

Balan Paramoola

Preserving the Ethos of Agrobiodiversity Conservation of Kurichiya amid Climate Change and Economic Forces

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Erosion of agrobiodiversity is one of the critical global development crisis. Although agricultural modernisation has helped improve the production of major crops, it has also contributed to the erosion of agrobiodiversity. Extreme weather events have severely affected agricultural production across the globe, highlighting the need for resilient crop varieties more than ever before. In this context, many traditional varieties known for their resilience to various biotic and abiotic stresses are gaining importance. A significant proportion of this diversity is found in

agrobiodiversity hotspots such as Wayanad, particularly in the farms and homesteads of Adivasi and local communities. These communities continue to conserve traditional varieties due to their cultural significance and, in some cases, geographical and resource constraints that limit the adoption of modern agricultural practices. At the same time, mono-cropping and the cash-crop economy are increasingly gaining prominence. However, Adivasi communities such as the Kurichiya, along with their rich bio-cultural heritage, continue to support and sustain agrobiodiversity conservation. This case study

explores how Kurichiya agriculture has transformed over the years and examines an individual's initiative to conserve agrobiodiversity in the context of these changing agricultural and socioeconomic conditions.

Kurichiya Farming System and Agrobiodiversity Conservation

The Kurichiya are one of the largest family farming Adivasi communities in the Wayanad region of Kerala, southern India. Traditionally, the Kurichiya joint-family system and the sociocultural norms associated

with it played an important role in their sustainable farming practices. Culture and belief systems play an inseparable role in the Kurichiya conservation of agrobiodiversity. For example, traditional rice varieties such as Veliyan and Chennellu (red rice varieties) and Gandhakasala (an aromatic rice variety) are preferred for special occasions and are an integral part of life-cycle rituals, including birth and death ceremonies. Chennellu is specifically given to women and lactating mothers, as the community believes that it is rich in iron and has nutritional benefits. Similarly, tree species such as Chooral are conserved because they are considered essential for the traditional ritual practices of the community, particularly as the Shaman requires this species during ceremonial performances. However, in response to various external forces, particularly those associated with the neo liberal reforms, the traditional joint-family system has undergone significant changes. This transformation has also had profound implications for the community's traditional practices of agrobiodiversity conservation, which were closely intertwined with the joint-family system. The nuclearisation of families, mechanisation of agriculture, the advent of high-yielding varieties, changing aspirations, land-related policy reforms, and the changing social status and dignity associated with farming are among the key factors that have transformed the Kurichiya joint-family system and, consequently, their traditional approaches to agrobiodiversity conservation. While the community positively acknowledges many of the benefits brought about by these changes, community members have also identified critical setbacks in the conservation agro biodiversity.

Today, there is growing global interest in mixed cropping, intercropping, crop-livestock integration, nutrition-sensitive agriculture, agroforestry, and traditional ecological knowledge as pathways towards more sustainable and climate-resilient farming systems. Remarkably, many of these principles have been integral to the Kurichiya farming system since time immemorial. Their traditional agricultural practices demonstrate a holistic approach in which crops, livestock, agroforestry trees, wetlands, and ecological knowledge are closely interconnected. In the current context of eroding biodiversity,

agrobiodiversity embedded in Kurichiya agricultural heritage offer valuable insights into how traditional knowledge and sustainable farming practices can endure amid profound social and environmental change. The following section unfolds Balan's story and his family's continuing journey of agrobiodiversity conservation.

Paramoola: A Kurichiya Joint Family in Transformation

The Paramoola Kurichiya Tharavadu (joint family) has a centuries-old agricultural heritage, particularly in



the expansion of mono-cropping, and the gradual disengagement from conservation-oriented agriculture, the efforts of individuals and families who continue to preserve the agricultural heritage of the Kurichiya are particularly significant. Their commitment represents a conscious choice to sustain practices that are increasingly under pressure from changing social, economic, environmental, and market forces.

The story of Balan Paramoola and his family is one such example. Their efforts to conserve and sustain the

traditional rice cultivation. In 1957, the family held approximately 135 acres of agricultural land, which had declined to around 40 acres by 2018. Several factors contributed to this loss of land, including land alienation associated with settler colonialism, the imposition of land ceilings during the implementation of the Kerala Land Reforms Act, and the abolition of shifting cultivation. Paramoola is one of the 58 major Kurichiya Tharavadu in Wayanad. At its peak, nearly 300 people lived in the Tharavadu, with subsistence agriculture serving as their primary livelihood. By



2018, however, only five people remained in the ancestral home, largely due to the nuclearisation of families. The traditional Tharavadu system is now facing a severe survival threat, with much of the upland area fragmented and allocated among nuclear families.

Despite these changes, the family continues to practise traditional rice conservation as a collective activity. The produce from wetland paddy cultivation is equitably distributed among the nuclear families after setting aside a common share for the Tharavadu, which is used to meet the needs of common rituals and festivals. However, climatic uncertainties and the increasing disengagement of nuclear-family members from collective wetland cultivation have emerged as major challenges to sustaining agrobiodiversity conservation. The maintenance and management of the upland agroforestry system have also become increasingly difficult, contributing to declining productivity. Balan Paramoola, a member of the Paramoola joint family, has taken a leading role in wetland paddy cultivation on behalf of the Odeikaran, (the headman of the Tharavadu). He currently leads the cultivation of approximately 20 acres of wetland paddy. To encourage members of the nuclear families to participate in collective cultivation, Balan introduced an equitable system for sharing the agricultural produce.

Although relatively young,

Balan has worked closely with Kelu Paramoola, a 93-year-old community elder, through whom he learned the knowledge, skills, and practices underlying Kurichiya sustainable farming. Balan also served for an extended period as President and Executive Committee Member of the Wayanad District Tribal Development Action Council (WDTDAC), a grassroots institution working with Adivasi communities and promoting to the agrobiodiversity conservation in Wayanad. He is actively involved in rice seed village programme (An initiative of M S Swaminathan Research Foundation) to promote the conservation of traditional rice varieties of Wayanad. In addition, to strengthening his traditional ecological knowledge, this experience provided Balan with a broader understanding of the importance and purpose of on-farm agrobiodiversity conservation.

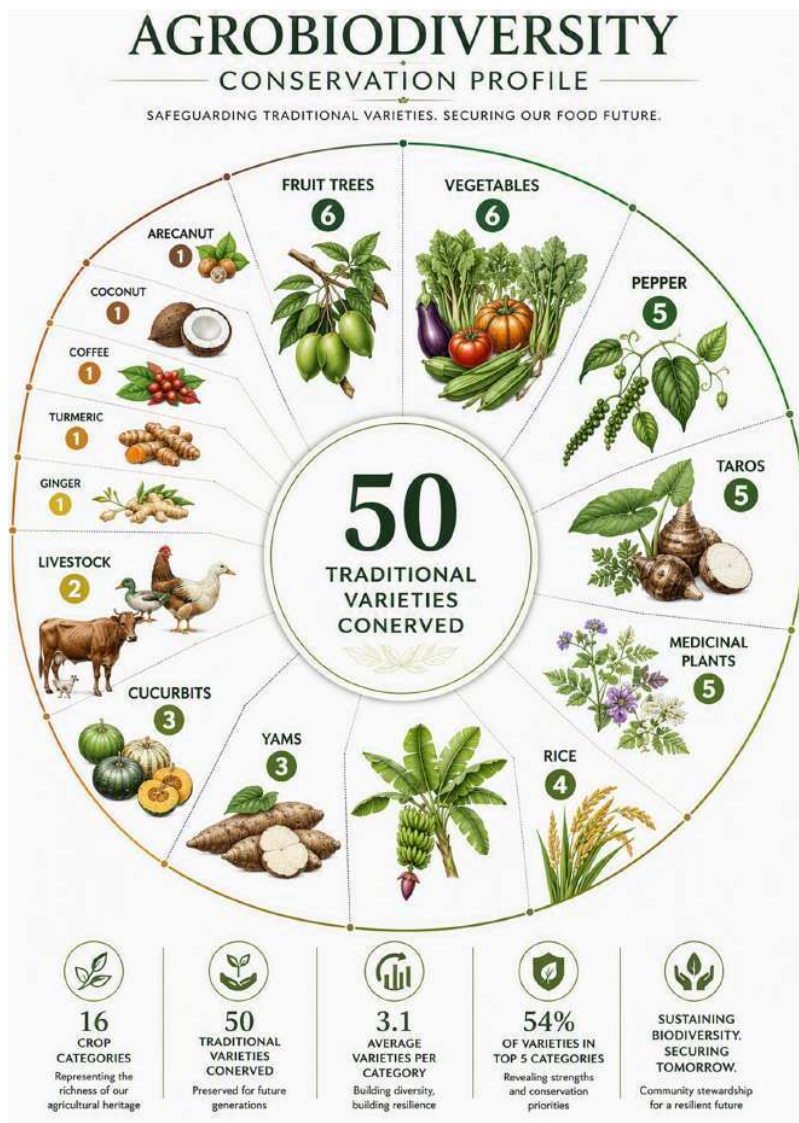
Balan Paramoola and his Untold Story of Agrobiodiversity Conservation

As the traditional Kurichiya joint-family system began to erode, many community members of Balan's generation increasingly sought employment outside agriculture, particularly in the informal sector, including construction, painting, and other forms of casual wage labour. For many nuclear families, agriculture gradually became a supplementary rather than

a primary livelihood with the active support of his wife Bindhu and two children Akshay and Anoop. Against this prevailing trend, Balan Paramoola chose to remain in agriculture as a full-time livelihood. Around fifteen years ago, he received 1.2 acre of uncultivated upland from the joint family to build his house. Balan gradually transformed it into a productive and diverse farming system based on his traditional knowledge and his own lived experience.

He adopted a combination of food and cash crops to strengthen both household nutritional security and economic security. Recognising the importance of soil fertility for sustaining agricultural production, he also began rearing livestock, which provided both an additional source of income and organic manure for his fields. Balan's farm represents an integrated farming system in which livestock, poultry, seasonal and perennial crops, and agroforestry are closely interconnected. This diversity enhances the resilience of his farming system to climate-related stresses, including extreme heat and other environmental uncertainties. At the same time, the farm serves as an important site for conserving agrobiodiversity, where traditional crop varieties are maintained alongside other components of the farming system.

Today, Balan's farm is home to a remarkable diversity of crops and varieties, reflecting



labour requirements without undermining the traditional farming system. For Balan, one of the greatest advantages of maintaining crop diversity on the farm is access to a wide range of safe and nutritious foods. His family is largely self-reliant in food, producing and accessing a diverse range of dairy products, meat, eggs, vegetables, tubers, spices, fruits, and grains from their integrated farming system. This diversity not only strengthens household food and nutritional security but also reduces dependence on external exploitative food markets. Currently his field hosts the following crop varieties.

Challenges and Opportunities

Balan's commitment to agrobiodiversity conservation has also created opportunities beyond his farm. His experience and knowledge have earned him recognition and the opportunity to share his perspectives on various national platforms alongside eminent scientists and experts. However, he points out that many other farmers and community members who are equally committed to conserving agrobiodiversity do not receive similar opportunities or recognition.

At the same time, economic sustainability remains a major concern. Balan acknowledges that cash income is essential for meeting the demands of contemporary life, while income from farming has become

both the agricultural heritage of the Kurichiya community and his personal commitment to conserving agrobiodiversity. Climate change-induced extreme weather events have significantly altered the Kurichiya crop calendar, particularly the traditional paddy cultivation cycle.

According to Balan, farming has become increasingly arduous and labour-intensive in the era of climate change. Rising labour costs and the growing shortage of agricultural labour during seasons have added to the challenges. He emphasises the need for customised and locally appropriate agricultural technologies that can reduce



Summary details of crops and varieties conserved by Balan Paramoola

Crop	Variety	Type	Characteristics
RICE	CHENNELLU	Red rice	Medicinal rice, culturally important
	GANDAKASALA	White rice	Scented rice
	THONDI	Red rice	
	VELIYAN	Red rice	
PEPPER	KARIMKOTTA	Traditional variety	
	KARIVALANKOTTA	Traditional variety	
	UTHIRAMKOTTA	Traditional variety	
	CHERUVALLI	Traditional variety	Short spikes; small balls
	UPPOOTHARAN	Traditional variety	Short spikes; small balls
GINGER	HIMACHAL		Stout and juicy Dark yellowish and tasty; have medicinal properties
TURMERIC	WAYANADAN MANJAL	Traditional variety	
BANANA	NJAALI POOVAN	Traditional variety	-
	MANNAN	Traditional variety	Have medicinal properties
	CHENKADALI	Traditional variety	Red fruits Small fruits; culturally important
	POOJA KADALI (DEVA KADALI)	Traditional variety	
YAM	KANDI KAACHIL (KUZHI KAACHIL; NEENDI KAACHIL, URULANKACHIL)	Traditional variety	Tuber length over 1 m
	URULAN KAACHIL (PERI KAACHIL)	Traditional variety	Tubers rounded
	CHENA (Elephant Foot Yam)	Traditional variety	
TARO	PAL CHEMBU	Traditional variety	Tubers pure white in colour
	KARIMCHEMBU (KUZHICHEMBU)	Traditional variety	Have medicinal properties Common in paddy fields Have medicinal properties Highly nutritional
	NANA CHEMBU	Traditional variety	
	VELUMCHEMBU	Wild variety	
	THOTTACHEMBU (THOTTATHAALU)	Wild variety	
COFFEE	ROBUSTA	Domesticated	
MEDICINAL PLANTS	KASTURI MANJAL Curcuma aromatica Salisb. (AROMATIC TURMERIC)	Wild variety	Good against fever, cough and skin diseases.
	THULASI Ocimum sanctum L.	Domesticated	
	MURIKOOTI Hemigraphis colorata Blume	Domesticated	
	THIPPALI Piper longum L.	Domesticated	
	PANIKOORKA Plectranthus amboinicus (Lour.) Spreng.	Domesticated	

increasingly volatile. For small and marginal Adivasi farmers who conserve traditional varieties, the economic returns from maintaining diversity are often not commensurate with the labour and resources invested in conservation.

Balan therefore calls for stronger government support to sustain Adivasi agrobiodiversity conservers. He emphasises the need for appropriate agricultural technologies, financial assistance, targeted subsidies, and improved access to premium and niche markets for traditional and biodiversity-friendly agricultural

products. Such measures, he believes, can help bridge the gap between conservation and livelihood security, enabling Adivasi farmers to continue their traditional role as custodians of agrobiodiversity while adapting to the realities of climate change and changing markets. ■