PROFORMA FOR ANNUAL REPORT OF KVKS 2021 (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	147900	28-02-18	Gen
2	Subject Matter Specialist	Kh. Premlata Devi	SMS (Horticulture)	Horticulture	15600-39100	88700	12-04-07	SC
3	Subject Matter Specialist	N. Tomba Singh	SMS (Agronomy)	Agronomy	15600-39100	88700	25-07-07	Gen
4	Subject Matter Specialist	R.K. Lembisana Devi	SMS (Home Sc.)	Home Science	15600-39100	65000	26-12-16	Gen
5	Subject Matter Specialist	Sribidya Waikhom	SMS(Fishery)	Fishery	15600-39100	59500	24-07-19	Gen
6	Subject Matter Specialist	Dr. Chuwang Hijam	SMS(PBG)	Plant Breeding & Genetics	15600-39100	56100	6-09-2021	OBC
7	Subject Matter Specialist	Longjam Boris Singh	SMS(PP)	Plant protection	15600-39100	56100	6-09-2021	OBC
8	Programme Assistant	Salam Prabin Singh	Prog. Asst. (Ext. Edu. Agri. & Allied)	Agriculture Extension	9300-34800	37600	24-07-19	OBC
9	Computer Programmer	L. Babita Devi	Prog. Asst. (Computer)	-	15600-39100	63100	12-04-07	Gen
10	Farm Manager	Dr. W. Jiten Singh	Farm Manager	-	15600-39100	63100	12-04-07	OBC
11	Superintendent / Accountant	O. Shilhenba Singh	Accountant	-	9300-34800	41100	05-10-16	Gen
12	Stenographer	M. Geeta Devi	Jr. Steno cum Computer operator	-	5200-20200	41600	12-04-07	Gen

13	Driver	M.Hemanta Singh	Driver cum Mechanic	-	5200-20200	33900	12-04-07	Gen
14	Driver	Th.Tiken Singh	Driver cum Mechanic	-	5200-20200	33900	03-05-07	Gen
15	Supporting staff	E.Dhabali Singh	Peon cum Chowkidar	-	5200-20200	25200	12-04-07	Gen
16	Supporting staff	Mangminthang Zou	-do-	-	5200-20200	25200	12-04-07	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	 1. 3.5 2. 0.4 3. 1.5 4. 0.3, 0.1,0.1
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)	ICAR	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	31-3-12	215m	19.75	2-1-12	-	Completed
6.	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	MNO1K-8510	2006-07	5,08,657	259603	Condemn
Tractor, complete set	MN01A-0765	2006-07	4,35,543	2313.5	Good

C) Equipment's & 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
Portable carp hatchery	March,2010	2,25,000	Good
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

1.8. A). Details SAC meeting conducted for the reporting period

Date	Name and Designation of Participants	Salient Recommendations of 17th SAC held on 11-01-2022	Action taken on recommendation of last 16th SAC held on 15-12-2020
11-01-2022 (17th SAC)	Dr. A.K Sinha, Director ATARI Zone VII	• Out of 121 success stories it was suggested to compile the actual farmers who achieved the Doubling Farmers income from DFI village and submit to ATARI Director. • Nutri-Sensitive Agriculture Resource Innovation (NARI), suggestion was made to include combination of crops which has more nutritional enriched variety to enhanced nutritional status of the farm family. • While presenting the short video on NARI it was suggested to include audio on why NARI is important and how it enriched nutritional status and health benefit of the farm family. Also, to update the farmers field too. • Three nos. of Vocational training should be conducted per year and duration should not be less than 10 days. • As a general recommendation every kvk of zone VII shall take up Organic	OFT on Integrated weed management in Lentil suggestion were made to check, whether the use of weedicide is economic or not ➢ Cost of use of weedicide is much lower than cost of hand weeding. Regarding OFT on Introduction to ornamental fish farming as a backyard income generating activity for rural youth, instead suggestion were made to take up seed production of indigenous fish such as Climbing perch (Ukabi) having high demand. ➢ As suggested seed production of Climbing Perch has been taken up. OFT on Performance assessment of monosex Tilapia under monoculture system to change as it was already taken up by the farmers instead suggestion were made to go for seed production of Amur carp or local indigenous fish species like magur.

		farming, Natural farming and Precision farming. • Director ATARI enquired about the condition of the KVK staff quarter and whether it is being occupied by any staff or not.	➢ Seed production of local indigenous catfish magur (Ngakra) has been taken up
11-01-2022 (17th SAC)	N. Gojendro Director Agriculture, Manipur		
	Ph. Ranjit Sharma Director, Extension Education, CAU	• Suggestions were made to emphasise on drought tolerant variety for Lentil cultivation. • Regarding foliar spray of Urea in Lentil, it was suggested that 2% urea is high for Lentil cultivation & lower percentage be tried. • OFT on Performance of different planting time in Onion var. Nashik Red, it was suggested to select short duration Onion variety since it is old and long duration variety. • FLD on Popularization of Fish based integrated farming system it was suggested to include the survival rate of fish in the parameter.	OFT on Assessment on preparation of guava cheese, question was raised whether guava is available in excess or not ➢ It is available in excess during peak season. FLD on Foliar nutrition of Lentil var. HUL -57 it was suggested to increase the area up to 2.50 ha and add soil moisture status in the data on parameter ➢ Demonstration is continuing on Lentil Var. IPL 316 with an area of 2.5 ha and soil moisture status has been included in the parameter. Suggestion were made that SMS (H.Sc.) should take up activities on mushroom production and vermicomposting as SMS(Horticulture) is on leave ➢ Since the vacant post has been filled up, Mushroom production & Vermicomposting was taken up by SMS (Plant Protection)

	Th.Kiran Singh, DDM NABARD	• About the showcasing of Technology for organic seed treatment, NABARD has suggested to submit a proposal for sponsoring the programme. • DDM NABARD suggested to give a proposal for popularization of Panchgavya Organic Manure	
	O.Bijyalakshmi Devi D.O (Horticulture & Soil Conservation), Thoubal		
	Th.Lokendro Singh DFO,Thoubal		
	Dr.A.Tarajit Singh SMS(Agri.Extension) KVK,Bishnupur		
	Kh.Nimaichand Singh Extension Officer, Dept. of Agriculture Manipur	• OFT on Varietal evaluation of Lentil var. IPL-220, the use of Vitavax as seed treatment should be changed as it is not available in Manipur • Instead of using chemical seed treatment it was suggested to replace with organic sources • OFT on Performance evaluation of Cauliflower, it was suggested to change to a short duration variety named White treasure • For FLD on Popularization of French Bean var. Arka Arjun the details of technology and fertilizer dose was found extremely high so it was suggested to rechecked the doses of fertilizer.	

	Dr.Y.Santosh Singh HDO((Horticulture & Soil Conservation),Thoubal		
	I.Akendro Singh Nodal Officer(SMAM) Dept. of Agriculture Manipur		
	Dr.Th.Motilal Singh (i/c)Senior Scientist & Head,KVK, Imphal West	• OFT on Performance assessment of Sweet corn Variety VL Sweet Corn, it was suggested that hybrid varieties should not be compared with chakhao chujak.	
	Riyaz Khan Reporter,DDK Imphal		
	W.Joy Singh Farm Manager ,Fishery Dept. Thoubal		
	L.Herojit Sharma Deputy Manager,MSCB Thoubal		
	A.Kameshwar Singh District Social Welfare Officer,Thoubal		
	Th.Joychandra Singh Nodal Officer NFSM, Dept. of Agriculture Manipur		
	Kh.Ratan Singh Progressive Farmer		
	Ph.Thoiba Singh Progressive Farmer		
	Y.Bimola Devi Progressive Farmer		
	Naorem Surbala Devi 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- Mustard/Field pea/ Potato
2	Paddy - Potato/ Vegetables
3	Paddy - Potato/ Vegetables + Cattle/Poultry/Piggery
4	Paddy - Potato/ Vegetables + Cattle/Poultry/Piggery + Fishery
5	Paddy- Mustard/Field pea/ Potato + Cattle/Poultry/Piggery + Fishery
6	Paddy + Fish, Paddy - Fish
7	Poultry/ Piggery/ Dairy/Cattle
8	Composite/ Polyculture fish farming/ Monoculture of Tilapia/Climbing perch
9.	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 Haplo humults.	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.	3470
2.	Fine Typic, Haplo humults 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.	14,320
3.	Fine, Typic Haplaquepts Fine Ruptic Ultic 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.	6340
4.	Very fine, molic haplaquepts	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.	22,320
5.	Fine, Typic Hapludalfs, Fine Silty Tupic 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.	4540
		Total	**50990**

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

2.5. Weather data (2021)

Month	Rainfall (mm)	Temperature ^{0} C		Relative Humidity (%)
		Maximum	Minimum	
January	6.6	23.3	6.6	96.0
February	7.5	26.1	8.4	90.9
March	55.6	28.8	12.8	79.1
April	75.7	30.4	15.4	54.8
May	118.7	29.8	19.2	82.4
June	228.5	29.6	22.1	85.6
July	220.1	30.2	22.6	86.7
August	248.0	29.3	22.7	87.5
September	208.9	30.0	21.9	88.0
October	77.7	29.4	20.0	88.5
November	2.0	26.6	13.4	84.5
December	70.9	22.5	13.4	91.4

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 (2021)

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, 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, disease problem, local/indigenous cattles, unavailibity of adequate quantity of 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, Mustard	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
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, fish water reed	Selection of variety, wet sowing, injudicious used of fertilizers and pesticides, straw burning, lack of irrigation, disease problem, local/indigenous cattles, unavailibity of adequate quantity of fodder, nutrition of water reed	Seed production, Soil test based fertilizer application, INM, IPM, Zero tillage mustard cultivation, composting, mulching, composite fish culture, cross breeding, fodder cultivation IFS(fish + water reed)
6	Lilong	Lilong	Khekman	Rice, Mustard, vegetable	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
7	Lilong	Lilong	Kiyam Siphai	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
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,fodder cultivation,Exotic piggery, bokashi piggery,cross breeding,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	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	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

3. TECHNICAL ACHIEVEMENTS

3. A. Details of target and achievements of mandatory activities by KVK during 2021

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	11	11	2	2	15	15
Horticulture	1	1	3	3	1	1	5	5
Fishery	2	2	10	10	2	2	20	20
Home Science	2	2	10	10	3	3	30	23
PP	1	1	3	3	1	1	5	5
PBG	1	1	3	3	1	1	6	6
Total	9	9	40	40	10	10	81	74

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 2021

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.	Cropping system of Rice-Lentil-Chickpea	Rice-Lentil Rice-Chickpea	Existing rice cultivation practices on certain inputs and practices resulting to less integration with other components/ inputs causes deterioration of soil health & environment. Further cultivation of rice alone cannot increase farmers income.	Performance evaluation on Rice based cropping system (Rice-Lentil/Rice-Chickpea)	-	Rice based cropping system	-	Field visit, Farmer Scientist interaction	Seed, Fertilizer
2.	IWM	Lentil	Lentil crops suffer heavy weed infestation	Integrated weed management in Lentil	-	Cultivation of Rabi pulses	-	Field visit, Farmer Scientist interaction	Weedicide, Fertilizer, Labour charge for hand weeding
3.	Planting time	Onion	Untimely sowing affects yield as the crop is long duration	Yield performance in different Planting time of Onion var. Nashik Red		-		Field visit	Planting materials
4.	Organic Pest Management	Mustard	Insect pest infestation Aphid - 45 % Painted bug- 30 %; Sawfly- 25 %	Organic Management of painted bug, aphid & sawfly	-	-	-	Field visit	Biopesticide

5.	Varietal evaluation	Lentil	Poor varietal diversification	Varietal evaluation of Lentil var. IPL220	-		-	Field visit	Seed
6.	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
7.	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
8.	Value addition	Gauva	Due to its perishable nature during peak season it is difficult to store	Preparation of Gauva cheese	-	Preparation of Gauva cheese		Field visit	Sugar, Preservatives
9.	Nutrition Gardening	Nutrition Gardening	Non availability of diversified nutrient rich crops	Introduction of year-round nutri rich crops in NARI village during covid pandemic	-	Importance of Nutrition gardening		Field visit	Seeds, Planting materials

3.1 Achievements on technologies assessed and refined during 2021

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	-	-	Lentil							1

Seed / Plant production	-	-		-	-	-	-	-	-	-
Weed Management	-	-	Lentil	-	-	-	-	-	-	1
Integrated Crop Management	Rice-Lentil/Chikpea	-	-	-	-	-	-	-	-	1
Integrated Nutrient Management	-	-	-	-	-	-	-	-	-	-
Integrated Farming System	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-
Drudgery reduction	-	-	-	-	-	-	-	-	-	-
Farm machineries	-	-	-	-	-	-	-	-		-
Value addition	-	-	-	-	-	Guava				1
Integrated Pest Management	-	Mustard	-	-	-	-	-	-	-	1
Integrated Disease Management	-	-	-	-	-	-	-	-	-	-
Resource conservation technology	-	-	-	-	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	Nutrition gardening	-	-	-	-	1
TOTAL	-	-	-	-	-	-	-	-	-	6

* *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								
Production and Management								
Feed and Fodder								
Small Scale income generating enterprises								
TOTAL								

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

Sl. No.	Title of OFT	Problem Diagnosed	Name of Technology Assessed	Crop/Cropping system/ Enterprise	No. of Trials	Results of Assessment/ Refined (Data on the parameter should be provided)		Feedback from the farmer	Feedback to the Researcher	B:C Ratio (if applicable)
1.	Performance evaluation on Rice based croppin	Existing rice cultivation practices on certain inputs and practices resulting to less	cropping system (Rice-Lentil/Rice-Chickpea) **Rice: Var. CAU R1** Seed rate: 60 kg/ha	Rice-Lentil Rice-Chickpea	6	**Sole Rice**		Growing of pulses after rice is a good practice to increase farmers	Need research for other pulses & oilseed	Rice-1.71 Chickpea-2.10
						Parameter	**Technology**			
						Pl. ht. (cm)	135			
						No. of grains/panicle	272			

<table>
<tr>
<td></td>
<td>g system (Rice-Lentil/Rice-Chickpea)</td>
<td>integration with other components/ inputs causes deterioration of soil health & environment. Further cultivation of rice alone cannot increase farmers income.</td>
<td>Spacing: 15x15 cm

Date of transplanting: July 1st week

Fertilizer dose: 60:40:30 kg NPK/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

Lentil: Var. IPL-316

Seed rate: 40 kg/ha

Spacing-30 cm between rows

Date of planting: 2nd fortnight of November

Fertilizer dose: 15:35:15 Kg NPK/ha

Chickpea: Var. JG-16

Seed rate : 60kg/ha

Spacing 30 x 10 cm

Date of planting-: 2nd fortnight of November

Fertilizer dose: 15:35:15 kg NPK/ha</td>
<td></td>
<td></td>
<td>
<table>
<tr><td>No. of tillers/plant</td><td colspan="2">12</td></tr>
<tr><td>Yield (q/ha)</td><td colspan="2">55</td></tr>
<tr><td>Net return</td><td colspan="2">57500</td></tr>
<tr><td>BC ratio</td><td colspan="2">1.71</td></tr>
<tr><td colspan="3">Technology: Chickpea/Lentil:</td></tr>
<tr><td>Parameter</td><td>Chickpea</td><td>Lentil</td></tr>
<tr><td>Plant height</td><td>35-40</td><td>30-35</td></tr>
<tr><td>Pl. strand/sq. m</td><td>35-40</td><td>80-90</td></tr>
<tr><td>No. of branches</td><td>7-10</td><td>9-12</td></tr>
<tr><td>No. of pods/pl.</td><td>35-40</td><td>70-80</td></tr>
<tr><td>No. of seeds/pod</td><td>1-2</td><td>2-3</td></tr>
<tr><td>Yield (q/ha)</td><td>9.2</td><td>9.8</td></tr>
<tr><td>Net return</td><td>38600</td><td>43400</td></tr>
<tr><td>BC ratio</td><td>2.10</td><td>2.24</td></tr>
</table>
</td>
<td>income and to keep the land utilized throughout the year</td>
<td>crops of Rabi season in a]\rice-based cropping system to give more no. of selection of crops.</td>
<td>Lentil – 2.24</td>
</tr>
<tr>
<td>2</td>
<td>Integrated weed</td>
<td>Lentil crops suffer heavy</td>
<td>Integrated weed management</td>
<td>Lentil</td>
<td>5</td>
<td colspan="3">Parameter of assessment</td>
<td>Herbicide application</td>
<td>Need researc</td>
<td>2.37</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>management in Lentil</td>
<td>weed infestation</td>
<td>➢ Seed Treatment: Carbendazim 3g/kg seed
➢ Application of Oxyfluorfen @150g a.i /ha as pre- emergence followed by 1 HW @20 DAS;
➢ Sowing time : November
➢ Seed rate :- 35 kg/ha
➢ Spacing : 30 cm between rows;
➢ Nutrient Requirement: 15:35:15 kg NPK /ha as basal</td>
<td></td>
<td></td>
<td>
<table>
<tr><td>Parameter</td><td>Technology</td><td>Farmer practice</td></tr>
<tr><td>Pl. ht. (cm)</td><td>30-35</td><td>30-35</td></tr>
<tr><td>Plant strand (no/sq.m</td><td>80-90</td><td>70-75</td></tr>
<tr><td>Pod/plant (nos.)</td><td>70-80</td><td>60-65</td></tr>
<tr><td>Seed/pod</td><td>2</td><td>2</td></tr>
<tr><td>Seed yield (q/ha)</td><td>9.8</td><td>9.2</td></tr>
<tr><td>Net return</td><td>43400</td><td>38600</td></tr>
<tr><td>BC ratio</td><td>2.37</td><td>2.10</td></tr>
</table>
</td>
<td>reduces the weed population and reduces the cost of weeding</td>
<td>h for post emergence herbicide in case pre-emergence herbicide was not applied.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Yield performance in different Planting time of Onion var. Nashik Red</td>
<td>Untimely sowing affects yield as the crop is long duration</td>
<td>➢ Planting time (One month after Sowing of seed)
T1 - 01/11/2021
T2 - 14/11/2021
T3 - 28/11/2021
T4 - 12/12/2022
➢ Seed rate: 8 kg/ha
➢ Spacing: 15 x 8 cm</td>
<td>Onion</td>
<td>3</td>
<td>
Parameter of assessment
<table>
<tr><td>Parameter</td><td>T1</td><td>T2</td><td>T3</td><td>T4</td></tr>
<tr><td>Plant height (Cm)</td><td>42-44</td><td>45-48</td><td>45-48</td><td>40-45</td></tr>
<tr><td>Bulb size (g)</td><td>50-58</td><td>50-65</td><td>50-60</td><td>45-50</td></tr>
<tr><td>Duration (days)</td><td>140-150</td><td>140-150</td><td>140-150</td><td>140-150</td></tr>
</table>
</td>
<td>1. Time of planting is preferred.
2.To increase yield other High Yielding Variety are needed</td>
<td>More scientific package of practices with suitable varieties of short duration in a cropping</td>
<td>3.85</td>
</tr>
</table>

<table>
<tr>
<td></td><td></td><td></td>
<td>➢ NPK: 100:50:50 kg/ha

Time and dose of application: Half N, full of P and K as basal dose, the rest half N as ridge dressing at 45 DAT</td>
<td></td><td></td>
<td>
<table>
<tr><td>Yield (q/ha)</td><td>213</td><td>216</td><td>209</td><td>204</td></tr>
<tr><td>Net return (Rs.)</td><td>23420
0</td><td>238700</td><td>22820
0</td><td>220700</td></tr>
<tr><td>BC ratio</td><td>3.74</td><td>3.85</td><td>3.67</td><td>3.58</td></tr>
</table>
</td>
<td></td><td>system mode.</td><td></td>
</tr>
<tr>
<td>4.</td>
<td>Organic management of painted bug,aphid and sawfly in mustard without any obstacles from bee population</td>
<td>Insect pest infestation

Aphid - 45 %
Painted bug-35%; Sawfly-20 %</td>
<td>1. T1- Bacillus thuringiensis @2ml/ lt. of water. (750 ml/ha) Spraying at 1, 3, 7, 10 days interval.

2. T2- Neem oil @ 3ml/lt. of water (750 ml/ha) Sprayed 3 times at20 days interval

3. T3- Coragen application @ 50ml/hasingle spray</td>
<td>Mustard NRCHB-101</td>
<td>3</td>
<td>
Technology:
<table>
<tr><th>Parameter</th><th>T1</th><th>T2</th><th>T3</th></tr>
<tr><td>Aphid/10cm of central twig</td><td>31.61</td><td>24.21</td><td>15.53</td></tr>
<tr><td>Sawfly larvae per plant</td><td>1.78</td><td>1.80</td><td>1.65</td></tr>
<tr><td>Painted bug per plant</td><td>2.47</td><td>1.8</td><td>1.65</td></tr>
<tr><td>Yield(q)</td><td>8.7</td><td>8.9</td><td>9.3</td></tr>
<tr><td>Net return</td><td>40300</td><td>45100</td><td>48700</td></tr>
<tr><td>B.C ratio</td><td>2.06</td><td>2.20</td><td>2.4</td></tr>
</table>
</td>
<td>Comparing to chemicals the organic products was equally good in managing the insects pests without affecting the bee population</td>
<td>Further research is needed with the same treatment to access the technology successfully</td>
<td>2.18</td>
</tr>
</table>

5.	Performance evaluation of lentil var. IPL 220	Existing variety are not bio fortified with Zn & Fe micronutrients	Performance evaluation of lentil Var. IPL 220 **Seed Rate** - 40 kg/ha **Seed treatment** - 40 kg/ha **Fertilizer dose** -NPK @ 18:46:20 kg/ha (½ N, full P & K at basal and ½ N at flowering/Pod formation)	Lentil Var. IPL 220	3	**Parameter**	**T1**	**T2**	**T3**	Results are satisfied and want to cultivate further with resistant from Fusarium wilt disease	➢ Delay in planting due to preceding rice crop ➢ Need well irrigated area ➢ Low formation of rhizobium nodules due to soil acidity	2.05
							IPL-220	**L4727**	**HUL-57 (Farmer Practice)**			
						1. Pl. Ht. (cm)	33.5	31.66	31.33			
						2. Days to 50% flowering	62.32	63.13	62.45			
						3. Days to 80 % maturity	118.57	117.23	115.22			
						4. No. of pods per plant	52.66	51.21	51.17			
						5. No. of seeds per pod	2.46	2.42	2.13			
						6. Yield (Q/ha)	9.13	9.08	8.02			
						7. Net return	48,170	47,720	41,180			
						8.BCR	2.41	2.40	2.32			
6.	Seed production of walking cat fish	Sacrificing male brooder for seed production, non-	Seed production of Walking catfish using BRICS method ➢Selection of brooder-	Walking cat fish (*Clarias*	5	**Technology (BRICS method)** Hatchability : 73 % Growth rate : 1 g/month				As BRICS method of magur breeding is done	Need to repeat the trial for more	2.25

	(*Clarias magur*) using BRICS (Barrier Removal In Catfish for Voluntary Captive Spawning) method	availability of sufficient quantity of quality seed	**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 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.	*magur*) using		Survivability % : 55% Net return (Rs/unit.) : 31308 BC Ratio : 2.25 **Farmers Practice: (Seed production by sacrificing male brooder)** Hatchability : 35 % Growth rate : 1 g/month Survivability % : 23% Net return (Rs./unit) : 19920 BC Ratio : 1.8	without sacrificing the male brooder which helps in reducing the cost of breeding, number of breeding can be repeated with the same broods and also it can be taken up in low cost technology.	reliable result	
7.	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	Climbing perch *(Anabas testudineus*)	5	**Technology (Local *Anabas testudineus*):** Hatchability : 92 % Growth rate : 1.5g/month Survivability % : 65% Net return (Rs/unit.) : 60063 BC Ratio : 2.31 Farmers preference : Highly accepted by the consumer because of its taste **Farmers Practice: (Vietnam Koi)**	Appreciated the result as it can be taken up by farmers/rural educated youths as an enterprise.	Need to repeat the trial for more reliable result	2.31

<table>
<tr>
<td></td><td></td><td></td>
<td>of fertilized egg in stagnant water in plastic tubs;
➢ Incubation period: 12-15 hrs.</td>
<td></td><td></td>
<td>Hatchability : 95 %
Growth rate : 2.0g / month
Survivability % : 75%
Net return (Rs./unit) : 84150
BC Ratio : 2.83
Farmers preference : Less consumer acceptance due to its appearance and taste (reduce in chewiness & Springiness)</td>
<td></td><td></td><td></td>
</tr>
<tr>
<td>8.</td><td>Preparation of Guava Cheese Preparation of Guava Cheese</td><td>Due to its perishable nature during peak season it is difficult to store.</td>
<td>Preparation of Guava Cheese
<table>
<tr><td>Ingredients</td><td>T1</td><td>T2</td><td>T3</td></tr>
<tr><td>Pulp :Sugar (kg)</td><td>1:1</td><td>1:1.25</td><td>1:1.5</td></tr>
<tr><td>Citric acid(gm)</td><td>2</td><td>3</td><td>5</td></tr>
<tr><td>Butter (gm)</td><td>40</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>1.25</td><td>1.5</td><td>1.75</td></tr>
<tr><td>Shelf life (months)</td><td colspan="3">4 months</td></tr>
<tr><td>Net return (from 1 kg)</td><td>Rs.395</td><td>Rs.520</td><td>Rs.645</td></tr>
<tr><td>BC Ratio</td><td>2.1</td><td>2.3</td><td>2.5</td></tr>
</table>
</td>
<td>Appreciated</td><td>Appreciated & recommended for taking up as an enterprise</td><td></td>
</tr>
<tr>
<td>9.</td><td>Introduction to year round nutri rich crops in NARI village during</td><td>Non availability of diversified nutrient rich crops</td>
<td>Nutrition gardening

Inclusion of nutrient rich crops (Quinoa, Chia) with bio-fortified crops- lentil IPL 220 (Zinc),
Sweet potato NFSP-1 (Anthocyanin),
Maize HQPM-5 (Protein),</td>
<td>Nutrition gardening</td><td>5</td>
<td>
Parameter of assessment
1. Quantity of nutritious crop supplied
<table>
<tr><td></td><td colspan="3">Production(Kg)</td></tr>
<tr><td>Crops</td><td>Kharif</td><td>Rabi</td><td>Zaid</td></tr>
<tr><td>Roots & Tubers</td><td>15</td><td>77.50</td><td>25</td></tr>
<tr><td>Pulses</td><td>48</td><td></td><td></td></tr>
<tr><td>Other Veg</td><td>142</td><td>174</td><td>109</td></tr>
</table>
</td>
<td>Appreciated</td><td>Recommended to diversify by adding bio-fortified crop</td><td></td>
</tr>
</table>

	covid pandemic		Casava CAU Umangra-1 (Carotene) to existing crops			Leafy vegetables	36	28.00	33		varieties	
						Fruits (Papaya , Watermelon)	25	30	20			
						2. Diversified Crops						
						Chia	500g					
						Quinoa	600 g					
						Biofortified Lentil Var. IPL-220	5 kg					
						3. Quantity of nutrient supplemented (gm):						
							Kharif	Rabi	Zaid			
						Protein	4797.06	7956.11	4375.86			
						Fat	6914.63	1143.53	6307.43			
						Fiber	2030.55	3367.75	1852.26			
						Carbohydrate	13636.40	22616.56	12439.10			

**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 2021

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

List of technologies demonstrated during previous years and popularized during 2017-18 and recommended for large scale adoption in the district

	Crop and Variety/	Technology demonstrated	Horizontal spread of technology

Sl. No	Enterprise		No. of villages	No. of farmers	Area in ha
1.	Rice	Integrated Crop Management in rice	6	20	10
2.	Maize	Weed management in maize	8	15	7
3.	Rice	Seed production technology of rice var. CAU R1 & RC Maniphou -13	10	70	50
4.	Black gram	Participatory seed production of black gram var. PU-31	6	15	10
5.	Mustard	Popularization of mustard var. NRCHB-101 under zero tillage condition	10	50	20
6.	Fish based Integrated Farming System	Popularization of Fish based Integrated Farming System	10	10	5.0
7.	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.	Rice	Cereal production	Integrated Crop Management	Kharif	1.25	1.25	-	5	5	-	Irrigated	300.5	47	330
2.	Lentil	Nutrient Management	Foliar nutrition of Lentil	Rabi	2.5	2.5	-	10	10	-	Rainfed	298	48	345
3.	Potato	Vegetable production	Popularization of potation var. Kufri kanchan	Rabi	2.5	2.5	-	5	5	-	Irrigated	310	43	320
4.	Mustard	Oilseed production	Popularization of Mustard Var. NRCHB 101 Under Zero tillage condition	Rabi	1.5	1.5	-	6	6	-	Rainfed	307.4	43	342

c. Performance of FLD on Crops during 2021

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	CAU R-1 (Tamphaphou)	Cereal production	1.25	68.00	57.50	18.20	70.00	62.00			80000	1,36,000	56,000	1.7	82000	115000	33000	1.4

2	Lentil var IPL-316	Nutrient management	2.5	9.8	8.7	12.6	10.0	9.6			32000	78400	46400	2.45	31500	69600	38100	2.20
3	Potato (Kufri Kanchan)	Vegetable production	0.5	132	125	5.6	145	120			1,90,000	2,64,000	74,000	1.38	1,80,000	2,25,000	45,000	1.25
4	Mustard (NRCHB-101)	oilseed production	2.5	9.4	8.4	10.63	9.5	9.0			30000	61000	31000	2.03	28000	54600	26600	1.95

*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	12/11/2021 & 9/2/2022	63	15	78	Training & distribution of inputs for FLD Seed Production
2	Farmers Training	16	3 / 6/ 21 1 /6/ 21 19 /1/ 21 9/10/2021 to 15 /10/ 21 18 /1 /21 18 /9/ 21 16 /10/ 21 22/12/ 21 12 /1/ 21	13 12 8 15 14 18 10 15 10	2 5 7 8 5 5 5 	15 17 15 23 19 23 15 15 10	Training & Demonstration of inputs for FLD ,Seed production

			10 /2/ 2021 21 /10 /21 8 /4/ 21 25 /9/ 21 16 /7/ 21 25 /8/ 21	13 15 16 14 13 8	3 3 1 2	16 15 19 15 13 10	
3	Media coverage	1	9/3/2022				Radio talk
4	Training for extension functionaries	1	16/11/22022 to 18/11/2022	20	5	25	Training,& Demonstration
5	Any other (Pl. specify)						
	Total	20		277	66	343	

e. Details of FLD on Enterprises

(i) Farm Implements

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

** Field efficiency, labour saving etc.*

(ii) Livestock Enterprises

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

(iii) Fisheries

Sl. No.	Category, e.g. Common carp, ornamental fish etc.	Thematic area	Name of Technology	No. of farmers	No. of units	No. of fish/ fingerlings	Major Performance parameters / indicators		% change in the parameter	Other parameters (if any)		Econ. of demo. (Rs./Ha.)				Econ. of check (Rs./Ha.)				Remarks
							Demo	Check		Demo	Check	GC**	GR**	NR**	BCR**	GC	GR	NR	BCR	
1	**Fish:** Catla, Rohu, Mrigal, Silver carp, Grass carp, Common carp **Duck:** White pekin **Horticulture crops:**	Integrated Farming System	Popularization of Fish based integrated farming system	10	10	8000	Fish yield-3620kg/ha Duck yield-355kg Horticulture yield-365kg Survivility of fish (%)= 95%	Fish yield-2380kg/ha Survivility of fish (%)= 90%	52.10	-	-	375600	971750	596150	2.58	313200	595000	281800	1.89	

	Cabbage, Cauliflower, Chili, Knol khol, cucumber																		
2.	**Fish:** Catla, Grass carp, Common carp, silver barb	Composite fish culture		10	10	10000	Avg. wt. gain of Catla – 680gm Avg. wt. gain of- Grass carp -750gm Avg. wt. gain of Common carp – 650gm Avg. wt. gain of Silver barb – 450gm Survivility – 90% Yield – 3790kg/ha	Avg. wt. gain of Catla – 580gm Avg. wt. gain of- Grass carp - 780gm Avg. wt. gain of Common carp – 600gm Survivility – 90% Yield – 2850kg/ha	32.9			310500	871700	561200	2.8	293650	655500	361850	2.23	

*** 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	Roselle	Value addition	Popularization of Roselle	10	10	Product Recovery/kg- 1.25litre/kg Carbohydrate- 33.72 Protein- 0.18 Sugar content- 33.18 Shelf life (months)-6	Product Recovery/kg- 1.0 litre/kg Carbohydrate- 30.3 Protein- 0.28 Sugar content- 23.74 Shelf life (months)-6	25	-	-	845	1800	955	2.1	455	600	145	1.3	
2	Chow chow bori	Value addition	Popularization of chow chow bori	10	10	Product Recovery/kg- 370 litre/kg Carbohydrate- 55.30 Protein- 17.76 Fat- 0.8 Shelf life (months)-6	Product Recovery/kg- 350 /kg Carbohydrate- 65.64 Protein- 18.73 Fat- 0.8 Shelf life (months)-6	5.71	-	-	1155	2590	1435	2.2	1475	2800	1325	1.8	
3	Water melon	Value addition	Popularization of water	10	3	Product Recovery/kg- 700/kg Shelf life (months)-4	Thrown as waste	-	-	-	1550	3920	3270	2.5	-	-	-	-	

			melon rind candy															
4	Oyster *mushroom var.Elm (Hypsizygous ulmarius*	Mushroom production	Oyster *mushroom*	5	5	Yield-48 kg (20 bags, bag size-60x45cm) Duration of mycelium run-21 days Pin formation-27 days		31.25	-	-	2740	10500	7760	3.83	2450	8000	5550	3.2	

*** 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 2021

**(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	Seed production	Scientific rice cultivation	3/6/21	1	Online mode	Farmer	15	0	15	0	0	0	15	0	15
	Integrated nutrient	Nutrient management	11/6/21	1	Online mode	Farmer	14	3	17	0	0	0	14	3	17

	Management	in rice cultivation													
		Importance of Soil testing and its benefits	19/1/2021 to 19/1/2021	1	KVK, Thoubal	Farmer & Farm women	15	0	15	0	0	0	15	0	15
	Resource conservation technology	Water use Efficiency	9/10/2021 to 15/10/2021	7	KVK, Thoubal	Farmer & Farm women	3	6	9	2	3	5	5	9	14
	Others	Soil sampling	18/01/2021	1	KVK, Thoubal	Farmer & Farm women	13	2	15	2	2	4	15	4	19
Plant Breeding & Genetics/ Seed tech.	Crop Diversification	Training on "Importance of Rabi Maize and its Cultivation practices"	18/09/2021	1	KVK, Thoubal	Farmer & Farm women	19	0	19	2	2	4	21	2	23
		Training on available varieties and its importance	16/10/2022 to 16/10/2022	1	KVK, Thoubal	Farmer & Farm women	15	0	15	0	0	0	15	0	15
		Climate Resillient Crop Variety for	22/12/21-24/12/21	3	KVK, Thoubal	Extension Personnel	10	5	15	0	0	0	10	5	15

		sustainable food practice													
	Resource Conservation Technologies	Role of crop varieity in Climate Resillient Agriculture	20/11/21	1	KVK, Thoubal	Farmers/ Farm Women	14	1	15	0	0	0	14	1	15
Fishery	Value addition	Value addition of fish	12/1/2021 to 12/1/2021	1	KVK, Thoubal	Farmer & Farm women	2	8	10	0	0	0	2	8	10
	Pond Management	Scientific pond preparation and management for carp rearing	18/2/2021 to 18/2/2021	1	KVK, Thoubal	Farmer & Farm women	14	2	16	0	0	0	14	2	16
	Ornamental fish farming	Training on Ornamental fish farming	21/10/2021	1	KVK, Thoubal	Farmer & Farm women	18	0	18	0	0	0	18	0	18
	Others	Training cum sensitization programme on seed production of air breathing fishes clariusmagur & Anabas testudineus	8/04/2021 to 8/04/2021	1	KVK, Thoubal	Farmer & Farm women	12	0	12	5	2	7	17	2	19

		Breeding and seed production of *Anabas Testudineus*	7/6/21	1	Online mode	Farmer	15	2	17	3	0	3	18	2	20
		Scientific pond preparation and management	28/6/21	1	Online mode	Farmers	22	2	24	0	0	0	22	2	24
		Breeding and seed production of climbing perch (*Ananas testudineus*)	14/7/21	1	Online mode	Farmers	22	4	26	3	0	3	25	4	29
Animal Science	Piggery	Training on Bokashi Piggery Farming	13/1/2021 to 13/1/2021	1	KVK, Thoubal	Farmer & Farm women	14	4	18	0	0	0	14	4	18
		Scientific Pig Farming	15/7/21	1	Online mode	Farmers	18	0	18	0	0	0	18	0	18
	Poultry	Financial Literacy Programme on Livestock & Poultry	19/1/2021 to 19/1/2021	1	KVK, Thoubal	Rural Youth	19	1	20	0	0	0	19	1	20
		Scientific broiler farming	6/04/2021 to 6/04/2021	1	KVK, Thoubal	Rural Youth	15	2	17	2	0	2	17	2	19

		Scientific broiler farming	9/04/2021 to 9/04/2021	1	KVK, Thoubal	Rural Youth	15	0	15	2	0	2	17	0	17
		Scientific broiler farming	17/04/2021 to 17/04/2021	1	KVK, Thoubal	Rural Youth	17	1	18	3	0	3	21	0	21
		Scientific broiler farming	23/09/2021	1	KVK, Thoubal	Rural Youth	19	0	19	2	2	4	21	2	23
	IFS	Integrated farming system for sustainable Agriculture	16/11/21 – 18/11/21	3	KVK Thoubal	Extension Personnel	16	8	24	0	0	0	16	8	24
	Dairying	Clean milk production and its value added production	29/5/21	1	Webinar	Farm Women	27	3	30	0	0	0	27	3	30
		Scientific dairy farming	1/6/21	1	Online mode	Farmer	19	2	21	0	0	0	19	2	21
Plant Protection	IPM	Insect Pest Management in and around our house	15/1/2021	1	KVK, Thoubal	Farmer & Farm women	12	4	16	0	0	0	12	4	16
	IPM	Training program on pest	16/10/2021 to 16/10/2021	1	KVK, Thoubal	Farmer & Farm women	13	2	15	0	0	0	13	2	15

		management of rice													
	Vermicomposting	Training on vermicomposting	22/09/2021	1	Online	Farmer & Farm women	13	10	23	0	0	0	13	10	23
		Vermicomposting and mushroom cultivation	13/12/21	1	KVK, Thoubal	Farmer & Farm women	15	1	16	1	0	1	16	1	17
	Mushroom cultivation	Training on mushroom cultivation	25/09/2021 to 27/09/2021	2	KVK, Thoubal	R/Y	11	7	18	0	0	0	11	7	18
	Resource Conservation Technologies	Climate Smart Agriculture	22/12/21-24/12/21	3	KVK, Thoubal	Extension Personnel	52	7	59	0	0	0	52	7	59
Home Science	Rural craft	Candle making	16/1/2021	1	KVK, Thoubal	Farmer & Farm women	2	8	10	0	5	0	2	13	15
	Gender mainstreaming through SHGs	Financial Literacy Programme for Women SHGs	23/01/2021 to 23/01/2021	1	KVK, Thoubal	Farmer & Farm women	0	15	15	0	0	0	0	15	15
	Value addition	Three days trg. On Processing and value addition of	22/02/2021 to 24/02/2021	3	KVK, Thoubal	Farmer & Farm women	0	23	23	0	0	0	0	23	23

		blackrice/fruits/pulses													
		Value addition of tomato	20/5/21	1	Online mode	Farm Women	12	18	30	0	0	0	12	18	30
		Value addition of watermelon	16/7/21	1	Online mode	Farm Women	0	13	13	0	0	0	0	13	13
Agriculture Extension	Leadership development	Training on participatory learning & action	14/10/2021 to 16/10/2021	2	KVK, Thoubal	Extension personal	50	14	64	0	0	0	50	14	64
	Resource conservation technology	Jal Shakti Abhiyan	16/10/2021 to 22/10/2021	7	KVK, Thoubal	Farmer & Farm women	45	5	50	0	0	0	45	5	50
PA (Computer)	Capacity building for ICT application	Training on ICT-KVK Mobile app	21/10/2021	1	KVK, Thoubal	General Users	20	0	20	0	0	0	20	0	20
		Information and Communication Technology	12/6/2021, 7/12/21	1	KVK, Thoubal	Farmers	15	0	15	0	0	0	15	0	15
	Total						**662**	**183**	**845**	**27**	**16**	**38**	**690**	**198**	**888**

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	Integrated crop management	Trg. on Green manuring for Integrated nutrient management in rice cultivation	24/03/2021 to 24/03/2021	1	Tentha	Farmer & Farm	17	0	17	0	0	0	17	0	17
		Training on green manuring and its uses	26/04/2021 to 26/04/2021	1	Tentha	Rural Youth	20	0	20	0	0	0	20	0	20
		Management of common disease and pest management in rice crop	12/8/2021	1	Wangjing	Farmer/ Farm women	26	3	29	0	0	0	26	3	29
	Crop diversification	Trg. on Kharif pulses cultivation	6/04/2021 to 6/04/2021	1	Ingourok	Farmer & Farm	19	9	28	0	0	0	19	9	28

Plant Breeding & Genetics/ seed Technology	Resource conservation Technology	Training on conservation of plant genetic resources	18/10/2021 to 18/10/2021	1	HijamKhunou	Farmer/ Farm women	13	5	18	0	0	0	13	5	18
Plant Protection	IPM	Termite management in Sugarcan field organically	7/1/2021 T o 7/1/2021	1	Salungpham	Farmer & Farm women	13	0	13	0	0	0	13	0	13
	IPM	pest management in Vegetable cultivation	11/1/2021 to 11/1/2021	1	Langathel	Farmer & Farm women	20	8	28	0	0	0	20	8	28
	IPM	Insect pest mgmt. with Besiwell (Beuveriabasiana)	18/1/2021 to 18/1/2021	1	Wangjing	Farmer & Farm women	27	0	27	0	0	0	27	0	27
	IDM	Potato Seed treatment	11/1/2021 to 11/1/2021	1	Heirok part III	Farmer & Farm women	3	15	18	0	0	0	3	15	18
	Vermicomp osting	Training on vermicomposting	29/09/2021	1	Lourembam	R/Y	10	0	10	0	0	0	10	0	10
Agri. Extension	Awareness	Awareness on new Farm Act,2020	15/1/2021	1	Hiyanglam	Farmer & Farm women	28	12	40	0	0	0	28	12	40
Animal Science	Dairy	Trg. on Scientific Dairy Farming	15/1/2021	1	Hiyanglam	Farmer & Farm women	10	5	15	0	0	0	10	5	15
Home science	Rural craft	Trg. on Extraction and Utilization of minor fibre	16/3/2021 to 16/3/2021	1	Sapam	Farmer & Farm women	0	18	18	0	0	0	0	18	18

	Household food security by kitchen gardening and nutrition gardening	Trg on Importance of notification on traditional food	24/4/2021 to 24/4/2021	1	Tentha	Farmer & Farm women	4	18	22	0	0	0	4	18	22
		Nutrition Gardening	25/8/21	1	HijamKhunou	Farmer	8	2	10	0	0	0	8	2	10
		Bio-fortified food	25/8/21	1	Ukhongsang	Farmer	8	2	10	0	0	0	8	2	10
	Minimization of nutrient loss in processing	Training on storage loss minimization techniques	15/10/2021	1	Ukhongsang	Farm women	0	15	15	0	0	0	0	15	15
	Value addition	Preparation of Roselle Jam	9/11/21	1	Thoubalwang mataba	Farmers/Farm Women	4	14	18	0	0	0	4	14	18
Horticulture	Vegetable Production	Training on nursery management of bulb crops (Onion and Garlic)	18/10/2021 to 15/10/2021	1	Ingourok	Farm women	8	13	21	0	0	0	8	13	21
		Offseason vegetable production	15/12/21	1	Tentha	Farm/Farm Women	7	14	21	0	0	0	7	14	21
	Fruit production	Package of practices for banana	10/11/21	1	Ingourok	Farm/Farm Women	5	10	15	0	0	0	5	10	15
Fisheries	Composite fish culture	Training program on composite fish farming	26/4/2021 to 26/4/2021	1	Tentha	Farmer & Farm women	18	4	22	0	0	0	18	4	22
	Others	Fish Health Management	17/12/21	1	Sekmaijin	Farm/ Farm Women	18	8	26	0	0	0	18	8	26

		Bag feeding	26/04/2021	1	Tentha	Farm/ Farm Women	18	0	18	0	0	0	18	0	18
		Breeding and seed production of ClariasMagur (Ngakra)	17/7/21	1	Lourembam	Farmer	16	0	16	3	0	3	19	0	19
	Total						**320**	**175**	**495**	**3**	**0**	**3**	**323**	**175**	**498**

(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	12-10-2021 to 26-10-2021	15	Scientific Piggery farming	Scientific Piggery farming	7	2	9	4	2	6	11	4	15	Piggery farming	8(5 pigs per unit)	8	Rs.95,000 /unit	

Poultry	3-4-2021 to 18-4-2021	15	Scientific poultry farming	Scientific poultry farming	10	5	15	-	-	-	10	5	15	Poultry	11 (100 birds per unit)	11	Rs.35000/ 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		
ON	Rural youth	19/02/2021 to 25/02/2021	7	Plant protection	Bee keeping	Skill Training for Rural Youth on Bee Keeping	14	1	15	0	0	0	14	1	15	MANAGE and Department of Agriculture,Manipur	42,0000
ON	Rural youth	22/03/201	1	Animal Science	Fodder	Training Program on Fodder and livestock based intervention for livelihood	31	17	48	0	0	0	31	17	48	DEE, CAU, Imphal	NIL

						improvement of NEH farmers											
ON	Rural youth	4/03/2021 to 10/03 2021	7	Fisheries	Ornamemtal fish farming	Skill training of rural youth (STRY) on ornamental fish farming	14	1	15	4	0	0	18	1	19	MANAGE and Department of Agriculture,Manipur	42,0000
ON	Farmer & FW	20/7/2021	1	HmSc.	Value addition	Enhanching Agricultural marketing through value addition of Horticultural crops	0	25	25	0	0	0	0	25	25	MSFAC	NIL
	Total						**59**	**44**	**103**	**4**	**0**	**0**	**63**	**44**	**107**		

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 2021

	Extension Activity	Topic	Date and duration		Participants

Sl. No.				No. of activities	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		10	28	17	45	3	2	5	-	-	-	31	19	50
2.	Advisory Services	Crop ,Livestock and other enterprises	Throughout the year	1560	1016	462	1478	67	15	82	-	-	-	1083	477	1560
3.	Animal Health Camp	Vaccination of Cattle, Dogs and Pig		1	33	-	33	17	3	20				50	3	53
4.	Plant health camp															
5.	Training/ practical manual			1												
6.	Celebration of important days	1. International Women Day 2. Celebration of World water day 3. Celebration of World Honey Bee Day 4. Celebration of World Milk Day 5. World Environment Day 6. Observation of National Fish Farmers' Day 7. World Breast Feeding Week	8-03-2021 22/3/2021 20-5-2021 1-6-2021 5-6-2021 10-07-2021 1-08-2021 to 7-08-2021 10-09-2021	13	560	363	923	12	15	27	-	-	-	572	378	950

		8. Observation of nutrition month 9. Mahila Kisan Diwas 10. World Food Day 11. Constitution Day 12. World Soil Health Day 13. Celebration of Kisan Diwas	15-10-2021 16-10-2021 26-11-2021 5-12-2021 23-12-2021													
7.	Exhibition	Exhibition on Nutri Rich food on the occasion of International Year of Millets2023 and Campaign on Nutri-Garden and Tree Plantation Showcasing of Technology Products & Interface:Scientists-Farmers/FPOs/Agripreneurs	17-09-2021 2-11-2021	2	48	198	245	14	10	24				62	208	270
8.	Exposure visits	KVK,Tamenglong Visit to FPOs of Imphal West	12-03-2021 19-04-2021	2	52	10		-	-	-						
9.	Farm Science Club Conveners meet	Launching program of 4 Farmers Club Meet the Expert program org. By Lourembam Loumi Chaokhat Lup	2-01-2021 4-01-2021	2	21	7	28	12	4	16				49	11	60
10.	Farmers Seminar/ workshop			1	30	4	34							30	4	34
11.	Farmers Visit to KVK		Throughout the year	1633	1160	291	1451	162	20	182				1322	311	1633
12.	Field Day	Distribution of inputs to CFLD farmers, farmers scientist interaction,	9-2-2021,	2	48	15	63	15	-	15				63	15	78

			12-11-2021													
1.	Group meetings/ Discussion	Lourembam, Tekcham, Icham Khunou, Thokchom, Kakching KVK,Campus	18-3-2021, 6-4-2021, 8-9-2021, 15-9-2021, 18-10-2021, 28-10-2021, 25-11-2021	7	32	26	58	18	34	52				50	60	110
2.	Awareness Camp	Awareness on New Farm act,2020,PM Fasal Bima Yojana, Ecosystem restoration Awareness under Jal Shakti Abhiyan	15-01-2021, 29-7-2021, 5-6-2021 Weekly program	30	609	114	723	16	10	26				625	124	749
3.	Kisan Gosthi	Interaction program on paddy variety and suitable for late planting and Crop diversification for sustainable agriculture	16-07-2021 12-08-2021 7-8-2021	3	62	36	98	4	2	6				66	38	104
4.	Kisan Mela	Regional Agri Fair, 2020-21, State Agricultural fair,2021, Kishan Mela cum launching of Area Base Schemes and Distribution of inputs	8-10 March,2021 16-22 March,2021 26-3-2021	3	70	30	100	23	4	27				93	34	127

5.	Mahila Mandal Conveners' meetings	KVK, Thoubal, Okram	15-10-2021	2		32	32		14	14					46	46
6.	Method Demonstrations	Value addition of fish Method Demonstration on candle making Demo. on soil sampling Method Demonstration on soil sample collection Method Demonstration on Candle making Method Demonstration on soil sample collection Method Demo on bag feeding Method demonstration on preparation of watermelon rind candy Method demonstration on preservation of mango Demonstration on preparing of chow chow bori Method Demo on preparation of Amla candy Method Demonstration on Propagation Technique of Ornamental Plants Method demonstration on preparation of guava cheese	12-01-2021 16-01-2021 18-01-2021 7-04-2021 24-4-2021, 11-10-2021 24-4-2021 26-4-2021 2-07-2021 2-07-2021 13-09-2021 11-10-2021 11-10-2021, 20-11-2021 12-10-2021	20	105	141	246	14	30	44				119	171	290

		Line sowing method of Garlic Preservation techniques of fresh amla Demonstration on bagging of banana bunch Method Demonstration on Training and Pruning of Citrus Demonstration on Value Addition of Fruits	18-10-2021 18-10-2021 29-10-2021 10-11-2021 11-11-2021													
7.	Scientists visit to farmers field	Visit at Farmers field	Every month	48	110	27	137	7	10	17				117	37	154
8.	Self Help Group Conveners meetings			7	19	93	112	3	31	34				22	124	146
9.	Soil health/ testing Campaigns															
10.	Film show			1	43	12	55	19	6	25				62	18	80
11.	News paper coverage	Water Day, Kisan Mela, Poshan Abhiyan, Inauguration of Seed prodn. Centres, Go to Village, Rabi Campaign, World Soil Day, Kisan Diwas	22-3-2021, 26-3-2021, 17-9-2021, 23-9-2021, 28-9-2021, 2-11-2021, 12-11-2021, 5-12-2021, 23-12-2021, 31-12-2021	9												
12.	News letter	3rd issue (April-2020 to March-2021)		1												
13.	Research papers	Processing Techniques affects Shelf life & sensorial quality of fish pickle, Journal of Krishi Vigyan Jan-June, 2021		3												

		Seed production of Walking Catfish *Clarius Magur* using BRICS method; an exploratory study in Thoubal district, Manipur Factor influencing enhancement of income through Zero tillage oilseed mustard cultivation in Thoubal district, Manipur.Conference paper on IC on Integrated Agriculture Natural farming,Biodiversity conservation as Rural Bio Entrepreneurship under changing climate Scenario-2021														
14.	Technical report/ article															
15.	Radio talks	Horticulture,Agronomy, Home Science,Fisheries		5												
16.	TV Talks	Fisheries, Agronomy, Animal Sc		5												
17.	Electronic media															
18.	CD publication															
19.	Extension literature															
20.	Technical bulletins															
21.	Lecture delivered as resource person	Agronomy, Animal Sc, Home Sc, Fishries		18												

22.	Mobile app introduced															
23.	Whatsapp Group for Farmers/Entrepreneurs formed			75	1527	563	2090	112	48	160				1639	611	2250
24.	Leaflets/folders	Home Sc, Horticulture, Fisheries,Agronomy		6												

3.5 Production and supply of Technological products during 2021

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	Tampha phou	176.8	795600	890	150	95	45	1180
		Akut phou	1.64	7380	8	2	-	-	10
		Sana phou	10	45000	48	3	9	-	60
		Gin phou	5.7	25650	27	2	5	-	34
		RC Mani-7	17.1	76950	98	3	8	5	114
		RC Man-13	97.8	440100	421	34	163	32	650
		Chakhao	2.46	11070	11	2	2	-	15
		Pari phou	2.8	12600	9	3	1	-	13
		RC Mani-12	17.45	78525	87	11	8	4	110

Total			**331.75**	**1492875**	**1599**	**210**	**291**	**86**	**2186**

A1. SUMMARY of Production and supply of Seed Materials during 2021

Sl. No.	Major group/class	Quantity (q) produced	Quantity (q) supplied	Value (Rs.) of quantity produced	Number of recipient/ beneficiaries				
					General		SC/ST		Grand Total
1	CEREALS	331.75	306.75	1492875	1599	210	291	86	2186
2	OILSEEDS	0.8	-	4800	-	-	-	-	
3	PULSES	36.7	Not yet supplied	440400	-	-	-	-	
TOTAL		369.25		1938075	1599	210	291	86	2186

B. Production and supply of Planting Materials (Nos. in No.) during 2021

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	Passion fruit	Kaveri	50	50	500	15	3	-	-	18
	Papaya	African Red papaya	50	50	500	6	2	-	-	8
Spices	Chilly	Arka Meghana	5500	5500	1600	7	5	3	2	17
	Onion	Prema,Nasik Red	12500	12500	3000	12	5	6	2	25
VEGETABLES	Tomato	Arka Rakshak, Arka Abhed	2700	2300	8000	16	5		4	25

	Brinjal	Local- Serpentine type	2500	250	2500	36	12	9	3	60
	Bottle Gourd	BSS-333pratik	400	350	2000	3	1	1	-	5
	Pumpkin	Big gold	1300	1250	6500	7	2	3	-	12
	Cabbage	Green hero	5550		4000	5	2	3	2	12
	Cauliflower	White flash/ Candid	4650		4600	7	1	-	4	12
	Brocolli	Green Magic	1300		2000	13	7	3	2	25

C. Production of Bio-Products during 2021

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	1160	18900	38	5	9	3	55
BIO PESTICIDES										

D. Production of livestock during 2021

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	6	-	30000					

2	Poultry	Broiler	180	-	23000					
3	Duck	Local	50	-	18000					
4	Fisheries	Silver barb	-	104	20990					

3.6. Literature Developed/Published (with full title, author & reference) during 2021

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.): **April,2019-March,2020**_____

(B) Articles/ Literature developed/published

Item	Title /and Name of Journal	Authors name	Number of copies	
			Produced/ published	Supplied/ distributed
Research				
1.	Processing Techniques affects Shelf life & sensorial quality of fish pickle, Journal of Krishi Vigyan Jan-June, 2021	R.K.Lembisana Devi, SMS(Home Science)	Published	
2.	Seed production of Walking Catfish *Clarius Magur* using BRICS method; an exploratory study in Thoubal district, Manipur	Sribidya Waikhom Salam Prabin Singh, S.Zeshmarani,Kh.Premlata Devi	-	
3.	Factor influencing enhancement of income through Zero tillage oilseed mustard cultivation in Thoubal district, Manipur.Conference paper on IC on Integrated Agriculture Natural farming,Biodiversity conservation as Rural Bio Entrepreneurship under changing climate Scenario-2021	Salam Prabin Singh, S.Zeshmarani,N.Tomba Singh, Sribidya Waikhom and W.Jiten Singh	-	
Popular articles	Livestock Agronomy	Dr.S.Zeshmarani, Sr.Scientist & Head	Every Monday on local newspaper Hueiyen Lanpao	

		N.Tomba Singh SMS(Agronomy) Dr.W.Jiten Singh(Farm Manager)	http://hueiyenlanpao.com/	
Newsletter	1		250	
Leaflets/folders	1. Propagation techniques of fruit crops 2. Post harvest management and value addition in Amla 3. Techniques for collecting soil sample for soil testing	Kh.Premlata Devi SMS(Horticulture) R.K.Lembisana Devi SMS(Home Sc) Dr.W.Jiten Singh (Farm Manager)	250	

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

(C) Details of Electronic Media Produced

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

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

1. Success story on Integrated Farming System

Farmer Profile

Particulars	Details	Particulars	Details
Name	**Shri Akoijam Deben Singh**	Village	**Thoubal Wangmataba, Thoubal**
Age	**59**	Landholding (ha)	**1.5 ha**
Gender	**Male**	District	**Thoubal**
Education	**Graduate**	State	**Manipur**
Enterprise	Integrated Farming System	Mobile No.	**9774287461**

Introduction

Shri Akoijam Deben Singh, from Thoubal Wangmataba, Thoubal district Manipur is an innovator and progressive farmer. He has a kin interest in farming thereby started his farming activities with his limited resources without much knowledge of agriculture. The result was not at all satisfactory to him in terms of yield and monetary return. Thereafter to increase yield and monetary return from his endeavour he started Integrated Farming System after consultation with KVK and line departments.

Initiative

To escalate his knowledge on farming, he started participating in many training and exposure visits conducted by KVK, CAU, ICAR and Line departments in the field of agriculture and allied. With the knowledge he acquired and advice from ICAR and KVK scientists he started taking up Integrated Farming System with crops such as rice, vegetables, maize, mustard, livestock such as cattle, including

backyard poultry rearing and fish components in his 0.12 ha of pond. He also added apiary, vermicomposting and horticultural crops as a part of his IFS model.

To make success in his journey the KVK, Thoubal, Central Agricultural University, Imphal and Indian Council of Agricultural Research, Lamphelpat used his land for their trial and demonstration plot to showcase their technology.

Results/ Outcomes

Though his IFS model he could earned an annual net income of Rs. 11,60,430.00 from his 1.5 ha land from rice (1 ha) Rs. 1,57,180, Mustard (0.50) Rs. 64600, Maize (0.50) 31000, Vegetable crops (0.85 ha) Rs. 1,44,650, Fruit crops Rs. 60000 and Cattle Rs.30000 along with Rs. 133000 from his 0.12 ha pond and Rs. 540000 from his black turmeric cultivation.

Table: Activity wise income, cost-benefit ratio, gross and net income

Sl. No.	Crop	Qnty. Produce	Gross Income (Rs)	Net Income (Rs)	BCR
1.	Rice (1 Ha)	11059 kg	221180	157180	3.46
2.	Mustard (0.50ha)	640 Kg	89600	64600	1.39
3.	Maize (Sweet corn) (0.50 ha)	23000 green cobs	35000	31000	8.75
4.	Vegetable crops (0.85 ha)	8180 Kg	21780	144650	1.9
5.	Fruits Crops (Grapes)	350 Kg	70000	60000	7.0
6.	Cattle	900 ltr	45000	30000	3.0
7.	Fishery		198400	133000	3.03
8.	Black Turmeric	3200 kg	640000	540000	6.40
9.	Vermicompost	1500 Kg	Used in his own farm		

He is an innovator of furrow making tools which can be fitted into tractor and power tiller. Furrow maker fitted to Power tiller and Tractor. The cost of making this tool is Rs. 1000.00 (Rupees one thousand) only. It saves time, labour and money.

Awards and recognition

- Received First prize with a cash reward of Rs. 30,000.00 in District Level Rice Crop Competition organized by Department of Agriculture, Manipur, 2014-15.
- Innovative Farmer Award 2022 during Regional Agriculture Fair, AAU Jorhat, Assam in March, 2022.
- Felicitate by the Income Tax Dept, Manipur for his significant achievement in Agriculture & Allied sector in May, 2022

2. Case Study on CFLD Mustard

A three-year case study on Cluster Frontline Demonstration of Rapeseed mustard under Zero tillage condition in Thoubal district from the year 2019, 2020 and 2021 conducted by KVK Thoubal under CFLD programme of ATARI, Zone VII to demonstrate the production potential of newly released technologies on the farmer's fields at different location in a given farming situation and organized extension activities for farmer and extension workers for dissemination of various technologies. Under KVK Thoubal, the programme has been conducted since 2019 to various villages of the district in Mustard var. NRCHB-101. So far, 125 demonstration has been conducted with a total 125 beneficiaries in 50 ha with an average yield of 9.37 q/ha.

Yearly report

Year	Crop	Variety	Area (ha)	No. of demonstration	Productivity (q/ha)
2019	Rapeseed Mustard	NRCHB-101	20	50	9.7
2020	Rapeseed Mustard	NRCHB-101	10	25	8.7
2021	Rapeseed Mustard	NRCHB-101	20	50	9.7

Economics of Rapeseed Mustard Var. NRCHB-101 per Hectare

Yield (Q)	Gross Income (Rs.)	Net Income (Rs.)	BCR
9.37	49855	21850	1.78

Conclusion:

From the study it was found that mustard variety NRCHB-101 is superior over local mustard (Yela) under the name cultivation practices i.e, under zero tillage condition with an average increase yield of 15.77, net income of Rs. 21850 and 1.78 BC ratio.

3. Success Stories of Smt. Surbala Devi (Horticulture based farming system)

Farmer Profile

Particulars	Details	Particulars	Details
Name	**Naorem Surbala Devi**	Village	**Tentha Heibung**
Age	**36**	Landholding (ha)	**0.25 ha**
Gender	**Female**	District	**Thoubal**
Education	**12**	State	**Manipur**
Enterprise	King chilli, Eryngo	Mobile No.	**9366324279**

Smt. Surbala Devi of Tentha Heibung is an enthusiastic woman entrepreneur in the field of high value horticulture crop. She has a polyhouse and open field of 0.15 ha where she used to produce nursery of King chilli and growing of local species called Awa phadigom (Eryngo) and other vegetable crops in her open field. To gain her knowledge, she arrange and attended many training programme of horticulture organized by KVK, Thoubal. With the knowledge she acquired, she is able to raise and produce 7000 to 8000 nos. of king chilli seedlings and sold to fellow farmers of the district @ Rs. 10/seedlings getting a gross income of Rs. 70,000.00 to Rs. 80,000.00 per year.

She also cultivated Awa phadigom using the system of polythene mulching in her polyhouse. This system produces Eryngo (*Eryngium foctideum L.*) spice crop throughout the year. With a harvest of 3 pickings per month totalling to 21-24 pickings in a year and getting a gross income of Rs. 2000/picking with a total gross income of Rs. 42000.00 to 48000.00 per year. Because of its high demand in the market, marketing for such crops is not a problem resulting to get an annual income of Rs. 1,36,000.00 from her polyhouse only. In the coming years, she is targeting to produce 20000 to 30000 seedlings of king chilli.

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

Name of Innovation: Furrow Maker

Name of the Farmer: Shri Akhoijam Deben Singh

Innovation cost: Rs. 1000.00 (Rupees One thousand) per implement

About the innovation:

The Innovation easily makes furrow of one hectare area within 4 hours for plantation of potato, sugarcane, vegetable crops etc. This tool saves labour and the cost of furrow making per hectare only at Rs. 2000.00 (Rupees Two thousand only) for the cost of fuel of 20 lit/ha. Such innovation benefitted many farmers of the district having power tiller and tractor.

His innovation of attaching a furrow maker in power tiller has tremendously cuts farm labour in making furrow from cost of 20 labour to only 6 labour.

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)

Sl. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1.	Rice	Bird perch	To look for preys (insects) by the birds in rice field
2.	Vegetable crops	Ash	Used for protection from sucking insect pest
3.	Rice	Rotten crab	Management of Gundhi bug
4.	Cole crops	Mustard crop	Used of mustard crop to manage insect pest of Cole crops

5.	Grain Storage	Burnt dry leaves of Khoiju Leikham	Protection of store grain from pest
6.	Rice	Clean rice bunds (Plastering of rice field bunds with muds)	Plastering of rice field bunds with muds to manage Gall midge in rice field.

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 : 2

ii. No. of farm families selected : 1355

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 (2021) :

Details	No. of Samples analysed	No. of Farmers	No. of Villages	Amount (In Rupees) realized
Soil Samples	140	616	20	-
Water Samples	200	160	8	-
Plant Samples	550	550	70	-
Petiole Samples	15	15	7	
Total	**905**	**1341**	**105**	

1. Details of Soil Health Cards (SHCs) (2021)
   a. No. of SHCs prepared:700
   b. No. of farmers to whom SHCs were distributed: 616
   c. Name of the Major and Minor nutrients analysed: NPK
   d. No. of villages covered: 20

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	10	1552	8	2770	4	3889	2	23	23	3854	2	654	49	12742
Voice only	1300	1300	632	632	30	30	50	50	50	50	300	300	2362	2362
Voice and Text both														
Total	**1310**	**2852**	**640**	**3402**	**34**	**3919**	**52**	**73**	**73**	**3904**	**302**	**954**	**2411**	**15104**

3.14 Contingency planning for 2021

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**	500	1400	200	1600
Draught	**Introduction of Resource Conservation Technologies**	100	200	70	270
Flood/ draught	**Distribution of seeds and planting materials**	400	1200	300	1500

a. Livestock based Contingency planning

Contingency (Drought/ Flood/ Cyclone/ Any other please specify)	Number of birds/ animals to be distributed	No. of programmes to be undertaken	No. of camps to be organized	Proposed number of animals/ birds to be covered through camps	Number of beneficiaries proposed to be covered		
					General	SC/ST	Total
Flood		10	2	700	650	50	700

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	125	60%	Rs. 41800 per ha	Rs. 53000 per ha
Seed production of Rice	290	70%	Rs. 80000 per ha	Rs. 85000 per ha
Seed Production of Mustard	70	85%	Rs. 26000 per ha	Rs. 49000 per ha

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

4.2. Cases of large-scale adoption

1. Popularization of Hybrid Rice

Rice is the staple food of Manipur. Almost all the cultivable fields are under rice excepting few upland areas for kharif pulses, oilseeds and sugarcane. Before the coming of hybrid rice varieties majority of the farmers use high yielding and local indigenous rice varieties. Getting an average yield of 3.5 to 4.5 t/ha. To increase the yield of rice, the Department of Agriculture, Manipur initiated the popularization of hybrid rice in Manipur by providing seeds of hybrid rice varieties viz. K-2,Sahayadri, PAC-801,PAC-807,Arize 6444 Gold etc. Because of the fact that hybrid rice varieties produce more than 20% yield increase than HYVs. Thereafter through trial and demonstration using proper package of practices like SRI, line sowing, sparse planting of single seedling by KVK, Thoubal since 2009, the yield of rice using hybrid rice increase more than 6 t/ha. Seeing the performance of hybrid rice through training, trial, demonstration, exposure visits to hybrid rice fields farmers are now using hybrid rice varieties and occupies about 20% of the rice field by hybrid rice.

2. BREEDING AND SEED PRODUCTION OF WALKING CAT FISH *Clarias Magur* using BRICS Method

INTRODUCTION

The Asian Catfish *Clarias magur* is an important freshwater air breathing indigenous fish, locally known as Ngakra in Manipuri. This species attains sexual maturity in 5 to 6 months and breeds during June to August. It has high consumer preference, high economic value, unique taste and good adaptability to local culture conditions. The fish is very nutritious and also consumed for therapeutic purposes and believes to boost haemoglobin level. The availability of magur seeds becomes scarce due to anthropogenic factors like pollution, use of pesticides and fertilizers in the paddy fields nearby to the river course where natural breeding of this species usually takes place. Because of its high demand and scarce in production, there is a potential for expansion of its culture practices.Various efforts have been made to breed magur fish which led

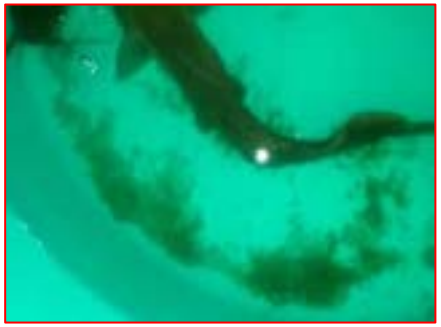
to the development of a captive breeding technology based on artificial fertilization of stripped eggs using testis extracts from a killed male. However, the inability to induce voluntary spawning in captivity remained a major bottleneck to propagate magur culture in India still. Also, the declining trend of capture fisheries from the natural water bodies has ensured in scarcity of the indigenous varieties of fish viz., Magur, Climbing perch, Singhi, etc. In view of the importance of seed production of fish, as fish seed production business is profitable, promotion of scientific magur fish breeding & seed production has been selected to increase the income of farmer as well as for production / supply of quality fish seed abundantly.

Hormonal administration

BROOD HUSBANDRY

Mature male and females are selected from the bloodstock pond and fed with supplementary feeding containing 40% crude protein @ 2% body weight twice daily

Healthy male and female brooders of 140-180 g weight without external injuries or parasite were selected.



Voluntary Spawning

BREEDING TECHNIQUES/HORMONAL MANIPULATION

First dose- Ovatide @ 0.5 ml/kg body weight in both male & female above the lateral line of genital papillae.

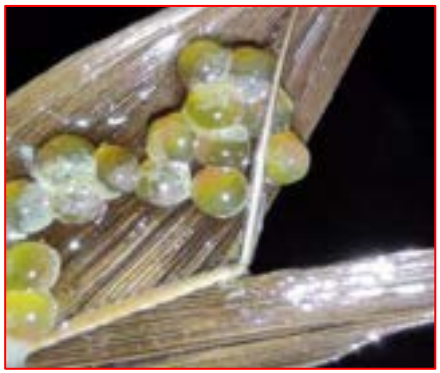
Second dose - Oxytocin @ 40 milli IU per kg body weight to both male & female after 12 hours of ovatide injection above the lateral line on caudal peduncle.

Stocking ratio : 1 male and 1 female.

Breeders are released in the breeding tank

Courtship and spawning noticed after 26 – 28 hrs after ovatide injection.

Spawning methods: Induced voluntary spawning of mature ova & milt. Removal of brooder after 30 hrs of ovatide injection and eggs were incubated in the same spawning tub with a water flow @ 0.3 -05 liter per minute.



Fertilized egg

Spawning pool : For spawning simple container such as polystyrene boxes and plastic tub were used and flowthrough system was maintained by using siphon system from 500 L capacity overhead tank.

Fecundity: 2200 – 3800 eggs per 140-180 g body weight.

Percentage fertilization of eggs: 80 %

Hatching rate: 65 %

Hatching time: varied between 28 – 36 hrs at 28oC.

Incubation period: 24-36 hrs 10.

Survival rate: 56 % (Spawn to fry)

Larvae

LARVAL REARING

Fry

Yolk sac fully absorbed on 4th day

Zooplankton tubifex and egg custard is given from 4th day onwards

Mixed zooplankton serves as good larval feed during early stage.

Larvae grows upto 10-12 mm and weighs 3 – 4 g in 15 – 20 days

Thereafter larvae are transferred to outdoor tanks for fingerling production

OUTPUT/IMPACT

The technology fetched a gross return of Rs.169000 per unit with a gross cost of Rs.64000 per unit and a net return of Rs.105000 per unit. The BC ratio was found to be 2.64

3. ADOPTION OF MUSTARD VARIETY NRCHB-101UNDER ZERO TILLAGE CONDITION IN THOUBAL DISTRICT

Mustard cultivation in Thoubal district has been practising by farmers since time immemorial using the local variety yella under zero tillage condition. After the introduction of high yielding rapeseed and mustard variety Pusa Bold M-27, TS-36, TS-38, Ragini NRCHB-101 etc. Of all the varieties base on the preference by the farmers with regard to duration, yield, harvesting & oil content, NRCHB-101 was found to be the best and like by most of the farmers. Through field days and exposure visits to the location where this variety is grown, most of the farmer prefer this variety and started growing this variety under zero tillage condition. So far out of 125 farmer beneficiaries during the last 3 years under CFLD mustard programme,95 farmers will continue growing this variety and another 165 farmers of villagers and adjoining villages have started growing this variety by taking seeds from the CFLD farmers in an area of more than 400 ha.

(Please furnish detailed information for each case)

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

1. Economic Enhancement among Small and Marginal Farmers through Lentil Cultivation

Seed production of lentil taken up by the KVK Thoubal since 2016 under Pulse Seed Hub Programme. Keeping in view of its importance to enhance income among small and marginal farmers of the district, the present impact study was taken up by KVK Thoubal.

Cost of Lentil Production per ha

Particulars	As seed (Rs.)	As grain (Rs.)

Seed	6000	6000
Fertilizers	3800	3200
Plant protection chemical	400	400
Machine labour	6000	4500
Human labour	30000	25500
Misc	5000	3800
Total	51200	43400
Interest on working Capital	3328	2808
Total	54528	46208

Return from Lentil Cultivation

Particulars	**Seed**	**Grain**
Yield kg/ha	780	840
Gross return (Rs)	93600	67200
Net Return (Rs)	39072	20992
B:C Ratio	1.71	1.45

Problem Faced by the farmers

Problems	**Ranking**
Lack of awareness	1
Farmers does not have direct influence over the market	2
Often disturbed by the late Kharif crops	3

Unpredictable weather	4
Complexity over choosing of Rabi crops	5

Conclusion

- Adoption of the technology is increasing at the rate of 30.01% annually.
- There is an increase of 34.07% in family income by adopting seed production of lentil as compared to only 21.73% for grain production.
- The B:C ratio of the cultivation of lentil as a seed grower was found to be 1.71 as compared to 1.45 of grain producers
- Hence seed production of lentil may be one of the options in rice based cropping system in rice fallow areas for doubling of farmers income and also a good option as a climate resilient crop in the state.

5.0. LINKAGES ESTABLISHED

5.1 Functional linkage with different organizations established during 2021

Name of organization/ Agency	**Nature of linkage**
ATMA, Thoubal	Organizing Training for extension personnel, Demonstration, field visit &Kisan Mela.
Horticulture and Soil conservation	Training
Vety & AH	Organizing Training and Demonstration
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
Bank	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
ICICI Foundation	Training, Demonstration

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 2021

Name of the scheme/ special programme	Activity	Date/ Month of initiation	Funding agency	Amount (Rs.)
International Women Day	Training,Interaction program	8-03-2021	ICAR, ATARI Zone -VII	2000
Celebration of World water day	Training,Interaction	22-03-2021	ICAR, ATARI Zone -VII	5000
Celebration of World Honey Bee Day	Online Training	20-05-2021	ICAR, ATARI Zone -VII	-

Celebration of World Milk Day	Online Training,Method demonstration	1-06-2021	ICAR, ATARI Zone -VII	-
World Environment Day	Planting trees	5-06-2021	ICAR, ATARI Zone -VII	3000
Observation of National Fish Farmers' Day	Online training	10-07-2021	-	-
World Breast Feeding Week	Virtual training. Program	1-08-2021 to 7-08-2021	-	-
Observation of nutrition month	Yoga, training, demonstration	10-09-2021	ICAR, ATARI Zone -VII	1000
Poshan Abhiyan	Exhibition, Tree plantation, Interaction and distribution of planting materials	17-09-2021	ICAR, ATARI Zone -VII	7000
Mahila Kisan Diwas	Training, distribution of seeds	15-10-2021	ICAR, ATARI Zone -VII	3000
World Food Day	Training	16-10-2021	ICAR, ATARI Zone -VII	2000
Observation of Vigilance Awareness Week	Awareness	26-10-2021 To 1-11-2021		
Rabi Campaign	Training, Interaction and distribution of inputs	12/11/2021	ICAR, ATARI Zone -VII	12000
Constitution Day		26-11-2021		
World Soil Health Day	Distribution of Soil Health Cards, Micro nutrients, Seed and Planting materials	5-12-2021	ICAR, ATARI Zone -VII	10000
Celebration of Kisan Diwas	Training, Interaction	23-12-2021	ICAR, ATARI Zone -VII	2000
Swachhta pakhwada	Awareness, Micro	16-12-2021 to 31-12-2021	ICAR, ATARI Zone -VII	41400
CFLD on oil seeds			ICAR, ATARI Zone -VII	102600
CFLD on Pulses			ICAR, ATARI Zone -VII	138750

Farmer outreach programme on Natural Farming	-Webcast of National Conference on Natural Farming -Awareness -Establishment of demo plot	16-12-2021 3-03-2022	ICAR, ATARI Zone -VII	14104
NARI			ICAR, ATARI Zone -VII	25000
KSHAMTA			ICAR, ATARI Zone -VII	25000
i. Establishment of seed production center for air breathing dishes *Clarias magur* (Ngakra) &*Anabas testudineus* (Ukabi) at Thoubal & Kakching district, Manipur			NABARD	453600
ii. Promotion of 4 FPOS			NABARD	160000

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

6. PERFORMANCE OF INFRASTRUCTURE IN KVK DURING 2021

6.1 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.	Cross bred pig	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	

6.2 Performance of instructional farm (Crops) including seed production during 2021

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.(Q)	Cost of inputs	Gross income	
Rice	15.6.21 to 28.6.21	15.10.21 to 5.11.21	3.35	Akutphou, Ginphou, CAU-R1 ‘ RC maniphou-7, RC maniphou-12, RC maniphou-13,	Truth full level seed	105.9	304351	367248	200 qt. of paddy seed are still in stock

				Pari Phou Sanaphou					
Lentil	13.12.21	08.04.22	0.04	IPL 220	Certified Seed	0.26	1800	2340	Biofortified Var. with Zn & Fe.
Mustard	03.12.21	26.03.22	0.10	NRCHB101	Certified Seed	0.80	2600	4800	Zero tillage

6.3 Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.) during 2021

Cost of inputs	Name of the Product	Qty	Amount (Rs.)		Remarks
				Gross income	
1	Vermicompost	660kg	7000	2500	500 kgs of vermicompost are laying in stock

6.4 Performance of instructional farm (livestock and fisheries production) during 2021

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	Crossbred	Piglet	6	20000	30000	
2	Poultry	Broiler	Meat	180	18000	23000	
3	Duck	Local	Meat	50	12000	18000	
4	Fisheries	Silver barb	Meat	104kg	10000	20990	

6.5 Rainwater Harvesting

Training programmes conducted by using Rainwater Harvesting Unit/ structure during 2021

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

6.6. Utilization of hostel facilities (Month-Wise) during 2021

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

7. FINANCIAL PERFORMANCE

7.1 Details of KVK Bank accounts

Bank account	Name of the bank	Location/ Branch	Account Number
KVK, Thoubal	State Bank of India	Thoubal	11946667259
KVK Revolving Fund Account	State Bank of India	Thoubal	37606402881

7.2 Utilization of funds under CFLD on Oilseeds and Pulses (Rs. In Lakhs) if applicable during 2021

Item	Released by ICAR/ATARI (in lakh)		Expenditure (in lakh)		Unspent balance as on 31st March, 2022
	Amount	Amount	Amount	Amount	
Inputs	1.026 (Oil Seed)	1.3875(Pulses)	1.026 (Oil Seed)	1.3875(Pulses)	Nil
TOTAL	1.026	1.3875	1.026	1.3875	Nil

7.3 Utilization of KVK funds during the year 2021-2022

S. No.	**Particulars**	**Sanctioned (in Lakh)**	**Released (in Lakh)**	**Expenditure (in Lakh)**
A. Recurring Contingencies				
1	Pay & Allowances	189.18	189.18	186.96662
2	Traveling allowances	2.25	2.25	2.25
3	Contingencies	18.25	18.25	18.25
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	0.25	0.25	0.25
L	NARI	0.25	0.25	0.25
M	HRD	0.50	0.50	0.50
TOTAL (A)		210.68	210.68	208.46662
B. Non-Recurring Contingencies				

1	Works	5.50	5.50	5.50
2	Equipments including SWTL & Furniture	3.00	3.00	3.00
3	Vehicle (Four wheeler, please specify)			
4	Library (Purchase of assets like books & journals)			
TOTAL (B)		8.50	8.50	8.50
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		219.18	219.18	216.96662

7.4 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 2019 to March 2020	6.22284	1.24855	6.88916	7.47139
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

Note: No KVK must leave this table blank

8.0 Please include information which has not been reflected above.

(Write in detail)

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

(a) Administrative

(b) Financial

(c) Technical

(Signature)
Sr. Scientist cum Head

Action Photos –On Farm Trial

Performance evaluation on Rice based cropping system (Rice-Lentil/ Rice-Chickpea)

Yield Performance in different Planting time of Onion var. Nashik Red

Organic management of painted bug, aphid and sawfly in mustard

Seed production of Climbing perch

Introduction to year round nutri rich crops in NARI village during covid pandemic

Preparation of Guava Cheese

Action Photos – Front Line Demonstration

Integrated Crop Management in rice

Popularization of potato Var. Kufri Kanchan

Popularization of Oyster mushroom Var. Elm **(***Hypsizygous ulmarius*)

Plant Breeding & Genetic Title: Popularization of mustard Var. NRCHB-101 under Zero Tillage Condition

Popularization of Fish based integrated farming system

Popularization of Silver barb (*Puntius gonionotus*) in feed based seasonal carp polyculture pond system

Popularization of Roselle Jam

Popularization of chow chow bori

Economic utilisation of value added products of Water melon rind

Mera Gaon Mera Gaurav

Duration	No. of village covered	No. of visit Made	No. of demonstration	No. of beneficiary
2021-2022	18	25	24	760


Icham Khunou


Thokchom


Ukhongsang


Sekmaijin


Lourembam


Sikhong


Tentha

SWACCHTA ACTIVITIES

Sl. No.	Duration	Activity	No. of beneficiary
1.	April – June,2021	Cleaning of streets and around office campus, Swacchta Awareness, Training	35
2.	July – Sep, 2021	Cleaning around campus, demonstration on agriculture waste management,Utilization of organic waste	47
3.	0ctober- Dec, 2021	Celebration of Kisan Diwas, ,planting of tress, compost making,Cleaning of public places,Essay Competition,Awarenesson curbing of use of single use plastic ,Visit of community waste disposal sites ,Press Conference	134

Glimpse of Activities conducted as a part of Jal Shakti Abhiyan Campaign 2021

Advisory Services during lockdown

Extension Programmes/Activities

Training Programmes

Proceedings of the 17th Scientific Advisory Committee (SAC) Meeting of KVK, Thoubal held on 11th January, 2022 at mini conference hall both Online & Offline at Directorate of Agriculture, Manipur Sanjenthong, Imphal from 11:00 am onwards, Chaired by Shri. N. Gojendro, 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. Tomba Singh SMS (Agronomy) followed by opening remark by the Director of Agriculture, Manipur and Director ATARI Zone VII, Umiam. Action taken report of Annual Action plan Workshop & 16th SAC meeting 2021 along with the Annual Report Jan-Dec, 2021 & Annual Action plan for Jan-Dec,2022 was presented by Dr. S. Zeshmarani, Sr. Scientist & Head of KVK, Thoubal.

While discussing the Annual Report of Jan-Dec,2021 different observations were made as detailed below:

Recommendation from the house	Suggested by	Action to be taken by
• Out of 121 success stories it was suggested to compile the actual farmers who achieved the Doubling Farmers income from DFI village and submit to ATARI Director.	Dr. A.K Sinha, Director ATARI Zone VII	Sr. Scientist & Head
• Suggestions were made to emphasise on drought tolerant variety for Lentil cultivation. • OFT on foliar spray of Urea in Lentil, it was suggested that 2% urea is high for Lentil cultivation & lower percentage be tried.	Prof. Ph. Ranjit Sharma Director, Extension Education, CAU, Imphal -do-	SMS (Agronomy) SMS (Agronomy)
• OFT on Performance of different planting time in Onion var. Nashik Red, it was suggested to select short duration Onion variety since it is old and long duration variety.	Prof. Ph. Ranjit Sharma Director, Extension Education, CAU, Imphal	SMS (Horticulture)
• OFT on Varietal evaluation of Lentil var. IPL-220, the use of Vitavax as seed treatment should be changed as it is not available in Manipur	Kh. Nimaichand Singh EO, Dept. of Agriculture	SMS(PBG)
• OFT on Seed production of Climbing perch (*Anabas testudineus*) suggestion was made to include the percent increased in seed availability in the parameter as the problem diagnosed is Scarcity of quality seed.	Dr. A.K Sinha, Director, ATARI Zone VII, Umiam	SMS (Fisheries)

• FLD on Popularization of Fish based integrated farming system it was suggested to include the survival rate of fish in the parameter.	Prof. Ph. Ranjit Sharma Director, Extension Education, CAU, Imphal	SMS (Fisheries)
• Nutri-Sensitive Agriculture Resource Innovation (NARI), suggestion was made to include combination of crops which has more nutritional enriched variety to enhanced nutritional status of the farm family.	Dr. A.K. Sinha, Director, ATARI Zone VII, Umiam	SMS (Home Science)
• While presenting the short video on NARI it was suggested to include audio on why NARI is important and how it enriched nutritional status and health benefit of the farm family. Also to update the farmers field too	-do-	SMS (Home Science)

While discussing the Annual Action Plan 2022 different observations were made as detailed below:

Recommendation from the house		Action to be taken by
• Instead of using chemical seed treatment it was suggested to replace with organic sources	Kh. Nimaichand Singh EO, Dept. of Agriculture	SMS (PBG)
• OFT on Performance assessment of Sweet corn Variety VL Sweet Corn, it was suggested that hybrid varieties should not be compared with chakhao chujak.	Dr. Th. Motilal Singh, Sr. Scientist & Head, KVK, Imphal West	SMS (PBG)
• 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).	Kh. Nimaichand Singh EO, Dept. of Agriculture	SMS(Horticulture)
• 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.	-do-	SMS(Horticulture)
• Three nos. of Vocational training should be conducted per year and duration should not be less than 10 days.	Dr. A.K. Sinha, Director, ATARI Zone VII, Umiam	All SMSs

Natural farming and Precision farming.	Zone- VII, Umiam	
• About the showcasing of Technology for organic seed treatment, NABARD has suggested to submit a proposal for sponsoring the programme.	Th. Kiran Singh DDM, NABARD	SMS (PBG)
• DDM NABARD suggested to give a proposal for popularization of Panchgavya Organic Manure	-do-	SMS (Horticulture)
• 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.	Dr. A.K. Sinha, Director, ATARI Zone- VII, Umiam	All SMSs & PAs
• Director ATARI enquired about the condition of the KVK staff quarter and whether it is being occupied by any staff or not.	Dr. A.K. Sinha, Director, ATARI Zone -VII, Umiam	Sr. Scientist & Head

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

(N. Gojendro)
Chairman
Director of Agriculture, Manipur

Endt.No.3/KVK/TBL/SAC/2007/Pt. Thoubal the 17th January,2022

Copy for information forwarded to:-

1. The Director of Agriculture Manipur/Chairman 17th SAC meeting.
2. Dr. A.K Sinha, Director ATARI, Zone-VII, Umiam
3. Dr. I. Meghachandra Singh, Joint Director, ICAR, Manipur Centre
4. Prof. Ph. Ranjit Sharma Director (Extn. Edn.) CAU, Imphal
5. Th. Kiran Singh, DDM NABARD, Manipur
6. O. Bijyalakshmi Devi, D.O (H& SC), Thoubal
7. Dr. Y. Santosh Singh, HDO (Horti) Thoubal
8. Th. Lokendro Singh, DFO, Thoubal
9. Th. Nimaichand, Extension Officer, Directorate of Agriculture
10. A. Kameshwor Singh, District Social Welfare Officer, Thoubal
11. Th. Joychandra Singh, Nodal officer, NFSM, Directorate of Agriculture
12. Th. Joyprakash Singh, Nodal officer, SAMETI ATMA, Directorate of Agriculture
13. I. Akendra Singh, Nodal officer, SMAM, Directorate of Agriculture
14. W. Joy Singh, Farm Manger, Thoubal Fishery Department.
15. L. Herojit Sharma, Dy.Manager, MSCB, Thoubal
16. Dr. Th Motilal Singh, Sr. Scientist & Head KVK, Imphal West
17. Dr.A.Tarajit Singh, SMS (Agri Extension), KVK, Bishnupur
18. kh. Ratan Singh, Progressive Farmer
19. Ph. Thoiba Singh, Progressive Farmer
20. Y. Bimola Devi, Progressive Farmer
21. N. Surbala Devi, Progressive Farmer
22. Riyaz khan, Reporter, DDK, Imphal, Porompat

S. Zeshmarani

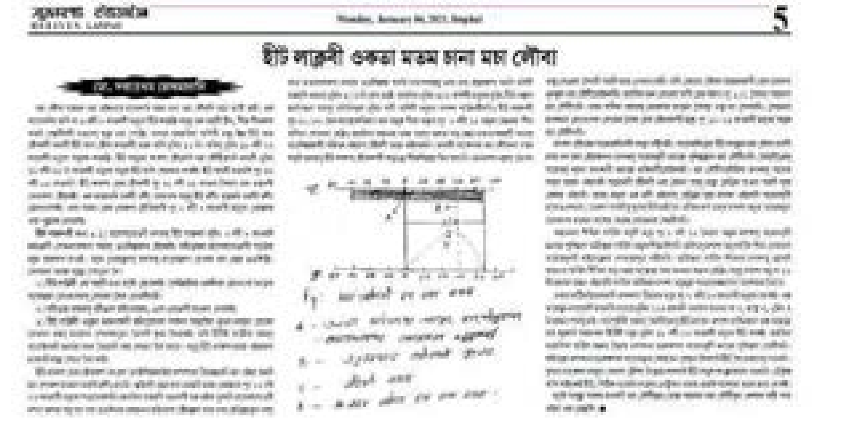
(Dr. S. Zeshmarani)
Sr. Scientist & Head, KVK, Thoubal

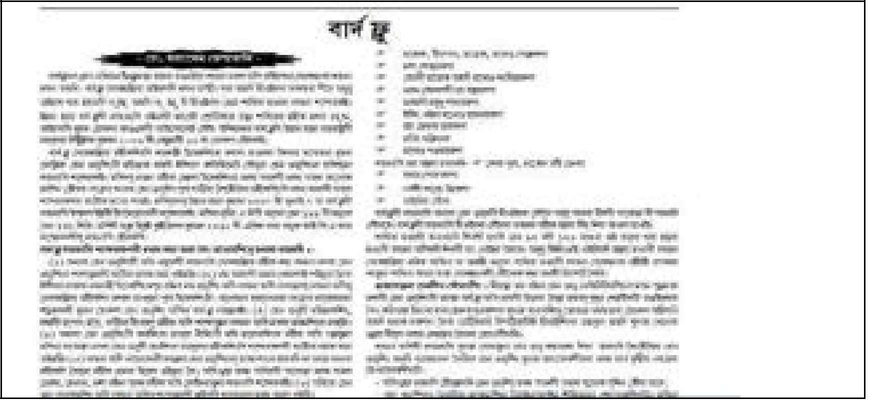
ANNEXURE

LIST OF SAC MEMBERS & INVITEES PRESENT

Sl.No	Name	Designation	Offline/Online
1	Shri. N. Gojendro	Director of Agriculture,Manipur	Offline
2	Dr. A.K. Sinha	Principal Scientist , (I/C) Director ATARI, Zone-VII	Online
3	Prof. Ph. Ranjit Sharma	Director (Extn. Edn.) CAU, Imphal	Offline
4	Th. Kiran	DDM, NABARD Manipur	Offline
5	O. Bijyalakshmi Devi	DDO(H & SC), Thoubal	Offline
6	Dr. Y. Santosh Singh,	HDO (Horti) Thoubal	Offline
7	Th. Lokendro Singh	DFO, Thoubal	Offline
8	Th. Nimaichand Singh	Extension Officer, Directorate of Agriculture	Offline
9	A. Kameshwor Singh	District Social Welfare Officer, Thoubal	Offline
10	Th. Joychandra Singh	Nodal officer, NFSM, Directorate of Agriculture	Offline
11	Th. Joyprakash Singh,	Nodal officer, SAMETI ATMA,Directorate of Agriculture	Offline
12	I. Akendra Singh,	Nodal officer, SMAM, Directorate of Agriculture	Offline
13	W. Joy Singh,	Farm Manger, Thoubal Fishery Department,	Offline
14	L. Herojit Sharma	Dy.Manager, MSCB, Thoubal	Offline
15	Dr. Th Motilal Singh	Sr. Scientist and Head, KVK, Imphal West	Offline
16	Dr. A. Tarajit Singh	SMS (Agri Extension), KVK, Bishnupur	Offline
17	Kh. Ratan Singh	Progressive Farmer	Offline
18	Ph. Thoiba Singh	Progressive Farmer	Offline
19	Y. Bimola Devi	Progressive Farmer	Offline
20	N. Surbala Devi	Progressive Farmer	Offline
21	Riyaz khan	Reporter, DDK, Imphal, Porompat	Offline

Popular Articles





RESEARCH PUBLICATION

Title: Factor influencing Enhancement of Income through Zero Tillage Oilseed Mustard Cultivation in Thoubal District, Manipur

Salam Prabin Singh[1], S. Zeshmarani[2], N. Tomba Singh[3], Sribidya Waikhom[4] and W. Jiten[5]

Krishi Vigyan Kendra Thoubal, Department of Agriculture Manipur

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Email: prabinsalam2020@gmail.com

INTRODUCTION

Oilseed crops are one of the important determinant of Indian economy especially in agricultural sector next to cereals within field crops. Edible oil plays a vital role in our national economy as well as in human nutrition for meeting calorie requirement. The per capita consumption of edible oils in the country is around 14.3 kg/ year (NMOOP, 2018). India meets more than half of its domestic demand of edible oil through imports due to low production as compared to its domestic demand (Kumar & Masand, 2020).

In India, oilseeds are cultivated over 26.67 million hectares of area producing 30.06 million tonnes annually (DAC & FW, 2016-17). Seventy per cent of the oilseeds crops were cultivated under

Seed production of walking catfish *Clariasmagur*using BRICSmethod: An exploratory study in Thoubal District, Manipur

SRIBIDYA WAIKHOM[1*], S. ZESHMARANI[2], S. PRABIN SINGH[3] and KH. PREMLATA[4]

Krishi Vigyan Kendra Thoubal, Department of Agriculture Manipur
*Corresponding authorE-mail: dolphinwai8@gmail.com

The Asian Catfish *Clariasmagur* is an important freshwater air breathing indigenous catfish, popularly known as magur in India and locally known as Ngakra in Manipuri. The species commands a good market value especially in North-Eastern parts of India where it fetches a higher price than the carps. In Manipur, the fish is sold at more than Rs.1000 per Kg. The *Clariasmaguris* an important species, which is culturally, socially associated with Manipuris from the time immemorial. It is offered during rituals and Durga puja. The fish is very nutritious and also consumed for therapeutic purposes and believes to boost haemoglobin level(Malaputra BK*et al.* 2000)

The species inhabit slow-moving and stagnant waters *viz.*, ponds, swamps, streams, and rivers, as well as in flooded rice field, or temporary pools that may dry up during lean seasons. In natural waters, the fish spawns during rainy season (June-August)(Sahu AK *et al.* 2000 and Chondar SL 1999).The availability of magurseeds becomes scarce due to anthropogenic factors like pollution, use of pesticides and fertilizers in the paddy fields nearby to the river course which are the main breeding ground of the species. Because of its high demand and scarce in production, there is a potential for expansion of its culture practices. Among the air breathing catfishes, species under the genus*Clarias*which are excellent candidate species for aquaculture because of their hardy nature and high consumer preference.

In India, efforts have been made to breed magurfish with the initiative taken by AICRP on air breathing catfish in 1971. The programme led to the development of a captive breeding technology based on artificial fertilization of stripped eggs using testis extracts from a killed male. However, the inability to induce voluntary spawning in captivity remained a major bottleneck to propagatemagur culture in India still. Also the declining trend of capture fisheries from the natural water bodies has ensued in scarcity of the indigenous varieties of fish*viz.*,Magur, Climbing perch, Singhi, etc.The present study was conducted on inducing voluntary captive spawning in *Clariasmagur* through hormonal manipulation usingBRICS (Barrier Removal in Catfish for Voluntary Captive Spawning) is a technology used for induce voluntary captive spawning in air breathing catfish through hormonal manipulation. The technology enables the seed production of *Clariasmagur* in controlled conditions without the necessity of sacrificing the male brooder.

METHODOLOGY

The present studywas carried out in two villages*viz.*,Lourembam&Ukhongsang of Thoubal District, Manipur. The brooders were collected from a fish farm from Kondompokpi village of Imphal west

district prior to the breeding season (May). The collected brooders were kept separately in polyline brooder pond (100 sq.m). The fish was fed with supplementary feeding containing 40% crude protein @ 2% body weight twice daily. During the breeding season the matured male and female were collected from the brooder's pond for breeding. Gravid females are easy to identify as they have bulging belly with round genital papillae whereas male brood fish have slender belly with elongated genital papillae. Healthy male and female brooders of 140-180 g weight without external injuries or parasite were selected. For voluntary induced spawning, both male and female brooders were given two synthetic hormones. Ovatide @ 0.5 ml/kg body weight as 1[st] dose in both male & female above the lateral line of genital papillae and Oxytocin @ 40 milli IU per kg body weight administered as 2[nd] dose to both male & female after 12 hours of ovatide injection above the lateral line on caudal peduncle. After the hormone was supplemented with the zooplankton. From the 13day feeding of whole tubifex was started which continued up to 30[th]day. Vit-C was added every day following Sinha *et al.* and Dhara and Saha. Continuous aeration was done in the larval rearing tanks with the help of an air-pump for the 1[st] month till it reaches the fry stage ready for stocking at pond. The water quality parameters viz., pH, dissolved oxygen (DO) and temperature were recorded during incubation period and larval rearing on daily basis.

RESULT

The present study evident that both male and female broodersinjected with two dose of synthetic hormone Ovatide @ 0.5 ml/kg body weight as 1[st] dose and Oxytocin @ 40 milli IU per kg body weight administered as 2[nd] dose to both male & female after 12 hours of ovatide injection have resulted the voluntary spawning of egg after 26- 28 hrs of ovatide injection at 28°C. The hatching time varied

Processing Technique Affects Shelf life and Sensorial Quality of Fish Pickle

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ABSTRACT

The main aim of the study was to prepare organoleptic accepted fish pickle by using preservatives like vinegar, sodium benzoate, salt at different ratiosand study shelf life for a period of180d by observing changes in colour, flavor, texture and appearance of fungus.The resultsshowed that fish pickle stored successfully for 180 d at ambient temperature (26 ± 4◦ C) without any significant change in the quality attribute after incorporation of vinegar and sodium benzoate as a common preservative. Therefore, the preservation of fish pickle by making use of vinegar and sodium benzoatewas the best method for extending the shelf life and to retard the growth of microbial load. It was also found that vinegar cured fried fishblanched +8per cent salt + spice+35per cent mustard oil 0.1% sodium benzoate and store in sterilized glass bottle got highest sensorial score in terms of colour, flavour, texture, taste, appearance and overall acceptability than other four treatments.

Key Words:Fish, Preservatives, Microbial, Sensory, Shelf life.

LEAFLET

8. Remove the tape as soon as the scion has begun to grow to prevent girdling of the graft.

Propagation methods of some common important fruit crop

Fruit Crop	Methods	Ideal Time of propagation
Litchi	Air Layering	February to March (Spring) September to October (Autumn)
Mango	Veneer Grafting	February to June
Guava	Stooling/Air Layering	April to June
Papaya	Seed	February to March June to July October to November
Grape	Hardwood Cutting	February to March
Banana	Sword Sucker	October to November
Aonla	Patch Budding	March to April
Strawberry	Runners	March to April
Pineapple	Suckers, Slip and Crown	December to March
Citrus	Shield/T-Budding	June to August
Passion fruit	Softwood and Semi-hardwood cutting	August to October

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PROPAGATION TECHNIQUES OF FRUIT CROPS

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তোশিনবিরবা মতুংদা নুংশা লাংদবা উরুম অমদা ফৌদোক্লুনা কংহনবিগনি। করিগুম্বা নাইট্রেট নাইট্রোজেনগী চাং য়েংবিগদবা ওইরবদি পুং ১২ গী মনুংদা কংহনবিদবা য়াদবনা মরম ওইরগা একজেষ্ট ফেন অমদি ফেন পূন্না য়াওবা কেবাইন অমা শীজিন্নবিগনি।

অসুম্না কংহল্লবা লৈবাক অদু চাইখাইবিরবা মতুংদা কেজি ১/২ গুম্বা অমুক্তমক লৌবিগনি। নীংশিংগদবা অমনা করিগুম্বা মাইক্রোন্যুট্রেন্টগী চাংয়েং তৌগদবা লৈবাক ওইরবদি প্লাষ্টিক, ষ্টেনলেস ষ্টিল নংত্রগা উগী লৈমায়দা পঞ্জরিবা পোৎলমশিং অসি শীজিন্নবিরগা তকখায়বিগদবনি। করিগুম্বা লৈবাকশিং অদু য়াম্না য়াম্বা তারবদি চাং মান্ননা, মকোয় মান্ননা শেরীরবা মতুংদা মান্নবা শরুক মরি থোকপিরগা মায়ওনসি মান্নবা শরুক অনী অদু লৌবিগনি। অমদি ঐখোয়না পাম্লিবা কেজি ১/২ অদু কংত্রি ফাওবা পিক থলহনগনি।

অসুম্না ইশাগী লৌফমগী তোঙান তোঙানবা মফমদগী লৌরবা লৈবাক অসি অমতা ওইনা পূনশিনবিদ্না অমুক্তদা চাংয়েং তৌবা য়াই। করিগুম্বা লৌফম অসি লৈতেম মান্নরবা, মচু মান্নরবা, মমাঙদা থাখিবা মহৈ মরোং মান্নরবা অমদি লৌউ কাঙলোন মান্নরবদি লৌ পরি ২ চাউবা থংননা লৈবা লৌফমশিং অমুক্তদা পূন্না চাংয়েং তৌবা য়াই।

(৬) থাবিগদবা য়ারোল ঃ

নীংথিনা লৌবিরাবা লৈবাক অদু অফবা পোলিথিন নংত্রগা ফিগী থাও অমদা হাক্নিরবা মতুংদা লৌমীদুগী মিং, লৈফম, লৌফমগী মমিং, লৈবাক লৌবগী নুমিৎ (তারিখ) লৌমী অদুগী আধার নম্বর, ফোন নম্বরনচিংবা য়াওরবা চে অমা অফবা পোলিথিন অমনা নীংথিনা য়োমশিনবিরগা চাংয়েং তৌনবগীদমক মনাক নকপা এগ্রিকলচর ওফিস নংত্রগা কে ভি কে-গী ওফিসশিংদা লৈবাক লৈহাও চাংয়েং তৌনবা পীবিবা য়ারে।

মথক্তা পঞ্জখিবা য়ারম ময়াম অসি নীংথিনা পাঙথোকপিরবা মতুংদা অদোমগী লৈবাক লৈহাও চাংয়েং তৌথোকপিয়ু অমদি লিগাং শিৎনা লৌ উবা য়াবা লৌফম অমা ওইহনবিয়ু।

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লৈবাক লৈহাও চাংয়েং তৌনবগীদমক করম্না লৈবাক লৌগনি

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followed by filling in to pre-sterilized glass jars, natural cooling, lebeling and storage. General process of jam making consists of-

Selection of good quality fruits, washing in water for cleaning dust, soil etc., Boiling in water, Separation of segments, making Amla pulp by blending, mixing with sugar equivalent to the pulp quantity, boiling till the mixtures set in to jam with the addition of permitted colour and flavour followed by filling in to glass jars/PET bottles.

iv. **Amla Candy :** Normally the candy is prepared from lye peeled fruits of Amla which show decreased ascorbic acid than blanched fruits. General process of candy making consists of-

Selection of good quality fruits, washing in water for cleaning dust, soil etc., Boiling in water, Separation of segments, Putting in concentrate sugar solution and heating, further putting in syrup with increased TSS, Removal of segments from sugar syrup, drying and packing in airtight containers.

v. **Amla Beverage/Squash :** Amla beverage is very much beneficial to health compared to artificially flavoured synthetic beverages available in the market. Fruit beverages will help th body to resist many deseases and hence beneficial to human beings.

Amla fruit has the highest vitamin C content (0.9 to 1.3 per cent) of any natural occurring substances in nature and Amla juice has 20-25 times more vitamin C than orange juice. Nature has many things to offer us. Amla juice is one amongst the gift that has been bestowed on us. The secret of juice is incredibly amazing when it comes to health.

Important steps in the preparation of Amla squash are

1. Selection of Fruits : Fully mature/ripe big sized fruits.
2. Preparation of Fruits : Wash, Blanch in Boiling water for 5 minutes, separate the segments, and crush in pulper. If the fruits are not juicy and hard, then water can be added at 5.0%.
3. Note down the weight of the thick mass
4. Prepare sugar syrup in the proportion of 1:3 (Pulp: Syrup)

   - For preparing the syrup for 100 kg pulp-

   Weight 225 kg of sugar, add 75.00 kg of Water and heat till it comes to boiling and add citric acid of about 1000 gm. when the syrup starts to boil.

   - Take out the syrup from boiling and allow it to cool to room temperature

   - Once the syrup is cool, slowly mix to the pulp with thorough mixing to avoid clot formation.
5. Add Cardamon Extract at the rate of 10 gm for 10 kg Product
6. Add KMS at the rate of 500 ppm.
7. Check TSS and acidity
8. Raise the acidity to 1.1% by adding required quantity of Citric acid.
9. Fill in to clean and sterile pet bottles/glass bottles (750-1000 ml)
10. Seal air tight.
11. Lable and store.

Shelf life of the product

RT shelf life : 6 months

LT (4±1°C) : 12 months

Use of the Product

The beverage needs to be diluted in the proportion of 1:3 at the time of serving with chilled water.

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POST HARVEST MANAGEMENT AND VALUE ADDITION IN AMLA

ICAR

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