The Apatani System of Farming: A Milestone Model of Traditional Agriculture

Debasmita Nath*, Dimpi Dutta, Sudeshna Sarkar, Arundhati Borgohain and Palki Priya Khargharia

Assam Agricultural University, Jorhat-13, Assam, India

Corresponding Author
Debasmita Nath
Email: runn4012@gmail.com

OPEN ACCESS

Keywords

Apatani, Farming, Traditional, Agriculture

How to cite this article:

Nath, D., Dutta, D., Sarkar, S., Borgohain, A. and Khargharia, P. P. 2024. The Apatani System of Farming: A Milestone Model of Traditional Agriculture. *Vigyan Varta* 5(12): 133-135.

ABSTRACT

The farming system has immense potential to boost agricultural growth and livelihoods, thereby helping to improve the rural economy. There is various indigenous knowledge among the farmers of India that can be utilized to improve farming practices. One of the indigenous farming systems followed by the Apatani tribe in the Subansiri district of Arunachal Pradesh is rice-cum-fish farming. This is one of the unique and sustainable models of traditional agriculture. This system integrates wet rice cultivation with fish farming and agro-forestry. It focuses on conserving land and water resources through limited use. The economic and energy efficiency of this integrated system of farming is remarkably high. Therefore, in an era where modern farming system often leads to ecological degradation, the indegenous farming system offers a sustainable solution to environmental conservation, highlighting the potential of integrating traditional knowledge with contemporary farming challenges.

INTRODUCTION

Arunachal Pradesh, one of the Seven Sisters of Northeast India, is known for its rich eco-cultural heritage and the indigenous traditional knowledge amongst its farmers. Agriculture is the primary source of livelihood in the region. The Apatani are one of the most ancient tribes residing in the Lower Subansiri district of Arunachal Pradesh

(Hatai and Tripathi, 2023). Rice is the staple food of the Apatanis. Apatani tribe follows a unique form of farming in which rice is integrated with fish and millet to enhance the economic returns and ensures the optimal use of land resources (Singh and Gupta, 2002). This system of farming is a unique and sustainable agricultural form practiced in Arunachal Pradesh, India. This tribe have a profound understanding of natural resource management and conservation, developed over centuries and passed down to subsequent generations (Hatai and Tripathi, 2023).

Traditional Farming system

The Apatani tribe focuses on wet rice cultivation in their valley lands, using traditional indigenous techniques. The integrated rice-cum-fish farming system together with millet grown on the bunds of each plot, is considered one of the most economic and energy efficient agricultural systems in the region (Singh and Gupta, 2002).

In this farming system, a small pit is prepared in each terrace where rice is cultivated. The fingerlings are then placed in the water within these pits. During the monsoon season, the entire paddy field is kept submerged to a depth of 5 to 10 cm, allowing the fish to emerge from the pits and flows across the submerged areas of the terrace. During water insufficient condition, when water is only available in the pits, fishes return to the pits and continue to grow. In this process, fishes get nutrition from the manuring of rice fields, and their growth is enhanced by the larger surface area available during the submergence of the fields. As a result, both rice and fish can be produced simultaneously through effective management of rainwater (Rai, 2005). In addition, the Apatanis use traditional techniques such as water management systems, crop rotation, and the cultivation of indigenous plant species to sustain soil fertility and biodiversity. So, this system integrates wet rice cultivation with fish farming and agro-forestry in a way that maximizes land use while maintaining ecological balance.

Traditional Irrigation system

Apatani tribe follows a century old irrigation system, locally known as *Bogo*. Bamboo pipes with a diameter of 10-15 cm are used to connect terraces along the gradient at higher elevations, where water flow is limited. In the lower valley, where the water volume is higher, larger pine pipes with a diameter of 15-20 cm are used. These pipes are formed by splitting tree trunks vertically, hollowing them out, and then reassembling the two halves. Bamboo traps or straw bedding have been placed in each plot to prevent the loss of organic matter or fish. Moreover, the outflow pipes are positioned 5 to 8 inches above the surface of the lower plots to prevent water from flowing back into the upper plots. The size of the bunds differs from higher to lower elevations. The bunds are wider at higher elevations, whereas they are narrower in lower areas. The above-mentioned traditional irrigation system of Apatani tribe was described by Kacha (2022).

CONCLUSION

Indigenous farming systems developed by these tribal societies with long history and traditions are often energy efficient, and at the same time provide high economic returns to the farmers. The system is notable for its environmental sustainability, relying on low external inputs and promoting water conservation, soil health, and the preservation of local flora and fauna. It is also closely linked to the cultural practices of the Apatani people, reflecting their belief in the interconnectedness of humans and nature. This farming method has allowed the Apatani tribe to thrive for centuries in a region with challenging topography and climatic conditions. Thus, it is a valuable traditional

farming practice that can contribute to the sustainable development of agriculture.

REFERENCES:

Hatai, L. D. and Tripathi, A. K. (2023). Economic Analysis of Farming System of Apatani Farming Community in Arunachal Pradesh - A Way Forward for Sustainability. Indian Journal of Agricultural Economics, Indian Society of Agricultural Economics, vol. 78 (Number 3), pp-367-378.

Singh, R. A. and Gupta, R. C. (2002). Traditional land and water management systems of North East hill region, Indian J Traditional Knowledge, 1 (2002) 32.

Rai, S. C. (2005). Apatani paddy-cum-fish cultivation: An indigenous hill farming system of North East India. Indian Journal of Traditional Knowledge Vol. 4(1), pp. 65-71.

Kacha, D. (2022). Traditional Irrigation System of Ziro Valley in Arunachal Pradesh. International Journal of Creative Research Thoughts (IJCRT), Volume 10, Issue 3, pp-89- 94.