



E-ISSN: 2278-4136

P-ISSN: 2349-8234

www.phytojournal.com

JPP 2020; Sp 9(5): 435-437

Received: 22-07-2020

Accepted: 27-08-2020

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Rabing: A traditional skill of rice nursery management in tribal area of North Konkan coastal zone of Maharashtra

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Abstract

The study was conducted in the tribal area of the palghar district of the Konkan region of Maharashtra, document Indigenous traditional practice of rabing for rice nursery. Participatory rural appraisal techniques and random survey was done on 120 farmers in 6 tribal villages of -2 blocks of Palghar. Traditional rice nursery management by farmers involved ancient and age old appropriate and rational package of practices. Burning organic matter leads to environmental pollution and GHG emission. Opinion of farmers were recorded regarding benefits of rabing and it is resulted that, 95.25% said it is effective for weed management, 85.25% suggest it is better for germination of seed. 80.25% of opinion that they got healthy seedlings for transplanting, 77.41% said that it improve straw and grain yield, 70.15% said it save cost on fertilizers and pesticides, 69.25% farmers said that it helps in easy uprooting of seedlings and 65.26% peoples said that Rabing is also effective in providing sturdy and strong seedling. ITK is being followed by tribal farmers to get higher rice production at the cost of burning valuable organic matter of the ecosystem even in Today's era of modern agriculture.

Keywords: Rabing, skill, nursery, tribal area, North Konkan

Introduction

As we are knowing "Indigenous technical knowledge" (ITK) is a term broadly used to refer to knowledge about the local environment that is produced, held, and used by indigenous communities. The term is often used interchangeably with the following terms: "traditional ecological knowledge" (TEK), "indigenous knowledge" (IK), "local ecological knowledge" (LEK), "local knowledge" (LK). The difference of opinion was made that village development should be established on indigenous and local knowledge about local climatic conditions, since such knowledge is more reflective and adapted by local situations, does not depend on modern technical inputs, and is more culturally precise than interventions to be followed by others. Eventually, the farmer development should involve farmers through participatory approach and interaction between scientists, extension officers and development workers by challenging power dynamics and hierarchies of knowledge¹. Indigenous knowledge relates to many aspects of human society such as agriculture, food production, medicine, land management, ecological management, natural resource management, development activities, pastoral systems (Iloka, 2016) [3]. In agriculture, ITK is mostly related to crop management, plant protection, animal husbandry, fisheries development and the like. The agricultural operations in rural areas are performed by the people having little exposure to the outside world and who are deprived of formal education and training. These farmers do not give up their creative urge to experiment and innovate to develop local situations without an encouragement or recognition, they deserve. As a result, a number of indigenous farm management practices have been evolved by the farmers. The Konkan region therefore deserves recognition for its contribution to enriching agro biodiversity, evolving unique tropical production systems, generation and conservation of rich genetic diversity both in indigenous and exotic crops, and strengthening the livelihood support of the farming community of the region and of the world at large with diversified/improved agriculture. Konkan region of Maharashtra, the area where present study was carried out, is the region where pretty long association of the farmers with farming and allied occupations and also with geo-agro-climatic, as well as environmental factors has led to development and standardization of some management practices befitting to their location specific needs and situations. A careful study of these traditional practices has not been done so far.

All over India, there are experienced and knowledgeable specialists who practice indigenous techniques but their knowledge is not well documented, merely being transmitted verbally from one generation to the next. (Devaki and Mathialagan, 2015) [2] Therefore, there is need to study, document and share, some of the specific experiences of the farmers collected during the field work at grass root level of programme areas. Keeping these facts in view, the present study entitled "A study on indigenous technical knowledge about rice cultivation and bovine health management practices in Konkan region of Maharashtra" was undertaken

Methodology

The study was carried out in the 6 different villages, spread in the western part of the country's coastline districts of the Indian in state of Maharashtra in palghar and Vikramgarh blocks of Palghar district adopted by All India Coordinated Research Project (AICRP) on Integrated Farming Systems (IFS) On-Farm Research (OFR) by the Indian Council of Agricultural Research (ICAR)-Indian Institute of Farming Systems Research, Modipuram, UP, India under Dr Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli. After appropriate survey six villages were selected randomly for the study and from each village areas 20 experienced tribal farmers doing sequential cropping were selected randomly for making a sample size of 120 farmers. Data were collected by initial baseline survey and participatory rural appraisal techniques (PRA). In survey it included an individual and group interviews with the selected farmers. PRA techniques namely, transect walk and semi-structured interviews were conducted with the farmer of each of the selected villages. The task of identifying the indigenous practices was done with the help of check list of questions, during the course of the transect walk and interviews. After that regarding the ITKs list of those practices was prepared. The extent of adoption of different indigenous practices was determined in terms of the frequency and percentage of the farmers adopting each of those practices.

Results and Discussion

Rabing is an ancient practice adopted by rice growers in the entire Konkan region of the Maharashtra in which farmers sterilize the demarcated piece of land by burning where rice nursery is planned to grow. Farmers collected material in the month of April-May and then spread on the surface of the nursery area, covered with three different layers of various material for burning and thin layer of soil and burnt slowly,

Data presented in table-1 revealed that, farmers are following this age old ancient traditional practice of Rabing with mindset of some benefits.

Table 1: Percent opinion of farmers towards adoption of Rabing in tribal area of Palghar district.

Sr. no.	opinion of farmers (%)	Farmers followed rabing with benefit
1	95.25	Effective weed control in nursery
2	85.21	Better germination of seed
3	80.25	Healthy seedlings for transplanting
4	77.41	Better grain and straw yield
5	70.15	Saving cost on fertilizer and pesticides
6	69.25	For transplanting easy uprooting of seedlings
7	65.26	Study and strong seeding

During the course of investigation, It is also analyzed that various material (tree/grass/plant species) used in three different layers and various natural material used for the soil sterilization is being stacked and distributed in three (3) different layers. It was noted that layers prepared by tribal farmers by arranging the collected/available tree/grass/plant species in sequence given below in table-2. In first layer, branches of forest tree and leaf litter was arranged on demarcated soil surface in field. Whereas in second layer, available species of grasses was arranged for equal and fast burning, which was followed by byre waste, tender leaf, litter of herbs and shrubs was in third layer. However, Farm yard manure, forest leaf litter and waste available around is used in combination with each layer for appropriate burning to sterilize the demarcated piece of land for growing the rice nursery traditionally.

Quantification of material used in Rabing

For cultivating rice on 1 ha of land needs 500 to 750 sq mt of area for nursery. 20 to 25 bunches of looping's of trees are required for 1 R nursery land. Weight of Biomass material in one bunch before drying = 30 Kg x 25 = 750 Kg.

Approximately 1R area needs 750 kg (when fresh) of felled material on an average.

This material is derived from full grown trees.

1 tree is vulnerable for 200 to 250 kg material.

Means around 4 to 5 full grown trees are used for collection of biomass to prepare raab for 1 R area. This gives us an idea about amount of biomass required or used to carry out burning of land.

Table 2: Details of tree/grass/plant species used in three layers for Rabing in tribal area of Palghar district

Layers	Details of Species used in three layers for Rabing
Layer-1	<i>Terminalia alata</i> Heyne ex Roth (Aain), <i>Terminalia paniculata</i> Roth (Kinjal), <i>Bridelia squamosa</i> (Lam.) Gehrm (Asana), <i>Syzygium cumini</i> (L.)Skeels. (Janbhul), <i>Vitex nigundo</i> L. (Nirgudi), <i>Calycopteris floribunda</i> (Roxb.)Poir. (Ukashi), <i>Leucaena leucocephala</i> (Subabul), <i>Mangifera indica</i> L. (Aamba)
Layer - 2	<i>Heteropogon contortus</i> (L.)(Kusali), <i>Themeda quadrivalvis</i> Forssk. (phul gavat), <i>Dichanthium annulatum</i> (Forsk) Stapf. (Marvel), <i>Cenchrus ciliaris</i> L. (Anjan), <i>Arthraxon lancifolius</i> (Trim.) Hochst (Ghass), <i>Tridax procumbens</i> L.(kambrmodi), <i>Isilema wightii</i> Anders. H.(Moshi), <i>Ischaemum aristatum</i> Hack (Ber)
Layer - 3	<i>Acacia catechu</i> (Khair), <i>Bambusa arundinacea</i> (Retz.)Willd. (Kalak), <i>Ficus racemosa</i> L. (Umber), <i>Tectona grandis</i> L.(Saag), <i>Lantana camara</i> L. var. aculeate (Tantani), <i>Justicia adhatoda</i> L.(Adulsa), <i>Carissa congesta</i> Wight (Karvanda)

Tribal farmers believe that rabing is partial sterilization of the soil which improves the physical structure of the soil and improve nutritional status of the soil. Farmers in region never

burn rice straw as it is been used as a one of the major source of fodder to the domestic animals.



Fig 1: Traditional process of collecting, arranging and burning of natural organic material for rabing.

Conclusion

In general, the farmers following indigenous rabing technologies were illiterate tribal male farmers less exposed to modern agriculture technologies and skills. Farmers still believing in significance of rabing for better growth rice seedings and higher productivity with less infestation of pest and diseases. In the tribal area of the district it is must to demonstrate and convenience the ill effect of rabing on climate change and modern agriculture practices for growing rice nursery with the help of proper fertilizer and weed management.

Acknowledgement

Authors are highly thankful to Indian Council of Agricultural Research-Indian Institute of Farming Systems Research, Modipuram (ICAR-IIFSR), UP, India for financial help in conducting the trials on farmer's field.

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