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An Appraisal of Traditional Rice Cultivation in Kerala, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author RA literature searches, collected data and performed the statistical analysis, and wrote the first draft of the manuscript. Author JK designed the study, managed the analyses of the study and author RKR collected data and managed the analyses of the study. All authors read and approved the final manuscript

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ABSTRACT

Rice cultivation is the mainstay of agriculture in Kerala for centuries. But as time progressed, rice cultivation using traditional varieties was confined to some pockets in the state. Traditional rice farmers are mainly unorganised and are followers of lineage. This study was taken up to attempt to outline the evolution of traditional rice farming, understand farmers' perceptions about its sustainability, and look into the legal protective measures available for these varieties. It was found that the centuries-long presence of this system is now in peril. However, the farmers had a more positive perception of its sustainability than a negative one. The cultivating farmers were largely unaware of the government's measures to support traditional agriculture.

Keywords: Sustainability; traditional rice; culture; history.

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1. INTRODUCTION

Rice is Kerala's staple food. Rice cultivation is the mainstay of agriculture in Kerala for centuries. Due to this, hundreds of landraces of rice have in the state according to the location, terrain and water availability evolved [1]. With the advent of modernisation of agriculture in the later decades of the 20th century, like in all other places, modern varieties of rice hit Kerala agriculture in a big way, which led to the sure and quick decline of the traditional rice varieties [2].

But these indigenous varieties are innately high in nutritive value. Rice varieties like *Jeerakasala*, *Gandhakasala*, the indigenous scented varieties, once popularly cultivated almost everywhere in the State of Kerala, vanished from the scene as times changed [3]. Realising this, there have been efforts from governmental and non-governmental agencies to retrieve and retain traditional rice cultivation in their staunch places [4]. Because of the eco-friendly and organic nature of traditional rice cultivation practices, it is imperative that it should be conserved and maintained [5].

This paper tries to answer the following questions.

- How is the evolution process of traditional rice cultivation?
- What is the farmer perception regarding its sustainability?
- Is there any legal or government recognition for the traditional rice varieties and are the farmers aware of these?

2. METHODOLOGY

Wayanad and Malappuram districts of Kerala were purposively selected for the study as they were the districts having the highest number of traditional rice farmers. Sixty farmers from the Wayanad district and thirty farmers from the Malappuram district were randomly selected, from the list of farmers available in the Krishi Vigyan Kendras (KVK)¹ and District agricultural office respectively. Information was collected through personal interviews of respondents, key informant interviews and referring to secondary sources. Personal interviews were carried out using a pre-tested well-structured interview schedule. The timeline of traditional rice cultivation was summarized by key informant studies and information from other secondary

sources. The sustainability of traditional rice cultivation was analysed by a perception scale developed for the study. Information regarding the legal recognition status of traditional varieties cultivated, was gathered from government records and websites.

2.1 Significance

Traditional cultivars of rice are key to sustainability of rice cultivation due to their health and nutritional benefits, good cooking quality, high consumer preference and market potential. The genetic diversity contributed by them are invaluable assets [6]. Even though state and central governments are attempting for the protection of traditional rice varieties, area under traditional varieties is declining and farmers seem to be not aware of the supportive mechanisms for their cultivation. In this context, the present study does an appraisal of the traditional rice scenario in Kerala, starting from its historical evolution and comes up with solid suggestions for enhancing this valuable agricultural system.

3. RESULTS AND DISCUSSION

Rice cultivation would have been there since millenniums ago, but detailed records of it seem to be available only from the 1700s. The indigenous people are the earliest proponents of rice cultivation and migrant people from the plains continued with the tradition, mostly in forest areas. Ragi and other millets were widely cultivated by the tribespeople in those times. Ragi occupied the largest area among the millets, perhaps because of its nutritive importance. By the 1800s millets began to be replaced by traditional rice varieties like *Thondi*, *Veliyan*, *Chomala*, *Kalladiyar*, *Thavalakkannan*, *Gandhakasala* and *Jeerakasala*. They were cultivated mainly. The indigenous scented rice varieties *Jeerakasala* and *Gandhakasala* were mainly used for traditional functions and community feasts. Land preparation, sowing, crop management, harvesting and post-harvest practices were fully based on their traditional belief system. They had traditional tools and implements for crop management and postharvest practices. Cow dung and tree leaves were mostly used for manuring the crop. This system continued for long years, and it was only by the 1960s, high yielding and short-duration rice varieties began to appear in Kerala [1]. Gradually, the modern varieties began to take the lead, and traditional varieties were pushed to

the backseat since modern varieties are more productive [7]. Most of the traditional farmers are aware of the importance and need for traditional rice varieties but they are largely unaware of the government and legal support for traditional rice varieties.

3.1 Sustainability of Traditional Rice Cultivation

Among the eight dimensions, all seven drew more of a positive perception from the respondents than negative. Only the profitability or returns part drew more of a negative perception. Thus, it might be safe to deduce that if the marketing of traditional rice varieties is strengthened, or if farmers are supported with better market choices for their produce, sustaining and promoting traditional rice varieties might become smooth.

77.78 percent of respondents felt that traditional rice cultivation was a cultural lineage. 82.22 percent of respondents agreed, it was easy to manage and hence helpful for the farmers. 61.11 percent of respondents felt that traditional rice cultivation was not remunerative enough but nearly 39 percent felt that it was possible to continue in the long term. This is a positive note towards traditional rice, as there is a voice of

hope. Still, around 35 percent of the respondents felt that, in the current trend of low support from developmental agencies, this rice cultivation is difficult to survive. 51.11 percent of respondents felt that there is a renewed awareness about the benefits of traditional rice varieties, which will help in their survival. 66.67 percent of respondents saw the dimension compatibility as a sustaining factor. 77.78 percent of respondents upheld the view that these varieties are the best suited for the location's special features. 44.44 percent of the respondents believe that competition from modern high-yielding varieties will adversely affect the sustainability of traditional rice cultivation.

More than 77.00 percent of respondents felt that traditional rice cultivation was an integral part of their culture and easy to be managed. Location-specific nature of traditional rice varieties will help in their survival also. In general, even though farmers had a mixed perception about the sustainability of traditional rice, the positive perception towards it (mean percent = 72.22%) supersedes the negative (mean percent= 56.67%). Therefore, the study gives a positive note that, given enough support and market promotion, traditional rice cultivation might stay in Kerala which is line with the findings of Krishnankutty et al, 2022.

Table 1. History of traditional rice cultivation

Time	Wayanad	Malappuram
1500s	Indigenous agricultural practices started by migrants and tribes	
1600s	Cultivation of Ragi and Millets	
1700s	Cultivation of traditional rice varieties like <i>Thondi, Veliyan, Chomala, Kalladiyar, Ghandhakasala</i> and <i>Jeerakasala</i>	Indigenous agricultural practices started by migrants
1800s	The usage of implements for rice cultivation increased	Cultivation of traditional rice varieties started (<i>Thavalakkannan, Pothan</i>) along with ragi and millets
1900s		Usage of implements increased
1960s	Introduction of high yielding short duration varieties	- Introduction of high yielding short duration varieties
1970-80s	The declining area under traditional rice cultivation	The declining area under traditional rice cultivation
1995-2000	MSSRF started to take efforts to conserve traditional rice varieties	
2008	PPVFR authority recognized the conservation of 20 rice varieties by tribals in Kerala and titled them 'Genome Saviors'	PPVFR authority recognized the conservation of 20 rice varieties by tribals in Kerala and titled them 'Genome Saviors' [8]
2010	<i>Ghandhakasala</i> and <i>Jeerakasala</i> got GI certification from GoI [9]	

3.2 Legal Recognition

One of the main objectives of geographical indication was policy development for the traditional knowledge conservation [10]. From the survey, no respondent was found to have any awareness of legal recognition status as a registered farmer, GI tag or any other. However, all the respondents were members of the

farmer's association, namely *Padasekhara Samithi*² of their respective areas.

The traditional varieties cultivated in the survey areas are given in Table 3. Some of them (as shown in the table) were legally recognised varieties, but the cultivating farmers were not aware of this status.

Table 2. Perception of farmers about components of sustainability in traditional rice cultivation (N=90)

Sl. No	Dimension	Positive		Negative	
		(f)	%	(f)	%
1	Cultural lineage	70	77.78	20	22.22
2	Ease in management	74	82.22	16	17.78
3	Returns from the enterprise	35	38.89	55	61.11
4	Support from developmental agencies.	59	65.56	31	34.44
5	Renewed awareness	46	51.11	44	48.89
6	Compatibility	60	66.67	30	33.33
7	Adaptability	70	77.78	20	22.22
8	Competition from modern varieties	50	55.56	40	44.44

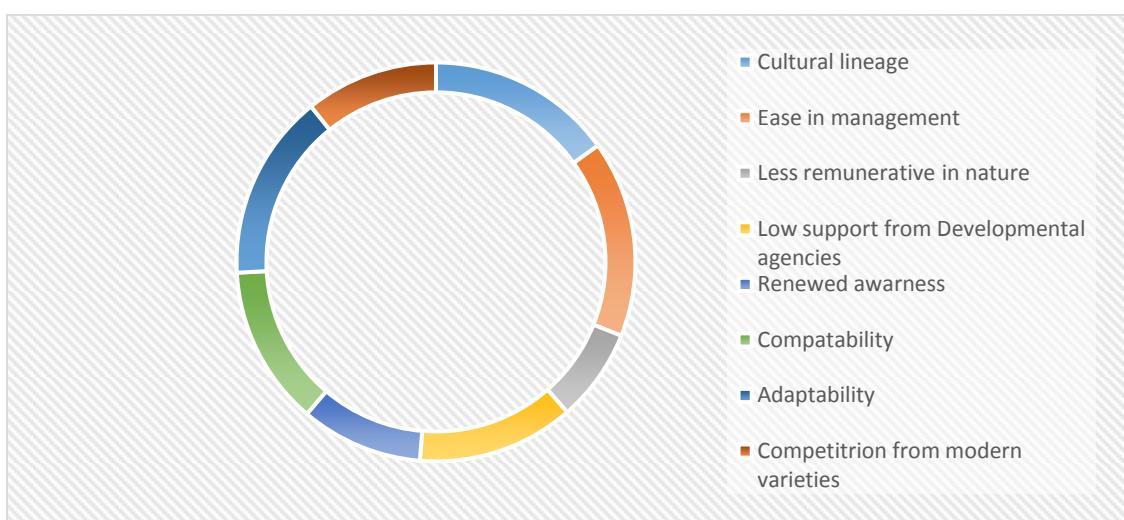


Fig. 1. Perception of farmers about the sustainability of traditional rice cultivation

Table 3. Details of legal recognition for the traditional varieties

District	Sl. No	Name of variety	Status
Wayanad	1	<i>Jeerakasala</i>	
	2	<i>Gandhakasala</i>	Geographical indication
	3	<i>Navara</i>	
	4	<i>Thonnnuranthondi</i>	
	5	<i>Valichoori</i>	Registered farmers variety
	6	<i>Thondi</i>	
	7	<i>Adakkan</i>	
Malappuram	1	<i>Navara</i>	Geographical indication
	2	<i>Chitteni</i>	Geographical indication
	3	<i>Kayama</i>	

4. CONCLUSION

The study reinforced that traditional rice cultivation is in peril in the state. The farmers who were in cultivation were predominantly in the senior group and their perception of sustainability, even though was more positive than negative, and was not stable. The lack of any proper governmental support or motivation from development agencies was one reason for this. The novel governmental legal support mechanisms for traditional agriculture like GI recognition or registering traditional varieties through PPVFRA do not reach the farmers as there is no grassroots-level government agency entrusted to promote them.

But still, the superior qualities and value of traditional varieties do make farmers stick on to them. It is not the profit motive that leads these farmers. It is more of a cultural norm, a lineage and a way of life. But we have to say, such norms are difficult to last. When a generation passes, this system of cultivation can largely be lost.

NOTES

1. KVK is an agricultural extension centre in India.
2. Padasekhara samithi is the local farm level association of rice farmers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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