



Alternatives of Jhum Cultivation in Northeast India

**Mamoni Panging^{1*}, Pranjit
Sutradhar²**

^{1*}Krishi Vigyan Kendra Papum
Pare, Arunachal Pradesh

²Department of Agronomy,
Assam Agricultural University



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*Corresponding Author

Mamoni Panging*

Article History

Received: 5.02.2023

Revised: 9.02.2023

Accepted: 17.02.2023

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INTRODUCTION

Jhum cultivation is a local name for slash and burn agriculture practiced by the tribal groups in the northeastern states of India like Arunachal Pradesh, Meghalaya, Mizoram and Nagaland. In the north eastern region the cycle of agricultural operation in all these areas of North-East Region is marked by the following stages: (1) Selecting the forested hilly track; (2) Cleansing the forest tract by cutting down the jungle during December January; (3) Drying and burning of fallen shrubs/trees into ashes during February March; (4) Fencing the cleared plots; (5) Worship and sacrifice; (6) Dibbling and sowing of seeds for mixed cropping; (7) Weeding operation; (8) Watching and protecting the crops against depredation by wild animals, pests, etc.; (9) Harvesting; and (10) Threshing and storing. It is when farmers clear land by slashing vegetation and burning forests and woodlands to create clear land for agricultural purposes. Shifting cultivation locally known as jhuming, is a traditional system of agriculture of hill people of north-eastern India characterized by series of traditional operations involving cultural activities, selection of site on the hill slope or jhum land, clearing vegetation of selected site and at the same time retaining useful trees and plant varieties. Amongst North Eastern states Nagaland is the worst affected state followed by Arunachal Pradesh, Mizoram, Meghalaya, Manipur Assam and Tripura (NRSC, 2011). The eight states of Northeastern region has geographical area of 2,62,180 Km² which is approximately 9.8% of the total area of the country with more than thirty nine million population. In earlier days while clearing forest for jhuming, some useful trees and other plants were preserved and others were planted. In recent times integrated approach for development of jhum areas as mixed land use system seems suitable. The approach includes watershed management, integration of forest trees in jhum plots, intercropping, diversification in cropping mixtures with local preference, soil conservation with new measures, horticulture, animal husbandry, fishery, etc.

Alternatives of jhum cultivation

Promotion of modern agriculture : In order to avoid regular plot rotation practice in shifting cultivation the land should be allotted to each family with a minimum area of land to cultivate and to maintain their livelihood and gather all their necessities. There is one very popular traditional agriculture practiced in Arunachal Pradesh ‘Apatani Wet Rice Cultivation’, where the hilly slope constructed in terrace at the base of hill slopes and formed a saucer –shaped structure, where wet rice cultivated.

Agroforestry approach: Agroforestry can be a suitable practice in jhum land. It is depended on suitable selection of trees, horticulture crops and intercropping of seasonal vegetables and plantation geometry design to make use of horizontal as well as vertical spacing properly.

Multistorey agroforestry : The multiple cropping, an integrated system of land use, are now a days best model for agroforestry, where the horizontal utilization of the land maximized and vertical utilization of land depend on canopy structure of species. As an alternative to shifting cultivation, intercropping, chronological cropping (two or more crop on the same land), relay cropping, triple cropping, double cropping, ratoon cropping (harvest then again harvest second time), etc. may be accomplished.

Bamboo based agroforestry : The northeastern region of India contributes 65% of total bamboo resources in India. The short gestation period, sustainable production for many years, wider ecological adaptability and versatility of use (application in craft, timber, hedgerow, wind breaks, Carbon sequestration crop, ornamental, edible shoot) makes it an essential agroforestry component especially for jhum lands.

Water shed Management : One way of water conservation practice is contour trenches or terrace farming as in Nagaland and Meghalaya. Mulching, check basins, check dams etc. are also water conservation practices.

Hill Soil Management: Soil may be conserved by making terraces, contours, trenches, benches, half moon, terrace etc. In Nagaland and Meghalaya this system is used widely for hill paddy and vegetable crops like cabbage, carrot, potato.

Tree Farming: Tree farming is now a very common alternative in Shifting Cultivation areas. Different states have selected different tree combinations on the basis of altitudinal, edaphic and climatic conditions. The spacing geometry is an important tool for plantation of these species. In Arunachal Pradesh, hills of Assam, Mizoram, and Meghalaya the preferred altitude wise tree farming practices are as following: 1.) Up to 750 m- *Gmelina arborea*, *Michelia champaca*, *Delenia indica*, *Mesua ferrea*, *Anthocephalus cadamaba*, *Artocarpus chaplasha*, and *Eucalyptus* (as boundary plantation) etc. 2.) Up to 1500 m- *Terminalia myriocarpa*, *Albizia procera*, *Lannea axillaris*, *Betula alnoides*, *Pinus petula* and *Chickrasia tabularis*. 3.) Up to 2000 m- *Cedrela*, *Terminalia spp.* and *Alnus nepalensis* etc.

Areca Nut cultivation: Areca nut is one of the most rapidly expanding crops in north-eastern states of India specially in ‘jhum’ lands of Assam, Meghalaya and Nagaland.

Floriculture: In North-eastern region, the hilly climate is much suitable for floriculture as a new alternative for shifting cultivation. There is a very good demand for some traditional flowers like Jasmine, Gerbera, Gladiolus, Carnation, Liliium, Chrysanthemums, Anthurium, Zantedeschia, Heliconia, Alstroemeria, Marigold, Roses, and Hybrid Petunia etc. In floriculture, the orchids are one of the most beautiful flower which is in great demand. In North-east India, about 825 out of 1145 species of orchids are found in various parts. Some of the most commercially used Orchids are *Dendrobium*, *Schoenorchis*, *Pleione*, *Asconcentrum*, *Herminium*, *Calanthe*, *Coelogyne*, *Eria*, *Phaius*, *Liparis*, *Diplomeris*, *Paphiopedilum*, *Cymbadium* and *Vanda* etc.

Honey bee keeping or apiculture: In India bee-keeping is practiced in mountains, foot hills, forest, agricultural lands. Sustainable apiculture activity for honey production and better pollination in cross pollinated crops is an alternative for jhumians.

Sericulture: Sericulture is playing an important role in rural economy of people of Northeastern state. Muga and Eri based sericulture hold tremendous scope for the hilly people due to availability of abundant host plants like *Heteropanx* and *Morus* etc.

Livestock rearing: Pig production, among other species has a high potential to contribute to high economic gain and is an important occupation of the rural society especially the tribal people. Mithun (*Bos frontalis*) also known as “Cattle of Hilly Region” is a rear species of livestock and has got good potential for production of quality meat, milk and leather. Livestock farming also includes goat, sheep, cow, buffalo, yak etc. for dairy and milk production.

Cultivation of important medicinal and aromatic plants: North Eastern Region is a treasure house of large number of medicinal and aromatic plants. Local people make use of

these plants in folklore and traditional medicines.

Cultivation of useful wild plants: Nowadays in other part of India more and more attention is given to cultivation of very useful wild plants due to increasing demand from urban areas.

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