



INDIGENOUS TECHNICAL KNOWLEDGE FOR SUSTAINABLE AGRICULTURE IN COIMBATORE DISTRICT OF TAMIL NADU

Mohammad Hashim^{1*} and Alemwati Poengener²

¹Scientist (Agronomy), IARI, Regional Station, Pusa, Bihar-848125,

²Scientist (Horticulture), NRC Litchi, Muzaffarpur, Bihar-842002

*Corresponding author email: hashimagronomy@gmail.com

ABSTRACT

The term indigenous technical knowledge (ITK) is synonymous with local knowledge, which provides invaluable knowledge and aid in making the best use of natural resources. Nowadays, this is often forgotten or neglected. Understanding of ITKs, their advantages and disadvantages will help further strengthen the existing knowledge of professionals. This article outlines the salient features of traditional belief/knowledge to agricultural practices and livestock management, and this study was carried out in Devarayapuram village of Coimbatore district of Tamil Nadu. The villagers use their traditional knowledge to treat human and livestock diseases and control insect pests and diseases of crops. Besides, it was observed that the villagers have some important traditional knowledge for healing the fractured bones and remedies for various stomach-related livestock problems.

INTRODUCTION

The term indigenous technical knowledge (ITKs) is also known as local knowledge and traditional knowledge. Traditional knowledge is based on the necessities, observation, instinct, trial, and error and is gathered over time, which is transferred from generation to generation. Indigenous technical knowledge is the local knowledge that the people have accumulated over generations. India is considered one of the richest due to its geographical diversities and many ethnic communities in terms of indigenous technical knowledge. All of these communities have some traditional knowledge. India has a wealthy heritage of traditional health control and different treatment systems that have been used for animals since time immemorial.

An attempt has been made to document the indigenous/traditional practices, or knowledge related to agriculture and livestock management in the Devarayapuram village of Thondamuthurtaluk of the Coimbatore district of Tamil Nadu situated about 20 km away from the Coimbatore city. Village Devarayapuram is resided by different communities. The total geographical area of the village is 1394.28 ha with 832.09 ha area under cultivation of different crops, 7.34 ha under fallow land, 300.71 ha under current fallow land, and area under non-agricultural land is 187.40 ha. The dominant soil in the area is sandy loam and red soil, which are neutral to alkaline in reaction having plain topography. The mean

annual temperature is around 15-30°C, with annual rainfall is 950 mm. The source of irrigation is bored wells and open wells. Major crops grown in *Kharif* and *rabi* season in the village are Maize, Sorghum, Pigeon pea, Black gram, Onion, Cauliflower, Tomato, Brinjal, Bitter guard, Chillies, Coconut, Arecanut, Banana, Turmeric and Marigold etc. Animal husbandry and poultry are also predominant in the village. About 250 desi cows, 1232 Jersey cows, 10 buffalo, 3844 goats, 3000 sheep, and about 5000 poultry have been documented in the village Devarayapuram of Coimbatore district.

METHODOLOGY

To learn about indigenous technical knowledge, a survey was conducted among the farmers. Farmers' awareness and adoption of different indigenous practices were attempted in the study. About 60 respondents of the village were interviewed in about 20 days of the study through a developed questionnaire. After completing the survey, data were received and analyzed for Indigenous Technical Knowledge related to agriculture and livestock.

MAJOR FINDINGS

Most of the lands in the village Devarayapuram have flat, with undulating and sloping topography, are used mainly for agricultural purposes. This region possesses copious indigenous farming practices because history imparts that these areas have long been agricultural lands with rich natural resources. These practices have been found to exist and were retrieved from local farmers and key informants of different communities in the region. Many of the modern agricultural practices based on indigenous agricultural practices are prevailing in the farming communities. Based on the farmers' need, the indigenous technical knowledge may vary from region to region and place to place. The ITKs may prove a low-cost and important tool for sustainable agriculture. Some most important ITKs prevailing in the village Devarayapuram are as follows:

A) ITKs FOR AGRICULTURE

- ✓ **SOIL FERTILITY ENRICHMENT:** Sheep and Goat penning in fields before plowing enriches the fertility status of the soil.
- ✓ **BIO-FENCING:** Use of plants around the field to prevent the crop from unwanted wild animals is known as bio-fencing. The use of natural materials by farmers was found to be different depending on the availability of plant materials. Generally, farmers of that region used cactus and coconut twigs and fronds for bio-fencing. Bio-fencing with cactus and coconut twigs and fronds is common practice in the village. Cactus being thorny, protects crops from animals. Coconut twigs and fronds are readily available and cost-effective for farmers.
- ✓ **SOLAR FENCING:** Elephant and Wild Boar are the major problematic wild animals of that region. To avoid their attack on crop fields, farmers used solar fences and fire-crackers.



Onion storage structure i.e. Pattarai



Bio fencing



Solar fencing (a)



Coconut fronds used for staking

- ✓ **POST-HARVEST METHODS:** The farmers make different storage structures of that village for different crops. For storing onion, a specially designed structure called pattarai is used by farmers of that region. Using pattarai farmers can save their onion for three months without sprouting and germination and fetch a good price of onion when the market price is high.
- ✓ **FUEL CAKE:** Fuel cake made by mixing animal dung and small pieces of chopped crop waste materials is stored for two days and sun-dried for 5-6 days. The sun-dried cakes are effectively used as fuel which is cost-effective for poor farmers.

B) ITKs FOR LIVESTOCK

- ✓ **TO IMPROVE LACTATION AND MILK SECRETION:** Farmers used several forage and feeding materials to feed the animals for one or more specific purposes. The seeds of *Leucaena leucocephala* are fed to animals to improve milk secretion and high milk yield. The leaf of *Glyricidia* is given to animals to increase the lactation period. To improve lactation, some farmers take tamarind seeds, then roast them, and outer coats are removed; they are soaked in water and given to the animals.
- ✓ **MILK FEVER:** To cure milk fever, farmers used leaves of indigo in the form of tablets and give them to animals.
- ✓ **TO CURE THE WOUNDS:** Paste made by grinding neem bark and directly applied to the affected areas. Leaf juice of *Leucuslavandulaefolia* is applied to the wounds. Some farmers use turmeric paste on wounds because it is antiseptic and antimicrobial in nature.
- ✓ **BREEDING:** To induce the heated mixture of leaves of the banyan tree, peepal tree, mango, and neem is given for five days to the animals.
- ✓ **DIGESTIBILITY IMPROVEMENT:** To improve the digestibility of the animals, jaggery, pepper, and betel leaf is given to animals
- ✓ **INTESTINAL WORMS:** Powder of subabul seeds mixed with water is given to animals, especially to goats. Leaves and flowers along with cucumber (100g) seeds are given to animals for 3-4 days.
- ✓ **REPELLING INSECTS/MOSQUITOS:** *Aloe vera* plant act as insect and mosquito repellent
- ✓ **HEADACHE:** To cure headache Betel vine leaf is given to animals
- ✓ **COLD:** Tulasi leaf is very effective to cure cold of animals and human beings. To cure this Tulasi leaf is given to the animals.
- ✓ **BONE FRACTURE:** Turmeric leaf paste is applied 3-4 times a day in the fracture region of the animals. Turmeric is antiseptic in nature, and it also helps to relieve joints pain.

CONCLUSION

The documentation of ITKs showed the richness of the traditional knowledge applied for agriculture and livestock. However, all the ITK's have been found effective, and they need to be scientifically validated. These studies will help in developing the scientific wisdom for the utilization of ITKs in the future. These studies were confined to Devarayapuram village of Coimbatore district of Tamil Nadu, generalization of the study cannot be made elsewhere unless proven in other parts.

ACKNOWLEDGEMENT

We are very thankful to Director NAARM, Hyderabad, for allowing collecting the village's information. We also grateful to Prof. Dr. K. Ramasamy, Vice-Chancellor, TNAU, Coimbatore, Dr. K. A. Ponnusamy, Director, DEE, TNAU, Dr. H. Philip, Head, Training Division, TNAU, Dr. Murugan, Professor, Dept. Extension, TNAU, Coimbatore for the kind support. I also wish to express sincere gratitude to the villagers and farmers of village Devarayapuram for revealing the information.

REFERENCES

- Bizimana, N. 1997. Scientific evidence of the efficacy of medicinal plants for animal treatment, Ethnoveterinary medicine: Alternatives for livestock development, *Proceedings of International Conference*, Pune, 4-6 November 1997, pp 11-12.
- Jain, S.K. 2004. Credibility of traditional knowledge- The criterion of multilocational and multi ethnic use, *Indian Journal of Traditional Knowledge*,**3**(2): 137-153.
- Majhi, S. K. 2008. Indigenous technical knowledge for control of insect pest and livestock disorders, *Indian Journal Traditional Knowledge* **7**(3):463-465.