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### Traditional knowledge adopted by the Nilgiris Tribals in cabbage

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#### Abstract

Indigenous tribal wisdom embodies a rich repository of ancestral knowledge and practices handed down through generations. This invaluable wisdom is essential for sustainable development, offering profound insights into agriculture, healthcare, and the management of natural resources. To evaluate the awareness and adoption practices of the tribal communities regarding cabbage, the Nilgiris district in Tamil Nadu was intentionally chosen. Kotagiri and Udhamandalam were the two blocks selected within this district. The study focused on three tribal communities: Todas, Kotas, and Irulas. A Multistage Random sampling method was utilized in selecting the respondents. The study employed an Ex post facto research design, with a total sample size of 45 participants. The findings indicated that the majority of respondents (42.22%) exhibited a medium level of awareness, followed by 33.33% with a low level, and 24.45% with a high level. Similarly, most respondents (44.44%) demonstrated a medium level of adoption, with 28.89% showing a high level and 26.67% displaying a low level.

**Keywords:** Traditional knowledge, Nilgiris Tribals, cabbage cultivation

#### Introduction

Indigenous tribal wisdom constitutes an extensive reservoir of knowledge and practices, meticulously refined over centuries. This knowledge spans numerous fields, such as agriculture, healthcare, environmental management, and social organization. Indigenous communities have created sustainable practices that are closely connected to their cultural and spiritual beliefs, providing essential insights for addressing today's challenges. Recording and safeguarding this knowledge is vital for preserving cultural heritage and advancing sustainable development. (Priyadarshini and Abhilash, 2019)<sup>[3]</sup>.

The importance of indigenous tribal wisdom is found in its comprehensive approach to understanding and engaging with the natural world. Indigenous knowledge systems, grounded in long-term observations and experiences, offer practical solutions that are both ecologically sustainable and socially just. These systems highlight the interconnectedness of all living beings and underscore the importance of maintaining balance within ecosystems. (Mohan, 2024)<sup>[1]</sup>.

Recently, there has been an increasing appreciation for the value of indigenous knowledge in tackling global challenges like climate change, biodiversity loss, and sustainable development. Joint initiatives between indigenous communities, researchers, and policymakers have showcased the potential of combining traditional wisdom with contemporary scientific methods. By cultivating respectful partnerships and ensuring the inclusion of indigenous voices in decision-making processes, we can unlock the full potential of indigenous tribal wisdom, paving the way for a more sustainable and just future. Building on this context, the article provides an in-depth exploration of

the indigenous practices employed by the Nilgiris tribal communities in cabbage cultivation.

#### Materials and Methods

The Nilgiris district of Tamil Nadu was intentionally chosen due to its relatively high percentage of tribal population compared to other districts in the state. Kotagiri and Udhamandalam blocks were intentionally chosen as they have a higher percentage of the selected tribal communities, specifically the Todas, Irulas, and Kotas. From these, three villages in the Kotagiri block and three revenue villages in the Udhamandalam block were further selected based on the highest concentration of identified tribal habitations, namely the Todas, Irulas, and Kotas. A total of 45 respondents were considered to assess their level of awareness and adoption of rational Indigenous Technical Knowledge (ITKs) in cabbage cultivation. A multistage random sampling method was employed to select the respondents. An ex post facto research design was utilized, resulting in a total sample size of 45.

#### Results and Discussion

The results are summarized in tabular form and explained in detail below.

#### Awareness and adoption of rationalized Indigenous Technical Knowledge (ITKs) by tribes engaged in cabbage cultivation

A total of 13 ITKs were rationalized for cabbage crops. To facilitate easy interpretation of the results, these ITKs were further classified into five categories. The findings are presented in Table 1.

**Table 1:** Awareness and Adoption of Rationalized ITKs Among Cabbage-Growing Tribes by Technology (n=45)

S. No	Rational Technologies	Awareness		Adoption	
		No	%	No	%
<b>I</b>					
<b>Seeds and sowing</b>					
1.	Establishing a nursery on a raised bed composed of a 1:1 mixture of soil and cow dung	45	100.00	33	73.33
2.	Sowing seeds in rows on raised beds, followed by a thin layer of cow dung applied over the seeds	45	100.00	28	62.22
3.	Selecting cabbage plants with significant growth in the field to serve as seed-producing plants	27	60.00	15	33.33
4.	Establishing a nursery in the corner of the field at the highest elevation.	42	93.33	35	77.78
5.	Transplanting one-month-old seedlings, avoiding younger and older ones due to their poor establishment in the main field	45	100.00	29	64.44
<b>II</b>					
<b>Intercultural operations</b>					
1.	Regular weeding in the cabbage nursery ensures better establishment of cabbage plants both in the nursery and the main field	27	60.00	10	22.22
2.	Applying BHC powder and cow dung to the main field after weeding	45	100.00	38	84.44
3.	Providing initial irrigation after transplanting the seedlings	45	100.00	41	91.11
<b>III</b>					
<b>Manures and Manuring</b>					
1.	Creating trenches in the field and applying FYM (Farmyard Manure) within them.	27	60.00	17	37.78
2.	Regular weeding in the primary cabbage field to promote faster maturity of the heads	42	93.33	34	75.56
<b>IV</b>					
<b>Cropping System</b>					
1.	Planting cabbage after cabbage leads to poor growth	45	100.00	35	77.78
2.	Growing beans as an intercrop in the cabbage field at a 1:10 ratio	27	60.00	15	33.33
<b>V</b>					
<b>Harvest and post-harvest technologies</b>					
1.	Harvesting when some cabbage heads in the field begin to burst or crack	27	60.00	11	24.44

### Awareness and adoption of the ITKs related to seeds and sowing

There were five rationalized ITKs under seeds and sowing. Cent per cent of the respondents were very much aware about the establishing a nursery on a raised bed composed of a 1:1 mixture of soil and cow dung, sowing seeds in rows on raised beds, followed by a thin layer of cow dung applied over the seeds and transplanting one-month-old seedlings, avoiding younger and older ones due to their poor establishment in the main field. Majority (93.33%) of the respondents were well aware about establishing a nursery in the corner of the field at the highest elevation. Around 60.00 per cent of the respondents were aware about selecting cabbage plants with significant growth in the field to serve as seed-producing plants.

Based on the findings, it can be concluded that most respondents were highly knowledgeable about the various Indigenous Technical Knowledge (ITK) practices related to seeds and sowing.

With reference to the adoption of technologies, a vast majority of the respondents (77.78%) have considered establishing a nursery in the corner of the field at the highest elevation followed by Establishing a nursery on a raised bed composed of a 1:1 mixture of soil and cow dung (73.33%). Further 64.44 per cent of the respondents had adopted transplanting one-month-old seedlings, avoiding younger and older ones due to their poor establishment in the main field.

### Awareness and adoption of the ITKs related to intercultural operations

There were three rationalized ITKs under intercultural operations. Cent per cent of the respondents were very much aware about the applying BHC powder and cow dung to the main field after weeding and providing initial irrigation after transplanting the seedlings. Majority (60.00%) of the respondents were aware about the fact that regular weeding in the cabbage nursery ensures better establishment of cabbage plants both in the nursery and the main field. It is

noteworthy that a significant majority of respondents were well-informed about all the enumerated rationalized technologies

With regard to the adoption of rationalized technologies, majority (91.11%) of the respondents had adopted the practice of providing initial irrigation after transplanting the seedlings followed by applying BHC powder and cow dung to the main field after weeding (84.44%).

### Awareness and adoption of the ITKs related to manures and manuring

There were two rationalized ITKs under manures and manuring. Most of the respondents (93.33%) were very much aware about the practice of regular weeding in the primary cabbage field to promote faster maturity of the heads followed by the creating trenches in the field and applying FYM (Farmyard Manure) within them (60.00%).

Based on the findings, it can be deduced that a significant portion of respondents were knowledgeable about all the enumerated Indigenous Technical Knowledge (ITK) practices related to manures and manuring.

With regard to the adoption of ITKs, a vast majority of the respondents (75.56%) have adopted the practice of regular weeding in the primary cabbage field to promote faster maturity of the heads.

### Awareness and adoption of the ITKs related to cropping system

There were two rationalized ITKs under cropping system. Cent per cent of the respondents were very much aware that planting cabbage after cabbage leads to poor growth followed by growing beans as an intercrop in the cabbage field at a 1:10 ratio (60.00%).

It is commendable that a significant majority of respondents were well-acquainted with the outlined rationalized technologies.

With regard to their adoption, a substantial majority of respondents (77.78%) believe that planting cabbage successively leads to poor crop development. Additionally,

33.33% of respondents practice intercropping by raising beans in the cabbage field at a 1:10 ratio.

### Awareness and adoption of the ITKs related to harvest and post-harvest technologies

The majority (60.00%) of respondents were aware of the practice of harvesting when some cabbage heads in the field begin to burst or crack. However, only a small portion (24.44%) of the respondents had actually adopted this technology.

### Overall awareness and adoption of the rational technologies in Cabbage

The relevant findings on overall awareness and adoption are presented in Table 2 and Table 3, respectively.

**Table 2:** Overall awareness about the rational technologies in Cabbage (n=45)

S. No	Category	No	Percentage
1	Low	15	33.33
2	Medium	19	42.22
3	High	11	24.45
	Total	45	100

An analysis of the findings presented in Table 2 shows that a significant majority of respondents (42.22%) demonstrated a medium level of awareness, followed by those with low (33.33%) and high (24.45%) levels. Therefore, it can be inferred that most respondents had a range of awareness from medium to low regarding rational technologies in cabbage cultivation.

**Table 3:** Overall adoption about the rational technologies in Cabbage (n=45)

S. No	Category	No	Percentage
1	Low	12	26.67
2	Medium	20	44.44
3	High	13	28.89
	Total	45	100

An analysis of the findings presented in Table 3 shows that a substantial majority of respondents (44.44%) exhibited a medium level of adoption, followed by high (28.89%) and low (26.67%) levels. Therefore, it can be inferred that most respondents were distributed between medium to high levels of adoption regarding rational technologies in cabbage cultivation.

### Conclusion

In summary, indigenous tribal wisdom constitutes a vast and priceless repository of knowledge that has been carefully nurtured and developed over countless generations. This knowledge includes comprehensive and sustainable practices that are deeply connected with cultural and spiritual values, providing practical solutions to modern global challenges. By acknowledging and valuing the contributions of indigenous communities, we can create meaningful collaborations that blend traditional knowledge with contemporary scientific methods. This collaboration not only fosters sustainable development but also guarantees the preservation and perpetuation of cultural heritage for future generations. Since Indigenous Technical Knowledge

(ITKs) are deeply embedded in tradition, effective intervention by local extension authorities could greatly enhance their adoption. Proper recognition should be accorded to farmers who consistently follow and implement rational ITKs.

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