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Indigenous Technical Knowledge System Followed By Tribal Farmers in Kolli Hills of Tamilnadu

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Abstract: ***Indigenous technical knowledge adverts to the knowledge of native people in addition to any other defined community. It is derived from the direct experience of tribals and which is limited to a particular place / location but its sustainability in other localities is not known. This has been collected by the tribals over generations by monitoring and experimentation. The importance now being given to such indigenous cultivation practices is due to close relationship with certain environmental conditions and are based on local societies' familiar knowledge of their surroundings. This study was conducted in 5 tribal villages in kolli hills of Namakkal district in Tamilnadu. In this study knowledge level of the Tribal farmer were analyzed regarding indigenous paddy cultivation practices. The result on knowledge level of the respondents shows that slightly half of the samples (56.67 per cent) had moderate level of knowledge and regarding practisewise knowledge level, the whole population had knowledge on Exposure of paddy seeds to sunlight for 4-5 days, Application of farm yard manure, Draining water next day of sowing, Maintaining water level for next few days after transplanting, exposure of harvested crop bundled to sunlight for one or two days in the field.***

Keywords: ***Sustainability, Paddy cultivation and Environmental conditions.***

I. 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 judgment. Agriculture is as old as human civilization.The tribals discovered and domesticated many of the food crops and animals. High yields in recent cultivation methods were discovered by applying high cost inputs like complex fertilizers, pesticides, etc. The development of recent agricultural cultivation practices have been achieved by developing huge area 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 natural soil fertility, biological pest maintenance, increased soil erosion, salinisation and environmental pollution (Sansoucy, 1995). Gradually, the policy makers and agricultural scientists have realised that continuation of modern agriculture may lead to secure ecological and economic problems. It is convinced that in the years to come, modern agriculture may not be able to meet the requirements of the ever increasing population. So, the focus is on '**Ever Green Revolution'** through sustainable agriculture. The field studies suggest that to formulate appropriate farm technology and also concern farmers need and interest. This requires both an ecological and economic approach which makes the body of complex relationship which is included in traditional farming systems. It likewise requires change in mentality so conventional subsistence agro-biological systems are never again viewed as 'old' and as the result of obliviousness, but instead as the result of eco-legitimate level headed and when considered inside the memorable casing work of their root, these are essentially discretionary rural frameworks.

Indigenous Technical Knowledge System

As As the name infers, tribals are 'Adivasis' or unique inhabitants, living in the sub-landmass from unrecorded time and perhaps crashed into the woodlands by progressively forceful pioneers - Aryans being the most punctual one to socially rule them. So as to oppose total control, tribals advanced their unmistakable character through endogamy, their editing example, chasing and nourishment gathering. Most importantly, in their cozy association with the woods around them, they framed superbly adjusted rhythms which can be best depicted as harmonious.Indigenous technical knowledge adverts to the knowledge of native people in addition to any other defined community. It is derived from the direct experience of tribals and which is limited to a particular place / location but its sustainability in other localities is not known. This has been collected by the tribals over generations by monitoring, experimentation and traditional wisdom in human endeavour (Thomas Odhiambo, 1990). Indigenous cultivation practices are gradually gaining more and more attention, due to close relationship with certain environmental conditions and are based on local societies' familiar knowledge of their surroundings.These reasons imply that an indigenous cultivation practice is almost an essential condition for sustainable development. Keeping this point in mind the papers to deal with theknowledge level of the tribal farmer on indigenous cultivation practices.

II. RESEARCH METHODOLOGY

The study presents an exhaustive list of indigenous technical knowledge items in paddy cultivation. Further, it provides an understanding of attitude and extent of adoption of indigenous technical knowledge by the farmers.

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Knowledge level of respondents on indigenous cultivation practices

In this study, Knowledge level denoted the understanding of farmers about indigenous cultivation practices. Indigenous Knowledge is defined as understanding of indigenous cultivation farmers about the traditionally followed technologies in indigenous cultivation practices. To measure the knowledge on indigenous cultivation practices, a teacher-made knowledge test was developed and used. The methodology adopted by Prakash (2016). It was used in this study. Following the approach, 26 indigenous cultivation practices were selected for testing the knowledge level of the respondents in indigenous cultivation practices in paddy. These 26 practices were selected based on the opinion of the scientists of university, experts from horticulture department and local leaders of Kolli hills. The item of test was measured through yes or no type of questions with the score of two and one. Maximum score would indicate high level of knowledge of the samples. The Samples was categorized into three groups by using cumulative frequency.

The information was gathered by utilizing great organized interview schedule in this study, containing appropriate questions for bringing the required data. Adequate caution was exercised to make the schedule clear, complete, comprehensive and understandable. After finalising the interview schedule, the data collection was done by personal contact with the respondents.

III. FINDING AND DISCUSSION

Knowledge level of respondents onindigenous cultivation practices

The findings on the extent of knowledge on indigenous cultivation practices are given in this section.

A. Overall knowledge level of tribal farmers on indigenous cultivation practices

The results on overall knowledge level of tribal farmers on indigenous cultivation practices in paddy were depicted in Table-1.

Table-1. Allocation of samples according to their knowledge level of indigenous cultivation practices. (n=120)

S. No.	Category	Number	Per cent
1	Low	20	16.66
2	Medium	68	56.67
3	High	32	26.67
Total		**120**	**100.00**

It is observed from the data in Table-1, about Nearly Sixty per cent of the Tribal farmers (56.67 per cent) had medium level of knowledge followed by little more than one-fourth of the respondents (26.67 per cent) had high and low (16.66 per cent) level of knowledge on indigenous cultivation practices. Knowledge being a pillar to every understanding, majority of the respondent might have possessed medium to high knowledge level, which are passed from their ancestors. The Result is in agreement with the findings of Dharmendra Kumar Sariya (2015).

B. Practicewise knowledge level of respondents on indigenous cultivation practices in paddy

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

Table-2.Practicewise knowledge level on indigenous cultivation practices in paddy*(n=120)*

S. No	Indigenous practices	Number*	Per cent
1	Exposure of paddy seeds to sunlight for 4-5 days	120	100.00
2	Dousing of paddy seeds in water for growing	118	98.33
3	Seed rate @20-25kg per acre	88	73.33
4	Bringing nursery up in raised spot in the field	94	78.33
5	Keeping nursery area free from other plants /weeds	94	78.33
6	Application of farm yard manure	120	100.00
7	Application of green leaf manure	106	88.33
8	Planting 6-7 seedlings per hill	100	83.33
9	Draining water next day of sowing	120	100.00
10	Maintaining water level for next few days after transplanting	120	100.00
11	Exposure of harvested crop bundled to sunlight for one or two days in the field	120	100.00
12	Sifting by hitting the paddy groups with wooden squares	94	78.33
13	Cattle threshing for removal of grains	112	93.33
14	Winnowing the grains by using a winnower called Muram	100	83.33
15	Parboiling of paddy for improving the edible quality of the rice	110	91.67
16	Dehusking of paddy by using Ural	106	88.33
17	Detachment of husk by the utilization of Muram	104	86.67
18	Establishing of rice in an overwhelming weight wooden processor Ural/Erakai	100	83.33
19	Storage of paddy grains in Kudhir	108	90.00
20	Spread of Notchi leaves over the capacity holder to control rice moths	110	91.67
21	Covering of cow manure debris in paddy grains for assurance of bugs and ailments	105	87.5
22	Dusting of ash on the semi-lodging crop of paddy for the purpose of standing of crop	98	81.67
23	Pepper powder is used for the control of storage pest in paddy	106	88.33
24	Turmeric powder is mixed with paddy and then stored	96	80.00
25	Twenty-thirty red chillies are kept in one quintal of paddy seeds bag to avoid the storage pests	112	93.33
26	Vessel filled with water is kept inside the store room to attract the insects and to reduce damage	96	80.00

*Multiple response recorded

The results showed in Table-2, most of the farmers in this study possessed high level of knowledge on almost all the indigenous cultivation practices in paddy. Cent per cent of the respondents had knowledge on drying exposure of paddy seeds to sunlight for 4-5 days, application of farm yard manure, draining water next day of sowing, maintaining water level for next few days after transplanting, and exposure of harvested crop bundled to sunlight for one or two days in the field. Traditionally, the farmers are well known about the important of above practices particularly paddy seed preservation by drying, important of application of farm yard manure to the field, water management practices in main field and nursery. The calculated percentage of the remaining practices in the descending order were dousing of paddy seeds in water for growing (98.33 per cent) followed by cattle threshing for removal of grains (93.33 per cent), twenty-thirty red chillies are kept in one quintal of paddy seeds bag to avoid the storage pests (93.33 per cent), parboiling of paddy for improving the edible quality of the rice (91.67 per cent) and spread of Notchi leaves over the capacity holder to control rice moths (91.67 per cent). Water soaking is cheap and best indigenous practices to improve the germination percentage in paddy. In kolli hills farmers have high livestock possession they were used the cattle for threshing of grains. The parboiling of paddy improve the quality and increase the stuffness of rice. Red chillies and notchi leaves are easily available pest control incredients in this hill area. Knowledge of the above practices transmitted through traditionally among the farmers of this area. These results are conformity with the results of Badgujjar (2012).The next group of respondents the percentage between 80.00 to 90.00 per cent. And, they were storage of paddy grains in kudhir (90.00 per cent), application of green leaf manure (88.33 per cent), de-husking of paddy by using ural (88.33 per cent), pepper powder is used for the control of storage pest in paddy (88.33 per cent), covering of cow manure debris in paddy grains for assurance of bugs and ailments (87.50 per cent), detachment of husk by the utilization of Muram (86.67 per cent), planting 6-7 seedlings per hill (83.33 per cent), winnowing the grains by using a winnower called muram (83.33 per cent), establishing of rice in an overwhelming weight wooden processor Ural/Erakai (83.33 per cent), dusting of ash on the semi-lodging crop of paddy for the purpose of standing crop (81.67 per cent), turmeric powder is mixed with paddy and then stored (80.00 per cent) and vessel filled with water is kept inside the store room to attract the insects and to reduce damage (80.00 per cent). Farmers have more concentration on storage pest controlled methods and also give more important on application of organic based manures like farm yard manure, green leaf manures, green manures etc., which are easily availability in hill area. Traditional equipments like muram, ural, kudhir, etc., are highly used by tribal people. Because the equipments are simply maked themselves with minimum efforts. This finding is in accordance with the discoveries of Chigasil Sangma (2017).The remaining four technologies comes under the percentage range from 75.00 per cent to 79.00 per cent. They were by bringing nursery up in raised spot in the field (78.33 per cent), keeping nursery area free from other plants / weeds (78.33 per cent), Sifting by hitting the paddy groups with wooden squares (78.33 per cent) and seed rate @ 20-25 kg per acre (73.33 per cent).

IV. SUMMARY AND CONCLUSION

Indigenous technical knowledge have strong roots in rural culture. The study reveals that there were twenty six indigenous technical knowledge items revealed in this paper related to paddy. Which may serve as alternatives to modern technologies, This study reveals that majority of the respondents had medium to high level of knowledge on indigenous cultivation practices, which shows the significance 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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