenous horticultural practices consisting of 652 IHPs on crop production, 440 IHPs on crop protection and 67 IHPs on post harvest aspects were documented in the study. Thus it is evident that many indigenous practices exist among the farmers and local community that they had been using for generations or used previously. All these practices may not be effective in the present day context, but definitely majority of them have something substantial to offer for sustainable eco-friendly agriculture. Hence, such practices and technologies have to be identified, modified suitably and if possible used as alternative to modern technologies, or to be blended with the modern technologies. This is inevitable for developing viable technologies for sustainable agriculture. The present study is a step in this direction. The indigenous practices documented in the study will be of immense help, not only to the farmers and extensionists, but for the scientific community,

who can in turn utilize the practices documented in the study for further validation and development of sustainable technologies.

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