PROFORMA FOR ANNUAL REPORT OF KVKS 2022 (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	0384-8291142	-	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	-	-	amdmn@nic.in

1.3. 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 Scale (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	152300	28-02-2018	Gen
2	Subject Matter Specialist	Kh. Premlata Devi	SMS (Horticulture)	Horticulture	15600-39100	91400	12-04-2007	SC
3	Subject Matter Specialist	N. Tomba Singh	SMS (Agronomy)	Agronomy	15600-39100	91400	25-07-2007	Gen
4	Subject Matter Specialist	R.K. Lembisana Devi	SMS (Home Sc.)	Home Science	15600-39100	67000	26-12-2016	Gen
5	Subject Matter Specialist	SribidyaWaikhom	SMS(Fishery)	Fishery	15600-39100	61300	24-07-2019	Gen
6	Subject Matter Specialist	Dr. ChuwangHijam	SMS(PBG)	Plant Breeding & Genetics	15600-39100	57800	6-09-2021	OBC
7	Subject Matter Specialist	Longjam Boris Singh	SMS(PP)	Plant protection	15600-39100	57800	6-09-2021	OBC
8	Computer Programmer	L. Babita Devi	Prog. Asst. (Computer)	-	15600-39100	65000	12-04-2007	Gen
9	Farm Manager	Dr. W. Jiten Singh	Farm Manager	-	15600-39100	65000	12-04-2007	OBC
10	Programme Assistant	Salam Prabin Singh	Prog. Asst. (Ext. Edu. Agri. & Allied)	Agriculture Extension	9300-34800	38700	24-07-2019	OBC
11	Superintendent / Accountant	O. Shilhenba Singh	Accountant	-	9300-34800	42300	05-10-2016	Gen
12	Stenographer	M. Geeta Devi	Jr. Steno cum Computer	-	5200-20200	42800	12-04-2007	Gen

			operator					
13	Driver	M.Hemanta Singh	Driver cum Mechanic	-	5200-20200	34900	12-04-2007	Gen
14	Driver	Th.Tiken Singh	Driver cum Mechanic	-	5200-20200	34900	03-05-2007	Gen
15	Supporting staff	E.Dhabali Singh	Peon cum Chowkidar	-	5200-20200	26000	12-04-2007	Gen
16	Supporting staff	MangminthangZou	Peon cum Chowkidar	-	5200-20200	26000	12-04-2007	ST
	Total	16						

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 iii.Vermiculture iv.Green house & shade net	 i. 1.5 ii. 1.5 iii. 0.1 iv. 0.2
3.	Under Crops (Cereals, pulses, oilseeds etc.)	

	(Pl. specify separately) i.Paddy ii. Pea,Lentil,Chickpea iii.Rape seed and Mustard,Chia,Oilpalm iv.Potato, Onion,Garlic v. Millet	1. 3.5 2. 0.3 3. 1.5 4. 0.3, 0.1,0.1 5. 0.1
4.	Under vegetables 1. Chilli 2. King Chilly 3. Brinjal 4. French bean 5. Cabbage 6. Broccoli 7. Cauliflower 8. Tomato 9. Ladies Finger 10. Pumpkin 11. Bottle Gourd 12. Watermelon	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
2.	Farmers Hostel							
3.	Staff Quarters (5)	Dept. of Agriculture,Govt of Manipur	31-3-12	-	67.90	2-1-12	-	Completed
4.	Demonstration Units (2)	-do-	31-3-12	-	20.07	2-1-12	-	Completed
5	Fencing	Dept. of Agriculture,Govt of Manipur	31-3-12	215m	19.75	2-1-12	-	Completed
6	Rain Water harvesting system							
7	Threshing floor							
8	Farm godown							
9	Seed processing Unit	ICAR	15/02/2018	216m	49.97407	13-10-17	-	Completed

B) Vehicles

Type of vehicle	**Regd. No.**	**Year of purchase**	**Cost (Rs.)**	**Total kms.**	**Present status**
Bolero, Diesel jeep	MN01-K8510	2006-2007	508657	259603	Condemn

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

1.8. A). Details SAC meeting* conducted in 2022

Date	Name and Designation of Participants	Salient Recommendations of 18th SAC held on 29-12-2022	Action taken on recommendation of last 17th SAC held on 11-01-2022
29-12-2022	I. Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel.	• OFT on Performance of *Kharif* Cauliflower Var. DC-31, it was suggested to co-relate the title and problem to be diagnosed and also to calculate the duration over the yield. • OFT on Performance evaluation of cucumber Var. DC-83, it was suggested that local check variety should be short duration variety Such as Kalen thabi and to calculate the duration over yield. • OFT on Performance of bio fortified Lentil Var. IPL 220, the yields of the three treatments (varieties) were slightly significant so it was suggested to add the parameter of zinc and iron content. • OFT on Performance of hybrid maize var. DMRH-1308, it was suggested to mention the exact local check variety • FLD on improved cultivation of field pea var.HFP-715 was suggested to change since OFT on this particular	Instead of using chemical seed treatment it was suggested to replace with organic sources ➢ Replaced with organic based seed treatment *Trichoderma viridae* OFT on Performance evaluation of Cauliflower, it was suggested to change to a short duration variety named White treasure instead of Candid charm (Farmer Practice). ➢ Done as suggested For FLD on Popularization of French Bean var. Arka Arjun fertilizer dose was found extremely high so it was suggested to rechecked the doses of fertilizer. ➢ The fertilizer dose of 30:40:60kg NPK/ha was recommended by IIHR, Bangalore

		variety was not conducted. • FLD on intercropping of maize with soybean, it was suggested to include land equivalent yield in the parameter and yield of sole crop • FLD on Popularization of French bean var. Arka Arjun, it was suggested to compare the BC ratios with the local check • FLD on Seed production of rice var. RC Maniphou -12, it was suggested to compare the seed with grain yield. • FLD on Popularization of Voliam Flexi in management of stem borer and plant hopper in rice, it was suggested that trade name should not be used. • FLD on popularization of grow out monoculture of fresh water climbing perch (*Anabas testudineus*), it was suggested to change the Vietnam Koi with locally available Koi • FLD on intercropping of maize with soyabean, it was suggested to add yield of sole crop in the parameter and land equivalent yield • OFT on Performance evaluation of *Kharif* Cauliflower Var. DC31, it was suggested to simplify the title with Performance of Short duration	

		cauliflower var. DC31 • FLD on Popularization of Tomato Var. Arka Samrat **,** it was suggested to add one more variety to generate data and include a local check variety. • FLD on popularization of French bean var. Arka Arjun, it was suggested to include a check variety. • OFT on Performance of Pearl millet Var. ABV-04 bio fortified with Zinc & iron it was suggested to change the title and to add one more parameter for Zinc & iron content. • FLD on popularization of bio fortified lentil var IPL 220 should be change to assessment of bio fortified lentil var IPL 220 and include a local check • FLD on seed production of Pre-kharif rice var. RC Maniphou 12, it was suggested to compare the seed production with crop production and include a check Mangalphou • FLD on Popularization of Organic management of painted bug, aphid and sawfly in mustard, it was suggested to change as the OFT is in second year and result on parameter are not available. • OFT on Performance of rohu (*Labeo*	

		rohita) fry by feeding live wolffia, it was suggested to go for trial on pilot scale at KVK farm. • OFT on Low cost seed production of Pabda, it was suggested to change. • OFT on Assessment on preparation of millet (sorghum) sweet balls, it was suggested to compare with millet variety only not with rice variety. • Demonstration should be conducted after completion of two year trial. • Animal component (cow) must be included in natural farming and compare the soil status before and after intervention.	
	Kh. Nimaichand Singh PO(MOVCD), Directorate of Agriculture	• OFT on Organic management of painted bug, aphid and sawfly in mustard, it was suggested to specify the percentage of neem oil. • OFT on Management of purple blotch in garlic, it was suggested to replace the crop garlic to onion as it is cultivated in larger scale, to include severity % and add a treatment with combination of organic and cultural method. • FLD on management of blast disease in rice, it was suggested to change the	

		resistant variety, to make economically viable in conducting an experiment and different treatment cannot be applied in same unit.	
	Th. Motilal, Senior Scientist & Head, KVK Imphal West.	FLD on Impact on participatory rice seed production of RC Maniphou 13 under DFI villages in Thoubal district, it was suggested to give overall average yield of rice of different method. FLD on popularization of French bean var. Arka Arjun, it was suggested to include a check variety. FLD on impact assessment on farmer's perception and performance of livestock based training programmes, it was added to add social concept to be demonstrated/methodology In crop base contingency planning, it was suggested to specify particular varieties of crop	
	S. Molibala, Senior Scientist & Head, KVK Imphal East.	• OFT on Performance of hybrid maize var. DMRH-1308, it was suggested to co-relate the title and problem diagnosed. FLD on Popularisation of Gauva Cheese, it was suggested to change the demonstration on value addition of multi grain millet and rectify the source of technology	

	Shri. Todinang Panmei, Joint Director of Agriculture, Manipur		
	Dr. A.K. Sinha, Joint Director, ICAR, Manipur Centre		Three nos. of Vocational training should be conducted per year and duration should not be less than 10 days. ➢ As suggested vocational training of 10 or more days has been conducted. As a general recommendation every KVK of Zone VII shall taken up Organic farming, Natural farming and Precision farming. ➢ Natural farming & organic farming has been taken up in the KVK Campus. To Identify three most significant technology promoted and popularised by KVK and submit to ATARI with details of the technology, Area of coverage, percent increase before and after introduction and farmers feedback. ➢ Submitted to ATARI Director ATARI enquired about the condition of the KVK staff quarter and whether it is being occupied by any

			staff or not. ➢ Need renovation and is occupied
	Dr. Deepak Nath, Deputy Director (Extn. Edn.) CAU, Imphal		
	Dr. R Bordoloi, Principal Scientist, ATARI, Zone VII, Umiam		
	Th. Kiran, DDM, NABARD Manipur		DDM NABARD suggested to give a proposal for popularization of Panchgavya Organic Manure ➢ The proposal has been submitted to NABARD, Imphal
	L. Inaobi Singh, Deputy Director, SAMETI		
	N. Nilamani Singh, DTO/NO,SHC Agri		
	N. Devshini Devi, A.O (H& SC), Thoubal		
	Dr. Md. Fajur Rahman, Vety. Officer, Thoubal		

	Th. Joyprakash Singh, Nodal officer, SAMETI ATMA, Directorate of Agriculture		
	H. Manihar Singh, ASKO, Dept. Of Agriculture		
	N. Kumar Singh, Rice Breeder, RSS, Wangbal		
	MS Khaidem, Project Consultant, Oil Palm Mission, Manipur		
	A. Altias, LDM, Kakching		
	Th. Th. Tunglut, LDM, Thoubal		
	Dr. L. Jeeceelee, DFO, Thoubal		
	N. Debaki Devi, EO (Agri) DAO, Thoubal		
	N. Noren Singh, F/D, District Fishery Office, Thoubal		
	Dr.Kh. Brajamani Meitei, Sr. Scientist & Head, KVK, Bishnupur		
	Dr. A. Ameeta Devi, Sr. Scientist & Head, KVK Chandel		
	Dr. N. Jyotna Devi, Sr. Scientist & Head, KVK, Senapati		

	Kh. Maipak Singh , SMS (PP), KVK, Bishnupur		
	Naveen Pandey, Mahatama Gandhi, NF, MSDR, Thoubal		
	I. Abesana, MGNF, Kakching		
	Romario Maibam, CEO, Kaoren Phaba FPC, Ltd. Thoubal		
	Y. Ureshkumar Singh, CEO, Khana Chaoba FPC, Ltd, Kakching		
	Hijam Ojit Kumar, CEO, Nongpok Ningthou FPC, Ltd, Thoubal		
	Vareiso Awungshi, CEO, Loumeegi Thouna FPC, Ltd, Thoubal		
	Kh. Baleshwori Devi	Progressive Farmer	
	Ph. Thoiba Singh	Progressive Farmer	
	AK. Deben Singh	Progressive 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

Month	Rainfall (mm)	Temperature ^{0} C		Relative Humidity (%)
		Maximum	Minimum	
January	30.4	21.0	7.9	91.9
February	47.9	22.2	7.3	87.3
March	57.0	29.7	13.7	79.7
April	141.0	28.5	18.2	80.9
May	382.9	27.8	20.0	87.9
June	286.2	28.7	22.0	87.6
July	148.4	31.0	22.9	80.9
August	94.8	30.0	22.4	87.1
September	98.6	30.5	23.9	88.3
October	146.3	28.9	18.6	88.1
November	5.4	27.2	11.9	90.8
December	18.8	23.7	8.9	95.3

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 (2022)

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	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	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	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	Langathel	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	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 uni

17	Thoubal	Thoubal	Tekcham	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	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, Irengband	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	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	Serou	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 2022

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	15	15
Horticulture	2	2	10	10	2	2	16	16

Fishery	2	2	10	10	2	2	17	17
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
Agri. Extension	-	-	-	-	2	2	250 farmers	250 farmers
Total	12	12	60	60	14	14		

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 2022

Sl. No	**Thrust area**	**Crop/ Enterprise**	**Identified problems**	**Interventions**					
				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	Weed management in Blackgram using Pendimethalin	Blackgram	Usually farmers manage weeds without using herbicide instead practice dense planting and hand weeding.	Weed management in kharif Blackgram	-	Scientific cultivation of kharif pulses		Field visit, Farmer Scientist interaction	Seed, herbicide, Fertilizer

2	Nutrient managementu sing Zinc	Rice	Usually in rice field Zinc is not applied even though there is problem in Zinc deficiency.	Zinc Management in low land Pre-kharif rice	-	Scientific cultivation of rice		Field visit	Seed, Fertilizer
3	Early season vegetable production	Cauliflower	Dearth of varietal choice	Performance of kharif Cauliflower	-			Field visit	Planting materials
4	Cucumber production	Cucumber	Lesser availability of locally suitable improved Variety	Performance evaluation of Cucumber	-				
5	Organic Pest Management in mustard	Mustard	Insect pest infestation : Aphid - 45 % Painted bug- 30 %; Sawfly- 20 %	Organic management of painted bug, aphid and sawfly in mustard	-	Biopesticide formulation		Field visit	Biopesticide , PP Chemicals
6	Disease Management in paddy	Rice	Stem rot is an emerging disease of paddy in Thoubal district	Management of stem rot disease in rice		Disease management of rice		Field visit	PP Chemicals
7	Introduction of Lentil variety	Lentil	Poor varietal Diversification	Performance of biofortified Lentil				Field visit	Seed
8	Evaluation of hybrid maize	Maize	Poor varietal Diversification	Performance of Hybrid Maize				Field visit	Seed
9	Fish breeding	Fish-Walking catfish (*Clarias magur*)	Sacrificing of male brooder for seed production, Non availability of sufficient quantity of quality seed.	Seed production of walking catfish (*Clarias magur*) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning) method	-	Breeding & seed production of air breathing fish (*Clarias magur)*	-	Field visit, Farmer Scientist interaction, Radio talk	Brooder fish, hormone, syringe

10	Fish breeding	Fish-Climbing perch (*Anabas testudineus*)	Scarcity of quality seeds of local climbing perch	Seed production of Climbing perch (*Anabas testudineus)*	-	Breeding & seed production of air breathing fish (*Anabas testudineus)*	-	Field visit, Farmer Scientist interaction	Brooder fish, hormone, syringe
11	Value addition	Gauva cheese	Due to its perishable nature during peak season it is difficult to store	Assessment on preparation of guava cheese		Preparation of Gauva cheese		Field visit	Sugar, Preservatives
12	Nutrition Gardening	Nutrition Gardening		Introduction to year round Nutri rich crops in NARI village	-	Importance of Nutrition gardening		Field visit	Seeds, Planting materials

3.1 Achievements on technologies assessed and refined during 2022

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	Maize		Lentil(2)							3
Seed / Plant production										
Weed Management			Blackgram							1
Integrated Crop Management										
Integrated Nutrient Management	Rice									1
Integrated Farming System										
Mushroom cultivation										
Drudgery reduction										
Farm machineries										
Value addition						Gauva				1

Integrated Pest Management		Mustard								1
Integrated Disease Management	Rice									1
Resource conservation technology										
Small Scale income generating enterprises					Nutrition gardening	-	-	-	-	1
TOTAL										7

* *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	-	-	-	-	-	-	-	-
Breeding	-	-	-	-	-	-	i. Walking catfish (*Clarias magur*) ii. Climbing perch (*Anabas testudineus)*	1 1
TOTAL	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-
Value Addition	-	-	-	-	-	-	-	-

Production and Management	-	-	-	-	-	-	-	-
Breeding	-	-	-	-	-	-	-	-
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></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Weed management in kharif Blackgram</td><td>Usually farmers manage weeds without using herbicide instead practice dense planting and hand weeding.</td><td>Pre emergence application of herbicide

T1- Pendimethalin @ 1kg/ha at 1 DAS + 1 HW at 20-25 DAS

T0 – Dense planting (30 kg/ha) + 1 HW at 20-25 DAS

• Seed treatment: Trichoderma 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>Blackgram</td><td>5</td><td>
<table>
<tr><th>Parameter</th><th>T1</th><th>T0</th></tr>
<tr><td>Plant ht. (cm)</td><td>47</td><td>50</td></tr>
<tr><td>Weed population at (DAS)</td><td></td><td></td></tr>
<tr><td>15</td><td>5</td><td>12</td></tr>
<tr><td>30</td><td>14</td><td>18</td></tr>
<tr><td>45</td><td>16</td><td>19</td></tr>
<tr><td>No.of pod/plant</td><td>45-48</td><td>38-40</td></tr>
<tr><td>No.of branches/plant</td><td>3-4</td><td>3-4</td></tr>
<tr><td>Yield (q/ha)</td><td>6.2</td><td>5.4</td></tr>
<tr><td>Net return (Rs./ha)</td><td>154000</td><td>11800</td></tr>
<tr><td>B:C ratio</td><td>1.55</td><td>1.45</td></tr>
</table>
</td><td>Seeing the performance of weedicide in blackgram cultivation farmers appreciate the technology</td><td>Satisfactory</td><td>1.55</td></tr>
</table>

<table>
<tr>
<td>2</td>
<td>Zinc Management in low land Pre-kharif rice</td>
<td>Usually in rice field Zinc is not applied even though there is problem in Zinc deficiency.</td>
<td>T1 -$ZnSO_4$@20 kg/ha (basal)

T0- Without $ZnSO_4$

➢ Seed treatment: Mancozeb @ 2.5 g/kg seed.

➢ Spacing : 15 x 15 cm

➢ Fertilizer : NPK @ 60:40:30 kg/ha. ½ N, full P & 2/3 K as basal; ¼ N at 25-30 DAT & ¼ N + 1/3 K at P.I stage</td>
<td>Rice</td>
<td>5</td>
<td>
<table>
<tr><th>Parameter</th><th>T1</th><th>T0</th></tr>
<tr><td>No.of tillers/plant</td><td>728</td><td>728</td></tr>
<tr><td>No.of filled grain/panicle</td><td>138</td><td>135</td></tr>
<tr><td>No.of grains/panicle</td><td>122</td><td>112</td></tr>
<tr><td>Length of panicle</td><td>20</td><td>20</td></tr>
<tr><td>Seed yield (q/ha)</td><td>38</td><td>34</td></tr>
<tr><td>Net return (Rs./ha)</td><td>15500</td><td>7500</td></tr>
<tr><td>B:C ratio</td><td>1.19</td><td>1.09</td></tr>
<tr><td>Farmers reaction</td><td colspan="2">Deficiency symptoms of zinc couldn’t be seen in the treatment plots & also increase yield though not significant compare to without zinc management.</td></tr>
</table>
</td>
<td>Appreciate the result of using zinc in managing the zinc difficiency disease though the increase in yield was not satisfactory.</td>
<td>Satisfactory</td>
<td>1.22</td>
</tr>
</table>

<table>
<tr>
<td>3</td>
<td>Performance of kharif Cauliflower</td>
<td>Dearth of varietal choice</td>
<td>Performance of Kharif Cauliflower Var.DC31
• T1 - DC31
• T0- Candid Charm
➢ Seed rate :450g/ha
➢ Spacing: 60 x 45 cm
➢ Sowing time : June, 2022
➢ Time of Transplanting : July, 2022
➢ Seed treatment : Trichoderma viride @ 4g/kg of seed.
➢ Nutrient requirement: NPK: 120: 60: 100kg/ha. N in 3 splits , ½ N + full P & K as basal dose. ¼ N at 15 DAT and ¼ N at flowering stage.</td>
<td>Cauliflower</td>
<td>5</td>
<td>
<table>
<tr><th>Parameter</th><th>T1</th><th>T0</th></tr>
<tr><td>Curd size (kg)</td><td>0.42</td><td>0.55</td></tr>
<tr><td>Duration</td><td>65</td><td>74</td></tr>
<tr><td>Yield (q)</td><td>47</td><td>54</td></tr>
<tr><td>B:C ratio</td><td>1.88</td><td>2.16</td></tr>
<tr><td>Consumer preference</td><td colspan="2">Preferred because of off season type and short duration</td></tr>
</table>
</td>
<td>Preferred because of off season type, short duration and fetching more income during kharif season</td>
<td>Satisfactory</td>
<td>1.88</td>
</tr>
</table>

<table>
<tr>
<td>4</td>
<td>Performance evaluation of Cucumber</td>
<td>Lesser availability of locally suitable improved Variety</td>
<td>Performance of Cucumber

Var.DC-83

Seed rate - 2kg/ha

Spacing- 60 x 30 cm

Planting time – March

Seed treatment – Trichoderma viridae @ 4g/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 at flowering stage.</td>
<td>Cucumber</td>
<td>5</td>
<td>
<table>
<tr><th>Parameter</th><th>T1</th><th>T0 (Local Chinjin Thabi)</th></tr>
<tr><td>Fruit yield (g)</td><td>140</td><td>120</td></tr>
<tr><td>Duration</td><td>40-45</td><td>65-70</td></tr>
<tr><td>No.of fruits/plant (kg)</td><td>4</td><td>3.2</td></tr>
<tr><td>Yield (q)</td><td>130</td><td>122</td></tr>
<tr><td>B:C ratio</td><td>4.10</td><td>3.85</td></tr>
<tr><td>Consumer preference</td><td colspan="2">Suitable for sowing in spring-summer & kharif season</td></tr>
</table>
</td>
<td>Farmers have good response that could grow more crops in the field by growing a short duration variety of cucumber</td>
<td>Satisfactory</td>
<td>4.10</td>
</tr>
</table>

<table>
<tr>
<td>5</td>
<td>Organic management of painted bug, aphid and sawfly in mustard (2nd Year)</td>
<td>Insect pest infestation

Severity:
Aphid - 45 % ,Painted bug- 30 %;

Sawfly- 20 %</td>
<td>T1- Bacillus thuringiensis @2ml/ lt. of water. (750 ml/ha) Spraying at 1, 3, 7, 10 days interval.

T0 - Farmers practice (Chlorantrailiprole 18.5% SC application @50 ml/ha) single spray</td>
<td>Mustard Var.NRC HB-101</td>
<td>5, 1.5 ha</td>
<td>
<table>
<tr><td colspan="2">Parameters</td><td>T1 (Bacillus thuringiensis)</td><td>T0

Chlorantraniliprole 18.5% SC)</td></tr>
<tr><td rowspan="2">Aphid/

10 cm of central twig</td><td>Before spray</td><td>40.11</td><td>57.21</td></tr>
<tr><td>After spray</td><td>30.32</td><td>14.25</td></tr>
<tr><td rowspan="2">Painted bug per plant</td><td>Before spray</td><td>3.1</td><td>3.2</td></tr>
<tr><td>After spray</td><td>2.43</td><td>1.55</td></tr>
<tr><td rowspan="2">Sawfly per plant</td><td>Before spray</td><td>2.51</td><td>3.12</td></tr>
<tr><td>After spray</td><td>1.54</td><td>1.54</td></tr>
<tr><td colspan="2">Net return</td><td>24950</td><td>31450</td></tr>
<tr><td colspan="2">Yield (q/ha)</td><td>7.30</td><td>8.29</td></tr>
<tr><td colspan="2">B:C ratio</td><td>2.11</td><td>2.40</td></tr>
</table>
</td>
<td></td>
<td>Recommend for FLD</td>
<td>2.11</td>
</tr>
</table>

<table>
<tr>
<td>6</td>
<td>Management of stem rot disease in rice (1st year)</td>
<td>Lack of pre-planting field sanitation causes stem rot which reduces the yield

Severity : 80%</td>
<td>➢ T1-Field sanitation (Summer ploughing, removal of fungal sclerotia)

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

➢ T0-Spraying Propiconazole 25 % EC @2ml/lt (500-750ml/ha)</td>
<td>Rice var. CAU-R1</td>
<td>5 (1.25 ha)</td>
<td>
<table>
<tr><th>Parameters

(% of infected plant)</th><th>T1

Cultural</th><th>T0

Propiconazole 25% EC</th></tr>
<tr><td>Tillering</td><td>20</td><td>25</td></tr>
<tr><td>Panicle initiation</td><td>25</td><td>28</td></tr>
<tr><td>Flowering</td><td>21</td><td>19</td></tr>
<tr><td>Mean</td><td>22</td><td>24</td></tr>
<tr><td>Net return</td><td>25000</td><td>22500</td></tr>
<tr><td>Yield (q/Ha)</td><td>460</td><td>450</td></tr>
<tr><td>B:C</td><td>1.27</td><td>1.25</td></tr>
</table>
</td>
<td>Farmers have good response. Technology recommended (T1) have been found to cause less infestation of stem rot disease</td>
<td></td>
<td>1.27</td>
</tr>
</table>

<table>
<tr>
<td>7</td>
<td>Performance of biofortified Lentil</td>
<td>Poor varietal Diversification</td>
<td>
<table>
<tr><th>Parameter</th><th>T1 (IPL-220)</th><th>T0 (HUL-57)</th></tr>
<tr><td>Seed rate</td><td colspan="2">40kg/ha; spacing-30X 10 cm</td></tr>
<tr><td>Seed treatment</td><td colspan="2">Trichoderma viridae 4g/kg seed</td></tr>
<tr><td>Fertilizer dose</td><td colspan="2">NPK @ 18:46:20 kg/ha (1/2N, full P & K at basal and ½ N at flowering/pod formation)</td></tr>
</table>
</td>
<td>Lentil Var. IPL 220</td>
<td>5</td>
<td>
<table>
<tr><th>Parameter</th><th>T1</th><th>T0</th></tr>
<tr><td>Plant ht.(cm)</td><td>33.5</td><td>31.33</td></tr>
<tr><td>Days to 50% flowering</td><td>62.32</td><td>62.45</td></tr>
<tr><td>Days to 80% maturity</td><td>118.57</td><td>115.22</td></tr>
<tr><td>No.of pods/plant</td><td>52.66</td><td>51.17</td></tr>
<tr><td>No.of seeds/pod</td><td>2.46</td><td>2.13</td></tr>
<tr><td>Yield (q/ha)</td><td>9.13</td><td>8.02</td></tr>
<tr><td>Net return (Rs/ha)</td><td>48170</td><td>41180</td></tr>
<tr><td>B:C ratio</td><td>2.42</td><td>2.32</td></tr>
</table>
</td>
<td>Results are satisfied and want to cultivate further with resistant from Fusarium wilt diesease</td>
<td>

Delay in planting due to preceedingrice crop
Need well irrigated area
Low formation of rhizobium nodules due to soil acidity

</td>
<td>2.05</td>
</tr>
</table>

<table>
<tr>
<td>8</td>
<td>Performance of Hybrid Maize</td>
<td>Poor varietal Diversification</td>
<td>
<table>
<tr><th>Parameter</th><th>T1 DMRH-1308</th><th>T0 Maize Var. 9544</th></tr>
<tr><td>Seed rate</td><td colspan="2">20 kg/ha</td></tr>
<tr><td>Seed treatment</td><td colspan="2">Trichoderma viridae 4g/kg seed</td></tr>
<tr><td>Fertilizer dose</td><td colspan="2">120:60:60 Kg/ha (N:P:K)</td></tr>
<tr><td>Weed management:</td><td colspan="2">Atrazine (1.5kg a.i/ha) as pre emergence followed by 2,4-D Amine 0.4 kg a.i/ha at 25 DAS as post emergence.</td></tr>
</table>
</td>
<td>Maize</td>
<td>5</td>
<td>
<table>
<tr><th>Parameter</th><th>T1 DMRH-1308</th><th>T0 Maize Var. 9544</th></tr>
<tr><td>Plant height</td><td>185.4</td><td>208.1</td></tr>
<tr><td>No. of Cobs per Plant</td><td>2.4</td><td>2.0</td></tr>
<tr><td>Days to 50 % Taselling</td><td>80.2</td><td>78.4</td></tr>
<tr><td>Ear Height (cm)</td><td>104.6</td><td>110.3</td></tr>
<tr><td>No of kernels per cob</td><td>14.0</td><td>14.0</td></tr>
<tr><td>Cob length (cm)</td><td>15.5</td><td>15.0</td></tr>
<tr><td>Yield (Q/ha)</td><td>28.50</td><td>24.50</td></tr>
<tr><td>BCR</td><td>2.21</td><td>1.90</td></tr>
</table>
</td>
<td></td>
<td></td>
<td>2.21</td>
</tr>
<tr>
<td>9</td>
<td>Seed production of walking catfish (Clarias magur) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning</td>
<td>Sacrificing of male brooder for seed production, Non availability of sufficient quantity of quality seed.</td>
<td>Seed production of Walking catfish using BRICS method
➢Selection of brooder-
Hormone administration:
➢1st dose: Ovatide @ 0.5ml per Kg body weight in both Male &Female;
➢2nd dose: Oxytocin @40 milli IU after 12 hrs of ovatide injection in both</td>
<td>Walking cat fish (Clarias magur)</td>
<td>5</td>
<td>Technology (BRICS method)
Hatchability : 79 %
Growth rate : 1 g/month
Survivability % : 60%
Net return (Rs/unit.) : 48730
BC Ratio : 2.64
Farmers Practice: (Seed production by sacrificing male brooder)
Hatchability : 43 %</td>
<td>As BRICS method of magur breeding is done without sacrificing the male brooder which helps in reducing the cost of breeding, number of</td>
<td>Recommended for FLD</td>
<td>2.64</td>
</tr>
</table>

	) method		Male & Female ➢ Removal of brooders after 24 hrs of injection; ➢ Incubation of eggs in the tank with water flow @ 0.3-0.5 litre/min; Incubation period: 24-30 hours.			Growth rate : 1 g/month Survivability % : 33% Net return (Rs./unit) : 32820 BC Ratio : 1.9	breeding can be repeated with the same broods and also it can be taken up in low cost technology.		
10	Seed production of Climbing perch *(Anabas testudineus*)	Scarcity of quality seeds of local Climbing perch	Seed production of Climbing perch ➢ Selection of brooder. ➢ Injecting with ovatide hormone- ➢ Male- 0.25-0.5 µl/g bw; ➢ Female- 0.5-1.0 µl/g bw; ➢ Releasing of brooder in breeding pool ➢ Spawning time- 7- 8 hours after hormone injection. Incubation of fertilized egg in stagnant water in	Climbing perch *(Anabas testudineus*)	5	**Technology (Local *Anabas testudineus*):** Hatchability : 92 % Growth rate : 1.5g/month Survivability % : 70% Net return (Rs/unit.) : 61360 BC Ratio : 2.36 Consumers preference : Highly accepted by the consumer because of its taste **Farmers Practice: (Vietnam Koi)** Hatchability : 95 % Growth rate : 2.0g / month	Appreciated the result as it can be taken up by farmers/rural educated youths as an enterprise.	Recommended for FLD	2.36

<table>
<tr>
<td></td>
<td></td>
<td></td>
<td>plastic tubs;
➢ Incubation period: 12-15 hrs.</td>
<td></td>
<td></td>
<td>Survivability % : 75%
Net return (Rs./unit) : 86215
BC Ratio : 2.9
Consumers preference : Less consumer acceptance due to its appearance and taste (reduce in chewiness & Springiness)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Assessment on preparation of guava cheese</td>
<td>Due to its perishable nature during peak season it is difficult to store</td>
<td>
<table>
<tr><td>Ingredients</td><td>T1</td><td>T2</td></tr>
<tr><td>Pulp :Sugar (kg)</td><td>1:1.25</td><td>1:1.5</td></tr>
<tr><td>Citric acid(gm)</td><td>3</td><td>5</td></tr>
<tr><td>Butter (gm)</td><td>60</td><td>80</td></tr>
</table>
</td>
<td>Gauva</td>
<td>5</td>
<td>
<table>
<tr><td>Product recovery/kg</td><td>1.5</td><td>1.75</td></tr>
<tr><td>Shelf life (months)</td><td colspan="2">3 months</td></tr>
<tr><td>Net return (from 1 kg)</td><td>Rs.520</td><td>Rs.645</td></tr>
<tr><td>BC Ratio</td><td>2.3</td><td>2.5</td></tr>
</table>
<u>Nutritional content per 100 gm</u>
Energy (Kcal/100g) : 128.2
Protein : 1.57
Fats (g) : 2.32
Carbohydrate (g) : 25.26
Vitamin C (mg) : 72.42
Tested at college of Food Tech., CAU [I]
</td>
<td>Appreciated</td>
<td>Appreciated & recommended for taking up as an enterprise</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Introduction to year round Nutri rich</td>
<td>Non availability of diversified</td>
<td>Nutrition gardening
Inclusion of nutrient rich crops (Quinoa, Chia) with bio-fortified crops- lentil</td>
<td>Nutrition gardening</td>
<td>5</td>
<td>
1. Quantity of nutritious crop supplied
<table>
<tr><th rowspan="2">Crops</th><th colspan="3">Production (kg)</th></tr>
<tr><th>Kharif</th><th>Rabi</th><th>Zaid</th></tr>
<tr><td>Roots & Tubers</td><td>15</td><td>77.50</td><td>25</td></tr>
</table>
</td>
<td>Appreciated</td>
<td>Recommended to diversify by adding bio-</td>
<td></td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>crops in NARI village</td>
<td>nutrient rich crops</td>
<td>IPL 220 (Zinc), Sweet potato NFSP-1 (Anthocyanin), Maize HQPM-5 (Protein), Casava CAU Umangra-1 (Carotene) to existing crops</td>
<td></td>
<td></td>
<td>
<table>
<tr><td>Leafy vegetables</td><td>36</td><td>28.00</td><td>33</td></tr>
<tr><td>Other Veg</td><td>142</td><td>174</td><td>109</td></tr>
<tr><td>Pulses</td><td>48</td><td></td><td></td></tr>
<tr><td colspan="4">2. Diversified Crops</td></tr>
<tr><td>Chia</td><td colspan="3">500g</td></tr>
<tr><td>Quinoa</td><td colspan="3">600 g</td></tr>
<tr><td>Biofortified Lentil Var. IPL-220</td><td colspan="3">5 kg</td></tr>
<tr><td colspan="4">3. Quantity of nutrient supplemented (gm):</td></tr>
<tr><td></td><td>Kharif</td><td>Rabi</td><td>Zaid</td></tr>
<tr><td>Protein</td><td>4797.06</td><td>7956.11</td><td>4375.86</td></tr>
<tr><td>Fat</td><td>6914.63</td><td>1143.53</td><td>6307.4</td></tr>
<tr><td>Fiber</td><td>2030.55</td><td>3367.75</td><td>1852.26</td></tr>
<tr><td>Carbohydrate</td><td>13636.40</td><td>22616.56</td><td>12439.10</td></tr>
</table>
</td>
<td></td>
<td>fortified crop varieties</td>
<td></td>
</tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

**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 2022

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.	Rice	Integrated Crop Management in rice	6	20	10
2.	Rice	Seed production technology of rice var. CAU R1 & RC Maniphou -13	10	70	50
3.	Black gram	Participatory seed production of black gram var. PU-31	6	15	10
4.	Mustard	Popularization of mustard var. NRCHB-101 under zero tillage condition	10	50	20
5.	Fish based Integrated Farming System	Popularization of Fish based Integrated Farming System	10	10	5.0
6.	Chow chow Bori	Popularization of Chow chow bori	10	10	-

** 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	Total					

1.	Field pea	Cropping system	Improved cultivation of Field pea Var. HFP-715	*Rabi*	1.25	1.25		5	5	-	irrigated	300.5	47	330
2.	Maize Soybean	Cropping system	Intercropping of maize with soybean	*Kharif*	0.5	0.5		5	5	-	Rainfed	270	12	298
3.	Tomato	Varietal evaluation	Popularization of Tomato Var. Arka Rashak	*Kharif*	0.5	0.5	1	7	8	-	Irrigated	310	12	290
4.	French bean	Varietal evaluation	Popularization of French bean Var. Arka Arjun	*Kharif*	0.5	0.5	0	8	8	-	Irrigated	310	12	260
5	Mustard	Seed production	Popularization of Mustard Var. NRCHB-101 under Zero Tillage condition	*Kharif*	2.5	2.5	1	9	10	-	Irrigated	280	14	320
6	Rice	Seed Production	Seed production of Rice Var. RC Maniphou-12	*Kharif*	2.5	2.5	2	8	10	-	Rainfed	300.5	47	330
7	Rice	Pests Management	Popularization of Voliam Flexi in mgmt. of Stem borers & Plant hoppers in rice	*Kharif*	2.5	2.5	2	8	10	--	Rainfed	300	47	330

8	Mushroom	Mushroom cultivation	Popularization of Oyster mushroom Var. Elm (*Hypsizygous ulmarius*)	*Year round*	-	-	2	3	5	-				
9	Fish Paddy	Integrated fish farming	Popularization of paddy cum fish culture	*Kharif*	1.75	1.75	1	6	7	-	-			
10	Fish	Pond Management	Popularization of grow out monoculture of fresh water climbing perch	*Kharif*	0.5	0.5	1	9	10	-				
11	Water melon	Value addition	Popularisation of water melon rind candy	*Kharif*	-	-	4	6	101	-	*Kharif*			
12	Pineapple	Value addition	Osmotic dehydration of pineapple	*Kharif*	-	-	4	6	10	-	*Kharif*			
13	NARI	Nutritional gardening	Impact of NARI (Nutri-Sensitive Agricultural Resources & Innovations) in enhancement of Farmers' livelihood and Nutritional security	Year round	-	-	20	110	130	-				

14	Rice		Impact on Participatory rice seed Production of RC Maniphou 13 under DFI Villages in Thoubal district	*Kharif*	-	-	20	110	130	-	*Kharif*	300.5	47	330

c. Performance of FLD on Crops during 2022

Sl. No.	Crop	Thematic area	Area (ha.)	Avg. yield (Q/ha.)		% increase in Avg. yield	Additional data on demo. yield (Q/ha.)		Data on parameters other than yield, e.g., disease incidence, pest incidence etc.		Econ. of demo. (Rs./ha.)				Econ. of check (Rs./Ha.)			
				Demo.	Check		H*	L*	Demo	Local	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR
1	Field Pea var. HPF-715	Cropping system	1.25	9.23	8.75	5.49	10.58	7.80	-	-	38000	73841	35840	1.94	35000	70000	35000	1.84
2	Maize var. HQPM-5 and soybean var. VL Soya	Cropping system	0.5	Maize Intercrop= 17.4 Soybean intercrop=	Maize Sole = 22.5 Soybean sole=	-	-	-	-	-	45000	105700	60700	2.35				

	63			6.4	10.2												
3	Tomato Arka Rakshak	Varietal evaluation	0.5	250	242	3.31	258	245	-	-	115000	500000	385000	4.34	117500	480000	362500	4.08
4	French Bean var. Arka Arjun	Varietal evaluation	0.5	40	34	17.65	45	32	-	-	85000	180000	95000	2.11	88000	153000	65000	1.73
5	Mustard var. NRCHB-101	Seed production	2.5	9.4	8.4	10.63	9.5	9.0	1. Plant Height= 122.07cm 2. No of Branches per plant=22.03 3. No of siliqua per plant=119.5 4. No of seeds per siliqua=15.2	1. Plant Height= 150.3cm 2. No of Branches per plant=26.34 3. No of siliqua per plant=280.74 4. No of seeds per siliqua=8.4	30000	61000	31000	2.03	28000	54600	26600	1.95

6	Rice var. RC Manip hou-12	Seed production	5	43.5	37.15	17.06	44	40	-	-	94000	236500	142500	2.52	94000	209000	115000	2.22
7	Rice Var. RC Manip hou-13	Insect pests Management	2.5	45.0	41.0	9.75	52.	39	% infestation of stem borer 30 days after treatment = 6 % infestation of hoppers 30 days after treatment = 4 % infestation of stem borer 60 days after treatment = 8 % infestation of	% infestation of stem borer 30 days after treatment =8 % infest. of hoppers 30 days after treatment = 5 % infest. of stem borer 60 days after treatment = 12 % infestation of hoppers 60 days after % infestation	954000	119250	23850	1.25	94540	106630	12090	1.13

									hoppers 60 days after treatment = 6	of hoppers 60 days after treatment = 10							
8	Rice Var. RC Manip hou-13	Impact on Participatory rice seed Production of RC Maniphou 13 under DFI Villages in Thoubal district	-	64	57	14.03 %	84	44	Crop yield(q/ Ha)= 64 Increase in net income= 121245.00 Adoption rate = 72.00	Crop yield(q/Ha)= 57 Increase in net income= 67244.00 Adoption rate = 72.00	92375	243870	121245	2.64	87700	133304	67244	1.52

*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.*

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	19/2/2022 &	13	2	15	

			8-3-2022				
2	Farmers Training	21	5/2/2022 5/2/2022 11/4/2022 11/4/2022 19/4/2022 26/5/2022 26/5/2022 7/6/2022 20/6/2022 8/7/2022 14/7/2022 20/7/2022 6/8/2022 12/8/2022 18/8/2022 15/9/2022 27/9/2022 29/9/2022 9/11/2022 9/12/2022 26/12/2022	15 13 17 17 19 15 15 11 15 16 14 15 10 13 10 0 13 36 14 14 17	0 0 0 0 0 0 0 4 0 0 0 0 0 3 9 21 0 10 0 0 7	15 13 17 17 19 15 15 15 15 16 14 15 10 16 19 21 13 46 14 14 24	
3	Media coverage	3	25/1/2022 13/2/2022 24/8/2022				Radio Talk Radio Talk TV Talk
4	Training for extension functionaries						
5	Any other (Pl. specify)						
	Total			288	54	342	

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, orname	Thematic area	Name of Technology	No. of farmers	No. of unit	No. of fish/ fingerlings	Major Performance parameters / indicators	% change in the param	Other parameters (if any)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)				Remarks
									Demo	Check	G	G	N	B	GC	GR	N	B	

	ntal fish etc.				s		Demo	Check	eter			C**	R**	R**	CR**			R	CR	
1	Common carp	IFS	Popularization of Paddy cum Fish Culture	7	7	5000/ha	Final wt.gain (g)-150g Fish Yield (Kg/ha)- 428 Paddy yield (q/ha) – 35.0	Paddy yield (q/ha) – 35.0	18.35	-	-	91000	1437 80	52780	1.58	76000	98000	22000	1.29	
2	Climbing perch	Pond Management	Popularization of grow out culture of fresh water Climbing perch (*Anabas testudi*	10	10	80000/ha	Avg. final wt.gain (g)-230g Fish Yield (Kg/ha)-4875	Avg. final wt.gain (g)-190g Fish Yield (Kg/ha)-3925	24.2	-	-	30200 00	97500 0	67300 0	3.2	275500	785000	5095 00	2.8	

			neus)																

*** 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	**Elm mushroom *(Hypsizygous ulmarius)***	Mushroom production	**Popularization of Oyster mushroom Var. Elm (*Hypsizygous***	5	5	Yield per bag (kg)- 1.89 B:C Ratio 3.89 Duration of	Yield per bag (kg)- 1.60 B:C Ratio 3.29 Duration of	18.12 %	-	-	1846	7182	5336	3.89	1846	6080	4234	3.29	3.89

			ulmarius **)- (2nd Year)**			mycelium run- 22 Pin formation- 28	mycelium run- 27 Pin formation- 31											
2	**Water melon**	Value addition	**Popularization of watermelon candy**	3	3	Product recovery =700 g/Kg Shelf Life (months) = 4 months	Thrown as waste	-	-	-	1650	3920	3270	2.5	-	-	-	-	2.5
3	**Pineapple**	Value addition	**Osmotic dehydration of pineapple**	10	3	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
4	**NARI**	Nutritional gardening	**Impact of NARI (Nutri-Sensitive Agricultural Resources & Innovations) in enhancement of Farmers' livelihood and**	130	130	Increase in income (net income in Rs.)= 36250.00 Nutritional status of farm family ▪ On-farm availability =60.00 %	Increase in income (net income in Rs.)= 28600.00 Nutritional status of farm family ▪ On-farm availability	Increase in income (net income in Rs.)= 26.74 Nutritional status of farm family ▪ On-farm availability =69.56											

			Nutritional security			▪ Diversity (own)= 44.61 % ▪ Safety of food=69.23 % ▪ Nutritional knowledge= 73.84% ▪ Intervention (Investment in agriculture)= 73.84 % Adoption rate = 61.63 %	=35.84 ▪ Diversity (own)= 26.15 ▪ Safety of food=52.30 % ▪ Nutritional knowledge=63.07 % ▪ Intervention (Investment in agriculture)=35.38 % Adoption rate = -	▪ Diversity (own)=70.85 ▪ Safety of food=32.35 ▪ Nutritional knowledge =17.07 ▪ Intervention (Investment in agriculture) =104.30 Adoption rate = 48.14										

*** 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 2022

**(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
Agronomy	Organic farming	Organic farming	0-06-23	1 day	KVK Thoubal	Farm and farm women	9	14	23	-	-	-	9	14	23
Agronomy	Cropping system	Sponsored training on Climate Adaptive Agriculture Practices for Rainfed Ecosystem	20-10-22	1 day	KVK Thoubal	Farm and farm women	28	3	31	3	-	-	31	3	34
Agronomy	Crop diversification	Campaign on biofortification, nutrient groom and crop diversification	28-04-22	1 day	KVK Thoubal	Farmer	16	2	18	-	-	-	16	2	18

Agronomy	Soil fertility management	Training on balance used of fertilizer			KVK Thoubal	Farm and farm women	12	5	17	-	-	-	12	5	17
Agronomy	Production of organic inputs	Training on organic manure production	19-1-22	1 day	KVK Thoubal	Rural youth	9	6	15	-	-	-	9	6	15
Agronomy	Crop production	Training on zero tillage mustard cultivation	29-09-22	1 day	KVK Thoubal	Farmer and farm women	39	9	48	1	-	-	40	9	49
Soil science	Soil and water management	Training on water conservation and water management	12-07-22	1 day	KVK Thoubal	Farm and farm women	25	5	30	3	2	5	28	7	35
Soil science	Soil and water testing	Training on importance of soil. Testing	14-10-22	1 day	KVK Thoubal	Farm and farm women	12		12	3	1	4	15	1	16
Plant breeding and genetics	Plant genetic resources	Conservation of plant genetic resources and diversity	23-03-22	1 day	KVK Thoubal	Farm and farm women	67	16	83	12	5	17	79	21	100

Plant breeding and genetics	Plant Genetics resources	Training program on conservation of plant genetic resources	25-7-22	1 day	KVK Thoubal	Farm and farm women	7	3	10	2	3	5	9	6	15
Plant breeding and genetics	Seed production	Training on cultivation of millets	27-09-22	1 day	KVK Thoubal	Farm and farm women	14	13	27	-	-	-	14	13	27
Plant Protection	Production of biopesticide	Preparation of plant protection chemicals	31-05-22	1 day	KVK Thoubal	Rural youth	16	5	21	-	-	-	16	5	21
Plant Protection	Bee Keeping	Scientific bee keeping	25-5-22	1 day	KVK Thoubal	Extension personnel	9	3	12	2	1	3	11	4	15
Plant Protection	Natural resource management	Training program on natural resource management	19-10-22	1 day	KVK Thoubal	Farm and farm women	20	1	21	-	-	-	20	1	21
Fisheries	Fish breeding	Breeding and seed production of climbing perch	26-5-22	1 day	KVK Thoubal	Farmer and farm women	15		15	-	-	-	15		15

Fisheries	Fish Breeding	Training on integrated aquaculture	24-10-22	1 day	KVK Thoubal	Farmer and farm women	15	0	15	-	-	-	15	0	15
Extension Education	Skill development	Entrepreneurial skill development	18-10-22	1 day	KVK Thoubal	Rural youth	22	9	31	4	-	4	26	9	35
Horticulture	Vegetable production	Scientific cultivation of kharif cauliflower	8-4-22	1 day	KVK Thoubal	Farmer and farm women	15	4	19	-	-	-	15	4	19
Horticulture	Vegetable production	Training on scientific cultivation of potato	10-10-22	1 day	KVK Thoubal	Farmer and farm women	13	6	19	1	-	-	14	6	20
Horticulture	Cultivation of Fruit	Training on high density planting of fruit	19-08-22	1 day	KVK Thoubal	Farmer and farm women	12	5	17		5	5	12	10	32

Horticulture	Processing and value addition	Sponsored trg. programme on Scope for Processing and Marketing of Essential Oils from locally available Aromatic Plants.	21-1-22	1 day	KVK Thoubal	Farmer and farm women	22	9	31	4	-	-	26	9	35
Horticulture	Organic farming	5 Days Sponsored training programme on Organic Farming of Vegetable Crops	16-09-22 to 21-09-22	5 days	KVK Thoubal	Farmer and farm women	24	2	25	11	9	20	35	11	46
Extension Education	Skill development	Communication Skills	17-2-22	1 day	KVK Thoubal	Rural youth	18	2	20	-	-	-	18	2	20
Extension Education	Formation & management of SHGs	Training on business plan preparation	06-09-22	1 day	KVK Thoubal	Extension personnel	11	5	16	1	4	5	12	9	21

Extension Education	Formation & management of SHGs	Training on financial management of FPOs	21-10-22	1 day	KVK Thoubal	Farmer and farm women	19	0	19	5	1	6	24	1	25
Extension Education	entrepreneurial development of farmers	Skill training for youths in agriculture	November	1 day	KVK Thoubal	Rural youth	12	3	15	-	-	-	12	3	15
Extension Education	Formation and management of FPO's / SHG	Training program on business plan preparation for FPO's	26-12-2022 December	1 day	KVK Thoubal	Farm and farm women	15		15	-	-	-	15		15
Extension Education	entrepreneurial development of farmers	Training program for entreprenuerial skill development	19-1-22	1 day	KVK Thoubal	Rural youth	11	1	12	-	-	-	11	1	12
Animal Husbandry	Piggery management	Scientific pig farming	25-1-22	1 day	KVK Thoubal	Farm and farm women	14	3	17	-	-	-	14	3	17
Animal Husbandry	Piggery management	Scientific pig farming	19-1-22	1 day	KVK Thoubal	Farm and farm women	12	4	16	-	-	-	12	4	16

Animal Husbandry	Piggery management	Scientific pig farming	02--22	1 day	KVK Thoubal	Farm and farm women	12	3	15	-	-	-	12	3	15
Animal Husbandry	Poultry management	Scientific poultry farming	24-05-22	1 day	KVK Thoubal	Farm and farm women	17		17	-	-	-	17		17
Home science	Value addition	Training program on value addition of pineapple	24-08-22	1 day	KVK Thoubal	Farm and farm women	10	3	13	1	3	4	11	6	17
Home science	Value addition	Sponsored Training programme on processing and value addition of seasonal fruits	16/08/22 To 18/08/22	3 days	KVK Thoubal	Farm and farm women	13	4	17	-	-	2	13	6	19

Home Science	Value addition	Training program for Women SHG, Entrepreneurs and FPOs on mechanized system for making hawaijar	25-08-22	1 day	KVK Thoubal	Farm and farm women		26	26	-	6	6	-	32	32
Home Science	Value addition	Training on value addition of fish and fish products	23-12-22	1 day	KVK Thoubal	Farm and farm women	4	12	16	-	-	-	4	12	16

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
Agronomy	Organic Farming	Green manuring and its importance in organic farming	19-01-22	1 day	Salungpham	Farmer and farm women	15	6	25	-	-	-	15	6	25

Agronomy	Crop cultivation	Cultivation of pre *Kharif* rice	11-4-22	1 day	Leishangthem	Farm and farm women	17		17	-	-	-	17	-	17
Agronomy	Crop cultivation	Training on scientific cultivation of rice	7-6-22	1 day	Waikhong	Farmer and farm women	11	4	15	-	-	-	11	4	15
Agronomy	Nutrient management	Principles of nutrient management in rice	12-8-22	1 day	Keirak	Farm and farm women	13	3	16	-	-	-	13	3	16
Agronomy	Crop production	Training on improved technologies for crop production	10-8-22	1 day	NGO, Wangjing	Farmer	19	7	26	7	2	9	26	9	35
Agronomy	Crop Production	Training program on scientific production of rabi pulses and oilseed	12-10-22	1 day	Sikhong	Farm and Farm Women	11		11	-	-	-	11		11
Agronomy	Organic farming	Training program on organic farming	14-09-22	1 day	Umathel	Farm and farm women	-	-	-	12	2	14	12	2	14
Agronomy	Cropping system	Training on zero tillage mustard cultivation	15-11-22	1 day	Heirok	Rural youth	8	5	13	-	-	-	8	5	13
Agronomy	Crop production	Training program on scientific cultivation	18-10-22	1 day	Heirok	Farm and farm women	9	5	14	-	-	-	9	5	14

		of rabi pulses													
Agronomy	Nutrient management	Training on nutrient management n rice	12-08-22	1 day	Lourembam	Farm and farm women	13	2	15	-	-	-	13	2	15
Plant Breeding and genetics	Seed proudction	General principles of seed production	22-02-22	1 day	Heinganglok	Rural youth	-	-	-	12	3	15	12	3	15
Plant Breeding and genetics	Seed production	Seed production of pre kharif rice	5-2-22	1 day	Leishangthem	Farmer and farm women	8	5	13	-	-	-	8	5	13
Plant Breeding and genetics	Plant genetic resources	Training on conservation of plant genetic resources and diversity	23-3-22	1 day	Ingourok	Farmer and farm women	17	13	30	45	26	71	62	39	101
Plant Breeding and genetics	Seed production	Principles of seed production of pre kharif rice	26-5-22	1 day	Yangdong	Farmer	11	4	15	-	-	-	11	4	15
Plant Breeding and genetics	Seed production	Training on seed production of pre kharif	26-5-22	1 day	Elangkhangpokpi	Farmer and farm women	11	4	15	-	-	-	11	4	15

		rice													
Plant breeding and genetics	Seed production	Training on seed production of pulses and oilseeds	October	1 day	Hijam Khunou	Farm and farm women	2	13	15	-	-	-	2	13	15
Plant breeding and genetics	Seed production	Training program on seed production of mustard	November	1 day	Wabagai	Farmer	25	3	28	-	-	-	25	3	28
Plant breeding and genetics	Seed production	Training on seed production of lentil	27-09-22	1 day	Chandrakhong	Farmer and farm women	14	13	27	-	-	-	14	13	27
Plant Protection	Integrated Pests Management	Training program on disease management of rice	14-7-22	1 day	Langmeithet	Farmer and farm women	14		14	-	-	-	14		14
Plant Protection	Integrated pests management	Training program on insect pests management of rice	18-8-22	1 day	Tekcham	Farmer	10	9	19	-	-	-	10	9	19
Plant Protection	Integrated pests management	Training program on management of viral diseases I	18-10-22	1 day	Heirok	Farmer and farm women	8	5	13	-	-	-	8	5	13

		plants													
Plant Protection	Integrated pests management	Training program on stem borer and hopper management	15-09-22	1 day	Tokpa Ching	Farmer and farm women	11	9	20	-	-	-	11	9	20
Plant Protection	Integrated nsect pests mngement	Training on stem borer management	27-09-22	1 day	Chandrakhong	Farmer and farm women	13	14	27	-	-	-	13	14	27
Plant Protection	Mushroom production	Training program on mushroom production	28-11-22	1 day	Keirak	Rural youth	20	3	23	10	4	14	30	7	37
Horticulture	Vegetable production	Post-harvest management of bulb crops.	16-2-22	1 day	Ingourok	Farmer and farm women	12	3	15	-	-	-	12	3	15
Horticulture	Vegetable production	Scientific cultivation of Kharif cauliflower	10-5-22	1 day	Lourembam	Farm and farm women	11	4	15	-	-	-	11	4	15
Horticulture	Vegetable product	Training on post-harvest managemen	15-07-22	1 day	Chandrakhong	Farm and farm women	5	10	15	-	-	-	5	10	15

	ion	t of bulb crops													
Horticulture	Cultivation of fruits	High density planting in fruits	19-8-22	1 day	Kakching	Farm and farm women	10	2	12	2	3	5	12	5	17
Horticulture	Nursery management	Training program on nursery management of vegetables	09-09-22	1 day	Heirok	Farm and farm women	11	4	15	-	-	-	11	4	15
Extension education	Skill development	eNam and its role in secured marketing of farm produces.	29-1-22	1 day	Kakching	Rural youth	14	1	15	-	-	-	14	1	15
Extension education	Skill development	Role of women in agriculture	8-02-2	1 day	Ingourok	farm women		20	20	-	-	-	-	20	20
Extension education	Entrepreneurial development of farmers	Income generation activities of farm and allied sector		1 day	Ingourok	Farm and farm women		20	20	-	-	-	-	20	20
Extension education	Entrepreneurial	Training program on entrepreneur	18-10-22	1 day	Kairembikhok	Rural youth		13	4	17	-	-	13	4	17

	development of farmers	ial skill development														
Extension education	Formation & management of SHGs/ FPO	Sensitization cum awareness program for Khanna Choaba Farmer Producer Company	7-11-22	1 day	Wabagai	Farm and farm women	25	3	28	-	-	-	25	3	28
Extension education	Capacity buildin g	Sensitization program for formation of FPO		1 day	Kakching	Farm and farm women	20	7	27	-	-	-	20	7	27
Fisheries	Integrated fish farming	Integrated Fish cum paddy farming	11-4-22	1 day	Leishangthem	Farm and farm women	15	4	19	-	-	-	15	4	19
Fisheries	Integrated fish farming	Integrated Fish cum paddy farming	5-2-22	1 day	Leishangthem	Farmer and farm women	17	-	17	-	-	-	17	-	17
Fisheries	Integrated fish farming	Brood stock management of air breathing fishes	19-04-22	1 day	Tekcham	Farm and farm women	18	1	19	-	-	-	18	1	19

Fisheries	Fish Breeding	Training program on Breeding and seed production of magur	20-7-22	1 day	Tentha	Farm and farm women	10	5	15	-	-	-	10	5	15
Fisheries	Fish health management	Training on fish health Management	9-11-22	1 day	Chingkham	Farmer		20	20	-	-	-		20	20
Fisheries	Fish health Management	Training on fish health Management	9-12-22	1 day	Thoubal Nongangkhong	Farmer	18	8	36	-	-	-	18	8	36
Soil science	Soil fertility management	Importance of micro and secondary nutrients in doubling of farmers income	5-2-22	1 day	Ingourok	Farm and farm women	17	5	22	-	-	-	17	5	22
Soil science	Soil and water testing	Training program cum method demonstration on soil sample collection	22-12-22	1 day	Sikhong	Farmer and farm women	5	3	8	-	-	-	5	3	8

Soil science	Soil and water testing	Training program cum method demonstration on soil sample collection	23-12-22	1 day	Pallel	Farmer and farm women				55	7	62	55	7	62
Home Science	Value addition	Preparation of paneer	11-5-22	1 day	Hiyanglam	Farmer and farm women	16	9	25	-	-	-	16	9	25
Animal Science	Piggery management	Scientific piggery farming	01-02-22	1 day	Hiyanglam	Farmer and farm women	23	8	31	3	-	-	26	8	34
Animal Science	Poultry management	Training on scientific poultry farming	19-10-22	1 day	Kakching	Farmer and farm women	8	7	15	-	-	-	8	7	15
Home Science	Value addition	Value addition as a source of income	19-1-22	1 day	Salungpham	Farmer and farm women	9	14	23	-	-	-	9	14	23
Home Science	Value addition	Training program on value addition of pineapple	09-8-22	1 day	Langmeithet	Farm Women	16	-	16	-	-	-	16		16
Home science	Value addition	Training program on value addition of	9-8-22	1 day	Keirak	Rural youth	15	0	15	-	-	-	15	0	15

		pineapple													
Home Science	Value addition	Training program on preparation of bori	9-8-22	1 day	Kakching	farm women		13	13	-	-	-		13	13
Home Science	Value addition	Training program on value addition of guava	9-09-22	1day	Heirok	Farm and farm women	2	13	15	-	-	-	2	13	15
Home Science	Value addition	Training program preparation of paneer	11-5-22	1 day	Hiyanglam	Farm and farm women	16	9	25	-	-	-	16	9	25

(D) Vocational training programmes for Rural Youth

Crop / Enterprise	Date (From – To)	Duration (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	
Piggery	18-01-2022 to 21-01-2022	4 days	Piggery management	Training program on bokashi piggery	14	1	15				14	1	15	Piggery farming	5	2	Rs.95000 /unit	
Poultry	08-2-22 to 28-2-22	20 days	Poultry management	Training on scientific broiler farming	15	-	15	-	-	-	15	-	15	Poulrty farming	10	5	Rs.45000 /unit	
Piggery	19-07-22 to 28-7-22	10 days	Piggery management	10 days vocational Training program on scientific piggery farming	12	3	15				12	3	15	Piggery farming	7	2	Rs.95000 /unit	

*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		
Off	Farm and farm women	5-10-22	1 day	Soil science	Soil fertility management	Importance of micro and secondary nutrients in doubling of farmers income	17	5	22	-	-	-	17	5	22	CAU, Imphal	
Off	Farm and farm women	29-1-22	1 day	Extension education	entrepreneurial development of farmers	Sponsored trg. programme on "ENAM and its Role in Secured Marketing of Farm Products"	18	4	22	8	0	8	26	4	30	MSFAC	

ON	Farm and farm women	20-10-22	1 day	Agronomy	Sponsored training on Climate Adaptive Agriculture Practices for Rainfed Ecosystem	Farm and farm women	20	10	30	3		3	23	10	33	DST-CCP(HICAB Programme) CAU,Imphal	
ON	Farm and farm women	12-07-22	1 day	Soil Science	Collaborative Training Programme on Water Conservation and Water Management	Farm and farm women	25	5	30	0	5	5	25	10	35	NERIWLM-Tejpur	

Off	Farm and farm women	23-3-22	1 day	Plant breeding and genetics	Sponsored training on conservation of plant genetic resources and diversity fair .	Farm and farm women	54	24	78	21	0	21	75	24	99	National Bureau of plant genetic Resources, New Delhi	
On	Farm and farm women	25-3-22	1 day	Plant breeding and genetics	Sponsored training on conservation of plant genetic resources and diversity fair .	Farm and farm women	67	16	83	12	5	17	79	21	100	National Bureau of plant genetic Resources, New Delhi	
On	Farm and farm women	16-9-22 To 21-09-22	5 days	Horticulture	5 Days Sponsored training programme on Organic Farming of Vegetable Crops	Farm and farm women	24	2	25	11	9	20	35	11	4623	MOMA, Dept. of Horticulture & Soil Conservation	

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 2022

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 visits	Visit for Seed production, diagnosis of Pig, Goat, turmeric, fish, oil palm and soil	Throughout the year	36	49	13	62	15	2	17	-	-	-	64	15	79
2.	Advisory Services	Crop ,Livestock and other enterprises	Throughout the year	1633	1165	184	1349	250	34	284	-	-	-	1415	218	1633
3.	Animal Health Camp	Vaccination of Cattle, Dogs and Pig	13-07-2022	1	173	74	247	12	9	21	-	-	-	185	83	268
4.	Plant health camp		7-06-2022 16-12-2022	2	120	50	170	30	20	50	-	-	-	150	70	220
5.	Training/ practical manual															

6.	Celebration of important days	1. Republic Day 2. World Pulses Day 3. International Women Day 4. World Environment Day 5. International Yoga Day 6. National Fish Farmers Day 7. 94th ICAR Foundation Day 8. Independence Day 9. Poshan Maa 10. 2nd October 11. World Soil Day	26-01-2022 10-02-2022 08-03-2022 05-06-2022 21-06-2022 10-07-2022 16-07-2022 15-08-2022 17-09-2022 02-10-2022 05-12-2022	11	8 35 5 7 15 10 41 18 16 7 62	9 10 24 4 3 6 20 6 31 5 31	17 45 29 11 18 16 61 24 47 12 93	1 20 2 4 7 3 20 2 3 3 26	4 11 14 2 3 1 17 1 13 1 11	5 31 16 6 10 4 37 3 16 4 37	-	-		12 55 7 11 22 13 61 20 19 10 88	10 21 38 6 6 7 37 7 44 6 42	22 76 45 17 28 20 98 27 63 16 130
7.	Exhibition	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Exposure visits			7	80	110	190	50	40	90	-	-	-	130	150	280	
9.	Farm Science Club Conveners meet			2	32	13	45	15	-	15	-	-	-	47	13	60	
10.	Farmers Seminar/ workshop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

11.	Farmers Visit to KVK		Throughout the year	1633	1050	139	1189	444	-	444	-	-	-	1494	139	1633
12.	Field Day	Distribution of inputs to CFLD farmers, farmers scientist interaction,	3-8-2022 16-11-2022, 17-12-2022	3	70	50	120	15	30	45	-	-	-	85	80	165
13.																
1.	Group meetings/ Discussion	Lourembam, Tekcham, Icham Khunou, Thokchom, Kakching KVK,Campus Lanmeithet Wabagai Hiyanglam Nongpok sekmai Hijam khunou	Every month	13	80	110	190	50	20	70	-	-	-	130	130	260
2.	Awareness Camp	Awareness program for the Formation of Farmer Producer Organisation. Awareness program was conducted at Wangoo as part of the Jal Shakti Abhiyan Campaign Sensitization programme for formation of FPO Awareness Programme on Natural Farming	10-02-2022 29-03-2022 10-08-2022 12-08-2022	5	553	125	678	51	12	63	-	-	-	604	137	742

		Sensitization cum Awareness Programme for Khana Chaoba Farmer Producer Company Ltd, Kakching at Wabagai	07-11-2022													
3.	Kisan Gosthi	Group discussion on Fruit trees	17-08-2022	1	34	59	93	-	-	-	-	-	-	34	59	93
4.	Kisan Mela	STATE LEVEL KRISHI MELA 2022 District Level Skill Mela 2022 Workshop cum exhibition of tree bean	19-11-2022 21-12-2022 15-03-2022	3	87	-	87	20	20	40	-	-	-	87	40	127
5.	Mahila Mandal Conveners' meetings			7	36	-	36	10	-	10	-	-	-	36	10	46
6.	Method Demonstrations	Demonstration on Chemical Castration of piglet Method Demonstration on preparation of Bori Demonstration on Preparation of Indegenous Microorganism and Bamboo Vinegar Method Demonstration on Preparation of Bori Method demonstration on preparation of IMO Method Demonstration cum	18-01-2022 18-01-2022 18-01-2022 10-02-2022 16-02-2022	17	70	43	113	32	-	32	-	-	-	102	43	145

		Soil Sampling Campaign Method Demonstration on Value addition of ginger Method demonstration on Preparation of Watermelon rind candy Method demonstration on Preparation of bori Demonstration of Natural farming at KVK Thoubal Method demonstration on line seed sowing of cabbage Demonstration on Nursery raising of vegetable to RAWE students Demonstration on Repotting Ornamental plants to RAWE Students Demonstration of Air layering on Michelia champaca to RAWE student Demonstration on Application of fertilizer technique to RAWE Students Demonstration of Pruning on Citrus fruit to RAWE	12-04-2022 10-05-2022 20-06-2022 24-08-2022 25-08-2022 09/09/2022 23-09-2022 23-09-2022 1-10-2022 1-10-2022													

		Students Demonstration of Cutting for Ornamental Plants to RAWE Students	1-10-2022 4-10-2022													
7.	Scientists visit to farmers field	Visit at Farmers Field	Every month	144	108	61	169	56	43	99	-	-	-	164	104	268
8.	Self Help Group Conveners meetings			11	211	60	271	138	59	197	-	-	-	349	119	468
9.	Soil health/ testing Campaigns			4	30	40	70	16	10	26				46	50	96
10.	Film show			5	47	60	107	20	40	60	-	-	-	67	100	167
11.	News paper coverage	State Level Millet Promotion Campaign 2023 SAC Meeting World Soil day 2022 Rabi Campaign PM Kisan Samman Sammelan Oilpalm		6	-	-	-	-	-	-	-	-	-	-	-	-
12.	News letter	4th Issue (Jan –Dec2022)		1	-	-	-	-	-	-	-	-	-	-	-	-
13.	Research papers	i. Farmers' Perception towards Chemical Castration Method in Piglets ii. Use of Social Media in Enhancing Farmer's		2	-	-	-	-	-	-	-	-	-	-	-	-

		Satisfaction Level on Agricultural Extension Services: A Case Study of Farmers Club in Thoubal District, Manipur														
14.	Technical report/ article				-	-	-	-	-	-	-	-	-	-	-	-
15.	Radio talks	Bokashi piggery Live phone in progaramme on Management of Poultry birds during rainy season Creation of Farmers Club(FC) and Farmer Producer Organisation (FPO) and its importance Breeding of *clarias magur* (Ngakra) Integrated package of practice in rice cultivation Scientific cultivation of Dragon Fruit		7	-	-	-	-	-	-	-	-	-	-	-	-
16.	TV Talks	Breeding of *clarias magur* (Ngakra) TV talk on Effect on feeding		2	-	-	-	-	-	-	-	-	-	-	-	-

		of antibiotic in poultry															
17.	Electronic media				-	-	-	-	-	-	-	-	-	-	-	-	
18.	CD publication				-	-	-	-	-	-	-	-	-	-	-	-	
19.	Extension literature				-	-	-	-	-	-	-	-	-	-	-	-	
20.	Technical bulletins			2	-	-	-	-	-	-	-	-	-	-	-	-	
21.	Lecture delivered as resource person	Agronomy, Animal Science, Home Science, Plant Breeding & Genetics, Farm Manager, Horticulture, Fisheries		15	-	-	-	-	-	-	-	-	-	-	-	-	
22.	Mobile app introduced				-	-	-	-	-	-	-	-	-	-	-	-	
23.	Whatsapp Group for Farmers/Entrepreneurs formed			70	1527	550	2077	100	48	148	-	-	-	1627	598	2225	
24.	Leaflets/folders			12	-	-	-	-	-	-	-	-	-	-	-	-	

3.5 Production and supply of Technological products during 2022

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	
Cereals	Rice	Akut phou	1.6	7200	4	-	-	-	4
		Gin phou	1.6	7200	5	-	-	-	5
		Tampha phou	30	135000	29	19	9	4	61
		Sana phou	5.68	25560	14	11	-	-	25
		RC Maniphou-13	36.76	165420	Supplied to Dept. of Agriculture				
		RC Maniphou-7	9.5	42750	18	8	6	-	32
		RC Maniphou-12	5.8	26100	8	-	-	-	8
		Pari phou	1.6	7200					
		Chak hao poireiton	2	9000	2	-	-	-	2
		Basmati	1.6	7200	-	-	-	-	-
		WR	2	900	-	-	-	-	-
		Cachar Landraces	0.1	900	-	-	-	-	-

		Wheat	1.74	-	-	-	-	-	-
Total			98.18	434430	**80**	**38**	**15**	**4**	**137**

A1. SUMMARY of Production and supply of Seed Materials during 2022

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
					M	F	M	F	
1	CEREALS	96.44		434430	88	19	30	10	137
2	OILSEEDS	3.5	-	24500	-	-	-	-	Not sale
3	PULSES	2.15	-	16000	-	-	-	-	Not sale
TOTAL		102.09		474930					102.9

B. Production and supply of Planting Materials (Nos. in No.) during 2022

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	
Fruits	Dragon fruit	*Hylocereouscostaricensis*	100	80	500	12	7	-	3	22

	Papaya	Red Indian	50	45	500	3	1	1	1	6
Spices	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
VEGETABLES	Tomato	Arka Rakshak, Arka Abhed	11000	10000	11000	31	9	5	6	51
	Cabbage	Candid/ Rare ball/ BC-76	5550	9000	1000	8	3	2	2	15
	Cauliflower	Candid charm/ Pusa Ashwini white	4650		1000	23	3	21	2	49
	Brocoli	Green Magic	1300		1000	33	21	2	6	62
	Cucumber	Pusa Burkha	600		1000	28	2	3	1	34
	Brinjal	Pusa Shyamala	2000	3000	700	13	5	1	1	20
	Onion	Nashik red	12500	12000	900	25	10	5	4	44
	Chilli	NS 1101	5500	5000	50	26	12	3	1	42

C. Production of Bio-Products during 2022

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-fotidae*	12000	586	9490	38	5	9	3	55
1										
BIO PESTICIDES										
1										

D. Production of livestock during 2022

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	Pig	Crossbred	8	-	Not yet sale	-	-	-	-	-
2	Cow	Cross bred	6	-	Not yet sale	-	-	-	-	-
3	Goat	Non descript	4	-	Not yet sale	-	-	-	-	-
4	Duckery	Geese	4	-	Not yet sale	-	-	-	-	-
		Muscovy	5	-	Not yet sale	-	-	-	-	-
5	Fisheries/ fingerlings	Common carp, Rohu, Mrigal	11760		43847	8	2	2	-	12

3.6. Literature Developed/Published (with full title, author & reference) during 2022

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.): Jan –dec 2021, Issue IV, 250 copies

(B) Articles/ Literature developed/published

Item	Title /and Name of Journal	Authors name	Number of copies	
			Produced/ published	Supplied/ distributed
Research	iii. **Farmers' Perception towards Chemical Castration Method in Piglets** Journal: Journal of Krishi Vigyan iv. **Use of Social Media in Enhancing Farmer's Satisfaction Level on Agricultural Extension Services: A Case Study of Farmers Club in Thoubal District, Manipur** Journal: Research Biotica	Salam Prabin Singh[1] Dr. S. Zeshmarani[2] Salam Prabin Singh[1] Dr. S. Zeshmarani[2]	1 1	
Popular articles	• Livestock • Agronomy	Dr.S.Zeshmarani, Sr.Scientist & Head Dr.W.Jiten Singh(Farm Manager)	Every Monday on local newspaper HueiyenLanpao http://hueiyenlanpao.com/	
Newsletter	1		250	
Leaflets/folders	8	i. Scientific Cultivation of Dragon fruit ii. Value Added Product from Roselle iii. Breeding and seed Production of Walking cat	200	

		fish iv. Scientific Bokashi Piggery v. Scientific cultivation of Lentil vi. Processing and Value Addition of Pineapple vii. Seed production of sorghum viii. Techniques for maintaining genetic purity of rice ix. Breeding and seed production of climbing perch x. Integrated pests Management in paddy xi. Cultivation of oyster mushroom xii. Package and practices of strawberry plantation		
Technical Bulletin	1	Cultivation practices of millets and its value added products		

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

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

A) Success Story on Breeding & Seed production of magur

Farmers Profile:

Particulars	**Details**	**Particulars**	**Details**
Name	Sambanduram Robinson Singh	Main crops/Enterprise	Fisheries
Age	27	Village	Salungpham Kangthokchao
Gender	Male	Sub-Division/Block	Thoubal
Education	XII Pass	State	Manipur
Mobile No	7005778423	Agricultural Landholding (ha)	0.25

Introduction

Mr. Sambanduram Robinson Singh, 27 year old from Salungpham Kangthokchao, Thoubal district, Manipur, after his education he has started his career in agriculture and allied activities. The result was not at all satisfactory to him in terms of yield and monetary returns. Thereafter he shifted his venture to fish farming. However, he couldn't make progress due to lack of scientific knowledge.

KVK Intervention

To increase his knowledge he started participating in many training programmes conducted by KVK in the field of fisheries. Looking into his enthusiasm of production of quality fish seed of indigenous fishes, KVK Thoubal arranged hands on training programme on "Breeding of air breathing fishes". With the knowledge he acquired and guidance from the KVK Scientist he started taking up breeding and seed production of magur using BRICS method- a technology release by College of Fisheries Lembucherra, Tripura. To make success in his journey KVK Thoubal has conducted trials and

demonstration to showcase the technology. Besides he is also a beneficiary of NABARD sponsored project on “Establishment of Seed Production of air breathing fishes *Clarias magur* and *Anabas testudineus* at kakching & Thoubal District, Manipur”.

Output & Outcome

The technology fetched a gross return of Rs. 169000 per unit with a gross cost of Rs.640000 per unit and a net return of Rs.105000 per unit. The BC ratio was found to be 2.64. This technology 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.

Impact:

Looking into the success of breeding of magur without sacrificing the male brooder, the technology 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 and they have been able to make good profits from their new venture.

Photo 1: Hormonal administration

Photo 2: Field visit by KVK experts

Photo 3: Hatching of magur in thermocol box

Photo 4: 7th day old magur

Photo 5: Fry of magur

Photo 6: Coverage of DDK Programme on Breeding of magur

B) Success story on diversification of crops to increase income

Farmers Profile:

Particulars	:		Particulars	:	
Name	:	M. Menjor Singh	Main crops/Enterprise/Farm animals	:	Rice & Pulses
Aadhar No	:		Village	:	Nongpok Sekmai Awang Leikai
Age	:		Sub-Division/Block	:	Thoubal
Gender	:	Male	State	:	Manipur
Education	:	VIII Pass	Agricultural Landholding (ha)	:	2.81 (Tenant farming)
Family type & Size	:	5	Mobile No	:	8974309598

1. **Introduction**

Shri M. Menjor Singh is a hard working and enthusiastic farmer who choose farming since the year 2019. He earned his income by both rickshaw pulling and farming before 2019. With the outbreak of COVID 19 and implementation of Lockdown gave an opportunity venturing towards farming only. Owing to the keen interest in farming, he started farming activities with his limited available resources without much knowledge of agriculture. Inspite of his hard work and relentless endeavours, due to lack of knowledge and scientific techniques, low yield of the crops resulted in less profit which disappointed him. Inspite of the efforts and determination, he results were not satisfactory in terms of yield as well in profit.

2. Initiative

Shri. M. Menjor Singh cultivated in an area of 2.81 ha of rice during Kharif and Vegetable crops & pulses during Rabi season as tenant farming. To make his journey a successful one, KVK, Thoubal in convergence with line departments used his land for their trial and demonstration on improved technology. Good quality seeds were also supplied to him to increase the productivity. He also grew pulses and rice in participatory mode with support from KVK, Thoubal. Less chemical fertilizer were also used as he adopted crop rotation with cereals and pulses. His main work is resource conservation of local landraces of potato var. Aberchaibi and pea Var. Makhyatmubi by cultivating them.

3. Result/Outcome

The income of Shri M. Menjor Singh increase tremendously as he earned through farming by dedicating solely on farming instead of combining both rickshaw pulling and farming. He prefer to used good quality seed in cultivation as he is aware of the increased in productivity using quality seed experienced through information provided by KVK expert and ensuring others for providing quality seeds through participatory seed production.

Evidence/Impact:

The increase in yield by planting quality seeds influence many farmers and seeing his field with less pest incidence and growing vigrous plants nearby with proper management of fertilizer and pesticides many farmers adopted his tecnologies.

Enterprises	Area (ha)/No	Production (Q/Liter/No.)	Gross Income (Rs.)	Net Income (Rs.)	B:C Ratio
Paddy (seed production)	1.0	45.0	157500	63500	1.67
Pea green pod	0.2	5.90 q	35400	27200	4.32
Cauliflower	0.03	1.60 q	4800	4165	7.56
Potato	0.05	2.45 q	7350	5300	3.59
Mustard	0.50	610 kg	89600	64600	1.39
Lentil	1 ha	9.3	74400	48150	2.41

Photographs:

Photo 1: Demonstration of Biofortified lentil

Photo 2: Field visit by KVK experts

Photo 3: Cultivation of rice var CAUR1

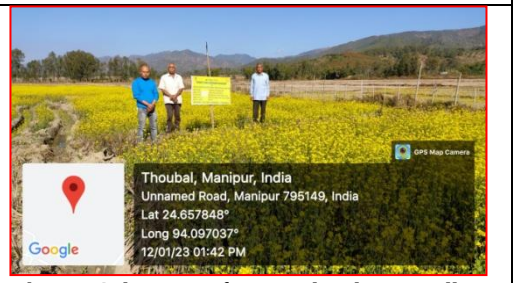


Photo 4:Cultivation of rapeseed under zero tillage

	
Photo 5: Field inspection by KVK experts	Photo 6: Demonstration of field pea

C) **Success Story on "Integrated Farming System: *An income assured system"*Farmer Profile:**

Name of the farmer	**Kshetrimayum Jiten Singh**
Address	**Wangjing Sorokhaibam Leikai**
Block	**Thoubal District , Manipur**
Contact no.	**9366324841**
Age	**47**
Aadhar no	**554524986873**
Qualification	**Graduate**

Introduction :

Sri Kshetrimayum Jiten Singh was a marginal farmer having 0.25 ha of land. He was growing crops like maize, cabbage, brinjal only . After selling the agricultural produce he made meagre profit. Inspite of his hard work and relentless endeavours, due to lack of knowledge and scientific techniques, low yield of the crops resulted in less profits along with animal enterprises which disappointed him. Inspite of the efforts and determination, he results were not satisfactory in terms of yield as well in profit.

Earlier Shri Kshetrimayum Jiten Singh produced vegetables using the traditional knowledge. He came in contact with Krishi Vigyan Kendra Thoubal and was motivated by the experts to grow agricultural crops scientifically.

KVK intervention :

KVK experts convinced Shri Jiten to select improved cultivation practices, timely sowing and balanced used of fertilizer as well as proper use of plant protection chemicals in order to get higher yield. Scientific rearing of livestocks was also advised by the scientists of KVK. Now he is growing crops scientifically along with the scientific management of livestocks keeping in mind all suitable agronomic practices with the goal to get higher returns comparing to previous practices. Even though there is no change in cultivable area, due to adopting scientific agronomic practices, he is getting better yield and better returns from his produce.

Moreover, Shri Jiten has attended many training programs at KVK and KVK scientists has visited his village for many off-campus trainings and many On Farm Trials and Front Line Demonstrations.

He has also received Extensive trainings on technologies management of pests and diseases of various crops, scientific management of livestocks viz.**,** scientific management of piggery**,** at ICAR, Lamphel and CAU, Imphal.

Results/ Outcome :

Thanks to the intervention by KVK scientists, Shri Kshetrimayum Jiten has witnessed the increase in net return in his enterprises. A profit of Rs 1,52,900 /-was earned from his integrated farming model in a year.

1. With the help of KVK scientists, the farmer has taken up **improved cultivation practices of pumpkin, bottle gourd** which has earned him a net profit of Rs 9600/- and Rs 12500/-rupees with BC ratio 2.78 and 3.27 respectively.

2. Improved Cultivation technology of King Chilli with effective pests and disease management has significantly reduced diseases such as leaf curl and anthracnose , increasing the yield significantly earning a net profit of Rs 28000/- with BC ratio of 6.00.
3. Novel technology of pig management viz. **scientific management of piggery has** revolutionized the piggery unit of the farmer. Thanks to this technology, he earned a gross income of Rs. 127600/- and a net income of Rs. 102800/-.(B: C ratio = 5.15).

Sl. no	**Enterprise/ Crop**	**Production (q)**	**Costs of cultivation**	**Sales of produce**	**Net profit**	**B:C**
1	Bottle gourd	4.5	5500	18000	12500	3.27
2	Pumpkin	5	5400	15000	9600	2.78
3	King Chilli	0.75	5000	30000	28000	6.00
4	Piggery	3.2 (4 pigs 6 piglets)	24800	127600	102800	5.15
Total			**37700**	**190600**	**152900**	

Impact

The successful IFS unit of Shri Ksh. Jiten has inspired the farmers of his village to adopt IFS as an income assured system. Moreover, the judicious use of agricultural inputs has significantly reduced the costs of farming, hence increases the returns.

Photos :

Photo 1: King Chilli Field

Photo 2 **:** Farmer at his successful bottle gourd field.

Photo 3 : A booming Pumpkin field.

Photo 4 : Piggery unit, an integral part of IFS.

D) **Yes to Organic Farming**

T. Moir of Heirok Part I aged about 52 years is a hard working farmer cultivating different crops in his 2.0 ha field located in hill. Usually he cultivated hill rice, soyabean and Groundnut of local varieties which makes him not profitable at all. However, from his hill rice he used to get premium price because of aerobic and organic rice.

KVK Intervention

During the year 2020, the KVK Thoubal taken up mustard cultivation under CFLD programme and visited his field of organic farming. Seeing the prospect of growing organically many crops in his gentle slope hill land, the KVK taken up Soyabean and groundnut using high yielding varieties and other cultural practices. The KVK provide seed and other critical inputs for conducting demonstration on Soyabean and Groundnut, Shri Moir was advised to grow hill rice in between wide spaced banana crops aerobically.

Output and Outcome

From his enterprise, he has been able to earn a good profit. Crop wise output is given below.

Sl. no.	**Enterprise/crops**	**Area (ha)**	**Yield (Kg)**	**G. Cost (Rs)**	**G. Net (Rs.)**	**Net income (Rs)**	**BC Ratio**

1.	Hill rice + Banana	1.00	Hill rice:1800 & Banana: 500	60000	130000	70000	2.16
2.	Soyabean	0.50	575	15000	46000	31000	3.06
3.	Groundnut	0.50	620	15000	49000	34600	3.31
Total		**2.00**	**3495**	**90000**	**225000**	**135600**	

From banana plant, he has been able to sale banana suckers for vegetable which could fetch Rs.30/- per sucker of 1.5 ft. From the money he earned from his organic farming field, he could earn an yearly income of Rs. 135600 and leads a very peaceful sustainable livelihood.

Impact

Seeing his field many farmers are now taking up banana + hill rice with other pulses & Oilseeds crops. Seeing the suitability of hill rice cultivation, the KVK Thoubal is planning to take up aerobic cultivation in a research mode.

E.) Pulse crop as an Enterprise.

Introduction

Smt H. Kanmila is an educated entrepreneur, a member of Loumeegi Thouna Farmer Producer Company Limited, Thoubal. She usually take up value added products of fruits and sold to the market in the name of her FPC. Beside this work, she practices cultivation of rice, pulses & oilseeds in her 1.25 ha of land in a cropping system. Last year she practice rice based cropping system comprises of rice during Kharif followed by Chickpea in an area of 1 ha.

KVK Intervention

Last year, the KVK Thoubal organised a field day during rabi season for distribution of inputs and an interaction programme for the crops to taken up. Seeing her interest in taking up chickpea cultivation, the KVK Thoubal provided seed and other critical inputs for an area of 1.2 ha to take up along her FPC members to produce seed. She was also trained for produce value added fruits & vegetable by the KVK.

Output & Outcome

Besides producing value added products of fruits & vegetable she could now able to produce seeds of chickpea 11.20 q/ha and earned an net income of Rs. 107520.00 from her 1.2 ha land.

Sl. no.	**Enterprise/crops**	**Area (ha)**	**Yield (Kg)**	**G. Cost (Rs)**	**G. Net (Rs.)**	**Net income (Rs)**	**BC Ratio**
4.	Chickpea	1.20	13.44	42000	107520	65520	2.54

From this enterprise, she is planning to take up seed production of soyabean in participatory mode with KVK Thoubal so as to earn her income throughout the year.

Impact

Taking several enterprises into success her fellow members of the FPC are now willing to take up seed production of field crops as a new enterprise in addition to value added products of fruits & Vegetables

F) BOKASHI PIGGERY – A BOON TO SUCCESS

Farmers Profile:

Particulars	:		Particulars	:	
Name	:	Panganbam Nandakumar Singh	Main crops/Enterprise/Farm animals	:	Rice, Piggery Poultry, Vegetables
Aadhar No	:	559276170412	Village	:	Khongjom Tengol Leikai
Age	:	49	Sub-Division/Block	:	Thoubal
Gender	:	Male	State	:	Manipur
Education	:	XII Pass	Agricultural Landholding (ha)	:	0.5 ha
Family type & Size	:	4	Mobile No	:	8837309902

Introduction

Shri P. Nandakumar Singh, 49 yrs old a resident of Khongjom Tengol Leikai , Khongjom Village,Thoubal District Manipur entered Piggery Farming. Shri Nandakumar has 0.25ha of Agriculture field whwere he was growing paddy 0.125 ha where he grows seasonal vegetables and 0.075ha where he has a piggery farm and poultry.

KVK Intervention

In the year 2017, Shri Singh has started rearing pigs in an unorganized way with increase mortality of piglets, still birth and many more problems related with production and management. Through one of his friend he visited KVK, Thoubal to purchase medicine for pigs as this Institute sells medicine at a subsidies rate for the farmers. While discussing in detail about his problem he was asked to attend one vocational training programmme on Bokashi piggery for 7 days. After attending the programmme there were lots of differences between his way of rearing and scientific piggery Farming.

Results/Outcome

After gaining knowledge on scientific piggery Farming he started rearing pigs in Bokashi system . Time to time he visited the Institute to clear his doubt. At first he constructed a bhokashi shed with an area of 18 by 10 ft accommodating 9 pigs (6 sow and 1 boar for breeding and one castrated male pig) He spent Rs 80,000.00 for construction of 18 by 10 ft bokhasi shed and three fourth of his work was done by him as he has good knowledge of construction. For feeding his pigs he collected the feeds from hotels as his house is near to market and kitchen waste from his neighbouring houses. He and his family were involved in the maintenance of pigger farm. After collection of feeds he washed the feeds 3-4 times with clean water and make it to boil again with left over vegetables from his vegetable farms he added salt and vitamin and mineral mixture.

From the sale of one castrated pig, he got an income of Rs. 25000.00 and from 6 sows he

got 6 litter size with 65 litter nos. with 96 percent survivility rate. He could sell the piglets at the rate of Rs 6000.00 per piglet . In a year he could earned an amount of Rs. 4,15,000.00 from the sale of piglets and one castrated pig with a net profit of Rs. 3,63,000.00 . From poultry he is earning Rs. 3500 per month wherin he is selling birds as well as eggs. An income of Rs. 1500.00 per month was also generated from selling of Bamboo Vinegar. The bokashi materials after keeping pigs for 1 year was sold at the rate of Rs. 5 per kg. Whatever income is being earned is reinvested for the developmental activities of his farm. He has spent Rs. 80000 to Rs. 100000.00 lakh from the year of establishment of different units and at present reaping the profits. He as earned a net profit of Rs.4,23,000.00 during the year 2022. His works has made him a role model for the fellow pig farmer.

A Case Study on Popularization of Dragon Fruit in Thoubal district, Manipur Farmers Profile:-

Particulars	**Details**	**Particulars**	**Details**
Name	NongthombamIndrakumarLuwang	Address	Wangjing Sorokhaibam Leikai,
Age	**55 yr**	Adhar no	**.: 558581704906**
Gender	**Male**	District	**Thoubal, Wangjing P O 795148**
Education	**Graduate**	State	**Manipur**
Size of landholding	0.5 ha	Mobile No.	**-6009230319**

Introduction

Dragon fruit (*Hylocereous sp*.) known as pitaya/prickly pear fruit, is a perennial climbing succulent plant and most beautiful plant in Cactus family. It is originated from Mexico. It has most significant features of their succulent stems and thorns. Dragon fruit has very strong ability to adapt to soil and climate. It is widely cultivated in South Eastern Asiatic regions of Thailand, Indonesia and Myanmar. Most of the fruits in Manipur are imported from these regions through Myanmar. In India, it is mostly cultivated in West Bengal, Delhi Karnataka etc. Dragon fruit contains an antioxidant property which prevents oxidation of cholesterol and vitamin B. also other minerals like iron, phosphorus and calcium. It was revealed that seeds of dragon fruit are best for the providing omega-3 and omega - 6 fatty acid that reduces cardiac stress. Among the beneficiaries of the successful farmer is Shri NongthombamIndrakumarLuwang. He is a graduate from Wangjing Sorokhaibam Leikai, Thoubal district Manipur andis innovator and progressive farmer

Initiative

Seeing the importance of this fruit as antioxidant in recent years in the state of Manipur the Krishi Vigyan Kendra took up popularization of this crop in the last four years in three villages. Farmers were provided 20 saplings each to 5 farmers with other critical inputs.

The farmer has cultivated of Dragon fruit variety of *Hylocerousundatus* which is pink skin and white fleshed in small area in the year of 2019 but year by year the area of cultivation was extended rapidly by planting new plants after cutting from the mother plant. At present planted a new species of *Hylocereouscostaricensis* which is pink skin with red fleshed occupied total area of 0.0625 ha with 1500 plants in a very systematic manner. The spacing was maintained at 2.5ft plant to plant and 6ft row to row in an intensive manner. He maintained bud initiation also by cutting the tips of cladode and removed unwanted segments for inducing uniform buds. The bud initiation have started from the month of May and will continue flowering up to November thus the fruit harvested 6 times in a year. In the beginning of May to July the production was less while in August to September is the peak time for harvesting thus production was higher whereas in the month of October to November found lesser in production.

Results/ Outcome:

The fruit size of white fleshed was recorded 500g as minimum while 800g as maximum and recorded the minimum fruit size 300g of red fleshed with 600g as maximum. From an area of 0.0625ha the farmer produced 1250kg per year and sale@ 300/kg of fruit. The cost benefit ratio of the interprise is given below.

Area (ha)	Yield (kg)	Rate (per Kg)	Gross Cost (Rs)	Gross Return(Rs)	Net Return(Rs.)	BC Ratio
0.0625	1250	300	90000	275000	185000	3.05

Conclusion:

From the studies revealed that Dragon fruit has become an important fruit crop in terms of its production and market therefore it can be popularize in the region. Further, it is to be mentioned that a DDK programme on dragon fruit cultivation was also done which makes it more popular and more number of rural youths are willing to take up this crop as an enterprise.

Photo: Anthesis of dragon fruit

Photo: Stacking of dragon plants in rows

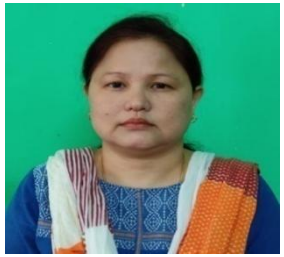
	
Photo: Cutting of mature plants for propagation	Photo: Mature fruits of dragon fruits
	
Photo: SMS (Hort) taking keen interest in plantation of dragon fruit	Photo: Field visit to the dragon fruit farmer

Particulars	**Details**	**Particulars**	**Details**

Name	**Smt Naorem Haripyari Devi**	Address	**Kakching Paji Leikai**
Age	**46**	Adhar no	**919861805933**
Gender	**Female**	District	**Kakching- P O 795103**
Education	**Graduate**	State	**Manipur**
Enterprise	Processing of bamboo shoot	Mobile No.	**8794810142**

Empowering Farm women through Production of Fermented Bamboo Shoot

Farmers Profile:-



Introduction

Smt ,Naorem Haripyari Devi from Kakching Paji Leikai, Kakching district Manipur has a kin interest in processing thereby started her farming activities with her limited resources without much knowledge of agriculture. The result was not at all satisfactory due to lack of scientific processing technologies. Thereafter to increase yield and return from her processing unit she started Value addition of bamboo shoot after consultation with KVK, Home Science and other line Departments.

Initiative

To upgrade her knowledge on processing and value addition, she started participating in training programs conducted by KVK Thoubal, Method Demonstration on processing and value addition of Bamboo shoot with proper packaging ,labeling and branding .Then she started to collect minimally processed fresh bamboo shoots @Rs 40—50/kg. During last year a total no of 800-1000 kgs of fresh bamboo shoot is being processed for fermentation.

Results/ Outcomes

The below table shows the cost-benefit of the enterprise.

Components	**Cost (Rs.)**
Raw material	1,10,000
Labour charges	19,200
Packaging and labelling	20,000
Total Cost	1,55,200
Gross income	3,20,000
Net Return	1,64,800
B:C Ratio	2.06

Though her venture she could earned gross income of Rs. 152.000 by processing and packaging 400 kgs of fermented bamboo shoots during 6 months interval .Her product got shop Licence No 6-28/KMC/TL/2019-671, MSME Registration no – UDYAM-MN-08-0000546 ,fssai registration no 21620015000038 under Brand name – Uyokching Foods. Her processing unit was upgraded to Company incubated by Center for Innovation and Agr ipreneurship under National Institute of Agriculture Extension Management (MANAGE) Hyderbad . Identification no ABC-8289 under Limited Liability Partnership incorporated under Sec 2 (1) of the LLP Act 2008. The product is being sent to for testing nutritional value. and got the result. Her products are also exported to other states also Mrs Haripriyarii also employed 7-8 youths in her activity.

Awards and recognition

- Selected among top 15 Grand Winners, in HER AND NOW South Asia,2021 organized by World Resources Institute India (WRI ,India) and Sangam Ventures and got a grant amount of Rs 80,000. in March, 2022.

- Selected in RKVY RAFTAR, and sanction a sum of Rs 5 lakh in 2022 for upgrading her processing unit by MANAGE, Hyderbad

		
Fermentation process	Visit by Director MANAGE Hyderbad	Grading of bambooshoot
		
Packed products	Visit by kvk staffs	Presentation of RKVY RAFTAR

		
Packaging of Bamboo shoot for ,marketting	Participation in National Webinar Series for Women Agri Startups	Receiving award from Director MANAGE, Hyderabad

(Please furnish detailed information for each case)

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

Some of the training need analysis tools/methodology followed for wider adoption of specific technology suitable in the district are

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 : 5

ii. No. of farm families selected : 3385

iii. No. of survey/PRA conducted: 5

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 (2022) :

Details	No. of Samples analysed	No. of Farmers	No. of Villages	Amount (In Rupees) realized
Soil Samples	142	650	20	-
Water Samples	200	160	8	-
Plant Samples	550	550	70	-
Petiole Samples	15	15	7	-
Total	**507**	**1375**	**105**	**-**

1. Details of Soil Health Cards (SHCs) (2022)
   a. No. of SHCs prepared: 515
   b. No. of farmers to whom SHCs were distributed: 498
   c. Name of the Major and Minor nutrients analysed: NPK
   d. No. of villages covered: 8

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

Message type	Crop		Livestock		Weather		Marketing		Awareness		Other Ent.		Total	
	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary	No. of Message	No. of Beneficiary
Text only	71	7133	43	3281					13	1010	29	1509	156	12933
Voice only	1300	1276	632	632	30	30	50	50	50	50	300	300	2462	2462
Voice and Text both														
Total	1371	8409	675	3913	30	30	50	50	63	1060	329	1809	2618	15395

3.14 Contingency planning for 2022

a. Crop based Contingency planning

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

Flood/ draught	**Introduction of new variety or crop**	570	1600	225	1825
Draught	**Introduction of Resource Conservation Technologies**	120	240	84	324
Flood/ draught	**Distribution of seeds and planting materials**	450	1400	340	1740

b. 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		15	4	1000	680	70	750

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)
Seed production of Lentil	120	60%	Rs. 42000 per ha	Rs. 50000 per ha
Seed production of Rice	350	75%	Rs. 84000 per ha	Rs. 105000 per ha
Seed Production of Mustard	150	85%	Rs. 26000 per ha	Rs. 44000 per ha
Bokashi piggery(3+1)	200	35%	Rs.60000 per unit	Rs. 88000 per unit

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

4.2. Cases of large scale adoption

Success stories/Case studies, if any (two- or three-pages write-up on each case with suitable action photographs during the period during 2022

A Case Study on Popularization of French bean variety Arka Arjun in Thoubal district, Manipur.

Farmers Profile:-

Particulars	Details	Particulars	Details
Name	**Th. Surjit Singh**	Address	**Wangbal**
Age	**49yr**	Adhar no	**363231574378**
Gender	**Male**	District	**Thoubal, Thoubal P O 795148**
Education	**Graduate**	State	**Manipur**
Size of landholding	0.5ha	Mobile No.	**8413857500**

Introduction:

French bean (***Phasiolusvulgaris*. L**) is an important commercial leguminous vegetable crops. Grown during summer and kharif season and consumed as tender pods and shelled green bean. However the variety Arka Arjun developed by IIHR, Bangaluruis suitable to grow throughout the year. It is a bush type, pods are stringless, tender and disease resistant (Mung bean Yellow Mosaic virus) and early maturing. In Manipur, the local cultivar of pole type namely champhut hawai grown widely during summer season only ,need stacking, long duration and indeterminate type whereas farmers preferred stringless, tender, suitable to grow throughout the year and resistant to MYMV disease. There is unavailability of such variety in Manipur. Seeing this advantage, the Krishi Vigyan Kendra, Thoubal under SMS (Horticulture) approached IIHR, Bangaluru for availability of such variety and taken up cultivation of this variety during the year 2018 in a participatory mode with IIHR, Bangaluru as research purpose and found successful.

Thereafter large scale cultivation of this variety has been taken up with interested farmers so as to uplift their economy. One of the succesful farmer is Shri Th. Surjit Singh, a graduate from Wangbal, Thoubal.

Initiative:

The Krishi Vigyan Kendra, Thoubal have been taken up this variety released by IIHR, Bangaluru as a part of popularization on French bean to farmer's field at different places of Thoubal district in the last three years by providing seed and other critical inputs along with training on Package of practices for the cultivation of French bean. Shri Th. Surjit Singh is one of the successful farmer from Wangbal, Thoubal district, Manipur. He cultivated in an area of 0.5ha during the month of August with the package of practices developed by IIHR, Bangaluru.

Results:

The tender pods are ready to harvest in 65 to 70days after sowing. Pods are 12-15 cm long, round, tender, stringless and green. Pods can be harvested 4 times during the growing period. From an area of 0.5ha the farmer produced 2000kg per 0.5ha and sale@ Rs.45/kg of beans. It is resistant to Mung bean Yellow Mosaic Virus. The cost benefit ratio of the enterprise is given below.

Area (ha)	Yield (kg)	Rate (per Kg)	Gross Cost (Rs)	Gross Return(Rs)	Net Return(Rs.)	BC Ratio
0.5	2250	45	42000	101250	59250	2.41

Outcome:

Seeing the result of his demonstration many farmers have approached KVK,Thoubal to cultivate this variety. This variety has been popularized to more than 80 nos. of farmers in both Thoubal and Kakching District. From this variety Shri Th. Surjit Singh could earneda yearly income of

Rs.101250/- from his 0.50 ha land which could sustained his livelihood. Apart from this, Shri Singh also taken up cultivation of other vegetables in his another 0.25 ha land.

Conclusion:

From the case studies on popularization of French bean by KVK,Thoubal it can be concluded that French bean variety Arka Arjun has become an important French bean variety in Thoubal and Kakching in terms of its production ,quality,earliness,can be grown all he year and market potential; therefore it can be popularize throughout the district.

Photo: Vegetative phage of French bean

Photo: Flowering stage of French bean

Photo: Harvesting time

Photo: Farmers visit to see performance of bush type of French bean

Photo: Scientist visit to Farmers field

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 2022

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
Dept. of Social welfare & Child development	Attended SAC, Training
NBPGR, New Delhi	Training with input distribution
IIHR, Bangalore	Supply of vegetable seeds
VPKAS, Almora	Supply seeds & implements
BIRD, Kolkata	Training
NERIWLM, Tezpur	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 2022

Name of the scheme/ special programme	Activity	Date/ Month of initiation	Funding agency	Amount (Rs.)
Republic Day	-	26.1..22	ICAR, ATARI Zone -VII	1000
World Pulses day	Training, Demonstration	10.2.22		3000
International Women's Day	Training	8.3.22	ICAR, ATARI Zone -VII	2500
World Environment Day	Training and Method demonstration	5.6.2022	ICAR, ATARI Zone –VII	3500
International Yoga Day	Planting Trees	21.6.2022	ICAR, ATARI Zone –VII	1500
Observation of National Fish Farmers Day	Training program	10.7.2022	ICAR, ATARI Zone –VII	1250

94th ICAR Foundation Day	Training program	16.7.22	ICAR, ATARI Zone –VII	19156
Kharif Campaign	Training and Demonstration	6.8,22	ICAR, ATARI Zone –VII	22440
Independence Day		15.8.22	ICAR, ATARI Zone –VII	2245
Poshan maah	Training and Demonstration	17.09.22	ICAR, ATARI Zone –VII	4000
PM Kisan Samman Sammelan	Training,distribution of seeds	17.10.2022	ICAR, ATARI Zone –VII	31427
2nd October	Training and Swachhta activity	2.10.22	CAU, Imphal	2000
Constitution Day	Interaction	26.11.2022	Hort. & SC, Manipur	150000
Rabi Campaign	Training, Interaction and distribution of inputs	5/12/2022	ICAR, ATARI Zone -VII	22830
World Soil Health Day	Distribution of Soil Health Cards, Micro nutrients, Seed and Planting materials	5-12-2022	ICAR, ATARI Zone –VII	17000
Celebration of Kisan Diwas	Training, Interaction	23-12-2022	ICAR, ATARI Zone –VII	11850
Swachhta pakhwada	Awareness prog	16-12-2022 to 31-12-2022	ICAR, ATARI Zone –VII	41400
Farmer outreach programme on Natural Farming	Training, Interaction and distribution of inputs		ICAR, ATARI Zone –VII	14104

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 2022

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**
22	**200**	**560**	**39**	**50**	**230**	**24**	**130**	**200**	**5**	**20**	**130**

5.7 Natural Farmingduring 2022

No. of	**Participants**	**No. Trainings**	**Participants**	**No. of Awareness**	**Participants**

demonstrations conducted	SC/ST	Others		SC/ST	Others	Programs	SC/ST	Others
1	1	0	2	45	-	3	29	33

5.8 Achievements under DAMU KVKs during 2022 (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 2022 (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 2022

Name of Nutri-SMART Village	T 1	T 2	T 3	Area (ha)	No of Beneficiaries	Name of crop	T1			T2			T3		
							Name of variety	Yield (q/ha)	Consumption (kg)	Name of variety	Yield (q/ha)	Consumption (kg)	Name of variety	Yield (q/ha)	Consumption (kg)

7. PERFORMANCE OF INFRASTRUCTURE IN KVK DURING 2022

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 2022

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.(q/Ha)	Cost of inputs	Gross income	
Rice	11.07.2022 to 25.07.2022	19.11.2022 to 5.12.2022	3.35		Truthfull label seed	96.44 q	37000	433980	
Wheat	15-12-2022	18-4-2023	0.16	HPW 360	Certified	1.74	12450	15660	
Chickpea	12-11-2022	8-4-2023	0.075	GS-2207	Certified	1.05	3500	8400	
Lentil	11-11-2022	28-3-3023	0.05	IPL-316	Certified	0.15	8000	1200	

Field pea	13-11-2022	15-3-2023	0.05	HFA-715	Certified	0.95	3000	7600	
Mustard	22-11-2022	26-3-2023	0.5	NRCHB-101	Certified	3.5	22300	24500	
Turmeric	6-3-2021	29-12-22	0.1	Local	-	2	6500	7000	

7.3 Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.) during 2022

Sl. No.	Name of the Product	Qty	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
1	Vermicompost	586	9000	7500	@ Rs 15 per kg

7.4 Performance of instructional farm (livestock and fisheries production) during 2022

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed/ species	Type of Produce	Qty.(no.)	Cost of inputs	Gross income	
1	Pig		Piglet Pig	10 8		0.35000	After selling 10 piglets, piglets and 6 pigs not yet sold.
2	Goat		Kid Goat	4 6	-	Not yet sale	
3	Cattle		Calf Cow	2 6	-	Not yet sale	
4	Duckery	Geese Muscovy		4 5	-	Not yet sale	
5	Fish	IMC & Exotic fingerling	Fingerling	11760		0.43847	

7.5 Rainwater Harvesting

Training programmes conducted by using Rainwater Harvesting Unit/ structure during 2022

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 2022

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

8.2 Utilization of funds under CFLD on Oilseeds and Pulses (Rs. In Lakhs) if applicable during 2022

Item	Released by ICAR/ATARI (in lakh)		Expenditure (in lakh)		Unspent balance as on 31st March, 2018
	Amount	Amount	Amount	Amount	
Inputs	2.97222 (Oil seed)	2.48487 (Pulses)	2.97222 (Oil seed)	2.48487 (Pulses)	NIL
Technology agent	-	0.60000 (Pulses)	-	0.60000 (Pulses)	NIL
TOTAL	2.97222	3.08487	2.97223	3.08487	NIL

8.3 Utilization of KVK funds during the year 2022

S. No.	**Particulars**	**Sanctioned (in Lakh)**	**Released (in Lakh)**	**Expenditure (in Lakh)**
A. Recurring Contingencies				
1	Pay & Allowances	221.53016	221.53016	221.15182
2	Traveling allowances	3.00000	3.00000	3.00000
3	Contingencies	18.50000	18.50000	18.50000
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			
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			
L	NARI			
M	HRD	0.80000	0.80000	0.80000
TOTAL (A)		243.83016	243.83016	243.45182
B. Non-Recurring Contingencies				
1	Works	1.00000	1.00000	1.00000
2	Equipments including SWTL & Furniture etc.	22.02000	22.02000	22.02000
3	Vehicle (Four wheeler, please specify)	9.00000	9.00000	9.00000
4	Library (Purchase of assets like books & journals)	0.15000	0.15000	0.15000
TOTAL (B)		32.17000	32.17000	32.17000
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		276.00016	276.00016	275.62182

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 2020 to March 2021	7.47139	164900	16.65194	9.12039
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

**** Actual net closing balance for the year 2022-23 is Rs. 12,03,573/- . During the year a Bolero vehicle was allotted to our KVK with a sanction amount of Rs.9,00,000/-. But the actual price for Bolero B6(O) including accessories, Registration and Insurance is Rs.11,90,754/- which is beyond the allocated fund. During the 12th IMC, ATARI, Zone-VII, Umiam through hybrid mode on 30th Dec. 2022 Director of Agriculture has put up the shortfalls and was approved to make arrangement of the balance amount from the Revolving fund and to make the purchases before March. Accordingly amount of Rs. 2,90,745/- is being debited from the revolving fund with the approval from Director of Agriculture, Manipur.**

Note: No KVK must leave this table blank

8.5 Please include information which has not been reflected above.

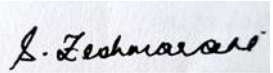
(Write in detail)

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

(a) Administrative

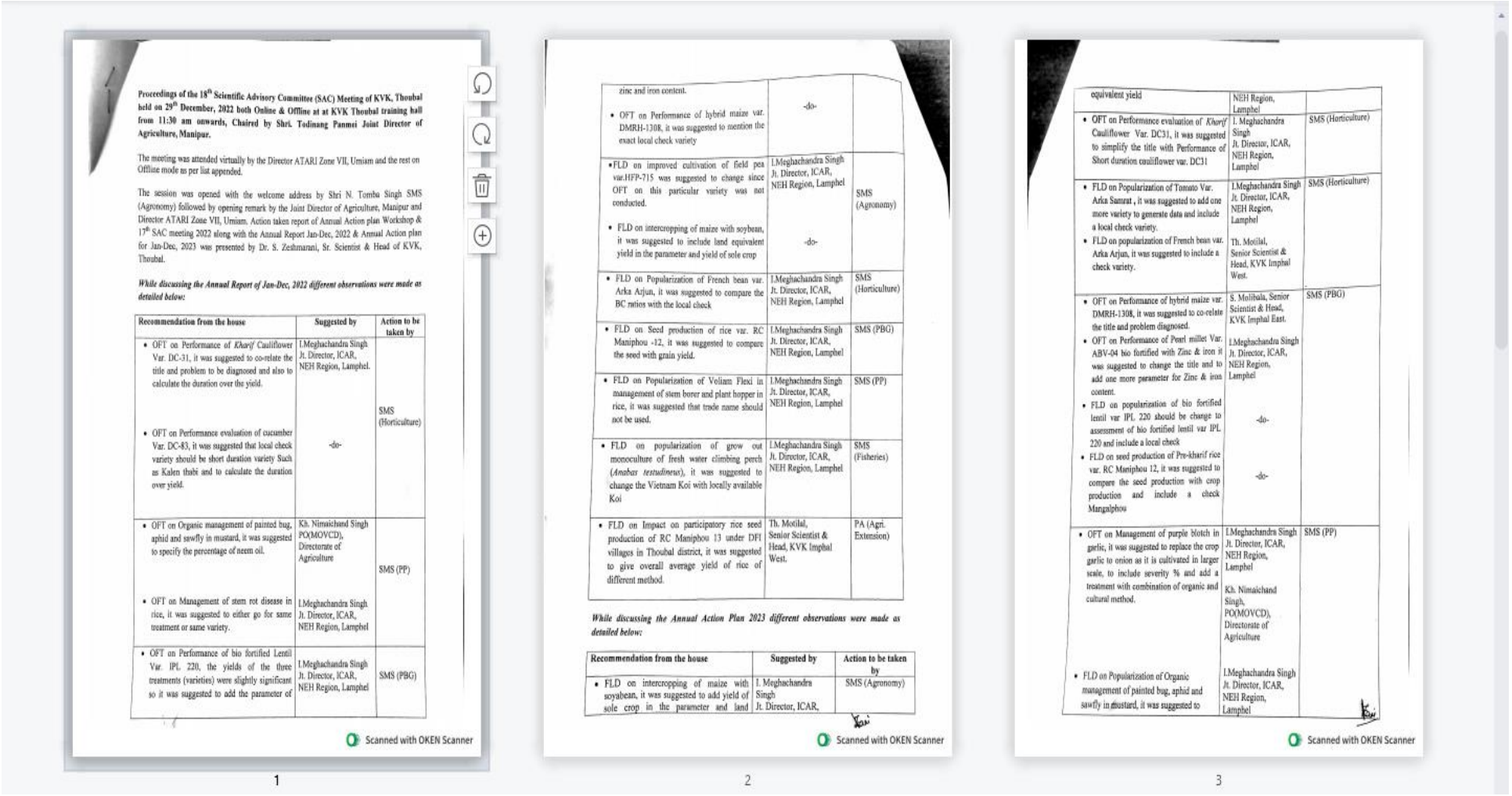
(b) Financial

(c) Technical



(Dr.S.Zeshmarani)
Sr. Scientist cum Head

Proceedings of 18th SAC proceedings



Proceedings of the 18th Scientific Advisory Committee (SAC) Meeting of KVK, Thoubal held on 29th December, 2022 both Online & Offline at at KVK Thoubal training hall from 11:30 am onwards, Chaired by Shri. Todinang Panmei Joint Director of Agriculture, Manipur.

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

The session was opened with the welcome address by Shri N. Tombu Singh SMS (Agronomy) followed by opening remark by the Joint Director of Agriculture, Manipur and Director ATARI Zone VII, Umiam. Action taken report of Annual Action plan Workshop & 17th SAC meeting 2022 along with the Annual Report Jan-Dec, 2022 & Annual Action plan for Jan-Dec, 2023 was presented by Dr. S. Zeshmarani, Sr. Scientist & Head of KVK, Thoubal.

While discussing the Annual Report of Jan-Dec, 2022 different observations were made as detailed below:

Recommendation from the house	Suggested by	Action to be taken by
• OFT on Performance of *Kharif* Cauliflower Var. DC-31, it was suggested to co-relate the title and problem to be diagnosed and also to calculate the duration over the yield.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel.	SMS (Horticulture)
• OFT on Performance evaluation of cucumber Var. DC-83, it was suggested that local check variety should be short duration variety Such as Kalen thabi and to calculate the duration over yield.	-do-	
• OFT on Organic management of painted bug, aphid and sawfly in mustard, it was suggested to specify the percentage of neem oil.	Kh. Nimaichand Singh PO(MOVCD), Directorate of Agriculture	SMS (PP)
• OFT on Management of stem rot disease in rice, it was suggested to either go for same treatment or same variety.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	
• OFT on Performance of bio fortified Lentil Var. IPL 220, the yields of the three treatments (varieties) were slightly significant so it was suggested to add the parameter of	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (PBG)

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zinc and iron content. • OFT on Performance of hybrid maize var. DMRH-1308, it was suggested to mention the exact local check variety	-do-	
•FLD on improved cultivation of field pea var.HFP-715 was suggested to change since OFT on this particular variety was not conducted. • FLD on intercropping of maize with soybean, it was suggested to include land equivalent yield in the parameter and yield of sole crop	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel -do-	SMS (Agronomy)
• FLD on Popularization of French bean var. Arka Arjun, it was suggested to compare the BC ratios with the local check	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (Horticulture)
• FLD on Seed production of rice var. RC Maniphou -12, it was suggested to compare the seed with grain yield.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (PBG)
• FLD on Popularization of Voliam Flexi in management of stem borer and plant hopper in rice, it was suggested that trade name should not be used.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (PP)
• FLD on popularization of grow out monoculture of fresh water climbing perch (*Anabas testudineus*), it was suggested to change the Vietnam Koi with locally available Koi	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (Fisheries)
• FLD on Impact on participatory rice seed production of RC Maniphou 13 under DFI villages in Thoubal district, it was suggested to give overall average yield of rice of different method.	Th. Motilal, Senior Scientist & Head, KVK Imphal West.	PA (Agri. Extension)

While discussing the Annual Action Plan 2023 different observations were made as detailed below:

Recommendation from the house	Suggested by	Action to be taken by
• FLD on intercropping of maize with soyabean, it was suggested to add yield of sole crop in the parameter and land	I. Meghachandra Singh Jt. Director, ICAR,	SMS (Agronomy)

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equivalent yield	NEH Region, Lamphel	
• OFT on Performance evaluation of *Kharif* Cauliflower Var. DC31, it was suggested to simplify the title with Performance of Short duration cauliflower var. DC31	I. Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (Horticulture)
• FLD on Popularization of Tomato Var. Arka Samrat , it was suggested to add one more variety to generate data and include a local check variety. • FLD on popularization of French bean var. Arka Arjun, it was suggested to include a check variety.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel Th. Motilal, Senior Scientist & Head, KVK Imphal West.	SMS (Horticulture)
• OFT on Performance of hybrid maize var. DMRH-1308, it was suggested to co-relate the title and problem diagnosed. • OFT on Performance of Pearl millet Var. ABV-04 bio fortified with Zinc & iron it was suggested to change the title and to add one more parameter for Zinc & iron content. • FLD on popularization of bio fortified lentil var IPL 220 should be change to assessment of bio fortified lentil var IPL 220 and include a local check • FLD on seed production of Pre-kharif rice var. RC Manipbou 12, it was suggested to compare the seed production with crop production and include a check Mangalphou	S. Molibala, Senior Scientist & Head, KVK Imphal East. I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel -do- -do-	SMS (PBG)
• OFT on Management of purple blotch in garlic, it was suggested to replace the crop garlic to onion as it is cultivated in larger scale, to include severity % and add a treatment with combination of organic and cultural method.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel Kh. Nimaichand Singh, PO(MOVCD), Directorate of Agriculture	SMS (PP)
• FLD on Popularization of Organic management of painted bug, aphid and sawfly in mustard, it was suggested to	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	

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change as the OFT is in second year and result on parameter are not available. • FLD on management of blast disease in rice, it was suggested to change the resistant variety, to make economically viable in conducting an experiment and different treatment cannot be applied in same unit.	Kh. Nimaichand Singh PO(MOVCD), Directorate of Agriculture	
• OFT on Performance of nohu (*Labeo rohita*) fry by feeding live wolffia, it was suggested to go for trial on pilot scale at KVK farm. • OFT on Low cost seed production of Pabda, it was suggested to change.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (Fisheries)
• OFT on Assessment on preparation of millet (sorghum) sweet bulls, it was suggested to compare with millet variety only not with rice variety. • FLD on Popularisation of Gauva Cheese, it was suggested to change the demonstration on value addition of multi grain millet and rectify the source of technology	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel S. Molibala, Senior Scientist & Head, KVK Imphal East.	SMS (Home Science)
• FLD on impact assessment on farmer's perception and performance of livestock based training programmes, it was added to add social concept to be demonstrated/methodology	Th. Motilal, Senior Scientist & Head, KVK Imphal West.	PA(Agri. Extension)
• In crop base contingency planning, it was suggested to specify particular varieties of crop	Th. Motilal, Senior Scientist & Head, KVK Imphal West.	SMS (Agronomy)

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General Recommendation

Recommendation from the house	Suggested by	Action to be taken by
• Demonstration should be conducted after completion of two year trial.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	All SMSs, PA
• Animal component (cow) must be included in natural farming and compare the soil status before and after intervention.	I.Meghachandra Singh Jt. Director, ICAR, NEH Region, Lamphel	SMS (Agronomy) SMS (Horticulture)

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

(Todinang Pamei)
Chairman
Joint Director of Agriculture, Manipur

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Esdt.No.3/KVK/TBL/SAC/2007/Pt. Thoubal the 29th December, 2022

Copy for information forwarded to:-

1. The Joint Director of Agriculture Manipur/Chairman 18th SAC meeting.
2. Dr. A.K Sinha, Director ATARI, Zone-VII, Umiam
3. Dr. I. Meghachandra Singh, Joint Director, ICAR, Manipur Centre
4. Dr. Deepak Nath, Deputy Director (Extn. Edn.) CAU, Imphal
5. Dr. R Bordoloi, Principal Scientist, ATARI, Zone VII, Umiam
6. Th. Kiran Singh, DDM NABARD, Manipur
7. L. Inaobi Singh, Deputy Director, SAMETI
8. N. Nilamani Singh, DTO/NO,SHC Agri
9. N. Devshini Devi, A.O (H& SC), Thoubal
10. Dr. Md. Fajur Rahman, Vety. Officer, Thoubal
11. Th. Joyprakash Singh, Nodal officer, SAMETI ATMA, Directorate of Agriculture
12. H. Manihar Singh, ASKO, Dept. Of Agriculture
13. Th. Nimaichand, PO(MOVCD), Directorate of Agriculture
14. N. Kumar Singh, Rice Breeder, RSS, Wangbal
15. MS Khaidem, Project Consultant, Oil Palm Mission, Manipur
16. A. Altias, LDM, Kakching
17. Th. Th. Tunglut, LDM, Thoubal
18. Dr. L. Jeeceelee, DFO, Thoubal
19. N. Debaki Devi, EO (Agri) DAO, Thoubal
20. N. Noren Singh, F/D, District Fishery Office, Thoubal
21. Dr. Th Motilal Singh, Sr. Scientist & Head KVK, Imphal West
22. Dr.Kh. Brajamani Meitei, Sr. Scientist & Head, KVK, Bishnupur
23. S. Molibala, Sr. Scientist & Head i/c, KVK Imphal East
24. Dr. A. Ameeta Devi, Sr. Scientist & Head, KVK Chandel
25. Dr. N. Jyotna Devi, Sr. Scientist & Head, KVK, Senapati
26. Kh. Maipak Singh SMS (PP), KVK, Bishnupur
27. Naveen Pandey, Mahatama Gandhi, NF, MSDR, Thoubal
28. I. Abesana, MGNF, Kakching
29. Romario Maibam, CEO, Kaoren Phaba FPC, Ltd. Thoubal
30. Y. Ureshkumar Singh, CEO, Khana Chaoba FPC, Ltd, Kakching
31. Hijam Ojit Kumar, CEO, Nongpok Ningthou FPC, Ltd, Thoubal
32. Vareiso Awungshi, CEO, Loumeegi Thouna FPC, Ltd, Thoubal
33. Kh. Baleshwori Devi, Progressive Farmer
34. Ph. Thoiba Singh, Progressive Farmer
35. AK. Deben Singh, Progressive Farmer

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

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ANNEXURE

LIST OF SAC MEMBERS & INVITEES PRESENT

Sl.No	Name	Designation	Offline/Online
1.	**Shri. Todinang Pamnel**	Joint Director of Agriculture, Manipur	Offline
2.	Dr. I. Meghachandra Singh	Joint Director, ICAR, Manipur Centre	Offline
3.	Dr. A.K. Sinha	Principal Scientist , (I/C) Director ATARI, Zone-VII	Online
4.	Dr. Deepak Nath	Deputy Director (Extn. Edn.) CAU, Imphal	Online
5.	Dr. R Bordoloi,	Principal Scientist, ATARI, Zone VII, Umiam	Online
6.	Th. Kiran	DDM, NABARD Manipur	Offline
7.	L. Inaobi Singh,	Deputy Director, SAMETI	Offline
8.	N. Nilamani Singh,	DTO/NO,SHC Agri	Offline
9.	N. Devshini Devi,	A.O (H& SC), Thoubal	Offline
10.	Dr. Md. Fajur Rahman,	Vety. Officer, Thoubal	Offline
11.	Th. Joyprakash Singh,	Nodal officer, SAMETI ATMA, Directorate of Agriculture	Offline
12.	H. Manihar Singh,	ASKO, Dept. Of Agriculture	Offline
13.	Th. Nimaichand Singh	PO(MOVCD), Directorate of Agriculture	Offline
14.	N. Kumar Singh	Rice Breeder, RSS, Wangbal	Offline
15.	MS Khaidem,	Project Consultant, Oil Palm Mission, Manipur	Online
16.	A. Altins	LDM, Kakching	Offline
17.	Th. Th. Tunglut,	LDM, Thoubal	Offline
18.	Dr. L. Joeceelee,	DFO, Thoubal	Offline

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19.	N. Debaki Devi,	EO (Agri) DAO, Thoubal	Offline
20.	N. Noren Singh,	F/D, District Fishery Office, Thoubal	Offline
21.	Dr. Th Motilal Singh	Sr. Scientist and Head, KVK, Imphal West	Offline
22.	Dr.Kh. Brajamani Meitei,	Sr. Scientist & Head, KVK, Bishnupur	Offline
23.	S. Molibala,	Sr. Scientist & Head i/c, KVK Imphal East	Offline
24.	Dr. A. Ameeta Devi,	Sr. Scientist & Head, KVK Chandel	Offline
25.	Dr. N. Jyotna Devi	Sr. Scientist & Head, KVK, Senapati	Online
26.	Kh. Maipak Singh	SMS (PP), KVK, Bishnupur	Offline
27.	Naveen Pandey,	Mahatama Gandhi, NF, MSDR, Thoubal	Offline
28.	I. Abesana,	MGNF, Kakching	Offline
29.	Romario Maibam,	CEO, Kaceen Phaba FPC, Ltd. Thoubal	Offline
30.	Y. Ureshkumar Singh,	CEO, Khana Chaoba FPC, Ltd, Kakching	Offline
31.	Hijam Ojit Kumar,	CEO, Nongpok Ningthou FPC, Ltd, Thoubal	Offline
32.	Vareiso Awungshi,	CEO, Loumeegi Thouna FPC, Ltd, Thoubal	Offline
33.	Kh. Baleshwori Devi	Progressive Farmer	Offline
34.	Ph. Tholba Singh	Progressive Farmer	Offline
35.	AK. Deben Singh	Progressive Farmer	Offline

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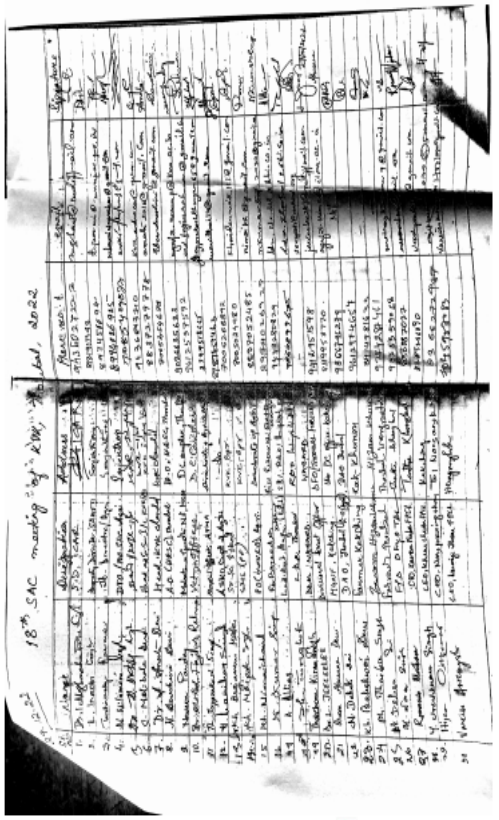

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Action Photo 2022

On Farm Trial

		
Weed management in kharif Blackgram Var. PU-31	Zinc Management in low land Pre-kharif rice	Preparation of guava cheese
		
Seed production of Climbing Perch	Seed production Clarias magur using BRICS method	Year round production of Nutri Rich crops i

		
Performance of Kharif Cauliflower	Performance evaluation of Cucumber Var. DC-83	Performance of hybrid maize var. DMRH-1308
		
Performance of bio-fortified Lentil var. IPL-220	Organic management of painted bug, aphid and sawfly in mustard	Organic management of painted bug, aphid and sawfly in mustard

Front Line Demonstration		
		
Impact of NARI (Nutri-Sensitive Agricultural Resources & Innovation) in enhacement of Farmers' livelihood and nutritional security	Impact on participatory rice seed production of RC Maniphou-13 under DRI villages in Thoubal district	Intercropping of maize with soybean
		
Popularization of Paddy cum fish farming	Popularization of water melon rind candy	Osmotic dehydration of pineapple

		
Populazisation of French bean Var,Arka Arjun	Popularization of Voliam Flexi in mgmt. of Stem borers & Plant hoppers in rice	Popularisation of MUSTARD var NRCHB-101

Training

Extension activities

Publications

J Krishi Vigyan 2022, 11 (1) : 179-184 DOI : 10.5958/2349-4433.2022.00126.X

Farmers' Perception towards Chemical Castration Method in Piglets

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Krishi Vigyan Kendra Thoubal, Department of Agriculture, Manipur

ABSTRACT

The present study has been carried out in Thoubal and Kakching districts of Manipur. The study disclosed farmers' perception on selecting castration methods in piglets among various methods. Chemical castration has been preferred by majority (85 %) of the respondents. The study also revealed that 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.

Key Words: Castration, Chemical, Farmer, Perception,

INTRODUCTION

Castration of male piglets intended for meat production is a routine practice in the various part of the world. Piglets are castrated during the first weeks of life in order to reduce the boar taint of the meat (USDA, 2001). Surgical castration by the farmers without the use of anaesthesia is still predominant practice most places but this practice is now questioned in many countries due to animal welfare concerns (EFSA, 2004). With increasing animal welfare concerns in the swine industry worldwide, the pursuit for inexpensive and effective alternatives for surgical castration of piglets is now a priority (USDA, 2001). Although, surgical castration is favoured by most swine producers, it can also alleviate potential behavioural problems associated with raising intact males. But this practice has come under major scrutiny in the past 20 years as animal welfare concerns are being raised regarding the pain associated with surgical removal of the testes. De Roest *et al* (2009) stated that within the EU surgical castration will unlikely to be tenable in the future.

Many researcher have been published various study on comparison of pros and cons of the alternatives of the castration methods (Tuyttens *et al*, 2012). Recently, studies have also been done on stackholder attitudes towards alternatives of the castration with regards to animal welfare (Von Borell *et al*, 2009), meat quality (Lundstrom *et al*, 2009) and economic classification (De Roest *et al*, 2009). This is matter of considerable importance as the piggery farmers generally demands insistent high quality meat (Squires, 2006). It is also mentioned by Babol *et al* (2004) and Zamaratskaia *et al* (2004) that slaughtering of pig at an early age may reduce the boar taint as the expression of boar taint is association with sexual maturity.

Chemical castration of pigs is an alternative to the regular surgical castration procedure that has historically been used to prevent boar taint in the resultant pork products (USDA, 2001). Chemical castration consists of injecting chemicals (such as lactic acid or zinc salts) into the testicles, causing destruction of testicular tissue (FAWEC, 2013). The advantages which are claimed for the use of

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Case Study

Use of Social Media in Enhancing Farmer's Satisfaction Level on Agricultural Extension Services: A Case Study of Farmers Club in Thoubal District, Manipur

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Abstract

Social media has become universal and practically inescapable, revolutionizing the way farmers communicate, interact and socialize; and has become an integral part of their social education through expressing opinion on varied issues. The agriculture sector is embracing social media and utilising it to increase knowledges of the farming and cropping management as well as interacting with others like agricultural professionals, Scientists, Subject Experts including research scholars. Social media tools can be viewed as social communication technologies in which opportunities of farmers' feedback, interaction, and networking are much higher than other forms of extension information delivery. Besides all these opportunities provided by the social media, the farmers' satisfaction level is also an important measures in dissemination of the information specially for agricultural extension and advisory services in order to improve the present communication system between farmers and the services provider. The present study sought to assess farmers' satisfaction level towards agricultural extensions servicesby means of social media.

Keywords: Agriculture, Extension Services, Information, Satisfaction level, Social Media

Introduction

Social media is the use of Facebook, Youtube, Whatsapp, Blogs, Twitter, My Space and LinkedIn for the purpose of communication, sharing photos as well as videos (Acheaw and Larson, 2015; Balkrishna and Deshmuk, 2017; Thakur and Chander, 2018). However for the purpose of this study social media is captured within the use of internet through Facebook, Whatsapp, Youtube, Instagram, Telegram messenger as well as other Messengers for communication and sharing of information, innovations on latest technologies by sharing of photos and videos (Barau and Afrad, 2017). Teenagers and young adults have especially embraced these sites as a way to connect with their peers, share information, reinvent their personalities, and showcase their social lives. It is also astounding to accept as true that in little as two short decades, the evolution of the Internet and social media has taken place right before our eyes. It was only in 1991 that the World Wide Web became public, only around 17 years since Google was created and only a decade since Facebook was invented (Lathiya *et al.*, 2015).

Social media has a great potential to be used as a tool of communication and networking for benefits of farming community as in India about 70% of the population resides in rural area and their main livelihood income were from agriculture and its allied activities. The need for current and relevant information by farmers in this sector for increased production in a sustainable way is now become a key issue for the nation. Information communication technology facilities are greatly influencing how information is sourced and disseminated these days. Social community often consists of people known in real life. Among the social media platform Facebook is a great place to start a positive conversation about agriculture, connect with the younger generation and get people excited about farming (Joshi *et al.*, 20 Thakur and Chander, 2018). Some of the main actions t has been done in the field of agriculture through so

Article History

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হার হাপকদবা তাঙ্কক	হাপকদবা মতম	Urea(g)	SSP(g)	MOP(g)
অহানবা	হৈ হেক পানবা লোইরবা মতুং	470	1350	-
অনিশুবা	অহানবগী হার হাপখ্রবা থা অনিগী মতুংদা	350	900	75
অহুমশুবা	লৈ শাংলমদাই	120	1800	200
মরিশুবা	হৈ চাওখৎলকপা মতম	230	450	225

নাপী লৌথোকপা :

নাপীশিংনা পাম্বীদা অয়েৎ অপন পিদনবগীদমক মখোংদা হৌরিবা নাপীশিং মীনা শেংদোকপিবা নত্রগা নাপি হিদাকশিং শিজিন্নবিবা য়াই। মরুওইনা পাম্বী অনিগী মরক্তা হৌরিবা নাপীশিংদগী ঙাকথোকনবা অতেনবা মতমগী ওইবা চান্নবা মহৈ মরোংশিং পরেং অনিগী মরক্তা (intercroping) থাজিনবসু য়াই।

প্রুনীং তৌবা : (Pruning)

অহেনবা মশা-মরেং ককপগী থবক অসি হৈ পানবগী মতম লোইরবা মতুং January - February থাদা ককথোকপীগনি। পামদবা, য়াম্না কুংসন্না লৈবা মশাশিং অদু খল্লগা Secateur কী মতেংনা ককপীগনি। প্রুনীং তৌবসিনা মথংগী হৈ পানলকপদা হৈগী মগুন অমদি চাথোক হেন্না ফংবা ঙম্মী।

লৈ অশাংপা লৌথোকপা :

লৈ শাংলবা মতুং নুমিৎ ৫ নি শুরকপদা পথরকপা নত্রগা কংশিল্লকপা মতমদা লায়না তীলনাদগী ঙাকথোকনবগী খুৎনা লৌথোকপীগদবনি।

হৈ হেকপা মতম :

লৈ শাংখ্রবা মতুং নুমিৎ ২৫ নি সুরকপদা হৈগী মথক থংবা মকু অদু মচু ঙাংবা হৌরকপগা লোইননা নুমিৎ ৩০ নি শুরক্লবা মতমদা মকু অদু মপুং ফানা ঙাংশল্লক্কনি মসিনা হেকপা য়ারে হায়বগী খুদমনি। হেন্না মহাও লৈনবগীদমক নুমিৎ ৪০-৫০ শুরকপদা হৈ হেকপদা অকাইবা লৈতে।

পোৎথোক :

থাবগী নীতি নিয়ম, কাঙলোন চুন্না থারবদি চাংচত্তা হৈ অমগী অরুম্বসি গ্রাম ৩৫০ অমসুং পরি অমদা কেজি: ১৬,০০০ - ২৭,০০০ ফাওবা পুথোকপা ঙম্মী। ভেরাইতি অমদি লৈবাক - লৈহাও খেন্নবগী মতুংইন্না পোৎথোক অমসুং মহাও অদুমক খেন্নবা লৈরক্কনি।

লায়না-তীলনাদগী ঙাকথোকপা :

Stem Rot হায়বা লায়না অসিদগী ঙাকথোক্লবা ঈশিং লি:১৫ দা গ্রাম ২৫ মেনকোজেব (Mancozeb 75%WP) অমসুং ককচেংগী ওইনা ঈশিং লি : ১ দা মি:লি: ২ (Chlorpyriphos) গী চাংদা হাপ্লগা চাইথোকপীগনি।

উচেক অমদি শেকপীদগী ঙাকথোক্লবা Bagging তৌবীগনি। হৈ মপুং ফাদ্রিঙৈদা চেগী খাও নত্রগা মচুগী নন উভন খাও শিংনা য়োমসন্দুনা থম্বীগদবনি।

Prepared by :
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KVK, Thoubal

SCIENTIFIC CULTIVATION OF DRAGON FRUIT

ICAR

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Govt. of Manipur - 795138

দ্রাগোন ফ্রুট থাবা :

পৃথিবী শীনবা থুংনা খঙনরবা কেকটস মরি চৎপা মখলশিংগী মনুংদা দ্রাগোন ফ্রুট সু অমনি। মরুওইনা অশাবা (ত্রোপিকেল) অমদি ময়াই ওইরপনা শাবা (সব-ত্রোপিকেল) গী লমদমশিংদা ফজনা চান্ননা হৌবা ঙম্বা পাম্বীনি। দ্রাগোন ফ্রুট মখলশিংগী মনুংদা অঙাংবা মচুগী ভরাইটি দা Antioxidant গী চাং ৱাংনা য়াওবগা লোইননা মরুওইবা মিনরেলশিংদা খুদম ওইনা ফোসফোরস, কেলসিয়ম অমদি ভিটামিন-সি মরাং কাইনা য়াওই। হায়রিবা পাম্বী মখল অসি চহি অমদা তরুক্লক হেকপা য়াবনা শেন্দোং হেন্না ফংবদা মরুওইবা থৌদাং লৌরি।

অঈং-অশা অমসুং লৈবাক - লৈহাও :

খ্বাইদগী চান্নবা অঈং অশাগী চাং ডিগ্রি সে: ২০ - ৩০ নি। দ্রাগোন ফ্রুট পাম্বী অসি লৈবাক - লৈহাও মখল খুদিংমক্তা হৌবা ঙম্মী। অদুম ওইনমক Sandy loam ওইবা অমদি খরা হেন্না লৈহাও লৈবা, ঈশিং তুংদবা, অতোঙবা মফমশিংদা হেন্না পক্লে, অশিনবগী চাং খরা ৱাংবা মফমদসু হৌবা ঙম্মী অদুবু খ্বাইদগী চান্নবা টৌবক্কী অশিন অয়াক্কী চাংনা (pH) 5.5-6.5 নি।

দ্রাগোন ফ্রুট মখলশিং :

* *Hylocereous costaricensis*
  মনুং মপাল অঙাংবা

* *Hylocereous undatus*
  মকু অঙাংবা মনুং অঙৌবা

* *Selenseserious megalanthus*
  মকু হংকপাল মনুং অঙৌবা

পাম্বী চারা শেম্বা :

হৈ পানবা লোইখ্রবা মতুংদা, অরিবা মশা খনলগা সি:মি: ১৫-৩০ ফাওবা শাংনা ককলগা নরসরি পোলিবেকদা থাবীগনি। মরা ফজনা চৎন্নবগীদমক রুতিং হোরমোন IBA-10g/litre নত্রগা পাউদর ওইনা তৈসনবীরগা সেকেন তরামুক উরুমদা থম্লবা মতুংদা নরসরি পোলিবেকদা থাজনবীগনি।

থাফম শেম্বা :

থাফমগীদমক নুংশা মপুং ফানা ফংবা মফম খনবীগদবনি। পাম্বী থাদ্রিঙৈ মাঙওইননা অরন অকুংগী মতুংইন্না Concrete পিলর নত্রগা উগী পিলর লৈবাক্তা য়ুংদুনা থমগনি। ফিট ২:৫ গী চাংদা পিলর অদুদগী লাপথোক্লগা অকোইবদা হৌরিবা নাপীশিং লৌথোকপীগদবনি। শেম শাদুনা লৈরবা পাম্বী মরী পিলরদুগী অকোয়বদা নকসিন্না থাবিগদবনি।

পিলর শেম শাবা :

পিলরগী অৱাংবা - ফিট ৫ -৭ (সাইজ ৪ / ৬")
লৈবাক মনুংদা - ফিট ২-২½
য়োংকী ফ্রেম - পিলরগী মথক ইথং থংবদা য়োংকী ফ্রেম অমা হাপ্লীগনি (য়োংকী ফ্রেম Diametre 24 cm)

ফ্রেমগী অকোয়বা - য়োংকী ফ্রেমগী অকোইবদা রভরনা অমুক হন্না মথক্তা য়োমশনবীগনি।

থাবগী মতম :

নোংজু মমাংদা থাবনা খ্বাইদগী চান্নে। (March - April)

পাম্বী থাবগী অরন - অকুং :

পাম্বীগা-পাম্বীগা	পরেংগা-পরেংগা	পরি অমদ থাগদবা পাম্বী মশিং
2.5 m	2.5 m	2,000
2.5 m	3.0 m	1,333
3.0 m	3.0 m	1,100
3.0 m	4.0 m	833

পাম্বীদা হার হাপ্পা :

লৈবাক লৈহাও খেন্নবগী মতুং ইন্না হার হাপ্পগী চাংসু খেৎন্নে। পাম্বী চারা থারমদাইদা পিলরগী মখোংদা শনথি শনয়ুংগী হার 4 -5 kg নত্রগা Vermicompost 2-3 kg লৈবাক্তা হাপীহৌগদবনি। পাম্বী থাখ্রবা মতুং চহি অহুম শুরক্লবা পাম্বীদা রসায়নগী হার 1.170 kg.Urea, 4.5 kg.SSP, 500g.MOP চহি অমগী মনুংদা শরুক মরী থোক্না হাপ্লীগদবনি।

শৌগ্রী অন্তাংবদগী Jam শেম্মা
Preparation of Jam From Roselle

১। শৌগ্রী অন্তাংবগী মঁহৈ
২। শৌগ্রী অন্তাংবগী মরু
৩। সাইট্রিক এসিদ

শেম্মগী থৌওং

শৌগ্রী পাম্বীনা মঁহৈ য়াদবা হৌবদগী নুমিৎ ২০গী মনুংদা মঁহৈশিংবু হেক্কলগা থম্মীগদবনি। কা হেন্না পিশিল্লগদি Jam শেম্মা মতমদা মচু য়াম্না মকশিনগনি।

১। অহানবদা হেক হেকপগা মঁহৈশিংবু শেংনা চামথোকলগা মচুম তাহল্লগা কাহেনবীরো।

↓

চামথোক্লুবা শৌগ্রী অন্তাংবগী মঁহৈশিংদগী লৈনাশিংবু শেংথোকপীবা

↓

শেংথোকলবা লৈনাশিং (400g) অমদি মরু তোঙান তোঙানবা পাত্র অমমদা হাপচিনবীরো।

↓

মরু হাপলবা পাত্রদুনা (200ml) ঈশিং হাপচিল্লগা মৈদা 20 min মুক শৌহল্লগা Pectin লৌথোকনি অমসুং মৈদগী থাংথরগা মরুদু চুমথোকপীগনি।

↓

চুমথোকলবা মহিদু পাএ অমদা হাপলগা শৌগ্রি মঁহৈদগী শেংথোকলবা লৈনশিং হাপচিন্দুনা শৌহনবীরো (10min)

↓

চিনি গ্রাম ৬৫০ হাপচিল্লগা অমুক চিনিদু তুমহ্রিদগওবা ওৎকনি।

↓

অসুম্না য়ানশিল্লবা পোৎশিংদু পাত্র অমদা হাপচিল্লগা (20 min) মৈ তপ্পনা থারগা য়াম্না তোয়না ওৎপীদুনা মথানা কাশিন্দনবা হোৎনবীগদবনি অমসুং সাইট্রিক এসিদ হাপচিনবীগদবনী। থৌরৈ থাংগতুনা জাম সেট তৌবগী মওং য়েংবীবা য়াগে।

↓

শেংনা চাম্ফথোকলবা শিক্রিগী পাত্রদা লুম্ন লুম্ন শারিন্তদা হৈজিন্দুনা থম্বিবা য়াগে

শৌগ্রী অন্তাংবগী জামদা য়াওবা মরুওইবা মচাকশিং

Nutritional Fact/ 100g	Product Recovery/Kg	BC Ratio	Self Life
Protein (0.28)	[illegible]	2.1	4 Months
Carbohydrate (34.07)			
Reducing Sugar (28.71)			
Total Sugar (33.18)			

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VALUE ADDED PRODUCT FROM ROSELLE

শৌগ্রী অন্তাংবা পাম্বিদগী শেম্মা য়াবা পোৎথোকশিং

KRISHI VIGYAN KENDRA, THOUBAL
Department of Agriculture
Govt. of Manipur

ROSELLE

শৌগ্রী অন্তাংবা পাম্বিদগী শেম্মা য়াবা পোৎথোকশিং

Roselle (শৌগ্রী অন্তাংবা) লৈ শাংগা পাম্বি মথল অমনি। পাম্বি অসিগী মশ পুম্না তোঙান তোঙানবা কান্নবম লোইনা লৈ। খুদম ওইনা পাম্বি মশদগী লং লৌথোকপা (fibre) অমদি মদানা ঐদশাং থোংদুনা চাবা অমসুং মঁহৈনা Jam শেম্দুনা চাবা য়াই। শৌগ্রী অন্তাংবা চাবনা হকচাংদা মথল মথা কয়াগী কান্নবা কয়মরম অমসু পী।

Roselle (শৌগ্রী অন্তাংবা) চাবনা হকচাংদা পীবা কান্নবশিং:

১। থাগি থোকোপ লাকপদা পুক নুঙাইতবা হন্থহল্লি।
২। হোরমোন চাং নাইনা থম্বা মতেং পাঙই।
৩। শৌগ্রী অন্তাংবা মঁহৈগী লৈনাশি অকংবা নত্রগা অতেকপদা ভিতমীন সি মরাং কাইনা য়াওবনা মরম ওইদুনা মসি শিজিন্নবা মতমদা হকচাংগী immune system কনহনবদা মতেং পাংই।
৪। **অরুম্বা হন্থহনবা :**
কংহল্লবা শৌগ্রি অন্তাংবগি মঁহৈদগী শেম্না চা থকপদা হকচাংগী অরুম্বা হন্থহনবদা চাওনা মতেং পাংই। হৌজিকী মতমদা কৈথেলশিংদা ফংলিবা হকচাংগী অরুম্বা হন্থহল্লবা য়োল্লিবা পোৎচাকশিংদা শৌগ্রী অন্তাংবসু মচল অমা ওইনা শিজিন্নৈ।
৫। থখল চয়াংবা হন্থনবসু মতেং পাংই।
৬। ভিতমীন C মরাং কাইনা য়াওবনা মরম ওইদুনা লোক থুংবা অমদি লোক থুংগী লায়েংবদা শিজিন্নৈ।
৭। চাং নাইনা শিজিন্নবদি blood pressure হাংবগী চাং হন্থহনবদা মতেং ওই।
৮। এন্টিওক্সিডেন মরাং কায়না য়াওই। মরম অসিনা হকচাংগীদা য়াওবা ফ্রী রেডিকেল শিংবু নিউট্রালাইস তৌদুনা থম্না ঙম্মি।
৯। য়ারি য়াথোং অমসুং য়া থম্মা থম্বদা য়াম্না কান্নৈ।
১০। Iron মরাং কাইনা য়াওবনা নুপীশিংনা মীরেনশিট্রৈ মতমদসু য়াম্না কান্নবা পী।

শৌগ্রী অন্তাংবদগী লং লৌথোকপা

১। মঁহৈ অমদি মনা চাবা লোইরবা মতুংদা থম্পোকলবা পাম্বি মশাদগীসু লং শুংদোক্লুনা শেন্দান লম্বী অমসু ওইবা য়াই।

লং লৌথোকপগী থৌওং

১। অহানবদা মনা অমদি মশা মচাশিং লৌথোক্লদুনা কক্থৎপীগনি

↓

মপুন মচা মচা পুনশিনবিরগা ঈশিংদা নুমিৎ ১৫ নি তিংবিগনি

↓

থোংতোকলবা মকুশিং নুমিৎ ১৫ নীগী মতুংদা লৌথোকনি

↓

মকুশিং অদু শেংতোকলগা শেংনা অচেনবা ঈশিংদা চামথোকপীগনি।

↓

চাম্বা মতমদা মনাংগী শরুক অয়াম্বা শেংনা লৌথোকপীগনি।

↓

অসুম্না চামথোকলবা লংশিংবু উরুমদা কংহনবিরগা থম্বীবা য়াগে।

↓

অরু অয়েনগি থবকতা শিজিন্নগদবা ওইরগনা দিগম্প্রীং তৌথোকদুনা হেন্না থোংতোকহল্লগা লৈতংগী পোৎ চৈ শেম্বসু য়াই।

দিগম্প্রীং তৌনবগী [illegible]

শুংদোকলবা লংশিংবু [illegible] মপাংগন য়াওরবা (sodium Carbonate 1%) হাপলবা ঈশিংদা পুংথায় অমা শৌহল্লগা অচম্বা ঈশিংবা শেংনা চামথোকলগা থমজিনবা য়াগে।

মচু লোকপাঃ

শুংদোকলবা লংশিংবু হেন্না মচু পাম্থোকনবা bleaching তৌথোকপা য়াম্না মরু ওই। থৌওং অসি পাঙথোকপদা লংশিংবু অতোপ্পা মচু শংবা মতমদা মচু হেনা চুপশীনবা ঙমহল্লি। চাদা অমগী (hydrogen peroxide 1%) মপাঙল য়াওরবা মঁহিদা লংশিংদু হাপচিন্দুনা পুংথায় অমা লোল্লবা মতুংদা অচম্বা ঈশিংবা চামথোকলগা উরুমদা কংহন্দুনা থম্বিবা য়াগে।

শৌগ্রী অন্তাংবা মঁহৈদগী powder শেম্মা

শৌগ্রী অন্তাংবগী মরুদগী শেংথোক্লুবা লৈথোক্তী মনাশিংদগী শেংনা চামথোকলগা নুংশদা কেমত্রিফাওবা কংহল্লগা powder ওইনা তকথাইরগা নুংশিং নুংশা চংদবা পাত্র অমদা চহি অমফাওবা থমদুনা পিবা য়াই।

অমনা শুয়ার মিটির অমগী চাংদা লৌকমদা পীজিন্নবসু য়াই। মসি শুগী মচিঞ্জাক ওইনসু পীজিন্নবা য়াই।

অসিগুম্বা বোকাশীগী মওংসিদা লোয়রবা ওকশিংগী পীজ পীথক তৌনবা শাত্রদু ওকোনগী মপান নংথ্রগা মনুংলোমদা থম্বীবা য়াই। তৌবতনু মনুংদা থম্লগদি মপান্দগী মচিঞ্জাক পীজবা য়াবগী মওংদা থম্বীগনি। ওক মচিঞ্জাক পীজবা মতমদসু মচিঞ্জাক কা হেয়া পীজবগী মথৌ তাদে। নোংমেনা ওক মপি অমনা কেজি ৩ চাগদবনু কেজি ২দা হুম্বহনবা য়াই।

অসুম্বা অসিগুম্বা অনৌবা মওং অসিদা ওক য়োকশীন্নগদি শিবা-নাবগী চাং হুম্বহত্তা নত্তনা হেন্না শেন্দোং কৈবা অমা ওইবগা লোয়ননা মনম মহা চেন্দনা লোয়বা ঙমগনি। ●

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মথী ময়ুং শেংদোক্তনা ওক লোয়বা

– ডা. সরাংথেম জেসমারানি –

হৌজিক্কী মতমদা শেন্দাল লম্বী অমা ওইনা মফম পুদিং। ওক লোয়নবি। ওকশিং লোয়বা মতমদা থুমগী মনাক নকপদা লোয়বনা অয়াম্বনি। মসিদা মথী-ময়ুং শেংদোক্তগা মফম চানা শৈশিনক্তম কৈতবগীসু অয়াবা অমা ওইবি। ওক লোয়বা মতমদা থুমলক্তা লোয়বসিসু অটৌবা অশোয়বা অমনি। অদুনু মফম নিংথিনা কৈতবা মফম ওইরগদি অনৌবা মওং অমদা লোয়রগা মনম মহা চেনহন্দনা মথী-ময়ুংসু শেংদোক্তনা লোয়বসু য়াই। হায়রিবা ওক লোয়বগী মওং অসিবু ঐখোয়না বোক্কাগী পীশরি হায়না কৌনে।

বোকাগী হায়বগী য়াহগ্রেক্তি পুমছ্রবা ওর্গানিক মেট্রিক হায়বনি। মসি অপানিজ লোলনি। মসিগী মওংদা লোয়বা মতমদা কায়রবা হীংনা উবা ঙমদবা অমদা মথলগী হীংকুপ মযাম অমা পীজিন্ত্রে। মসিগী মথক্তা য়াদনী লৌবা মথী অমগসু পীজিন্ত্রে। অমদা মথলগী হীংকুপশিং অসিনা

ওক্কী মথী-ময়ুংদগী থোরকপা নয়থীবা মনম অমা অমা মনম চেনহন্দে, হথিং তোংবগী চাং য়াম্না হুম্বহল্লি, ওকশিং নাবগী চাং য়াম্না হুম্বহল্লি, মচিঞ্জাক চবগী চাং হুম্বনা পীজরগা লুপ্নী চাং হেনগৎহল্লি। থা তরা শুবদা মপুং মরৈ ফাহুনা য়োনবা ঙমহল্লি।

ওক্কী মকোন শাবা মতমদা কৈমায়দগী ফুট ৫গী চাংদা লুনা তৌথীগনি। করিগুম্বা মতমদা নীংশিংথীগদবা অমনা শাগপৌরিবা ওকোনদুগী মনাক্তা করিগুম্বা লৌনুক ওইরগদি নোংছু থা মতমদা চীশিংগী চীফুং ফাওরকপগী চাংসু য়োংথীগনি। করিগুম্বা চীশিং চুমথরকপগী মওং উরগদি থরা য়াংথংনা কৈজনবসু অকায়বা কৈতে। তৌবতনু কোমনু ফুট ৩দি লুহনথীগদবনি। ময় থারা লৌনবগী ওক ওইরগদি ওক অমদা ফুট

৬ x ৪ ওইগনি। অদুগা মপা চাননবা ওক শুম্না লোয়গদবা ওইরগদি ওক অমদা শুয়ার ফুট ১৬ ওইগনি। ওকোন শাবা মতমদা অকোয়বদু কৈমায়দগী ফুট ২ য়াংনা কোয়শিনথীগনি। মসি নংথ্রগসু লমহাঙ ওইরগদি অকোয়বগী য়াদনু ফুট অনীমুক্তং থাজিনথীগনি। ওকোনগী মথক্তা/থুমথক্তা সধারনগী ওকোনগী থুমথক্তুম্বা শেম্বীবা য়াই। ওকোন মনুংদা চীশিংগী ইফুং ফাওরক্তদি হায়রিবা বোকাশীগী মওংদা লোয়বদা অশোয়বা কয়া অমা য়াওরক্কনি। মরম অসিনা ওকোনগী কোম তৌবা মতমদা চীশিংগী ইফুং লাক্তবা অমদি কনা থাম্বা হোংনথীগনি। ওকোন মনুংদসু নুংশিং নুংশা মরাং কায়না ফংবা মথৌ তাই।

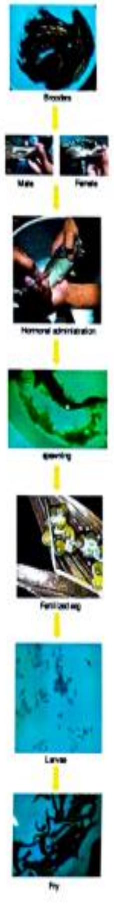
ওকোন মনুংদা কোম তৌরবা ফুদা কোমদুনা উকুপ ৪০%, অকংবা মনা-মশিং/চক ১০%, য়াইকুপ ২০%, অমদা মথলগী কৈবাক ২০%, য়াইদগী শেম্বা মৈতাল ১০%, কপানমক, য়া মথী অমদি হীংকুপ পীজিন্নথীগনি।

মথক্তা থম্লিবা পোৎচং মযামশিং অসি ঐখোয়না তৌরিবা কোমদুগী চাওবা শাংবগী মতুংইন্না মরোল মরোল চাইথীগনি। মরোল অমা হেক হান্না লোয়বগা চীশিং চাইশিনথীদুনা [illegible] কৈতেম মায়না থম্বীগনি। অদুগা অমুক অতোপ্পা [illegible] শেংবা হৌথীরগা কৈতেম মায়না থম্বীগনি। অসুম্বা মরোল [illegible] চাইদুনা শেম্বীরবা মতুংদা কৈতেম মায়না অরোইবা ফাওবা থম্বীরবা তুংদা মথক থংবদু চকনা কুপশিনথীরগা থম্বীগনি। নীংশিংথীথদবা অমনা চীশিং চাইরগা তোংশা মতমদা চীশিংগী চাংসি চানা ৬০%দগী হেনহনথীরোইদবনি।

হায়বদি তোংজিবা পোৎলমশিংদু থুংনা শায়শিনবা মতমদা মতু তাহন্নোইদবনি অমদি থয়া চোংনা কৈজনগদবনি। কোম মনুং কৈতেম মায়না থম্বা মতুংদা হান্দু অমা লেঙদনা থম্বীগনি। মরম হায়রিবা মতমশিদা অজিংবা হীংকুপশিংদু মশীং য়ামদ্রবগী পুনোংচ কৈজনগনি। হান্দু অমা কৈরগা ওকশিং থম্বীগা য়াগে। ওক থম্বী মতমদা ওকশিংদুনা মনাতোম্না হুংল-হুংলগা চানা হৌরগদি ম মায় শাকপা অমা ওইরে হায়না লৌথীগনি।

ওকশিংগী য়াম্না পীংবা শা অমা ওইনা মথী-ময়ুং কয়া চেংনে

মফম অমদা অদুম তৌবা থেংনজে। মরম অসিনা ওক মপুনা নুংশি য়োংশাক্তা কৈতেম মায়না শেম্বীরগদি করিগুম্বা মতমদসু ওক্তা শু শা অমা ওইবনা অমদি ওকোন মনুংগী কোমদুনা হাপ্পীবা পোৎশিং অয়াম্বা চাক্তা ওইবনিনা নমথবা থেংনরক্কনি। মরম অসিনা মতমগী ওইনা মথক্তা থম্লিবা পোৎলমশিংদু অমুক অমুক হাপ্পীবা লোয়না লোয়ননা হীংকুপ অমদি য়াগী মথীসু হাপ্পীগনি। অসুম্বা মনুং কৈরিবা ওক্কী কুনমশিং মখোয়শিংদু য়োংহোক্তহনবা নংথ্রগা চ অমা চুম্না থম্বীবা য়াই। ওকোন মনুংদা কৈরিবা পোৎলমশিংদু কম্পোস্ট ওইরবনিনা লৌউ-শিংউবা অমদি পোৎ চৈ থাবদা পীজিন্নবা য়াই। কো



নর্সরি (ঙা মচা লোইবগী অহানবা তাঙ্কক):

ঙা মচাশিং অসু স্কার মিটর ৫০ মুক পাকপা মফমদা নুমিৎ ২০ দগী ২৫নি থমগদবনি। ঙা য়োক্কদবগী চানো স্কার মিটর অমদা ঙা মশীং ১০০ দগী ২০০ ফাওবা ওইগদবনি। ঙা মচিঞ্জাক্না চেঙকুপ অমদি ঙা মকুম য়াম্লগা নুমিদাংবাইরমদা ঙাগী মশাগী অরুম্বগী চাদা ৩০ গী চানো মচিঞ্জাক থাবীগনি। মফম অসিদগী ঙাগী অটৌবা অসু সেন্টিমিটর ৪ দগী ৫ ফাওবা য়ৌবা ঙম্মী অমদি মতম অসিদা অরুম্বনা গ্রাম ১ দগী ২ ফাওবা য়ৌরকপা মতমদা মথা তানা লোইনবগী থৌরাং তৌবা য়ারে।

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BREEDING AND SEED PRODUCTION OF WALKING CAT FISH

Clarias magur

ঙাক্রা মরুম কোকহনদুনা মচা পুথোকপা

ICAR

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Govt. of Manipur

ঙাক্রা মরুম কোকনবগী থৌওংশিং

ঙাক্রা হায়না খঙনবা ঙা মখল অসি মশা য়াম্না কনবা অফঙবা চাবা অমদি কয়া ফত্তবা ঈশিংদসু লৈবা হৈনবা শমনা হায়রবদা পাত, তুরেল, লৌবুক থোংবানন্দচিংবদা লৈবা হৈনবা ঙা মখল অমনি হায়রিবা ঙা মখল অসি চাবদা মটী ওই। ঙা মখল অসি মীওইবগী হকচাংগী য়াম্না কান্নবা পীবা অমসুং হিদাক ওইনসু শিজিন্নবা অমদি লাই থুরুম্নচিংবদা শিজিন্নবা মরমনা মীয়াম্না য়াম্না পামনবা ঙা মখল অমসু ওইরি। মমলসু য়াম্না তাঙই। ঙা মখল অসি কা হেক্লা ফানোকখিবনা ঙাশিংদি মুংথিবা য়াবগী অকিবা লৈরে। পুম্নমক অসিগী মরমদগী থুংশেমগী ওইবা মচা পুথোক্নুনা অমসুং য়োকপাগী তাঙাই ফবা ওইরি।

তৌইওমসুং মমাঙ-তৈগী মতমদগি ঙাক্রা মরুম কোকহনবা মচা লৌবনি ঙাক্রা লাবা অসু হাঙুনা শিজিন্নরম্মি। ব্রৌক্সিক্স (BRICS) method হায়বা অনৌবা techonology অসি শিজিন্নদুনা ঙাক্রা লাবা হাতখিবা ঙাক্রা মরুম হৈরাই লায়না কোকহনবা ঙম্মে।

মরুম কোকপগী মতম অমদি মরুমগী চাং:

চহী অমনগী হেনবা অমসুং গ্রাম ১৫০ দুনা ঙাশিং অসি মরুম কোকহনবা য়াবা ঙাশিংনি।
চহী অমদা মরুম অমুক থকমক কোকই। লোংজু পানথা মক্ত ওইনা ইহা-ইংচেন থাদা মরুম কোকই। ঙাক্রা গ্রাম ১০০ দগীনা ১৫০ ফাওবা দুনা ঙা অমনা চাওরাক্লা মরুম ২০০০ দগীনা ৩৫০০ ফাওবা কোকপা ঙম্মী।

মরুম কোকহনবগীদমক থম্না ঙাশিংগী চেকশিন থৌরাং:

ঙা মরুম কোকহনবগীদমক মশা ফবা ঙা থরা তাঙাই ফংদে। ফজনা থম্মোকলবা ঙা অমোম অমদি লাবা অদি অসি তোঙান তোঙানা পুম্থি অমমমদা থমগনি। ফাইরেন থাদগী লমতা থাগী মনুংদা লাবা অমোম থম্মোক্পা দু-দানবা পুখ্রী চাওরাক্লা মিতর ১০ শাংবা মিতর ৫ পাকপা অমুদা মিতর ১ লুবা অমদি ঈশিংগী অরুবগী চাংদা ফীত ৩ রোম দুনা থম্মীগদবনি।

মপুং মরে ফজনা যনবগীদমক্তা ঙাগী অরুম্বগী চাদা ১০ নোংমেদা মচিঞ্জাক পীজবীগদবনি। প্রোতিনগী চাংদা চাদা ৩০ ওইগদবনি।

মরুম কোকহনবগী ঙা অমোম লাবা খন্দোকপা:

মরুম কোকহনবগীদমক্তদি গ্রাম ১৫০-১৮০ ফাওবা দুম্না মপুং মরে ফাবা অমদি মশাদা অশোক অপদ অমদি লৈনা ত্রিক্না পত্তবা ঙাশিং খন্দোক্নুনা থমগনি।

লাবা:

জেনিতল পপিলা অসু মচিন তুম্মি অমদি পিঙক ৎৌরগা শাংগদি ৎৌরম্নবা মচু ওইগনি:

অমোম:

জেনিতল পপিলা অসু মতুম তাগনি অমদি মরুম থোকফম মথুম পানবা উগনি। মথা থাংবা শরুক অসু ঙাঙলৈনগনি অমদি মতুম তারগা চাওথোকনি।

হোরমোন শিজিন্নবগী মওং:

থুংশেমগী ওইবা Hormone থুদম ওইনা হায়রবদা Ovatide, Ovaprim, নত্রগা Ova-FH নত্রগা gonopro অসি ঙাগী অরুম্বা কিলো অমদা মিলিলিটর 0.5-0.8 অসি লাবা অমসুং ... অনিমক কাপ্পীগনি। হিদাক অসি ঙাগী মথক থাং... ...nital papilla গী line গী মথক্তা কাপ্পী... ...হিদাক অসি কান্না মতমদা ৪৫° এঙ্গলদা কাপ্পীগনি অমদি hypodermal নত্রগা insullin syringe শিজিন্নগনি।

Hormone কাপথুবা মতুং ঙা লাবা অমদি অমোম অনিমক পুন্না মরুম কোকফম (Spawning tank) দা থমবিগনি।

অনিত্তবা লোম ওইনা oxytocin hormone অসি অহানবা hormone অসি কাপথুবা মতুং পুং ১২ গী মতুংদা লাবা অমসুং অমোম অনিমক্তা কাপ্পীগদবনি।

Oxytocin hormone অসি ঙাগী অরুম্বা কিলো অমদা ৪০ মিলি International unit তা ঙা লাবা অমসুং অমোম অনিমক্তা কাপ্পীগনি। হিদাক অসি ঙাগী মথক থংবা শরুক্কী মনৈরোম থরা ওইরপ্রা কাপ্পীগদবনি।

অহানবা অমসুং অনিহক শুবা hormone অসি কাপথুবা মতুং লাবা অমসুং অমোম অনিমক Spawning tank দা থমোকপীগদবনি। Hormone কাপথুবা পুং ২৪ গী মতুংদা Spawning হায়বদি মরুম কোকপা হৌরকনি।

পুং ২৪-২৬ গী মতুংদা মরুম কোকপা লোইরগা ঙা মপী অনিমক লৌথোকপীরগা মরুম কোকফম tank অদুমক্তদা মচা ওন্নবগীদমক incubate তৌদুনা থম্মীগদবনি। মচা ওনফম তেক্ক অমদা ঈশিং ইঞ্চি ৫ রোম দুনা থমদুনা নুমিৎ ১২ নি থম্মগনি। ঙা মচাশিং অসিগী মচিঞ্জাক ওইনা প্লন্টন, এগ কষ্টর্ড অমসুং আর্টেমিয়া নাওপ্লি অসিনা থুইনবী হেক্না পাম্মী। মথা তানা মচিঞ্জাক থাকপা লোইবদা ঈশিংগী চাদা ৭০ শীঙ্গোকপীগদবনি। ঙাক্রা মচাসি নুমিৎ ১৫ নি শুরকপা মতমদা মিলিমিটর ১৫ দগী ২০ ফাওবগী চাংদা চাওই। নুমিৎ ১৫ নি শুরবা ঙা মচাশিং অসু থরা চাউবা মফমদা হাবদি (4×1×0.5 m) অসিদা শিন্দোকপীগনি। য়োকপা য়াবগী চাংদা স্কার মিটর অমদা ঙা মচা ১০০০ নি। ঙা মচা অসি নুমিৎ ২৫ নি শুরকপদা মিলিমিটর ৩০ দগী ৪০ ফাওবা শাংই। মতম অসিদা নর্সরি তেঙ্কিদা য়োকপা য়ারে।

লায়ননা তীলনদগী ঙাকথোকপা

মরু ওইবা লায়নশিংদি Seedling mortality - ঙক্লিংঙৈ মতমদা পাম্বীশিং কংশিনবা, Rust- পাম্বীশিং কোলহিং মচুগী দাগশিংনা তাশিনবা।

মরুদা হিদাক তোংথনা seedling mortality দগী ঙাকসোকই। Rust দগী ঙাকথোক্নবগীদমক Tricyclazole গ্রাম ১০ / Propiconazole 75% WP মিলিলিটর ১৫ ঈশিং লিতর ১৫ দা য়াম্দুনা কাপথোকপিগনি।

লোকপা - থরাকশিং নাপু মচু লাকপা মতমদা থুংনা ফোইবা নত্রগা থাংগোল্লা থাওদুনা লোকপিগনি।

পোথোক - নিংথিজনা থাবা মুশোরি পরি অমগী লৌফমদগী কিলো ১০০০-১২০০ ফাওবা লোকপা ঙম্মি।

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বৈগ্যানিক ওইনা হরাই মুশোরি থাবা

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(LENTIL)

বৈগ্যানিক ওইনা হরাই মুশোরি থাবা

হরাই মুশোরি যৌ লোকপ্লবা লৌফমদা থাবা য়াবা নিংথম হরাই মখল অমনি। পাম্বী মখল অসি নেমতক তৌবা ঈশিং য়াংপা, ঈশিং চপ্রসু য়াবা লৌফমশিংদা থাবা য়াই। পাম্বী মখল অসিদা fibre 63%, iron 37%, protein 36%, carbohydrate 60% অমসুং potassium 21% য়াওই। হরাই মখল অসি লৌফমদা লৈহাও হনগৎনবা থাবসু য়াই।

মনিপুরদা থাবা য়াবা চাল্লবা হরাই মখলশিং:

VARIETY HUL 57, IPL-316, IPL-220, L-4076

থাবগী মতম:

October থাথায়দগী November থাথায় ফাওবনা থ্বাইদগী চাল্লবা মতমনি অদুবু মনিপুরগী লৌফমশিংদা যৌ লোকপা মতম থেংবনা November থাথায়গী মতুংদগী December থা ফাওবা পোথোক থরা হল্লরবসু থাবা য়াই।

থাবগী মওং:

১। খোইদনা হুনবা : যৌ লোকপ্লবা মতুংদা লৌফম খোইদনা মরুশিং হুনজিন্দুনা থাবা য়াই।

২। কা হেল্লা খোইদনা থাবা: Tractor অমদি Seed drill গী মতেংনা মরু তাফমদা শেমলগা থাবসু য়াই।

৩। যৌ লোক্তিংউদা হুনজিনবা : যৌ লোকদবা নুমিৎ ১০দগী ১৫ ফাওবগী মনুংদা যৌগী লৌফমদা মরুশিং হুনজিন্দুনা থাবসু য়াই।

৪। খোইদুনা থাবা : যৌ লোকপ্লবা মতুংদা নিংথিনা খোইদোক্লগা পরেং নত্রগা মরুশিং হুনজিন্দুনা থাবসু য়াই।

চাল্লবা অইং অশা:

মুশোরি অইংবা হরা নুংশিত্তা হৈনবা নিংথম পাম্বী মখল অমনি, ঙক্লিংঙৈ মতমদা অইংবদা হৈনবা অমদি মহৈ য়ানবা মতমদা ময়াই ওইরপ্দা শাবা দরকার লৈ। মশা মউ ফদা হৌনবগীদমক চাল্লবা অইং অশা সেলসিয়স দিগ্রি ১৮-৩০ চাং দরকার ওই।

লৈবাক লৈহাও

মখল মখা কয়াগী লৈবাক লৈহাওদা মুশোরি থাবা য়াই অদুবু থ্বাইদগী চাল্লবা লৈবাক লৈহাওদি ঈশিং নিংথিনা চুমথবা য়াবা Sandy loam অমদি pH value 6.0 - 6.4 ওইবা ময়াই ওইরপ শিনবা লৌফমশিংনা হেল্লা চাদে।

মরুগী চাং -

মতম চনা থানবগীদমক, কিলো ৩০-৪০, থরা থেংনা থানবগীদমক কিলো ৫০-৬০, অদুগা খোইদনা থানবগীদমক মথক্তা পিজরিবা চাংশিংদগী চানা ১৫ দগী ২০ ফাওবা হেনগৎলগা হুনবিগনি। মরুশিং হুনদ্রিগী মাঙওইদনা Thiram 75% WS/Captan 50% WP/Carbendazim 50% হিদাক মরু কিলো অমদা গ্রাম ৩-৪ গী চাংদা তোংথিগনি।

মচিল্লাক পীবা:

মুশোরি থাগদৌবা লৌফমদা Urea 55 kg , SSP 250 kg অমসুং Potash 50 kg পরি অমদা হাপদুনা থবিগনি। মসিগী মথক্তা Urea গ্রাম ২০০ ঈশিং লিতর ১০ দা থিংলগা Flowering and Pod filling stage দা কাপসবদি চথোক হেনগৎহনবা য়াই।

হবেংবা

নাপীদগী ঙাকথোক্নবগীদমক থুংনা অনিরক হায়বদি নুমিৎ ২৫-৩০ অমসুং নুমিৎ ৪৫-৫০ ফাওবা মনুংদা পেংবিগনি। নাপীশিং হৌদ্রিংঙৈ মরু হুল্লবা মতুংদা লোমা নিনিগী মনুংদা নাপী হিদাক Oxyfluorfen/ Pendimethalin কিলো ১ পরি অমদা শিজিন্নবা য়াই।

ঈশিং চনবা

হরাই মুশোরি মহৌশানা ঈশিং চনবগী থুনোংচাবা লৈতবা লৌফমদা অয়াম্না থাদে। অদুবু নোং চুবা মতম অদুগা ঈশিং পিবগী থুনোংচাবদি লৈবা লৌফমশিংদা Flowering অমদি grain filling গী মতমদা ঈশিং পিরবদি পোথোক হেনগৎকনি।

চংগদবা মচলশিং য়ানশিন্নরবা মতুংদা ফজনা ওংথাইরগা মচু অমদি essence থাকলগা লিক্লিদা হাঞ্জিল্লগা ঈশিং অশাবদা ১৫ মিনট দগী ২০ মিনট ফাওবা লোনগনি অমসুং ইংথহনগনি।ইংথহল্লবা মতুংদা sterilsed তৌরবা পাত্রদা হাপচিন্দুনা থম্মীবা য়ারে।

কিহোম জামঃ

Sl. No.	চংগদবা মচলশিং raw material	Quatity
১	কিহোম মপং	১ কিলো
২	চিনি	১-১৪ কিলো
৩	শাইত্রিক অসিদ	১০-১৫ গ্রাম
৪	Pectine Powder	৩.৫-৫ গ্রাম
৫	কিহোম essence	১.১৫০ মিলি
৬	Pineapple	১.৫ গ্রাম

চেকশিনগদৌবশিং ঃ

১। চান্নবা ঢোং চৈ শেম্না মতমদা য়ারিবমখৈ।
২। অফবা অরুবা ঈশিং শিজিন্নগদবনি।
৩। জাম শেম্না মতমদা কা হেন্না কুইনা থোংলোইদবনি।

শেম্নগী মওংঃ

অহানবদা চংগদবা কিহোমদু processor অমদা হাপচিল্লগা তকথাইগনি। তকথাইবা মতমদা পুন্না য়াম্না কুপনা তককাইরোইদবনি। তকথাইরবা কিহোমদু সতলেগী saoucepan অমদা হাপচিল্লগা চিনি য়ানশিল্লগা মৈদা থাংগৎকনি। লোনবা মতমদা citric acid নত্রগনা চমপ্রা মহিদু পুন্না হাপলগা লোনগনি অসুম্না পুংখাই অমা (৩০ মিনট) লোল্লবা মতুংদা জাম সতে তৌরব্রা হায়না য়েংলগা অফবা sterilized পাত্রা অমদা হাপচিন্দুনা থম্না য়ারে।

Osmotic Dehydration:

Osmotic Dehydration মরুওইনা অফবা মগুন লৈবা অকংবা (dry fruit) পুথোকনবগীদমক শিজিন্নৈ। হায়রিবা থৌওং অসিদা হৈগী মশাদা য়াওজবা হৈগী মহিদু চাদা ৫০গী চাং (50%) দা অমুনবা হৈশীংদগী লৌথোকপা ওন্মি। অসুম্না পুথোকপা হৈ অকংবা মশি হান্নাগী থৌওংশিং শিজিন্নদুনা কংহনবা হৈশিংদগী মহাও, মচু অমদি মগুন লৈবা য়াম্না হৈল্লি। চাদা ৬০ গী মপাঙ্গল য়াওরব চিনি মহি (60^0 brix) সোলুসন শিজিন্নদুনা কিহোম কংহনবগী থৌওং পাঙথোকপা য়াই। অসুম্না কংহল্লবা কিহোম অসিনা মশাদা য়াওজবা ঈশিংগী চাং লৌথোকলগা মপংগী শরুক হেনগৎহনবদা নত্তনা হৈগী মশাদা য়াওজবা মগুন হম্ব হনদনা কুইনা লিদুনা থম্না য়াই। চিনিগী চাং হম্বনা (40^0) চাদা নিফু অমদি ৫০ (50^0) শিজিন্নদুনা ওসমোতিক সোলুসন শেম্নসু য়াই।

শেম্নগী মওং (Processing method)ঃ

কিহোম →চামথোকপা →মকু থোকপা →ওসমোতিক ট্রিটমেন তৌবা → মহি চিথোকপা → ফৌদোকপা → পেকেজিং তৌবা→ লিদুনা থম্না

ৱরোইশিনঃ

হান্ননা শিজিন্নরম্না হৈরা কংহনবগী মওং নত্তনা অসিগুম্না অনৌবা পাম্নৈ শিজিন্নদুনা মরুওইনা য়াম্না পোথোক পুথোকপা মতমদা অসিগুম্না থৌওং শিজিন্নদুনা হৈরা লিলিল্লবদি অহেনবা শেন্দোং তানবদা নত্তনা হৈরাশিং মতম কুইনা পৎথা পুমথদন থম্না য়াই। কিহোম থাবিরিবা অমদি পোৎথোকসিবু পুথোকলিবা লৌমিশিংনা অসিগুম্না তচেহনওলওগয় শিং শিজিন্নদুনা হন্নগী ধপোরতমনেত শিংনা পুথোকপা থচেহওনওলওগয় গা লোয়না লোয়ন্নন ইশা পুথোকলিবা পোৎথোক খুদিংমক ঈশাগী য়ুমদা শেমজদুনা পৎথ পুমগদবদগী কনবা। অমদি অহেনবা শেন্দোং তানবা য়াগনি।

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PROCESSING & VALUE ADDITION OF PINEAPPLE

কিহোমদগী শেম্না য়াবা পোৎথোকশিং

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PROCESSING AND VALUE ADDITION OF PINEAPPLE

কিহোমদগী শেম্না য়াবা পোৎথোকশিং

উহৈ (Fruit) য়াম্না থুনা পৎথবা পোৎ ওইবনা মরম ওইদুনা মসিবু কুইনা থম্না য়ান্নবগীদমক শেমদোক শাদোকপা (Processing) দরকার ওই। অশুম্না শেমদোকপনা কুইনা লিদুনা থমলগা ফংদবা মতমদা ইরাই লাইনা ফংহনবা ঙম্মি।

উহৈ (Fruit) লিদুনা থম্নগী মরুওইবা পান্দমশিংঃ

১। To make fruit safe microbiologically and Chemically).
২। To provide good quality products with good flavour, colour, texture & taste.
৩। To make convinent fruit products.

লিশিন্দুনা থম্নবগীদমক হেক হেকপগা পুং ৪ দগী ৪৮ গী মনুংদা শাগদবনি। মতম কুইথরিব মখৈ হৈরা পুমথবগী চাং হেনগৎলকই। Processing তৌনবগীদমক্তা মরু ওইবা থৌওং খরাঃ

১। অমোৎ অকায় শেংদোকপা অমদি চামথোকপা (Cleaning & washing)

অহানবদা, হেক হেকপা লোয়রগা হৈশিংদু অমোৎ অকায় অমদি অতেকপা লেমহৌথাক য়াওদনবগীদমক শেংনা চামথোক্কনি।

২। (Sorting) খন্দোকপা ঃ

শেম্না শাবা কংহনবনচিংবা তৌনবগীমক্তা মান্নবা মওং খন্দোক্কনি।

৩। Peeling ঃ

হেক থারিবা মখৈ হৈ খোকপা মতমদা steelগী থাং শিজিন্নগনি মশিনা হৈদু (discoloration) মুশিনহন্দবদা মতেং পাংগনি।

৪। Cutting ঃ

হৈ ককতুনা থমগদবা পাত্রদু য়রিবা মখৈ য়াম্না শেংনা চামথোতুনা ককলবা হৈদুদা micro organism চংদনবা হোৎনগদবনি অমসুং মান্নবা চাওবা মান্নবা চাংদা ককনি।

৫। Blanching ঃ

Blanching তৌবা হায়বসি হৈ মশাদা ঈশিং অশাবা নত্রগা ৱশতমেস্ক মনিল শিজিন্নদুনা পাংথোকহ। অয়াম্বা মতমদা হৈশিংদু ঈশিং অশাবদা হাপলগা ৯০-৯৫° c ফাওবা শৌদোকহল্লি। অশুম্না শেম্না মতমদা হৈশিংদুগী মশাদা য়াওরিবা নেংয়মৈ শিংদু নিচতভিাতদে ওইহল্লি। কংহন্দ্রিঙৈ মমাংদা অসিগুম্না থৌওং শিজিন্নবনা কংলবা মতমদা মচু ফজহন্দুনা চাং নাইনা কংহনবা ঙম্মি।

Pineapple Recipes : কিহোমগী পোৎথোকশিং

১। **Juice :** কিহোম মহি য়াম্না অহাওবা মখলগী হৈ মহি অমনি। মরুওইনা কালেন থাগী মতমদা য়াম্না পাম্নবা হৈ মখল অমা ওইরি। কিহোমগী মহিদা চাদা ৭৫গী চাংদা vit য়াওই। মশিদসু নত্তনা মসিনা cell চাওখৎহনবদা (growth) অমসুং tissue repair তৌবদা মতেং পাংই। vit B6, মরাং কাইনা য়াওবনসু মরম ওইদুনা হকচাংদা blood sugar চাং নাইনা থম্বদা মতেং লাংবদা নত্তনা হকচাংগী immune system ফনা থম্বদসু কান্নহল্লি।

চংগদবা মচলশিং ঃ (for 750 ml of juice)ঃ

500 g pineapple (কিহোম)
250 g sugar (চিনি)
250 ml water (ঈশিং)

শেম্নগী মওং (Method) ঃ

১। ফজনা খোকতোকলবা কিহোম পিক্লা পিক্লা ককথৎকনি।
২। কিহোম মহি লৌথোকনবগিদমক্তা Blender দা কিহোমশিং তকথাইগনি। চিনি হাপচিল্লগা মুন্না তকথাইমিন্নবসু য়াই।
৩। মথক্তা পনখ্রিবা ঈশিংগা য়ানশিন্নরগা ফজনা চুমথোকপীবা য়ারে।
৪। অশুম্না শেম্নবা মহিদু খুদক্তা থক্নবা শিজিন্নবা য়ারে।

Pineappe Squash:

কিহোমগী sqaush তিঙ্গং কাইজংদবা অফবা হৈদগী শেমগনি। চংগদৌবা মচলশিংদিঃ হৈ মহি, চিনি, শাইত্রিক অচদি, পুমথদনবা মচলশিং (potssium metabisulphite নত্রগনা sodium benzoate) ঈশিং এশেন্স অমদি মচু থাক্কনি। অসুম্না শেম্নবা মহিশি থকলমদাইদা শরুক অনিদগী অহুম ফাওবা য়াল্লগা থকপীগদবনি।

শেম্বদা চংগদবা মচলশিংঃ

Sl. No.	চংগদবা মচলশিং raw material	Quatity
১	কিহোম মহি	কিলোম অমা
২	চিনি	৯০০ গ্রাম দগী ১.২ কিলো
৩	ঈশিং	১.৩ লিটর
৪	শাইত্রিক অসিদ	৪০-৪৫ গ্রাম
৫	কিহোম মচু	০.৫ গ্রাম
৬	কিহোম essence	৫-১০ মিলি
৭	পোচা সিয়ম মেতা বিসুলফাইত (KMS)	Not more than১.০ g/kg

Ready to serve (RTS) Beverage:

কিহোম রেদি টু সর্ভি (RTS) কিহোম মহিগা চিনিগী মহিগা (চিনি, ঈশিং অমদি citric acid) গা য়ান্নরগা শেমগনি।

চংগদবা মচলশিংঃ

Sl. No.	মচল (raw material)	Quatity
১	কিহোম মহি	১ কিলো
২	চিনি	৬০০-৭০০ গ্রাম
৩	শাইত্রিক অসিদ	১০-১৫ গ্রাম
৪	কিহোম মচু	১.৫ গ্রাম
৫	ঈশিং	৪ লিটর
৬	কিহোম essence	১৫-২০মি

লৈবাক কণ্ডহনবাঃ

লৈবাকশিং অদু অথবা চে নত্রগা এলুমিনিয়ম শীট অমদা নুংশা লাংদবা উরুমদা যৌদোক্তুনা কহেন্দবীগনি। কংহল্লবা লৈবাকশিং অদু তোংথাইবিরাবা মতুংদা কেজি মথায় গুম্না লৌবিগনি। লৈবাক অদু তকথাইবদা প্লাষ্টিক, ষ্টেনলেস ষ্টিল নত্রগা উগী পাত্রশি শিজিন্নবিগনি। করিগুম্না লৈবাকশিং অদু য়াম্না য়াম্না তাৱবদি চাং মান্নবা, মকোয় মান্নবা শেম্বীরিবা মতুংদা মান্নবা শারুক মরি থোকপীরগা ময় গুনশিন্নবা মান্নবা শারুক অমি লৌবিগনি অমদি ঐখোয়না পন্থীবা কেজি মথায় অদু যংগ্রি যাওবা পিকথাহনগনি।

থবিগদবা বারোলঃ

নিংথিনা লৌরিবা লৈবাক অদু পোলিথিন নত্রগা থাও অমা হাপ্লীরবা মতুং মথাগী বারোলশি অমি থবিগনি।

লৌমীগী মিং, লৈফম, লৌফমগী মিং, লৌফমগী দাগ নম্বর, অথার নম্বর, লৌফমগী GPS location, লৈবাক লৌবগী নুমিৎ।

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লৈবাক লৈহাও চাংয়েং তৌনাবগীদমক লৈবাক লৌবগী কাঙলোন

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লৈবাক লৈহাও চাংয়েং তৌনাবগীদমক লৈবাক লৌবগী কাঙলোন

ঐখোয়গী লৌফমলগী লৈবাক খরা লৌরাগা মদুনা করম করম্না পাম্বীগী মচিল্লশিং কয়া য়াম্না য়াওরি অমদি থাগাদৌরিবা পাম্বীশিংদা কয়া য়াম্না চাইগদবগে হায়বদু খল্লদোক্লবগীদমক চাংয়েং তৌথোকপাবু লৈবাক লৈহাও চাংয়েং তৌবা কৌই।

চাংয়েং তৌবগী মরমঃ

১। মতিক চানা পোংথোক পুথোক্লবা।

২। ঈশিংনা চুমদুনা নত্রগা চামথদুনা পুরকপা অহেনবা হারশিংনা ঐখোয়গী অকোয়বগী ঈশিং নুংশিৎ মোৎশিনহন্দনবা।

৩। ঐখোয়গী লৌফম তুং কোইনা লৌউশিংউ তৌবা য়াবা মফম ওইননবা।

৪। পুথোকাদৌরিবা মহৈ মরোংশিং অদুবু চাগাদৌরিবা মীওইশিং মশা মউ ফনা লৈনবাগীদমক।

লৈবাক লৌবদা নিংশিংবিগদবা ৱাফমঃ

লৈবাক লৌগদৌরিবা লৌফম অদুগী তোঙান তোঙানবা মফমশিং অদু লৈতেম মান্নবা, মচু মান্নবা, লৈবাক অদু শেমলকথিবগী মচাক মান্নবা, মান্নবা লৌউ কাঙলোন পায়খৎথিবা মফম ওইগদবনি। ইকুই কুইব্না হার হাপথিবা মফম, লৌরি অমদি লৌরিয়া, ঈশিং থোঙ নত্রগা কোম, চোৎচোং লাওবা মফম, উজাওশিংগী মখোঙ, খম্বী ফনয়ুংগী হার পৈথিবা মফমশিংদগী লৈবাক লৌবা য়াদে।

লৈবাক লৌগদৌরিবা মফম অদু চাওবা মান্নবা মতুপশিং থায়দোকপিরগা মতুপশিং অমুদগী লৌফম অদুবু মহৎ শিনবা য়াবা লৈবাক লৌগদবনি।

কয়া য়াম্না লুখনা লৈবাক লৌগনিঃ

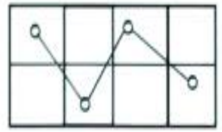
যৌ, মনা মশিং অমদি মতম শাংদবা মহৈ মরোংশিংগীদমক সেন্টিমিটর ১৫ (মুট মখায়) লুনা লৈবাক লৌগনি। উজাও অমদি মতম শাংবা পাম্বীশিংগীদমক সেন্টিমিটর ০-৩০, ৩০-৬০ অমদি ৬০-১০০ লুনা তোঙান তোঙান্না লৈবাক লৌবিগনি।

লৈবাক লৌবদা শিজিন্নগদবা থুলায়ঃ

সোইল অগর (লেপলৈ মঙং মনবা মরৈনা সেন্টিমিটর ১৫ শাংবা), সেন্টিমিটর ১৫ শাংবা লাওবা মান্নবা ৱাগী উতোং, য়োৎপাক, করনি, নুঙথঙ, ফী নত্রগা Poly bag।

লৈবাক লৌবগী মতমঃ

নিংথম থাগী মতম নত্রগা কুমগী লোং লক্লিরৈঙ মমাঙদা লৈবাক লৌবদা ঋুইবগী যৈ।



ইশাগী লৌফমদগী লৈবাক লৌনবগীদমক মফম খনবগী মওংঃ

লৈবাক অদু উতোংগুম্না অমা য়ৈশিনবদা ইরায় লায়গদবা ওইরবনি সেন্টিমিটর ১৫ শাংবা লাওবা মান্নবা উতোং ৫-৬ লৌবিগনি। উতোংশিং অদু লৌফম অদুগী তোঙান তোঙানবা মফমশিংদা হান্না চেনথোক্তুনা থম্বীরগা নুঙথঙ অমগী মতেংনা লৈবক্তা থুম্না য়ৈশিনবিগনি অমদি য়োৎপাক অমগী মতেংনা যুকতোপিরগা উতোং অদুগী মনুংদা য়াওরকপিবা লৈবাকশিং অদু চাংয়েংগীদমক শিজিন্নবিগনি।

লৈবাক অদু য়াম্না কনবনা মরম ওইদুনা ৱাগী উতোং য়ৈশিনবা য়াত্রবনি য়োৎপাক অমনা মথক থংবা নাপীশিং লৌথোকপিদুনা লৈবাক অদু V(ভি) মওংদা কুৎথনা সেন্টিমিটর ১৫ লুনা তৌথোকপিগনি। তৌথোক্লবা ভি মওংগী মথুন অদুগী মকৈ অমদগী করনিগুম্না অমাগী মতেংনা লৈবাক লৌবিগনি। লৈবাক লৌবনা সেন্টিমিটর ১-২ থানা লৌরবা লৈবাকশিং অদু অথবা চেথাও অমদা হপচিনবিগনি। অসুম্না লৌফম অদুগী মফম ৫-৬ তগী লৈবাক লৌবিগনি।