



## EXTENT OF ADOPTION ON INDIGENOUS CULTIVATION PRACTICES AMONG TRIBAL FARMERS IN KOLLI HILLS

**Poovarasan, K**

*PG Scholar, Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Tamil Nadu, India*

**P. Ramesh**

*Assistant Professor, Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Tamil Nadu,*

### ABSTRACT

#### KEYWORDS:

*indigenous cultivation, human civilization, tribals, food crops, animals, agricultural systems.*

*A study mainly focuses on extent of adoption on indigenous cultivation practices among tribal farmers in Kolli hills. The present study was conducted in Namakkal district of Tamil Nadu state. So Namakkal district has been administratively divided into seven taluks and fifteen blocks. Out of these taluks and blocks, higher populations of tribals were noticed in Kolli hills. For the selection of the respondents based on the proportionate random sampling technique was followed to selected a sample size of one hundred and twenty respondents. The data were collected from each respondent through personal interview methods with help of interview schedule. The results revealed that, nearly half of the respondents (48.33 per cent) had medium level of adoption followed by high level (26.67 per cent) and low (25.00 per cent) level of adoption on indigenous cultivation practices.*

### INTRODUCTION

Man has passed through the stone age, the steel age and entered the space age with the help of technologies. Man started developing technologies to fulfil his needs and desires, based on his practical experience, logic and judgement. Agriculture is as old as human civilization. The tribals discovered and domesticated many of the food crops and animals. High yields in modern agricultural systems were discovered by investing costly inputs like complex fertilizers, pesticides, etc. the development of modern agricultural production as been achieved by creating large scale specialised farm production unit, increased mechanisation and use of chemical inputs. Thus, gain in crop yield directly depends on intensive management and on the uninterrupted availability of energy and resources. Generally, increase in yield has been accompanied by a decline in genetic variability, natural soil fertility, biological pest regulation, enhanced soil erosion, salinisation and environmental pollution.

An indigenous cultivation practices is gradually gaining more and more attention, after having often been rejected as a hindrance to development. The importance now being given to such indigenous cultivation practices is for the facts that these emanate from the cultural context of the people concerned, and they evolve in close contact with specific environmental conditions and are based on traditional societies' intimate knowledge of their environment. These reasons imply that an indigenous cultivation practices is almost an essential condition for sustainable development.

There are many tribal studies that have been conducted by different anthropologists and researchers. They have diagnosed about the tribals and their problems by using different phenomenon in their studies. Limited studies are available on the socio-economic changes of tribals over a period of time. The tribal development measures adopted during the second half of this century are found to be insufficient in improving the economic conditions of the tribals. Even after the introduction of several welfare measures, the tribals are still facing several economic and social constraints. Keeping in view the above point of reference, the present research paper entitled, "Extent of Adoption on Indigenous Cultivation Practices Among Tribal Farmers in Kolli Hills".

### METHODOLOGY

The present study was conducted in Namakkal district of Tamil Nadu state. So Namakkal district has been administratively divided into seven taluks and fifteen blocks. Out of these taluks and blocks, higher populations of tribals were noticed in Kolli hills. Hence, Kolli hills has been selected for the purpose of study. Kolli hills had sixteen revenue tribal villages and five villages were purposively selected based upon its maximum tribal population.

The list of farmers' household from each selected village was obtained from the gram panchayat office and also from the department of horticulture and plantation crops. For the selection of the respondents based on the proportionate random sampling technique was followed to select a sample

size of one hundred and twenty respondents. For the purpose of data collection only the heads of households were introduced. In order to measure the extent of adoption of indigenous cultivation practices by the respondents, forty one major indigenous cultivation practices were selected as already mentioned. A total of 41 items were identified. Each respondent was asked about his adoption or non-adoption against each item. The respondents were also asked to mention the reasons for non adoption. A score of two was given for adoption, while non-adoption received one score. The scores for all these items were summed-up for respondent and his adoption score was arrived. The respondents were categorized into low, medium and high by using cumulative frequency. Further, the percentage analysis was worked out for practicewise adoption level of the respondents.

## FINDINGS AND DISCUSSIONS

### Extent of adoption of respondents on indigenous cultivation practices

The findings on the extent of adoption of respondents on indigenous cultivation practices are presented and discussed in this section.

### Overall adoption of respondents on indigenous cultivation practices

The findings on overall adoption of respondents on indigenous cultivation practices are presented in Table-1.

**Table-1. Distribution of respondents according to their overall adoption of indigenous cultivation practices**

(n=120)

S. No.	Category	Number	Per cent
1	Low	30	25.00
2	Medium	58	48.33
3	High	32	26.67
<b>Total</b>		<b>120</b>	<b>100.00</b>

It could be seen from the Table-1, that nearly half of the respondents (48.33 per cent) had medium level of adoption followed by high level (26.67 per cent) and low (25.00 per cent) level of adoption on indigenous cultivation practices. Majority of the tribal farmers in agriculture have realised the importance of indigenous cultivation practices, since these practices were based on accumulated field experience of tribal farmers, much fitted to their local situation and social system,

environmentally friendly. The finding is in line with the findings of Maravi (2009).

### Practicewise adoption of respondents on indigenous cultivation practices in paddy

In order to have an indepth idea about practicewise adoption of respondents on indigenous cultivation practices in paddy was worked out and the results are presented in Table-2.

**Table-2. Practicewise adoption of indigenous cultivation practices in paddy**

(n=120)

S. No	Indigenous practices	Number	Per cent
1	Drying of paddy seeds day and night for 4-5 days	120	100.00
2	Soaking of paddy seeds in water for sprouting	108	90.00
3	Seed rate @20-25kg per acre	78	65.00
4	Raising nursery in elevated place in the field	85	70.82
5	Keeping nursery area free from other plants /weeds	82	68.33
6	Application of farm yard manure	120	100.00
7	Application of green leaf manure	100	83.33
8	Planting 6-7 seedlings per hill	90	75.00
9	Draining water next day of sowing	110	91.67
10	Maintaining water level for next few days after transplanting	108	90.00
11	Sun drying of harvested paddy bundled for one or two days in the field itself	110	91.67
12	Threshing by hitting the paddy bundles with wooden blocks	80	66.67
13	Cattle threshing for removal of grains	100	83.33
14	Winnowing the grains by using winnower called Muram	88	73.33
15	Parboiling of paddy for improving the edible quality of the rice	89	74.16
16	Dehusking of paddy by using Ural	107	89.16
17	Separation of husk by the use of Muram	99	82.50
18	Grinding of rice in a heavy weight wooden grinder Ural/Erakai	82	68.33
19	Storage of paddy grains in Kudhir	95	79.16
20	Spread of Notchi leaves over the storage container to control rice moths	90	75.00
21	Coating of cow dung ash in paddy grains for protection of pests and diseases	92	76.66
22	Dusting of ash on the semi-lodging crop of paddy for purpose of standing of crop	90	75.00
23	Pepper powder is used for the control of storage pest in paddy	95	79.16
24	Turmeric powder is mixed with paddy and then stored	100	83.33
25	Twenty-thirty red chillies are kept in one quintal of paddy seeds bag to avoid the storage pests	108	90.00
26	Vessel filled with water is kept inside the store room to attract the insects and to reduce damage	90	75.00

It could be observed from the Table-2, that Cent per cent of the respondents had adopted drying of paddy seeds day and night for 4-5 days. Harvested paddy from their own field is only their source of seeds for future cultivation. So all the farmers followed the seed preservation practices by drying up to optimum moisture content. Another one practices with cent per cent of adopted is application of farm yard manure. Due to the higher livestock possession of the farmers, the availability of farm yard manure is more. It gives more nutrients with minimum expense without affecting the environment.

The calculated percentage of the remaining major practices in the descending order were draining water next day of sowing (91.67 per cent), followed by sun drying of harvested paddy bundled for one or two days in the field itself (91.67 per cent), maintaining water level next few days after transplanting (90.00 per cent), twenty-thirty red chillies are kept in one quintal of paddy seeds bag to avoid the storage pests (90.00 per cent), soaking of paddy seeds in water for sprouting (90.00 per cent). Basically the farmer of this area having more knowledge above indigenous practices like grain moisture management, water management in main field and nursery, storage pest management, etc., and which are simple practices easy to adopt in practical more over these practices are not need much of technical knowledge to adopt them. So, farmers easily adopt these indigenous cultivation practices without difficulties. The result is in agreement with the result of Venkatesan *et al.* (2016).

The next group of respondents the percentage ranges from 71.00 per cent to 89.00 per cent. The calculated percentage of the practices are descending order were de-husking of paddy by using ural (89.16 per cent) followed by application of green leaf manure (83.33 per cent), cattle threshing for removal of grains (83.33 per cent), turmeric powder is mixed with paddy and then stored (83.33 per cent), separation of husk by the use of muram (82.50 per cent), storage of paddy grains in Kudhir (79.16 per cent), pepper

powder is used for the control of storage pest in paddy (79.16 per cent), coating of cow dung ash in paddy grains for protection of pests and diseases (76.66 per cent), planting 6-7 seedlings per hill (75.00 per cent), spread of Notchi leaves over the storage container to control rice moths (75.00 per cent), dusting of ash on the semi-lodging crop of paddy for purpose of standing of crop (75.00 per cent), vessel filled with water is kept inside the store room to attract the insects and to reduce damage (75.00 per cent), parboiling of paddy for improving the edible quality of the rice (74.16 per cent), winnowing the grains by using winnower called muram (73.33 per cent). The above tools are act an important role in indigenous method of cultivation. These tools are highly helpful to farmers in agricultural operations and house utilizations like, using ural, kudhir, muram, etc., In indigenous cultivation practices most of the storage pests are controlled by easily and locally available materials like, pepper, chillies, turmeric, notchi, neem, ash, etc., So, collection of the above materials and adoption of pest management practices is also easy by the farmers.

The last group of respondents the percentage ranges from 60.00 per cent to 70.00 per cent. 70.82 per cent of the respondents had adopted the raising nursery in elevated place in the field, keeping nursery area free from other plants / weeds (68.33 per cent), grounding of rice in a heavy weight wooden grinder Ural/Erakai (68.33 per cent), threshing by hitting the paddy bundles with wooden blocks (66.67 per cent) and seed rate @20-25kg per acre (65.00 per cent). This finding is in line with the findings of Chigasil Sangma (2017).

**Practicewise adoption of respondents on indigenous cultivation practices in tapioca**

In order to have an indepth idea about adoption of respondents on practicewise indigenous cultivation practices in tapioca was worked out and the results are presented in Table-3.

**Table-3. Practicewise adoption of indigenous cultivation practices in tapioca**

(n=120)

S. No	Indigenous practices	Number	Per cent
1	Selection of setts with shorter internodes for planting	80	66.67
2	The farmers cultivate banana as a inter crop between the rows	105	87.50
3	Application of pig manure for increased tuber size	68	56.66
4	Tuber are cut and sundried for a week and stored with 16 per cent of moisture content	87	72.50
5	Spraying of neem oil mixed with soap solution to control the pest	100	83.33

It could be observed that Table-3, most of the respondents had high level of adoption in indigenous cultivation practices in tapioca. The calculated percentage of the practices are descending order were the farmers cultivate banana as a inter crop between the rows (87.50 per cent). Banana is one of the important fruit crop in the kolli hills. So the inter row space of tapioca is effectively utilised by cultivating banana. And it also give considerable income apart from tapioca. So most of the farmer follow inter crop with banana. Spraying of neem oil mixed with soap solution to control the pest (83.33 per cent). Neem oil and neem extracts are easily available in this area and the farmers are well know about the preparation of neem based pesticides. Tubers are cut and sundried for a week and stored with 16 per cent of

moisture content (72.50 per cent). Generally the farmers know very well about the appropriate moisture content of the tuber in order to prevent diseases and storage for long period. Sun drying is also a easy method to reduces moisture content of the tubers. Selection of setts with shorter internodes for planting (66.67 per cent). The practical experiences based knowledge on selection of setts may help the farmers so as to select the setts with shorter internodes. Application of pig manure for increased tuber size (56.66 per cent). This finding is in line with the findings of Dharmendra Kumar Sariya (2015).

**Practicewise adoption of respondent on indigenous cultivation practices in ragi**

In order to have an in depth idea about adoption of respondents on practicewise indigenous cultivation practices in ragi was worked out and the results are presented in Table-4.

**Table-4. Practicewise adoption of indigenous cultivation practices in ragi****(n=120)**

S. No	Indigenous practices	Number	Per cent
1	Ragi is grown in uplands with low water holding capacity	90	75.00
2	Ragi seeds are treated with cow urine at 1:10 ratio with water enhances germination	100	83.33
3	When a sample of dried finger millet grain is chewed, metallic sound indicates its dryness	90	75.00
4	Use neem leaves and thumbai leaves for storage of pest control	98	81.67
5	Spraying of goat milk on the crop to control wilt in ragi	98	81.67

It could be observed that Table-4, that more than four-fifth of the respondents had adopted ragi seeds are treated with cow urine at 1:10 ratio with water enhances germination (83.33 per cent). The farmers should know about the purpose of cow urine treatment in ragi as to increase germination percentage and reduces the pest and disease with a simple practice. The availability of cow urine is also easy in this area. Use neem leaves and thumbai leaves for storage of pest control (81.67 per cent). Leaves with pest repellent nature like neem, thumbai, notch, etc., are easily available in this area. Every people of this area should know about the utilisation of the above leaves in storage. Spraying of goat milk on the crop to control wilt in ragi (81.67 per cent), ragi is

grown in uplands with low water holding capacity (75.00 per cent). Controlling the ragi by using goat milk is traditionally followed by the farmers. It is also a low cost practice for wilt disease control in ragi and when a sample of dried finger millet grain is chewed, metallic sound indicates its dryness (75.00 per cent). This finding is in line with the findings of Venkatesan and Sundaramari (2015).

#### **Practicewise adoption of respondents on indigenous cultivation practices in banana**

In order to have an indepth idea about adoption of respondents on practicewise indigenous cultivation practices in banana was worked out and the results are presented in Table-5.

**Table-5. Practicewise adoption of indigenous cultivation practices in banana****(n=120)**

S. No	Indigenous practices	Number	Per cent
1	Red banana is native land race possessing a very good aromatic flavor is cultivated in kolli hills	86	71.66
2	Hill banana is grown as ratoon crop	94	78.33
3	Hill banana grown as an intercrop in tapioca or ragi	100	83.33
4	For quick ripening of banana fruits, bunches are stacked in bigger earthen pots	100	83.33
5	The fruits to be ripened are kept in dark room and covered by neem leaves	90	75.00

It could be observed that Table-5, most of the respondents had adopted the practices viz., hill banana grown as an intercrop in tapioca or ragi (83.33 per cent). Generally banana cultivated as inter crop in ragi and tapioca, it may minimise the cultivation expenditure, increase the income additionally and also reduces the weed populations compared with banana as sole crop. So it should be easily followed by the farmers. For quick ripening of banana fruits, bunches are stacked in bigger earthen pots (83.33 per cent). For ripening of banana fruits they followed many simple and easy practices. They are cost effective methods without harmful side effect. This method traditionally followed for banana fruit ripening by majority of the farmers. Hill banana is grown as ratoon crop (78.33 per cent). Banana cultivated as ratoon crop may reduce this cost of cultivation and man power. So they followed the ratoon crop method in banana cultivation in hill areas. The fruits to be ripened are kept in dark room and covered by neem leaves (75.00 per cent) and red banana is native land race possessing a very good aromatic flavor is cultivated in kolli hills (71.66 per cent). This finding is in line with the findings of Venkatesan and Sundaramari (2015).

#### **CONCLUSION**

This study reveals that majority of the respondents had medium to high level of adoption of indigenous cultivation practices, which shows the importance of indigenous technical knowledge over their modern counterpart. Hence, the extension workers should identify and include them in the technology transmission process for sustainable agricultural development.

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