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Indigenous Technological Knowledge Followed by the Tribal Farmers of North Eastern Hill Region in Agriculture

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The systematic documentation of indigenous technological knowledge (ITK) and practices will not only help the researchers to understand the scientific base behind them but also will pave the way to concentrate the research activities in the appropriate and locations pecific problems. Such tranditional knowledge and practices of the North Eastern Hill Region (NEH) can be utilised effectively for the development of agriculture of the region. Some of the Indigenous technologicall Knowledge (ITK) of this region are discussed below :

Bamboo drip irrigation

It is mainly used for watering the plantation crops in Khasi and Jayantia Hills of Meghalaya. It is particularly suitable to the conditions of water scarcity and in the soil with poor water holding capacity. The idea of diverting water from upper reaches of hill top to the lower reaches through gravity flow is fully utilised in this drip irrigation system. This diverted water is conveyed through bamboo chanel sections to the lower reaches of hill side. Such channel sections convey water efficiently at the rate of 18-20 liters/minute or even more, over a distance of several hundred meters. Elevation difference between the water source and the point of water application may be as high as 100 meters. Water is carried to the plot site and distributed into branches which are made and laid out with the use of different forms of bamboo pipes/channels. Depending on requirement of points where water is to be applied (plant positions), the water is diverted through network of bamboo channels in orchard. Reduced channel sections and diversion units are used at last stage of water application. The last channel section enables in dropping water, drop by drop at the plant site. Once laid out, the system works round the clock. The cost involved in the system is minimum.

Winnowing of paddy

This unique system is practised in Meghalaya for winnowing of paddy in the field itself. Three long bamboo poles (20-25 feet each) are erected to form the shape of a big triangle in this system. A plateform is made by connecting those three poles with the help of small bamboo pieces, also used as ladder to carry the grains to the top. A person stands in the connecting points of three poles to drop the paddy grains in the ground. The person in the top is continuously supplied with uncleaned rice grains in a bamboo basket through relay process. The wind direc-

tion, velocity and the height are effectivery utilised in this system. This system is cost effective and huge quantity of uncleaned grains are cleaned within very short time involving minimum number of labours.

Storing of maize cobs in the kitchen

This practice is commonly found in every state of NEH region. Through this system, cobs are tied together (20-25 cobs approximately) with the help of a small rope and kept as suspended animation from the roof of the kitchen. The smoke of the kitchen is allowed to pass through the cobs. This smoke drives away the insects as well as prolongs the storage period by preventing them from fungal attack.

Insect-pest and disease management

A highly effective traditional practice is observed in NEH region for the management of insect pests and disease in paddy and vegetables. The farmers dig a pit of required size in the barren field itself to mix cowdung, cow urine, chilly and garlic in sufficient water. These are mixed at a ratio of 1.5:1.25:0.25 and kept in the pit for at least 10-15 days for proper decomposition. Then the decomposed liquid is sprayed in paddy and vegetables at 15 days interval. Generally 2-3 sprayings are sufficient for the entire crop season to keep it disease and insect-pest free.

Use of pine leaves for insect-pest control in paddy

An unique method of insect control in paddy is found in the rice growing states of NEH region where pine leaves are used to protect the crop from the attack of Gundh bug (Leptocorisa acuta). This is followed mainly under assured irrigation condition where channels are prepared for watering the paddy field. The leves alongwith the branches are tied together and the leaves are allowed to dip into the running water of the channel. Three or four different places are selected for this purpose. It is practised with belief that the smell of pine leaves carried by the runnign water prevents paddy from Gundhi bug.

Management of bio-physical resources

This exemplary method of natural farming is followed in the high hills (above 2500m) of Arunachal Pradesh where the Buddist Manpas practise settled subsistence hoe farming without constructing any terrace for agricultural crops. Instead, the entire natural slopes of the hills are used for taking up both kharif and rabi crops. Sheep dropping and oak (Alnus nepalensis) leaves serve as manure in Kharif season, while human waste and litter are sprayed in barely field durng rabi season. The system of crop production of maize and finger millet are practised to maintain the soil health and to prevent the soil from the nutrient loss. Minimum tillage is done with hoe only and inter and mixed cropping of vegetable, beans, pulses, roots and tubers are followed at a regular basis to maintain soil fertility for sustainable farming.

These technologies must be documented and concerted research efforts must be directed to boost the agricultural production system of the region.

These ITKs should be documented properly and tested scientifically for utilizing in sustainable development of agriculture in NEH region.