ANNUAL REPORT OF KVK,THOUBAL 2023 (January- December)

1. GENERAL INFORMATION ABOUT THE KVK

1.1. Name and address of KVK with phone, fax and e-mail

Address	Telephone		E mail
	Office	FAX	
Krishi Vigyan Kendra Thoubal , near Rice Research, Khangabok, Thoubal, Manipur- 795138	03848-291142	-	kvkthoubal@gmail.com

1.2 .Name and address of host organization with phone, fax and e-mail

Address	Telephone		E mail
	Office	FAX	
Department of Agriculture, Government of Manipur, Sanjenthong Imphal- 795001	-	-	plgdda@gmail.com

1.2. Name of the Programme Coordinator with phone & mobile No

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr.S.Zeshmarani	0385-2999899	8415902143	zeshma.sarangthem@gmail.com

1.4. Year of sanction:16th Nov.,2005

1.5. Staff Position

Sl. No.	Sanctioned post	Name of the incumbent	Designation	Discipline	Pay Band (Rs.)	Present Basic (Rs.)	Date of joining	Category (SC/ST/ OBC/ Others)
1	Sr. Scientist & Head	Dr. S. Zeshmarani	Senior Scientist & Head	Animal Science	37400-67000	156900	28-02-2018	Gen
2	Subject Matter Specialist	Kh. Premlata Devi	SMS (Horticulture)	Horticulture	15600-39100	94100	12-04-2007	SC
3	Subject Matter Specialist	R.K. Lembisana Devi	SMS (Home Sc.)	Home Science	15600-39100	69000	26-12-2016	Gen
4	Subject Matter Specialist	Sribidya Waikhom	SMS(Fishery)	Fishery	15600-39100	63100	24-07-2019	Gen
5	Subject Matter Specialist	Dr. ChuwangHijam	SMS(PBG)	Plant Breeding & Genetics	15600-39100	59500	6-09-2021	OBC
6	Subject Matter Specialist	Longjam Boris Singh	SMS(PP)	Plant protection	15600-39100	59500	6-09-2021	OBC
7	Computer Programmer	L. Babita Devi	Prog. Asst. (Computer)	-	15600-39100	67000	12-04-2007	Gen
8	Farm Manager	Dr. W. Jiten Singh	Farm Manager	-	15600-39100	67000	12-04-2007	OBC
9	Programme Assistant	Salam Prabin Singh	Prog. Asst. (Ext. Edu. Agri. & Allied)	Agriculture Extension	9300-34800	39900	24-07-2019	OBC
10	Assistant	O. Shilhenba Singh	Accountant	-	9300-34800	43600	05-10-2016	Gen

11	Stenographer	M. Geeta Devi	Jr. Steno cum Computer operator	-	5200-20200	44100	12-04-2007	Gen
12	Driver	M.Hemanta Singh	Driver cum Mechanic	-	5200-20200	35900	12-04-2007	Gen
13	Driver	Th.Tiken Singh	Driver cum Mechanic	-	5200-20200	35900	03-05-2007	Gen
14	Supporting staff	E.Dhabali Singh	Peon cum Chowkidar	-	5200-20200	26800	12-04-2007	Gen
15	Supporting staff	Mangminthang Zou	Peon cum Chowkidar	-	5200-20200	26800	12-04-2007	ST
	Total	15						

Note: No column in the table must be left blank

1.6. a. Total land with KVK (in ha) : 10

b. Total cultivable land with KVK (in ha): 7.5

c. Total cultivated land (in ha): 6.5

S. No.	**Item**	**Area (ha)**
1	Under Buildings	1
2.	Under Demonstration Units i. Animal Sc. Demo Unit (Piggery, Poultry, Dairy) ii. Fish pond & integrated poultry fish unit	 i. 1.5 ii. 1.5

	iii.Vermiculture iv.Green house & shade net	iii. 0.1 iv. 0.2
3.	Under Crops (Cereals, pulses, oilseeds etc.) (Pl. specify separately) i.Paddy,wheat ii. Pea, Lentil, Chickpea iii.Rape seed and Mustard,Oilpalm iv.Potato, Onion v. Millet	1. 3.6 2. 0.63 3. 1.25 4. 0.2,0.05 5. 0.1
4.	Under vegetables 1. King Chilly 2. Spinach 3. French bean 4. Cabbage 5. Broccoli 6. Cauliflower 7. Tomato 8. Coriander 9. Amarathus 10. Lettuce 11. Garden pea 12. Chilly	0.45

5.	Orchard/Agro-forestry	0.50
6.	Others (specify)) Farm road, approach road, Wall fencing	0.70

1.7. Infrastructural Development:

A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	2016	550 (Ground floor)	76,33,000	Dec,2007	550(1st floor)	Completed , Need renovation
2.	Farmers Hostel	-	-	-	-	-	-	Need farmer hostel
3.	Staff Quarters (5)	Dept. of Agriculture,Govt of Manipur	31-3-12	-	67.90	2-1-12	-	Completed
4.	Demonstration Units i) Piggery unit ii) Dairy unit	-do-	31-3-12	-	20.07	2-1-12	-	Completed, Need renovation
5	Fencing	Dept. of Agriculture,Govt of Manipur	31-3-12	215m	19.75	2-1-12	-	Completed, Need renovation

6	Rain Water harvesting system							
7	Threshing floor							
8	Seed processing Unit	ICAR	15/02/2018	216m	49.97407	13-10-17	-	Completed ,Need renovation

B) Vehicles

Type of vehicle	Regd. No.	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Bolero, Diesel jeep	MN01-K8510	2006-2007	508657	259603	Condemn
Bolero, Diesel jeep	MN01AW-8339	2023	11,90,754	2009	Good
Tractor, complete set	MN01A-0765	2006-07	4,35,543	2313.5	Good

C) Equipments & AV Aids

Name of the equipment's	Year of purchase	Cost (Rs.)	Present status
Computer with accessories (2nos.)	March 2010	75,000	Good
Digital Camera	March,2010	20,000	Not in working condition
LCD projector	March,2010	1,00,000	Not working
Computer with accessories (8nos.)	March,2016	2,00,000	6 computers not in working condition
LCD Projector	March,2016	50,000	Good
Computer with accessories (1 no)	March,2019	32,000	Good
Digital Camera	December,2019	35,000	Good

Computer Printer	July 2019	14980	Good
Computer Monitor & Camera	Jan.2020	29900	Good
Presenter Innovier	March,2020	3800	Good
Bullet Camera with accessories	March,2020	22808	Good
Generator Set	March,2021	174675	Good
Laptop HP 14s –EC0035AU	Feb,2022	60000	Good
Desktop hp computer	Feb,2022	62000	Good
Printer Canon MF631CN	Feb,2022	46500	Good
UPS 600VA (5nos.)	Feb,2022	16000	Good
Smart TV Samsung 52 inc.	Feb,2022	59900	Good
Electronic analytical weighing machine	Feb,2022	10500	Good
Projector Celling mount.	Feb,2022	4500	Good
Inverter 1100 VA(Luminous)	Feb,2022	10000	Good
Battery 150AH (Luminous)	Feb,2022	16170	Good
Water Pump Set	March,2022	5940	Good
External Hard Drive	March,2022	10900	Good
Projector	November,2022	39,000	Good
External DVD Writer	13-06-2023	2500	Good
Laser Canon printer	17-03-2023	19800	Good

Smart Sony TV	17-03-2023	94000	Good
Projector motorize Screen	17-03-2023	14500	Good

1.8. A). Details SAC meeting* conducted in 2023

Date	**Name and Designation of Participants**	**Salient Recommendations on 19th SAC held on 8-03-2024**	**Action taken on last SAC recommendation18th SAC held on 29-12-2022**
8-03-2024	Dr. A.K. Mohanty Director , ICAR-ATARI ,Zone -VII, Umiam	Reorienting KVKs for translating research to development	OFT on Management of purple blotch in garlic ,it was suggested to replace the crop garlic to Onion. ➢ Done as suggested FLD on Popularization of Tomato Arka Rakshak, it was suggested to include a local check variety ➢ Var. Abhisek was included FLD on popularization of French bean Var. Arka Arjun, it was suggested to include a check variety ➢ French bean var. Champhut hawai (Local) was included FLD on seed production of Pre-Kharif rice var. RC Maniphou-12, it was suggested to compare the seed production with other
	Ak. Chittaranjan Singh Deputy Director, Department of Agriculture, Manipur	-	
	Prof Ph. Ranjit Sharma Deputy Director, Extension, CAU, Imphal	• OFT on Performance Assessment of monoculture of air breathing fish (local climbing perch, *Anabas testudineus)* it was suggested to correlate the title and problem diagnosed. • OFT on Assessment on Preparation of Pomelo Jam, it was suggested to change the problem as post harvest loss to due to low shelf life. • OFT on Assessment of multi grain	

		millet cookies, it was suggested to change the title as Assessment of millet cookies. • OFT on Management of Grain Discoloration/Dirty Panicle Disease of Rice, it was suggested to identify the disease and its causative agent through ICAR-RC, NEH-Manipur Centre, Lamphelpat, or Central Agricultural University Imphal. Accordingly the particular OFT can be taken up in the subsequent years. Meanwhile, SMS PP can take up Trial on Management of fall army worm in Maize. • As the North eastern states going to declare as organic states suggestion were made to take up organic management system and use resistant varieties.	varieties as a check ➢ done as suggested with CAU R3
	Dr. I. Meghachandra Singh Principal Scientist, ICAR, Manipur Centre	• OFT on Performance Evaluation of Cucumber DC-83, suggestion was made to verify the high BC Ratio of trial in the coming demonstration during 2024. • Regarding OFT on Performance assessment of rice	

		varieties var. RC Maniphou 15 & RC Maniphou 16, suggestion were made to go for atleast 3 replication in farmers fields and one replication on campus. As the trial is going for second year, it was suggested to check the plant height of the check variety RC Maniphou 13 as it will be higher than the other two varieties. • OFT on Management of Purple Blotch in Onion variety Nashik red as it is an old variety, suggestion were made to change with a new variety either Bhima Shakti / Bhima Kiran in the next action plan since it is going to continue for second year, also suggested to include economic loss by comparing treated and untreated crop yield due to purple blotch and severity percent should be calculated based on disease incidence. • OFT on Weed Management in Kharif Blackgram it was suggested to include both population and the size of the weed. • OFT on Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38, it was suggested to change the title as performance of rice followed by mustard cropping system.	

		• OFT on Assessment of multi grain millet cookies, it was suggested to change the title as Assessment of millet cookies. • FLD on Integrated Management of Blast Disease in Rice, it was suggested to go for one susceptible variety and one more resistant variety as check variety. • OFT on Performance evaluation of finger millet (common OFT) it was suggested that due to unavailability of local cultivar in Thoubal district, variety VL Mandua-380 was recommended as check variety as the said variety was taken up by KVK Thoubal during 2021. • OFT on Management in Purple Blotch in Onion var. Nashik red it was suggested to change with a new variety as Nashik red is very old variety. Also suggested to include economic loss by comparing treated and untreated yield due to purple blotch. • Also the severity percent should be calculated based on the disease incidence. • OFT on Management of Grain Discoloration/Dirty Panicle Disease of Rice, it was suggested to identify the	

		disease and its causative agent through ICAR-RC, NEH-Manipur Centre, Lamphelpat, or Central Agricultural University Imphal. Accordingly the particular OFT can be taken up in the subsequent years. Meanwhile, SMS PP can take up Trial on Management of fall army worm in Maize. • OFT on Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38, it was suggested to change the title as cropping system of Rice followed by Lentil. • FLD on Inter cropping of maize with soybean it was suggested to change the variety HQPM-5 as it is fodder maize variety. • Regarding FLD on Integrated management of blast in rice it was suggested to include one more resistant variety RC Maniphou-16 and one susceptible variety CAU R-1	
	Dr. Dipak Nath Professor, CAU, Imphal	OFT on Assessment on Knowledge, Attitude and Perception of Millets, it was suggested to check the parameters for perception.	

	Kimjaneng Kipgen Secretary, FEEDS, Senapati, Manipur		
	Ksh. Somendro Singh Deputy Director, Agri, RPF, Mao		
	N. Munindro Singh EE (Agri/CSE)		
	Kh. Nimaichand Singh	CDO, Agriculture Department	
	S. Kenedy Singh DAO, Imphal West		
	Dr. A. Ratankumar Singh Sr. Scientist, ICAR, Manipur Centre	OFT on Management of Grain Discoloration/Dirty Panicle Disease of Rice, it was suggested to identify the disease and its causative agent through ICAR-RC, NEH-Manipur Centre, Lamphelpat, or Central Agricultural University Imphal. Accordingly the particular OFT can be taken up in the subsequent years. Meanwhile, SMS PP can take up Trial on Management of fall army worm in Maize.	
	Dr. Kh. Rishikanta Singh Sr. Scientist, ICAR, Manipur Centre	FLD on Popularization of Tomato Var. Arka Rashak, it was suggested to check the BC Ratio.	
	Th. Joyprakash Singh Deputy Director of Agriculture Dept.		

	Kh. Manglemba Meitei DO, Horticulture & Soil Sc., Thoubal		
	Ch. Joyshree Devi AO, Horticulture & Soil Sc., Thoubal		
	Dr. L. Jeeceelee DFO, Thoubal		
	W. Gomati Devi DSMS, Thoubal, DAO		
	A. Sanatombi Devi Rice Breeder, Rice Research Station,Wangbal		
	Nisha Ningthoujam Nodal Officer, RAB		
	Th. Ponil Singh DFO, Senapati		
	Deepak Kumar SMS, Senapati		
	K. Homen Singh Farm Manager ,KVK,Senapati		
	W. Joy Singh Farm Manager, Fishery Dept.		
	Ak. Deben Singh Progressive Farmer		

	Ph. Thoiba Singh Progressive Farmer		
	James Kelly ,Farmer		

** Attach a copy of SAC proceedings along with list of participants*

2. DETAILS OF DISTRICT

2.1 Major farming systems/enterprises (based on the analysis made by the KVK)

Sl. No	Farming system/enterprises
1	Paddy-Fallow
2	Paddy- Mustard/Field pea/ Potato/Lentil/Chickpea
3	Paddy - Vegetables
4	Paddy - Vegetables + Cattle/Poultry/Piggery
5	Paddy - Potato/ Vegetables + Cattle/Poultry/Piggery + Fishery
6	Paddy- Mustard/Field pea/ Potato + Cattle/Poultry/Piggery + Fishery
7	Paddy + Fish, Paddy - Fish
8	Poultry/ Piggery/ Dairy/Cattle
9	Composite/ Polyculture fish farming/ Monoculture of Tilapia/Climbing perch
10	Vegetables

2.2 Description of Agro-climatic Zone & major agro-ecological situations (based on soil and topography)

Sl. No	**Agro-climatic Zone**	**Characteristics**
1	Sub-tropical plain zone	The agro-climatic zone of the Thoubal district may be characterized by diverse soil type ranging from clay, clay loam, silty loam to peat and muck soil, high rainfall and high RH with distinct temperature variation between summer and winter, wide cultural diversity with different cropping pattern from fruits (pineapple, banana, mango), Vegetables (cauliflower, cabbage, brinjal, tomato), paddy, pulses and oilseeds, fish and farm animals. The district has the following topographical structures: - upland, medium land and low land and shallow lakes.

2.3 **Soil types**

S. No	Soil type	Characteristics	Area in ha
1	Fine, Umbric Dystrochrepts Fine, Typic Haplohumults.	Deep, excessively drained fine soils moderately steep side slopes of hills having clayey surface with moderate erosion, associated with deep well drained fine soils on moderately sloping side slopes of hills with moderate erosion and slight stoniness.	3445
2.	Fine Typic, Haplohumults Fine, Loamy Umbric Dystrochrepts	Deep, well drained, fine soils on moderately sloping side slopes of hills having loamy surface with moderate erosion, associated with moderately deep, excessively drained fine loamy soils on moderately steep side slopes of hills with moderate erosion and slight stoniness.	14,120
3.	Fine, Typic Haplaquepts Fine RupticUltic Dystrochrepts	Deep, poorly drained, fine soils on nearly level valleys having clayey surface with very slight erosion, ground water table between one to two meters of the surface and slight flooding, associated with deep well drained fine soils on gently sloping side slopes of hills with slight erosion.	6280
4.	Very fine, molichaplaquepts	Deep, very poorly drained, very find soils on nearly valleys having clayey surface with very slight erosion ground water level between one meter of the surface and severe flooding associated with deep, poorly drained fine soils on very gently sloping valleys with slight erosion ground water table between one to two meters of the surface and slight flooding.	22,020
5.	Fine, Typic Hapludalfs, Fine Silty Typic Haplumbrepts	Deep, somewhat excessively drained, fine soils on sloping side slopes of hillocks having clayey surface with moderate to severe erosion associated with well drained fine silty soils on moderately sloping side slopes of hillocks with moderate erosion.	4490
		Total	**50355**

2.4. Area, Production and Productivity of major crops cultivated in the district

Sl. No	Crop	Area (ha)	Production (ton)	Productivity (Qtl /ha)
A	Agricultural Crops			
1	Paddy	30150	118750	39.40

	Pre kharif	8500	21320	25.10
	Kharif	21650	97430	45.00
2	Maize	1880	4750	25.30
	Kharif Maize	1280	3400	26.60
	Rabi Maize	600	1350	22.50
3	Wheat	410	1100	26.80
4	Pulses	4440	4240	9.50
	Kharif pulses	510	490	9.60
	Rabi Pulses	3930	3750	9.50
5	Oilseed	5170	4600	8.90
	Kharif Oilseed	1320	1200	9.10
	Rabi Oilseed	3850	3400	8.80
6.	Sugarcane	1450	87270	601.90
B	Vegetable crops			
1	Potato	2400	20180	84.10
2	Cole crops	2100	237300	113.00
3	Chilli	250	1875	7.50
C	Fruit Crops			
1	Pineapple	2500	2055000	822.00
2	Banana	79	593	81.12
3	Mango	43	2067	480.69
4	Guava	72	263	36.52

Source: Comprehensive District Agriculture Plan (CDAP)

2.5. Weather data 2023(Jan –Dec)

Month	Rainfall (mm)	Temperature ^{0} C		Relative Humidity (%)	
		Maximum	**Minimum**	**700h**	**1300h**
January	0.0	23.6	5.5	92.5	35.3
February	0.0	26.2	9.7	81.7	33.4

March	36.6	27.3	12.3	76.5	37.4
April	67.8	29.5	15.8	68.8	41.5
May	77.5	30.6	19.0	71.2	46.8
June	173.2	29.4	21.6	81.5	65.8
July	256.2	31.0	23.0	83.9	63.9
August	166.0	29.4	22.8	90.0	72.9
September	150.3	30.7	22.2	86.9	66.4
October	41.7	28.7	18.8	86.0	59.6
November	63.9	26.2	13.2	87.4	52.7
December	47.3	23.0	11.0	86.2	55.1

2.6. Production and productivity of livestock, Poultry, Fisheries etc. in the district

Category	Population	Production	Productivity
Cattle			
Crossbreed	18790	526120 lt	28 lt/day
Indigenous	40927	163708 lt	4 lt/day
Buffalo	3554	11373 lt	3.2 lt/day
Sheep			
Crossbreed	333	3996 kg	12 kg/sheep
Indigenous	5964	65604 kg	11 kg/sheep
Goat	20091	160.7Mt	8 kg/ goat
Pigs			

Crossbreed	52741	4113.79 Mt	78 kg/pig
Indigenous	68027	3537.40 Mt	78 kg/pig
Rabbits	1180	3209 kg	2.72 kg/rabbit
Poultry			
Hens	159168	274.56 lakh egg	-
Desi	119376	191 lakh egg	160 egg/year/hen
Improved	39792	83.56 lakh egg	210 egg/year/hen

Note: Pl. provide the appropriate Unit against each enterprise

2.7 Details of Operational area / Villages (2023)

Sl. No.	Taluk/ Eleka	Name of the block	Name of the village	Major crops & enterprises	Major problem Identified	Identified thrust area
1	Thoubal	Thoubal	Athokpam	Rice, Mustard, Fish, Cattle, Vegetables	Selection of variety, wet sowing of rice, injudicious used of fertilizers and pesticides, straw burning, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp/Tilapia, disease problem, local/indigenous cattles, unavailibity of adequate quantity of quality fodder	Seed production, Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, composite fish culture, cross breeding, fodder cultivation
2	Thoubal	Thoubal	Charangpat	Rice,Chilli	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, Non scientific cultivation of chilli.	Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, Scientific cultivation of chilli.

3	Thoubal	Thoubal	Cherapur	Rice, Mustard, Vegetables, Poultry	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, dependence of chicks and feeds from outside the state	Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, hatchery and poultry feed manufacturing unit
4	Thoubal	Thoubal	Ingourok, Kshetrileikai, Lourembam, Wangjing	Rice, Mustard, Vegetables	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning	Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching
5	Thoubal	Thoubal	Khangabok	Rice, mustard, cattle, water reed	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, local/indigenous cattles, unavailibity of adequate quantity of fodder, nutrition & weed management of water reed	Seed production, Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, cross breeding, fodder cultivation, Scientific cultivation of water reed
6	Lilong	Lilong	Khekman, Waithou	Rice, Mustard, vegetable, Fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of management & inbreeding depression in case of common carp/Tilapia, disease problem,	Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, composite fish culture

7	Lilong	Lilong	Kiyam Siphai	Rice, fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp	Seed production, Soil test based fertilizer application, INM, IPM, composting, mulching, composite fish culture
8	Lilong	Lilong	Haokha, Wangkhem	Rice, Mustard	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation	Seed production, Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching
9	Thoubal	Thoubal	Heirok, Lourembam, Shikhong	Rice, Mustard, vegetable, cattle	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, disease problem, local/indigenous cattles, unavailability of adequate quantity of fodder	Seed production, Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, fodder cultivation
10	Thoubal	Thoubal	Lourembam, Langathel, Khongjom	Rice, Vegetable	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, disease problem	Seed production, Soil test based fertilizer application, INM, IPM
11	Lilong	Lilong	Leishangthem, Thoudam	Rice, fish, cattle, piggery	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, Selection of pig variety, lack of scientific piggery management	Seed production, Soil test based fertilizer application, INM, IPM, composting, mulching, composite fish culture, Exotic piggery, bokashi piggery, cross breeding

12	Thoubal	Thoubal	Nongpok Sekmai	Rice,mustard,field pea	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, injudicious used of fertilizers and pesticides	Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,composting, mulching
13	Lilong	Lilong	Sabaltongba, Leishangthem	Rice,mustard,fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides,straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp	Seed production,Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,composting, mulching, composite fish culture
14	Thoubal	Thoubal	Tentha	Rice, mustard,fish, cattle	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, local/indigenous cattles, unavailability of adequate quantity of fodder	Seed production,Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,composting, mulching, composite fish culture,fodder cultivation
15	Thoubal	Thoubal	Thoubal Khunou	Rice, fish piggery, poultry	Selection of variety, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, selection of pig variety, lack of scientific piggery management, dependence of chicks and feeds from outside the state	Seed production,Soil test based fertilizer application,INM,IPM, composting,mulching, composite fish culture, Exotic piggery, bokashi piggery,cross breeding

16	Thoubal	Thoubal	Ukhongsang	Rice,mustard, cattle, piggery	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, local/indigenous cattle, unavailability of adequate quantity of fodder, Selection of pig variety, lack of scientific piggery management	Seed production,Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,foddercultivation,Exotic piggery, bokashi piggery,crossbreeding, hatchery and poultry feed manufacturing unit
17	Thoubal	Thoubal	Tekcham, Sapam	Rice, fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp	Seed production,Soil test based fertilizer application,INM,IPM, composting,mulching, composite fish culture,
18	Kakching	Kakching	Kakching	Rice,mustard,fish, piggery,vegetables	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, Selection of pig variety, lack of scientific piggery management	Seed production,Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,composting, mulching, composite fish culture, Exotic piggery, bokashi piggery,cross breeding
19	Kakching	Kakching	Keirak	Rice, mustard, vegetable	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, disease problem	Seed production,Soil test based fertilizer application,INM,IPM,Zero tillage mustard cultivation,composting, mulching

20	Kakching	Kakching	Wabagai	Rice,vegetable,fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp	Seed production,Soil test based fertilizer application,INM,IPM, composting,mulching, composite fish culture
21	Kakching	Kakching	Hiyanglam, Uchiwa	Rice, fish, cattle, piggery	Selection of variety,wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, Selection of pig variety, lack of scientific piggery management	Seed production,Soil test based fertilizer application,INM,IPM,composting,mulching, composite fish culture, Exotic piggery,bokashi piggery,cross breeding
22	Kakching	Kakching	Elangkhangpokpi, Thongjao, Lamjao, Wangoo,Ireng band	Rice, fish	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp	Seed production,Soil test based fertilizer application,INM,IPM, composting,mulching, composite fish culture,
23	Kakching	Kakching	Kakching Khunou, Umathel, Tokpaching Sarik Konjin	Rice, fish, vegetables, piggery	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, increased stocking density of fishes, lack of management, inbreeding depression in case of common carp, Selection of pig variety, lack of scientific piggery management	Seed production,Soil test based fertilizer application,INM,IPM, composting,mulching, composite fish culture, Exotic piggery, bokashi piggery
24	Kakching	Kakching	Chairel, Serou,Sugnu	Rice, Mustard, Maize	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, disease problem, lack of scientific cultivation in maize, unaware of hybrid maize	Seed production,Soil test based fertilizer application,INM,IPM, Zero tillage mustard cultivation, composting,mulching, Scientific cultivation using hybrid maize

3. TECHNICAL ACHIEVEMENTS

3. A. Details of target and achievements of mandatory activities by KVK during 2023

Discipline	OFT (Technology Assessment and Refinement)				FLD (Oilseeds, Pulses, Maize, Other Crops/Enterprises)			
	Number of OFTs		Number of Farmers		Number of FLDs		Number of Farmers	
	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Agronomy	2	2	10	10	2	2	17	17
Horticulture	2	2	10	10	2	2	16	16
Fishery	2	2	10	10	2	2	14	14
Home Science	2	2	10	10	2	2	20	20
PP	2	2	10	10	2	2	20	20
PBG	2	2	10	10	2	2	20	20
PA(Agri.Ext)	1	1	10	10				
Total	**13**	**13**	**70**	**70**	12	12	107	107

Note: Target set during last Annual Zonal Workshop

Training (including sponsored, vocational and other trainings carried under Rainwater Harvesting Unit)					Extension Activities			
Number of Courses			Number of Participants		Number of activities		Number of participants	
Clientele	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement

Agronomy	-	-	-	-	-	-	-	-
Farmers	-	-	-	-	-	-	-	-
Rural youth	-	-	-	-	-	-	-	-
Extn. Functionaries	-	-	-	-	-	-	-	-
Hort	-	-	-	-	-	-	-	-
Farmers	-	-	-	-	-	-	-	-
Rural youth	-	-	-	-	-	-	-	-
Extn. Functionaries	-	-	-	-	-	-	-	-
PP	-	-	-	-	-	-	-	-
Farmers	-	-	-	-	-	-	-	-
Rural youth	-	-	-	-	-	-	-	-
Extn.Functionaries	-	-	-	-	-	-	-	-
Total								

Seed Production (ton.)		Planting material (Nos. in lakh)	
Target	Achievement	Target	Achievement
-	-	-	-

Note: Target set during last Annual Zonal Workshop

3. B. Abstract of interventions undertaken during 2023

Sl.	Thrust area	Crop/	Identified problems	Interventions

No		Enterprise		Title of OFT if any	Title of FLD if any	Title of Training if any	Title of training for extension personnel if any	Extension activities	Supply of seeds, planting materials etc.
1	Performance of Garden Pea Var. Kashi Ageti	Garden Pea Var. Kashi Ageti	Reduction and fluctuation in yield due to prolong use of locally available and lack of improved high yielding garden pea variety.	Performance of Garden Pea Var. Kashi Ageti	-	Scientific Cultivation of garden pea		Kisan Goshthi,Field visit, Farmer Scientist interaction	Seed, Fertilizer
2.	Performance evaluation of Cucumber Var.DC-83	Cucumber Var.DC-83	Lesser availability of locally suitable improved Variety	Performance evaluation of Cucumber Var.DC-83				Scientist visit	Seed, Fertilizer
3.	Assessment of bio-fortified Pearl millet Var. ABV-04	Pearl millet Var. ABV-04	Poor varietal Diversification	Assessment of bio-fortified Pearl millet Var. ABV-04	-	Cultivation practices of millet		TV Talk,Radio Talk, Scientist Visit, Method Demo	Seed, Fertilizer
4.	Performance assessment of rice varieties Var. RC Maniphou 15 & RC Maniphou 16	Rice Var. RC Maniphou 15 & RC Maniphou 16	Low yield of existing varieties	Performance assessment of rice varieties Var. RC Maniphou 15 & RC Maniphou 16	-	Scientific cultivation of rice		TV Talk,Scientist Visit, Method Demo	Seed, Fertilizer

5.	Management of stem rot disease in rice	Rice var. RC Maniphou-15	Stem rot is an emerging disease of paddy in Thoubal district	Management of stem rot disease in rice	-			Scientist visit	Pesticide
6.	Management of purple blotch in onion	Onion Var.Nashik Red	Purple blotch is a serious disease in onion reducing yield drastically	Management of purple blotch in onion	-	Training on pest & disease management on onion, Training on nursery management of onion		Scientist visit	Pesticide
7.	Periphyton based fish farming	Fish– (IMC)-Catla, Rohu, Mrigal	Low growth rate of fish in extensive culture system	Periphyton based fish farming	-	Fish health management		Scientist visit	Fingerlings,Bamboo
8.	Performance assessment of monoculture of air breathing fish (Local Climbing perch- Anabas testudineus	Fish (Local Climbing perch- Anabas testudineus	Less availability of seed as well as low fish growth in extensive culture system	Performance assessment of monoculture of air breathing fish (Local Climbing perch- Anabas testudineus)	-	Training on breeding of climbing perch		Method Demonstration, TV Talk, Resource person, Scientist visit	Fingerlings
9	Assessment on Preparation of Pomelo Jam	Pomelo Jam	Low shelf life of fresh fruit & un-utilization of pomelo fruit in value addition	Assessment on Preparation of Pomelo Jam	-	Training on value addition of fruits		Method Demonstration ,Scientist visit	Sugar
10	Assessment of multi grain millet cookies	Millet Cookies	Non availability of diversified millet value added products	Assessment of multi grain millet cookies	-	Training on Value addition of millets		Method Demonstration ,Scientist visit,TV Talk, Resource person	Butter, Millet flour

11	Weed management in kharif Blackgram Var. PU-31	Blackgram Var. PU-31	Usually, farmers manage weeds without using herbicide instead practice dense planting and hand weeding	Weed management in kharif Blackgram Var. PU-31	-	Scientific cultivation of kharif pulses		Scientist Visit	Seed, Weedicide
12	Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38	Rice var. RC Maniphou-15, Rapeseed var. TS-38	Rice field usually kept fallow and alone cannot increased the cropping intensity and economic benefit of farmers	Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38	-	Training on Rice based cropping system		Field Day,Scientist visit	Seed,Fertilizer
13.	Assessment on Knowledge, Attitude and Perception of Millets		Lack of awareness on health and nutritional aspects of the consumer and few growers/cultivars	Assessment on Knowledge, Attitude and Perception of Millets	-	-		Awareness, Group discussion	Questionnaire

3.1 Achievements on technologies assessed and refined during 2023

A.1 Abstract of the number of technologies assessed* in respect of crops/enterprises

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	TOTAL

Varietal Evaluation	2				2					4
Seed / Plant production	-	-	-	-	-	-	-	-	-	-
Weed Management			1							1
Integrated Crop Management	1									1
Integrated Nutrient Management	-	-	-	-	-	-	-	-	-	-
Integrated Farming System	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-
Drudgery reduction	-	-	-	-	-	-	-	-	-	-
Farm machineries	-	-	-	-	-	-	-	-	-	-
Value addition	1					1				2
Integrated Pest Management	1				1					2
Integrated Disease Management	-	-	-	-	-	-	-	-	-	-
Resource conservation technology	-	-	-	-	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	-	-	-	-	-	-
TOTAL	**5**		**1**		**3**	**1**				**10**

* *Any new technology, which may offer solution to a location specific problem but not tested earlier in a given micro farming situation.*

A.2. Abstract of the number of technologies refined* in respect of crops/enterprises

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	TOTAL
Varietal Evaluation	-	-	-	-	-	-	-	-	-	-

Seed / Plant production	-	-	-	-	-	-	-	-	-	-
Weed Management	-	-	-	-	-	-	-	-	-	-
Integrated Crop Management	-	-	-	-	-	-	-	-	-	-
Integrated Nutrient Management	-	-	-	-	-	-	-	-	-	-
Integrated Farming System	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-
Drudgery reduction	-	-	-	-	-	-	-	-	-	-
Farm machineries	-	-	-	-	-	-	-	-	-	-
Post Harvest Technology	-	-	-	-	-	-	-	-	-	-
Integrated Pest Management	-	-	-	-	-	-	-	-	-	-
Integrated Disease Management	-	-	-	-	-	-	-	-	-	-
Resource conservation technology	-	-	-	-	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	-	-	-	-	-	-
TOTAL										

* *Technology that is refined in collaboration with ICAR/SAU Scientists for improving its effectiveness.*

A.3. Abstract of the number of technologies assessed in respect of livestock / enterprises

Thematic areas	Cattle	Poultry	Sheep	Goat	Piggery	Rabbitery	Fisheries	TOTAL

Evaluation of Breeds	-	-	-	-	-	-	-	-
Nutrition Management	-	-	-	-	-	-	-	-
Disease of Management	-	-	-	-	-	-	-	-
Value Addition	-	-	-	-	-	-	-	-
Production and Management							2	2
TOTAL							**2**	**2**

A.4. Abstract on the number of technologies refined in respect of livestock / enterprises

Thematic areas	Cattle	Poultry	Sheep	Goat	Piggery	Rabbitery	Fisheries	TOTAL
Evaluation of Breeds	-	-	-	-	-	-	-	-
Nutrition Management	-	-	-	-	-	-	-	-
Disease of Management	-	-	-	-	-	-	-	-
Production and Management	-	-	-	-	-	-	-	-
Feed and Fodder	-	-	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	-	-	-	-
TOTAL								

A.5. Results of On Farm Testing (OFT)

<table>
<tr><th>Sl. No.</th><th>Title of OFT</th><th>Problem Diagnosed</th><th>Name of Technology Assessed</th><th>Crop/Cropping system/ Enterprise</th><th>No. of Trials</th><th>Results of Assessment/ Refined (Data on the parameter should be provided)</th><th>Feedback from the farmer</th><th>Feedback to the Researcher</th><th>B:C Ratio
(if applicable)</th></tr>
<tr><td>1</td><td>Performance of Garden Pea Var. Kashi Ageti</td><td>Reduction and fluctuation in yield due to prolong use of locally available and lack of improved high yielding garden pea variety.</td><td>Seed rate - 80kg/ha

Spacing- 30 x 10cm

Planting time – November

Seed treatment –Trichoderma Viride @ 4g/kg of seed.

Nutrient requirement: NPK: 20: 60: 40kg/ha. As basal dose.</td><td>Garden Pea Var. Kashi Ageti</td><td>5</td><td>
<table>
<tr><th>Parameters</th><th>T_1 (Kashi Ageti)</th><th>T_0 (Arkel)</th></tr>
<tr><td>Date of sowing</td><td>16-11-23</td><td>20-11-23</td></tr>
<tr><td>Temp (max & min)</td><td>26 °C &11 ° C</td><td>26°C &11° C</td></tr>
<tr><td>Days at 1st germination</td><td>4-5</td><td>4-5</td></tr>
<tr><td>Relative Humidity %</td><td>79.5</td><td>79.5</td></tr>
<tr><td>No. of branches at 30 DAP</td><td>6-7</td><td>5- 6</td></tr>
<tr><td>Plant height at maturity (cm)</td><td>57</td><td>43</td></tr>
<tr><td>Days at 1st harvesting</td><td>70</td><td>65</td></tr>
<tr><td>No. of pod picking</td><td>4-5</td><td>4-5</td></tr>
<tr><td>No. of pods/ plant</td><td>7-9</td><td>5 -7</td></tr>
<tr><td>Pod length</td><td>7.8 -9.5</td><td>5-6.5</td></tr>
</table>
</td><td>Appreciated</td><td>Recommended for 2nd year OFT</td><td>4.1</td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>(cm)</td><td></td><td></td></tr>
<tr><td>Crop duration (days)</td><td>95-100</td><td>95-100</td></tr>
<tr><td>Yield (q/ha)</td><td>67.5</td><td>58</td></tr>
<tr><td>Gross Cost</td><td>65800</td><td>65800</td></tr>
<tr><td>Gross Return</td><td>270000</td><td>232000</td></tr>
<tr><td>Net Return</td><td>204200</td><td>166200</td></tr>
<tr><td>BCR</td><td>4.1</td><td>3.5</td></tr>
</table>
</td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>Performance evaluation of Cucumber Var.DC-83</td><td>Lesser availability of locally suitable improved Variety</td><td>Seed rate - 2kg/ha

Spacing- 60 x 30 cm
Planting time – June
Seed treatment -Trichoderma viride@ 2g/kg of seed.
Nutrient requirement: NPK: 100: 60: 50kg/ha. N in 3 split doses, ½ N + full P and K as basal dose. ¼ N after two weeks of planting , ¼ N</td><td>Cucumber Var.DC-83</td><td>5</td><td>
<table>
<tr><th>Parameters</th><th>T_1 (Var DC-83)</th><th>T_0 (var Kalen thabi)</th></tr>
<tr><td>Spacing(cm)</td><td>60x30</td><td>60x20</td></tr>
<tr><td>No. of fruit/plant</td><td>8-10</td><td>10-12</td></tr>
<tr><td>Average weight of fruit(g)</td><td>260</td><td>130</td></tr>
<tr><td>Days to first female flower</td><td>20-25 DAS</td><td>20-25 DAS</td></tr>
<tr><td>Fruit morphological parameters
Length (cm)
Diameter (cm)</td><td>

16.3
6-8</td><td>

11.5
5-6</td></tr>
<tr><td>Yield(q/ha)</td><td>102</td><td>75</td></tr>
</table>
</td><td>Appreciated</td><td>Recommended for FLD</td><td>03.27</td></tr>
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<tr><td></td><td></td><td></td><td>at flowering stage.</td><td></td><td></td><td><table>
<tr><td>Cost of cultivation (Rs/ha)</td><td>110000</td><td>95000</td></tr>
<tr><td>Gross Return (Rs/ha)</td><td>360000</td><td>225000</td></tr>
<tr><td>Net Return (Rs/ha)</td><td>250000</td><td>130000</td></tr>
<tr><td>BCR</td><td>3.27</td><td>2.37</td></tr>
</table></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>Assessment of bio-fortified Pearl millet Var. ABV-04</td><td>Poor varietal Diversification</td><td>T1-ABV-04
T0 Pusa Composite -701
Seed rate : 5Kg/ha (Drilling method)
Seed treatment: Trichoderma harzianum @ 4gm/kg seed
Field Preparation: One deep ploughing with MB plough,followed by 2-3 cultivator ploughing/harrowing and planking</td><td>Pearl millet Var. ABV-04</td><td>5</td><td><table>
<tr><td>Parameter</td><td>T1 ABV-04</td><td>T0 Pusa Composite -701</td></tr>
<tr><td>Plant height (cm)</td><td>189.23</td><td>201.37</td></tr>
<tr><td>Tillers/Plant</td><td>2</td><td>2</td></tr>
<tr><td>Number of leaves per plant</td><td>9.33</td><td>9.91</td></tr>
<tr><td>Panicle length/ Plant (cm)</td><td>26.23</td><td>24.08</td></tr>
<tr><td>Days to 50 % flowering</td><td>49</td><td>46</td></tr>
<tr><td>Days to 80 % maturity</td><td>88</td><td>83</td></tr>
<tr><td>Test weight (gm)</td><td>16.23</td><td>14.27</td></tr>
<tr><td>Yield (kg/ha)</td><td>1356</td><td>1132</td></tr>
<tr><td>PDI</td><td>Smut</td><td>Smut</td></tr>
<tr><td>Cost of</td><td>35000</td><td>35000</td></tr>
</table></td><td>Appreciated</td><td></td><td>1.93</td></tr>
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<td>Fertilizer: NPK (60 : 40: 30) Kg/ha; Full P and K and ½ dose of N at the time of sowing in furrow and rest of N through top dressing at 20-25 DAS and panicle formation stage Spacing : (40x 10) cm Sowing time: Mid-June to 3rd week of July</td>
<td></td>
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<table>
<tr><td>cultivation</td><td></td><td></td></tr>
<tr><td>Gross return</td><td>67800</td><td>56600</td></tr>
<tr><td>Net return</td><td>32800</td><td>21600</td></tr>
<tr><td>B:C ratio</td><td>1.93</td><td>1.61</td></tr>
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<tr>
<td>4</td>
<td>Performance assessment of rice varieties Var. RC Maniphou 15 & RC Maniphou 16</td>
<td>Low yield of existing varieties</td>
<td>Seed rate: 60 Kg /ha Seed treatment: Carbendazim @ 4gm/kg seed Plant Geometry (Row X Plant): 20 cm X 15 cm Fertilizers recommendations: 60:40:30 Kg/ha (N:P:K); ½ N, full P & 2/3 K as basal; ¼ N at 25-30</td>
<td>Rice Var. RC Maniphou 15 & RC Maniphou 16</td>
<td>5</td>
<td>
<table>
<tr><td>Parameter</td><td>T1 RC Maniphou 15</td><td>T2 RC Maniphou 16</td><td>T3 RC Maniphou 13 (F P)</td></tr>
<tr><td>Sowing time</td><td>22/07/23</td><td>22/07/23</td><td>22/07/23</td></tr>
<tr><td>Planting time</td><td>15/08/23</td><td>15/08/23</td><td>15/08/23</td></tr>
<tr><td>Plant height (cm)</td><td>116.34</td><td>137.45</td><td>121.36</td></tr>
</table>
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<td>1.46</td>
</tr>
</table>

			DAT & ¼ N + 1/3 K at P.I stage Transplanting: 2-3 seedlings per hill Transplanting age: 21-25 DAS			No. of effective tillers /m2	204	161	172		
						Days to 80% maturity	123	130	127		
						Panicle length (cm)	20.29	22.78	19.26		
						Yield (Q/Ha)	56.40	53.23	51.12		
						Straw Yield (Q/Ha)	50.20	47.87	45.74		
						PDI (%)	Brown Spot - 15%	Smut- 5%	Blast – 3%		
						Cost of cultivation	96000	96000	96000		
						Gross return	1,41,000	1,33,075	1,27,800		
						Net return	45,000	37,075	31,800		
						BCR	1.46	1.38	1.33		

<table>
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<td>5</td>
<td>Management of stem rot disease in rice</td>
<td>Stem rot is an emerging disease of paddy in Thoubal district</td>
<td>T_1(Technology)

-Field sanitation (Summer ploughing , removal of fungal sclerotia)

-Balance application of recommended dose of fertilizer(N:P:K 60:40:30 Kg/Ha)

T_0-Spraying Propiconazole 25 % EC @2ml/lt at 10, 20 days after incidence (500-750ml/ha).</td>
<td>Rice var. RC Maniphou-15</td>
<td>5</td>
<td>
<table>
<tr><td>1. (% of infected plants)</td><td>T_1 (Technology)</td><td>T_0 (FP)</td></tr>
<tr><td>Tillering</td><td>20.98%</td><td>23.89%</td></tr>
<tr><td>Panicle initiation</td><td>21.79%</td><td>26.87%</td></tr>
<tr><td>Flowering</td><td>21.88%</td><td>18.91%</td></tr>
<tr><td>Avg.</td><td>21.55%</td><td>23.22%</td></tr>
<tr><td>Crop damage %</td><td>24.32</td><td>30.33</td></tr>
<tr><td>3. Time of disease occurrence</td><td>Mid tillering(36DAT) to grain hardening stage(110 DAT)</td><td>Mid tillering(36DAT) to grain hardening stage(110DAT)</td></tr>
<tr><td>4.. Disease incidence</td><td>27.27</td><td>36.36</td></tr>
<tr><td>5. Mean plant population</td><td>27.88</td><td>25.34</td></tr>
<tr><td>5. Average disease control %</td><td colspan="2">25%(over T0)</td></tr>
</table>
</td>
<td>Appreciated</td>
<td>Recommended for FLD</td>
<td>1.27</td>
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<table>
<tr><td>6. Net Return (Rs/ha)</td><td>25000(0.25 lakhs)</td><td>22500(0.22 lakhs)</td></tr>
<tr><td>7. Gross return(Rs/ha)</td><td>1,15,000(1.15 lakhs)</td><td>1,12,500(1.12 lakhs)</td></tr>
<tr><td>8. Yield (q/ha)</td><td>46.14(4.61 t/ha)</td><td>45.89(4.58 t/ha)</td></tr>
<tr><td>9. B:C ratio</td><td>1.27</td><td>1.25</td></tr>
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<td>6</td>
<td>Management of purple blotch in onion</td>
<td>Purple blotch is a serious disease in onion reducing yield drastically</td>
<td>T_1(Tech): Spraying of Mancozeb @ 0.25% + Propiconazole @ 0.1% thrice at 10 days intervals from 30
T_0(FP): Spraying of Tebuconazole @0.1%, (3 times spraying is done after infestation at weekly interval)</td>
<td>Onion Var.Nashik Red</td>
<td>5</td>
<td>
<table>
<tr><th>Parameters</th><th>T1 (Tech.)</th><th>T0</th></tr>
<tr><td>Disease incidence</td><td>31.65%</td><td>56.11</td></tr>
<tr><td>No of infested plants</td><td>21.44</td><td>53.65</td></tr>
<tr><td>% infestation</td><td>27.25%</td><td>63.97</td></tr>
<tr><td>Avg. disease controlled(over local)</td><td colspan="2">78.66%</td></tr>
<tr><td>Crop damage %</td><td>12.71%</td><td>71.08</td></tr>
<tr><td>Mean population(m2)</td><td>78.67</td><td>54.21</td></tr>
<tr><td>Time of disease occurrence</td><td>70DAT</td><td>50 DAT</td></tr>
<tr><td>Yield</td><td>19.88</td><td>15.70</td></tr>
</table>
</td>
<td>Appreciated</td>
<td>Recommended for 2nd year OFT</td>
<td>1.98</td>
</tr>
</table>

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<td></td>
<td>
<table>
<tr><td>Gross return(Rs)</td><td>79200</td><td>66800</td></tr>
<tr><td>B:C ratio</td><td>1.98</td><td>1.67</td></tr>
<tr><td>Date of transplanting</td><td colspan="2">2-12-2023</td></tr>
</table>
</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Periphyton based fish farming</td>
<td>Low growth rate of fish in extensive culture system</td>
<td>Technology to be Assessed
-Stocking density :8000 fingerlings/ha.
-Fish species : (IMC)- Catla, Rohu, Mrigal (30:40:30)
-Culture period: 6 months
T1:
-Feeding: RB : MOC (1:1) @ 2% bw once a day
Substrate for periphyton- Bamboo pole (Split into 4)
Spacing for bamboo pole – 3X3 ft
Spreading of bamboo poles - 1/3 of pond surface
No. of bamboo</td>
<td>Fish species – (IMC)- Catla, Rohu, Mrigal</td>
<td>5</td>
<td>
<table>
<tr><th>Parameters</th><th>Tech.</th><th>FP</th></tr>
<tr><td>i. Survival %
catla
rohu
mrigal</td><td>
87
91
89</td><td>
87
89
88</td></tr>
<tr><td>ii. Yield (Kg/ha)</td><td>3200</td><td>2560</td></tr>
<tr><td>iii. Absolute growth (g)
catla
rohu
Mrigal</td><td>
470
450
410</td><td>
400
320
300</td></tr>
<tr><td>iv. Economics

Gross cost

Gross return

BC Ratio</td><td>

281600

704000

2.5</td><td>

268000

563200

2.1</td></tr>
</table>
</td>
<td>Appreciated</td>
<td>Recommended for 2nd year OFT</td>
<td>2.5</td>
</tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>required for 0.25 ha – 180 nos.
T_0:
Feeding- RB : MOC (1:1) @ 2% bw once a day
No substrate</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>8.</td><td>Performance assessment of monoculture of air breathing fish (Local Climbing perch- Anabas testudineus)</td><td>Less availability of seed as well as low fish growth in extensive culture system</td><td>Stocking density- 8500 fry per 0.1 ha
Species – Anabas testudineus
Culture period - 4 months
T_1:
Feeding- RB : MOC (1:1) @ 3% bw twice a day
Pond Management: Monthly liming of pond @ 5-10 kg/0.1 ha (depending on water pH)
T_0:
Feeding- RB : MOC (1:1) @ 3% bw once a day.</td><td>Fish(Local Climbing perch- Anabas testudineus)</td><td>5</td><td><table><tr><th>Parameters</th><th>Tech.</th><th>FP</th></tr><tr><td>Survival %</td><td>63</td><td>55</td></tr><tr><td>Absolute growth (g)</td><td>60.6</td><td>52.5</td></tr><tr><td>Yield (Kg per 0.1ha)</td><td>356</td><td>230</td></tr><tr><td>Net return (Rs./ha)</td><td>54320</td><td>27600</td></tr></table></td><td>Appreciated</td><td>Recommended for 2nd year OFT</td><td>2.6</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>No Pond management.</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>9</td><td>Assessment on Preparation of Pomelo Jam</td><td>Low shelf life of fresh fruit & un-utilization of pomelo fruit in value addition</td><td>T_1 100% pomelo
Peel the pomelo and papaya separately Chop into small pieces& put in a saucepan with the sugar (500g), mash and then bring it to boil and add citric acid @3g per kg pulp. Continue boiling, stirring constantly & make a gellingtest, after 5 minutes pour into glass jar
T_0 50% pomelo 50% papaya
-Peel the pomelo and remove the fruit</td><td></td><td></td><td><u>Nutritional content per 100gm</u>
<table><tr><th>Parameter</th><th>Result</th></tr><tr><td>Protein</td><td>0.22 .± 0.66</td></tr><tr><td>Fat</td><td>0.09±0.07</td></tr><tr><td>Carbohydrate</td><td>65.63</td></tr><tr><td>Fibre</td><td>9.3±1.12</td></tr><tr><td>Total Ash</td><td>83.73±2.78</td></tr><tr><td>Energy(kcals)</td><td>264.15</td></tr><tr><td>Moisture</td><td>33.65+0.23</td></tr></table><table><tr><th>Parameters</th><th>T1 100% pomelo</th><th>T0 50%pomelo 50% papaya</th></tr><tr><td>Product Recovery/kg</td><td>1.2</td><td>1.6</td></tr></table></td><td>Appreciated</td><td>Recommended for repetition of OFT</td><td></td></tr>
</table>

<table>
<tr>
<td></td>
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<td></td>
<td>-Add the pomelo & sugar (500g) in saucepan and then bring it to boil. Stir frequently and add citric acid @3g per kg pulp.
-Continue boiling, stirring constantly & make a gelling test, after 5 minutes pour into glass jar</td>
<td></td>
<td></td>
<td>
<table>
<tr><td>Cost of Production</td><td>352</td><td>538</td></tr>
<tr><td>Gross Income</td><td>720</td><td>960</td></tr>
<tr><td>Net Income</td><td>368</td><td>538</td></tr>
<tr><td>BC Ratio</td><td>2</td><td>2.27</td></tr>
<tr><td>Taste</td><td>Intense tartness</td><td>Slightly tartness</td></tr>
</table>
</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Assessment of multi grain millet cookies</td>
<td>Non availability of diversified millet value added products</td>
<td>-Beat 50g butter & Sugar powder (30gm) till fluffy

-Add millet flour 100g (Ragi: Sorghum: Bajara @ 30:40:30) till soft dough

-Spread out</td>
<td>millet cookies</td>
<td>5</td>
<td>Nutritional content per 100gm
<table>
<tr><th>Parameter</th><th>Result</th></tr>
<tr><td>Protein</td><td>0.22+0.06</td></tr>
<tr><td>Fat</td><td>0.09±0.07</td></tr>
<tr><td>Carbohydrate</td><td>65.63</td></tr>
<tr><td>Fibre</td><td>0.27±0.00</td></tr>
<tr><td>Total Ash</td><td>0.15±0.01</td></tr>
<tr><td>Energy(kcals)</td><td>264.15</td></tr>
<tr><td>Moisture</td><td>33.65±0.23</td></tr>
</table>
</td>
<td></td>
<td>To be repeated</td>
<td>1.6</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td></td>
<td>dough on butter paper & roll it.

-Cut into shapes

-Bake it for 15 min at 180 degree in pre heated oven</td>
<td></td>
<td></td>
<td>Samples tested at College of Food Tech CAU, Imphal

<table>
<tr><td>Product recovery/kg:</td><td>2</td><td>Gross income</td><td>735</td></tr>
<tr><td>Shelf life (months)</td><td>3</td><td>Taste</td><td>Good</td></tr>
<tr><td>Net return (from 1 kg)</td><td>290</td><td>Colour</td><td>Brown</td></tr>
<tr><td>BC Ratio</td><td>1.6</td><td>Texture</td><td>Crispy</td></tr>
</table>
</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Weed management in kharif Blackgram Var. PU-31</td>
<td>Usually, farmers manage weeds without using herbicide instead practice dense planting and hand weeding</td>
<td>Pre-emergence application of herbicide

-T_1- Pendimethalin @ 3 litre/ha at 1 DAS + 1 HW at 20-25 DAS

T_0 – Dense planting (30 kg/ha) + 1 HW at 20-25 DAS

-Seed treatment: Trichoderma</td>
<td></td>
<td></td>
<td>
<table>
<tr><th>Parameters</th><th>T_1</th><th>T_0</th></tr>
<tr><td>Plant height(cm)

Branches /plant</td><td>47

6-8</td><td>47

6-8</td></tr>
<tr><td>Pods/plant</td><td>46-49</td><td>44-46</td></tr>
<tr><td>Seeds/plant</td><td>7-8</td><td>7-8</td></tr>
<tr><td>100 seed weight (g)</td><td>18</td><td>18</td></tr>
<tr><td>Seed yield (q/ha)</td><td>8.7</td><td>8.2</td></tr>
<tr><td>Weed population DAS</td><td></td><td></td></tr>
</table>
</td>
<td>Appreciated</td>
<td></td>
<td>1.86</td>
</tr>
</table>

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<tr>
<td></td>
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<td></td>
<td>viride @4 g/kg seed.

-Seed rate: 22.5 kg/ha; Spacing: 30x 10cm

-Sowing time: Mid Aug- mid Sept

-Fertilizer: 20:40:15 kg NPK/ha as Basal

-Land preparation: 3-4</td>
<td></td>
<td></td>
<td>
<table>
<tr><td>/sqm</td><td>10</td><td>10</td></tr>
<tr><td>16 days</td><td>22</td><td>18</td></tr>
<tr><td>30 days</td><td>20</td><td>21</td></tr>
<tr><td>45 days</td><td></td><td></td></tr>
<tr><td>Cost of cultivation (Rs/ha)</td><td>28000</td><td>27000</td></tr>
<tr><td>Gross Return (Rs/ha)</td><td>52200</td><td>49200</td></tr>
<tr><td>Net Return (Rs/ha)</td><td>24200</td><td>23200</td></tr>
<tr><td>BCR</td><td>1.86</td><td>1.82</td></tr>
</table>
</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed</td>
<td>Rice field usually kept fallow and alone cannot increased the cropping intensity and</td>
<td>-Variety : RC Maniphou-15

-Seed rate: 60kg/ha

-Sowing time: June last week

-Transplanting time : 1st</td>
<td>Rice var. RC Maniphou -15, Rapeseed var. TS-38</td>
<td>5</td>
<td>
<table>
<tr><td>Parameters</td><td>T1 (Rice)</td><td>Rape Seed</td></tr>
<tr><td>Sowing time</td><td>June 22</td><td rowspan="3">Yet to be harveste d</td></tr>
<tr><td>Planting time</td><td>July 12</td></tr>
<tr><td>Spacing (cm)</td><td>15x15</td></tr>
<tr><td>Plant height (cm)</td><td>110</td><td></td></tr>
<tr><td>No. of spikelet's/panicle</td><td>135-140</td><td></td></tr>
</table>
</td>
<td>Apprecia ted</td>
<td>-</td>
<td>1.51 for rice</td>
</tr>
</table>

	var. TS-38	economic benefit of farmers	forthnight of July -Spacing : 15x15 cm -Fertilizer dose: 80:40: 30 kg NPK/ha. -Followed by Zero tillage mustard cultivation using variety TS-38			Maturity (days)	134				
						Test weight (g)	30.42				
						Grain yield (q/ha)	58				
						Straw yield (q/ha)	52				
						Harvest Index	0.53				
						Cost of Cultivation	96000				
						Gross Income	145000				
						Net Return	49000				
						BCR	1.51				

13	Assessment on Knowledge, Attitude and Perception of Millets	Lack of awareness on health and nutritional aspects of the consumer and few growers/cultivars	**Methodology:** Stratified Purposive Sampling (Both Questionnaires and Schedule) 6 villages were selected (Chingkham, Ingourok, Khekman, Wabagai, Umathel, Kakching)			**1.Knowledge, Attitude and Perception (KAP) of Millets** ✓ 54.16% of the respondents knows millets ✓ 18.20 % respondents Knows millet as climate resilient crop and its health benefit ✓ 76.00 % of the respondents are willing to grow millets ✓ Only 12.15% of the respondents grows millets ✓ 92.15 % of the farmers wants to promote millet ✓ 86.00% of the respondents preferred Sorghum among the millets ✓ 92.00 % of the farmers faces Bird's problem in cultivating millets. **4. Technology index**: 48.00% **5. Extension gap**: 1.90 q **6. Technology gap**: 9.60 q **7. Yield**: 10.4 q **8. B:C Ratio**: 1.80	Wants to promote millet	More no. of awareness & trainings need to be conducted	1.80

**Field crops – ton/ha, * for horticultural crops -= kg/t/ha, * milk and meat – litres or kg/animal, * for mushroom and vermicompost kg/unit area.*

*** Give details of the technology assessed or refined and farmer's practice*

3.2 Achievements of Frontline Demonstrations during 2023

a. Follow-up for results of FLDs implemented during previous years

List of technologies demonstrated during previous years and popularized and recommended for large scale adoption in the district

Sl. No	Crop and Variety/Enterprise	Technology demonstrated	Horizontal spread of technology		
			No. of villages	No. of farmers	Area in ha
1	Modified SRI				
2	Mustard (Oilseed)	Popularization of Mustard Var. NRCHB 101 under Zero Tillage Condition	14	230	150
3	Rice (Seed production)	Seed production technology of Rice varieties	21	300	200
4	IFS(Paddy cum fish)	Popularization of paddy cum fish culture	5	19	9.5
5.	Osmotic Dehydration of Pineapple	Osmotic Dehydration of Pineapple	6	20	5 unit
6.	Preparation of Chow Chow Bori	Preparation of Chow Chow Bori	7	37	
7.	Seed production (Magur)	Popularization of Seed production of walking cat fish (Clarias magur) using BRICS (Barrier Removal in Catfish for Voluntary Captive Spawning) method	6	18	-
8.	Seed production of climbing perch*(Anabastestudineus*)	Seed production of climbing perch*(Anabastestudineus*)	6	30	-
9.	Chemical castration	Chemical castration of piglet	20	120	-
10.	Provision of guard rails in farrowing pen	Provision of guard rails in farrowing pen	20	120	-
11.	Feeding of Azolla in Dairy cattle	Feeding of Azolla in Dairy cattle	7	42	-

** Thematic areas as given in Table 3.1 (A1 and A2)*

b. Details of FLDs conducted during reporting period (Information is to be furnished in the following three tables for each category i.e. cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.)

Sl. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement	Farming situation (Rainfed/ Irrigated, Soil type, altitude, etc)	Status of soil (Kg/ha)		
												N	P	K
					Proposed	Actual	SC/ST	Others	Tota					
1	Lentil	Varietal evaluation	Popularization of Biofortified Lentil Var. IPL-220 (Biofortified with Zn &Fe)	Rabi,2023	2.5	2.5	1	9	10	-	Irrigated	280	14	320
2	Rice	Seed Production	Seed production of Pre kharif Rice Var. RC Maniphou-12	Kharif,2023	2.5	2.5	-	10	10	-	Rainfed	300.5	47	330
3	Tomato	Varietal evaluation	Popularization of Tomato Var. Arka Rakshak	Rabi,2023	0.5	0.5	-	8	8	-	Irrigated	310	12	290
4	French bean	Varietal evaluation	Popularization of French bean Var. Arka Arjun	Kharif,2023	0.5	0.5	2	6	8	-	Irrigated	310	12	260

5	Rice	Pests Management	Integrated Management of Blast disease in rice	Kharif,2023	1.5	1.5	3	7	10	-	Rainfed	300	47	330
6	Mustard	Pests Management	Popularization of Organic management of painted bug, aphid and sawfly in mustard without affecting bee population	Rabi,2023	0.5	0.5	3	7	10	-	Irrigated	280	14	320
7	Fish	Fish Breeding	Popularization of Seed production of walking cat fish (Clarias magur) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning) method	Kharif,2023	-	-	-	10	10	-	-	-	-	-

8	Fish	Fish Breeding	Popularization of Seed production of climbing perch***(Anabas testudineus*****)**	Kharif, 2023	-	-	-	10	10	-	-	-	-	-
9.	Guava	Value addition	Popularization of Guava Cheese	Rabi,2023	-	-	3	7	10	-	-	-	-	-
10.	Pineapple	Value Addition	Osmotic dehydration of pineapple	Kharif,2023	-	-	2	8	10	-	-	-	-	-
11.	Maize Soybean	Cropping system	Intercropping of maize with soybean	Kharif,2023	1.75	1.75	-	7	7	-	Rainfed	270	12	298
12.	Maize	Varietal Trial	Scientific cultivation of hybrid maize var. HQPM -5	Kharif,2023	2.5	2.5	2	8	10	-	Rainfed	270	12	298

c. Performance of FLD on Crops during 2023

Sl. N	Crop	Thematic area	Area (ha.)	Avg. yield (Q/ha.)	% increase in	Additional data on demo. yield (Q/ha.)	Data on parameters other than	Econ. of demo. (Rs./ha.)	Econ. of check (Rs./Ha.)

o.				Demo.	Check	Avg. yield	H*	L*	yield, e.g., disease incidence, pest incidence etc.		GC**	GR**	NR**	BCR**	GC	GR	NR	BCR
									Demo	Local								
1	Lentil Var. IPL 220	Varietal evaluation	2.5	9.06	8.02		9.13	9.00	-	-	41000	108720	67720	2.65	41000	96240	55240	2.34
2	Rice RC Maniphou-12	Seed Production	2.5	42.25	40.13	5.28	43.7	40.8	-	-	96000	2112500	1152500	2.20	96000	200650	104650	2.09
3	Tomato var. Arka Rakshak	Varietal trial	0.5	248.8	240	3.5	259	243	-	-	116000	49760 0	38160 0	4.2	116000	480000	364.00	4.1
4	French bean Var.Arka Arjun	Varietal trial	0.5	46.5	41	11.82	52	39	-	-	86500	186000	99500	2.15	88300	164000	75700	1.86
5	Rice	Pest mgmt.	2.5	539	490	10.74	58.4	51.4	Disease inci. - 25		97000	134750	37750	1.49	98000	122500	24500	1.36

									Crop damage% - 12.67 Mean of % neck blast infection - 12.51	37.5 15 14.78							
6.	Mustard	Pest mgmt	2	84.0	77.80	10.11	84.0	77.80	**Table A below			75600	40600	2.14		71000	36100	2.01
7.	Maize with soybean	Cropping system	1.75	Maize-18.30 Soyabean-6.5	Maize-24.20	LER-1.35			-	-	47000	116050	69050	2.47	38000	84700	46700	2.22
8.	Maize	Varietal trial	2.5	22.80	20.30	12.32	24.50	20.10	-	-	38000	798000	418000	2.10	34000	71500	37050	2.08

*H-Highest recorded yield, L- Lowest recorded yield ** GC- Gross Cost, GR- Gross Return, NR- Net Return, BCR- Benefit-Cost Ratio Produce Sale Price must be as per MSP or Registered Marketing Society Pl. apply the formula: Net Return= Gross Return-Gross Cost, BCR= GR/GC *Note: Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.*

*** *Table.AParameters for Sl.No.6 Mustard*

Performance parameters/ indicators	**Data on parameters in relation to technology demonstrated**

		Demo	**Local**
No. of infested plants	Aphids infested (before treatment)	49.12	41.42
	Aphids infested(After treatment)	29.16	32.13
	Painted Bug infested (before treatment)	22.11	23.47
	Painted Bug infested (After treatment)	13.11	15.58
	Sawfly infested(before treatment)	35.14	34.56
	Sawfly infested(after treatment)	16.24	17.28
% Infestation	Aphids (before treatment)	58.33 %	49.30 %
	Aphids (After treatment)	34.53%	38.25%
	Painted bug (before treatment)	26.32%	27.94%
	Painted bug (After treatment)	15.61%	18.54%
	Sawfly (before treatment)	41.83%	41.11%
	Sawfly (after treatment)	19.33%	20.57%
Pest incidence %	Aphid	71.42%	75.14%
	Painted bug	64.47%	67.67%
	Sawfly	57.44%	58.59%
Crop damage %	Aphid	14.27%	15.63%
	Painted bug	9.511%	9.93%

	Sawfly	12.92%	13.47%
Mean population (m^2)	Aphids	1200.00	1320.21
	Painted bug	80.12	84.21
	Sawfly	34.12	36.11
No.of root knot affected plants (per m^2)		NA	NA
Bee population (no. / m^2) (observation done between 8 am to 10am during sunny day at flowering)		3.1605	1.6203
Yield(q)		84.0	77.80
Economics	Gross return	Rs75600	Rs 71000
	Net return	Rs40600	Rs 36100
	B: C ratio	2.14	2.01

d. Extension and Training activities under FLD on Crops

Sl.No.	Activity	No. of activities organised	Date	Number of participants			Remarks
				Gen	SC/ST	Total	
1	Field days	2	17-02-2023 28-04-2023 6-10-2023	10	2	12	

2	Farmers Training	20	13-01-2023 13-02-2023 16-02-2023 17-02-2023 2-03-2023 13-03-2023 25-04-2023 13-07-2023 25-08-2023 30-08-2023 15-09-2023 18-09-2023 18-10-2023 7-11-2023 9-11-2023 20-11-2023 21-11-2023 14-12-2023 22-12-2023	21 13 10 19 23 13 14 30 20 15 26 15 11 17 19 18 22 15 27	0 4 8 0 0 6 8 0 5 0 0 0 1 0 0 0 0 0 0	21 17 18 19 23 19 22 30 25 15 26 15 12 17 19 18 22 15 27	
3	Media coverage Radio talk(2) TV talk(3)	 1-04-2023 25-08-2023 25-07-2023 25-07-2023 5-09-2023	-	-	-	-	-
4	Training for extension functionaries	1	23-03-2023	28	0	28	
5	Scientist visit		12-01-2023 17-02-2023 21-02-2023 20-07-2023 12-07-2023 20-07-2023 8-08-2023	2 1 3 3 9 14 2	0 2 0 1 0 0 0	2 3 3 4 9 14 2	

			7-09-2023 14-09-2023 23-09-2023 19-10-2023 16-11-2023 28-11-2023 14-12-2023 19-12-2023 21-12-2023 23-12-2023 27-12-2023	2 2 2 2 2 3 1 3 7 2 3	1 0 0 1 0 0 0 0 0 0 0	3 2 2 3 2 3 1 3 0 0 0	
	Method Demo		17-03-2023 18-07-2023 22-09-2023	9 5 11	o 0 0	9 5 11	
	Resource person		4-02-2023 24-03-2023 25-03-2023 23-08-2023 24-08-2023 25-10-2023 31-10-2023 11-12-2023 14-12-2023	 67 46	 13 0	 80 46	

e. Details of FLD on Enterprises

(i) Farm Implements

Name of the implement	Crop	No. of farmers	Area (ha)	Performance parameters / Indicators	* Data on parameter in relation to technology demonstrated		% change in the parameter	Remarks
					Demon.	Local check		

-	-	-	-	-	-	-	-	-

** Field efficiency, labour saving etc.*

(ii) Livestock Enterprises

Sl. No.	Enterprise/ Category (e.g., Dairy, Poultry etc.)	Thematic area	Name of Technology	No. of farmers	No. of units	No. of animals, poultry birds etc.	Major Performance parameters / indicators		% change in the parameter	Other parameters (if any)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)				Remarks
							Demo	Check		Demo	Check	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR	
1																				

(iii) Fisheries

Sl. No.	Category, e.g. Common carp, ornamental fish etc.	Thematic area	Name of Technology	No. of farmers	No. of units	No. of fish/ fingerlings	Major Performance parameters / indicators		% change in the parameter	Other parameters (if any)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)				Remarks
							Demo	Check		Demo	Check	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR	
1	Fish	Fish	Popul	7	7	1unit=	GR-			Hatch	Hatch	22	88	66	3.	238	776	53	3.	

	(walking catfish)	Breeding	arization of Seed production of walking catfish (Clarias magur) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning) method			10 kg of brooder	Rs.88400	GR-Rs.77670	13.81	ability%-76 Fry weight (g) at 45 days -5g Survivability %-75	ability%-38 Fry weight (g) at 45 days 5g Survivability % 79	400	400	000	94	00	70	870	26	
2	Fish (Climbing perch)	Fish Breeding	Popularization of Seed produ	7	7	1 unit=40 kg of brooder	GR-289500	GR-248400	16.54	Hatchability - 92%	94%	104000	289500	185800	2.78	85000	248400	163400	2.92	

			ction of climbing perch (Anabas testudineus)							Fry weight (g) at 30 days - 6 Survivability % -75	8 79									

** *GC- Gross Cost, GR- Gross Return, NR- Net Return, BCR- Benefit-Cost Ratio*

Note: Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.

(iv)Other enterprises

Sl. No.	Category / Enterprise, e.g., mushroom, vermicompost, apiculture etc.	Thematic area	Name of Technology	No. of farmers	No. of units	Major Performance parameters / indicators		% change in the parameter	Other parameters (if any)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)				Remarks
						Demo	Check		Demo	Check	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR	
1	Guava cheese	Value addition	Popularization of Guava chees	10	10	Product recovery/kg= 1.5 Shelf life (months)=3	No Practice	-	-	NA	355	900	520	2.3	-	-	-	-	No farmer practice

			e															
2	Pineapple	Value addition	Popularization of value added products of pineapple	10	10	Product recovery =700 g/Kg Shelf Life (months) = 6 months	Product recovery =600 g/Kg Shelf Life (months) = 4 months	16.6 %	-	-	1550	4200	2650	2.7	2050	3600	1550	1.7	2.7

*** GC- Gross Cost, GR- Gross Return, NR- Net Return, BCR- Benefit-Cost Ratio*

Note: Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.

(v) Farm Implements and Machinery

Sl. No.	Name of implement	Crop	Name of Technology demonstrated	No. of farmers	Area (In ha.)	Field observation (Output/ man-hours)		% change in the parameter	Labour reduction (Man days)	Cost reduction (Rs. per ha. or Rs. per unit etc.)	Remarks
						Demo	Check				

f. Performance of FLD on Crop Hybrids

Sl. No.	Crop	Name of hybrids	Area (ha.)	No. of farmers	Avg. yield (Q/ha.)		% increase in Avg. yield	Additional data on demo. yield (Q/ha.)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)			
					Demo.	Check		H*	L*	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**H-Highest recorded yield, L- Lowest recorded yield*

*** GC- Gross Cost, GR- Gross Return, NR- Net Return, BCR- Benefit-Cost Ratio*

Note: Economics to be worked out based on total cost of production per unit area and not on critical inputs alone.

3.3. Achievements on Training during 2023

**(Attached separate in Excel format)

Annexure 1: Details of Training Programme (On Campus including Sponsored On Campus) for Farmers, Farm Women, Rural Youth and Extension Personnel

Discipline	Area of training	Title of the training programme	Date (From – to)	Duration in days	Venue	Please specify Beneficiary group (Farmer & Farm women/ RY/ EP and NGO Personnel)	General participants			SC/ST			Grand Total		
							M	F	T	M	F	T	M	F	T
Animal Science	Piggery Management	Training on Bokashi Piggery	14-2-2023 to 16-2-2023	2 days	KVK Thoubal	Farmer and farm women	22	6	28	8	4	12	30	10	40

Animal Science	Piggery Management	Training on Bokashi Piggery	27-4-2023	1 day	KVK Thoubal	Rural Youths	36	2	38	4	-	4	40	2	42
Animal Science	Poultry, Livestock management	Training on poultry and livestock Management (Sponsored)	30-11-2023	1 day	KVK Thoubal	Rural youth	15	5	20	-	-	-	15	5	20
Agronomy	Crop production	Training program on cultivation of spring maize	13-3-2023	1 day	KVK Thoubal	Rural youth	6	12	18	1	3	4	7	15	33
Agronomy	Organic Farming	Environment Protection Programme	9-8-2023	1 day	KVK Thoubal	Extension Functionaries	30	5	35	-	-	-	30	5	35
Plant protection	Mushroom cultivation	Training program on mushroom cultivation	23-2-2023 to 24-2-2023	2 days	KVK Thoubal	Rural Youth	24	3	27	2	1	3	26	4	30
Plant protection	Integrated weed management	Safe and judicious use of glyphosate	13-11-2023 to 15-11-2023	3 days	KVK Thoubal	Rural youths	35	5	40	2	3	5	37	8	45

Plant protection	Integrated disease managemnt	Training on pests and disease management of onion	21-11-2023	1 day	KVK Thoubal	Farmers and Farm women	29	4	33	2	3	5	31	7	38
Plant protection	Resource management	Resource management on agri and allied sectors	6-7-2023 to 7-7-2023	2 days	KVK Thoubal	Extension functionaries	11	7	18	-	-	-	11	7	18
Plant Breeding and Genetics	Intellectual property rights	Training on protection of plant varieties and farmers rights act(PPVFRA)	8-2-2023	1 day	KVK Thoubal	Farmers and Farm women	32	19	51	-	-	-	32	19	51
Plant Breeding and Genetics	Crop production	Training on cultivation and importance of millets	13-4-2023	1 day	KVK Thoubal	Farmers and Farm women	6	12	18	-	-	-	6	12	18
Plant Breeding and Genetics	Crop production	Cultivation of. millets and its promotion through value added products	23-3-2024	1 day	KVK Thoubal	Extension Functionaries	26	2	28	-	-	-	26	2	28

Plant Breeding and Genetics	Crop production	Cultivation practices of. millets (Sorghum)	18-9-2023	1 day	KVK Thoubal	Farmers and Farm women	11	-	11	-	-	-	11	-	11
Plant Breeding and Genetics	Crop production	Training on the cultivation of Groundut var. Vashista	29-11-2023	1 day	KVK Thoubal	Farmers and Farm women	11	3	14	-	--	-	11	3	14
Plant Breeding and Genetics	Intellectual properties rights	Training on intellectual property right	22-11-2023 to 24-11-2023	3 days	KVK Thoubal	Extension Functionaries	15	3	18	1	2	3	16	5	21
Horticulture		Training on scientific cultivation practices of cole crops	27-07-2023	1 day	KVK Thoubal	Farmers and Farm women	22	2	24	-	-	-	22	2	24
Horticulture	Vegetable production	Training program on proudction technology of exotic vegetable crops	28-8-2023	1 day	KVK Thoubal	Farmers and Farm women	8	6	14	2	-	2	10	6	16

Horticulture	Vegetable production	Training on nursery management of Rabi vegetable crops	16-10-2023 to 18-10-2023	3 days	KVK Thoubal	Extension Functionaries	18	3	21	-	-	-	18	3	21
Horticulture	Vegetable production	Training on scientific cultivation of garden pea	7-11-2023	1 day	KVK Thoubal	Farmers and Farm women	16	2	18	-	--	-	16	2	18
Horticulture	Vegetable production	Training on nursery management of onion	21-11-2023	1 day	KVK Thoubal	Farmers and Farm women	18	-	18	1	-	1	19	-	19
Fisheries	Fish breeding	Training on seed production of Climbing perch	2-3-2023	1 day	KVK Thoubal	Farmers and Farm women	16	-	16	-	--		16	-	16
Fisheries	Fish breeding , feed management	Training on fish breeding and scientific feed management	25-4-2023 to 26-4-2023	2 days	KVK Thoubal	Extension Functionaries	30	-	30	5	-	5	35		35

Home Science	Value addition	Promotion of value added products of millets	23-3-2024	1 day	KVK Thoubal	Extension Functionaries	26	2	28	-	-	-	26	2	28
Home Science	Value addition	Training program on soybean prouction, protection an processing technologies	22-12-2023	1 day	KVK Thoubal	Farmers and Farm women	15	12	27	--	-	-	15	12	27
Home Science	Value addition	Training program on value addition of mesta	22-11-2023 to 24-11-2023	3 days	KVK Thoubal	Extension functionaries	22	2	24	-	-	-	22	2	24
Soil science	Nutrient Management	Importance of micro and secondary nutrients in crop production	20-9-2023	1 day	KVK Thoubal	Farmers and Farm women	11	4	15	-	--	-	11	4	15
Agricultural extension	Mobilization	Group discussion with FPO members	6-12-2023	1 day	KVK Thoubal	Farmers	10	2	12	--	-	--	10	2	12

Agricultural extension	Mobilization	Group discussion with FPO members and DDM NABARD	7-12-2023	1 day	KVK Thoubal	Farmers	10	3	15	--	-	--	10	3	15
ICT	ICT	Application of KVK mobile app and Kishan sharathi	27-4-2023	1 day	KVK Thoubal	Rural youth	36	2	38	2	2	4	38	4	42

Annexure 2: Details of Training Programme (Off Campus including Sponsored Off Campus) for Farmers, Farm Women, Rural Youth and Extension Personnel

Discipline	Area of training	Title of the training programme	Date (From – to)	Duration in days	Venue	Please specify Beneficiary group (Farmer & Farm women/ RY/ EP and NGO Personnel)	General participants			SC/ST			Grand Total		
							M	F	T	M	F	T	M	F	T
Animal science	Piggery farming	Training low cost Bokashi housing system of pigs	21-3-2023	1 day	COA, CAU Imphal	Farm and farm women	19	1	20	2	3	5	21	4	25

		suitable for Manipur														
Agronomy	Natural and organic farming	Training program on natural and organic farming	9-1-23	1 day	Co-opertative office Thoual	Farm and farm women	26	7	33	2	3	5	28	10	38
Agronomy	Cropping system	Training program on rice based cropping system	13-7-2023	1 day	Lamding	Rural youth	9	11	20	1	3	4	10	14	24
Agronomy	Rural Development	Training on rural development	2-10-2023	1 day	DC Complex Thoubal	Rural youth	18	-	18	1	-	1	19	-	19
Plant protection	Integrated pests Management	Training on integrated pests management of horticultural crops	18-1-2023	1 day	Leishangthem	Farmers and farm women	15	5	20	-	-	-	15	5	20
Plant protection	Integrated pests management	Training on IPM strategies for borers and hoppers in rice	30-8-2023	1 day	Lamding	Farmers and farm women	14	12	26	-	-	-	14	12	26

Plant Protection	Integrated disease mang ement	Training on management of blast in rice	18-10-2023	1 day	Kiyam Siphai	Practising farmers	24	6	30	2	3	5	26	9	35
Plant Protection	Vermi comp osting	Training on improve technique technique of vermicomp osting	31-10-2023	1 day	Salungpham	Rural youth	16	2	18	-	-	-	16	2	18
Plant Protection	Apiculture	Training on importance of bee in crop production	23-12-2023	1 day	Thoubal	Extension functionaries	2	5	7	8	3	11	10	8	18
Plant Breeding and genetics	Crop production	Training on cultivation and importance of millets	13-2-2023	1 day	Heirok	Farmers and farm women	11	3	14	-	--	-	11	3	14
Plant Breeding and Genetics	Crop production	Cultivation of. millets and its promotion through value added products	24-3-2024	1 day	DC Complex Thoubal	Extension Functionaries	26	2	28	-	-	-	26	2	28

Plant Breeding and Genetics	Crop production	Cultivation of. millets and its promotion through value added products	25-3-2024	1 day	Lilong	Extension Functionaries	46	-	-	-	-	-	46	-	46
Plant Breeding and Genetics	Crop Production (MG MG)	awareness on Millet cultivation	28-7-2023	1 day	Ukhongshang	Rural Youths	2	14	16	-	-	-	2	14	16
Plant Breeding and Genetics	Crop prduction	Training on cultivation of lentil	9-11-2023	1 day	Ukhongsang	Farmers and farm women	14	4	18	-	--	-	14	4	18
Plant Breeding and Genetics	Crop prduction	Training on the production of millets	11-12-2023	1 day	CAU, Imphal	Farmers and farm women	26	2	28	-	-	-	26	2	28
Fisheries	Pond Management	Training on scientific pond preparation and management	13-1-2023	1 day	Kakching Khunou	Farmers and farm women	8	8	16	-	-	-	8	8	16
Fisheries	Fish breedi	Training on seed	5-10-	1 day	Porompat	Farmers and farm women	26	2	28	-	-	-	26	2	28

	ng	production of climbing perch	2023													
Fisheries	Pond Management	Training on scientific pond preparation and management	2-2-2023	1 day	Thongjao	Farmers and farm women	6	9	15	-	-	-	6	9	15
Fisheries	Pond management	Training on water quality management	5-9-2023	1 day	Kakching	Farmers and farm women	11	1	12	-	--		11	1	12
Fisheries	Pond management	Training on water quality management	25-10-2023	1 day	DC Complex Thoubal	Farmers and farm women	14	4	18	-	--	-	14	4	18
Fisheries	Fish Health Management	Training on fish health management	14-2-2023	1 day	Sapam	Farmers and farm women	3	12	15	--	-	-	3	12	15
Home Science	Value addition	Training on preparation of value added products of	13-1-2023	1 day	Pangaltabi	farm women	-	-	-	-	15	15	-	15	15

		millets														
Home Science	Value addition	Training on value addition of millets	16-2-2023	1 day	Tentha	Farmers and Farm women	24	31	55	-	-	-	24	31	55
Home Science	Value addition	Training on value addition of millets	17-2-2023	1 day	Kakching	Farmers and Farm women	27	7	34	4	-	4	31	7	38
Home Science	Value addition	Promotion of value added products of millets	24-3-2024	1 day	DC Complex Thoubal	Farmers	5	75	80	-	-	-	5	75	80
Home Science	Value addition	Promotion of value added products of millets	25-3-2024	1 day	Lilong	Extension personnel	0	46	46	-	-	-	0	46	46
Home Science	Value addition	Training program on preparation of value added products of millets	25-8-2023	1 day	Kuraopokpki	Farmers and Farm women	16	4	20	3	7	10	19	11	30
Home Science	Value addition	Training on candle making and liquid dish	10-10-2023	1 day	23 Sector Assam Rifles	Farmers and farm women	0	36	36	-	--	-	-	36	36

		wsher														
Home Science	Value addition	Training on production and processing technologies of millets	11-12-2023	1 day	Khabam	Farmers and farm women	21	9	30	3	7	10	24	16	40
Home Science	Value addition	Training on preparation of protein based food from maize	14-12-2023	1 day	Sapam	Farmers and farm women	2	14	16	-	-	-	2	14	16
Home Science	Value addition	Training on STRY by ATMA Thoubal	14-12-2023	1 day	Tentha	Farmers and farm women	27	7	34	4	-	4	31	7	38
Soil Science	Nutrient Management	Training cum demonstration on soil collection	6-1-2023	1 day	Tentha	Farmers and farm women	26	11	37	-	-	-	26	11	37
Soil Science	Nutrient Management	Training cum demonstration on soil collection	2-2-2023	1 day	Thongjao	Farmers and farm women	7	9	16	-	-	-	7	9	16
Soil science	Nutrient Manageme	Importance of micro and secondary	9-2-2023	1 day	Athokpam	Rural Youths	23	7	30	-	-	-	23	7	30

	nt	nutrients in crop production														
Soil science	Nutrient Management	Training cum demonstration on soil collection	23-9-2023	1 day	Khangabok	Farmers and farm women	2	14	16	-	-	-	2	14	16
Agricultural extension	Caapcity building	Awareness program for Khana Chaoba Farmers Producer Company	13-1-2023	1 day	Wangjing Khunou	Farmers	7	22	29	10	-	10	29	10	39
Agricultural extension	Caapcity building	Training program on formation ofSHG user group and FPOs	23-10-2023 to 24-10-2023	2 days	Langmeidong	Extension functionaries	7		7	28	9	37	35	9	44
Agricultural extension	Caapcity building	Training on formation of SHG , user groups, FPos	24-10-2023	1 day	Serou	Farmers	-	-	-	5	23	28	5	23	28
Agricultural extension	Caapcity buildi	Training on formation of SHG , user	25-10-2023	1 day	Wangoo	Farmers	-	-	-	10	25	35	10	25	35

	ng	groups, FPos														
Agricultural extension	Caapcity buildi ng	Training on entrepreneyrship skill developme nt	21-2-2023	1 day	Heirok pt-2	Rural Youths	10	4	14	-	-	--	10	4	14
Agricultural extension	Mobilizatio n	Sensitizatio n cum awareness programme on Kaoren Phaba Farmer Poducer Company	27-2-2023	1 day	Khangabok	Farmers	13	4	27	-	-	--	13	4	27
Agricultural extension	Mobilizatio n	Formation and promotion of FPOs	25-3-2023	1 day	Laiphrakpam	Farmers	7	15	22	-	-	--	7	15	22
Agricultural extension	Mobilizatio n	Formation of FPOs/SHG/ FIGs	18-4-2023	1 day	Uchiwa	Farmers	10	4	14	-	-	--	10	4	14
Agricultural extension	Mobilizatio n	Formation of FPOs/SHG/ FIGs	17-4-2023	1 day	Babu bazar	Farmers	18	8	24	-	-	--	18	8	24
Agricultural	Mobilizatio	Entreprenurship skil	18-4-	1 day	Babu bazar	Rural Youths	12	6	18	--	-		12	6	18

extension	n	developme nt	2023													
ICT	Capac ity buildi ng	Training program on information and communica tion technology	21-2-2023	1 day	Heirok pt-2	Rural Youths	10	4	14	-	-	--	10	4	14	

(D) Vocational training programmes for Rural Youth

Crop / Enterprise	Date (From – To)	Durat ion (days	Area of training	Training title*	No. of Participants			Impact of training in terms of Self employment after training	Whether Sponsored by external funding agencies (Please Specify with amount of fund in Rs.)
					General	SC/ST	Total		

					M	F	T	M	F	T	M	F	T	Type of enterprise ventured into	Number of units	Number of persons employed	Avg. Annual income in Rs. generated through the enterprise	
Mushroom	14-5-2023 to 20-6-2023	6 days	Wangjing	Skill development training on " Cultivation of mushroom)	20	5	25	8	7	15	28	15	43	Mushroom grower	43 units	43	Rs 60, ,000/per unit/year	DC , Thoubal District
Candle Making	14-5-2023 to 20-6-2023	6 days	Wangjing	Skill development training on " candle making	20	5	25	5	10	15	30	15	45	Candle making	9 unit	45	Rs 41250/unit/year	DC , Thoubal District
Value addition	17-7-2023 to 23-7-2023	6 days	KVK Thoubal	Training program on value addition of fruits and vegetables	5	20	25	-	-		5	20	25	Value addition of fruits and vegetables	5 units	15	Rs 1,53,424	-

Nutrient Management	18-9-2023 to 9-10-2023	15 days	KVK Thoubal	Integrated Nutrient Management of Fertilizers dealer	17	8	25	3	2	5	20	10	32	-	-	-	-	-
Value addition	9-10-2023 to 15-10-2023	6 days	KVK Thoubal	Training on prepartion of Chow chow Bori	1	36	36	1	-	1	1	36	37	Value addition	3	10	Rs 1,11,000/ per unit/year	-

*training title should specify the major technology /skill transferred

Annexure 3: Only Sponsored Training Programmes (On, Off and Vocational)

On/ Off/ Vocational	Beneficiary group (F/ FW/ RY/ EP)	Date (From-To)	Duration (days)	Discipline	Area of training	Title	No. of Participants									Sponsoring Agency	Amount of fund received (Rs.)
							General			SC/ST			Total				
							M	F	T	M	F	T	M	F	T		

On	Farmers and farm women	25-4-2023 to 26-4-2023	2 days	Fisheries	KVK Thoubal	Training on fish breeding and scientific feed management	14	7	21	1	-	1	15	7	22	Amardhan Speciality Feeds Ltd, Delhi	
Off	Farmers and farm women	9-8-2023	1 day	Agronomy	NCUI, Thoubal	Environment protection programme	30	5	35				30	5	35	NCUI, New Delhi, Thoubal Branch	
On	Farmers and farm women	30-11-2023	1 day	Animal Science	KVK Thoubal	Training on poultry and livestock Management	15	5	20	5	5-	10	20	10	30	Univision, Guwahati	
On	Farmers and farm women	22-12-2023	1 days	Home Science	KVK Thoubal	Training program on soybean production, protection, processing technologies	15	12	27	3	5	8	18	17	35	CAU, Imphal	
On	Rural Youth	20-3-2024 to 22-3-2024	3 days	Plant Protection	KVK Thoubal	RPL on mushroom growers(entrepreneur)	5	18	23	9	8	17	14	26	40	KVK Thoubal	

ON	Farmers and Farm Women	18-3-2024 to 22-3-2024	5 days	Fisheries	KVK Thoubal	Training on Integrated Fish Culture and fish Health management	2	3	5	8	12	20	10	15	25	ICAR_CIFE, Mumbai	
On	Rural Youths	13-11-2023 to 15-11-2023	3 days	Plant Protection	KVK Thoubal	Training on safe and judicious use of glyphosate	10	12	22	8	10	18	18	22	40	NIPHM, Hyderabad	
On	Farmer and Farm Women		1 day	Plant Breeding and Genetics	KVK Thoubal	Protection of plant varieties and Farmers Right Act	2	10	12	8	2	10	10	12	22	PPVFRA	
On	Farmer and farm women		1 day	Plant Breeding and Genetics	KVK Thoubal	Cultivation practices of Rabi groundnut var Vasishta(TCGS 1694)	5	15	20	3	3	6	9	17	26	DGR, Junagadh	

On	Farmer		1 day	Agril. Extension	KVK Thoubal	Financial, Management of FPOs, Business Plan Preparation	20	50	70	25	40	65	45	90	135	NABARD	

3.4.Extension Activities (including activities of FLD programmes) (Please mention specific Extension Activity conducted by the KVK such as Field Day, Kisan Mela, Exhibition, Diagnostic Visit, etc) during 2023

Sl. No.	Extension Activity	Topic	Date and duration	No. of activities	Participants											
					General (1)			SC/ST (2)			Extension Officials (3)			Grand Total (1+2)		
					M	F	T	M	F	T	M	F	T	M	F	T
1.	Diagnostic Visit		During Jan-Dec,2023	36	27	7	34	14	5	19				41	12	53
2.	Farmer visit to KVK	Crop,Livestock, Weather, Marketing and other enterprises	During Jan-Dec,2023		1610	219	1829	289	64	353				1899	283	2182
3.	Scientist visit to	Vaccination of		54	106	30	136	57	13	70				163	43	206

	Farmers Field	Cattle, Dogs and Pig														
4.	Exposure visit	Wabagai		2	**43**	**7**	**50**	10	0	10				53	17	60
5.	Group meetings/Discussion			10	109	20	129	76	13	89				185	33	218
6.	Field Day	Field day for CFLD FD for Pulses crop Field Day (millet)	**17-02-2023** **28-04-2023** **6-10-2023**	3	53	14	67	4	0	4				57	14	71
7.	Method demo.	1.Demonstration on Super Seeder 2.Value addition of sorghum 3.Breeding of fish 4.Maintaining space for planting of cabbage 5.Candle making 6.Nano urea application using drone 7.Candle & Liquid diswashing	11-01-2023 17-03-2023 18-07-2023 21-08-2023 13-09-2023 22-09-2023 10-10-2023	7	62	19	81	44	17	61				106	36	142
8.	Kishan Ghosti		22-09-2023		-	-	-	-	-	-	-	-	-	-	-	-
9.	Training/practical manual	1.15 Days Certificate		3	-	-	-	-	-	-	-	-	-	-	-	-

		Course for Prospective Fertilizer Dealers on Integrated Nutrient Management 2. 5 Days Collaborative training programme under NEH Scheme with ICAR-CIFE Mumbai 3. 3 Days Collaborative training programme under NEH Scheme with ICAR-CIFE Mumbai														
10.	Celebration of Important days	1.Republic Day 2. International Millet Conferecce 3. 100th Episode of Maan Ki Baat 4. World Enviroment Day 5. 95th ICAR Foundation Day 6. Independence	26-01-2023 **18-3-23** 30-4-2023 5-06-2023 16-7-2023	9	77	16	93	30	13	33	5	1	6	112	30	142

		Day 7. PM Kisan Saman Samelan 8. 2nd October 9. World Soil Day	15-08-2023 15-11-2023 2-10-2023 5-12-2023													
11.	Animal health camp	Vaccination of Dogs & cattles	29-08-2023	1	44	10	54							44	10	54
12.	Film show		30-04-2023 15-11-2023	2	61	27	88	25	12	37				86	39	125
13.	Newspaper coverage	i.Promotion of millet campaign ii.Environment protection program iii.Activities at Relief camp iv.World Soil Day,2023	4-02-2023 (Poknapham news) 10-08-2023 (Eechel news) 29-06-2023(Sangai Express) 29-06-2023(Hueiyen Lanpao) 13-07-2023(N.E.Live) 6-12-2023 TOM TV Khonthang News	11	-	-	-	-	-	-	-	-	-	-	-	-

			ISTV Poknapham Sangai Express Naharolgi Thoudang													
14.	Radio Talk	i)Talk on millet ii)FPO iii)Talk on millet iv)Management of Rabi Vegetable crops	1-04-2023 17-08-2023 25-08-2023 30-12-2023	4	-	-	-	-	-	-	-	-	-	-	-	-
15	TV Talk	**i**)Successful Bokashi Piggery & Seed Production of Climbing Perch ii) Osmotic Dehydration of PineApple and Scientific Cultivation of Cauliflower iii) Agriculture Programme Contingency	10/08/2023 11/09/2023 30/08/2023	8	-	-	-	-	-	-	-	-	-	-	-	-

		Planning of Rice in Drought Like Situation& Mechanical Rice Transplantor iv) Cultivation of Millets and its value addition,	12/10/2023													
16	Leaflet/ Folder		8	-	-	-	-	-	-	-	-	-	-	-	-	-
17.	Popular articles		48	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Advisory services		1785		4218	1883	6101	1983	887	2870	-	-	-	6201	2770	8971
19	Awareness camp		13-01-2023 17-02-2023 27-02-2023 31-03-2023 25-09-2023 7-11-2023 9-11-2023	7	126	43	169	10	19	29	-	-	-	136	62	192
20	Kisan Mela		5-12-23		142	40	190	21	9	30	5	3	8	168	52	220
21	Mahila Mandal Conveners meeting		1		-	19	19	-	9	9				-	28	28
22	Lectured Delivered		29													

23	Plant Health Camp		29-08-2023	1	44	10	54							44	10	54

3.5 Production and supply of Technological products during 2023

A. SEED MATERIALS

Major group/class	Crop wise	Variety	Quantity (qt)	Value (Rs.)	Number of recipient/ beneficiaries				
					General		SC/ST		Grand Total
					M	F	M	F	
Cereal	Rice (Farm produced)	Akut phou	1.60	8000	6	4	-	-	10
		Gin phou	1.6	8000	6	-	3	1	10
		CAU-R-1	44	220000	120	110	40	23	293
		Sana phou	1	5000	6	-	-	-	6
		RC Maniphou-13	4.4	22000	10	8	6	5	29
		RC Maniphou-7	7.2	36000	18	15	10	5	48
		RC maniphou-12	3.6	18000	10	8	6	-	24
		Pari phou	4	20000	3	-	-	-	3
		Chakhao	0.4	2000	2	-	-	-	2
		Basmati	2.4	12000	-	-	-	-	-
		WR 15-6-1	2	10000	-	-	-	-	-
		Cachar land races	0.4	2000	-	-	-	-	-

		RC Maniphou-15	5.6	28000	15	10	7	5	37
		RC Maniphou-16	6	30000	20	10	5	5	40
	Participatory seed production	CAUR-1	5.5	27500	15	10	6	5	36
		RC Maniphou-15	7.23	36150	20	15	7	6	48
		RC Maniphou-16	5.23	26150	20	10	5	-	35
	Wheat	HPW 360	0.9	8100	3	-	1	-	4
Oilseed	Mustard	NRCHB-101	180	900000	300	200	70	30	600
Pulse	Chickpea	GNG-207	32	224000	20	10	8	7	45
	Lentil	IPL-316	40	240000	50	20	6	4	80
		IPL-220	0.30	3600	2	-	-	-	2
	Field pea	PU--31	27	189000	50	20	15	5	90
Millet	Finger millet	VL-376	0.15	750	-	-	1	-	1
		VL-379	0.18	900	-	-	1	1	2
		VL-380	0.16	800	1	-	-	-	1
	Pearl millet	PC-701	0.1	500	1	1	-	-	2
		ABV-04	0.14	700	-	-	1	-	1
	Sorghum	CSV-27	0.19	950	-	-	1	-	1

A1. SUMMARY of Production and supply of Seed Materials during 2023

Sl. No.	Major group/class	Quantity (q) produced	Quantity (q) supplied	Value (Rs.) of quantity produced	Number of recipient/ beneficiaries				
					General		SC/ST		Grand Total
1	Cereal	103.06	98.26	518900	274	200	96	55	625
2	Oilseed	180	180	900000	300	200	70	30	600
3	Pulses	99.3	99.3	656600	122	50	99	16	217
4	Millet	0.92	0.92	4600	2	1	4	1	8
TOTAL		**383.28**	**378.48**	**2080100**	**698**	**451**	**269**	**102**	**1450**

B. Production and supply of Planting Materials (Nos. in No.) during 2023

Major group/class	Crop	Variety	Quantity (In No.) produced	Quantity (In No.) supplied	Value (Rs.) of quantity produced	Number of recipient/ beneficiaries				
						General		SC/ST		Grand Total
						M	F	M	F	
Spices	Onion	Bhima shakti	3500	3500	1166	4	2	-	-	6
		Bhima kiran	5800	5800	1740	5	2	1	-	8
	Chilli	CH-26	1000	800	1500	7	4	1	1	13
Vegetable	Cabbage	Rare ball	6500	4000	6500	5	2	1	1	9
		Various plus	1500	1000	1500	6	3	2	-	11

	Cauliflower	NS-101	340	340	680	4	2	-	-	6
		White treasure	1200	1000	2400	4	4	-	2	10
	Broccoli	Green magic	2000	1700	5250	3	2	-	-	5
	Tomato	Arka rakshak	10100	9000	20200	1	5	1	-	18
		Arka Abhed	1500	1200	3000	3	2	-	1	6
	Brinjal	Indian black star	1147	1000	2294	5	3	2	-	10
	Watermelon	Arka shyama	1500	1500	12800	10	4	0	1	15
	Muskmelon	Arka siri	500	300	3000	2	2	1	-	5
	Pumpkin	Arka suryamukhi	1300	1000	10400	4	3	2	1	10

C. Production of Bio-Products during 2023

Major group/class	Product Name	Species	produced Quantity		Value (Rs.)	Number of Recipient /beneficiaries				
			No	(Kg)		General		SC/ST		Grand Total
						M	F	M	F	
BIOAGENTS										
BIOFERTILIZERS	Vermicompost	*E-fetidae*	7000	560	8400	33	2	9	3	47
BIO PESTICIDES										

1										

D. Production of livestock during 2023

Sl. No.	Type/ category of livestock	Breed	Quantity		Value (Rs.)	Number of Recipient beneficiaries				
			(Nos)	Kgs		General		SC/ST		Total
						M	F	M	F	
1	Cow	Local + Shahiwal	9	-						
2	Pig	Crossbreed	13	-		2				2
3	Goat	Local non descript	9	-		1	-	-	-	1
4	Muscovie duck	-do-	12	-		-	-	-	-	-
5	Goose & Geese		4	-						
6	Fish	IMC,ExoticCarp & Magur	7700	-	58,095	20	-	-	-	20

3.6. Literature Developed/Published (with full title, author & reference) during 2023

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.): Issue V (January – December 2022)

(B) Articles/ Literature developed/published

Item	Title /and Name of Journal	Authors name	Number of copies	
			Produced/ published	Supplied/ distributed

1. Research paper	Nanotechnology and its role in plant pathology published in The Pharma Innovation Journal 2023,12/(12):37-49 (Annexure-IV)	Longjam Boris Singh,Dr.S.Zeshmarani,Chuwang Hijam,MK Maqbool Qutub,Yanglem Herojit Singh,S.Prabin and Oinam Washington Singh	-	-
2. Technical bulletin	Value added products of millet (Annexure-III)	RK Lembisana Devi	-	-
3. Leaflet	1..Packaged & Practices of groundnut 2.Vegetative propagation techniues of fruit crops 3.Scientific cultivation of finger millets 4.Pest of rice and its control measures 5.Management of paddy straw 6.Breeding and Rearing of climbing perch 7.Scientific cultivation of groundnut 8.KVK Mobile App (Annexure-II)	N.Tomba Singh Dr.Kh.Premlata Devi Dr Chuwang Hijam Longjam Boris Singh Dr W Jiten Singh Sribidya Waikhom N.Tomba Singh L.Babita Devi	-	-
Popular articles	• Livestock	Dr.S.Zeshmarani, Sr.Scientist & Head	Every Monday on local newspaper HueiyenLanpao	

	• Agriculture	Dr.W.Jiten Singh(Farm Manager)	http://hueiyenlanpao.com/	
Training Manual	1.15 Days Certificate Course for Prospective Fertilizer Dealers on Integrated Nutrient Management 2. 5 Days Collaborative training programme under NEH Scheme with ICAR-CIFE Mumbai 3. 3 Days Collaborative training programme under NEH Scheme with ICAR-CIFE Mumbai (Annexure V)	N. Tomba Singh, Dr. Kh. Premlata Devi, Dr.Chuwang Hijam, Dr. W. Jiten Singh, Salam Prabin Singh, Longjam Boris Singh Sribidya Waikhom,Dr M.A Salam, Dr.Soibam Khogen Singh, Dr N Soranganba, Tensubam Wanglemba, Wangkheirakpam Romen	-	-

N.B. Please enclose a copy of each. In case of literature prepared in local language, please indicate the title in English

(C) Details of Electronic Media Produced

S. No.	Type of media (CD / VCD / DVD / Audio-Cassette)	Title of the programme	Number produced
1.			

3.7 Success stories/Case studies, if any (two or three pages write-up on each case with suitable action photographs)

Sl. No.	Success Story	Name of the successful farmer
A.	Enhancing Net Returns Of Rice Seed Production Through Sri Method	Akoijam Deben Singh
B.	Mushroom Cultivation: A Stable And Profitable Enterprise For Ensuring Livelihood Security	Shamandram Tatu Singh
C.	Success in Organic Farming through Skill Training	L. Bisheshore Singh
D.	Venturing towards Sorghum (Millet) cultivation in uncultivable land for enhancing farm income	Ningthoukhongjam Sanamacha Devi
E.	Seed Production of Climbing perch - a low cost farmer friendly breeding technique	Maibam Shanti Singh

A. ENHANCHING NET RETURNS OF RICE SEED PRODUCTION THROUGH SRI METHOD

Profile of Farmer :

- Name: Akoijam Deben Singh,
- Village: Thoubal Wangmataba,
- Block: Thoubal Block,

- District: Thoubal district 795148- Manipur
- Enterprise: Rice seed production
- Name of the Center: KVK, Thoubal Manipur

Background information:

Shri Akoijam Deben Singh from Thoubal Wangmataba, Thoubal district Manipur is an enthusiastic farmer of rice who used to cultivate with his limited resources and less knowledge of scientific agriculture. The result was not at all satisfactory to him in terms of yield and monetary return. Thereafter to increase yield and monetary return from his endeavor he started application of SRI (System of rice seed production) in participatory rice seed production of improved variety CAU R1 (Tamphaphou) in his 1 ha field through intervention by KVK, Thoubal since 2017 which help in production of quality seed.

Process Intervention:

One of the significant enterprise of Shri AK. Deben Singh is Rice Seed Production through System of Rice Intensification (SRI). SRI have many advantages such as use of less quantity of seed and produce very high quantity of quality seed. In short seed multiplication is increased tremendously.

The technology of seed production of CAU R1 through SRI are

- Seed rate: 8 kg/Ha (Transplanted) with numbers of plant/hill: 1,
- Days of transplanting: 8 to 10 DAS,
- Seed Treatment: Carbendezim @ 4gm/kg of seed,
- Spacing: (25 X 25) cm,

- Isolation distance: 3meter,
- Rouging of off types: 3 times and fertilizer dose and time of application: NPK @ 60:40:30 kg/ha, half N, full P and 2/3 K as basal, ¼ N at 25-35 DAT and ¼ N + 1/3 K at panicle initiation stage.

Effect of Technology/ Process:

SRI has a significant impact on the productivity of rice var. CAUR1, resulted in increase of yield of 40 % compared to conventional practices. SRI practices reduced the amount of inputs farmers needed to use in order to achieve beneficial results due to fewer seeds, pesticides, fertilisers and 20-45% less water than conventional rice farming methods. SRI practices also help to improve and restore soil health.

Before intervention:

Enterprises	**Area (Ha)**	**Production (Kg)**	**Productivity**	**Gross Income (Rs.)**	**Net Income (Rs.)**	**BCR**
Rice Var. CAU R1	1	3000	3tons/ha	1,05,000	18,000	1.2

After intervention:

Sl. No.	**Crop (Rice Var. CAU R1)**	**Qnty. Produce**	**Productivity**	**Gross Income (Rs)**	**Net Income (Rs)**	**BCR**
1.	Rice (1 Ha)	4200 kg	4.2 tons/ha	1,47,000	67,000	1.83

Suitability and adaptability in the existing farmer system:

The major advantage for lesser seed rate with greater spacing gives the farmer low input cost and low operational cost especially for weeding using conoweeder instead of manual weeding and weedicides. Since single plant/hill is planted in the SRI system favours in easy roughing of the off types plant in the seed production field. The lesser nursery area in the SRI system gives opportunity in timely sowing and field management of the main field.

Acceptance of Technology/ Process in terms of views of the Farmer:

SRI system of rice transplantation gives higher yield, lesser cost of production and lesser water requirement. It makes agronomic practices easy to the farmers with good quality seeds. The cost benefit ratio also increases by selling as seeds instead of grain.

Horizontal Spread of the Technology:

The use of SRI system in seed production of rice has been increased tremendously. The participatory seed production farmers especially in the Thoubal district took keen interest in adopting the technology after seeing the field of Shri Akoijam Deben Singh. Having seen the profit earned by the fellow farmers the neighbouring farmers have shown keen interest of taking up the activity. The activity of seed production using SRI methodology has helped in increasing the seed replacement rate of rice in the state. More than 30 farmers have followed his step and shared his knowledge to 15 farmers Club of different village in KVK district. He also talk to fellow farmers about the benefit of the SRI system and become a role model for the fellow farmers.

Substitution or replacement of commodities:

Nearly 1/4th of the traditional method sowing for rice seed production is replacing by SRI method as it favors cost effective and produce good quality seed of rice var. CAUR1 in the Thoubal district. KVK, Thoubal is also conducting awareness, training program and method demonstration on SRI to increase adoption of the technology.

Socio Economic Impact:

The adoption of SRI method and sale of rice as seed has increase farm income of 49,000 per ha comparing with traditional method and selling as grain. Creation of assets and infrastructure, ensuring household level food and nutritional security, increase health, education and community development and reducing migration, change in agriculture related behavior and knowledge, convergence, risk bearing ability and social networks and inclusion by adopting SRI. The standard of living has somewhat improved for the farmer.

Marketing Network establishment:

The seed produced through participatory method is procured by KVK,Thoubal at Government approved price rates of certified seeds through Department of Agriculture, Government of Manipur. The marketing gap of the produced eligible seed as certified by certification agency is sold through KVK, Thoubal.

Linkage with technology/ development organization:

To escalate his knowledge on farming, he started participating in many training and exposure visits conducted by KVK Thoubal in convergence with line departments in the field of agriculture and allied sectors. To make success in his journey the KVK, Thoubal used his land for trial and demonstration to showcase the technology. Also keeping in view the rice yield performance of SRI crops in the district, rice seed production using SRI methodology was taken up in his field after being trained and proper guidance from KVK scientist.

Photographs

			
Photo 1: Using of maker in Paddy field for SRI	Photo 2: Dry nursery of rice Var CAU R1 for SRI	Photo 3: Receiving Innovative Farmer Award 2022 during Regional Agriculture Fair held at AAU Jorhat	Photo 4: District Millionaires Farmers Award,2023

B. MUSHROOM CULTIVATION: A STABLE AND PROFITABLE ENTERPRISE FOR ENSURING LIVELIHOOD SECURITY

Profile of the farmer/ group

- Name of the grower : Shamandram Tatu Singh
- Village : Lourembam
- Block : Wangjing Tentha
- District : Thoubal District
- Enterprise : Agri and allied, Mushroom enterprise
- Name of the Centre : KVK, Thoubal Manipur

Background information of the grower

Shri Shamandram Tatu is a farmer who is inventive and educated. As a result of his keen interest in farming, he began farming activities with the few resources that were available to him, despite the fact that he had very little experience in agriculture. Due to a lack of

understanding and less scientific approaches, the low yield of the crops and poor productivity of the enterprise resulted in less income, which disappointed him. This was despite the fact that he worked very hard and made unrelenting efforts. The outcomes were not adequate in terms of both the amount of profit and the amount of yield.

After successfully completing extensive training programmes on various subjects at Krishi Vigyan Kendra, Thoubal, he adopted a scientific approach to agriculture. Following his participation in the various KVK training programmes and interventions led by Thoubal, he commenced mushroom cultivation in adherence to the holistic management guidelines imparted by the KVK specialists along with various other components in his farm. Subsequent to commencing oyster mushroom cultivation on a modest scale, he expanded the structure in which he carried out his mushroom cultivation.

Technology/process intervention :

With the knowledge he acquired from ICAR, CAU, Imphal and KVK scientists, he started taking up mushroom cultivation in his homestead area along with various other components such as seed production of rice, scientific piggery farming and poultry rearing, cultivation of crops in scientific manner. To make his journey a successful one, KVK, Thoubal carried out one frontline demonstration on" Popularisation of year-round cultivation of mushroom" to showcase their technology.

Technology details of Popularisation of year-round cultivation of mushroom are

Mushroom variety: Elm Oyster mushroom (*Hypsizygusulmarius*)

Rice straw is used as substrate. Substrate is prepared by chopping straw in small (2-5cm length) pieces and steeped in a chemical solution of carbendazim 50 % WP(75ppm) and formaldehyde (500 ppm) for a period of 6 hours. The substrate is dried in shade for few hours in order to maintain the moisture level of 55-60%. Spawning (Aseptically @ 5% of wet substrate) is done by filling the bags. Spawn running takes place in dark room (24-28°C, 18-30 days depending upon the variety). Shift to cropping room and making of holes. Pinhead initiation at

2-7 days after opening of holes in the cropping bag(13-30°C at humidity 80-85% with adequate light and ventilation). Harvesting (4-5 days after pinhead initiation) is done and sold as fresh mushroom.

Effect of the technology :

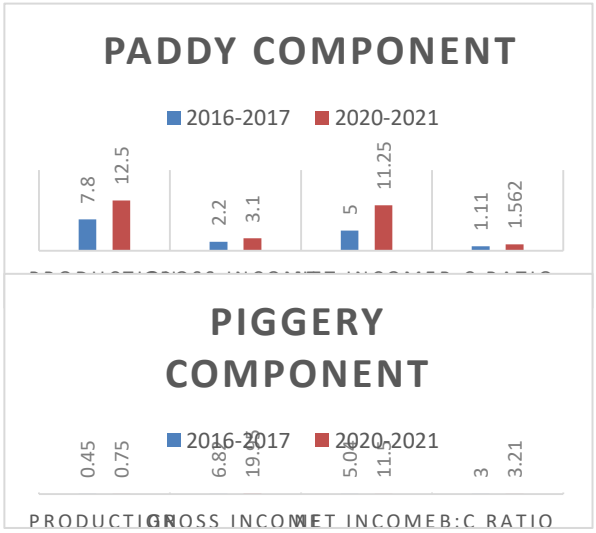
Earlier, Shri. S. Tatu was able to harvest 1kg of fresh mushrooms from a mushroom cropping bag. The intervention of experts of KVK has resulted him in producing between 1.90- 2.30 kg of fresh mushrooms from a cropping bag at the present time. Thus Mr.Tatu has been able to generate income of Rs 36800 from his mushroom enterprise. Mr.Tatu has been able to generate income of Rs 11250 from seed production of rice, Rs 5620 from the sale of cabbage, Rs 11500 from his piggery unit, Rs 13000 from his poultry unit in his farm. Hence, he has been able to generate additional income of Rs 41,370 from other components of his farm, such as the production of rice seeds, scientific piggery farming and poultry rearing, the cultivation of vegetables such as cabbage, along with the provision of employment opportunities in his community.

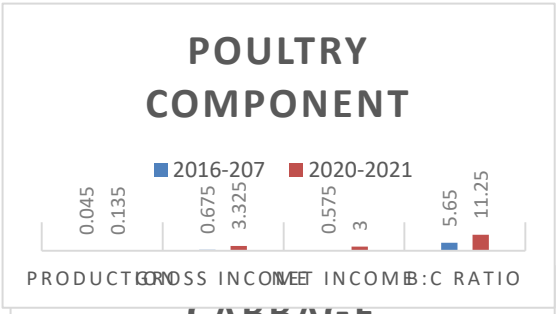
Component		Production			Economics						Productivit (Volume of output / Planted Area/unit)	
Components	Names	Area (Acre)	Production(Q/Liter/ No.)		Gross Income (Rs.)		Net Income (Rs.)		B:C ratio		2016-2017	2020-2021
			2016-2017	2020-2021	2016-	2020-2021	2016-2017	2020-2021	2016-2017	2020-2021		

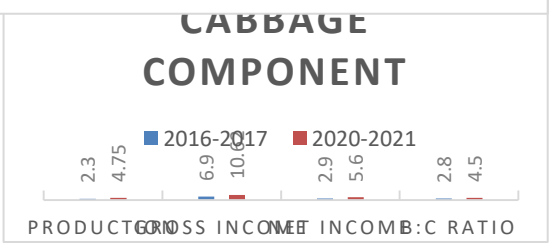
					2017							
Mushroom (Enterprise)	Mushroom Production	100 bags	1.250 q	2.8 q	16800	44800	11600	36800	3.23	4.6	1.250q/100 bags	2.8q/100 bags
Field Crop	Paddy	0.61	7.80q	12.5q	22000	31250	5000	11250	1.11	1.562	7.80q/0.61 acre	12.5q/0.61 acre
Hort. Crop	Cabbage	0.125	2.30 q	4.75q	6900	10620	2900	5620	1.75	2.12	2.30q/0.125 acre	4.75/0.125 acre
Livestock	Piggery	1	0.45 q	0.75q	6820	19950	5040	11500	3.00	3.21	0.45q/pig	0.75/pig
Livestock	Poultry	15	0.045 q 405eggs	0.135q1000eggs	675 2835	3375 10000	575 2835	3000 10000	5.65	11.25	0.045q/15 birds	0.135q/15 birds
Total			11.795q	20.935q	56410	115620	31575	78170				

TABLE: EFFECT OF TECHNOLOGIES ON THE PRODUCTION, ECONOMICS AND PRODUCTIVITY OF DIFFERENT

COMPONENTS OF THE FARMER







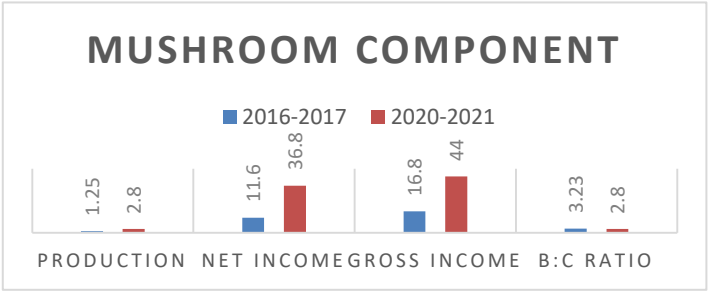


FIGURE : 1-5 GRAPHICAL REPRESENTATION OF THE EFFECT OF TECHNOLOGIES ON THE DIFFERENT

Suitability and adaptability in the existing farming systems :

Mushroom farming is excellent for small and marginal farmers because it does not require arable land and may be conducted inside. Mushroom growing is suited in the village where Shri S. Tatu lives due to the availability of cheap workers and crop leftovers such as rice straws. Furthermore, because mushrooms contain a variety of minerals, they can aid with malnutrition, are nutritious, tasty, anti-cancer, and anti-HIV. Mushrooms, as an indoor crop, empower rural women through cultivation, value added product creation, and commercialization. Unemployed youths might also benefit from various mushroom cultivation and selling opportunities. Furthermore, other components like rice seed production, scientific animal husbandry, and crop cultivation are beneficial because they provide the substrate, and mushroom cultivation waste can be used to generate resources.

Acceptance of technology/process in terms of views of the farmers:

Shri Shamandram Tatu expresses gratitude to the specialists at KVK Thoubal for intervening, allowing him to pursue mushroom cultivation as a profitable enterprise. In his statement, he stated that mushroom farming has enabled him to generate additional revenue, to offer work opportunities to young people and women living in rural areas, and to simultaneously offer the opportunity to recycle crop residue. The scientific method of piggery, scientific poultry farming, and scientific crop cultivation are some of the technologies that had contributed to the success of his agricultural unit. He is also grateful to the experts at KVK, Thoubal for these interventions.

Out scaling of technology (Horizontal spread)

The success of Shri Tatu has inspired more farmers to engage in mushroom cultivation as a lucrative and appealing venture. The implementation of innovative mushroom growth techniques has substantially minimized losses and greatly enhanced productivity. He has now begun to share his experience in mushroom cultivation as a business at various fairs organized by government organizations and NGOs. He commenced providing training sessions to various members of Self-Help Groups (SHGs) in his local area, as well as to members of the farmer

firm. Following her instruction, a group of 8-9 individuals has commenced small-scale mushroom production. Furthermore, the scientific methodology employed in animal rearing, crop cultivation, and rice seed production has served as a source of inspiration for other farmers to embrace a scientific approach to farming.

Substitution or replacement of commodities:

Spent mushroom substrate makes excellent agricultural nutrient sources because of its nutritional status. It has a high cation exchange capacity, and its slow mineralization rate preserves the quality of organic matter. Moreover, the discarded mushroom substrate was utilized in the process of vermicomposting, where it was either combined with farm yard manure in a ratio of 1:1 or utilized on its own merits. Hence, the farmers can save money by spending less on chemical fertilizers.

Socio-economic impact:

By selling solely mushrooms on a monthly basis, he is able to generate an income of Rs 36800. Additionally, he made employment opportunities available to a large number of young people in his community. Value addition is something that he intends to begin in the future, namely with regard to dried mushroom powder and other items that have value added. After experiencing a number of setbacks in the cultivation of mushrooms, he has now transitioned into the role of an entrepreneur, and mushroom growing is the primary source of income for his family.By cultivating a variety of crops on his farm, including paddy, cabbage and livestock components viz. pigs, and chickens, he is able to generate supplementary incomes of Rs 11250, Rs 5620, Rs 11500, and Rs 13000 respectively.

Shri S. Tatu was also conferred "2nd Best Stall Award" by Deputy Commissioner, Thoubal District in recognition of his outstanding achievement during the Eat Right Mela 2022 organised by Department of Health, Food Safety Administration, Thoubal under Food Safety and Standards Authority of India in collaboration with District Administration Thoubal.

Marketing network established:

When Shri S. Tatu first started out, he would sell fresh mushrooms to the nearby markets and certain metropolitan outlets. The fact that he is now a member of the LoumigiThouna Farmers Producer Company enables him to sell the produce at a variety of outlets that are situated in a number of different locations around the Thoubal and Kakching district. Therefore, becoming a member of the FPC has been beneficial to him in terms of marketing, and it has helped to bridge the gap between farmers and customers by making direct marketing more accessible.

Action Photos:

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<tr>
<td colspan="3">Mushroom cropping room in the mushroom unit of Shri S. Tatu</td>
<td colspan="4">Piggery unit in the farm of Shri S. Tatu</td>
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C. **SUCCESS IN ORGANIC FARMING THROUGH SKILL TRAINING**

- Name of the Farmer : Shri L. Bisheshore Singh
- District : Thoubal
- State : Manipur

Background:

Shri L. Bisheshore Singh , S/O L Manglem Meitei a rural youth from Salungpham, Thoubal District, Manipur usually practice cultivation of Ginger, turmeric and pineapple organically. Apart from these spices and fruit crops, he also cultivated medicinal and aromatic plants from which he produce several products and sold locally using a brand name which is not yet official/certified. He is a member of Salungpham Farmer Club contributing a lot in the development of his club.

Training & Motivation

He has been taking up entrepreneurial products with the idea that it could fetch more profits from his endeavor with the coming of PKVY Programme in KVK during the year 2018, KVK approached all the farmer Club members under KVK Thoubal to participate in the skill training of rural youth for organic farming by KVK Thoubal to train Rural youths in the field of organic farming and take up organic farming to increase their entrepreneurial skill and sustain livelihood through Organic Farming.

Socio-economic impact of programme

With the skill acquired through STRY Programme on organic farming and his initial knowledge. Shri Singh could join the PKVY programme of KVK Thoubal successfully in his locality in cluster mode headed by him and earned a good income by selling organic turmeric and black rice to the tune of Rs. 5,75,000.00 (Rupees Five lakh seventy five thousand) only from his 1.50 ha land as gross income.

Initially, without STRY Programme he was able to generate only the income similar to that of conventional farming as his products was not trusted by the consumers.

Contribution of the Programmes

Several resource person from MOMA, MOVCNER, Green Foundation, Regional centre for Organic & Natural farming, Lamphelpat inspired him about organic farming and its prospect in Manipur.

Award and Recognition.

Shri Singh received an appreciation certificate from All Manipur Progressive Farmers' Association for his valuable continuing contribution in the production of Black ginger in large quantity.

Influence on other farmers

Seeing the success of Shri Bisheshor Singh in organic farming side by side the PKVY Scheme in the state of Manipur under MONA & MOVCDNER, many farmers of his locality and adjoining villages are now motivated and started organic farming mainly for the crops: blackgram, turmeric, pineapple, kharif pulses & oilseeds. He is now become a resource person/ master trainer in the field of organic farming for many NGOs working in organic farming.

Training coverage:

Training schedules consists of Introduction to Organic Farming, Organic farming Vs Conventional farming, Principles & practices of organic farming, conversion period, source & type of seeds in organic farming. Preparation of organic inputs, organic certification, marketing of organic products, concept of organic farming, nutrient & pest management in organic farming vs conventional farming and exposure visit to organic farming practice areas.

STRY Team

	Name	Designation	Email ID

Director, SAMETI	N Gojendra	Director Agriculture	amdmn@nic.in
STRY Nodal Officer	ThJoyprakash	Deputy Director	Joyprakashthongam65@gmail.com
Training programme Coordinator	N Tomba Singh	SMS (Agronomy)	kvkthoubal@gmail.com

D. **Venturing towards Sorghum (Millet) cultivation in uncultivable land for enhancing farm income.**

- Name ; Smt Ningthoukhongjam Sanamacha Devi
- Address: Keirak, Kakching (Manipur)
- Age: 48
- Mobile No.: +91-9366493461
- Size of Land Holding:0.75 ha (leased) and 0.12 ha (owned)

Introduction

Smt Ningthoukhongjam Sanamacha Devi W/O Shri N. Hogen Meitei, a women farmer, age 48 years old from Keirak, Kakching Manipur have been cultivating various seasonal crops in her 0.87 ha land with the help of her husband. She has been cultivating rice, mustard, cabbage, Potato etc in her field during Kharif and Rabi season. She cultivates landraces varieties of potato var. Aberchaibi, Pea var. Makhyatmubi and landraces sorghum varieties apart from numerous improved varieties of crops. During kharif, 2022, a year ahead of International Year of Millet, KVK, Thoubal, Dept. of Agriculture, Govt. of Manipur intervene and give awareness about the millets to her. She took keen interest in cultivating millet especially sorghum which she has been cultivating for her home consumption in negligible areas between the areas of the main crop. On kharif, 2022, with the help of Subject Matter Specialist (Plant Breeding & Genetics) from KVK, Thoubal started scientific cultivation of the sorghum (landraces) and expanded her areas of sorghum to 0.25 ha instead in the areas where others crops need intensive care due to low fertility and poor irrigation facility. She was also given hands-on- training about the preparation of various values added products of sorghum and other millets by Subject Matter Specialist (Home Science), KVK, Thoubal. With the knowledge acquired from the experts the yields of the sorghum have been increased and she made various values added products of sorghum.

Status before Intervention

She was a mere women farmer without much earning from his agricultural activities. Like other her fellow farmer she gives main emphasis on cultivating rice only in the areas of erratic rain and poor irrigation facility. The area where she has been cultivating rice did not give satisfactory yield because of lack of irrigation facility and the current scenario of rainfall. Although she cultivates millet (Sorghum) in her negligible areas before intervention, had little knowledge about the health benefits of millets and adaptability of millets.

After intervention

Seeing her enthusiasm in cultivating millet, the experts from KVK, Thoubal, Dept. of Agriculture, Government, Manipur conducted a training program on cultivation & value added products of millets in her locality in which she participated in the training program. From the training, she came to know nutritive value of millet and scientific cultivation of millets and cultivated sorghum (landraces). She was also given insight knowledge of millets and the marketing strategy for the millets through established FPO under KVK, Thoubal. Her husband became a member of the Khana Chaoba Farmer Producer Company Ltd., Kakching established under KVK, Thoubal as POPI and sanctioned by NABARD, Regional Centre, Imphal. Through the FPO the value added products like Sorghum Sweet balls, Sorghum puff balls and Sorghum cookies were sold which increase her income. The Khana Chaoba Farmer Producer Company Ltd, Kakching had participated on one day workshop on millet on 25th January, 2023 organised by ICAR, NEH Region, Lamphelpat, Manipur sponsored by NABARD ,Regional Centre, Imphal by displaying various value added products of millet in which the FPO represented by Smt. Ningthoukhongjam Sanamacha Devi received an award.

	
Smt. NingthoukhongjamSanamacha Devi receiving an award from one day workshop on millet on 25th January, 2023 organised by ICAR, NEH Region, Lamphelpat, Manipur sponsored by NABARD ,Regional Centre, Imphal representing KhanaChaoba Farmer Producer Company Ltd., Kakching	KVK, Thoubal, Department of Agriculture, Govt. of Manipur experts visiting the field

Outcome

From her 0.25 ha of sorghum field, she harvested the grain of about 320 kg and sold at Rs 80/kg as raw and also she make various value added products of sorghum viz. Sorghum Sweet balls giving gross income of Rs 700/kg @ Rs 10/ piece, Sorghum puff balls giving gross income of Rs 700/kg@ Rs 10/ piece and Sorghum cookies giving gross income of Rs 1500/kg @ Rs 10/ piece. The BC ratio of 2.02 was obtained through value added products. Her earning made her an easily in maintaining livelihood including her children education.

Photo : Vigorously growing sorghum at field

Photo : Various value added products of sorghum

E. **Success Story on Seed Production of Climbing perch - a low cost farmer friendly breeding technique**

Farmers Profile:

Particulars	:		**Particulars**	:	
Name	:	Maibam Shanti Singh	Main crops/Enterprise/ Farm animals	:	Fisheries
Aadhar No	:	738430347118	Village	:	Hiyanglam Awang Leikai, Kakching, Manipur
Age	:	54	Sub-Division/Block	:	Kakching
Gender	:	Male	State	:	Manipur
Education	:	VIII Pass	Agricultural Landholding (ha)	:	0.25
Family type & Size	:	2	Mobile No	:	9366685130

1. **Situation/Challenges/Problems/Issues**

Shri. Maibam Shanti Singh, 54 year old from Hiyanglam Awang Leikai, Kakching, Manipur, is hard working and enthusiastic farmer. Owing to the keen interest in fish farming, he started fish farming in a small pond without much knowledge of fisheries.

Inspite of his hard work and relentless endeavours, due to lack of knowledge and scientific techniques, the fish yield was very low and resulted in less profit which disappointed him. In spite of the efforts and determination, his results were not satisfactory in terms of yields as well as in profit.

2. **Response/Initiative**

In order to gain knowledge on scientific breeding techniques, he have contacted KVK Thoubal. Thereafter he has attended many training and awareness programmes related to fisheries. KVK Thoubal guided him in Breeding & seed production of various indigenous and carp fishes and provided the facilities of NABARD sponsored projects.To make his journey a successful one, KVK, Thoubal, used his land for their trial and demonstration plot to showcase their technology.

Result/Outcome

From the seed production of climbing perch he could earn gross income of Rs. 359000/- with a net profit of Rs.248500/-. BC ratio was found to be 3.24.

3. **Evidence/Impact:**

By seeing the successful breeding of local climbing perch using small portable low cost hatchery system, the neighbouring fishers of the village and district has been motivated through his work. He has employed five rural youths to look after his farm and breeding process.

4. **Lesson Learnt:**

Breeding and seed production of indigenous fishes like local climbing perch is quite challenging. Requires dedication and challenges has overcome with experience and the guidance of KVK.

If to be done in future, it could be done differently & significantly with the provided facilities and knowledge gain, and size of the unit could also be increased through multiplication centres

	

3.8 Give details of innovative methodology/technology developed and used for Transfer of Technology during the year

3.9 Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK

3.10 Indicate the specific training need analysis tools/methodology followed for

1) Survey: to access the need and knowledge about the technology

2) Group discussion: for identifying needs and problems of the farmers

3) Interviews: to collect feedbacks of the programme/technology

4) SWOT analysis: to collect overall data/information

3.11 Field activities

i. Number of villages adopted - 102

ii. No. of farm families selected -3560

iii. No. of survey/PRA conducted- 3

3.12. Activities of Soil and Water Testing

1. Status of establishment of Lab :Poor
2. Year of establishment :2016
3. List of equipments purchased with amount :nil

Sl. No	Name of the Equipment			Qty.	Cost
	S&WT lab	Mini lab/ Mridaparikshak	Manufacturer		
1	-	-	-	-	-
Total					

3. Details of samples analyzed (2023) :

Details	No. of Samples analysed	No. of Farmers	No. of Villages	Amount (In Rupees) realized
Soil Samples	180	220	10	-
Water Samples	200	160	8	-
Plant Samples				
Petiole Samples	-	-	-	-
Total	380	380	18	

1. Details of Soil Health Cards (SHCs) (2023)
   a. No. of SHCs prepared: 250
   b. No. of farmers to whom SHCs were distributed: 220
   c. Name of the Major and Minor nutrients analysed: NPK
   d. No. of villages covered: 10

3.13. Details of SMS/ Voice Calls sent on various priority areas

Message type	**Crop**		**Livestock**		**Weather**		**Marketing**		**Awareness**		**Other Enterprise**		**Total**	
	M	**B**	**M**	**B**	**M**	**B**	**M**	**B**	**M**	**B**	**M**	**B**	**M**	**B**
Text only	175	1652	25	844	8	833	5	770	21	1145	112	834	345	7531
Voice only	506	506	290	290	12	12	20	20	250	250	282	282	1440	1440
Voice and Text both	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	681	2158	315	1134	20	345	25	790	271	1395	394	1116	1785	8971

3.14 Contingency planning for 2023

a. Crop based Contingency planning

Contingency (Drought/ Flood/ Cyclone/ Any other please specify)	Proposed Measure	Proposed Area (In ha.) to be	Number of beneficiaries proposed to be covered		
			General	SC/ST	Total

		covered			
Flood/ draught	**Introduction of new variety or crop**	600	1400	150	1650
Draught	**Introduction of Resource Conservation Technologies**	100	180	78	258
Flood/ draught	**Distribution of seeds and planting materials**	320	1100	330	1430

a. Livestock based Contingency planning

Contingency (Drought/ Flood/ Cyclone/ Any other please specify)	Number of birds/ animals to be distributed	No. of programmes to be undertaken	No. of camps to be organized	Proposed number of animals/ birds to be covered through camps	Number of beneficiaries proposed to be covered		
					General	SC/ST	Total
Flood		12	4	1000	670	70	450

4.0. IMPACT

4.1. Impact of KVK activities (Not to be restricted for reporting period only)

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)

Modified SRI	150	40	18,000	67,000
Zero Tillage mustard cultivation under rice fallow condition	370	80	26200	38700
Seed production technology of Rice Varieties	240	50	16000	58200
Cultivation Practice of Tomato var. Arka Rakshak			480000/-	500000/-
Cultivation Practice of French bean var. Arka Arjun			186000/-	186000
Seed production of walking cat fish (Clarias magur) using BRICS method	18		77670/-	88400/-
Seedproductionofclimbingperch*(Anabastestudineus*)	18		248400/-	289500/-
Preparationof Chow Chow Bori	52			
Osmotic dehydration of pineapple	56		3600	4200
Chemical Castrationof piglet	120			
Provision of guard rails in farrowing pen	120			
Feeding of Azolla in Dairy cattle	42			

NB: Should be based on actual study, questionnaire/group discussion etc. with ex-participants.

4.2. Cases of large scale adoption

A. Zero Tillage mustard cultivation under rice fallow condition Source– DRMR, Rajasthan(2009)

Detailsof Technology

Season-Rabi

Variety-NRCHB-101/TS-36/TS-38

Seed rate–15-20kg/ha

Date of sowing-1st week of November

Sowing method- Relay 5-7 days before harvesting rice, Rotational 3-4days after threshing rice followed by straw mulching

Fertilizer dose–40:20:20 kg NPK/ha

Total quantity of SSP(130kg)+half of MOP(16kg) before sowing where there is enough moisture in the field,

Urea in 2 splits (44kgatearlyseedlingstage,1-2trueleavesemerged)andtheremaining44kg+17 kgMOP at pre-floweringstage.

Spraying of urea 1-3 % at flowering stage.Keepingof beehive 4 nos./Ha

Result:

Performance of technology is-a-vis Local check (Increase in productivity and returns)

Specific Technology	**Yield (q/ha)**	**Gross cost (Rs/ha)**	**Gross income (Rs/ha)**	**Net income (Rs/ha)**	**B:C ratio**
Farmer practices	8.6	34000	60200	26200	1.77
Demonstration	10.1	32000	70700	38700	2.21
%Increase	17.44%	-	-	-	-

Photograph:

Impactoftechnology:

1. Soil moisture deficit during crop period was less due to early planting, early applicationof urea fertilizer at 2-3 leave stage

followed by application of remaining dose of ureainto two splits at vegetative stage and flowering stage along with foliar application of 1-3%ureahelps to grow vigorously.

2. UsingthevarietyNRCHB-101/TS36/TS38having44%&42%oilcontentrespectively increased overall oilyield as compared to localyella having 28% oilcontent.
3. Theseed yield of the zero tillage mustard cultivation has been increase tremendously formustard var. NRCHB 101 by 17.44.

Horizontalspread

Thesevarietieshasbeendemonstratedasclusterfrontlinedemonstrationinmorethan150 hasince2016.

B. SeedproductiontechnologyofRiceVarieties

Source–ICAR,NEHRegion,Manipur(2012)

Detailsof Technology

Seed rate : 60 kg /ha (Transplanted- one seedlings per hill and transplanted at 24 DAS)Seedtreatment :*Trichoderma viride*@ 4gm/kg seed
Spacing:(20 X 10) cmIsolationdistance:3m
Fertilizersapplication:NPK@60:40:30kg/ha,½N,fullPand2/3K asbasal,¼N at25-30DAT and ¼ N+1/3K atpanicle initiation stage
Rogueing:2times (Vegetativeandripeningstage)

RESULT FORRC MANIPHOU12(RCM 13) :

Sl. No.	Character	Parameter
1	Duration (summersowing)in days	90-105
2	Potential yield(t/ha)	4.0-5.0
3	Qualitycharacter	Soft cookingquality

DemonstrationYield (Qt/Ha)			Gross Cost(Rs/ ha)	Gross Return(Rs/ha)	NetReturn(Rs/ha)	B:C Ratio(GR/ GC)
High	Low	Average				
44	40	43.5	94,000	1,52,250	58,250	1.61

Impactoftechnology:

1. Transplanted- one seedlings per hill at 24 DAS ease in eliminating off- type plant during rouging and also decrease seed rate with lesser nursery area.
2. Seed treatment with Carbendazim @ 4 gm/kg seed protects the seedlings from seed and soil borne disease and pest in early growth stage.
3. Maintaining isolation distance and rouging helps in production of quality seed.
4. The variety is suitable for pre kharif (3rd week of January to 1st week of February) or summer (1st week of March to 1st week of April) sowing.
5. Using of this technology gives higher yield and lesser cost of production, it makes agronomic practices easy to the farmers with good quality seeds. The cost benefit ratio also increase by selling as seeds instead of grain which ultimately creates assets and infrastructure, ensuring household level food and nutritional security, increase health, education and community development and reducing migration, change in agriculture related behavior and knowledge, convergence,. The standard of living has somewhat improved for the farmer.

1. The participation in seed production mode by farmers through participatoryseed production of RC Maniphou 12 under KVK, Thoubal increase the seedreplacementrate of this varietyin thedistrict

		
Photo1. Seedinspectionfor certification through certification agency	**Photo2.FieldVisitatElangkhangpokpi**	**Photo3.FieldinspectionatKakching**

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HORIZONTALSPREAD:

Thevarietieshasbeentakenupbythefarmersofthedistrictmorethan200Hasincetheinceptionof KVK, Thoubal

C. Cultivation Practice of Tomato var. Arka RashakSource-IIHR, Bangaluru,2013

Detailsof Technology:

Seed rate:500 g/haSpacing:60 x45 cm**Planting time :** Aug-Sep**Transplanting:** 25DAS
Seedtreatment:Trichodermaviridi@4g/kgofseed.
Nutrientrequirement:NPK 100:50:50kg/ha.FullPandKasbasal,½Nafter15daysremaining½N after 35DAT

Results:

Plantheight(cm): 104.6
Fruitsize(g): 92.2
Days to 1st flowering: 35 DAT
Yieldq/ha: 250
GrossCost: 115000
GrossReturn:500000
NetReturn: 385000
BCR: 4.34

Photograph

ImpactoftheTechnology:

- **Arka Rakshak**is triple disease resistant variety (bacterial wilt, leaf curl virus and early blight) and reduces the cost of disease management. Due to semi indeterminate reduced an inter cultural operations and less staking.
- Before sowing seed treatment has done with Trichoderma viridi which control soil borne diseases, keep healthy plants and maintained spacing at 60x45cm but in farmer practice followed closer spacing of 30x30cm.without any seed treatment.
- Recorded yield of 250q /ha from technology and 240.8 q/ha in farmers practice (Abhishek) with 3.68% increase in average yield over local. Recorded Gross Return of Rs.481600, Net Return of Rs. 366600, Gross Cost of Rs.115000 with BC Ratio 4.18.
- Fruit size is medium (average 92.2g) and good taste which is preferred by consumers . Comparison with other variety it has good keeping quality.
- As now farmers has given more focus to grow resistant variety thereby enhancing more profit.
- Farmers now aware about the variety and need large scale adoption in the district.

D. Cultivation Practice of French bean var. Arka ArjunSource– IIHR, Bengaluru , 2016

DetailsofTechnology

Seed rate: 60kg/ha

Spacing: 45 x 15 cm

Sowing time : Aug- Sep

Transplantingtime: 25DAS

Seed treatment: *Trichoderma viridi*@ 4g/kg of seed.Nutrientrequirement:NPK:20:30:20kg/haasbasaldose.

Results:

- Plant height : 45-50 (cm)
- No. of pods/plant: 15 -22
- Pod length :15.5 (cm)
- No. of seed: 5-8
- Duration:70 days
- Yield q/ha : 45.4
- Gross Cost : 850
- Gross Return: 181600
- Net Return : 96600
- BCR: 2.13

Photograph:

ImpactoftheTechnology

- Arka Arjun is resistant to Moongbean Yellow Mosaic Virus (MYMV).
- Suitable in both the seasons (rabi & summer) and pods are stringless
- Without much expenses french bean could grow in large areas under minimum tillage , no staking, easy an intercultural operations with better

profit.

- Farmers cultivated indeterminate type (local) only for one season and required staking due to which increased in cost of cultivation that is Rs. 88300 while obtained yield of 40.3q/ha & Gross Return of Rs. 161200 along with Net Return of Rs. 72900 . However, noted 11.23% increase in average yield over local with BC Ratio 1.84.
- After seeing the performance of this variety vegetable growing villages like Wangjing, kakching, keirak and Wabgai has alternate vegetable crops so as to reduced market competition.
- Farmers more preferred such determinate variety thereby farmers as it facilitate cultivation as successive crop in time.

HorizontalSpread:

Thisvarieties hasbeen takenup since2015 andspreads about60 Ha

E. Seed production of walking cat fish (*Clarias magur*) using BRICS method

Sourceand Yearof Release : CoF,CAU,Lembucherra, 2020

Details of technology:

Selectionofbrooder-

Hormone administration:

1st dose: Ovatide@ 0.5mlper Kgbodyweightin bothMale&Female;

2nd dose: Oxytocin @40 milli IU after 12 hrs of ovatide injection in bothMale & FemaleRemovalofbroodersafter 24 hrs ofinjection;

Incubationofeggsin the tankwithwaterflow@0.3-0.5litre/min.

Incubationperiod:24-30 hour

Result:

Hatchability : 79%

Fryweight(g) at 45 days : 5 g

Survivability% : 60 %

Net return/unit(Rs.) : 48730

BCRatio : 2.64

*****1 unit =10kgof brooders**

Impactof thetechnology:

a) Sacrificing male brooder for seed production and Non availability of sufficient quantity of quality seed was the major problem in magur breeding, However, the use of BRICS method for magur breeding has :
b) Improves the availability of quality seeds.
c) Can induced voluntary captive spawning of ova and milt without the necessity of sacrificing the male brooders.
d) The technology can assist in conservation of several fish of conservation significance
e) It can be easily be adopted and has reached to the knowledge of many farmers including the rural youths and started breeding of magur to meet the growing demand for seeds of magur

Horizontalspread:

Thisbreedingpractice hasbeendone since2018withNABARDSponsorshipandspreadtomorethan 18 numbers of farmersforproducingmagurseeds

Photograph

F. Preparationof Chow Chow Bori

Source:Collegeof HomeScience,Tura,Meghalaya,2014

Details of Technology:

Development of bori from blanched squash (40 %) with blackgram paste (60%). Soak the blackgramfor 12 hrsand drain,grind into paste and add treated chow chow with spices, jeera, hing, chinese cheeves) Dry bori in a oil smeared plane tinsheetusinglowcost charcoals.

Result:

Product recover/kg	Cost/kg	Netreturn/kg	B.C.ratio	%increased
400	60	100	2.6	37.5

Nutritional content/100gm (ICAR-NEH, Imphal Center)
Carbohydrate:18.73gm
Fat:0.8 gm
Protein:55.3gm

Impactoftechnology:

f) Chow chow bori prepared from blackgram and chow chow is a low cost bori accepted by consumers and it can be easily taken up as an enterprise by individuals/SHGs.
g) Surplus chow chow production during peak season which will fetch lower price in the market can be converted for making bori thereby increased income instesd of selling in low cost.
h) The nutritional status of the consumer can also increased as it blended with pulse and vegetable.

Horizontal Spread: Practice of making bori with chow- chow and black gramat 60:40 has been taken up since 2019 through self help groups, EntrepreneursandFPO'sandit hasnowreached to20, 15 and2 respectively.



Photograph:

G. Osmotic dehydration of pineappleSource:IIHR, Bangalore2017

Detailsoftechnology:

i.Washing and grading , Peeling of fruit and preparation of fruit pieces

ii. Dipping in sugar syrup(70) degree brix sugar syrup concentration for 24 hours

iii. Draining and Drying (sundry for 2 days)

Result:

Performanceparameter/indicators	Dataonparametersinrelationtotechnologydemonstrated		%change
	Demo	Check	
Productrecovery/kg	700gm	600gm	16.6
Selflife(months)	6	5	
BCratio	2.7	1.7	

Nutritionalvalue/100gm (COFT-CAU,Imphal)

Parameter	Result
Protein	2.33^{+}_0.43
Fat	2.61^{+}_0.18
Carbohydrate	90.67^{+}_2.031
Fiber	9.3^{+}_1.12
TotalSugar	83.73^{+}_2.78
Energy(Kcals)	377

Impactoftechnology:

a) As pineapple is highly perishable this technology helps to preserve the fruit during peak season.
b) Surplus pineapple production during peak season which will fetch lower price in the market can be converted for making ready to eat candy thereby increased income instead of selling in low cost by the farmers.
c) This product is accepted by consumers and this enterprise is successfully taken up by 5 fruit processing units by giving job opportunities to 20 farm women.




Photograph:

I. ChemicalCastrationof piglet

Details of Technology

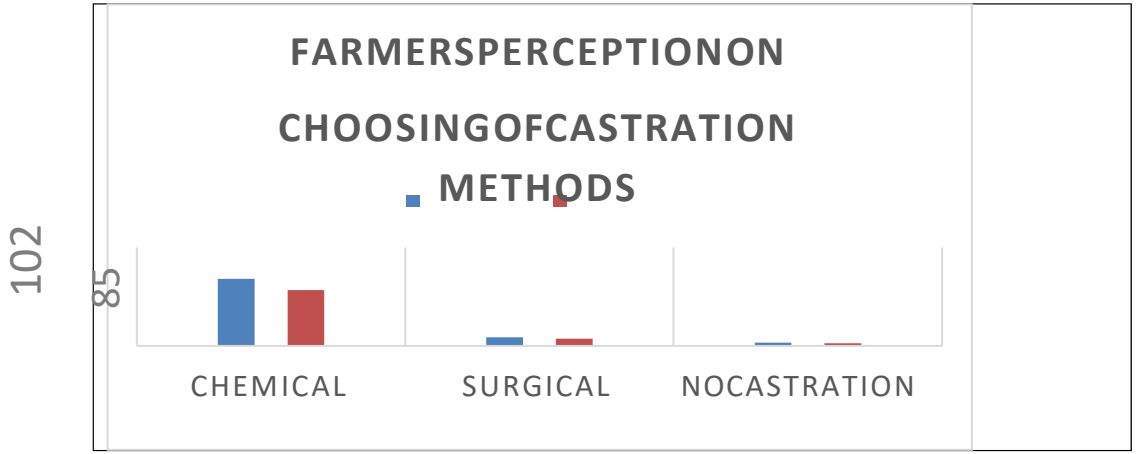
Potassium Permanganate :0.25g Glacial Acetic acid: 17ml

Distil Water:83ml
Dose:2ml to each testicle at weaning(45days)

Result & Impact o fthe technology:

Chemical castration has been preferred by majority (85 %) of the respondents.Chemical castration can be an alternative method to regular surgical castration because of its inexpensive, less time consuming, easy to perform, increase the body weight and feed conversion efficiency post castration.

Horizontalspread



Photographs

J. Provision of guard rails in farrowing penSource:-ICAR-Umiam2008

Details of Technology

Provision of bamboo made guard rails in brooder house Separate resting area for the piglets in the farrowing house.

An area of 12 sq ft is sufficient for resting area

Locally available materials like bamboo, wood etc can be used

Result:

- Litter size at birth:11.33
- Litter size at weaning :10.66

Weekly body weight(g)	
0(450g)	1(735.7)
2(1557.1)	3(2078.5)
4(2857.1)	5(3342.8)
6(3885.7)	7(4342.8)
8 (4730.3)	

- Mortality at 8 weeks: 2
- BC Ratio: 2.4:1

Impact: Guard rails provision in piggery system reduce the mortality rate of piglets as the mothe pig (sow) sually trespass the siblings of guard rail is not provided.

Horizontal spread: This practice was demonstrated and spread to more than 120 numbers of pig farmers of the district.

Photograph

K. Feeding of Azolla in Dairy Cattle UAS, Dharwad, 2015DetailsofTechnology:

Amount to be fed is 2kg/animal/day by replacing 25% of concentrate. Observation made on30th day after feeding.

Result:

Parameter assessment	Technology	Farmer practice
Milk yield	2700 ml	2000 ml
Fat%	5.6	4.8
SNF	8.95	8.5
CLR	29	27
Production/unit/day	2700 ml	2000 ml
Net return(Rs/unit/day)	68	26
BCRatio	2.7: 1	1.8 :1

Photograph:

Impact of the technology:

Increase in milk yield when *Azolla* was combined with regular feed, and that 15-20% of commercial feed could be replaced with the same quantity of *Azolla* on dry weight basis without affecting milk production, providing a 20-25% savings on buying commercial feeds.

Substantial improvement in the quantity, as well as, quality of milk produced, when dairy cattle were fed with Azolla combined with commercial feed along with an improvement in the health of the cattle. It is found that the increase in the quantity of the milk produced on the base of nutrient was higher than the quantity of Azolla fed. Hence, it is assumed that more than the carbohydrate, protein content and other components ,like carotinoids, biopolymers, probiotics etc., may be contributing to the over all increase in the production of milk.

4.3 Details of impact analysis of KVK activities carried out during the reporting period

Sl. No.	**Activities**	**Impact**
1.	Zero Tillage mustard cultivation under rice fallow condition	• Soil moisture deficit during crop period was less due to early planting, early application of urea fertilizer at 2-3 leave stage followed by application of remaining dose of urea into two splits at vegetative stage and flowering stage along with foliar application of 1-3%ureahelps to grow vigorously • Using the variety NRCHB-101/TS36/TS38 having 44% & 42% oil content respectively increased overall oil yield as compared to local yella having 28% oil content. • The seed yield of the zero tillage mustard cultivation has been increase tremendously for mustard var. NRCHB 101 by 17.44
2.	Seed production technology of Rice Varieties	• Transplanted-one seedlings per hill at 24DAS ease in eliminating off-type plant during rouging and also decrease seed rate with lesser nursery area. • Seed treatment with Carbendazim@4gm/kg seed protects the seedlings from seed and soil borne disease and pest in early growth stage. • Maintaining isolation distance and rouging helps in production of quality seed. • The variety is suitable for*pre kharif*(3rdweek of January to 1st week of February)or summer(1stweek of March to 1stweek of April) sowing. • Using of this technology gives higher yield and lesser cost of production, it makes agronomic practices easy to the farmers with good quality seeds. The cost benefit ratio also increase by selling as seeds instead ofgrain which ultimately creates assets and infrastructure, ensuring household level food and nutritional security,increase health,education and community development and reducing migration, change in agriculture related behavior and knowledge, convergence,.The standard of living has somewhat improved for the farmer. • The participation in seed production mode by farmers through participatory seed production of RC Maniphou 12 under KVK, Thoubal increase the seedreplacementrate

		of this varietyin thedistrict
3.	Cultivation Practice of Tomato var. Arka Rashak	• **Arka Rakshak**is triple disease resistant variety (bacterial wilt, leaf curl virus andearly blight) and reduces the cost of disease management. Due to semi indeterminate reduced an intercultural operations and less staking. • Before sowing seed treatment has done with *Trichoderma viridi* which control soil borne diseases, keep healthy plants and maintained spacing at 60x45cm but in farmer practice followed closerspacingof30x30cm.without anyseed treatment. • Recorded yield of 250q/ha from technology and 240.8q/ha in farmers practice(Abhishek) with 3.68% increase in average yield over local. Recorded Gross Return ofRs.481600, Net Return of Rs. 366600,Gross Cost of Rs.115000 with BC Ratio 4.18. • Fruit size is medium (average 92.2g) and good taste which is preferred by consumers .Comparison with other variety it has good keeping quality. • As now farmers has given more focus to grow resistant variety thereby enhancing more profit.
4.	Cultivation Practice of French bean var. Arka Arjun	• Arka Arjun is resistant to Moongbean Yellow Mosaic Virus (MYMV). • Suitable in both the seasons (rabi & summer) and pods are stringless • Without much expenses french bean could grow in large areas under minimum tillage , no staking, easy an intercultural operations with better profit. • Farmers cultivated indeterminate type (local) only for one season and required staking due to which increased in cost of cultivation that is Rs. 88300 while obtained yield of 40.3q/ha & Gross Return of Rs. 161200 along with Net Return of Rs. 72900 . However, noted 11.23% increase in average yield over local with BC Ratio 1.84. • After seeing the performance of this variety vegetable growing villages like Wangjing, Kakching, Keirak and Wabgai has alternate vegetable crops so as to reduced market competition. • Farmers more preferred such determinate variety thereby farmers as it facilitate cultivation as successive crop in time.

5.	Seed production of walking cat fish (Clarias magur) using BRICS method	• Sacrificing male brooder for seed production and Non availability of sufficient quantity of quality seed was the major problem in magur breeding, However, the use of BRICS method for magur breeding has : • Improves the availability of quality seeds. • Can induced voluntary captive spawning of ova and milt without the necessity of sacrificing the male brooders. • The technology can assist in conservation of several fish of conservation significance • It can be easily be adopted and has reached to the knowledge of many farmers including the rural youths and started breeding of magur to meet the growing demand for seeds of magur
6.	Seed production of climbing perch*(Anabastestudineus*)	• As the species possess accessory respiratory organ and hardy in nature, it can be culture in small land area with high stocking density which can generate a huge income to the marginal farmers from the small land area. • Improves the availability of seeds of local climbing perch. • Easy to breed and culture. Serves as candidate species for diversified aquaculture. • Increased availability of local climbing perch will reduced the influx of Vietnam koi seeds as well as cross breed of Vietnam koi and local climbing perch.
7.	Preparation of Chow Chow Bori	• Chow chow bori prepared from blackgram and chow chow is a low cost bori accepted by consumers and it can be easily taken up as an enterprise by individuals/SHGs. • Surplus chow chow production during peak season which will fetch lower price in the market can be converted for making bori thereby increased income instead of selling in low cost. • The nutritional status of the consumer can also increased as it blended with pulse and vegetable.
8.	Osmotic dehydration of pineapple	• As pineapple is highly perishable this technology helps to preserve the fruit during peak season. • Surplus pineapple production during peak season which will fetch lower price in the market can be converted for making ready to eat candy thereby increased income instead of selling in low cost by the farmers.

		• This product is accepted by consumers and this enterprise is successfully taken upby5 fruit processing units by giving job opportunities to 20 farm women.
9.	Chemical Castration of piglet	• Chemical castration can be an alternative method to regular surgical castration because of its inexpensive, less time consuming, easy to perform, increase the body weight and feed conversion efficiency post castration.
10.	Provision of guard rails in farrowing pen	• Guard rails provision in piggery system reduce the mortality rate of piglets as the mother pig (sow) usually trespass the siblings if guard rail is not provided
11.	Feeding of Azolla in Dairy cattle	• Increase in milk yield when *Azolla* was combined with regular feed, and that 15-20% of commercial feed could be replaced with the same quantity of *Azolla* on dry weight basis without affecting milk production, providing a 20-25% savings on buying commercial feeds. • Substantial improvement in the quantity, as well as, quality of milk produced, when dairy cattle were fed with Azolla combined with commercial feed along with an improvement in the health of the cattle. It is found that the increase in the quantity of the milk produced on the base of nutrient was higher than the quantity of Azolla fed. • Hence, it is assumed that more than the carbohydrate, protein content and other components,like carotinoids, biopolymers, probiotics etc., may be contributing to the over all increase in the productionof milk

(Please furnish detailed information for each case)

4.3 Details of impact analysis of KVK activities carried out during the reporting period

5.0. LINKAGES ESTABLISHED

5.1 Functional linkage with different organizations established during 2021

Name of organization	Nature of linkage

ATMA, Thoubal	Organizing Training for extension personnel, Demonstration, field visit &Kisan Mela.
Horticulture and Soil conservation	Training
Dept. of Agriculture, Manipur	Attended SAC, Training & Demonstration
Dept. of Horticulture, Manipur	Attended SAC, Training & Demonstration
Dept. of Vet. & Animal Science, Manipur	Attended SAC, Training & Demonstration
Dept. of Sericulture, Manipur	Attended SAC, Training
Dept. of Fishery, Manipur	Attended SAC, Training
CAU, Imphal	Attended SAC, Training
NGOs	Training
Farmers' Club	Organizing Training & Demonstration
Financial institute	SAC, Credit support
MSFAC	Training and marketing support
NABARD	SAC, sponsored fund for providing low-cost tools and implement to the farmers club. Formation of JLG for piggery production especially to the women farmers. Sponsored fund for establishment of seed production center for air breathing fishes
MANAGE	Skill training, upgradation of knowledge of KVK scientist
Dept. of Forest & Environment	Attended SAC, Training, Supply of Planting materials
ICAR,CIFE,Mumbai	Training
IIHR, Bangalore	Supply of vegetable seeds
VPKAS, Almora	Supply seeds & implements
BIRD, Kolkata	Training

NERIWLM, Tezpur	Training
Amardhan Speciality Feeds Ltd, Delhi	Training
PPVFRA	Training
NCUI-Cooperative Education Field Project, Thoubal	Training

NB The nature of linkage should be indicated in terms of joint diagnostic survey, joint implementation, participation in meeting, contribution received for infrastructural development, conducting training programmes and demonstration or any other

5.2 List special programmes undertaken by the KVK, which have been financed by State Govt./Other Agencies during 2023

Name of the scheme/ special programme	Activity	Date/ Month of initiation	Funding agency	Amount (Rs.)
Republic Day		26-01-2023	-	-
International Millet Conference,2023	Technology showcasing, Demonstration, Seminar	18-03-2023	-	-
100th Episode of Mann Ki Baat	Webcasting	30-04-2023	-	-
World Environment Day	Planting of trees	05-06-2023	-	-
95th ICAR Foundation Day	Training, Distribution of critical inputs	16-07-2023	-	-
Independence Day		15-08-2023	-	-
PM Kisan Samman Sammelan	Training, Webcasting	15-11-2023	-	-
2nd October	Swachhta activity	02-10-2023	--	-
World Soil Day	Distribution of Soil Health Cards, Micro nutrients, Seed and Planting materials,Kisan Mela	05-12-2023	-	-
Swachhta Pakhwada	Cleaning of public places, awareness, demonstration of wealth from waste	Throughout the year	ICAR, ATARI Zone –VII	Rs.22,790/-

5.3 Details of linkage with ATMA

a) Is ATMA implemented in your district Yes

Sl. No.	Programme	Nature of linkage	Remarks
1	Organizing Training for extension personnel, Demonstration, field visit & Kisan Mela.	Organizing Training for extension personnel, Demonstration, field visit &Kisan Mela.	-

5.4 Give details of programmes implemented under National Horticultural Mission

S. No.	Programme	Nature of linkage	Constraints if any

5.5 Nature of linkage with National Fisheries Development Board

S. No.	Programme	Nature of linkage	Remarks

5.6 MGMG of KVKs during 2023

No of Villages	**Participants**		**No of Visit made**	**Participants**		**No of demonstration**	**Participants**		**No of Farmers meeting**	**Participants**	
	SC/ST	**Others**		**SC/ST**	**Others**		**SC/ST**	**Others**		**SC/ST**	**Others**
20	**130**	**430**	**29**	**31**	**390**	**19**	**23**	**167**	**5**	**35**	**128**

5.7 Natural Farmingduring 2023

No. of demonstrations conducted	Participants		No. Trainings	Participants		No. of Awareness Programs	Participants	
	SC/ST	Others		SC/ST	Others		SC/ST	Others
1	1	1	3	19	71	3	24	54

5.8 Achievements under DAMU KVKs during 2023 (only selected KVKs)

No of KVKs	Beneficiaries	Advisories given (no)	Training organised (no)	Dissemination of Advisories

5.9 Format for Current Progress of Cluster Demonstrations on Organic Farming under PKVY during 2023 (only selected KVKs)

No. of clusters formed	No. of Farmers registered	Area covered (Ha)	No. of LRP identified	Number of clusters linked to certification agency	No. of clusters in which organic production started	Name of crops which are produced organically in clusters

Number of clusters linked to markets	Mobilization/ awareness camps organized		Farmers meetings organized		Training programmes organized		Exposure visits organized	
	No. of activities	No. of farmers	No. of activities	No. of farmers	No. of activities	No. of farmers	No. of activities	No. of farmers

6.0 Report on Agri Drone project (only selected KVKs)

S.No.	Name on the Project Implementing Centre (PIC)	No. of Kisan Drones Sanctioned	Target Area for Kisan Drone Demonstration (Ha)	No. of Kisan Drones Purchased by the PIC	Make and Model of Purchased Kisan Drone	Purchased cost of each drone (Rs.)	No. of Kisan Drone Demonstration organized	Date and Place of Kisan Drone Demonstration	Operation carried out (Pesticide/Nutrient application)	Area Covered under the Kisan Drone Demonstration	Number of farmers participated	Advantages of using Kisan Drones as observed during the demonstrations	Problems any encountered in Drone Purchase and their Demonstration	Additional Remarks if any

6.1 Status of NARI during 2023

Name of Nutri-SMART Village	T1	T2	T3	Area (ha)	No of Beneficiaries	Name of crop	T1(Kharif)			T2(Rabi)			T3(Zaid)		
							Name of variety	Yield (Kg/Unit)	Consumption (kg)	Name of variety	Yield (Kg/Unit)	Consumption (kg)	Name of variety	Yield (Kg/Unit)	Consumption (kg)
Heirok, Khekman, Lourembam	Kharif	Rabi	Zaid	200sqm/ benificiaries		Cabbage				Rare ball	150	100			
						Cauliflower				Candid	30	20			

										charm					
						Broccoli				Green Magic	30	20			
						Carrot				Nantes	9	5			
						Raddish	Pusa Desi			Pusa Desi	4.5	4.5			
						Beet root				Rubyrid	13	10	Rubyrid	25	10
						Lettuce	Crispshead lettuce	6	3	Crispshead lettuce	4.5	2	Crispshead lettuce	5	3
						Onion				Prema	30	30			
						Coriander	Local	35		Local	6	2	local	15	5
						Potato				Aberchaibi	20				
						Pea				Pusha shree	5.7				
						Lentil	IPL-220			IPL-220	7				
						French bean	Arka Arjun	10		Arka Arjun	9		Arka Arjun	11	
						Spinach	Indian summer	15		Indian summer	14				
						Broadbean	Local			Local	14				
						Tomato	Arka Rakshak	14	10						
						Alocasia	Local	20	10						

						Calocasia	Local	20	10						
						Rajma	Local	13	8						
						Cucumber	Local	35	20						
						Chilli	Local	18	10						
						Okra	Local	30	15						
						Brinjal	Local	15	10						
						Sponge gourd							Local	6	4
						Bottle gourd							Local	18	10
						Bitter gourd							Local	6	4
						Ash gourd							Local	18	12
						Pumpkin							Local	20	10
						Watermelon	Local							30	15
						Maize	Sweet corn	300 cobs	50 cobs						

7. PERFORMANCE OF INFRASTRUCTURE IN KVK DURING 2023

7.1 Performance of demonstration units (other than instructional farm)

Sl. No.	Demo Unit (Name and No.)	Year of estd.	Area	Details of production			Amount (Rs.)		Remarks
				Variety/ species/ breed	Type of Produce	Qty.	Cost of inputs	Gross income	
1	Bokashi piggery	2018-19	0.01 ha.	Rani pigs	Meat purpose	3	12000	16000	
2	Fishery (Paddy cum Fish)	2010-11	0.4 ha	Paddy var. KD1479 Tilapia	Paddy Meat	1.42 tons 109 kg	28000 1800	39200 16350	
3	Dairy	2017-18	0.01	Non-descript breed	-	7	-	Not yet sold	

7.2 Performance of instructional farm (Crops) including seed production during 2023

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
Rice	15/6/2023	10/11/2023	0.07	Akut phou	Truthfull level seed	1.6	7583	8000	
	15/6/2023	1/11/2023	0.07	Gin phou	Truthfull level seed	1.6	7583	8000	
	20/6/2023	29/10/2023	1.8	CAU-R1	Certified seed	44	195010	220000	
	17/6/2023	25/10/2023	0.04	Sana phou	Certified seed	1	4333	5000	
	22/6/2023	07/11/2023	0.2	RC Maniphou-13	Certified seed	4.4	21667	22000	
	23/6/2023	28/10/2023	0.3	RC Maniphou-7	Certified seed	7.2	32501	36000	

	01/7/2023	20/10/2023	0.15	RC Maniphou-12	Certified seed	3.6	16250	18000	
	03/7/2023	24/10/2023	0.135	Pari phou	Certified seed	4	14625	20000	
	25/6/2023	5/11/2023	0.035	Chakhao	Truthfull level seed	0.4	3791	4000	
	26/6/2023	30/10/2023	0.1	Basmati	Truthfull level seed	2.4	10833	12000	
	28/6/2023	23/10/2023	0.075	WR-15-6-1	Truthfull level seed	2	8125	10000	
	29/6/2023	29/10/2023	0.015	Cachar land race	Truthfull level seed	0.4	1625	2000	
	24/6/2023	29/10/2023	0.25	RC Maniphou-15	Certified seed	5.6	27084	28000	
	27/6/2023	10/11/2023	0.26	RC Maniphou-16	Certified seed	6	28168	30000	
Wheat	30/11/2022	20/3/2023	0.1	HPW-360	Truthfull level seed	0.9	6000	8100	
Mustard	15/11/2022	15/3/2023	1.0	NRCHB-101	Truthfull level seed	180	50000	90000	
Chickpea	21/11/2022	26/3/2023	0.3	GNG-207	Truthfull level seed	3.2	18000	22400	
Lentil	18/11/2022	23/3/2023	0.45	IPL-316	Truthfull level seed	4.0	22500	24000	
	18/11/2022	23/3/2023	0.03	IPL-220	Truthfull level seed	0.3	1500	3600	
	23/11/2022	25/3/2023	0.3	PU-31	Truthfull level seed	27	18000	18900	

7.3 Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.) during 2023

Sl. No.	Name of the Product	Qty	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
1	Vermicompost Bokashi manure	560 2494	9000	8400	@ Rs 15 per kg

7.4 Performance of instructional farm (livestock and fisheries production) during 2023

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed/ species	Type of Produce	Qty.	Cost of inputs	Gross income	
1	Cattle	Local cross	Calf (3), Heifer(2), Adult(4)	9		Not yet sale	
2	Pig	Cross bred	Piglet (21), Adult(3),	24		Selling of 8 piglets (Rs.45,000)	
3	Goat	Non descript	Calf(3), Adult(6), Kid (3)	12		Selling of 7 kid goat(Rs.13500)	
4	Muscovy duck	Local	Adult(3), Grower(9)	12		1800	
5	Poultry	Kaona yen	Chicks	12		Not yet sale	
6	Fish	IMC, Exotic carp	Fingerling	7700	41040	Rs.50,125/-	

7.5 Rainwater Harvesting

Training programmes conducted by using Rainwater Harvesting Unit/ structure during 2023

Date	Title of the training course	Client (PF/RY/EF)	No. of Courses	No. of Participants including SC/ST		
				Male	Female	Total

7.6. Utilization of hostel facilities (Month-Wise) during 2023

Accommodation available (No. of beds):

Months	Title of the training course/Purpose of stay	Duration of Training	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
Total					

Note: (Duration of the training course X No. of trainees)=Trainee days

8. FINANCIAL PERFORMANCE

8.1 Details of KVK Bank accounts

Bank account	**Name of the bank**	**Location/ Branch**	**Account Number**
KVK, Thoubal	State Bank of India	Thoubal	11746667259
KVK Revolving Fund Account	State Bank of India	Thoubal	37606402881
KVK THOUBAL CFLD OILSEEDS	State Bank of India	Thoubal	42122091136
KVK THOUBAL CFLD PULSES	State Bank of India	Thoubal	42120072318
KVK THOUBAL ASCI	State Bank of India	Thoubal	42528854893
KVK THOUBAL TASL-D	State Bank of India	Thoubal	42812900789

8.2 Utilization of funds under CFLD on Oilseeds and Pulses (Rs. In Lakhs) if applicable during 2023

Item	Released by ICAR/ATARI (in lakh)		Expenditure (in lakh)		Unspent balance as on 31st March, 2024
	Amount	Amount	Amount	Amount	
CFLD Oilseeds	1.81076		1.81076		Nil
CFLD Pulses	0.63346		0.63346		Nil
TOTAL	2.44422		2.44422		Nil

8.3 Utilization of KVK funds during the year 2023

S. No.	Particulars	Sanctioned (in Lakh)	Released (in Lakh)	Expenditure (in Lakh)
A. Recurring Contingencies				
1	Pay & Allowances	201.74994	201.74994	201.37719
2	Traveling allowances	3.32478	3.32478	3.32478
3	Contingencies	23.00000	23.00000	23.00000
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)			
B	POL, repair of vehicles, tractor and equipments			
	Working Capital			
C	Meals/refreshment for trainees			
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)			
E	Frontline demonstration except oilseeds and pulses	jj		
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)			
G	Training of extension functionaries			

H	Maintenance of buildings			
I	Establishment of Soil, Plant & Water Testing Laboratory			
J	Library			
K	KSHAMTA	0.50000	0.50000	0.50000
L	NARI	0.50000	0.50000	0.50000
M	HRD	0.50000	0.50000	0.50000
TOTAL (A)		**229.57472**	229.57472	**229.20197**
B. Non-Recurring Contingencies				
1	Works	13.35558	13.35558	13.35558
2	Equipments including SWTL & Furniture			
3	Vehicle (Four wheeler, please specify)			
4	Library (Purchase of assets like books & journals)			
TOTAL (B)		**13.35558**	**13.35558**	**13.35558**
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		**242.93030**	**242.93030**	**242.55755**

8.4 Status of Revolving Fund (Rs. in lakhs) for last three years

Year	Opening balance as on 1st April	Income during the year	Expenditure during the year	Net balance with KVK (in lakh)
April 2021 to March 2022	9.12039	1.61136	9.07458	10.73175
April 2022 to March 2023	10.73175	1.30398	11.18760	9.12819
April 2023 to March 2024	9.12819	3.81901	6.85438	12.94720

Note: No KVK must leave this table blank

8.5 Please include information which has not been reflected above.

(Write in detail)

8.6 Constraints and Suggestion (Provide point-wise if any, for recommendation)

(a) Administrative

(b) Financial

(c) Technical

(Signature)
Sr. Scientist cum Head

Action Photos :

OFT

			
Performance evaluation of Cucumber Var.DC-83 (2nd Year)Location: Wangbal	**Performance of Garden Pea Var. Kashi Ageti (1st Year)Location:Heirok**	**Assessment of bio-fortified Pearl millet Var. ABV-04 Location :Khangabok**	**Performance assessment of rice varieties Var. RC Maniphou 15 & RC Maniphou 16 Location:**
			
OFT 1-Management of stem rot disease in rice (2nd yeaLocation:Lamding,Khangabok	**OFT-2 Management of purple blotch in onion (1st year)Location: Thoubal**	**OFT 1-Periphyton based fish farming (1st Year) (2nd year)Location; Lilong**	**OFT-2 Perf. assessment of monoculture of air breathing fish (*Anabas testudineus*)(1stYr)Location- Wabagai**

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<tr>
<td colspan="2">Oft-1 Assessment on Preparation of Pomelo Jam (1st year)
Location-Sapam,Wangjing</td>
<td colspan="2">OFT 2-Assessment of multi grain millet cookies (1st Year)
Location: Kuraopokpi,Kakching</td>
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<tr>
<td>Oft-1 Weed management in kharif Blackgram Var. PU-31 (2nd Year)</td>
<td>OFT -2 Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38 (2nd year) Location : Kiyam Siphai</td>
<td colspan="2">Assessment on Knowledge, Attitude and Perception of Millets Location: Sikhong Sekmai</td>
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Frontline Demonstration

		
FLD1-Popularization of Biofortified Lentil Var. IPL-220 (Biofortified with Zn & Fe) 1st year Location-Thoubal	**FLD -2 Seed production of Pre kharif Rice Var. RC Maniphou-12 (2nd Year) Location :Kakching Khunou**	**FLD-1-Popularization of Tomato Var. Arka Rashak (2ndYear) Location-Salungpham**
		
FLD -2 -Popularization of French bean Var. Arka Arjun (2nd Year) Location-Wangbal	**FLD1- Integrated Management of Blast disease in rice (1st Year) Location-Wangjing**	**FLD -2 Popularization of Organic mgmt. of painted bug, aphid and sawfly in mustard without affecting bee population (1st year)**

		
FLD1- Popularization of Seed production of walking cat fish (*Clarias magur*) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning) method (1st year)	**FLD -2 -Popularization of Seed production of climbing perch *(Anabas testudineus*) (1st Year) Location-Khangabok**	**FLD 1- Popularization of Guava cheese (2nd year) Location- Wabagai**
		
FLD -2 -Osmotic dehydration of pineapple (2nd year) Location-Umathel	**FLD -1 Intercropping of maize with soybean (1st year) Location-Heirok**	**FLD-2 Scientific cultivation of hybrid maize var. HQPM -5 (2nd year) Location-Langathel**

Training

		
Extension Personal Training at KVK,Thoubal 24/11/2023	Vocational Trg.Program for Mushroom Cultivation 13/02/2024 to 17/02/2024	Vocational trg.prog. on INMforProspective fertilizer dealers18th Sep. to 2nd October,2023
		
Trg.on Bokashi Piggery April,2023	Trg. for Agronomy- 17-07-2023	Trg.prog on Fish Health mgmt..at Sapam 14-12-2023

		
Trg.for Horticulture on22-11-2023	Trg for Home Sc. 25-06-2023 at Kuraopokpi	Trg.prog on value addition 20-11-2023 at KVK
		
Trg at Sapam on 14-12-2023	Trg. for SMS(PP) at Lamding 30-08-2023	Trg. for PBG at Heirok 13-10-2023

Extension Activities

		
Scientist Visit-Heirok(Home Sc)	Inspectionvisit for seed production of rice	Visit at CFLD field-Thoubal Wangmataba
		
Field Day for CFLD 11-10-2023,Salungpham	Farmers Field Day for millet at KVK,Thoubal	Input Distribution of KSHAMTA & NARI

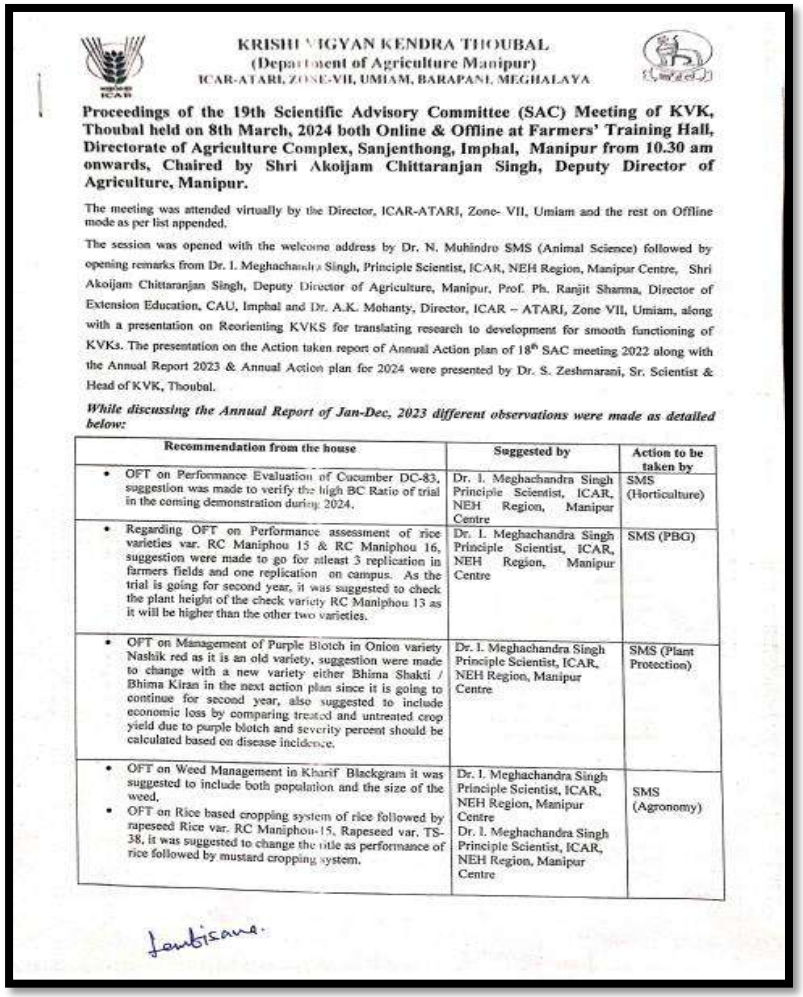
		
Resource Person-DC Thoubal	Group meeting at Uchiwa	Resource person-NCUI Thoubal
		
Webcasting of Release of PM Kisan Scheme	MGMG-OinamSawombung	Swachhta activity-Wangjing

		
Relief Camp-Wangjing	Relief Camp-Wangoo	Relief Camp-Khangabok
		
Relief Camp-Kakching Indoor Stadium	Input distribution for KSHAMTA	Released of 16th PM Kisan Scheme

		
World SoilDay,2023, 5th Dec,2023	Exposure visit at KVK,Thoubal on 23-11-2023	Visit for Swine Fever Inspection at KVK,Farm on 9/11/2023
		
Group meeting for FPO ,4/12/2023,Khangabok	Field Inspection for FPO, at Sikhong Sekmai 7/12/2023	Trg. Program atLuwangsambam on value addition of Millet 11/12/2023

		
Diagnostic visit-Khangabok 30/08/2023	Diagnostic Visit- Wangjing 14/09/2023	Method Demo of Drone for application of Nano urea -26/09/2023

Annexure 1(Proceedings of 19th SAC held on 9th March,2024)



KRISHI VIGYAN KENDRA THOUBAL
(Department of Agriculture Manipur)
ICAR-ATARI, ZONE-VII, UMIAM, BARAPANI, MEGHALAYA

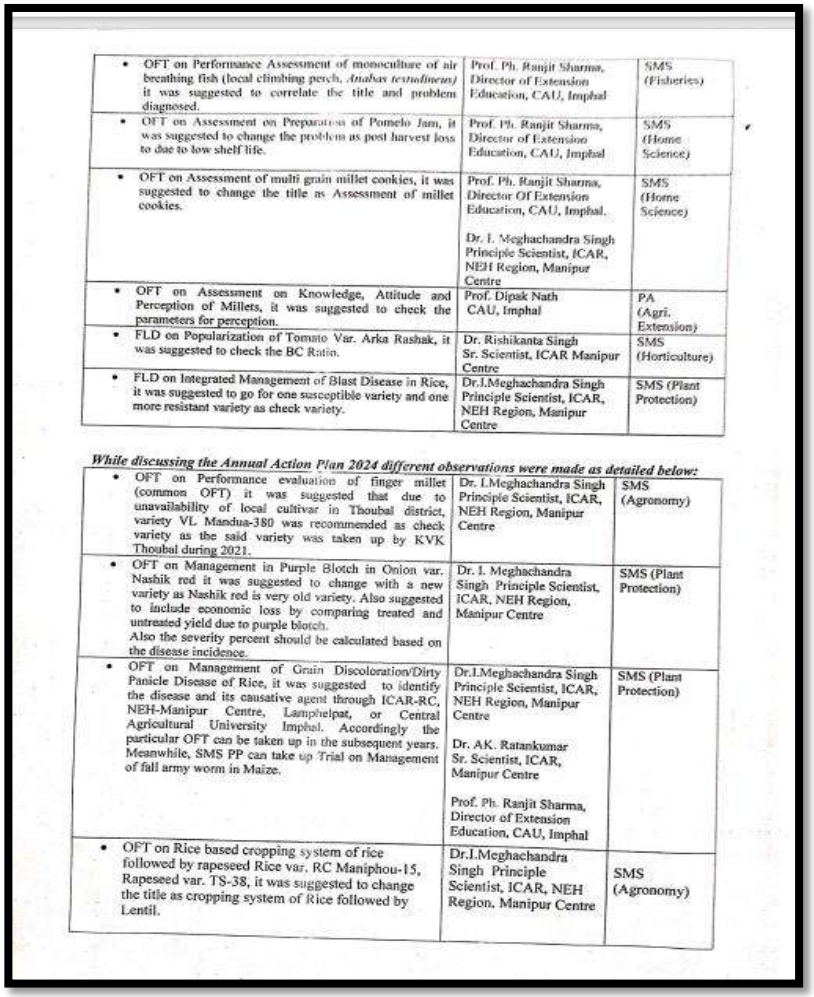
Proceedings of the 19th Scientific Advisory Committee (SAC) Meeting of KVK, Thoubal held on 8th March, 2024 both Online & Offline at Farmers' Training Hall, Directorate of Agriculture Complex, Sanjenthong, Imphal, Manipur from 10.30 am onwards, Chaired by Shri Akoijam Chittaranjan Singh, Deputy Director of Agriculture, Manipur.

The meeting was attended virtually by the Director, ICAR-ATARI, Zone- VII, Umiam and the rest on Offline mode as per list appended.

The session was opened with the welcome address by Dr. N. Muhindro SMS (Animal Science) followed by opening remarks from Dr. I. Meghachandra Singh, Principle Scientist, ICAR, NEH Region, Manipur Centre, Shri Akoijam Chittaranjan Singh, Deputy Director of Agriculture, Manipur, Prof. Ph. Ranjit Sharma, Director of Extension Education, CAU, Imphal and Dr. A.K. Mohanty, Director, ICAR – ATARI, Zone VII, Umiam, along with a presentation on Reorienting KVKS for translating research to development for smooth functioning of KVKs. The presentation on the Action taken report of Annual Action plan of 18th SAC meeting 2022 along with the Annual Report 2023 & Annual Action plan for 2024 were presented by Dr. S. Zeshmarani, Sr. Scientist & Head of KVK, Thoubal.

While discussing the Annual Report of Jan-Dec, 2023 different observations were made as detailed below:

Recommendation from the house	Suggested by	Action to be taken by
• OFT on Performance Evaluation of Cucumber DC-83, suggestion was made to verify the high BC Ratio of trial in the coming demonstration during 2024.	Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Horticulture)
• Regarding OFT on Performance assessment of rice varieties var. RC Maniphou 15 & RC Maniphou 16, suggestion were made to go for atleast 3 replication in farmers fields and one replication on campus. As the trial is going for second year, it was suggested to check the plant height of the check variety RC Maniphou 13 as it will be higher than the other two varieties.	Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (PBG)
• OFT on Management of Purple Blotch in Onion variety Nashik red as it is an old variety, suggestion were made to change with a new variety either Bhima Shakti / Bhima Kiran in the next action plan since it is going to continue for second year, also suggested to include economic loss by comparing treated and untreated crop yield due to purple blotch and severity percent should be calculated based on disease incidence.	Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Plant Protection)
• OFT on Weed Management in Kharif Blackgram it was suggested to include both population and the size of the weed. • OFT on Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38, it was suggested to change the title as performance of rice followed by mustard cropping system.	Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Agronomy)



• OFT on Performance Assessment of monoculture of air breathing fish (local climbing perch, *Anabas testudineus*) it was suggested to correlate the title and problem diagnosed.	Prof. Ph. Ranjit Sharma, Director of Extension Education, CAU, Imphal	SMS (Fisheries)
• OFT on Assessment on Preparation of Pomelo Jam, it was suggested to change the problem as post harvest loss to due to low shelf life.	Prof. Ph. Ranjit Sharma, Director of Extension Education, CAU, Imphal	SMS (Home Science)
• OFT on Assessment of multi grain millet cookies, it was suggested to change the title as Assessment of millet cookies.	Prof. Ph. Ranjit Sharma, Director Of Extension Education, CAU, Imphal. Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Home Science)
• OFT on Assessment on Knowledge, Attitude and Perception of Millets, it was suggested to check the parameters for perception.	Prof. Dipak Nath CAU, Imphal	PA (Agri. Extension)
• FLD on Popularization of Tomato Var. Arka Rashak, it was suggested to check the BC Ratio.	Dr. Rishikanta Singh Sr. Scientist, ICAR Manipur Centre	SMS (Horticulture)
• FLD on Integrated Management of Blast Disease in Rice, it was suggested to go for one susceptible variety and one more resistant variety as check variety.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Plant Protection)

While discussing the Annual Action Plan 2024 different observations were made as detailed below:

• OFT on Performance evaluation of finger millet (common OFT) it was suggested that due to unavailability of local cultivar in Thoubal district, variety VL Mandua-380 was recommended as check variety as the said variety was taken up by KVK Thoubal during 2021.	Dr. I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Agronomy)
• OFT on Management in Purple Blotch in Onion var. Nashik red it was suggested to change with a new variety as Nashik red is very old variety. Also suggested to include economic loss by comparing treated and untreated yield due to purple blotch. Also the severity percent should be calculated based on the disease incidence.	Dr. I. Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Plant Protection)
• OFT on Management of Grain Discoloration/Dirty Panicle Disease of Rice, it was suggested to identify the disease and its causative agent through ICAR-RC, NEH-Manipur Centre, Lamphelpat, or Central Agricultural University Imphal. Accordingly the particular OFT can be taken up in the subsequent years. Meanwhile, SMS PP can take up Trial on Management of fall army worm in Maize.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre Dr. AK. Ratankumar Sr. Scientist, ICAR, Manipur Centre Prof. Ph. Ranjit Sharma, Director of Extension Education, CAU, Imphal	SMS (Plant Protection)
• OFT on Rice based cropping system of rice followed by rapeseed Rice var. RC Maniphou-15, Rapeseed var. TS-38, it was suggested to change the title as cropping system of Rice followed by Lentil.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Agronomy)

• FLD on Inter cropping of maize with soybean it was suggested to change the variety HQPM-5 as it is fodder maize variety.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Agronomy)
• Regarding FLD on Integrated management of blast in rice it was suggested to include one more resistant variety RC Maniphou-16 and one susceptible variety CAU R-1.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre	SMS (Plant Protection)

General Recommendation

Recommendation from the house	Suggested by	Action to be taken by
As the North eastern states going to declare as organic states suggestion were made to take up organic management system and use resistant varieties.	Dr.I.Meghachandra Singh Principle Scientist, ICAR, NEH Region, Manipur Centre Prof. Ph. Ranjit Sharma, Director of Extension Education, CAU, Imphal	All SMSs & PA
Reorienting KVKs for translating research to development.	Dr. AK Mohanty, Director, ICAR ATARI Zone-VII, Umiam	All SMSs & PA

Thereafter, the SAC Meeting came to an end with the thanks to the chairman and other members present.

8/3/2024

(Akoijam Chittaranjan Singh)
Chairman 19th SAC, KVK, Thoubal

Endt.No.3/KVK/TBL/SAC/2007/8 Thoubal, the 8th March,2024

Copy for information forwarded to:-

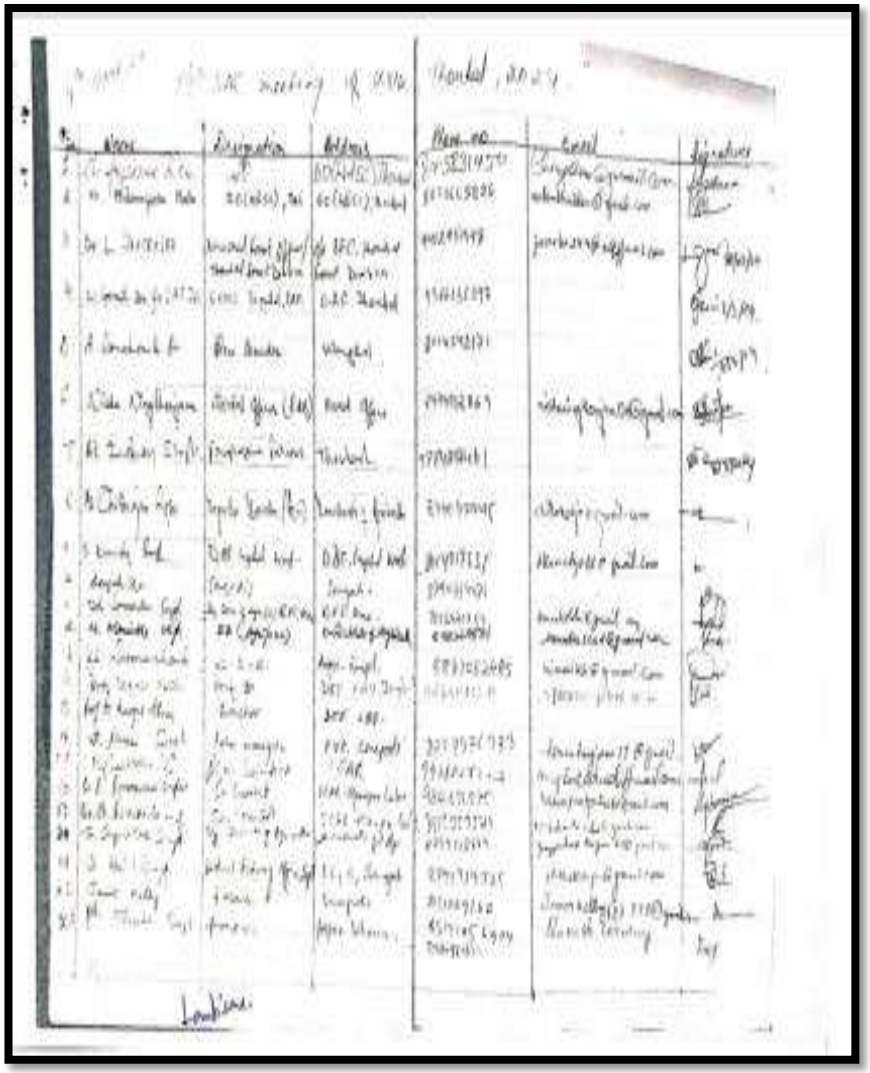
1. The Deputy Director, Department of Agriculture, Manipur /Chairman 19th SAC meeting.
2. Dr. A.K. Mohanty, Director ATARI Zone VII, Umiam
3. Prof. Ph. Ranjit Sharma , Deputy Director, Extension, CAU, Imphal
4. Dr. I. Meghachandra Singh, Principal Scientist, ICAR, Manipur Centre
5. Dr. Dipak Nath, Professor, CAU, Imphal
6. Kimjanong Kipgen, Secretary, FEEDS, Senapati, Manipur
7. Ksh. Sonendro ,Deputy Director, Agri, RPF, Mao
8. N. Manindro, EE (Agri/CSE)
9. Kh. Nemichand, CDO, Agriculture Department
10. S. Kenedy Singh, DAD, Imphal West
11. Dr. A. Ratankumar Singh, Sr. Scientist, ICAR, Manipur Centre
12. Dr. Kh. Rishikanta, Sr. Scientist, ICAR, Manipur Centre
13. Th. Jayprakash, Deputy Director of Agriculture Dept
14. Kh. Manglemba Meitei, DO, Horticulture & Soil Sc., Thoubal
15. Ch. Joyshree Devi, AO, Horticulture & Soil Sc., Thoubal
16. Dr. L. Jeecoshee, DFO, Thoubal
17. W. Gomati Devi, DSMS, Thoubal, DAO
18. A. Sanatombi Devi, Rice Breeder, Wangbal
19. Niuba Ningthoujam, Nodal Officer, RAB
20. Th. Punil Singh ,DFO, Senapati
21. Deepak Kumar, SMS, KVK, Senapati
22. K. Homen Singh, Farm Manager, KVK, Senapati
23. W. Joy Singh, Farm Manager, Fishery Dept.
24. Ak. Deben Singh, Progressive Farmer
25. Ph. Thoiba Singh, Progressive Farmer
26. James Kelly ,Farmer

(RK Lembisana Devi)
SMS (Home Science), KVK, Thoubal
For
Sr.Scientist & Head,KVK,Thoubal

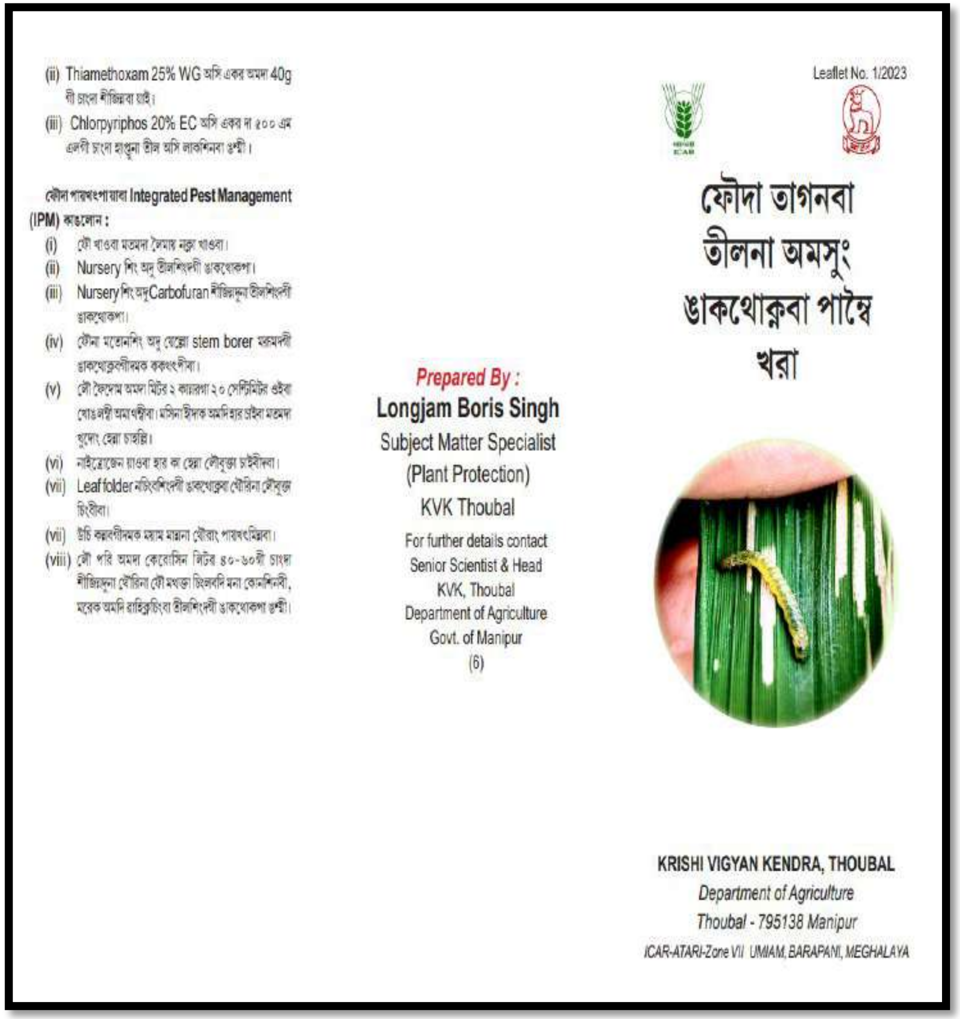
ANNEXURE

LIST OF SAC MEMBERS & INVITEES PRESENT

Sl. No.	Name	Designation	Offline/Online
1.	Dr. A.K. Mohanty	Director ATARI Zone VII, Umiam	Online
2.	Ak. Chittaranjan Singh	Deputy Director, Department of Agriculture, Manipur	Offline
3.	Prof Ph. Ranjit Sharma	Deputy Director, Extension, CAU, Imphal	Offline
4.	Dr. I. Meghachandra Singh	Principal Scientist, ICAR, Manipur Centre	
5.	Dr. Dipak Nath	Professor, CAU, Imphal	Offline
6.	Kimjaneng Kipgen	Secretary, FEEDS, Senapati, Manipur	Online
7.	Ksh. Somendro	Deputy Director, Agri, RPF, Mao	Offline
8.	N. Munindro	EE (Agri/CSE)	Offline
9.	Kh. Nimaichand	CDO, Agriculture Department	Offline
10.	S. Kenedy Singh	DAO, Imphal West	Offline
11.	Dr. A. Ratankumar Singh	Sr. Scientist, ICAR, Manipur Centre	Offline
12.	Dr. Kh. Rishikanta	Sr. Scientist, ICAR, Manipur Centre	Offline
13.	Th. Joyprakash	Deputy Director of Agriculture Dept.	Offline
14.	Kh. Manglemba Meitei	DO, Horticulture & Soil Sc., Thoubal	Offline
15.	Ch. Joyshree Devi	AO, Horticulture & Soil Sc., Thoubal	Offline
16.	Dr. L. Jeeceelee	DFO, Thoubal	Offline
17.	W. Gomati Devi	DSMS, Thoubal, DAO	Offline
18.	A. Sanatombi Devi	Rice Breeder, Wangbal	Offline
19.	Nisha Ningthoujam	Nodal Officer, RAB	Offline
20.	Th. Ponil Singh	DFO, Senapati	Offline
21.	Deepak Kumar	SMS, Senapati	Offline
22.	K. Homen Singh	Farm Manager ,KVK,Senapati	Offline
23.	W. Joy Singh	Farm Manager, Fishery Dept.	Offline
24.	Ak. Deben Singh	Progressive Farmer	Offline
25.	Ph. Thoiba Singh	Progressive Farmer	Offline
26	James Kelly	Farmer	Offline



Annexure II Publication (Leaflet)


(ii) Thiamethoxam 25% WG অসি একর অমদা 40g
(iii) Chlorpyriphos 20% EC

Integrated Pest Management (IPM):

(ii) Nursery
(iii) Nursery Carbofuran
(iv) stem borer
(vii) Leaf folder

Leaflet No. 1/2023

ফৌদা তাগনবা তীলনা অমসুং ঙাকথোক্নবা পাম্বৈ খরা

Prepared By :
Longjam Boris Singh
Subject Matter Specialist
(Plant Protection)
KVK Thoubal

For further details contact
Senior Scientist & Head
KVK, Thoubal
Department of Agriculture
Govt. of Manipur

(6)

KRISHI VIGYAN KENDRA, THOUBAL
Department of Agriculture
Thoubal - 795138 Manipur
ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA


(1) Hoppers

Brown plant hopper
Credit : TNAU portal

Panicle initiation stage
white backed plant hoppers (WBPH)

(২) Acephate 75%SP@400g/acre : Dinetofuran 20%SG 60-80g/arce : Imidacloprid + Ethiprole 80 WG 0.25 g/L; Clothianidin 50% WG 8-9.6g/acre

(2) Yellow stem Borer

'dead heart'

chaffy
"White ears"

Yellow stem borer
Credit : TNAU portal

(৪) Nursery stage Chlorpyriphos 20 EC 2 ml/L at 10 days and 17 DAS (days after sowing)

(৫) Main field Fipronil 5 SC @ or Thiamethoxam 25% WG 40g/acre: **Flubendiamide 20% WG 50g/acre**

(৩) Rice leaf folder

Leaf folder
Credit : TNAU portal

(৪) Chlorpyriphos 20 EC 2.5 ml/L or Thiamethoxam 25% WG 40g/acre or Flubendiamide 20% WG 500g/acre

(৪) Rice Gundhi Bug :

Gandhi bug
Credit : TNAU portal

(৩) Chlorpyriphos 20 EC@ 2 ml/L Malathion 50 EC@ 200ml/acre foliar spray

(৫) Paddy Gall Midge

Paddy gall midge
Credit: TNAU portal

অসি য়োক্লৌরিবা পুথ্রি অদু ঈশিং খরা কন্ডবা ওইরবসু অমদি ঈশিং য়ামত্রবসু হায়বদি পুথ্রি অদু খরা থেল্লবসু থোইদোক্না অকায়বা লৈতে।

উকাবী য়োকপগী মওং :

হা নংত্রগা ঈরুদা খাজিন্দুনা শেম্বা উপুদা হাপ্তুনা পাং, তুরেল নংত্রগা থোংবন্দা থান্দুনা য়োকপসু য়াই। উকবী অসি মরু ওইনা তিলনা খরা হেয়া পাম্বা চবনিনা উকাবী য়োক্লদবা পুথ্রি অদুগী মথক্তা মৈ থানবীদুনা নুমিদাংদা মৈগী অকোয়বদা পাইশিল্লকপা তীল অদু চয়হল্লগা য়োকপীবসু য়াম্না কান্নগনি।

অসুম্না ময়াম্নসু য়াম্না পাম্না চানবা, মমলসু তাওবা, য়োকপদসু হান্বা, মচা পুথোকপসু য়াম্না লায়বা ওকী ওথোক হেনগংহনবা হোংনমিল্লরসি।

Leaflet No 2/2023

'উকাবী মরূম কোকহন্দুনা মচা পুথোকপা অমসুং য়োকপা'

Prepared By :
Sribidya Waikhom
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KVK Thoubal
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ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

উকাবী হায়রিবা ঙা মখল অসি মশা য়াম্না কনবা অমদি নুংশিংতগী শ্বর হোনবা ঙস্থা ঙা মখল অমনি। মতম কুইনা হিংদুনা লৈবা অমদি য়াম্না হাওবা মরম্না মীওই অয়াম্বনা পাম্বুবা ঙা মখল অমসু ওইরি। মমলসু য়াম্না তাঙই। তৌইগুম্বসুং মশা শোনবা মীওই অমদি অনাবা মীওইশিংনা চাবা য়াম্না ফবা ঙা মখল অমনি। হায়রিবা ঙা মখল অসি ঈশিং মখল অয়াম্বদা লৈবা হৈনৈ হায়বদি পাং, তুরেল, লৌবুক, থোংবাননচিংবদা লৈবা হৈনৈ।

কীদিং হেকিট :

উকবী হায়রিবা ঙা মখল অসি য়াম্না শীকপ পাম্বিদ্দী অটোবা তীল-কাং ফাওবা চাই। উকাবী মচা ওল্লকপদগী মচাঙ্গাক চাবা হৌরকপদা য়াম্না শীকপা জীবশিং চাই। নুমিং ১৫ নিয়োম শুরকপদগী খরা চাওখংপা তীন মকুপ অমদি অপীকপা পাম্বী মকুপ চাই। খরা চাওখংলকপদগীদি কাং মচাগুম্বা তীল চাবা হৌরকই। অদুগা মপুং মরৈ ফারক্লবা মতমদদি তীলনা মরু ওইবা মচাঙ্গাক ওইরকই।

উকবী অসি থা তরুক শুরকপদা মপুং মরৈ ফারক্লনা চাওরক্লা সেন্টিমিটর ৮ রোম শাংই অমদি গ্রাম মরিক্ ফাওবা নুম্বী অমদি মরূম কোকপা হৌরকই। মরূম কোকপদি এপ্রিল থাদগী ওক্টোবর থা ফাওবা কোকই। মরু ওইনা নোংজু-পাম্বদা কোকই। নোংচুবা মতমদা মরূম কোক্লবগী খুদোংচাগদবা মরূম থিবদা মরূম অমদগী অতোপ্পা মরূম অমদা চংলি। মরম অদুনা পুক্তিবা য়োকপদা চাংথোকখিবগী খুদোংচাদবা কয়া থোংনৈ। মরম অদুনা উকাবী য়োকপীগী হায়বদি সিমেন্টদা পুথ্রি নংত্রগা লৈরাই য়াম্না ওম্না শেম্বীগদবনি নংত্রগা হানা ফক্লাং শেম্বীদুনা পুক্তিগী মপালদু থম্বীগদবনি। ফক্লাং খারা মতমদা ফক্লাং অদু পুথ্রিগী ঈশিংলোমদা পৈথনবীগদবনি। মরমনি উকবীনা ফক্লাং মথক্তা কাননবা হোংনরক্লবসু পুত্রিদা অমুক তাশিনখিনবনি।

মতম খরগী মমাঙদনি উকাবী য়োকপা হায়বসি ঐথোয়গী অকোয়বদা লৈরিবা ঈশিংদগী উকাবী মচা ফাদুনা য়োকপা তারম্মী। তৌইগুম্বসুং হৌজিক্তি হীদাক শীজিন্নদুনা উকাবী মরূম য়াম্না লায়না কোকহনবা য়ারে। অদুগীসু মথক্তা উকাবী মরূম কোকহনবা অসি প্রাটিক্রি তব নংত্রগা ঐথোয়না য়ুমদা শীজিন্নরিবা বালতিনগুম্বা পাত্র অমদা হেক্তা কোকহনবা য়াই।

উকাবী মচা কাপ্পা নংত্রগা লৌবগী নিয়ম :

উকাবী মরূম কোকহল্লবগীদমক্তদি অহনবদা মপুং-মরৈ ফারবা লাবা অমদি অমোম খন্দোকপীগনি। মচা লৌবা য়াববা অমোমগী মবুক্তা তপ্পা য়েংগা মতমদা মরূম থোক্লকপম মখুন্দা মরূম খরা থোক্লকনি। কহিগুম্বা লাবা ওইরগনা অট্টৌবা মফুগী মহি থোক্লকনি। অসুম্না খন্দোক্লবা ওাশিংদা হীদাক হায়বদি খুংশেম্বা শেম্বা হোর্মোন

Hormone kappa

কাপ্পীগনি। কাপকন্দা হীদাক্কী চাংদি লাবা-অমোম থেয়বা, অক্টৈং-অশাগী থেয়বা, ঙা অদু কয়াম য়াম্না মপুং মরৈ ফারবগে হায়বগী মতুংইন্না থেম্নগনি। তৌইগুম্বসুং চাওরাক্লা মিলিগ্রাম অনী ঙা কিলোগ্রাম অমদা শীজিন্নবীগনি। হীদাক কাপ্পবা মতুংদা অমোম অমগা লাবা অনীগা পুন্না থম্মিত্রগদবনি।

মতাং অসিদা পঙ্গনিংবা অমদি হীদাক কাপ্পা মতমদা অপীকপা য়েক্তুম খুদম ওইনা হায়রবদা ইন্সুলিন সিরিঞ্জনা কাক্তবনা হেয়া চৈ অমদি হাইদগী লায়বা হীদাক কাপ্পগী মওংদা ঙাগী মচৈ থংবা শরুক্তা মথক থংবা শরুক্তা মকু অমা খজিক্কং হাইখংলগা য়েক্তুম্বা নিট্টি ৪০গী

Macha oiraba marom (fertilized egg)

এক্কলদা থিংজিন্দুনা কাপ্পীগনি। হীদাক কাপ্পবা মতুং পুং তরুকুগী কুরিগাল করওবগী মনুংদা মরূম কোক্লকনি। উকাবীগী মরূমদি ঈশিংদা তাওই। মরম অদুনা য়াম্না কুপ্পা অমদি মনুং ফাওবা উবা ওগ্না মরূমশিং ঈশিংদা তাওদুনা লৈবা থোংনগনি। মরূম কোকপা লোইরবা মতুংদদি ঙা মপীশিং অদু ঈশিংদগী লৌথোকপীগদবনি। হায়রিবা মরূমশিং অসি পুং তরাতরুকমুক্তী মনুংদা মচা ওল্লগনি। মচা ওল্লরবা মতুং নুমিং হুমনিদি মচিঙ্গাক চাখিরোই। নুমিং হুমনি শুরবা মতুংদগীদি মচিঙ্গাক চাবা হৌরক্লগনি। মরম অদুনা ফজনা শেম্বা পুত্রিদা থান্বীগদবনি। নংত্রবদি মচিঙ্গাক ফংদকুনা শিথিগনি।

ঐথোয়গী নমদম অসিদা উকাবী অসি পুত্রিদা য়োক্লবসু লৈপদা

Maroom dagi Onbada ngairiba ukabi macha (Hatchlings)

কারণা চংথোকখিগনি হয়না চিংনবদগী উকাবী য়োকপগী হাখল অসি ঙা য়োকপীরিবা মীওইশিংনা কম্বা খঙদে। তৌইগুম্বসুং হায়রিবা ঙা অসি মরাম্না য়োক্লরিবা কাপশিং হায়বদি রোহ্, কটলা, ম্রিগাল, সিলভর কার্প, নাপী চবী অমদি পুক্লাওবীনচিংবা ঙাশিংগা পুন্না য়োকমিন্নবা য়াবা ঙা মখলনি। উকবী অসি মতোমতা য়োকপদা য়াম্না চান্নবা ঙা মখল অমনি নংত্রগা অতোপ্পা নুংশিংতগী শ্বর হোনবা ঙস্থা ঙা মখলশিং খুদম ওইনা হায়রবদা ওক্রা অমদি ওচিক্লা য়োকমিন্নবসু য়াই। হায়রিবা ঙা মখলশিং অসি য়োকমিন্নবা মতমদদি পরি অমা চাউবা পুত্রিদা ঙা মচা লিশীং মরিক্তুরামগী থাদবা য়াই। মসিদসু নত্তনা মথক্তা পন্তুবা কাপশিং হায়বদি রোহ্, কটলা, ম্রিগালনচিংবা ঙাশিং অসি য়োকপদা য়াদবা ঈশিংদসু য়োকপা য়াই। নুংশিংতগী শ্বর হোনবা ঙস্থা ঙাশিং

নংত্রগা নজরি বেদ অমদা হান্না হৌহল্লগা থমগনি। অসুম্না চী অমা ফরবা পাম্বী অদুদা গ্রাপটিং তৌগনি। সেন্টিমিটর ৫মুক শাংনা, অথৌবা কট্টর অমনা মকু অমদি মনুংগী অকনবা শরুক অদু যাওনা মখোক অদু পৈনা কনখৎপীগনি।

- **Scion Selection** :- মমাঙ সিজনগী ওইবা থা ৩-৪ শুরবা মযোল (axillary shoots) অনৌবা চোংলকপা, মনা মচু তাংনা থেল্লকপা, মশা-মউ ফবা থল্লগা ২২-২৫ সী এম মুক শাংনা কনপীগনি। নুমিৎ ১০নিগী মমাঙদগী Scion শী মনা অপাকপশিং অদু কল্লগা শেম শবিগনি। Scion অসি অতোপ্পা অরাপ্পা মফম অমদগী পুরক্লগা শীজিন্নবসু য়াই।

- অসুম্না রুটষ্টোক অমসুং Scion চপ মান্নবা সাইজদা কল্লগা নপশিন্নগনি। লোইরবা মতুংদা প্লাষ্টিক্না চেংনা য়েংশিনবীগনি।

- হাপ্তা অহুমগী মনুংদা অনৌবা মনা চোংখৎলকপা মতমদা মথক থংবা ট্রোকফী অস্রেনবা শরুক অদু ককথৎপীগনি।

- থা ২-৩ শুরক্লবা মতমদা য়েংলিবা প্লাষ্টিক অদু লৌথোকপীগনি।

ইয়র লেয়রিং (Air layering) :-

ইয়র লেয়রিং হায়বসি মাদর প্লান্ট অদুমক্তা মশা অমদা নৌনা মরা চৎহনদুনা চারা শেম্বগী মওং অমুনি।

ষ্টেপস :- চহী অমা ফারবা পেন্সিল সাইজ ওইবা মশা মাদর প্লান্ট অদুমক্তা খনগনি। ষ্ট্রইলগী হেন্না চন্নবা ইয়র লেয়রিং তৌবগী মতমসি নোংজুথানা ওই।

খল্লবা মনা অদুদা ৩-৫ সী এমগী চাংদা ইকোয় কোয়না অথৌবা কট্টর অমনা কল্লবা মতুংদা মথক থংবা মকু (bark) অদু তপ্না তপ্না লৌথোকপীগনি। য়ারিবমখৈ মনুংগী অকনবা উগী শরুক অদু শোক্তনবা হোৎনগনি।

মকু অদু লৌথোক্লবা মতুংদা প্লাষ্টিক ১০ সী এম মুক শাংবা অমদা শেম শাদুনা লৈরবা অচেংপা ঈশিং হাপ্লগা মকু লৌথোকখিবা শরুক অদুদু কল্লনা চেংনা য়েমশিনবিগনি। তাইনথম ওইরিব মথক অমসুং মখাদা সুতলিনা কিশিনবীগনি। হাপ্তা ৪-৫গী মতুংদা প্লাষ্টিকী মনুংদা অচৌবা মরা চৎপা উবজনি। মদুগী মতুংদা য়োমশিল্লিবা শরুক অদুগী মখা থংবাদ ১০ সীএমগী চাংদা চথরগা কনখৎপীগনি। অসুম্না কল্লগা মফম চবা অমদা থাদেনকপীবা য়াগনি।

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উইহে পাম্বীশিং থানবা চারা শেম্বগী মওং মখলশিং

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ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

উইহে পাম্বীশিং থেন্নবগী মতুংইন্না চারা শেম শাবগী মওংসু তোঙান তোঙান লৈ। থাজনগী চারা শেম্বগী মওংসি মইহে চাবা লোইরবা মতুংদা মজা হম্দেকখিবগী হৌরকপা অদুসু পাম্বী চারা শঙ্গা ওইনা খঙনবগী অদুসু মতমগী অওনবা অমদি চাওখৎলকপগী মতুংইন্না অনৌ অনৌবা চারা শেম্বগী পাম্বে মখল কয়া শীজিন্নরক্লি।

করিগুম্বা মরুনা থাবিবা পাম্বী ওইরবদি মদুগী মাইহে পাম্লকপগী মতম, চহী কয়া চৎই অদুসু অতোনবা মতমদা মইহে পানবা ঙম্ব, মশক মওং অমসুং মওংগ হন্নগী মমাদ মাদর প্লান্টগী থাবিবা অদুমক ওইহনবা ঙম্বা চারা শেম্বগী মখলশিং লৈ।

মখলশিং অদুদি :-

(১) পাম্বীগী মশাদগী কল্লগা চারা শেম্বা (ষ্টেম কট্টিং)

(২) বদ্দিং (Budding)

(৩) গ্রাফটিং (Grafting)

(৪) ইয়র লেয়রিং (Air Layering)

পাম্বীগী মশাদগী কল্লগা চারা শেম্বা :-

- অহানবদা পেন্সিল সাইজ ওইবা, চহী অমা ফারবা মশাশিং খনবীগনি।

- Secateur শী মতেংনা পাম্বীগী মশা অদু ২৫-৩০ সেন্টিমিটরগী চাংদা ককথৎকনি। হায়রিবা মশা অদুদা য়ামল্লবদা মমিং (কদ) ৩-৪ য়াওবা ওইগদবনি।

- কল্লবা মশা অদুদা পানবা মনাশিং অমদি তিল্লাংশিং লৌথোকপীগনি। লৈবাক্তা থারমনাইগী মতমদা অকোনা মখোক অদুগী মথক থংবা শরুক অদু পৈরপ্না (Slanting) কনপীগনি লোয়নন্না লৈবাক্তা হুংশিনগনবা শরুক অদুনা ইকোয় কোয়না কনপীগনি।

- থারমনাইগী মতমদা কোইনা কল্লবা মখোক্তী শরুক অদু কটি হোরমোন পাওডর থরা ঈশিং থিল্লগা পেস ওইনা মতেংনা অদুদা তৈশিনবীগনি। অসুম্না লোইরবা মতুংদা উজমদা সেকেন্দ ৫-১০ মুক থম্মীগনি।

- পোলিবেগ অমদা লৈবাক, লৈরেই, কম্পোসতী শরুক অমমম হাপ্লগা মশা অদু থানবগী শেম শবিগনি, হায়রিবা পোলিবেগ অসিদা কটি হেমোন তৈনুনা লৈরবা মশা অদু থুংশিনবীগনি।

- থাগুরা মতুংদা পাপ্পা ঈশিং চইবিগনি অদুগা মফম চবা, উজম মচেং অমদি নুংশা মচেং ফবা মফমদা থমগনি।

- হপ্তা ৪-৫গী মতুংদা পাম্বী অদুগী অনৌবা মযোল, মরা চোংবা হৌরক্লনি। অসুম্না থা খরগী মতুংদা থাদোকপীবা য়াগনি।

- ষ্ট্রইলগী চন্নবা মশা কল্লগা থবগী মতমসি নোংজুথানা হেন্না চান্নি।

বদ্দিং (Budding) : বদ্দিং তৌবগী মওং অসি অতোপ্পা পাম্বী অমগী মখোক্তা অতোপ্পা পাম্বী অমগী অনৌবা মযোলগী শরুক অদু লৌরগা

নপশিল্লগা অমত্তা ওইবা পাম্বী শেম্বগী মওংদুনি।

বদ্দিংগী মখল কয়া লৈ মদুদি টি-বদ্দিং অমসুং শিল্ড বদ্দিংনি।

টি-বদ্দিং হায়রিবা মখল অসিনা হেন্না মীয়াম্না শীজিন্নবা হেল্লি। অহানবা ওইনা পাম্বীগী মখোক ওইগদৌরিবা রুটষ্টোক অসি বিজিজ রেসিষ্টেন্ট ওইবা মখল পাম্বী খনবীগনি। লোয়নন্না হাপকদৌরিবা মযোল/মমিং অদুসু মশা-মউ ফবা, লায়না চেন্দবা পাম্বীদগী লৌগনি।

পাম্বীগী মখোক ওইগদৌরিবা অসি থল্লবা মতুংদা ৩০ সী এম-৪৫ সী এমগী চাংদা লৈবাক্কী লোতেনদগী চথংনা কনপীগনি, মদুদা পাল্লগা মনাশিং লোইনা লৌথোকপীগনি।

ষ্টোক অদুগী মথক্কোনমদগী সেন্টিমিটর ৫গী চাংদা চথরগা অথৌবা কটি অমনা টি-শেপকী মওংনা কনপীগনি। তুনা (ভর্টিকেল) সেন্টিমিটর ১-২ অমসুং তৈনা অমুক সেন্টিমিটর ০.৫গী চাংনা কল্লগা মথক থংবা মকু অদু তপ্না হাইদোকপীগনি। হাপকদৌরিবা মযোল অদুসু সেন্টিমিটর ২গী চাংদা কল্লগা মদুদা য়াওবা উগী অকনবা শরুক অদু লৌথোক্লগা ঈশিংদা সেকেন্দ থরা তিল্লুনা থমগনি।

শেম শাদুনা লৈরবা রুটষ্টোক অদুদা মযোল অদুদগী চানা হাপচিনবীগনি। লোইরবা মতুংদা প্লাষ্টিক ০.৫ সেন্টিমিটরগী চাং পাকপা, অশাংবনা সেন্টিমিটর ৩০ মুক কল্লগা মমিং মযোলগী শরুক অদু য়াওহন্দনা চেংনা য়েংশিনবীগনি। হাপ্তা ৩-৪গী মতুংদা অনৌবা হেনিং চোংলকপা মতমদা প্লাষ্টিক অদু লৌথোকপীগনি।

গ্রাফটিং (Grafting):

গ্রাফটিং হায়বসি তোঙানবা পাম্বী অমগী মখোক্তা অতোপ্পা পাম্বী অমগী শরুক অমা লৈরগা নকশিন্দুনা পাম্বী অমত্তা ওইহনবগী মওংদুগী গ্রাফটিং হায়না খঙলে।

গ্রাফটিং মখলশিং :- (1) Inarching grafting

(2) Venner grafting

(3) Stone grafting or epicotyl grafting

মখলশিং অসিগী মনুংদা Veneer grafting অসিনা ষ্ট্রইলগী হেন্না মায় পাক্লা তৌবা মখল অমনি।

Veneer grafting তৌবগী ষ্টেপস:-

- **Rootstock Selection :** অহানবদা পাম্বী মখোক ওইগদৌরিবা রুটষ্টোক অদু গম্না অমদা

৬) চরুদা য়াওবা তোঙান তোঙানবা পাম্বীশিংগী মচিঞ্জকশিং লৈবাক্তা অমুক হনহন্না কুংশেমগী হার চং হন্না শীজিন্নবা য়াহল্লি।

ৱারোইশিন :- চরু মৈ থাদুনা মাঙহনবগী মহুত্তা চুম্না শীজিন্নবীদুনা অমসুং লৈবাক লৈরাঙ/লিশাং শিংনা শীজিন্নবা য়াবা লৈবাক ওইবীদুনা অহেনবা পেথোক-চাথোক পুথোক্লুনা শেন্নীংলোন হবা লৌমী অমা ওইবগী লোয়ননা, কুংশেমগী হার য়াম্না শীজিন্নবা অমসুং পেথোক পুথোকপীদুনা মশা-মউ হবা লৌমী অমা ওইবীয়ু অমদি লৈবাক অসিগী লেমহৌরিবা মীয়ামগী অমসুং চিঙ্গাক পুথোকপগী লেমজনীংগী ওইরবা মীয়াং অদু লৌবীয়ু।

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চরুবু কাঙলোন চুম্না শীজিন্নবা

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ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

হৱাইদোক :-

হৌজিক্কী মতমদা লৌমীশিংনা চরু অসি কাঙ্গলুনা অমদি লেইশিনদনা হায়বা পোংশেক অমা ওইনা লৌদুনা লৌ হৈবা লেইরিবা লৌমদা চৈ থাদোক্লুনা মাঙহল্লি। অশোনবদি মসি মহৌশা ইনানা ঐথোকপা শীবা মমল য়াম্না পুরোন অমনি। মসিবু কাঙলোন চুম্না শীজিন্নবা লৈবাক লৈরাঙ [illegible] মচেৎ পাংবা পোংশক অমা ওইরনা য়াই। লৌনা লৌমদনগী লৌখৎলিবা অপুনবা মচিঞ্জক মখলশিংগী মনুংদা নাইট্রোজেনগী চানা ২৫, ফোসফরস অমসুং সলফরগী চানা ৫০ অমসুং পোটাশগী চানা ৭৫গী চাদি চরু, চরুথোক অমসুং লৌমদা হাপ্পুনা লৈরেই। অসিগুম্না কাঙবা মতমশিং অসি লৌমদা হাপ্পিনবিবনা কুংশেমগী হার শীজিন্নবগী চং হন্দনবগা নত্তনা লৈবাক লৈরাঙসু মেরা ফংলক্লি। কাঙবনা পাম্বীগী মচিঞ্জকশিং অসিগী চরু অসিসু মৈ থাবদা চরুদা য়াওরিবা নাইট্রোজেনগী চানা ৯৮-১০০, সলফরগী চানা ৭০-৯০ অমসুং ফোসফরস অমসুং পোটাশিয়মগী চানা ২০-৪০ মচেগী চং মাঙহল্লি। শন্দোকনা অপুনবা চরুগী চানা ৮১ মৈ থাদুনা মাংলি। পাম্বীগী মচিঞ্জকশিং মমল ওইনা পাননা লুপা ক্রোর ২৫০ চৌগী মাঙহল্লি।

চরু মৈ থাবনা মাঙহনবশিং :-

১) চরু মৈ থাবনা নুংশিত্তা খ্বাং চেনবা গ্যাস কয়া থাদোক্লুনা নুংশিৎ মেৎশিল্লি।

২) চরুদা য়াওবা কাঙবা পাম্বীগী মচিঞ্জক কয়া মৈ থাবদা মাঙহন্দুনা কুংশেমগী হার শীজিন্নবগী চং মেনশংলক্লি। মসিনা লৌমদনা লৈবা হিংকপশিং (মাইক্রোওর্গানিজম) পী মশীং হন্দুনা লৈরাঙ মেরাংনা

Composting from straw

Cheng gum thaba

লৌমদ ওইরক্লি।

৩) মৈ থাবা মতমদা লেকশিংঠৌদনা মৈগী লাংপোক লোকখাংগী মরম ওইরক্লি।

৪) লৈবাক্কী ওইরম লোকপ মওং মতৌ কাইথোকপদা মসিনা মতেং পাই।

৫) মৈ থাবনা পাম্বীগী মচিঞ্জক ওইরবা পোকনমশিং মাঙহনবা নত্তনা হিংকপশিংগী মচিঞ্জক ওইরবা পোকনমশিং মাঙহন্দুনা হিংকপশিংগী মচিঞ্জক হন্দনবা মতেং পাই।

চরুবু কাঙলোন চুম্না শীজিন্নবগী মওং খরা :-

১) শা-হনগী মচিঞ্জক ওইনা শীজিন্নবা :- চরু শা-হনদা পীরবা মতুংদা মথোইগী মশী-মাংশিং অদু হাব শেমদুনা লৌমগী লৈবাক লৈরাঙ শেমনা মতেং পাই।

২) চেংুম থানবা শীজিন্নবা :- চরু ঐথোনা চেংুম থানবীদনক শীজিন্নবিরগা চেংুম লোকখবা খরা শন্দরবা পোকনমশিং অদু ভর্মিকম্পোষ্ট নত্তরা কম্পোষ্ট শেমদুনা হার ওইনা লৌমদা শীজিন্নবা য়াই।

৩) কম্পোষ্ট নত্তরা ভর্মিকম্পোষ্ট শেম্না :- চরু খুনা পাহনবা হিক্ক অহিংবা জীবশিং (ক্রিক কম্পোষ্ট) শীজিন্নদুনা কম্পোষ্ট হার শেম্না নত্তরগা তেরা মরুনা চরুশিংবু চিংখ্রাগা শীজুনা ভর্মিকম্পোষ্ট শেম্না হার ওইনা শীজিন্নবা য়াই।

৪) হানু-তোন/শা-হনগী মকোনগী লৈমাইদা থাবিবা :- তেরা মরুনা চরুশিং হানু-তোন/শা-হনগী মকোনগী লৈমাইদা থানীদুনা মশী-মাংং য়াওবা চরুশিং অদু লৌমদনা চাইথইবিরগা থোইজিন্দুনা হার ওইরনা য়াই।

৫) পাম্বীগী মখোং খুম্বিবা :- তেরা মরুনা চরুশিং পোং তাবিবা লৈতেনমশিংদা চাইশিনবিরগা [illegible] চীংবা লৌমদনা [illegible] পোং লেকখ্রুনা লৈবাক্তা তেংশিন্দুনা লৈরাঙ শেমবা য়াই।

৬) লৈবাক্তা খোইজিনবীবা :- লৌ হৈরবা লৌমদনা, চরুশিং অদু তেরা মরুনা [illegible] মতুংদা খোইজিনবীদুনা পাম্বীরুবা লৈবাক লৈরাঙ শেম্না মতেং ওইরবা য়াই।

লৌমদা চরু/চরুগী শেম্না পোকনমশিং শীজিন্নবগী কান্নবশিং :-

১) চরু লৈবাক্তা খোইজিন্দনা ঈশিংদা চুমহন্দুনা মাঙহনবিবা নাইট্রোজেনগী শনকশিং কনবা ঙমী।

২) চরুগী পোকনমশিং শা-শুমনাকপগী খোক্লগা তোঙান

Vermicompost from straw

তোঙানবা পোকনমশিং অদুনা হিংবা অহিংবা হিংকপশিংগী মশীং লেনগৎহন্দুনা লৈরাঙ লৈবা লৌমদ ওইরক্লি।

৩) ওর্গানিক কার্বন হৃদনা মরুনবা অহিংবা জীব/শাগী শিংবীনা শাং-পুমনদনা ওইনা লৈবাক্কী মালশিং য়াওবগী চং হাংখহন্দুনা অমসুং লৌমদ ওইরক্লি।

৪) লৌমদ অসুম লৈবাকশিং চেং-চেং নাওক্লি।

৫) চেং-চেং নাওবা লৌমদ ওইরকপনা নোংগী ঈশিং য়াম্না চুশিন্দুনা থম্না তেরা লোয়নবা ঈশিং ঈচেলনা চেম্বুনা মাঙহন্দবনা লৈরাঙ লৈবা লৈবাক লৈশিং কনবা ঙমী।

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বৈগ্যানিক ওইনা লৈবাকহৱাই থাবা
(Glycine max.)

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ওক্লাওশিং নুমিং ৪৫নি শুরগদি মপীক্নী মখোম থায়নোকুবা হোংনৈ। ঙন্না মখোম থাদোকপগী চংনবীসি কয়া লৈতে অদুবু ঙন্না মখোম থায়দোকপিহৌরগদি কান্নবা অমদি কান্নব্বা কয়া অমসু লৈরি। য়াম্না শন্না হায়রবদা মখোম ঙন্না থায়দোকপগী মাইদগী কান্নবা হায়রগনা মপীদু ঙন্না হীট লাক্কুনা থুনা অমুক মচা লৌবা য়াই অদুগা অমরোমদনা অমাঙবা অমা হায়রগদি মখোম ঙন্না থায়দোকপিরগদি ওক্লাওশিংদু চাবা থকপা হৈবা য়াংপনা হকচাং শোম্বহনবা অমদি অতোপ্পা ট্রেস ময়াম অমা লাক্কুনা শিবা কাওবা য়াওদবা নত্তে। ওক্লাওশিংনা নুমিং ২১দগী ২৮ শুরগদি মখোম থায়দোকপা য়াই। মখোম থাবা হায়বসিদা ওক্লাওশিংসি মপীদগী মখোম পীথক্তুনা খুংশেমবগী মচীঙ্গাক পীজদুনা য়োকপসিনি। মসিনা মপীগী মখোম পীথক্তুগদি মমানগী কংজনা ইমনুনাংগোবুলীনগী চাং হয়্হনবনা ওক্লাওগী ইম্যুন হয়্হরকই। মপীগী মখোমথক্তা থক্লম্মদগী খুংশেমগী মচীঙ্গাক পীজরকপদগী ওক্লাওগী থীরিন্দা য়াওরিবা অফবা মখলগী হীংকুপশিংগী মশীং হয়্হন্দুনা কত্তবা হীংকুপ্পা মশীং য়ামখংলক্কুনা ওক্লাওশিংদা লায়না কয়া খুদম ওইনা হায়রবদা ডাইরিয়া, মবুক নুংঙাইতবা, মশা শোম্বরকপা অসিনচিংবা কয়া অসি থোকহল্লি। হায়রিবা মতমসিদা ওক্লাও অয়াম্বদি এন্টিবাইওটিক পীজনৈ। অদুবু মসি চাকথাউ অমদি থীরিনগী হীংকুপশিং ইমবেলেন্স ওইহন্দুনা মশা শোন্না লৈহল্লি। মরম অসিনা এন্টিবাইটিক্কী মহুত্তা ঙন্না প্রোবাইওটিক্স পীজহৌবনা মশা-মউ ফনা লৈবা ঙমহল্লি। কুমজা ২০০১দা বর্ল্ড হেল্থ ওর্গানাইজেসন (দব্লিয়ু এচ ও)না প্রোবাইওটিক্সশিংসি অহীংবা হীংকুপশিংনি। মসিনা চাং নাইনা অমদি চপ-চানা পীজবিরগদি মশা-মউ ফনা লায়না তীন্দনা চঙবা ঙমহন্দে হায়না লাউথোকখি। প্রোবাইওটিক্স হীংকুপ ওইরগসু হ চেন্দে। হকচাংদা কন্নবা কয়া অমা পীরি। প্রোবাইওটিক্স পীজবনা চাকথাউ অমদি থীরিনগী হীংকুপশিংগী মশীং হেনগংলকই অমদি ওক্লাওশিংদা মখোম থায়দোবকপগী হকচাং শোম্বকপগী চাং হয়্হল্লি। মসিনা থুনা চাওহন্দুনা লায়না চেনহন্দে।

প্রোবাইওটিক্কী থৌদাং : প্রোবাইওটিক্স পীজবসি ঙক্লিটৈ মতমদা পীজবনা হেন্না ফৈ। মসিনা অফবা মখলগী হীংকুপশিংসি পুনশিন্দুনা হেন্না মশীং হেনগংহন্দুনা থীরিন্দা লৈদুনা লায়না কয়ানগী ঙাকথোকপা ঙমহল্লি অমদি য়াম্না থুনা মপুঙ মরৈ-ফাহনবা ঙমহল্লি। অফবা মখলগী হীংকপুশিংগা ফত্তবা মখলগী হীংকপুশিংগা চুপশিন্নবা হীদাক্নদুনা নৈ। ঐথোক্না অফবা মখলগী হীংকুপশিংসি হেন্না মশীং হেন্না লৈদুনা থীরিন্দা অফবা ন্যুত্রিএন্ট ময়াম অমা চুপশিন্দুনা মশা মউ ফনা লৈবা ঙমহল্লি।

প্রোবাইওটিক্স পীজবগী মওং : ওক্লাওশিং হাপ্তা অমরু ফারগদি প্রোবাইওটিক্স পীজবিবা য়াগে। রিসর্স ফাইন্দিংগী মতুং ইন্নসু হেক পোকপদগী ওক্লাওশিং প্রোবাইওটিক্স পীজবা য়াই। মসিদা ওক্লাওশিবগী চাংসু অসুক্কী মতিক নেম্মী। প্রোবাইওটিক্সসি ঐথোক্না শেমজরগা পীজবা য়াই। অফবা হীংকুপকী কলচরসি ঐথোক্না তোংকমৌরিবা মচীঙ্গাক্কুগী চাদা ২০ লৌরগা তোংশিন্নরগা ঈশিং থন্না হাক্কীরগা পুং ২৪ থম্মীরবা মতুংদা হীংকুপশিং য়াওরবা অফবা মখলসি ওক্লাওদা পীজবিবা য়াই।

রিসর্স ফাইন্দিংগী মতুংইন্না মচীঙ্গাক্তা তোংশদা পীজিন্নরিবা লেগটোবেসিলস এসিডোফিলস মখলগী হীংকুপসি ওক্লাওদা নুমিং তরেৎ(৭)নি শুরকপদগী পীজবিরগা নুমিং ২৮নিদা মখোম থায়রকপা মতমদা ওক্লাওগী পর্কোর্মেন্স য়াম্না ফজহল্লি।

প্রোবাইওটিক্স পীজবগী কান্নবা : ওক্লাওগী মচীঙ্গাক্তা প্রোবাইওটিক্স হাপ্পগা পীজরগদি ওক্লাওশিংসি য়াম্না থুনা চাউগল্লি। শিবগী চাংনা হয়্হরকই। ওক্লাওগী থীরিন্দা অফবা হীংকুপকী মশীং চাং য়াংনা লৈদুনা হ চেন্নবা হীংকুপশিংগী চাং হয়্হন্দুনা লৈবা ঙমহল্লি। প্রোবাইওটিক্স পীজদুনা নুমিং ২৮ নিদা ওক্লাওশিংনা মচীঙ্গাক চাবগী চাং হেনগংনল্লি। মহাউ লৈবা হেনগংহল্লি। চাবা তুমহল্লি অমদি অফবা ন্যুত্রিএন্ট ময়াম অমা চুপশিনবা ঙমহল্লি। মখোঙ হামথবগী চাং য়াম্না নেম্মী। বেক্টিরিয়ানা থোকহনবা লায়না কয়া থোকপগী চাং হয়্হল্লি। অমদি মশা মউ ফনা লৈবা ঙমহল্লি। মসিদসু নত্তনা ইম্যুনিটি হেনগংহল্লি।

প্রোবাইওটিক্সসি শা-থদ, ওক অমদি যেন ঙানুদসু মশাগী পোথোক হেনগংনবা, অনা-অয়েক য়াওদনা মশাগী পর্কোর্মেন্স ফগংনবা পীজনরি। ঙন্না মখোম থায়দোকহৌগে হায়রগদি পোকপদগী হৌনা প্রোবাইওটিক্স পীজবিহৌদুনা ঙন্না মখোম থায়দোকপিবা য়াগে। মসিনা ওক্লাওদা ট্রেস কয়া অমা হয়্হল্লি। লুম্বগী চাং হেনগংহল্লি। অফবা ন্যুত্রিএন্ট ময়াম অমা থীরিন্দা চুপশিনবা ঙমহল্লি, মচীঙ্গাক চাবদা প্রোবাইওটিক্স হাপ্পীদুনা ঙন্না মখোম থায়দোকপীদুনা মপীদসু ঙন্না হীট লাকহন্দুনা মথঙগী চাবোক্তীনমক মচা পৌনবা হোংবনা হেন্না শেন্দোং লৈবা ওইগনি। ●

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নীংথমথা লাকপদা য়েনশিং শেন্নবীবা

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অঙৌ-অশা য়েংনবা মকৈরিগী লেত্তেল হন্থরকপনা মরম ওইদুনা মরম অমদি মশা চননবা য়েন য়োকপীরিবা কান্নবশিংনা মশা-মশাগী য়েনশিং নিংথিনা থম্বিবা মথৌ তাই। নীংথমথ মতমদা ঈংবগী চহসি ৫৫°F কী মথাদ তৈরনিনা অরাবা কয়া অমা থুম্ব ওইনা হায়রবদা মরম কোকপগী চাং হন্থবা, ঈশিং থকপগী চাং হন্থবা, মচা ওনবগী চাং হন্থবা অসিনচিংবা কয়া মযেক্লবিবা অসি য়েকশিন্না শেন্নবীবা মথৌ তাই। লৌথংশীগদবা য়েকশিন থৌরাং কয়া অমা মথান থমজরি ঃ

- য়েনশিং থম্বা য়েনগোনগী মায়ওন
- নুংশিং নুংশা মরাং কায়না চঙহনবা
- মকেন্দ রাইশিং নংথ্রগা য়োরাই মকুপ নংথ্রগা চক্ক মরাং কায়না হঙ্গীবা।
- মরাং কায়না অথবা অকন্না ঈশিং থম্বীবা।
- মকেন্দ মৈ নিংথিনা ফংহনবা।

য়েনগোনগী মায়ওন ঃ য়েনগী মকোন শাবা মতমদা য়েনশিংনা লৈবা নুংঙাইনবা শাবিবা মথৌ তাই। য়েনগোন শাবা মতমদা নুংশিং-নুংশা মরাং কায়না ফংহনবগুমদা শাবীগনি। য়েনগোনগী মায়ওনসি অয়াংবা নুংশা ফংহনোমদা মায় ওনশিনবীগনি। মসিনা য়েনশিংদা নুংশা মগুন অমদি য়েলহৌ ঈনর্জি মরাং কায়না ফংবা ওমই। নুমিদাংগী মতমদি নুংশিং অঙৌবা শিংপা মরম্না নুংশা মগুন য়েক চঙখিংগা নুংশিং অঙৌবা চঙনবা মকেনগী অকোয়বক্তু বোরানা নংথ্রগা প্লাষ্টিক য়েরাংনা নংথ্রগা কি অমনবনা কুপশিনবিরগা মথংগী মগুন লাক্লিংওবা থম্বিগনি।

নুংশিং-নুংশা মরাং কায়না চঙহনবা ঃ য়েনশিং লক্লবনি হায়দুনা মকেন্দু পুরা কুপশিন্নগদি নুংশিং চঙথোক-চঙশিন তৌবগ লৈতনুনা মশাদা অকায়বা কয়া অমা পীরক্তই। থুম্ব ওইনা, য়েনশিং শ্বা য়েংদোক-য়েঙ্গিন তৌবা মতমদা ঈশিংগী মনিল যাম্না য়াওই। মসিদসু নত্তনা য়েঙ্খিনসু ঈশিংগী মনিল মরাং কায়না য়াওবা মরম্না মকেন মমুংদা নুংশিং চঙথোক-চঙশিন তৌবা মতমদা অকায়বা কয়া অমা পীরি। মসিদসু নত্তনা য়েঙ্খিদা এমোনিয়াগী চাং যাম্না য়ানা য়াওই। এমোনিয়া গ্যাসসি নুংশিংজী য়েন্না লুপ্না মরম্না নিংথিনা নুংশিং থোকখ্যা লৈত্রগদি এমোনিয়া গ্যাসতু মকেন মমুংদা চঙ্খাগা লৈরগনি। মসিনা য়েনগী মমিংত মগি তাহল্লি অমদি শ্বা য়েনবদা য়ানা য়োলহল্লি। মরম অসিনা মকেন মমুংগী কয়া নুংশিং অমদি গ্যাস মযামসি চিংথোক্লবা এক্সজস য়েন অমা মকেন্দা হঙ্গীবা মথৌ তাই নংথ্রগনা নুংশিং-নুংশা য়েন্না চঙথোক-চঙশিন তৌনবা ভেন্টিলেসন থম্বিবা মথৌ তাই।

মকেন্দা রাইশিং নংথ্রগা চক্ক নংথ্রগা য়োরাই মকুপ মরাং কায়না হাপ্পীবা ঃ য়োয়াও মচা থমব্রিউবা য়েনগোনগী লৈমায়দু নিংথিনা শেংদোক্লবা ভুলা রাইনংথ্রগা য়োরাই মকুপ নংথ্রগা চক্ক মকুপা হাপ্পীগনি। নীংথমথাগী মতমদি রাই নংথ্রগা য়োরাই মকুপ হাপ্পগী চহসি লৈমায়দগী ইঞ্চি ৬ কী মখল থম্না হাপ্পীগনি। রাইশিং হাপ্পা মতমদা অথবা অমদি অকন্না রাইশিং হাপ্পিগনি। মসিনা য়েনদা লৈবা মতমদা নুংঙাইনা লৈবা ওমহল্লি অমদি অচোংবা মথিংসু কঙনা লৈবগা য়োয়দনা লম্না লৈবা ওমহল্লি।

মচীঙ্গাক নিংথিনা পীজবা ঃ মচীঙ্গাক চাং নাইনা পীজরগদি য়েনশিংসি মশা লম্না থম্না ওমহল্লি। মশাগী মথৌ নিংথিনা পাঙ্থোকপা ওমহল্লি অমদি শাক্টে য়ম্না লৈহল্লি। মচীঙ্গাক চাবগী য়েরবসি অঙৌ-অশাগী চাং য়েলেংগা অমদি অক্কনবগী মশা পেল্লি। ঈংবা মতমদি চাবগী চহসি য়েল্লি অমদি ওক্সিজেনগী নিয়ম্নসু য়েল্লি। মরম অসিনা নীংথমথাগী মতমদা য়েনশিং অসি মচীঙ্গাক য়েন্না পীজবীগনি। নীংথমথাগী মতমদা কার্বোহাইড্রেটকী চাং য়েন্না য়াওবা মচীঙ্গাকশিং থুম্ব ওইনা হায়রবদা মুজ ক, চেংকুপ অসিনচিংবা অমদি অতোয়া নুত্রিয়েন্ট যাম অমা য়েন্না চাই হায়দুনা য়েন্না হাপ্পা পীজরগদি অরেম্ব অমা ওইহল্লি। মরম অসিনা নীংথমথাগী মতমদি থরোই নংথ্রগা প্রোটিনগী শরুক য়েন্না য়াওবা থুম্ব ওইনা হায়রবনা থাউরি, থুকুপ অসিনচিংবা মচীঙ্গাকশিংসি ওইনা য়েন্না পীজব মথৌ তাই। মসিনা য়েনদা পঙ্গিবা ঈনর্জি চাং অমদ থম্না ওমহল্লি। নীংশিংবীগদবা অমনা মচীঙ্গাক পীজবা মতমদা নুমিদংবাইরমদ থম্না য়েন্না পীজবীগদি অহিং চাম্না নুম্না লৈবা ওমহল্লি।

ঈশিং মরাং কায়না থম্বীবা ঃ নীংথমথাগী মতমদি য়েনশিংনা ঈশিং থকপগী চহসি যাম্না লেম্নী। ঈশিংগী পাত্র থুনিংমক্তা ঈশিং লেমদ্না লৈবা থেংনৌ। অদুগু ঈশিং লেক্লগসু য়েংবনা অথবা ঈশিংনা মহৎ শিনবীগনি। ঈশিং হাপ্পা মতমদা কা য়েন্না ঈংবা তারগদি অশাবা ঈশিংগা য়ানবিরগা নোর্মেল তাহনবীগনি। করিগুম্বা মতমদা ঈশিংনা ঈংবক, চিক্কাশিং অমদি অতোয়া ভিটামিন যাম অমা হাপ্পগা পীথকপসু য়াওরকই। অসিগুম্বা মতমদি ঈশিংগী চহসি থরা হন্থনা হাপ্পীগনি অমদি পাত্রদু মতম থরা মকেন্দগী লৌথোক্লবা মকুদা য়েনশিংনা ঈশিং থৌরাংবা কান্দা থম্বিগদি য়েন থুনিংমক্তা থকপা ফংহনবীগনি।

মকেন্দা মৈ নিংথিনা ফংহনবা ঃ য়োয়াও মচাশিংদু মৈ রাংলগদি অমগী মথম্না অমা লোনবংনদুনা অমগা অমগা লেংশিন্নদুনা শিনা য়াওবা য়াওই। মরম অসিনা য়োয়া ওশিংদা মৈ রাংহন্দনা থম্বিবা মথৌ তাই। করিগুম্বা মৈশা রাংগা তারগদি মৈরোমদা পুনশিন্দুনা লৈবা থেংনগনি অদুগা করিগুম্বনা য়েনবা তারগদি পীরিবা মৈদুগী য়েম্বাকুনা লৈবা থেংনবীগনি। চপ চবা মৈশা ওইরগদি অকোয়বদা কোইচেন য়েন্দুনা লৈবা উগনি। য়েনশিং মরম কেক্লা য়েংনবদা লোমেদ মথোয়না পাম্বিবা মৈশাসি পুং ১৪-১৫ য়াওবনি। অদুগু নীংথমথাগী মতমদি হায়রিবা মৈশাসি পুং ১৪ য়ৌনা ফংবা ওমদে। মরম অসিনা য়েনবুশিংনা য়োওয়া মৈ পীবা মথৌ তাই। নীংথমথাগী মতমদি য়েনশিংসি লম্না থম্না শাক্টে ফংনা লৈবা ওমহল্লি।

য়েনবুশিংনা নীংথমথা লাকপগিদা য়েন্না য়েকশিন-থৌরাং লৌবীদুনা য়েনাও অমদি য়েনবীশিং ঈংবগী শিকবা য়োংনবীগনি অমদি য়েন্না মশা-মঠ ফম্না থম্বিদুনা পোথোক য়েনথংনবা য়োংনমীয়াসি। ●

10. 'Facilities' iconদা নম্না মতমদা KVK Thoubal দা facilities উবা ফংগনি।

11. 'Package of Practices' অ নম্না মতমদা সংজেষ্ট তোঙান-তোঙানবগী শা-ঙা য়োকপগী, পাম্বি থাবগী কাঙলোনশিং উব ফংগনি।

12. KVK দা নম্না মতমদা, ট্রেইনিং অমদি নিংথিনা মথং মথংদা মায়োক অনুবা কেভিকেগী তেক্নোলোজি মখল শিংদা [illegible]

13. 'Send Query' আইকোনদা থম্না লৌমী ইচিল-ইনাওশিংনা ওইবা প্রোবলেম কে ভি কেদা তৈবা এক্সপর্টশিংদা হাংদোকপা য়াগনি। হাংদোকপীবদা COMMODITY, COMMODITY NAME, PROBLEM NAME থম্লগা, প্রোব্লেমগী মতাংদা ইবা য়াগনি, ফোটো, ভিদিও নৎত্রগা ওদিও ফাইলসু থাবা য়াগনি।

'SUBMIT/SEND QUERY" দা নম্না থাগদবনি। হাংদোকখ্রবা মতুংদা ঐখোয়না থাদিবা হাংদোক "List of Queries" মথাদা উবা ফংগনি, এক্সপর্টশিংনা থিহাই পীরকপশিং করিদুনা নম্না "QUERY DETAILS" দা উবা ফংগনি।

কে ভি কে মোবাইল এপ অসি এন্দ্রোইদ ফোন শীজিন্নবীশিংনা খক্তা গুগল প্লে স্তোর লিংক অসিদা ফংগনি -

https://play.google.com/store/apps/details?id=com.icar.iasri.kvkapp&hl=en

মোবাইল এপ অসি শেম্লিবা অমসুং দিজাইন তৌবা :

Division of Computer Application

ICAR-Indian Agricultural Statistics Research Institute (IASRI) In collaboration with Extension Division, ICAR

Prepared By :

Loitongbam Babita Devi

Programme Assistant (Computer)

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Leaflet No 7/2023

কে ভি কে মোবাইল এপ শীজিন্নবগী কাঙলোনশিং

KRISHI VIGYAN KENDRA, THOUBAL

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Thoubal - 795138 Manipur

ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

1. এপ অসি চৎথিনবা [illegible]

2. Settings -> Security [illegible]

3. Unknown Sources - OK [illegible]

4. Google Play store দা [illegible] search [illegible] KVK Mobile app type [illegible] KVK Mobile app [illegible] Install [illegible] Install [illegible]

5. Install [illegible] **Open** [illegible] Register [illegible] Login [illegible]

6. [illegible] Register Here [illegible] Select Usertype [illegible] Username [illegible] (eg. Shanti) [illegible] Password [illegible] (eg. Shanti.2020), [illegible]

7. Registration [illegible] login page [illegible] Register [illegible] Username [illegible] Password [illegible]

8. Select **Primary KVK** [illegible] Krishi Vigyan Kendra, Thoubal [illegible]

9. KVK Thoubal [illegible] (icon) screen দা [illegible]

Eg. KVK, Facilities, Package of Practice,..... KVK Portal.

after sowing

Alternaria leaf disease: *Alternaria arachidis and A. tenuissima*

- Foliar application of Mancozeb (0.3%) or Copper oxychloride (0.3%) or Carbendazim(0.1%)

Red Hairy caterpillars: *Amsacta albistriga, A. moorei*

- Prior to summer rains dig out and destroy the pupae from the field bunds and shady spots
- Set up 3 to 4 light traps /ha
- Collect and destroy egg masses in the cropped area.
- Avoid migration of larvae by digging a trench 30 cm deep and 25 cm wide with perpendicular sides around the infested fields.
- Apply Phosalone 35 EC 750 ml/ha in 375l of water (or) Dichlorvos 76 EC 627 ml/ha at 25 kg/ha (for young caterpillars)

Groundnut leaf miner: *Aproaerema modicella*

- Set up light traps @12/ha
- Apply Dimethiate 30 EC 660 ml/ha (or) Malathion 50 EC 1.25 l/ha (or) Methyl demeton 25% EC 1000 ml/ha

Pod borer: *Anisolabis stalli*

Apply Malathion 5 D 25 kg/ha (or) Carbofuran 3% CG 50 kg/ha at 40 DAS Crop duration

110-120 days for kharif groundnut depending upon variety and rainfall and about 110-115 days for rabi/summer groundnut depending upon variety, sowing time and temperature.

Harvesting

Harvesting is done after 80% pods are matured. Groundnut crop is harvested by digging pods or by pulling the plants from field. Groundnut crop is harvested when seed moisture content is at 18 to 20 percent.

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Leaflet No 8/2023

Package of Practices for groundnut

(Always check for germination percent in Petri plate or wet cloth before sowing.)

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ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

Sowing time

For kharif: June to July depending on onset of monsoon.

For Rabi: October to December sowing depends on residual soil moisture and land availability **Summer:** January to March depends on the temperature

Seed rate

130-150 kg pods /ha for all the seasons depending upon shelling out turn.

Spacing

Kharif: 30 x 10cm.;

Rabi and summer: 25-30 cm x 10 cm

Seed treatment

Imidachloprid@ 2ml/kg seed followed by Tebuconazole 2DS@ 1g or Mancozeb @ 3g/ kg seed.

Soak in 0.05 % Ethrel solution for 12 hours followed by shade drying for breaking seed dormancy.

Trichoderma viride seed treatment @ 4 g/kg seed for rot prone areas.

Rhizobium inoculation (@ 600 g/ha) is necessary for groundnut in non-traditional areas and rice fallows.

Manure and Fertilizers

Must be use as per soil test based recommendations

RDF: Apply 20:60:40 kg/ha as N:P2O5:K2O for all the seasons

Micronutrients : MN mixture @ 7.5 kg /ha enriched with FYM (1:10).

For zinc deficiency : Apply 25 kg ZnSO4/ha as basal OR foliar spray of 0.5% ZnSO4.

For iron deficiency : Foliar of spray 1% FeSO4 at 30, 40 and 50 DAS.

For boron deficiency : Borax 10 kg + Gypsum as soil application at 45 DAS.

For calcium : Gypsum @ 400 kg/ha (50% basal and 50% at 45 DAS).

For groundnut + pigeon pea intercropping system: Application of 100% RDF in groundnut (100% PD) and 50% RDF in pigeonpea (75% PD).

For drought management:

Foliar spray of 0.5% KCl at flowering and pod development stages. Application of Pusa hydrogel @ 2.5 kg/ha.

Multi-nutrient spray (To be prepared)

Overnight soaking of DAP @2.5 kg + AS @1 kg + borax @ 0.5 kg in 37L water. About 32L of filtrate mixture diluted up to 500L/ha. Add 350 ml. of plano-fix and sprayed on 25th and 35th DAS.

Weed management Crop must be weed free up to 45 DAS.

Kharif: One to two hands weeding at 10-15 DAS and 25-30 DAS

Rabi and Summer:

One to two hands weeding at 15-20 DAS and 35-40 DAS.

Note: Pendimethalin @ 2.5 to 3L/ha or Oxyflourfen @ 1.5 to 2.0L/ha as **pre-emergence herbicide** (within 2-3 days after sowing)

Imazethaphyr @ 750 ml/ha or Quizalofop ethyl @ 1.0 L/ha at 20 DAS as **post-emergence herbicide (20-30 DAS)** can be used for weed control in groundnut.

Intercropping

- Groundnut+Pigeonpea (6:1)
- Groundnut+Sesame (4:1)
- Groundnut+Blackgram (4:1)
- Groundnut+Sunflower (6:2)
- Groundnut+Cowpea (5:1 to 6:1).

Irrigation management

No irrigation during kharif season. Rabi season groundnut cultivated on residual soil moisture except for delayed sowing which needs 1-2 irrigations. About 4-6 irrigations required for summer groundnut depending upon climate and rainfall.

Major pest and disease management

Early leaf spot: *Cercospora arachidicola*

- Carbendazim 500 g/ha (or) Mancozeb 1000 g/ha (or) Chlorothalonil 1000 g/ha

Late leaf spot: *Phaeoisariopsis personatum*

- Intercropping pearl millet or sorghum with groundnut (1 : 3) or crop rotation with cereals
- Deep burying of crop residues in the soil and removal of volunteer groundnut plants
- Spray Carbendazim 0.1% or Mancozeb 0.2% or Chlorothalonil 0.2%.

Rust: *Puccinia arachidis*

- Mancozeb 1000g /ha (or) Chlorothalonil 1000g /ha (or) Wettable sulphur 2500g / ha (or) Tridemorph 500 ml/ha
- If necessary, repeat the spray 15 days later.

Stem rot: *Sclerotium rolfsii*

- Seed treatment with Trichoderma viride @ 4 g/kg seed
- Soil application of Trichoderma viride @2.5 kg/ha, mixed with 50 kg of organic manures
- Seed treatment with 3 g Thiram + Carbendazim.
- Removal or burial of crop residues

Bud necrosis: Peanut bud necrosis virus (PBNV)

- Adopt a close spacing of 15 x 15 cm.
- Remove infected plants up to 6 weeks

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Leaflet No 9/2023

FINGER MILLET

Finger Millet থাবগী কাওলোন

কৌনবা মীং : Finger Millet/Ragi

বিজ্ঞানগী মীং : *Eleusine coracana*

KRISHI VIGYAN KENDRA, THOUBAL

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Thoubal - 795138 Manipur

ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA

FINGER MILLET
Eleusine coracana

[illegible] (*Eleusine indica*) [illegible] Finger Millet/Ragi (*Eleusine coracana*) [illegible]

[illegible] C4 [illegible]

[illegible]

ALLUVIAL SOIL ([illegible]), LOAMY ([illegible]) SANDY ([illegible]) (ACIDITY) [illegible] (ALKALINE) [illegible]

[illegible] :- [illegible] (LAST WEEK OF JUNE TO FIRST FORTNIGHT OF JULY) [illegible] (KHARIF) ।

[illegible] RABI [illegible]

[illegible] :

[illegible] : 10 kg/ha - Rows [illegible] (Line sowing)

5 kg/ha - [illegible] (Transplanted)

11-15 kg/ha [illegible] (Broadcasting)

[illegible] : Carbendazim @ 4 gm/kg [illegible]

Sowing Depth : 2.5 cm [illegible]

Sowing :

Line Sowing : (22.5 X 10-15) cm

Transplanting : (25 X 10-15) cm

[illegible] isoproturon @ 0.75 kg/ha [illegible]

Fertilizer :

N:P: K (Kg/ha) 40:20:20

Urea : SSP : MOP (Kg/ha) 86.9: 125: 33.33

N/Urea [illegible], P/SSP [illegible] K/MOP [illegible] (Basal)।

[illegible] N/Urea [illegible] (Split Dose)

[illegible] (Tillering) [illegible] (Flowering) [illegible]

[illegible] Blast (Pyricularia Grisea) [illegible]

Resistant Variety [illegible] Carbendazin 0.05% [illegible]

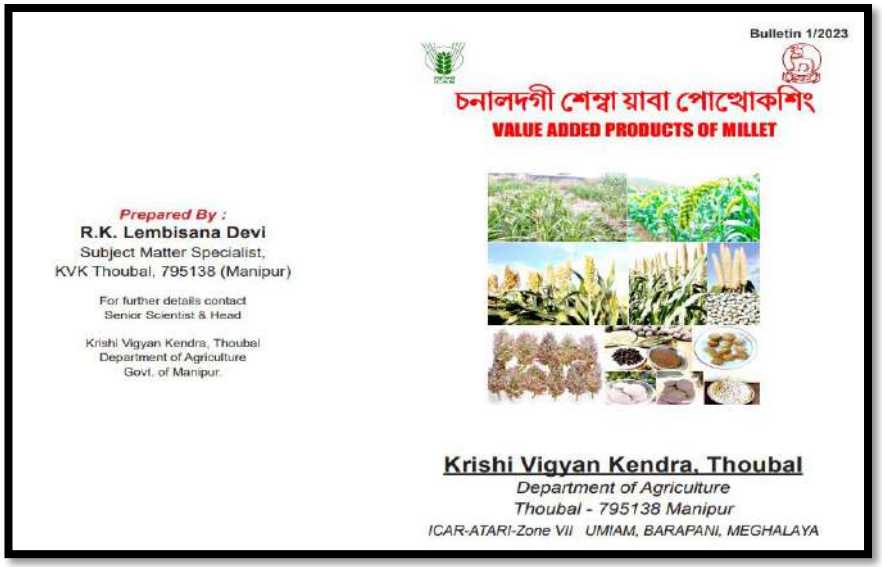
[illegible] :

VARIETY	MATURITY IN DAYS
KMR 340	90-95
GPU-45	95-100
KMR 204	100-105
VL 376	103-109
VL 379	105-107
PR 202	110-115
GNN 6	120-130

[illegible] :

YIELD : 20 Qt/HA OF GRAIN
60 Qt/HA OF STRAW

Annexure III (Bulletin)


Bulletin 1/2023

চনালদগী শেন্বা য়াবা পোত্থোকশিং

VALUE ADDED PRODUCTS OF MILLET

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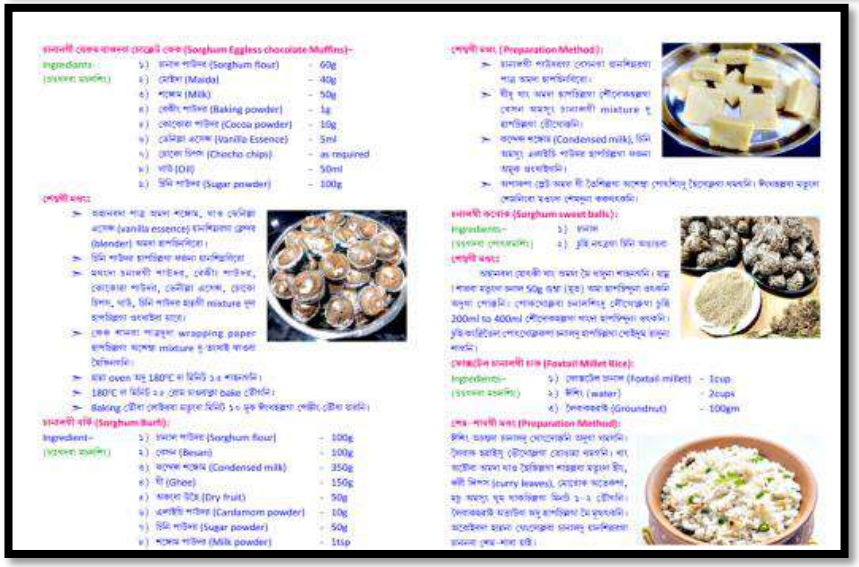
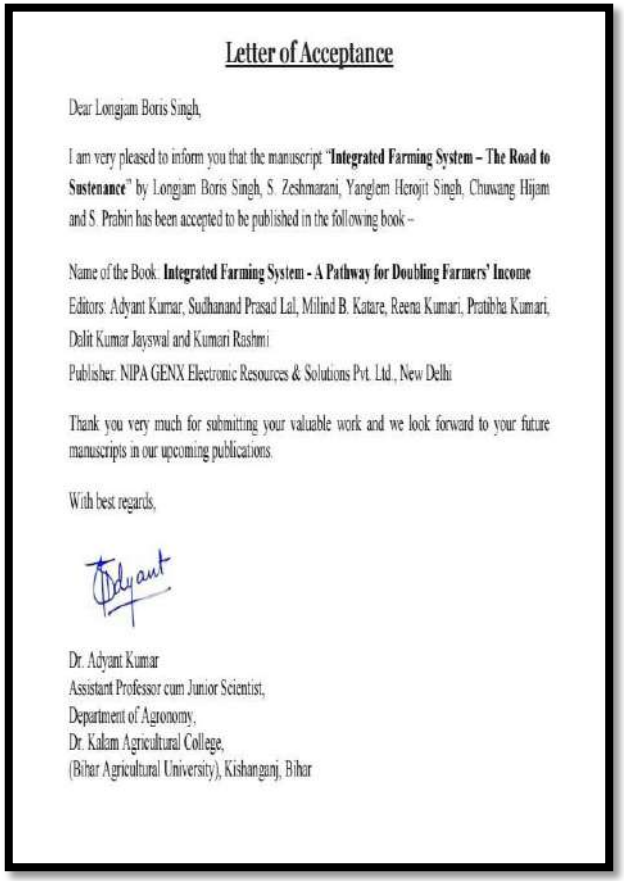
ICAR-ATARI-Zone VII UMIAM, BARAPANI, MEGHALAYA


চনালদগী শেন্বা য়াবা পোত্থোকশিং

VALUE ADDED PRODUCTS OF MILLET




Annexure IV (Research Paper)



Letter of Acceptance

Dear Longjam Boris Singh,

I am very pleased to inform you that the manuscript "**Integrated Farming System – The Road to Sustenance**" by Longjam Boris Singh, S. Zeshmarani, Yanglem Herojit Singh, Chuwang Hijam and S. Prabin has been accepted to be published in the following book –

Name of the Book: **Integrated Farming System - A Pathway for Doubling Farmers' Income**

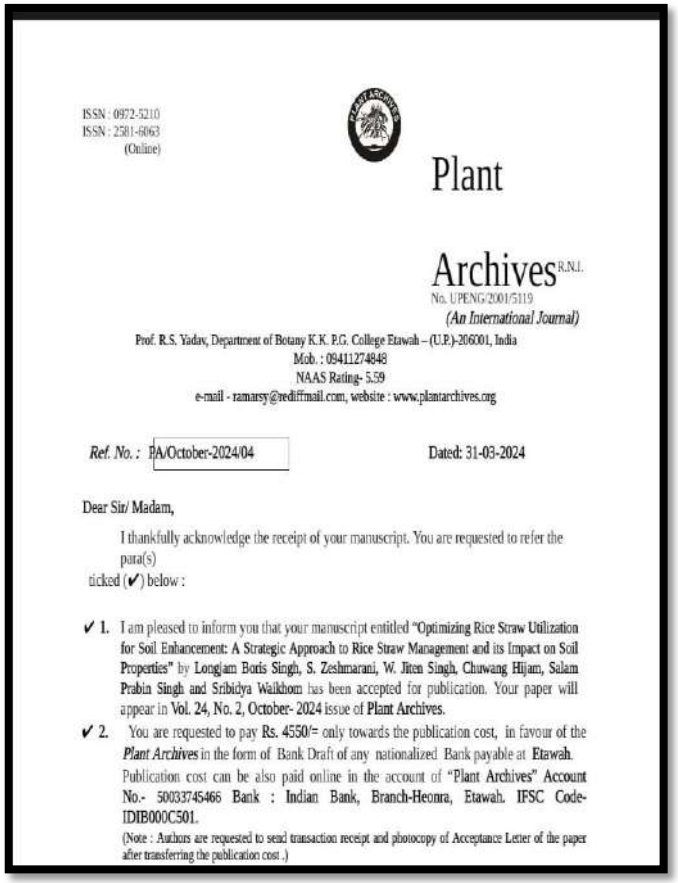
Editors: Adyant Kumar, Sudhanand Prasad Lal, Milind B. Katare, Reena Kumari, Pratibha Kumari, Dalit Kumar Jayswal and Kumari Rashmi

Publisher: NIPA GENX Electronic Resources & Solutions Pvt. Ltd., New Delhi

Thank you very much for submitting your valuable work and we look forward to your future manuscripts in our upcoming publications.

With best regards,

Dr. Adyant Kumar
Assistant Professor cum Junior Scientist,
Department of Agronomy,
Dr. Kalam Agricultural College,
(Bihar Agricultural University), Kishanganj, Bihar



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Mob. : 09411274848
NAAS Rating- 5.59
e-mail - ramarsy@rediffmail.com, website : www.plantarchives.org

Ref. No. : PA/October-2024/04 Dated: 31-03-2024

Dear Sir/ Madam,

I thankfully acknowledge the receipt of your manuscript. You are requested to refer the para(s) ticked (✔) below :

✔ 1. I am pleased to inform you that your manuscript entitled "Optimizing Rice Straw Utilization for Soil Enhancement: A Strategic Approach to Rice Straw Management and its Impact on Soil Properties" by Longjam Boris Singh, S. Zeshmarani, W. Jiten Singh, Chuwang Hijam, Salam Prabin Singh and Sribidya Waikhom has been accepted for publication. Your paper will appear in Vol. 24, No. 2, October- 2024 issue of Plant Archives.

✔ 2. You are requested to pay Rs. 4550/= only towards the publication cost, in favour of the *Plant Archives* in the form of Bank Draft of any nationalized Bank payable at Etawah. Publication cost can be also paid online in the account of "Plant Archives" Account No.- 50033745466 Bank : Indian Bank, Branch-Heonra, Etawah. IFSC Code-IDIB000C501.

(Note : Authors are requested to send transaction receipt and photocopy of Acceptance Letter of the paper after transferring the publication cost.)

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The Pharma Innovation

Nanotechnology and its role in plant pathology

Longjam Boris Singh, Dr. S Zeshmarani, Chuwang Hijam, MK Maqbool Qutub, Yanglem Herojit Singh, S Prabin and Oinam Washington Singh

DOI: https://doi.org/10.22271/tpi.2023.v12.i12a.24452

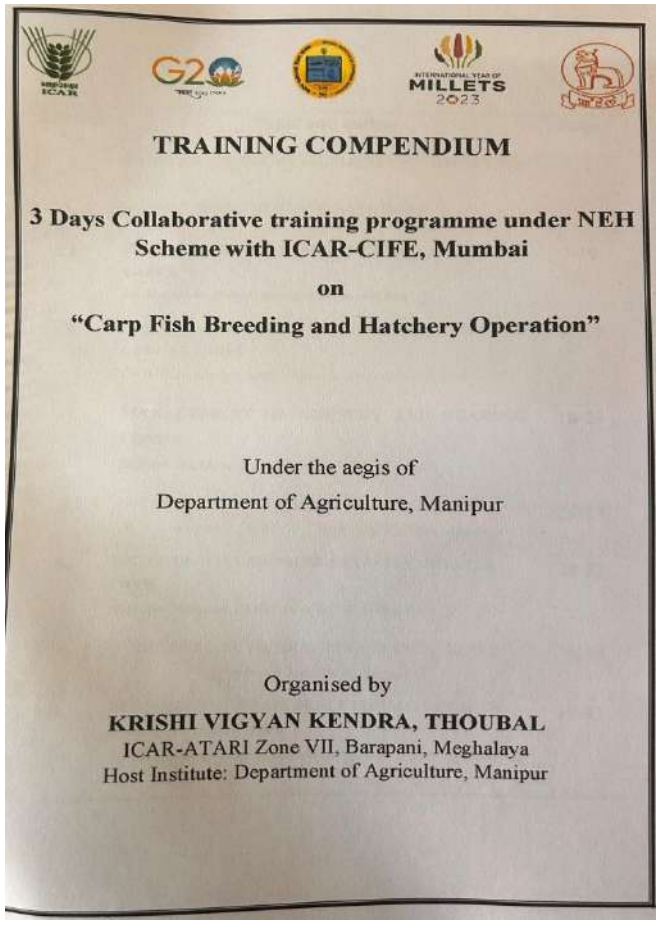
Abstract
Nanotechnology has application potential and prospects in plant pathology in many different aspects viz. direct application in foliage, seeds or soil for plant disease management along with accurate, reproducible, quantitative, reliable, specific, robust, and stable results. Extracellularly and intracellularly synthesis of NPs is carried out using microbes. Detection of plant pathogen plays an important role in successful management of many plant diseases, allowing the effective controlling of disease at various stages of disease development. By virtue of their small size, nanoparticles have exclusive chemical, photosensitive and electrical properties and offer improved surface-to-volume ratios. Nano particles finds application in regulation of pathogen concentrations, its severity, rate of infection, and percentage of bacteria and fungi, viruses, actinomycetes and other pathogens. Nanoparticles causes induction of systemic resistance, reduction of cellular factors, inhibition of DNA replication, suppression of polymerase activity and lowering of infection rate. Emergence of nano particles has enormous concern in agriculture in relation to environment. Even though some of the nanoparticles have varied negative effect, which might lead to degradation of root membrane, remodeling agriculture and successful management of plant pathogens would not be possible without nanotechnology which directly reflects positively on the sustenance of food production and fulfil the increasing demands of food production in an efficient and cost-effective way. Moreover, nanotechnology plays important role in pathogen sensing and control and provides a remedy to the emerging agricultural challenges. Profound research studies, regarding the possible aspects of nanotechnology in plant pathology, is being carried out for exploring an economic, eco-friendly stabilized nanomaterials for effective management of plant diseases in the long run.

Keywords: Nanotechnology, plant disease management, biosynthesis

Introduction
The need of fulfilling the challenge of feeding the ever increasing population has instigated the need for a push in the global food production. However, a disturbance of the food production is instigated by the climate change (Elmer and White, 2018) [27]. The assured promise of food to everyone by the first green revolution has compelled the need for a second green revolution since agriculture is now experiencing a plateau (Singh, 2012) [86]. Hence agriculturist faced a daunting challenge. Globally, agriculture is facing a serious challenge due to biotic and abiotic stresses causing crop losses (Mahendrakis *et al.*, 2019) [77]. Efficient management of pests and diseases is carried out using the conventional agricultural techniques. However, changes in the soil water composition, along with the reduction in absorption rate of nutrients, organic matter content, soil texture and pH accompanied with the damage of leaf residue, target beneficial organism and pollinator species is often associated with the poor active ingredient delivery system drastically. Thus, the continuous reliance on synthetic agrochemicals for plant disease management is being questioned (Kumar *et al.*, 2021a) [56]. The novel mode of action of nanoparticles such as slow and controlled release of active ingredient and multi-site mode of action along with alleviation of effectiveness in lower has significantly reduced the resistance of the pathogens along with the reduction in costs (Mahendrakis *et al.*, 2019; Kumar *et al.*, 2021a) [19, 56]. Thus nanoparticles such as copper, zinc titanium, magnesium, gold, alginate, silver have to play a potent role in the effective management of various bacteria, viruses an deukaryotic microorganisms in agriculture.

History of nanotechnology
The investigation on gold colloids by Michael Faraday in 1831 paved the way for the study on nanoparticles.

Annexure V(Training Manuals)



TRAINING COMPENDIUM

3 Days Collaborative training programme under NEH Scheme with ICAR-CIFE, Mumbai

on

"Carp Fish Breeding and Hatchery Operation"

Under the aegis of

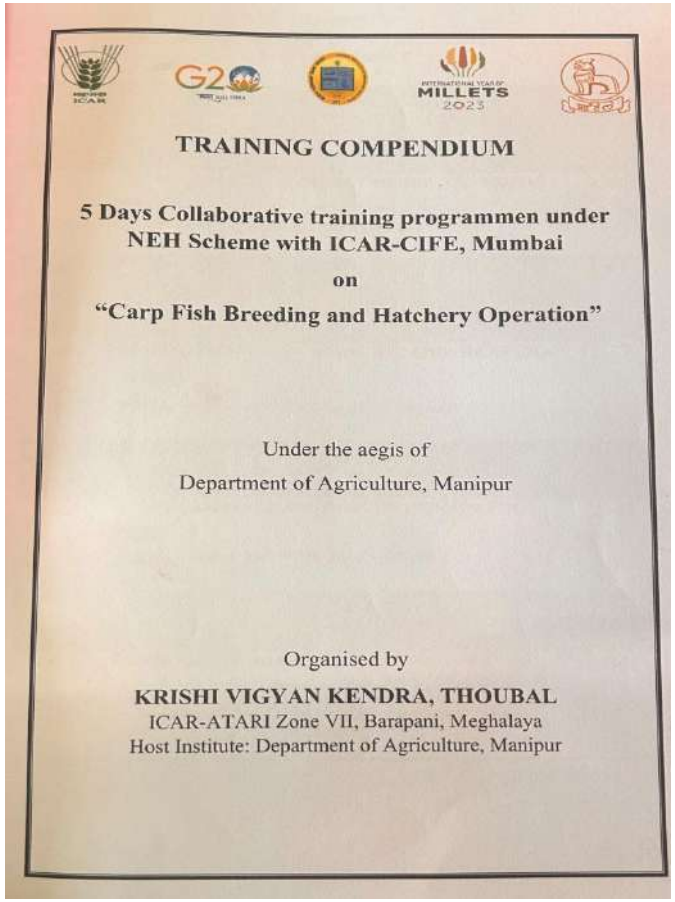
Department of Agriculture, Manipur

Organised by

KRISHI VIGYAN KENDRA, THOUBAL

ICAR-ATARI Zone VII, Barapani, Meghalaya

Host Institute: Department of Agriculture, Manipur



TRAINING COMPENDIUM

5 Days Collaborative training programmen under NEH Scheme with ICAR-CIFE, Mumbai

on

"Carp Fish Breeding and Hatchery Operation"

Under the aegis of

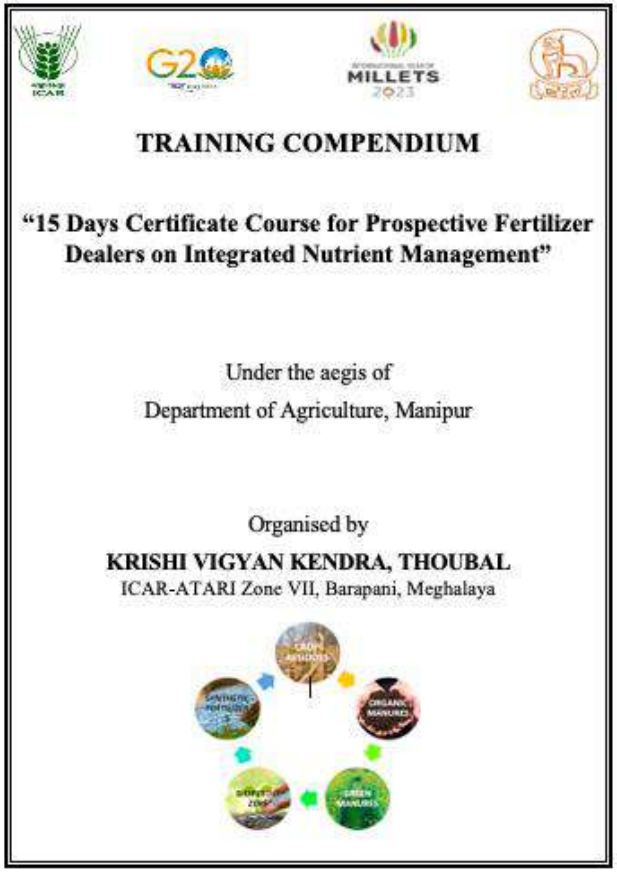
Department of Agriculture, Manipur

Organised by

KRISHI VIGYAN KENDRA, THOUBAL

ICAR-ATARI Zone VII, Barapani, Meghalaya

Host Institute: Department of Agriculture, Manipur



TRAINING COMPENDIUM

"15 Days Certificate Course for Prospective Fertilizer Dealers on Integrated Nutrient Management"

Under the aegis of

Department of Agriculture, Manipur

Organised by

KRISHI VIGYAN KENDRA, THOUBAL

ICAR-ATARI Zone VII, Barapani, Meghalaya

Annexure VII (**KVK NewsletterIssue no. : V (Jan 2022- Dec 2022)**

KRISHI VIGYAN KENDRA, THOUBAL

DEPARTMENT OF AGRICULTURE, GOVERNMENT OF MANIPUR

Issue V NEWSLETTER/ Jan. 2022- Dec. 2022

Promotion of millet by KVK, Thoubal on the International Year of Millets, 2023

Millet are highly varied group of small-seeded grasses, widely grown around the world as cereals crops or grains for fodder and human food and with the escalating importance of millet in respect to high nutritive value and Climate resilient crop. As an impact of climate change, it is very much difficult to carry out agricultural activities in the absence of a viable market, farmers are reluctant to grow millets despite its multiple health benefits. Keeping all these in view a millet cafeteria was established at KVK, Thoubal Farm during Kharif 2022 with 5 varieties of three major millets viz- Sorghum var. CSV-27, Pearl millet Var. PC 701 and Finger millet var. VL 376, VL 379 and VL 380 to create awareness about health and nutritional benefits of millet with the theme "Harnessing the untapped potential of millets for food security, nutrition and sustainable Agriculture". The performance of the millets in respect of adaptability and yield were satisfactory. Harvested millet grains were processed and produced different value added products such as Sorghum sweet balls, Finger millet sweet balls, Puffed rice ball with Sorghum, Cookies and Ladus from Sorghum, Pearlmillet and Finger millet were also prepared and displayed in different exhibitions organized by Dept. of Agriculture; Skill Mela at Kakching & Thoubal Organized by Districts Administration and CAU, Imphal to promote its cultivation and value added products and make aware their nutritive value to the common peoples.

The Cost Benefit ratio of some of the millet products per Kg:

Sl. No.	Product recovery/Kg	Cost (Rs)	Gross (Rs)	Net (Rs)	B:C Ratio
1	Ragi Cookies 140 pieces of 20 gm	705 (including labeling & Packaging)	1400	695	1.9
2	Puff Sorghum Sweet balls	375	700	325	1.8

Message From the Desk of Director

I am very elated to know that Krishi Vigyan Kendra Thoubal is bringing out its 5th issue of Newsletter. I am confident that the readers will find the complete information on mandatory activities and other significant events carried out during the reporting period from January 2022 to December 2022. I hope that KVK Thoubal with its presence in the district will be able to converge with all departments and stakeholders to move ahead and address the emerging challenges faced by the farming community of the district. I extend my earnest wish to those in deliberating various improved technologies for a regenerative, friendly environment and a sustainable livelihood for the farmers.

Lastly, I congratulate Sr. Scientist & Head, KVK Thoubal and all the Staff for their hard work and collective efforts in bringing out this newsletter.

(N. Gojendro)
Director Agriculture Manipur

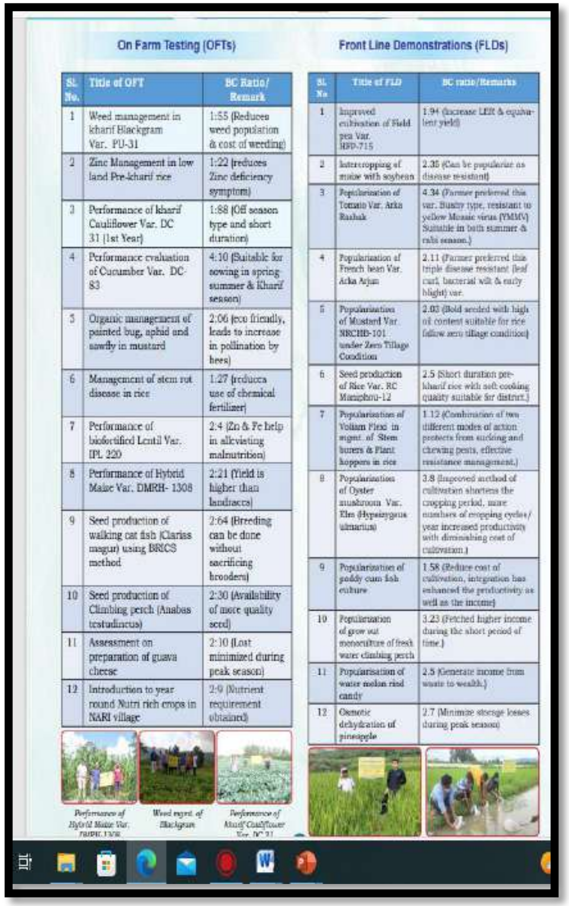
Message from the Sr. Scientist & Head

I am very delighted to put forth the 5th issue of Krishi Vigyan Kendra Thoubal's newsletter. The present issue highlights all the mandated activities achieved through OFTs, FLDs, Trainings to Farmers, Rural Youths, Farm women, Extension functionaries and various farming organizations and the achievements made by this centre during the reporting period w.e.f. Jan. 2022 to Dec. 2022.

I convey my sincere gratitude to ICAR-ATARI Zone VII, Barapani, Meghalaya for all the encouragement, guidance and supports to achieving all the approved Action Plans which were taken up to realize the need of the farming community and made them diversified in their Agricultural farming system. I acknowledged the work and collaborative effort of the editorial team, line departments and other organisations specially the farming community of the district in bring out this issue a success one.

Lastly, I would like to extend my sincere gratefulness to the host institution for their cooperation and support.

(Dr. S. Zeshmarani)
Sr. Scientist & Head, KVK Thoubal



On Farm Testing (OFTs)

Sl. No.	Title of OFT	BC Ratio/ Remark
1	Weed management in kharif Blackgram Var. PU-31	1:55 (Reduces weed population & cost of weeding)
2	Zinc Management in low land Pre-kharif rice	1:22 (reduces Zinc deficiency symptom)
3	Performance of kharif Cauliflower Var. DC 31 (1st Year)	1:88 (Off season type and short duration)
4	Performance evaluation of Cucumber Var. DC 83	4:10 (Suitable for sowing in spring summer & Kharif season)
5	Organic management of painted bug, aphid and sawfly in mustard	2:06 (eco friendly, leads to increase in pollination by bees)
6	Management of stem rot disease in rice	1:27 (reduces use of chemical fertilizer)
7	Performance of biofortified Lentil Var. IPL 220	2:4 (Zn & Fe help in alleviating malnutrition)
8	Performance of Hybrid Maize Var. DMRH- 1308	2:21 (Yield is higher than landraces)
9	Seed production of walking cat fish (Clarias magur) using BRICS method	2:64 (Breeding can be done without sacrificing brooders)
10	Seed production of Climbing perch (Anabas testudineus)	2:30 (Availability of more quality seed)
11	Assessment on preparation of guava cheese	2:10 (Lost minimized during peak season)
12	Introduction to year round Nutri rich crops in NARI village	2:9 (Nutrient requirement obtained)

Performance of Hybrid Maize Var. DMRH 1308 *Weed mgmt. of Blackgram* *Performance of Kharif Cauliflower Var. DC 31*

Front Line Demonstrations (FLDs)

Sl. No.	Title of FLD	BC ratio/Remarks
1	Improved cultivation of Field pea Var. HFP-715	1.94 (Increase LER & equivalent yield)
2	Intercropping of maize with soybean	2.35 (Can be popularize as disease resistant)
3	Popularization of Tomato Var. Arka Rakshak	4.34 (Farmer preferred this var. Bushy type, resistant to yellow Mosaic virus (YMMV) Suitable in both summer & rabi season.)
4	Popularization of French bean Var. Arka Arjun	2.11 (Farmer preferred this triple disease resistant (leaf curl, bacterial wilt & early blight) var.
5	Popularization of Mustard Var. NRCHB-101 under Zero Tillage Condition	2.02 (Bold seeded with high oil content suitable for rice fallow zero tillage condition)
6	Seed production of Rice Var. RC Maniphou-12	2.5 (Short duration pre-kharif rice with soft cooking quality suitable for district.)
7	Popularization of Voliam Flexi in mgmt. of Stem borers & Plant hoppers in rice	1.12 (Combination of two different modes of action protects from sucking and chewing pests, effective resistance management.)
8	Popularization of Oyster mushroom Var. Elm (Hypsizygus ulmarius)	3.8 (Improved method of cultivation shortens the cropping period, more numbers of cropping cycles/ year increased productivity with diminishing cost of cultivation.)
9	Popularization of paddy cum fish culture	1.58 (Reduce cost of cultivation, integration has enhanced the productivity as well as the income)
10	Popularization of grow out monoculture of fresh water climbing perch	3.23 (Fetched higher income during the short period of time.)
11	Popularization of water melon rind candy	2.5 (Generate income from waste to wealth.)
12	Osmotic dehydration of pineapple	2.7 (Minimize storage losses during peak season)

Awards and Recognition

Sl. No.	Detail
1	[illegible]
2	[illegible]
3	[illegible]
4	[illegible]
5	[illegible]
6	[illegible]

Other Extension Activities

Highlight of KVK Mandated Activities

Editorial Committee