ANNUAL REPORT

2024

DEMONSTRATION OF
CLIMATE SMART TECHNOLOGIES IN LAWNGTLAI DISTRICT
UNDER TDC-NICRA

Conducted by:

KVK Lawngtlai District
Lawngtlai, Mizoram

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Preface

The present book titled *"Demonstration of Climate Smart Technologies in Lawngtlai District under TDC–NICRA"* documents the efforts made by KVK Lawngtlai district, Lawngtlai, Mizoram in implementing and showcasing climate-resilient technologies during the year 2024. The interventions were designed to address the challenges posed by climate variability and to promote sustainable agricultural practices among farming communities.

The book highlights a range of technologies demonstrated under NICRA, which include poly-mulching cultivation of tomato, management of rhizome rot in ginger, intercropping of maize with groundnut, rearing of rainbow rooster under backyard system, demonstration of improved rice, cultivation of stress-tolerant cabbage and shelter management in pigs for enhanced stress resilience. These demonstrations have played a crucial role in enhancing farmers' awareness, building adaptive capacity and ensuring improved productivity under changing climatic conditions.

We gratefully acknowledge Dr. V.K. Singh, Director, ICAR-CRIDA, Hyderabad and Dr. A.K. Mohanty, Director, ATARI Zone VII, Umiam for their valuable technical guidance and financial support in carrying out the project under NICRA. Their constant encouragement and cooperation have been instrumental in the successful implementation of the programme in Lawngtlai district.

It is sincerely anticipated that this publication will serve as a valuable resource for researchers, extension personnel and farmers, thereby fostering wider adoption and up scaling of climate-resilient agricultural practices in the region.

Authors

Contents

1. Introduction

National Innovations in Climate Resilient Agriculture (NICRA) project is a flagship network project launched by the Indian Council of Agricultural Research (ICAR) under Ministry of Agriculture & Farmers Welfare, Government of India in February 2011 to enhance the resilience of Indian agriculture to climate change through strategic research, technology demonstration, and capacity building. NICRA is the unique project which brings all sectors of agriculture viz., crops, horticulture, livestock, fisheries, natural resource management (NRM) and extension scientists on one platform. The project's main objectives are to:

- ✓ Conduct strategic research on adaptation and mitigation strategies for climate variability across various sectors, including crops, livestock, and fisheries.
- ✓ Validate and demonstrate location-specific, climate-resilient technologies on farmers' fields.
- ✓ Strengthen the capacity of scientists, farmers, and other stakeholders in climate-resilient agriculture.
- ✓ To draw policy guidelines for wider scale adoption of resilience-enhancing technologies and options

NICRA covers the following four modules:-

1. Module I - Natural Resource Management (NRM):

This module involves interventions like in-situ moisture conservation, water harvesting and recycling, improved drainage, and the promotion of water-saving irrigation methods to manage natural resources more effectively.

2. Module II - Crop Production:

Interventions in this module focus on improving crop resilience through the demonstration of drought-tolerant and flood-tolerant crop varieties, location-specific intercropping systems, and improved nutrient and pest management practices.

3. Module III - Livestock and Fisheries:

This module addresses climate resilience in the livestock and fisheries sectors by promoting improved fodder production, silage making, breed up-gradation, animal health services, and better management of fish ponds.

4. Module IV - Institutional Intervention:

This component involves institutional support and capacity building for various stakeholders, including farmers, through initiatives like custom hiring centers for equipment and the establishment of village-level seed banks to promote wider adoption of climate-resilient practices.

The Technology Demonstration Component of NICRA project was started in the village Chawnhu from the year 2022. Several climate resilient technologies were demonstrated and out-scaled. The same was done in 2024 through modules 1-4 for each farming system typologies.

2. Village Profile

Details of the selected villages, Lawngtlai district, Mizoram is given in table below

Table. Village profile

Village:	**Chawnhu**	**Ngengpuikai**
District	Lawngtlai	Lawngtlai
Distance from KVK	0 km	40
Major climatic constraints	Drought, late onset of monsoon and erratic rainfall, soil erosion	Drought, late onset of monsoon and erratic rainfall, soil erosion
Latitude	22°30'12.0“ N	22°30'26.2"N
Longitude	92°53'40.7“ E	92°46'42.3"E
Elevation	1097 msl	120 msl
Rainfall average	201.7 mm	255.8 cm
Normal Rainfall	2558 mm	2558 mm
Annual rainfall (2024)	3134.16 mm	3134.16 mm
Population	846	1012
No. of Households	205	204
Per capita income	0.35-1.0 lakh	0.42-1.0 lakh
Total cultivated area	198 ha	131 ha
Total rainfed area	165 ha	93.34 ha
Agro-climatic zone	Humid sub-tropical Hill Zone	Humid Mild Tropical Hill Zone
Major crops grown	Rice, maize, mustard, tomato, Mizo chilli, etc.	Cabbage, rice, tomato, sesame, maize, groundnut, brinjal, mizo chilli, snake gourd, pumpkin etc.
Major soil type	Colluvial soil	Red loamy soil with lateritic characteristics

3. Farming System Typology (FST)

Chawnhu village is divided into two (2) Farming System Typologies (FSTs) namely

FST I: Rainfed Upland without Animal: This typology represents households practicing crop-based subsistence farming on rained uplands with no integration of livestock. Farmers largely depend on seasonal rainfall, cultivating crops such as upland rice, maize, sesame, and pulses. Soil fertility is often low due to continuous cultivation and limited use of external inputs. The system is vulnerable to climate variability, particularly erratic rainfall and prolonged dry spells, leading to unstable yields. Under NICRA, interventions such as soil moisture conservation, crop diversification, and introduction of stress-tolerant varieties were promoted to enhance resilience and productivity.

FST II: Rainfed Upland with Animal: This typology is characterized by smallholder farmers cultivating rainfed upland crops along with rearing livestock such as pigs, poultry, and cattle. Crops like upland rice, maize, pulses, and oilseeds are grown primarily for household consumption, while animals provide supplementary income, manure, and nutritional support. This mixed system offers better livelihood security than crop-only farming but remains highly vulnerable to erratic rainfall, feed scarcity, and disease outbreaks. NICRA interventions such as improved fodder cultivation, livestock housing, vaccination, and integrated nutrient management were introduced to improve productivity, resilience, and sustainability.

Ngengpuikai village is also divided into two (2) Farming System Typologies (FSTs) namely

FST III: Rainfed Lowland without Animal: This typology includes households cultivating crops in low-lying rainfed areas without integration of livestock. Farmers mainly grow paddy as the principal crop, supplemented by pulses and oilseeds depending on residual soil moisture. Productivity is highly dependent on timely rainfall, and crop failure often occurs due to drought, flood, or waterlogging. With no

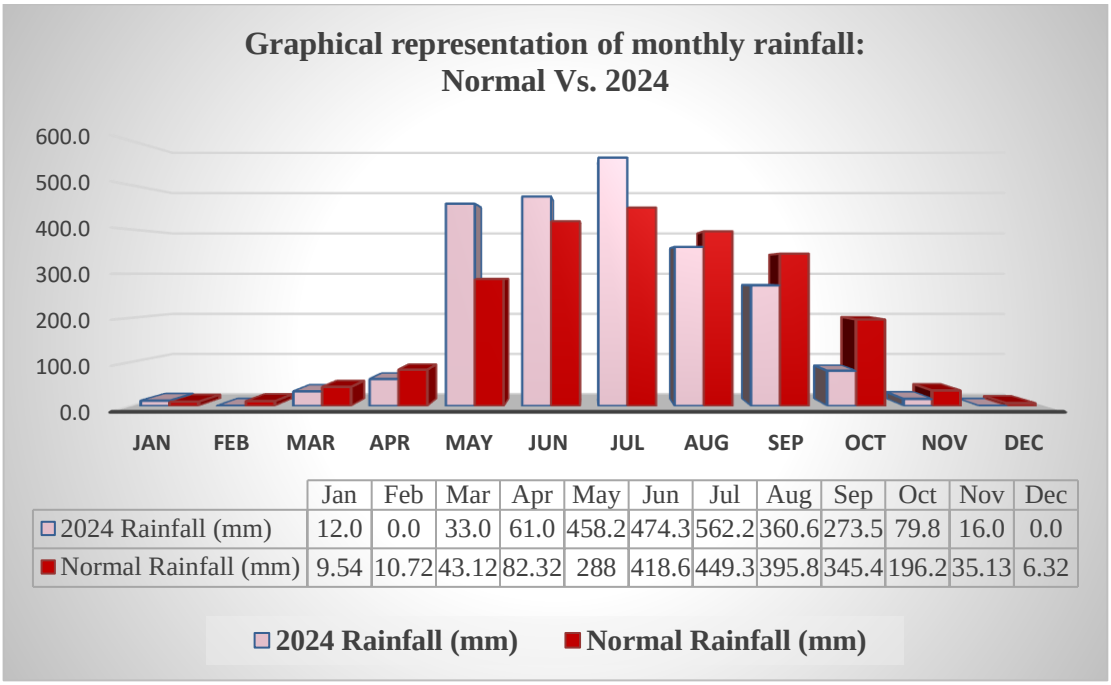
livestock component, farm households have limited livelihood diversification and rely solely on crop harvests. Under NICRA, interventions such as drought-tolerant rice varieties, water harvesting structures, and improved soil and water management were introduced to enhance resilience.

FST IV: Irrigated Lowland with Animal: This typology is relatively resource-rich system where farmers cultivate crops in lowland areas with assured irrigation, combined with livestock rearing such as pigs, poultry, and cattle. Paddy is the dominant crop, often followed by vegetables or pulses as a second crop, supported by water availability. Livestock provides additional income, manure, and household nutrition, making the system more diversified and stable compared to rainfed systems. However, challenges include high input costs, pest/disease incidence, and climate variability. NICRA interventions focused on water-use efficiency, integrated crop–livestock management, and fodder production.

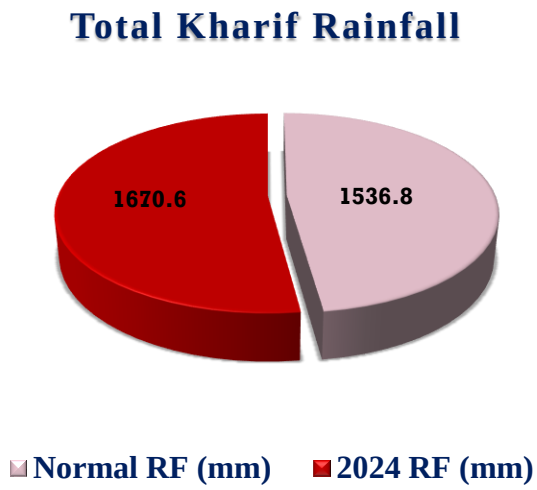
4. Rainfall and Temperature during 2024

Rainfall characteristic and stress experienced during the year 2024 were given in the table below:-

Rainfall		Normal RF	2024
Annual rainfall (mm)		2558 mm	3134.16 mm
June		407.5 mm	474.3 mm
July		282.2 mm	562.2 mm
August		523.7 mm	360.6 mm
September		353.4 mm	273.5 mm
Total kharif rainfall		1536.8 mm	1670.6 mm
No. of rainy days (kharif)		122	88
No. of dry spells during kharif season	>10 days		Nil
	>15 days		Nil
	>20 days		Nil
No. of intensive rain spells	>60 mm per day		4
Details of flood situations experienced in NICRA villages (Timing, duration and crop stage)	NIL	NIL	NIL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2024 Rainfall (mm)	12.0	0.0	33.0	61.0	458.2	474.3	562.2	360.6	273.5	79.8	16.0	0.0
Normal Rainfall (mm)	9.54	10.72	43.12	82.32	288	418.6	449.3	395.8	345.4	196.2	35.13	6.32



5. Details of Interventions during 2024

Module I: Natural Resource Management

FST IV: Irrigated Lowland with Animal

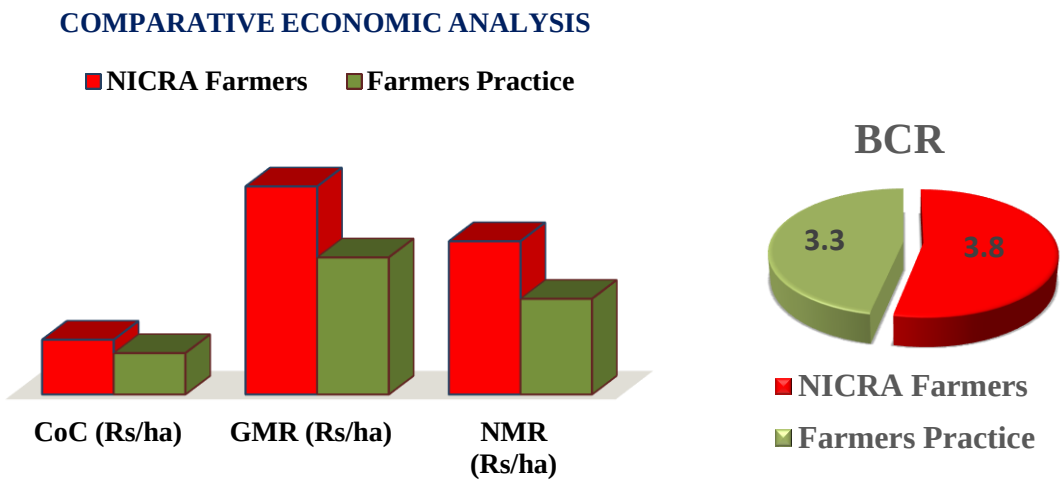
CRT: Poly-mulching cultivation of Tomato Var. Arka abhed (25 micron)

To demonstrate this climate resilient technology, 10 selected farmers were each provided with 2 rolls of plastic mulch having 200 m length and 2.5 micron thickness along with tomato var. arka abhed seed, while for farmers' practice, no mulching was provided and only the crop was cultivated. The crop cultivated was tomato var. arka abhed which have a growing duration of 140-150 days from sowing or approximately 110-115 days from transplanting to first harvest. This high-yielding F_1 hybrid is known for its multiple disease resistance and is suitable for cultivation during summer, kharif, and rabi seasons in India. Cultivation was done on lowland areas of Lawngtlai during *rabi* season when there is water stress and low temperature.

Polythene mulching was demonstrated as a climate resilient technology for its use in soil moisture retention, suppression of weeds and as an insulator against fluctuations in soil temperature. For the demonstration, the total area cultivated was 7.5 ha, average productivity 158.5 q/ha with a BCR of 3.8, while for farmers' practice, the average productivity was 104.5 q/ha with a BCR of 3.3. Farmers' practice faced moisture stress, weed infestation, and disease infection, while poly-mulching conserved soil moisture, suppressed weeds, and reduced disease incidence. Farmers reported reduced labor cost (due to less weeding), improved fruit quality, and higher yields under poly-mulching. Overall, poly-mulching of tomato (var. Arka Abhed) in rabi season proved highly effective in enhancing yield, profitability, and sustainability in Ngengpuikai village under NICRA interventions.

Table: Comparative performance of tomato cultivation under poly-mulch and non-mulching practices

NICRA Farmers (Poly-mulching)				Farmers Practice (Non- mulching)			
Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)	Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)
7.5	**158.5**	**125130**	**475500**	**1.5**	**104.45**	**94565**	**313350**



Module II: Crop Production

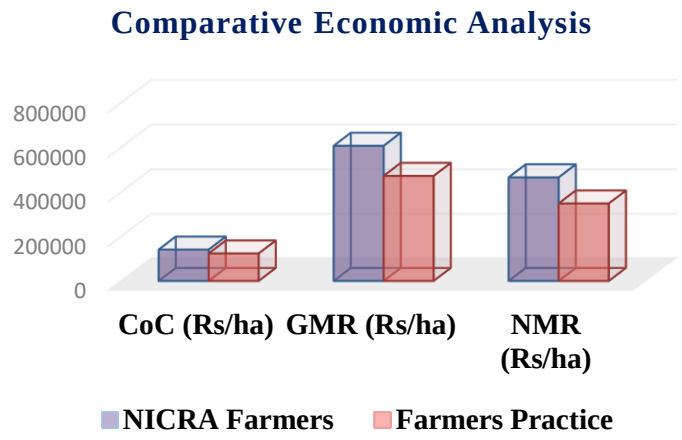
FST I: Rainfed Upland without Animal

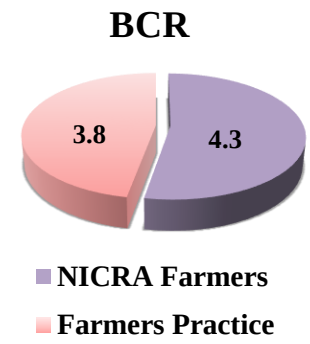
CRT: Management Rhizome rot of Ginger

In Chawnhu village, a demonstration on the management of rhizome rot in ginger was conducted with 10 selected farmers. This initiative aimed to address the challenges posed by rhizome rot, a major disease affecting ginger crops, from the seedling stage all the way to harvesting. The technology involved seed treatment with Copper Oxychloride @ 3 g + Streptocycline @ 0.5 g per litre of water before planting, followed by foliar sprays of Copper Oxychloride @ 3 g at 60, 90, and 120 days after sowing (DAS). In farmers practice, seed treatment was done with Ridomil @ 2g/litre of water. The demonstration achieved a productivity of 121.40 q/ha showcasing effective management practices that significantly improved ginger yield despite the disease threat. The major stress in the area is high rainfall and humidity, which favours the outbreak of rhizome rot. The NICRA technology specifically addressed this issue, resulting in higher germination, reduced incidence of disease, and increased yield. The impact of rhizome rot was also observed at every stage of the crop's growth, starting from the seedling stage through to harvesting, underscoring the importance of timely and appropriate disease management throughout the crop's life cycle. Despite slightly higher cultivation costs, it ensured better productivity, higher gross returns, and a superior BCR, thereby enhancing farmers' income. Farmers expressed positive perceptions, indicating the potential for wider adoption of the technology for sustainable ginger production.

Table: Comparative performance between NICRA farmers and Farmers Practice

NICRA Farmers				**Farmers Practice**			
Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)	Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)
10	**121.40**	**141162**	**607000**	**2.5**	**94.45**	**123550**	**472250**





FST II: Rainfed Upland with Animal

CRT: Intercropping of Maize-Groundnut

KVK Lawngtlai conducted a demonstration on intercropping of maize and groundnut under the NICRA at Chawnhu village. This demonstration focused on showcasing the benefits of intercropping as a sustainable agricultural practice that can enhance resilience to climate variability. The farmers selected for CRT demonstration were supplied with composite maize seeds *Pusa vivek* and *QPM 9* and groundnut var.

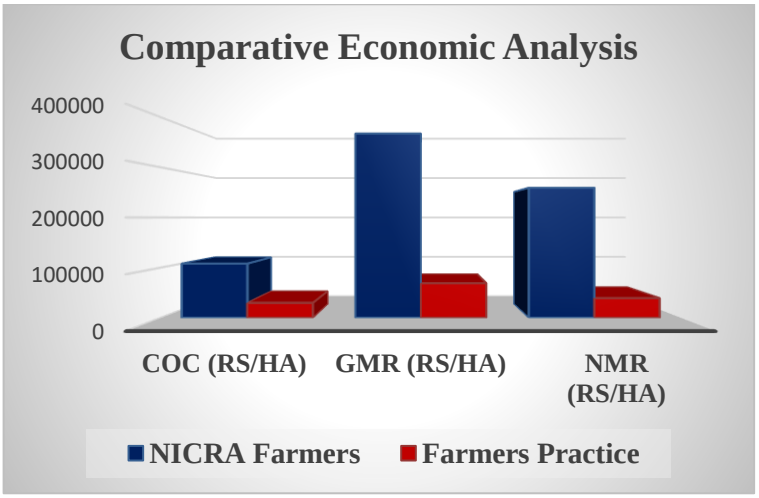
Girnar 4. For Farmers' practice, mono cropping of maize with the same variety was used. Cropping was done on the hilly areas of the village with a total of 8.0 ha for CRT-demonstrated farmers and an area of 2.0 ha for farmers' practice. NICRA farmers had an average productivity of 37.30 q/ha maize and 19.5 q/ha groundnut, with BCR of 3.4 for both seasons combined, while Farmers' practice had an output of average productivity 34.40 q/ha for maize and average BCR of 2.3.

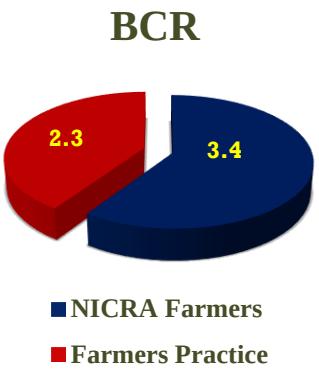
NICRA technology of maize-groundnut intercropping is clearly superior to maize mono-cropping. Although it involves a higher cost of cultivation, it offers much higher gross monetary returns and helps manage soil erosion, nutrient stress, and pest/disease problems. Farmers appreciated its advantages in resource use efficiency, income generation, and resilience under stress conditions, making it a more sustainable farming practice compared to traditional mono-cropping.

The crop stages impacted by this intercropping practice span from the seedling to the maturity stage of both crops. The intercropping system allowed for better resource utilization throughout the crop's growth cycle, including moisture and nutrients, leading to healthier plants and improved yield. The technology used in this demonstration is designed to increase the availability of moisture and plant nutrients. The intercropping system enhances soil moisture retention, as the groundnut plants help in fixing nitrogen, thus enriching the soil with essential nutrients that benefit both crops. This increases the resilience of the plants, making them less vulnerable to stress caused by water scarcity or poor soil quality.

Table: Comparative performance between NICRA farmers and Farmers Practice

NICRA farmers				Farmers practice			
Area (ha)	**Productivity (q/ha)**	**CoC (Rs/ha)**	**GMR (Rs/ha)**	**Area (ha)**	**Productivity (q/ha)**	**CoC (Rs/ha)**	**GMR (Rs/ha)**
8	Maize – 37.30 Groundnut – 19.5	107970	367100	2.0	34.40	29650	68800





FST III: Rainfed Lowland without Animal

CRT: Demonstration of improved variety of rice var. RCM 13

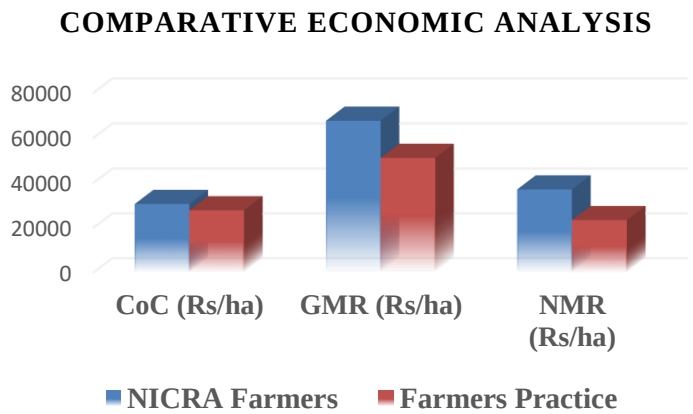
Rice is the staple food crop in Lawngtlai district, but productivity is often constrained by high humidity, erratic rainfall, terminal drought, and pest & disease outbreaks. Under NICRA intervention, the improved rice variety *RC Maniphou 12 (RCM 13)* was introduced to compare its performance with the locally cultivated *Biruchuk* variety. The demonstration was conducted in Ngengpuikai village with 5 selected farmers to assess its performance. It was conducted during kharif season using 30×20 cm spacing of line planting and NPK @ 60:40:40**,** ensuring higher

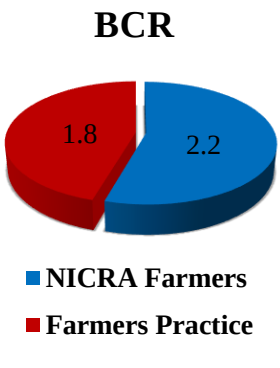
productivity and profitability. The improved variety recorded a productivity of 45.20 q/ha**,** which was higher than the local practice (34.0 q/ha). Although the cost of cultivation was slightly higher, the gross monetary return was significantly better than the local variety. Farmers appreciated *RCM 13* for its soft cooking quality, high yield, and suitability for double cropping, showing strong potential for wider adoption. *Biruchuk* variety. Its higher productivity, disease tolerance, and adaptability make it a suitable option for farmers in stress-prone rice-growing areas.

The demonstration of *RCM 13* rice under the NICRA project at Ngengpuikai village showcased the potential of this short-duration, high-yielding rice variety to transform local farming practices. Its ability to fit into early summer and pre-kharif cropping seasons and its suitability for double cropping make it an ideal choice for improving farm productivity and resilience. By adopting *RCM 13*, farmers can optimize land use, increase income, and contribute to sustainable, climate-resilient agricultural practices.

Table: Comparative performance between NICRA farmers and Farmers Practice

NICRA farmers				**Farmers practice**			
Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)	Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)
10	**45.20**	**30500**	**67500**	**2.0**	**34.0**	**27682**	**51000**





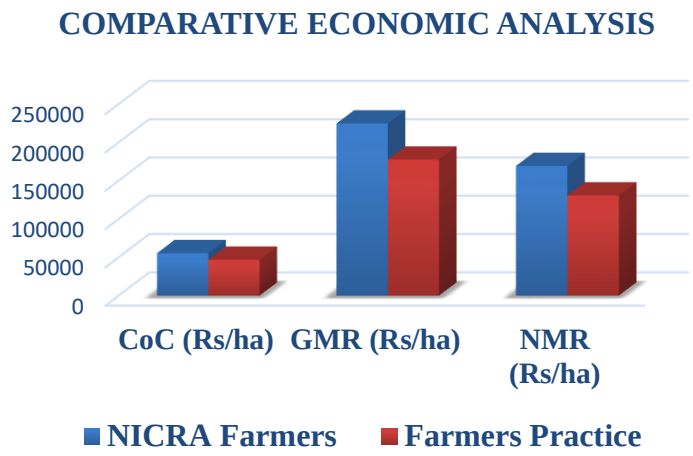
FST IV: Irrigated lowland with Animal

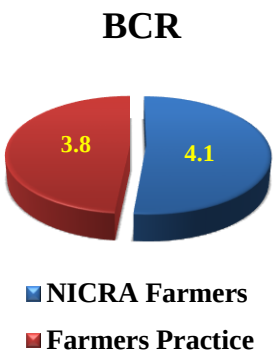
CRT: Cultivation of stress tolerant variety of Cabbage (Var. *Ryozeki*)

Demonstration on cultivation of stress-tolerant cabbage (var. *ryozeki*) was conducted during rabi season in Ngengpuikai village with 5 selected farmers. The performance of *ryozeki* was compared with the farmers' traditional practice of growing cabbage variety *rareball***.** With a productivity of 112.34 quintals per hectare and a net return of Rs. 1,69,280**,** *ryozeki* cabbage offers an excellent option for farmers facing the challenges of climate variability, such as heat waves and cold snaps**.** The variety's tolerance to both heat and cold stress ensures that it can thrive throughout the rabi season, especially during the crucial head formation stage**.** This technology provides farmers with a more reliable and profitable crop, contributing to enhanced food security, increased farmer income, and more resilient agricultural systems in the face of climate change.

Table: Comparative performance between NICRA farmers and Farmers Practice

NICRA farmers (*Ryozeki*)				Farmers practice (rareball)			
Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)	Area (ha)	Productivity (q/ha)	CoC (Rs/ha)	GMR (Rs/ha)
12.5	**112.34**	**55400**	**224680**	**2**	**88.80**	**46850**	**177600**





Module III: Livestock & Fisheries

FST II: Rainfed Upland with Animal

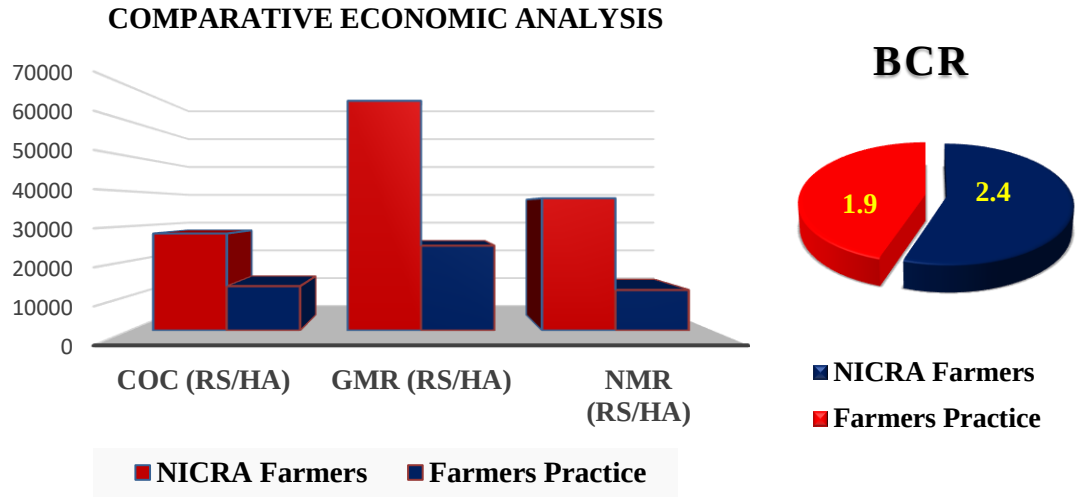
CRT: Rearing of Rainbow rooster under Backyard System

Rearing of Rainbow rooster under backyard system was demonstrated in 10 farmers of Chawnhu village. 25 numbers of rainbow rooster chicks along with pre-starter and started feeds were distributed to each farmers. The primary goal of this demonstration was to showcase the potential of Rainbow rooster as a resilient, high-production poultry breed that can thrive in local conditions, providing a sustainable source of income and nutrition to the farmers. The technology was compared with the traditional practice of rearing local birds (Zo Ar). In this demonstration, Rainbow roosters were reared under standard brooding conditions up to 6 weeks of age, after which they were released in an open area for scavenging. To optimize growth and productivity, birds were provided with supplemental concentrate feed at the rate of 30–60 g per bird per day and calcium during the laying phase. Regular deworming, vaccination were also done as per the recommended schedule.

The rainbow rooster demonstrated significantly better growth, higher egg production, compared to the traditional Zo Ar birds resulting in higher income for the farmers. They also demonstrate high adaptability and high disease resistance. This technology is well-suited for rural poultry farming in Lawngtlai district, offering a promising livelihood opportunity for small and marginal farmers. Farmers perceived the technology as profitable, sustainable, and suitable for backyard conditions, ensuring improved livelihood opportunities compared to rearing of local birds.

Table: Comparative performance between NICRA farmers (rainbow rooster) and Farmers practice (Zo ar)

NICRA Farmers (N=25)			Farmers Practice (N=25)		
Production /Year	**COC Rs/Unit**	**GMR Rs/Unit**	**Production /Year**	**COC Rs/Unit**	**GMR Rs/Unit**
Meat: 89.17 kg Egg : 2668 nos.	27,883	65,892	Meat: 53.33 kg Egg : 572 nos.	12,737	24,387



FST IV: Irrigated Lowland with Animal

CRT: Shelter Management in Pig for Enhanced Stress Resilience

The demonstration on shelter management in pigs for enhanced stress resilience at Ngengpuikai village under the NICRA project has proven to be a successful intervention for improving pig productivity and health by implementing effective shelter management practices. With the annual net return of Rs. 24,250 per pig, the technology demonstrates clear economic benefits for farmers. By addressing heat and cold stress**,** the shelter management practices enhanced growth rates**,** improved feed conversion efficiency**,** and reduced piglet mortality**,** especially during the pre-weaning and growing stages**.** This technology helps farmers maintain a climate-resilient farming system by providing a comfortable environment for their pigs, ensuring better productivity and profitability despite the challenges posed by climate change. This approach is not only beneficial for the pigs but also contributes to sustainable farming practices, offering a promising solution for the future of livestock farming in areas vulnerable to climatic stress. Farmers also found the technology highly relevant to local climate conditions, helping to mitigate both heat and cold stress. They reported noticeable improvements in pig health, including reduced mortality in pre-weaning stage, better feed intake, and overall enhanced productivity due to improved thermal comfort.

Table: Comparative performance between NICRA farmers and Farmers practice

NICRA Farmers			Farmers Practice		
Production /Year	**COC Rs/Animal**	**GMR Rs/Animal**	**Production /Year**	**COC Rs/Animal**	**GMR Rs/Animal**
109 Kg	18,350	43,600	93 Kg	16,983	37,200

Technology Demonstrated:

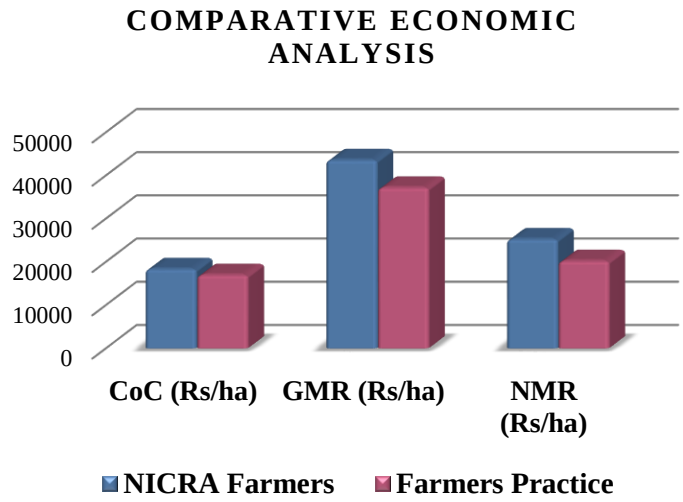
Wall : Well ventilated

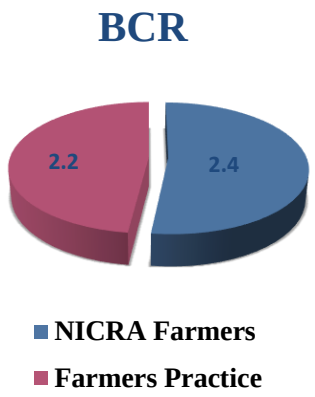
Roof : Insulated with bamboo thrash to prevent heat stress during summer

Floor: Cemented/wooden and bedding materials like saw dust, hay etc. and heating lamps for piglets are provided to prevent cold stress during winter season.

- ✓ Adequate space/pig to minimize overcrowding, reducing stress from competition and heat load.

Farmers Practice: Low cost housing system with wooden floor





Module IV: Institutional Interventions

Seed Production Systems in NICRA Village during the Year 2024

Community-based seed production was done to save locally produced seeds and are utilized for sowing of crops for the next season by the members involved. Proper cleaning, drying and storage was done for the seeds in hermetic bags. The list of seeds produced during the year 2024 is given below.

Table: List of crops under Seed Production

S. No.	Crop	Variety	Area (ha)	No. of farmers involved	Quantity produced (q)	Revenue generated (Rs)
1	Rice	RCM -13	2	5	75.15	1,12,725
3	Groundnut	Girner-4	2.5	5	10.5	1,05,000
4	French bean Zorin (MZFB 48)	MZFB 48	0.5	8	1.6	24,000
5	Rapeseed (TS 67)	TS 67	0.8	3	3.2	38,400
6	Sesame (Local)	Local	1.0	5	7.4	27,200
7	Soybean	Local	1.5	4	13.6	6,480
8	Maize	RCM 5	1.0	5	8.20	16,400


Establishment of Custom Hiring Centers (CHCs)

After a Custom Hiring Centre was established on 13th April, 2022 in the NICRA village Chawnhu, several farmers have decided to use the tools and implements at a subsidized rate so as to reduce drudgery in farm work, especially weeding and ploughing. CHC supplies farm tools, implements and machineries at a subsidized rate to small and marginal farmers with objectives to provide easy and nearby access to implements, reduce drudgery, time and cost saving, etc. During the year 2024, the numbers of farmers utilizing CHC was 123 and the revenue generated was Rs 15,350/-.

6. Capacity Building Programme during the Year 2024

During the year 2024, KVK Lawngtlai successfully conducted 8 training programmes under NICRA, benefitting 189 farmers. The trainings were designed to build the capacity of farmers in adopting climate-resilient technologies and practices. Major themes included climate-smart agriculture, livestock management under heat stress, soil and water conservation, integrated farming systems, crop diversification, and backyard poultry rearing of Rainbow Rooster etc**.** These programmes not only enhanced farmers' knowledge but also encouraged them to adopt sustainable practices suited to the changing climatic conditions. The initiatives created awareness on resource conservation and improved livelihood opportunities for the farming community in the district.

7. Extension Activities Conducted during the Year 2024

During the year 2024, KVK Lawngtlai conducted various extension activities under NICRA to support farmers with climate-resilient practices. A total of 13 programmes were organized. Key interventions included diagnostic visit for addressing pest and disease problems crops and livestock/poultry, farmers' field visits, and field day during harvesting of crops like watermelon and cabbage. Free animal health camp was also organized in which medicines, vitamins and mineral supplements for animals were distributed and anti-rabies vaccine was also given to dogs and cats free of cost. Critical inputs such as sprayers, fertilizers, and plant protection chemicals were also distributed to the NICRA farmers. Altogether, 279 beneficiaries (137 male and 142 female) were covered during the year 2024. Additionally, weather agro-advisories sourced from GKMS ICAR RC for NEH, Mizoram Centre, Kolasib were issued regularly to the farmers through social media platform like whatsapp, Facebook etc.

8. Efforts made to Spread the Promising Technologies in NICRA Villages and in the District

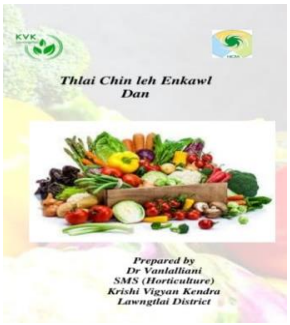
To ensure wider dissemination of promising technologies under NICRA, KVK Lawngtlai made extensive efforts to reach farmers both within NICRA villages and across the district. Multiple communication channels were utilized, including YouTube, Local TV, Doordarshan Kendra (DDK), newspapers, and Facebook**,** to spread awareness and showcase success stories. In addition, printed extension materials such as newsletters, leaflets, and folders were developed and distributed to provide farmers with practical and easy-to-use information. These efforts helped in creating mass awareness, enhancing farmer-to-farmer learning, and encouraging wider adoption of climate-resilient practices for sustainable farming and livelihood security.

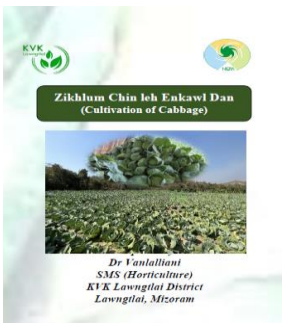
9. Publication during the Year 2024

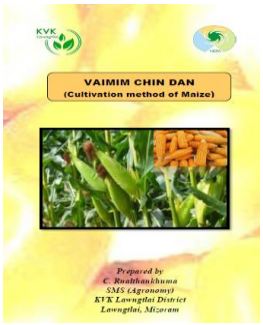
During the year 2024, KVK Lawngtlai published six informative leaflets under NICRA, focusing on climate-resilient technologies demonstrated and distributed them to farmers for wider adoption and awareness.to create awareness and benefit farming communities in the district.

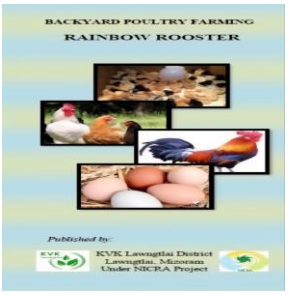
Table: Lists of leaflets published during 2024

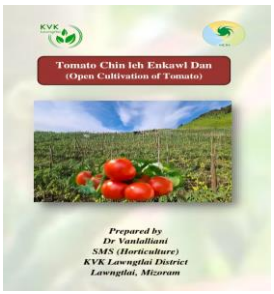
Sl. No.	Title	Type of Publication
1.	Rearing of rainbow rooster under backyard system	Leaflets
2.	Cultivation method of Maize	Leaflets
3.	Cultivation method of Groundnut (Girnar 4)	Leaflets
4.	Open cultivation of Tomato	Leaflets
5.	Cultivation of Cabbage	Leaflets
6.	Sustainable Cultivation Techniques for Climate-Resilient Agriculture	Leaflets

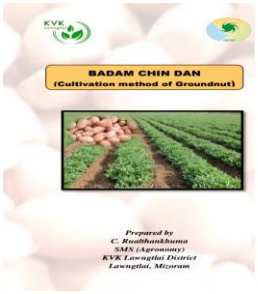












10. Climate Resilient Technologies Up-scaled through Convergence in the Existing Villages

Poly-mulching of Watermelon:

KVK Lawngtlai up-scaled climate-resilient technology of poly mulching of watermelon cultivation through convergence in existing Chawnhu village. The demonstration has been conducted since 2022 at Tuiphal, Chawnhu, covering 2 ha area with two watermelon varieties NS 750 (Namdhari) and Madhuri F_1 using 20-micron poly mulch. The programme was implemented in collaboration with the Department of Horticulture, Government of Mizoram, Lawngtlai district, which supported the farmers by providing drip irrigation facilities. This initiative helped conserve soil moisture, reduce weed infestation, and enhance tomato productivity, thereby promoting climate-smart and sustainable agricultural practices in the NICRA villages.

The poly-mulching demonstration under the NICRA project showcases how innovative techniques can boost agricultural productivity and enhance farmer profitability. With the benefits of moisture conservation, weed suppression, reduced labor costs, and improved fruit quality, poly-mulching has the potential to be a game-changer in watermelon cultivation, especially in areas facing climatic challenges. The productivity achieved through poly-mulching was 260 quintals per hectare, a significant yield compared to traditional farming methods. The net return generated (as per the local wholesale market) was approximately Rs. 8,84,000 per hectare. This shows a marked increase in profitability, demonstrating the economic advantages of using poly-mulching over conventional practices. The success of this demonstration provides a model for other farmers to adopt this technology for better yields and more sustainable farming practices.

Poly-mulching of Watermelon at Tuiphal, Chawnhu

11. Action Photos during the Year 2024

Cabbage Cultivation at Ngengpuikai

Harvesting of Rice var. RCM 13

Diagnostic Visits at Farmer's Field

Animal Free Clinic at KVK Complex, Chawnhu