Productive Farming System in North-East India

with special reference to Manipur

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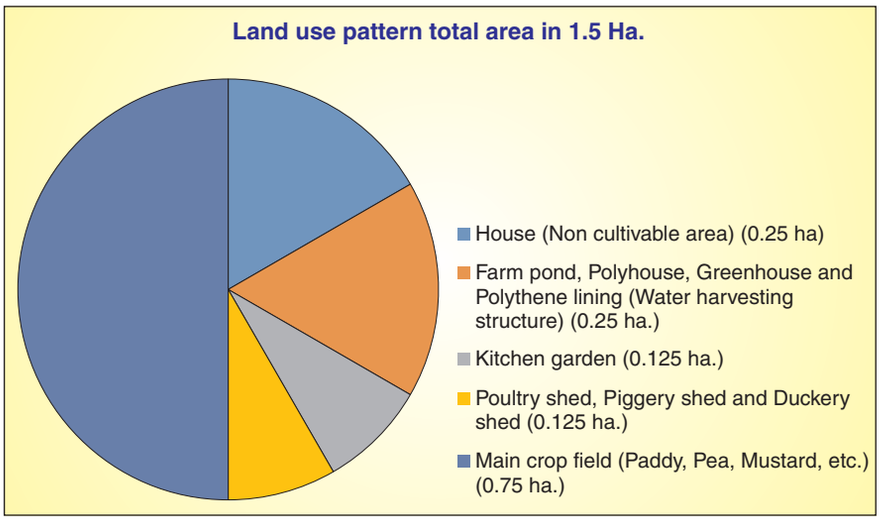
Under the Farmer FIRST Programme, Central Agricultural University, Imphal has identified two villages viz., *Yairipok Top Chingtha and Yairipok Yambem of Imphal East district, of Manipur covering, a total of 600 farm families. However, farmers are well aware of cultivating major* Kharif *and* Rabi *cereals, pulses, oilseeds and other major vegetables like cabbage, tomato, cauliflower, etc. The farming community, in general are marginal and small farmers. The 600 farm families under FFP, CAU, Imphal were categorized as marginal - 593, Small- 4, Semi-Medium- 2, Medium- 1 and Large - 0 according to their size of land holding.*

Key words: Farm pond, Fishery, Horticulture, Integrated farming system, Livelihood, Livestock, Marginal and small farmer

Under Farmer FIRST Programme (FFP), Central Agricultural University, Imphal two villages *viz.,* Yairipok Top Chingtha and Yairipok Yambem of Imphal East district, Manipur located in the Eastern side of the state with a total distance of about 28 km from the heart of Imphal city, were considered that needs special focus and location specific based suitable technologies. The farmers of North East India, Manipur in particular need a viable farming system to produce a sustainable, reliable and balanced supply of foods, as well as to sustain farm income to uplift their livelihood as most of the farmers in Manipur belong to marginal farmers (land holding less than 1 ha. area). To overcome the uncertainty in income and high degree of risk through the existing farming system, different modules such as crop based, horticulture, animal, fishery, enterprise, natural resources management, integrated farming system, etc. were evaluated through their impact analysis. Out of these modules, integrated farming system (IFS) can minimise those constraints faced by the farming community and increasing productivity through effective utilization of space. As per study under the FFP, CAU, Imphal 600 farm families were categorized as marginal - 593, small - 4, semi-medium - 2, medium - 1 and large - 0 according to their land holding. The study shows that farmer gets extra income through various components over the last three years. In respect to income generation, agricultural crop has dominated followed by horticultural crops, fishery and livestock. Whereas Integrated Farming System IFS, components agricultural crops + fishery + poultry + duckery + horticultural crops at the peripheral areas of farm pond, mushroom cultivation was found to be the best option for earning income sustainably from the average land (nearly equal to 1 ha.) available with the farmers of the region.

The FFP special features includes farmers as partners of the research, extension and production process. The indigenous Technical Knowledge (ITKs) available with the farmers has been utilised in scientific ways to derive suitable options for the better production.

After analysing the type of farmers and existing farming system of the selected villages, the approach of suitable farming system is applied in agriculture for doubling farmers' income. The CAU, Imphal developed Agri-Horti-Fishery-Livestock major integrated farming and Horti-Fishery-Livestock integrated farming with the objective of sustaining farm income. In this system, an inter-related set of enterprises is used so that the "waste" from one component becomes an input for another part of the system. This reduces costs and improves production and/or income. Since it



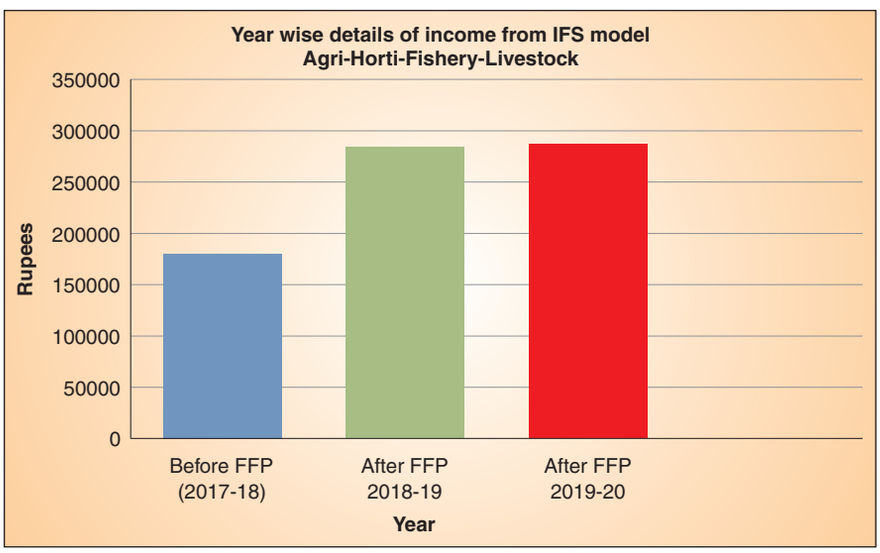


Fig. 1. Graphical representation of three years income generation of IFS Model in, Yairipok Top Chingtha, Imphal East District under Farmer FIRST Progamme, CAU, Imphal.

utilizes waste as a resource, farmers not only eliminate waste but they also ensure an overall increase in productivity for the whole farming system.

Approach/Intervention

Generally under farmer's practice of IFS model, they considered only fishery and livestock components as such peripheral farm pond areas as well as rice fallows kept unused due to the fact that rice is cultivated once in a year (mono-culture rice cultivation). Fishery and livestock were carried out without proper scientific knowledge. Therefore, expected profit could not achieve.

Looking into the fact and with the initiation of FFP of CAU, Imphal interventions were introduce and started practicing by giving focus on the following activities:

- Introduction of nutritional vegetable and fruits garden on the peripheral banks of the farm pond.
- Inclusion of crop plants like cucurbitaceous crops and pulses etc. on the peripheral banks of the farm pond.
- Cultivation of improved varieties of cereals, oilseeds and pulses with improved production technologies
- Introduction of composite fish farming.
- Introduction of improved breds of poultry and their scientific rearing.

SUCCESS STORY

Shri Heikrujam Premjit Singh of Yairipok Top Chingtha village, Imphal East district was identified as one of the successful young and energetic farmer in the area (Fig. 4). Before intervention, Shri Singh started his farming utilising own land of 1.5 ha without much scientific knowledge. During the period, he faced problems on selection of suitable crop varieties, effective continuous use of land, less income from hard work, etc. An income of ₹ 1, 80,000 annually could obtained from his farm by inclusion of horticultural crops (some indigenous vegetables and fruits) and fishery component + rice cultivation using local indigenous genotypes.

However, as a part of the participant in FFP, CAU, Imphal he was identified as a potential young farmer in 2017, and established Agri-Horti-Fishery-Livestock Integrated Farming System in the year 2018-19 with the following details:

- Crops: Rice Var. CAUR-1, CAUR-2, RC-Maniphou-13, etc. Aman var. of Pea, Rapeseed/ Mustard Var. NRCHB-101, TS-38, Sweet corn var. Golden Cob
- **Fruits:** Sapana var. of Papaya,
- **Poultry:** (Giriraja, Giririani, Srinidhi & Vanaraja of Poultry)
- **Fishery:** Composite fish rearing.

Outcome

A drastic change in the income of Shri H. Premjit Singh was observed and he was very much convincing with the technology delivered to him by the FFP-CAU, Imphal. His

Fig. 2. Before the intervention of FFP-CAU, Imphal.

Fig. 3. After the intervention of FFP-CAU, Imphal.

Fig. 4. Shri Heikrujam Premjit Singh, a successful participant in FFP-CAU, Imphal.

income increases up to ₹ 2,84,000 and ₹ 2,87,000 respectively during 2018-19 as shown below:

- Income Before FFP (2017-18): ₹ 1,80,000
- Income after FFP (2018-19): ₹ 2,84,000
- Income after FFP (2019-20): ₹ 2,87,000
- Percentage increased in income during 2018-19 over 2017-18: 57.78%
- Percentage increased in income during 2019-20 over 2017-18: 59.44%.

Shri Singh purchased a second hand diesel auto after participating FFP and expansion of his work. He use the auto for transportation of his farm products to nearby villages or markets. He further started rearing poultry (Broiler) this year 2019-20. Now he have kept his fellow friend as an assistant to look after his enterprice which helps in employment generation to the other farmer.

Conclusion

From the study, it can be concluded that smart selection of farming system, crop varieties, proper way of land utilisation and adopting area specific technology can leads to increase the income of the farmer. Since, most of the farmers of North-East India especially Manipur farmers have less land-holding. To meet the demand and food requirement of the region, it is very much needed to choose adverse and the productive farming system. The Integrated Farming System can will overcome those problems faced by the farmers. It is also learnt that enterprises like poultry also added extra income to the farmers. Poultry breed (Giriraja and Girirani) has bigger size and more weight compare to Srinidhi breed. Considering the egg laying bird Srinidhi has more performance than Giriraja and Girirani. So it is learnt that in farmers' situation, Srinidhi breed is good for eggs production and Giriraja and Girirani is suitable for both egg production as well as meat production. Problem of marketing is one of the main constraints faced by the farmers of Manipur. To overcome this constraints, several strategies like value addition and post harvesting technologies, cold storages facilities, etc. are immensely needed in the region. If the Custom Hiring Centre is to be established under the FFP-CAU, Imphal is to be upgraded and sustained, percentage of employment and livelihood of the farmers will be increased in the region.

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