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Constraints faced by the farmers in the use of indigenous technology knowledge and their suggestions

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Abstract
The present study was conducted with the specific objective of "Profile". The present study was conducted in Hingoli and Nanded district of the Marathwada region of Maharashtra state which was selected purposively for the research study. Both districts identified as the disadvantaged districts by the Planning Commission. Out of these two districts total six Tahsils has been chosen for the research study on the basis of disadvantaged Talukas identified by the Planning Commission. Four villages from each Taluka were selected randomly for the study.
The total villages for the study were 24. Ten respondents from each village were selected randomly for the study and prepared a sample of 240 respondents. Ex- post facto research design was adopted in this study. The data were collected with the help of pretested interview schedule from the respondents as per their convenience at their home or farms. Constraints faced by the respondents in use of indigenous technology knowledge from the study it was found that, attractive nature of modern practices, Lack of pest and disease resistant varieties, Inadequate and untimely supply of agricultural inputs, Farmers are not willing to take risk, Low yielding nature of traditional package of Practices, High labor requirement, the ignorance of younger generation towards Indigenous Technical Knowledge, Limited number of experts about Indigenous Knowledge, Lack of publications on proven indigenous technologies, Lack of training about indigenous knowledge. Obtain suggestions from respondents overcoming the constraints while using indigenous technology knowledge, develop Indigenous Technical Knowledge packages to suit to particular localities, global agriculture today stands at the cross roads and its sustainability has become a major cause of concern. The most important challenge, which agriculture faces today is to produce more without harming the eco system, the permanent and cheapest solution to overcome the dangerous effects of modern agriculture is use of ITKs in agriculture properly with maintaining the production, make Indigenous Technical Knowledge more compatible with modern technologies, the creators of traditional knowledge are unaware about scientific fact *or rationale* behind the practices. Hence, its documentation and verification becomes necessary, Provide some literatures and equipment's about l.T.K.'s a based on traditional wisdom to the farmers which are cheaper, easily available, and easy to handle, convince younger generations for the benefit and importance of Indigenous Technical Knowledge, Farmers, community level workers, extension workers and agricultural officers must all be trained on Indigenous Technological Knowledge (ITK) and practices, Documentation of all these ITKs are necessary to understand the scientific rational, to accelerate technical change, to enable better understanding of technology development and to increase awareness among farm youth and pride among farmers, Training programmes should be organized by different institutions to include tested and tried traditional indigenous practices that are most appropriate and suited to the local conditions.

Keywords: constraint, suggestion, indigenous technology knowledge

Introduction
Agriculture has a cultural background of over thousands of years. It is true that the history of agriculture development is closely associated with the culture of human beings and development in science and technology. It is always said that agriculture is the culture of all cultures. Since time immemorial man has started cultivation of crops and domestication of animals in the process of shifting to settled civilization. He diligently carried out experiments with plants and animals, tools and implements to optimize resource use and improves production.
Indigenous knowledge develops through ongoing experimentation and is usually handed down from one generation to the next through oral histories, myths, songs, and legends. In some regions, this kind of knowledge is handed down through oral and written stories to a key member of the society and is not widely shared. As such, this information may be considered sacred and taboo, retained only in the memory of key persons in the community such as clan leaders or elders. This practice makes such knowledge less accessible.

Indigenous communities have a unique way of transferring this knowledge, usually through direct face-to-face contact. (Zulfadrim *et al*., 2019) [6]

Indigenous knowledge is locality specific knowledge and practices in agriculture, natural resource management, health, other areas; developed by indigenous people and farmers over Century's. According to Warren (1991) [5] Indigenous knowledge is local knowledge that is unique to given culture or society. Such knowledge is passed down from generation to generation in many societies; by word of mouth. It is acquired by local people through accumulations of experiences, informal experiments and intimate understanding of the environment in a given culture. It has value not only for the culture in which it evolves but also for scientists and planners striving to improve conditions in rural areas. The indigenous knowledge pertaining to agriculture, animal health care, food preservation and storage are still in vogue even after the development of modem technologies. Farmers of different regions especially in remote areas have wide range of indigenous technological knowledge. It is mostly with senior veteran farmers and ruralities. Indigenous technological knowledge related to different farming systems have certain useful and situation specific characteristics namely holistic world view; community based farming; optimal use of resources; reliance on genetic and physical diversity; soil protection and recycling natural nutrients; risk minimization; site specific techniques.

In the present agricultural scenario when the scientists and planners are stressing to achieve 'Ever Green Revolution', the indigenous technological knowledge has a bigger role to offer. ITK by virtue of its inherent characteristics such as maximum reliance on locally available materials, genetic and physical diversity, and holistic approach, capable of meeting multiple needs based on cultural values of the community is vital for preserving the agro-ecosystem (s) and maintaining natural resources in a far efficient way. Thus, it is useful in ensuring the sustainability of agro ecosystem. As ITK is capable of meeting multiple needs based on cultural values of the community, it is useful for confidence building and empowerment of the people who holds it.

Indigenous knowledge, therefore, becomes important, which would otherwise be lost soon, not be regained at any cost. Abstracting the science of indigenous knowledge system would certainly help us to understand the concepts and practices depicting the elements of sustainability to integrate with the modern information system, for efficient resource management. Again, it is becoming evident through many studies that, the traditional practices are still in vogue and are indicative of the fact that they have scientific rationality for development.

Methodology

The study was conducted purposively in Hingoli and Nanded districts of Marathwada region of Maharashtra state. Both districts identified as the disadvantaged districts by the Planning Commission. Selections of the talukas were done from the selected districts. At present there are five talukas in Hingoli district and sixteen talukas in Nanded district. From both districts total 21 talukas counted, among this out of 21 talukas 06 talukas selected for the study. Both Talukas were selected purposively on the basis of disadvantaged talukas identified by the Planning Commission. Four villages from each taluka were selected randomly for the study. The total villages for the study were 24. Ten respondents from each village were selected randomly for the study and prepared a sample of 240 respondents. Taking into consideration the objectives of the study, a detailed interview schedule was prepared with the help and technical guidance from available literature, teaching staff of Department of Extension Education. The data were collected with the help of pre-designed interview schedule by contacting the sample of respondents personally. Ex-post facto research design was adopted in this study, statistically analyzed by using statistical techniques like Mean, Median, Mode, Frequency and percentage, Standard deviation, Pearson's correlation coefficient (r), multiple regression analysis, Path analysis.

Objective

1. To study the constraints faced by the farmers in the use of indigenous technology knowledge and obtain their suggestions.

Results and Discussion

Table 1: Constraints faced by the respondents in use of indigenous technology knowledge

Sr. No.	Constraints	No.	(%)	Rank
1	Attractive nature of modern practices	210	87.50	I
2	High labour requirement	150	62.50	VI
3	Inadequate and untimely supply of agricultural Inputs	180	75.00	III
4	Farmers are not willing to take risk	170	70.83	IV
5	Lack of pest and disease resistant varieties	190	79.16	II
6	Lack of publications on proven indigenous Technologies	80	33.33	IX
7	Ignorance of younger generation towards Indigenous Technical Knowledge	110	45.83	VII
8	Low yielding nature of traditional package of Practices	160	66.66	V
9	Lack of training about indigenous knowledge	60	25.00	X
10	Limited number of experts about Indigenous Knowledge	90	37.50	VIII

The schedule covered possible constraints which may hinder respondents while using indigenous technology knowledge were included in the schedule and the responses were given form the respondents and the details were enlisted in the above Table.

It was observed from table 1 that, maximum number of respondents 87.50 per cent reported that attractive nature of modern practices and its I rank 79.16 per cent of the respondents reported that Lack of pest and disease resistant varieties and its rank II, 75.00 per cent of the respondents reported that Inadequate and untimely supply of agricultural inputs and its rank III, 70.83 per cent of the respondents reported that Farmers are not willing to take risk and its rank IV, 66.66 per cent of the respondents reported that Low yielding nature of traditional package of Practices and its ranks V, 62.50 per cent of the respondents reported that High labor requirement and its rank VI, which were the major constraints found during course of investigation.

Whereas, the ignorance of younger generation towards Indigenous Technical Knowledge (45.83%) was ranked VII, followed by Limited number of experts about.
Indigenous Knowledge‟s (37.50%) ranked VIII; Lack of publications on proven indigenous technologies (33.33%) ranked IX, (59.75%) Lack of training about indigenous knowledge ranked X. as these constraints while using indigenous technology knowledge by the farmers.

Table 2: Suggestions given by respondents while using indigenous technology knowledge

Sr. No.	Suggestions	No.	(%)	Rank
1	To make Indigenous Technical Knowledge more compatible with modern technologies	140	58.33	III
2	To convince younger generations for the benefit and importance of Indigenous Technical Knowledge	70	29.16	V
3	To develop Indigenous Technical Knowledge packages to suit to particular localities	170	70.83	I
4	Provide Some literatures and equipment‟s about l.T.K.'s a based on traditional wisdom to the farmers which are cheaper, easily available, and easy to handle.	60	25.00	VI
5	Training programme should be organized by different institutions to include tested and tried traditional indigenous practices that are most appropriate and suited to the local conditions**.**	35	14.58	IX
6	Farmers, community level workers, extension workers and agricultural officers must all be trained on Indigenous Technological Knowledge (ITK) and practices.	55	22.91	VII
7	Documentation of all these ITKs are necessary to understand the scientific rational, to accelerate technical change, to enable better understanding of technology development and to increase awareness among farm youth and pride among farmers.	40	16.66	VIII
8	The creators of traditional knowledge are unaware about scientific fact *or rationale* behind the practices. Hence, its documentation and verification becomes necessary.	110	45.83	IV
9	The global agriculture today stands at the cross roads and its sustainability has become a major	160	66.66	II
	cause of concern. The most important challenge, which agriculture faces today is to produce more without harming the eco system. The permanent and cheapest solution to overcome the dangerous effects of modern agriculture is use of ITKs in agriculture properly with maintaining the production.			

It was observed from Table 2 that, 70.83 per cent of the respondents suggested that to develop Indigenous Technical Knowledge packages to suit to particular localities and its rank I, 66.66 per cent of the respondents suggested that the global agriculture today stands at the cross roads and its sustainability has become a major cause of concern. The most important challenge, which agriculture faces today is to produce more without harming the eco system.
The permanent and cheapest solution to overcome the dangerous effects of modern agriculture is use of ITKs in agriculture properly with maintaining the production and its rank II, 58.33 per cent of the respondents suggested that to make Indigenous Technical Knowledge more compatible with modern technologies and its rank III, 45.83 per cent of the respondents suggested that the creators of traditional knowledge are unaware about scientific fact or rationale behind the practices. Hence, its documentation and verification becomes necessary and its rank IV, 29.16 per cent of the respondents suggested that to convince younger generations for the benefit and importance of Indigenous Technical Knowledge and its rank V, 25.00 per cent of the respondents suggested that Provide Some literatures and equipment‟s about I.T.K.'s a based on traditional wisdom to the farmers which are cheaper, easily available, and easy to handle and its rank VI. This was the major suggestion from respondents.
Whereas, Farmers, community level workers, extension workers and agricultural officers must all be trained on Indigenous Technological Knowledge (ITK) and practices. (22.91%) was ranked VII, followed by Documentation of all these ITK‟s are necessary to understand the scientific rational, to accelerate technical change, to enable better understanding of technology development and to increase awareness among farm youth and pride among farmers (16.66%).
ranked VIII, Training programme should be organized by different institutions to include tested and tried traditional indigenous practices that are most appropriate and suited to the local conditions**.** (14.58%) ranked IX.

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