

From barren land to thriving farm: A success story of integrated farming in Nagaland

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Nagaland's rich natural resources and biodiversity offer potential for agriculture and livestock farming. However, small landholdings, poor investment capacity and limited knowledge of improved practices hinder productivity and profitability. ICAR Nagaland Centre developed Integrated Farming System (IFS) models to address these challenges. This article showcases the inspiring story of Mr. Hamjen Thaosen, a young farmer from Nagaland, who transformed his 7.5 ha barren land into a thriving IFS model. With technical guidance from ICAR Nagaland Centre and KVK Dimapur, he developed a diverse farm comprising fishery, piggy, poultry, duckery, agriculture, horticulture and vermicomposting units. The farm generates multiple income streams, employs local youth, and promotes environmental sustainability. Mr. Thaosen's success story highlights the potential of IFS in improving livelihoods and demonstrates a model for sustainable agriculture, inspiring fellow farmers and rural youth in the region.

Keywords: Agriculture, Duckery, Fishery, Horticulture, Integrated farming, Piggy, Poultry

NAGALAND has rich natural resources and biodiversity, with favourable soil and climatic conditions. However, the state's agricultural potential remains untapped due to varied physiographic conditions, inaccessibility, and poor infrastructure. The majority of rainfall (over 75% of 2,000 mm) occurs between June and September, restricting crop intensification and diversification. Small and fragmented landholdings, poor investment capacity, and inadequate knowledge of improved agricultural practices further exacerbate the issues of low productivity and profitability in the agriculture sector. To attract rural youth to agriculture, it is crucial to ensure better productivity and income generation. To address these challenges, ICAR-Research Complex for NEH Region, Nagaland Centre developed four Integrated Farming System (IFS) models for the region:

Model-I: Agriculture + Horticulture + Fishery + Piggy + Vermicompost unit

Model-II: Agriculture + Horticulture + Fishery + Goatery + Vermicompost unit

Model-III: Agriculture + Horticulture + Fishery + Duckery + Vermicompost unit

Model-IV: Agriculture + Horticulture + Fishery + Poultry + Vermicompost unit + Mushroom

These models were demonstrated among farmers, and their success paved the way for horizontal expansion in various parts of Nagaland. In the above context, the article presents an inspiring success story about Mr. Hamjen Thaosen, a young farmer from Nagaland who transformed his 7.5 ha barren land into a thriving IFS model. With guidance from ICAR Nagaland Centre and KVK Dimapur, he developed a diverse farm comprising fishery, piggy, poultry, duckery, agriculture,

horticulture, and vermicomposting units.

Background

Mr. Hamjen Thaosen hails from Doyapur village under Dhansiripar block of Chumoukedima district, Nagaland. He is 31 years old graduate. He completed his graduation in BCA from Punjab Technical University in 2015. After graduation, he worked in a call centre in Delhi for two years. When he realised that the amount he was getting by spending 12 h in a day in a call centre could be earned within 5–6 h a day on his



Mr. Hamjen Thaosen



Conversion of water-logged area into fish pond

own farm, he decided to return to his hometown in Nagaland and develop his 7.5 ha barren land, which also had a naturally low-lying waterlogged area. Not knowing how to initiate farming and develop his farm-land, he approached ICAR Nagaland Centre in 2018 for guidance. Scientists visited his site, and accordingly advised him to convert the water-logged area into a fish pond. He was also given training on fish farming and pond management. With the technical guidance and input support in the form of quality fingerlings and feed, he was able to develop the pond and started fish farming with Indian Major Carps (IMC) and exotic carps. This embarked the beginning of an illustrious journey of Mr. Hamjen Thaosen as a young successful farmer. In due course of time, with the continuous support through awareness campaign, training and input distribution, he was able to develop his farm land into an IFS model.

Diversification and innovation

Mr. Thaosen's farm now comprises multiple enterprises, including fishery, piggy, poultry, duckery, agriculture, horticulture, and vermicomposting unit. He has developed four fish ponds, earning a significant income from fish farming. The introduction of duckery and piggy has further diversified his farm, generating additional income.

Fishery: Mr. Hamjen started fish farming by developing a water logged area into a fish pond of 0.1 ha area, where he reared Indian major carps and exotic carps. After rearing for one year, he could harvest 1,540 kg of fish and could earn ₹1,30,000/- through the sale of fish. Seeing the potential of fish farming and demand for fish in his locality, he

developed three more fishery ponds of 0.04 ha, 0.07 ha and 0.13 ha area with the technical guidance. Apart from IMC and exotic carps, he also introduced pangas (*Pangasianodon hypophthalmus*) and freshwater prawn in his pond. At present, he is earning a net income of ₹2,96,000/- annually from the four ponds.



Fish harvesting from pond

Poultry: He has established a low-cost poultry unit in 2019 with a capacity to rear 500 birds. The poultry unit was constructed on the fishery pond dykes of a 0.1 ha pond area. With this, he can rear the birds in four batches of 500 each in a year. He received day-old chicks of 'Vanaraja' birds from ICAR Nagaland Centres which were reared for 75 days and sold in the market @ 240–260/kg. Alternatively, he was also raising 'Kuroiler' birds. In 2020, he started broiler farming, which were reared for 45 days and sold in the market @ ₹155/kg. That way in one year, he rears around 2,000 birds and through the sale of meat, he is presently earning a net income of ₹277,400/year. The system also helped him in reducing the



Poultry farm above fish pond

feed cost of raising fish through the recycling of leftover feed materials of poultry unit. Seeing the demand for chicks, he established two incubators of 700 and 100 capacities in 2021 for producing chicks of Kuroiler and broiler, and is now providing chicks to many of the poultry farmers in his areas as well as outside of the village. Two-week-old chicks (twice vaccinated) are sold @ ₹80/chick for kuroiler and ₹90/chick for broiler.

Duckery: Low-cost duck shed with locally available material was established within the farm premises in 2021. 'White Pekin' ducks are reared in two batches (250 Nos./batch) per year which are let loose over the pond surface within the farm during day time. These ducks are reared for 2–3 months. By that time, the ducks attain an average body weight of 2.5 kg. He is able to sell around 1,250 kg of duck meat per year and earns approximately a net profit of ₹185, 000/year.



White Pekin ducks rearing

Piggery: In 2021, he ventured into pig farming and KVK Dimapur provided him with piglets produced in the farm of ICAR Nagaland Centre which he reared for breeding as well as fattening purposes. He also received training on scientific pig farming and artificial insemination. In 2022, KVK Dimapur assisted him in establishing a piggery unit. Pig sheds were constructed as per the scientific recommendation with concrete flooring, half walls and CGI (Corrugated galvanised iron) sheet as roofing material in the vicinity of fishery pond. Altogether, he has about 25 'Large White Yorkshire' and 'Rani pigs'. Five sows are kept for breeding purpose and the other 20 are kept for fattening purpose. In a year, he is rearing around 70 quality piglets which are sold in the market @ ₹5,000/piglet. Through sale of



Pig rearing for breeding and consumption purpose

piglets and pig (live weight), his net income per year through piggery is approximately ₹576,000/year.

Agriculture and horticulture: Out of the total 7.5 ha land, Mr. Hamjen Thaosen converted 3.3 ha into an agriculture + horticulture unit where seasonal vegetables, cereal crops, pulses and other crops are grown. Around 0.33 ha is specifically earmarked for paddy cultivation, while the remaining area is utilised for seasonal crops. With technical training and guidance from ICAR, he has adopted improved farming practices by cultivating high-yielding varieties of crops and vegetables. To maximise income, the peripheral areas adjoining the fishery ponds are used for planting horticultural crops such as banana,



Potato harvest



Banana and papaya cultivation



Oil palm cultivation



Mango cultivation

mango, arecanut and Assam lemon.

Banana cultivation forms a major part of his horticulture enterprise. In 2019, he planted 150 'Grand Naine' banana plants, each yielding 6–7 hands. Over the last two years, he harvested around 1,050 hands and earned ₹52,500/year at a selling price of ₹50/hand. For mango, he planted 30 'Dasheri' plants in 2018 and added 100 'Alphonso' plants in 2022. Harvesting of 'Dasheri' began in 2022, yielding about 540 kg which fetched ₹48,600 at ₹90/kg. He also planted about 500 'Assam Tall' arecanut plants along the farm borders at 3 m intervals, though they are yet to attain bearing stage and have not generated income so far. Additionally, around 30 'Assam Lemon' and acid lime (AL-1) plants were established, with the produce

sold at ₹1.50/piece or used for domestic consumption.

Agro-forestry: Mr. Hamjen also stepped into oil palm cultivation and has planted around 150 palm trees covering 2.0 ha area. He also developed a white sandalwood plantation area of 0.52 ha where he planted around 50 sandal wood trees.

Vermicomposting unit: In order to utilise the farm waste, one



Vermicompost unit

Table 1. Year-wise economics of Mr. Hamjen Thaosen

Component	Income	2019	2020	2021	2022	2023
Fishery (0.34 ha)	Gross income (₹)	230,000	260,000	375,000	390,000	401,275
	Net income (₹)	125,000	145,000	235,600	256,000	296,000
	BCR	1.19	1.26	1.69	1.91	2.81
Piggery (0.13 ha)	Gross income (₹)			350,000	850,000	890,000
	Net income (₹)			142,000	570,000	576,000
	BCR			0.68	2.04	1.83
Poultry (0.1 ha)	Gross income (₹)	330,000	350,000	605,000	595,000	601,400
	Net income (₹)	143,700	150,300	275,000	280,000	277,400
	BCR	0.77	0.75	0.83	0.89	0.86
Paddy (3.3 ha)	Gross income (₹)	12,558	13,530	15,793	16,884	19,900
	Net income (₹)	5,149	5,976	7,635	8,432	11,326
	BCR	0.69	0.79	0.94	1.00	1.32
Horticulture	Gross income (₹)	126,000	145,000	175,000	195,000	235,400
	Net income (₹)	106,000	115,000	145,000	172,000	198,600
	BCR	5.30	3.83	4.83	7.48	5.40
Duckery (0.07 ha)	Gross income (₹)			375,000	367,500	390,000
	Net income (₹)			130,000	142,500	185,000
	BCR			0.53	0.53	0.90

BCR: Benefit-cost ratio.

vermicompost unit was introduced in the farm to recycle the farm wastes. Around 900 kg of compost is harvested in a year. Half of the harvest is used to meet the nutrient requirement of horticultural crops in the farm itself and the remaining is sold in the market @ ₹30/kg earning approximately ₹13,500 /year.

Impact and inspiration

Mr. Thaosen's farm has become a learning centre, attracting farmers and rural youth from surrounding areas. His success story has inspired many to adopt farming as a viable livelihood option. He has also created employment opportunities for others, both full-time and part-time, contributing to the local economy. His work has been noticed by various agri and allied department of the state. Exposure visits for farmers, schools and colleges are being carried out by different organisation in his farm. The Nagaland State Rural Livelihood Mission (NSRLM) is also engaging him as a master trainer on



Visit to Mr. Thaosen's farm under Nagaland State Rural Livelihood Mission

fishery farming for training in the Village Level Organisations (VLO) as well as rural youths. Seeing his contribution and dedication in developing integrated farming system, he was bestowed with the 'District Millionaire Farmer of India Award' in 2023.

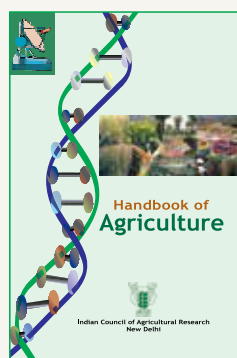
SUMMARY

The hard work, sheer determination, and perseverance to life's challenges and struggles paid dividends to Mr. Hamjen Thaosen's work. The overall net income received from different enterprise in his farm shows a substantial gain since inception. His story is an example of fulfilling the goal

of doubling farmers' income as envisioned by our Prime Minister. Today, with strong support from ICAR Nagaland Centre and KVK Dimapur and through his dedication, he is a living example of one who, instead of thriving for a regular occupation, has adopted farming as a source of livelihood. He is indeed a source of immense inspiration not only to his villagers and rural youth but also to the farmers of other villages. He is now inspiring fellow farmers, especially the rural youth sharing his own inspirational story and helping them in venturing into farming activities. He has also motivated six rural youth to undertake piggyery as a start-up venture, for which he is providing free piglets from his own farm. Apart from these, he has engaged three persons as regular worker in his farm and also provides part-time work opportunities to fellow villagers, whenever needed.

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Handbook of Agriculture



The Handbook of Agriculture is one of the most popular publication of the ICAR with a wider readership. The present edition presents science-led developments in Indian agriculture, the ongoing research efforts at the national level and with some ideas on the shape of future agriculture. While information in some chapters such as Soil and water, Land utilization, field and forage crops has been updated with latest developments, many new topics such as the Environment, agrobiodiversity, Resource conservation technologies, IPM, Pesticides residues, Seed production technologies, Energy in agriculture, informatics, Biotechnology, Intellectual Property Rights, Agricultural marketing and trading and Indigenous Technical Knowledge have been included in the present edition. For those who take intelligent interest in agriculture – and their number is increasing fast – the present edition would serve as a useful book.

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