PROFORMA FOR PREPARATION OF ANNUAL REPORT 2019-20
(April 2019-March 2020)

APR SUMMARY

Name of the KVK: Thiruvarur

1. Technology Assessment

Category	No. of Technology Assessed & Refined	No. of Trials	No. of Farmers
Technology Assessed			
Crops	4	30	30
Livestock	1	3	3
Various enterprises	1	5	5
Total	6	38	38
Technology Refined			
Crops	-	-	-
Livestock	-	-	-
Various enterprises	-	-	-
Total	-	-	-
Grand Total	6	38	38

2. Frontline demonstrations

Details	No. of Farmers/Locations	Area (ha)	Units/Animals
Oilseeds	-	-	-
Pulses	10	2	-
Cereals	80	24	
Vegetables	20	5	
Other crops	25	7	
Total	135	38	
Livestock & Fisheries	20	1	50
Other enterprises	15	-	15
Total	35	1	65
Grand Total	**170**	**39**	**65**

3. Training Programmes

Clientele	No. of Courses	Male	Female	Total participants
Farmers & farm women	41	1220	472	1692
Rural youths	10	257	127	384
Extension functionaries	15	517	135	652
Sponsored Training	11	213	118	331
Vocational Training	4	25	107	132
Total	**81**	**2232**	**959**	**3191**

4. Extension Programmes

Category	No. of Programmes	Total Participants
Extension activities	1197	33125
Other extension activities	1401	-
Total	2598	33125

5. Mobile Advisory Services

Message Type	Crop	Livestock	Weather	Marketing	Awareness	Other enterprise	Total
Text only	331	31	52	13	107	10	544
Voice only	5	5	-	-	-	-	10
Voice & Text	2	1	-	-	-	-	3
Total	**338**	**37**	**52**	**13**	**107**	**10**	**557**

6. Seed & Planting Material Production

	Quintal/Number	Value Rs.
Seed (q)	319	852812
Planting material (No.)	27851	33421
Bio-Products (kg)	5186	327676
Livestock Production (No.)	5	31500
Fishery production (No.)	-	-

7. Soil, water & plant Analysis

Samples	No. of Beneficiaries	Value Rs.
Soil	393	40686
Water	56	3181
Plant	-	-
Total	449	43867

8. HRD and Publications

Sr. No.	Category	Number
1	Workshops	7
2	Conferences	4
3	Meetings	4
4	Trainings for KVK officials	3
5	Visits of KVK officials	17
6	Book published	3
7	Training Manual	-
8	Book chapters	3
9	Research papers	9
10	Lead papers	-
11	Seminar papers	7
12	Extension folder	25
13	Proceedings	8
14	Award & recognition	5
15	On going research projects	3

DETAILED PROGRESS REPORT 2019-20

1. GENERAL INFORMATION ABOUT THE KVK

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

a) Name of the KVK	:	Thiruvarur
b) Address	:	ICAR-Krishi Vigyan Kendra Needamangalam Thiruvarur District PIN – 614 404
c) Landline Phone No.	:	04367- 260666 04367- 261444
d) Fax No.	:	04367- 260666
e) Official Mobile No.	:	-
f) email ID	:	kvkndm@tnau.ac.in

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

a) Name of the Host Organization	:	Tamil Nadu Agricultural University
b) Address	:	Tamil Nadu Agricultural University, Coimbatore PIN - 641 003
c) Landline Phone No.	:	0422- 2431222
d) Fax No.	:	0422-2431821
e) Official mobile No.	:	-
f) email ID	:	registrar@tnau.ac.in

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

a) Name	:	Dr. M.Ramasubramanian
b) Phone - residence	:	-
c) Mobile	:	9486734404
d) email ID	:	ramagriextension@gmail.com

1.4. Year of sanction:2004

1.5. Staff Position (as on 31th March, 2020)

Sl. No.	Sanctioned post	Name of the incumbent	Designation	Discipline	Edn. Qualification	Specialization	Pay Scale (Rs.)	Present basic (Rs.)	Date of joining	Permanent / Temporary	Category
1	Programme Coordinator	Dr.M.Ramasubramanian	Programme Coordinator	Agrl. Extension	Ph.D	Agrl. Extension	37400-67000+9000	135300	07/05/2018	Permanent	OBC
2	Subject Matter Specialist	Dr.A.Anuratha	SMS	Soil Science & Agricultural Chemistry	Ph.D	Soil fertility and soil pollution	15600-39100+8000	98200	07/05/2018	Permanent	OBC
3	Subject Matter Specialist	Dr.R.Ramesh,R	SMS	Agrl. Entomology	Ph.D		15600-39100+7000	77600	31/07/2014	Permanent	OBC
4	Subject Matter Specialist	Dr.S.Saravanan.	SMS	Veterinary & Animal Science	Ph.D	Animal bio chemistry	15600-39100+6000	64900	01/10/2014	Permanent	OBC
5	Subject Matter Specialist	Dr.J.Vanithasri	Training Assistant	Food Science & Nutrition	Ph.D		40000- Con.pay		02/03/2018	Temporary	SC
6	Subject Matter Specialist	Dr.A.Rajeshkumar	Training Assistant	Agronomy	Ph.D	IFS	49000- Con.pay		03/10/2018	Temporary	OBC
7	Subject Matter Specialist	Vacant	-	-	-	-	-	-	-	-	-
8	Programme Assistant	Tmt.D.Reka	Programme Assistant (Technical)	Home Science	B.Sc., (HSc)		35900-113500	59200	04/06/2007	Permanent	OBC
9	Computer Programmer	Er.R.Sakunthala	Programme Assistant (Computer)	Computer Application	B.E (Agri),MCA		35900-113500	55800	12/04/2017	Permanent	OBC
10	Farm Manager	Th.D.Nakkiran	Farm Manager	Agriculture	B.Sc., (Agri)		35900-113500	46800	26/08/2013	Permanent	OBC
11	Accountant / Superintendent	Th.D.Senthilkumar	Assistant	-	BA		20600-65500	40800	02/05/2013	Permanent	OBC
12	Stenographer	Tmt.P.Poongodi	Junior Assistant cum typist	-	M.Com		19500-62000	21300	23/01/2018	Permanent	OBC
13	Driver	Th.P.Vincent paul	Supervisor	-			35400-112400	56900		Permanent	OBC
14	Driver	Th.K.Babu	Driver	-			19500-62000	34200	29/06/2016	Permanent	SC
15	Supporting staff	Th.M.Kumaran	PUSM	-			15700-50000	18200	01/04/2009	Permanent	SC
16	Supporting staff	Vacant	-	-	-	-	-	-	-	-	-

1.6. Total land with KVK (in ha) (Consolidated figure):18.66

S. No.	Item	Area (ha)
1	Under Buildings and demo units	2.08
2.	Under Road	1.22
3.	Under Crops	13.90
4	Orchard/Agro-forestry	-
5.	Others -Old threshing floor, ditch & fallow/not in use	1.46

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 in lakhs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	23.2.08	548.24	42.47	-	-	Completed
2.	Farmers Hostel	ICAR	23.2.08	353.00	27.00	-	-	Completed
3.	Staff Quarters	ICAR	23.2.08	459.00	32.00	-	-	Completed
4.	Demonstration Units							
	1.Vermi compost	ICAR-RF	31.03.07	30	-	-	-	Completed
	2.Mushroom	ICAR-RF	31.03.07	20	-	-	-	Completed
	3.Shade net	NADP	03.02.08	930	1.0	-	-	Completed

	4. Azolla production	ICAR-RF	05.07.09	120	-	-	-	Completed
	5. Slatted house goat rearing	ICAR-RF	30.11.09	24	0.15	-	-	Completed
	6. Back yard poultry	ATMA	30.11.09	36	0.50	-	-	Completed
	7. Farm pond –composite fish culture	ICAR	18.11.10	3500	2.00	-	-	-
	8.. Bio control production unit	ICAR	20.03.11	160	4.00	-	-	-
	9. Composted Coir pith	ICAR	2019					Completed
	10. Hydrophonix	ICAR	2019					Completed
	11. Integrated Farming System	ICAR	2018					Completed
	12.Roof top garden	ICAR	2013					Completed
	13. Fodder bank	ICAR	2018					Completed
5	Fencing	ICAR	23.2.08	1200 RM	5.00	-	-	-
6	Rain Water harvesting system	Govt. of TN	31.03.07	1320	0.36	-	-	-
7	Threshing and drying yard	ICAR	20.3.11	394	2.00	-	-	-
8	Farm godown	Govt. of TN	-	3 Nos	-	-	-	-
9	Vehicle and Implement shed	ICAR	20.03.11	37	3.00	-	-	-
10	Farm road	ICAR	29.3.11	2200	2.00	-	-	-
11.	Irrigation system	ICAR	18.11.10	282 RM	1.00	-	-	-

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Jeep Bolero-TN 66 V 0317	2017	8,34,445	47627	Good running condition
Tractor with Trailer - Mahindra & Mahindra D1-475-40 HP	2004	4,37,607	2713 Hrs	Good running condition
Two wheeler - TVS STAR CITY	2006	39,400	47981	Good running condition
Two wheeler – Honda Activa	2009	50,000	64943	Good running condition
Power tiller – VST Sakti	2011	1,35,870	1049 Hrs	Good running condition

C) Equipment & AV aids

Name of the equipment	**Year of purchase**	**Cost (Rs.)**	**Present status**
Seagate Backpmplus slim	20.03.2019	4850	Good
Canon LBP 6230 DN printer	30.03.2019	9950	Good
HP Printer Laser Jet M 1005	03.07.2018	9900	Good
CANON LBP 2900 printer	09.10.2018	7839	Good
HP Printer Laser Jet M 1005	04.07.2018	9900	Good
Desktop Computer Acer- 2 Nos	31.03.2016	82,500	Good
Desktop Computer-HCL	25.03.2011	27403	Good
Desktop Computer- HP	31.03.2015	39480	Good
Apple IMAC Workstation	02.11.2009	56000	Good
Laptop Dell vostro	31.03.2011	48025	Good
Laptop Dell inspiron	24.03.2010	40040	Good
Laptop Sony	05.12.2011	34990	Good

Ricoh Photo copier	31.03.2016	76,800	Good
Printer-HP Laser jet 1566	25.03.2011	8750	Good
Samsung Laser Printer	31.03.2016	9700	Good
Samsung 4521 model Fax and printer	February, 2009	14,400	Good
Epson Scanner	31.03.2016	5638	Good
Video camera – Sony with accessories	March , 2011	25,000	Good
LCD projector with accessories	March , 2011	97,000	Good
Generator	March , 2011	1,35,980	Good
Public Address System	March , 2011	20,820	Good
Stand Mic, AMP DPA 770	30.03.2019	9950	Good
Speaker SR 500 DX	30.03.2019	4200	Good
Land leveler	Jan' 2011	10,000	Good
Furniture and furnishing	March , 2011	2,00,000	Good
Digital Visible Spectrophotometer	2011	37600	Good
Digital pH meter	2011	5740	Good
All Glass Single Distillation unit	2011	35000	Good
Khan Shaker	2011	20000	Good
Hot air oven	2011	17000	Good
Hot plate	2011	7650	Good
Willey mill	2011	31500	Good
Water Bath	2011	6970	Good

UP based Flame Photometer	2011	43500	Good
Digital conductivity meter	2011	10890	Good
Electronic Top loading balance	2011	6500	Good
Electronic Top loading balance	2011	19800	Good
Digestion system (Kelplus)	2011	107900	Not working
Distillation system (Kelplus)	2011	175900	Not working
Instrument table	2011	78000	Good
Wash basin, sink and exhauster fan	2011	-	Good
Titration unit	2011	2762	Not working
Vacuum pump	2011	14025	Good
1 ton AC	2011	19550	Not working
Fire extinguisher	2011	3720	Not working
Exhaust fan	2011	12240	Good
Shaker	2011	20000	Good
Water Bath	2011	6970	Good
Induction hot plate	2011	7650	Good
HP-Lazer jet printer P 1566	2011	8750	Good
Sand Path	2011	1350	Good
LG Refreigirator	2011	9890	Good
Sink Unit	2011	36770	Good
LPG Set up	2011	8075	Good

Wall Storage Cuboard	2011	15936	Good
Wall side storage Cabinet	2011	15936	Good
Storage Cabinet	2011	44837	Good
Laboratory revolving stool	2011	11730	Good
Steel rack	2011	13005	Good
Stotted Angle iron rack	2011	8670	Good
Steel Almirah	2011	44488	Good
Work Table	2011	15725	Good
Executive chair netted	2011	4930	Good
Laboratory revolving Chair	2011	5440	Good
Portable soil and water and kit	2011	27200	Good
GPS	2011	17000	Good
Vaccuam pump	2011	7200	Good
Bucket flask lit with Buchner finnel	2011	637	Good
Computer table	2011	3570	Good

1.8. A). Details SAC meeting(s) conducted in the year

Sl.No.	Date	No of Participants	Salient Recommendations
1.	07.03.2020	26	Furnished below

Salient Recommendations

Sl.No	Salient Recommendations
1	Farm Mechanization mela may be organized by the KVK
2	Raising vegetable crops in the bunds of paddy field may be further disseminated through Front Line Demonstrations
3	Awareness should be created on mushroom cultivation and value added products through trainings
4	Demonstration may be conducted for popularizing newly released Kaveri kalki Banana Variety in Thiruvarur district
5	More number of Roof top garden trainings may be organized at KVK
6	Capacity building programmes may be organized for the FPOs in Thiruvarur District
7	Pre seasonal awareness /training programmes may be conducted at KVK
8	More number of trainings and demonstrations may be conducted for animal husbandry components namely cattle, goat, poultry , IFS, fodder crops and other new specific technologies suitable for Thiruvarur District
9	Training and demo on value added products in fish may be conducted
10	Low cost incubator may be popularized in Thiruvarur District
11	Awareness may be created among farmers on the benefits of minor millets consumption by conducting more number of trainings on minor millets
12	Demonstration on wetland Laser leveller may be organized at KVK
13	Mulberry may be cultivated at KVK farm for the benefit of visiting farmers
14	New technologies on tree cultivation suitable for Thiruvarur District may be disseminated through trainings and awareness programme

Attach a copy of SAC proceedings along with list of participants : Attached in ANNEXTURE I

2. DETAILS OF DISTRICT (2019-20)

2.0.Operational jurisdiction of KVKs: Thiruvarur District (10 blocks)

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

S. No	Farming system/enterprise
1	Rice based cropping system

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

S. No	Agro-climatic Zone	Characteristics
1	Cauvery Delta Zone	Alluvial terrain with gentle slope
	Agro ecological situation	**Characteristics**
2	Wet land eco system	Low land delta plain

2.3. Soil types in the jurisdiction

S. No	Soil type	Characteristics	Area in ha
1	Clay to clay loam- Old Delta	Low land	1,27,506
2	Sandy to sandy clay loam- New Delta	Light textured soil	27,048

2.4. Area, Production and Productivity of major crops cultivated in the jurisdiction for 2019-20

Kharif

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl /ha)
1	Rice			
i	Kuruvai	125791		6935
Ii	Samba	22685		6935
Iii	Thaladi	9738		5860
iv	Summer	22685		
	Total	**180899**		
2	Sugarcane	81		
3	Groundnut	2784		
4	Sunflower	29		
5	Oilpalm	199		
6	Coconut	5715		

Rabi

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl /ha)
1	Blackgram	25670		
2	Greengram	46111		

Summer

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl /ha)
1	Rice	22685		
2	Cotton	8049		
3	Sesame	850		

2.5. Weather data (April 2019 to March 2020)

Month	Rainfall (mm)	Temperature°C		Relative Humidity (%)
		Maximum	Minimum	
April 2019	-	32.2	27.3	87
May 2019	-	36.1	32.4	86
June 2019	2.8	32.5	25.2	86
July 2019	120.2	34.5	27.1	81
August 2019	83.6	36.6	26.6	83
September 2019	230.2	36.8	26.2	81
October 2019	201.0	33.2	24.5	82
November 2019	243.4	32.1	24.6	80
December 2019	279	32.7	27.1	85
January 2020	46.7	33.2	25.5	82
February 2020	-	34.1	26.2	83
March 2020	-	0	0	0
Total/ Average	**1206.9**	**34**	**26.60**	**83.27**

2.6. Production and productivity of livestock, Poultry, Fisheries etc. in the district (2019-20)

Category	Population	Production	Productivity
Cattle			
Crossbred	154098		8.5 litres/Animal
Indigenous	46150		7 Litres / Animal
Buffalo	1212		4.5 Litres/ Animal
Sheep			
Crossbred	140		12 kg
Indigenous	453		8.5 kg
Goats	139300		15 kg / Animal
Pigs			
Crossbred	25		-
Indigenous	526		-
Rabbits	256		-
Poultry			
Hens			1.25 kg / bird
Desi			
Improved			
Ducks			
Turkey and others			

Category	Area	Production	Productivity
Fish			
Marine	47 km	623t	-
Inland	350 ha	8900 t	-

Source : Animal husbandry – Livestock census-2019

2.7. Details of Adopted Villages (2019-20)

Sl.No.	Taluk/ mandal	Name of the block	Name of the village	Year of adoption	Major crops & enterprises	Major problem identified	Identified Thrust Areas
KVK adopted villages							
1	Needamangalam	Needamangalam	Keelapattu	2018	Rice, Pulses, Livestock, Backyard poultry	• Native chicken with low egg production • Increasing demand among the farmers for dual purpose chicken	Evaluation of Breeds
2						• Lack of awareness on hybrid • More use of chemical insecticides for pest management	Hybrid Introduction
3	Needamangalam	Needamangalam	Rayapuram, Keelapattu	215,2018	Rice, Pulses, Livestock, Fisheries, Backyard poultry	• The yield potential of the ruling prominent varieties like BPT got reduced • The ruling varieties in the region are susceptible to pest and Diseases • Cost of cultivation especially fertilizers and plant protection cost have escalated for the ruling varieties	Varietal introduction
4	Needamangalam	Needamangalam	Rayapuram	2015	Rice, Pulses, Livestock, Fisheries,	• Increased cost of cultivation in operations namely transplanting and	Farm mechanization

					Backyard poultry	weeding done by manually • Limited availability of labour force for carrying out field level operation • Untimely operations resulting in yield reduction	
5						• Ectoparasites – ticks and fleas • Roughened skin • Blood parasites • Reduced prodcution	Disease management

DFI villages							
1	Needamangalam	Needamangalam	Vaduvur, Sathanur	2018	Rice, Pulses, Maize, Livestock, Backyard poultry	Yield reduction due to Fall army worm *Spodoptera frugiperada* incidence	Integrated Pest Management
2	Needamangalam	Needamangalam	Vaduvoor	2018	Rice, Pulses, Livestock, Backyard poultry	The Mobile apps were reported to impact upon the uptake of technologies by farmers, but field level data to substantiate the utility of information given through mobile apps by the farmers is not available. Hence, this OFT would analyse the Effectiveness of two important mobile apps	ICT tools

3						✓ Non availability of improved varieties under rice fallow ecosystem ✓ Non adoption of ICM technology	Varietal introduction
4						✓ Ectoparasites – ticks and fleas ✓ Roughened skin ✓ Blood parasites ✓ Reduced production	Disease Management
5						✓ Often the farmers face the problem of inaccessibility of Extension workers and Scientists resulted in lack of efficiency in Technology Transfer ✓ Many times the technologies are given not in line with the timing of agricultural operations which will not be useful for farmers ✓ Significant Cost involved in meeting of scientists/Extension workers in their workplace amidst busy agricultural operations	Information Sharing-ICT tools
6	Needa mangalam	Needa mangalam	Vaduvur Thenpathi	Rice, Pulses	2018	✓ Increased cost of cultivation in operations namely transplanting and weeding done by manually ✓ Limited availability of labour force for carrying out field level operation ✓ Untimely operations resulting in yield reduction	Farm mechanization

2.8. Priority/thrust areas

Crop/Enterprise	Thrust area
Maize, Blackgram	Alternate cropping
Rice	Weed management
Rice, Pulses	Information technology/ICT Tools
Rice	Integrated Crop Management
Rice, Bhendi	Farm Mechanization
Bhendi	Hybrid Introduction
Fodder , Fodder cowpea	Fodder production
Goats	Disease Management
Duck	IFS-Duck
Vegetables	Nutritional garden
Mushroom	Value addition
Poultry	Evaluation of Breeds
Rice, Pulses	Varietal Introduction
Rice	Integrated Nutrient Management
Cotton, Maize, Coconut, Brinjal	Integrated Pest Management
Millets	Women Empowerment- Health and Nutrition

2.9. Salient Achievements of (April 2019-March, 2020) (Mandated activities/ Projects)

S.No	Activity	Target	Achievement
1.	Technologies Assessed (No.)	7	6
2.	On-farm trials conducted (No.)	43	38
3.	Frontline demonstrations conducted (No.)	155	155
4.	Farmers trained (in Lakh)	0.019	0.02539
5.	Extension Personnel trained (No.)	505	652
6.	Participants in extension activities (in Lakh)	0.31	0.33125
7.	Production of Seed (in Quintal)	300	319
8.	Planting material produced (in Lakh)	0.03	0.27851
9.	Live-stock strains and fingerlings produced (in Lakh)	-	-
10.	Soil, Water, plant, manures samples tested (in Lakh)	0.003	0.00435
11.	Mobile agro-advisory provided to farmers (in Lakh)	0.7	8.68091
12.	No.of Soil Health Cards issued by Mini Soil Testing Kits (No.)	300	435
13.	No.of Soil Health Cards issued by Traditional Laboratory (No.)	-	-

2.10. Salient Achievements by KVK during 2019-20 (bullet points)

Totally **6** OFT S and **17** FLDS were conducted in **193** farmers field during 2019-20. Through these OFTS and FLDS new varieties and new technologies were demonstrated in the farmer's field. Paddy variety ADT 53, Co 52, blackgram variety ADT 6, fodder cowpea variety Co 9, CoFS-31 fodder, Traditional rice variety with Eco friendly management were introduced. Dual purpose crossbred chicken varieties like Nicobari,TANUVAS Aseel and Swarnadhara were assessed.New technologies like, ready to eat and ready to cook mushroom products, new vegetable hybrids like Bhendi Co 4, bhendi ring cutter , Nutri garden in Anganwadis were dissiminated.

- **435** soil health card was issued to 393--farmers and **63** water sample anaysed for **56** farmers.

- **12** Numbers of special programmes *viz.,* Jal Shakti Abhiyan, Fertilizer awareness programme, Observation of 'Parthenium Awareness Week',Celebration of World Soil Health day, World Honey Bee Day, Environmental Awareness and Training Programmes on tree plantation drive, Interaction of Hon'ble Prime Minister with farmers, were conducted for **6354** farmers

- As mandate of KVK training programmes are being conducted regularly. Totally **2539** farmers were benefitted through **192** on campus, off campus, vocational and sponsored training programmes.

- 1197 Extension activities viz., method demonstrations Exhibition , Radio talks, diagnostic visits, Farmers visit to KVK and Field day, T.V. programmes were conducted regularly. Totally 33125 farmers were benefitted from ten blocks of Thiruvarur Districts

- Totally **5** successful farmers were formulated on cultivation of Bhendi crop as bund crop, traditional paddy variety under organic cultivation, complete mechanization, backyard poultry and Farm land - fish pond -A two way channel to boost income

- Technologies were disseminated through various print media *viz.,* full research article (**9**), Book (**3**), Popular article (17),Pamphelts (**25**), Seminars(7) and Conference papers (4) and dailies (**302**) which are predomantly reaches the farmers.

- Totally **319** quintal for paddy seeds *viz.,* CR 1009 sub1 were produced and distributed to 138 number of farmers for Rs 852812

- Planting materials viz. Super Napier (27851 Nos) were produced and distributed to 32 farmers with an value of Rs 33421

- Bio products like Azolla (**54** Kg), Vermicompost (**3400** Kg) and Pseudomonas (**1732** Kg) were produced with an value of Rs 327676

- **82** Numbers of mobile agro- advisory services were provided through mkisan portal alone to 868091 numbers of farmers of Thiruvarur district.

- Totally **4** numbers of awards namely BEST MECHANIZED FARMER AWARD, BEST ORAL PRESENTATION AWARD, BEST STAKEHOLDERS AWARD and BEST EXTENSION PROFESSIONAL AWARD were received by the KVK staffs and KVK contact farmer.

- **Three** numbers of externally funded projects were operated during reporting period namely TN IAMP, NICRA and SBGF.

- Short duration & YMV resistant pulses varieties (Green gram –CO8 & Black gram – VBN 8), Short duration paddy variety ADT 53,Foliar application of cotton plus, in cotton with ICM, Soil test based fertilizer application in paddy with ICM practice of salt affected soil technologies were disseminated successfully in Thiruvarur district and impact study was documented

3. TECHNICAL ACHIEVEMENTS

3.A. Details of target and achievements of mandatory activities by KVK during 2019-20

i) OFT (Technology Assessment)

Number of technologies		Total no. of Trials	
Targets	**Achievement**	**Targets**	**Achievement**
7	6	43	38

ii) FLD (crop/enterprise/CFLDs)

No of Demonstrations		Area in ha		Number of Farmers	
Targets	**Achievement**	**Targets**	**Achievement**	**Targets**	**Achievement**
17	17	34	34	155	155

iii) Training (including sponsored, vocational and other trainings carried under Rainwater Harvesting Unit)

Number of Courses			Number of Participants	
Clientele	**Targets**	**Achievement**	**Targets**	**Achievement**
Farmers	40	41	1550	1692
Rural youth	10	10	350	384
Extn. Functionaries	14	15	505	652
Vocational training	4	130	4	132
Sponsored trainings	10	11	300	331

iv) Extension Activities

Number of activities		Number of participants	
Targets	**Achievement**	**Targets**	**Achievement**
936	1197	30880	33125

v) Seed Production (q)

Target	Achievement	Distributed to no. of farmers
300	319	138

vi) Planting material (Nos.)

Target	Achievement	Distributed to no. of farmers
3000	27851	32

v) Livestock (Nos.)

Target	Achievement	Distributed to no. of farmers
5	5	5

vii) Bio inputs (Nos.)

Target	Achievement	Distributed to no. of farmers
3000	5186	619

3.B. TECHNOLOGY ASSESSMENT

i) Summary of technologies assessed under various crops by KVKs (Add rows wherever required)

Thematic areas	Crop	Name of the technology assessed	Source of technology with year	No. of trials	No. of farmers
Integrated Nutrient Management					
Varietal Evaluation	Rice	Assessment of suitable alternate crop for Rice in Kuruvai (Kharif) season	TNAU 2012,2017	5	5
Integrated Pest Management					
	Coconut	Rugose spiraling whitefly incidence reduces the photosynthetic activity & yield	TNAU/ NIPHM	5	5
Integrated Crop Management					
Integrated Disease Management					
Small Scale Income Generation Enterprises					
Weed Management	Rice	Assessment of suitable weed management practices for Direct Seeded Rice	TNAU	5	5
Resource Conservation Technology					

Farm Machineries					
Integrated Farming System					
Seed / Plant production					
Post Harvest Technology / Value addition					
Drudgery Reduction					
Storage Technique					
Others (ICT tools-Information sharing)	Rice, Pulses	Assessment of Mobile Apps for Effective Technology Delivery	CRRI, Cuttack TNAU 2018	15	15
Total				**30**	**30**

ii) Summary of technologies assessed under livestock by KVKs

Thematic areas	**Name of the livestock enterprise**	**Name of the technology assessed**	**No. of trials**	**No. of farmers**
Disease Management				
Evaluation of Breeds	Poultry	Assessment of performance of dual purpose crossbred chicken varieties under backyard system of rearing.	3	3
Feed and Fodder management				
Nutrition Management				
Production and Management				
Others (Pl. specify)				
Total			**3**	**3**

iii) Summary of technologies assessed under various enterprises by KVKs

Thematic areas	Enterprise	Name of the technology assessed	Source of technology with year	No. of trials	No. of farmers
Women Empowerment-Health and Nutrition	Millets cookies	Alternative natural sweetener for bakery products (Cookies)	TNAU 2017 IIFPT, 2014	5	5

3.C. TECHNOLOGY ASSESSMENT IN DETAIL

1.Assessment of suitable alternate crop for Rice in Kuruvai (Kharif) season

1. Thematic area: Varietal evaluation
2. Title: Assessment of suitable alternate crop for rice in Kuruvai season
3. Scientists involved: Dr.A.Anuratha, SMS (SS&AC) and Programme Coordinator
4. Details of farming situation
   - Location of trial
     Mostly delta farmers cultivating the paddy crop in three season, it creates the sea water intrusion during the summer and Kharif season. The yield of paddy crop was also declined due to salinity. In such suitation, most of the delta farmers and Agricultural department requested with KVK, Thiruvarur , alternative crop is needed for paddy in kuruvai season which required less water than paddy. Hence, KVK conducted On farm trial to assess the suitable alternate crop for rice in Kuruvai season at five farmers field of Mahadevapattinam and Ullikottai villages of Mannarkudi block during 2019-20 season.
   - Major crops grown
     Mahadevapattinam and Ullikottai villages – Paddy under irrigated condition ,Pulses, Cotton, Gingelly .
   - Season
     The main cropping systems followed by the farmers are Paddy – Paddy – Rice fallow pulses, Paddy – Paddy – Rice fallow cotton, Paddy is cultivated both kharif and rabi season of every year under irrigated condition. On farm trial sowing has taken up during June month (Kharif season) with available water source.
   - Farming situation (Irrigated/Rainfed)
     Paddy , Maize and black gram was mainly cultivated in irrigated condition in both villages.
   - Climatic condition during the crop period
     The annual rainfall of Mannarkudi during 2019-20 was 1162 mm. Mahadevapattinam and Ullikottai villages received an average rainfall of 2.8 mm with 1 rainy days in June, 120 mm of rainfall in 7 rainy days during July, 84 mm

of rainfall in 7 rainy days in August and 230.2mm rainfall in 15 rainy days during September 2020. During the crop period (June 2019 – Sep 2019), totally 436.8 mm of rainfall was received in 30 rainy days.

- Soil type and fertilitystatus

The soil type is clay loamy with a pH of 6.9 and EC of 0.4 dSm^{-1} with a soil nutrient status of low Nitrogen (239 kg/ ha), medium Phosphorus (13.8 kg / ha) and medium Potassium (255 kg /ha).With respect to available S and micronutrients, Zn was predominately deficient, while S,Fe,Cu,Mn and B were in sufficient status.

5. Problem definition / description

- Normally farmers cultivate paddy crops in Kharif, rabi and summer season.
- The incidence of salinity and algae growth are severe problem in paddy and results in low yield.
- No awareness on alternative crops for paddy during Kharif season
- Non adoption of improved crop management practices.
- Poor grain yield.
- Less farm income.
- Farmers expected high yielding crops during kuruvai season .
- The main objective of the study was to assess the suitable alternative crops in kuruvai season.

6. Technology Assessed

Three crops were assessed with integrated crop management practices during kharif season .

1. Cultivation of CO 51 Paddy variety Farmers Practice - Shorter duration – 105 -110 days , High yielding semi dwarf rice variety , Moderately resistant to Blast, Brown Plant Hopper and Green Leaf hopper , Grain yield - 6623 kg/ha
2. Cultivation of Black gram VBN 8 - Duration : 65-75 days Season : Adi pattam (June – Aug) Purattasi Pattam (Sep-Oct) Thai Pattam (Jan-Feb) Yield : 900 kg/ha 11.94 and 13.49% increase over VBN 6 and CO 6 respectively Highest yield obtained : 2050 kg/ha Special features : Non- shattering and synchronous maturity; Resistant to Yellow Mosaic Virus and leaf crinkle diseases
3. Cultivation of Maize COMH 6 - Duration (days) : 110 Season : Irrigated (June-July & Nov. – Dec.) Rainfed (Sept. – Oct.) Yield (kg/ha) : Irrigated : 7400 kg/ha Rainfed : 5000 kg/ha, High yielding single cross hybrid. ,Bold, orange yellow semi dent karnal , High shelling (81%) with high test weight (400 g /1000 grains) ,Multiple disease resistance viz, Sorghum downy mildew, Maydis leaf blight, Turcicum leaf blight, Post flowering stock rot and Banded leaf and sheath blight, Simultaneous sowing of male and female parents for flowering synchronization.

7. Critical inputs given

Name of the critical inputs	Quantity (kgs)	Cost (Rs.)
VBN 8 seed	40	5000
Maize Hybrid COMH6 Seed	40	8000
TNAU Maize Maxim	30	9000
TNAU Pulse wonder	10	2000
Pseudomonas	5	600
Total		24,600/-

8. Results

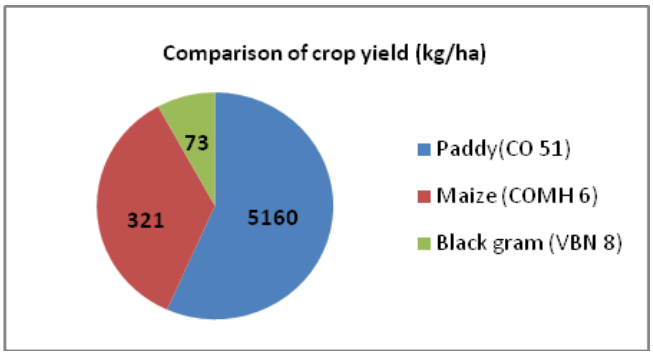
Table : 1. Performance of the technology

Technology Option	No.of trials	Yield (t/ha)	Net Returns (Rs. in lakh./ha)	B:C	Water consumed (mm)
Farmers Practice – (Rice CO51)	5	5.160	34060	1.70	1140
Technology 1 (Maize Hybrid COMH6)		3.212	26740	1.71	500
Technology 2 (Black gram VBN 8)		0.732	43200	2.44	300

Description of the results

Parameters	FP –Rice CO 51	Maize Hybrid COMH 6	Black Gram VBN 8
Plant height (cm)	76	220	24
No of productive tillers per plant/ No of pod per plant	33.20	-	28
No of seed per pod	-	-	8
No of grain per cob	-	320	-
1000 grain weight/100 seed weight (g)	18.3	24	3.8
Seed yield (tons/ha)	5.16	3.21	0.73
Gross cost Rs. /ha	48500	37500	30000
Gross return Rs. /ha	82500	64240	73200
Net return Rs. /ha	34060	26740	43200
BCR	1.70	1.71	2.44

✓ The On farm trials were conducted in five farmers field at Mahadevapattinam and Ullikottai villages during Kharif season 2019-20. KVK offered off campus training, distributed critical inputs to the beneficiaries and demonstrations were carried out. The yield and other parameters data recorded in OFT trials are presented below.



- On farm trial results revealed that cultivation of Black gram VBN 6 variety recorded more plant height (24 cm), less incidence of YMV, higher pod yield (730 kg/ha), less water consummation (300 mm) and higher farm net income (Rs.432002/ha) as compared to Maize(COMH 6) and Paddy (CO 51) varieties.
- Higher water consummation (1140mm) was observed in local check variety (CO 51 paddy variety).
- Economics of the study revealed that cultivation of Black gram (VBN 8) variety registered higher net returns (Rs.43200/ha) and benefit cost ratio (2.44) followed by Maize and local check variety.
- The study showed that cultivation of Black gram (VBN 8) variety performed well under irrigated condition during kuruvai season and consumed less water, recorded higher yield and high net return.

Constraints faced: Fall army worm incidence was noticed in Maize COMH 6 at two farmers field.

9. Feed back of the farmers involved

Cultivation of black gram VBN 8 recorded more number of pod per plant, more number of seed per plant, less water consumation and higher pod yield compared to Maize and Paddy during kharif season. Very less incidence of pest and diseases was observed in VBN and also fetched good market price. The number of pesticides spray (2-3 spray) is required for Maize hybrid COMH 6 to control fall army worm.

10. Feed back to the scientist who developed the technology:
Since, VBN 8 black gram has performed well, suitable alternate crop for paddy during Kharif season may be recommended to Thiruvarur district.

2. Assessment of suitable weed management practices for direct seeded rice

1	Thematic area	Varietal evaluation
2	Title	Assessment of suitable weed management practices for direct seeded rice
3	Scientists involved	Dr. A. Rajeshkumar, Training Assistant (Agronomy)
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	Season: Rabi Soil type: Clay loam Farming situation: Irrigated situation Soil fertility status: Low N, Medium P and High K Seasonal rainfall: - No. of rainy days: -
5	Problem definition / description: (one paragraph)	• Yield reduction due to severe weed density • Weeds compete with crops for Moisture, Nutrients and sunlight etc.,
6	Technology Assessed: (give full details of technology as well as farmers practice)	TO1:Pendimethaline 0.75 kg/ha + hand weeding 35 DAS TO2 :Pretilachlor 0.45 kg/ha + hand weeding 35 DAS. TO3:Farmers practice (Hand weeding at 20 DAS)

7. Critical inputs given: (along with quantity as well as value)

S.no	Technology option	Critical input	Quantity per trial	Cost per trial (Rs.)	No. of trials
1	Pretilachlor 0.45 kg/ha + hand weeding 35 DAS	Paddy seeds	25 kg	1000	5
		Pseudomonas	2 kg	120	
		Pendimethaline	1 kg	750	
2	Pendimethaline 0.75 kg/ha + hand weeding 35 DAS	Paddy seeds	25 kg	1000	
		Pseudomonas	1 kg	120	
		Pretilachlor	1 lit	800	
3	Farmers practice (Hand weeding at 20 DAS)	Paddy seeds	25 kg	1000	
		Pseudomonas	1 kg	120	

8. Results:

Technology Option	***No.of trials***	***Yield (q/ha)***	***Net Returns (Rs/ha)***	***B:C ratio***
Farmers Practice-(Hand weeding at 20 DAS)	*5*	49.11	38876	*1.98*
Technology 1 : Pretilachlor 0.45 kg/ha + hand weeding 35 DAS		61.47	57602	*2.41*
Technology 2 : Pendimethaline 0.75 kg/ha + hand weeding 35 DAS		56.96	50886	*2.26*

Other performance indicators

Parameters	***No.of trials***	*Farmers Practice*-(Hand weeding at 20 DAS)	*Technology 1* : Pretilachlor 0.45 kg/ha + hand weeding 35 DAS	*Technology 2* : Pendimethaline 0.75 kg/ha + hand weeding 35 DAS
Weed density (No.m²)	*5*			
Plant height (cm)		*94.7*	*114.5*	*106.4*
No. of panicles/m²		*276*	*387*	*336*

Description of the results: (one page) in addition you can use graphs also

Among the three weed management practices, the pre emergence application of pretilachlor 0.45 ha + hand weeding on 35 DAS recorded higher yield of 61.47 quintals/ha with the highest net return of (57602 Rs/ha).

Constraints faced:

9. Feed back of the farmers involved

Growers expressed that the pre emergence application of pretilachlor 0.45 ha + hand weeding on 35 DAS contributed higher weed control efficiency.

10. Feed back to the scientist who developed the technology

Suitable post emergence herbicides for controlling the sedges in DSR is needed

3. Assessment of management modules against Fall Army Worm in Maize : Not conducted

Area under maize is not available in the district

4. Assessment of Mobile Apps for Effective Technology Delivery

1	Thematic area	Information Technology/ICT tools
2	Title	Assessment of Mobile Apps for Effective Technology Delivery
3	Scientists involved	Dr.M.Ramasubramanian
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	Agro-climatic Zone : Cauvery Delta Zone Agro ecological situation: Wet land eco system Soil type: Clay to clay loam- Old Delta, Sandy to sandy clay loam- New Delta The rice cultivation in Thiruvarur district has undergone a series of changes given the unprecedented labour shortage and enhanced labour wages for important crop operations like leveling, nursery preparation, pulling out of seedlings, transplanting, weeding and harvesting. These problems lead to severe reduction and shift in rice cultivation. The following are the crop rotation is being followed in Thiruvarur district. 1. Rice – Rice – Rice 2. Rice – Rice – Pulses (Blackgram & Greengram) / Gingelly 3. Rice – Rice – Gingelly /Groundnut 4. Fallow – Rice – Cotton 5. Sugarcane 6. Pulses / Gingelly – Rice – Pulses (Black gram & Green gram) Alternate cropping against rice is only possible during Kuruvai season (dry). Pulses, Maize, Gingelly and Groundnut are cultivated as alternate crops. As the soil is predominantly heavy clay type, Rice is the only crop which thrives well in case of inundation without much difficulty especially during North East monsoon period. Annual rainfall is 1230 mm (53 % NEM & 30 % SWM).
5	Problem definition / description: (one paragraph)	The Mobile apps were reported to impact upon the uptake of technologies by farmers, but field level data to substantiate the utility of information given through mobile apps by the farmers is not available. Hence, this OFT would analyse the Effectiveness of two important mobile apps
6	Technology Assessed: (give full details of technology as well as farmers practice)	• TO1: Farmer' s practice of Farmer to Farmer mode of transfer of Technology • TO2:Expert System on Paddy available as android app (TNAU 2018) • TO3:Rice Expert App (CRRI, Cuttack)

7	Critical inputs given: (along with quantity as well as value)	**-**

8. Results

Performance of the technology

Description of new Technology (Technology assessed - TO1)	Description of Technology to be replaced (TO2)	Description of Famers practice (FP)	Mean Knowledge gain (Before and after Experimental design)			Adoption Index (No.of adopted practices/No.of Recommended X 100)			Perception Index (Sum total of ease in operation, interactivity and resourcefulness)			Net income/ha		
Expert System on Paddy available as android app	Rice Expert App of CRRI, Cuttack	Farmer' s practice of Farmer to Farmer mode of transfer of Technology	T01 N=20	T02 N=20	FP N=20	T01 N=20	T02 N=20	FP N=20	T01 N=20	T02 N=20	FP N=20	T01 N=20	T02 N=20	FP N=20
			42.60 (Max:50)	35.40 (Max:50)	30.20 (Max:50)	73.33 (Max:100)	53.33 (Max:100)	49.55 (Max:100)	44.25	36.44	Not Applicable	Rs.35000	Rs.31500	Rs. 28000

**** Other performance indicators: such as pest intensity, weed population, test weight, duration etc***

Description of the results: (one page) in addition you can use graphs also Constraints faced:

9. Feedback of the farmers involved: Rice Expert system of TNAU has been very useful and it can be further popularized among

10. Feed back to the scientist who developed the technology:Some videos can be inserted along with photographs

5.Assessment of performance of dual purpose crossbred chicken varieties under backyard system of rearing.

1	Thematic area	Varietal evaluation
2	Title	Assessment of performance of dual purpose crossbred chicken varieties under backyard system of rearing.
3	Scientists involved	Dr. S. Saravanan, (Veterinary and Animal Sciences)
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	Season: All season Soil type: Clay loam Farming situation: Irrigated situation Soil fertility status: Low N, Medium P and High K Seasonal rainfall: - No. of rainy days: -
5	Problem definition / description: (one paragraph)	• Native chicken with low egg production • Increasing demand among the farmers for dual purpose chicken.
6	Technology Assessed: (give full details of technology as well as farmers practice)	TO1: TANUVAS Aseel TO2 : Nicobari TO3:Farmers practice (Desi breed)

7. Critical inputs given: (along with quantity as well as value)

S.no	Technology option	Critical input	Quantity per trial	Cost per trial (Rs.)	No. of trials
1	TANUVAS Aseel	Chicks	60	2,200	3
		Feed	50 kg		
2	Nicobari	Chicks	60	2,200	
		Feed	50 kg		
3	Farmers practice (desi breed)	-	-	-	

8. Results:

Technology Option	***No.of trials***	***Yield (Kg)***	***Net Returns***	***B:C ratio***
Farmers Practice-(Desi breed)	*3*	*80*	41800	2.817391
Technology 1 : TANUVAS Aseel		*162*	48200	3.171171
Technology 2 : Nicobari		*96*	-14520	0.345946

Other performance indicators

Parameters	***No. of trials***	*Farmers Practice-* (desi breed)	*Technology 1* TANUVAS Aseel	*Technology 2 Nicobari*
Weight gain @3months	*3*	*0.65*	*0.880*	*0.67*
Mortality(%)		*18%*	*9.5%*	*24%*

Description of the results: (one page) in addition you can use graphs also Constraints faced:	Among the three breeds, TANUVAS Aseel excelled in performance apart from other breeds. Birds attended weight gain of 0.850-1 kg by three months of age. The birds were sold at Rs.500/ unit.
9. Feed back of the farmers involved	Though the preference based market exists in Thiruvarur district, the appearance of birds is highly similar to native chicken breed that had fetched better price.
10. Feed back to the scientist who developed the technology	TANUVAS Aseel can be promoted in wider scale for farmers adoption.

6. **Alternative natural sweetener for bakery products (Cookies)**

1.	Thematic area	:	Post harvest technology / value addition
2.	Title	:	Alternative natural sweetener for bakery products (Cookies)
3.	Scientists involved	:	Dr.J.VANITHASRI, Training Assistant (Home Science)
4.	Details of farming situation Describe the farming situation including Season, Farming situation	:	Not applicable
5.	Problem definition / discription (one paragraph)	:	Sulphur is a contaminant which enters sugar during refining. The maximum permissible limit for sulphur according to Bureau of Indian Standard is 70 ppm. According to International standards, it is 10 ppm. The sugar industries claim to be the amount of sulphur in white sugar is 20-70 ppm. If the amount of sulphur exceeds the permissible limits, it is highly toxic and accounts for the defamation of white sugar. Hence nowadays people are avoid to consumer white sugar. Instead of white sugar they go for jaggery and palm sugar. In view of this trial was made to replace white sugar with jaggery and palm sugar to prepare cookies.

6.	Technology Assessed (give full details of technology as well as farmers practice)	:	Farmers practice – White sugar cookies Wheat flour, powdered sugar and dalda were used to cookies TO1 – Palm sugar cookies Wheat flour, palm sugar and dalda were used to prepare cookies TO2 - Jaggery cookies Wheat flour, powdered jaggery and dalda were used to cookies
7.	Critical inputs given (along with quantity as well as value)	:	
8.	Results	:	

S. No.	Particular	Quantity	Amount (Rs.)
1.	wheat flour	150 kg	9000/-
2.	Powdered sugar	25 kg	1000/-
3.	Powdered jaggery	25 kg	1250/-
4.	Palm sugar	25 kg	10000/-
5.	Dalda	75 kg	8250/-
		Total	29500/-

Technology Option	No.of trials	Production (kg)	Net Returns (Rs.)	B:C ratio
FP – White sugar cookies	5	80	11100	1.24
TO_1 – Palm sugar cookies		80	25000	1.24
TO_2 - Jaggery cookies		80	12540	1.25

Other performance indicators

Technological options	Organoleptic scores	Shelf life (days)
FP – White sugar cookies	8.5	30
TO_1 – Palm sugar cookies	8.0	30
TO_2 - Jaggery cookies	7.0	30

8a.	Description of the results: (one page) in addition you can use graphs also	:	The shelf life of the cookies prepared by using white sugar, jaggery and palm sugar was same (30 days). Negligible changes were observed in organoleptic score of all type of cookies. It is concluded that the jaggery cookies and palm sugar cookies can be used as a replacement for white sugar cookies.

8b.	Constraints faced	:	No
9.	Feed back of the farmers involved	:	The farmers and entrepreneurs are very much satisfied about the taste of the jaggery cookies and palm sugar cookies. They are planning to prepare this type of cookies for sale. The cost of white sugar is very less when compared to jaggery and palm sugar. So, the cost of the palm sugar and jaggery cookies is also high. It is a difficult task to reach the marketability of the product
10.	Feed back to the scientist who developed the technology	:	White sugar leads to many health hazards. Hence it can be replaced by the either jaggery or palm sugar.

7. Assessment of management modules against Rugose Whitefly in Coconut

1.	Thematic area	:	Post harvest technology / value addition
2.	Title	:	Assessment of management modules against Rugose Whitefly in Coconut
3.	Scientists involved	:	Dr.R.Ramesh, SMS (Agrl.Entomology)
4.	Details of farming situation Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	:	Agro-climatic Zone : Cauvery Delta Zone Agro ecological situation: Wet land eco system Soil type: Clay to clay loam- Old Delta, Sandy to sandy clay loam- New Delta The rice cultivation in Thiruvarur district has undergone a series of changes given the unprecedented labour shortage and enhanced labour wages for important crop operations like leveling, nursery preparation, pulling out of seedlings, transplanting, weeding and harvesting. These problems lead to severe reduction and shift in rice cultivation. The following are the crop rotation is being followed in Thiruvarur district. 1. Rice – Rice – Rice 2. Rice – Rice – Pulses (Blackgram & Greengram) / Gingelly 3. Rice – Rice – Gingelly /Groundnut 4. Fallow – Rice – Cotton 5. Sugarcane 6. Pulses / Gingelly – Rice – Pulses (Black gram & Green gram) Alternate cropping against rice is only possible during Kuruvai season (dry). Pulses, Maize, Gingelly and Groundnut are cultivated as alternate crops. As the soil is predominantly heavy clay type, Rice is the only crop which thrives well in case of inundation without much difficulty especially during North East monsoon period. Annual rainfall is 1230 mm (53 % NEM & 30 % SWM).

<table>
<tr><td>5.</td><td>Problem definition / description (one paragraph)</td><td>:</td><td>Nematode incidence reduces the tuberose yield upto 40%</td></tr>
<tr><td>6.</td><td>Technology Assessed (give full details of technology as well as farmers practice)</td><td>:</td><td>TO 1 – Farmers' Practice – FYM @ Application of Insecticides
✓ TO 2 – Yellow sticky traps to monitor the adult movement
✓ Release of Chrysopa zastrowi silemmi Predator at 15 days interval
✓ Encarsia guadeloupae parasitoid
✓ Foliar application of Isaria fumosorosea (1x10^9 spores/ml)
✓ Intermittent water spray
✓ Spraying neem based formulations(Azadirachitin 1% @ 2 ml/lt) along with wetting agent or detergent powder @ 10gms/lt at 20 days interval
✓ Spraying of 1% starch solution for sooty mould
Avoid spraying of chemical insecticides</td></tr>
<tr><td>7.</td><td>Critical inputs given (along with quantity as well as value)</td><td>:</td><td><table><tr><th>Name of the critical input</th><th>Quantity per trial</th></tr><tr><td>Encarsia guadeloupae Parasitoid</td><td>2 pkts</td></tr><tr><td>chrysoperla zastrowi silemmi</td><td>400 nos/ac</td></tr><tr><td>Yellow sticky traps(3 x1.5 ft)</td><td>10 nos/ac</td></tr><tr><td>Foliar application of Isaria fumosorosea (1x10^9) @ 5g/lt</td><td>2 kgs</td></tr></table></td></tr>
</table>

8.	Results	:	On going

3.D. FRONTLINE DEMONSTRATION

a. Follow-up of FLDs implemented during previous years

S. No	Crop/Enterprise	Thematic Area	Technology demonstrated	Details of popularization methods suggested to the Extension system	Horizontal spread of technology		
					No. of villages	No. of farmers	Area in ha

b. Details of FLDs (Information is to be furnished in the following tables category wise i.e. cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.)

Sl. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Source of funds	Area (ha)		No. of farmers/demonstration			Reasons for shortfall in achievement
						Proposed	Actual	SC/ ST	Others	Total	
1	Rice	Varietal Introduction	Demonstration of Newly released Non lodging short duration Paddy variety ADT 53 with ICM in Thiruvarur District	Khraif 2019	ICAR	4	4	2	8	10	-
2	Rice	Varietal Introduction	Demonstration of Co52 paddy variety (MGR 100) for Thaladi (Rabi)season	Rabi 2019	ICAR	4	4	2	8	10	-
3	Rice	Integrated Crop Management	Demonstration of ICM for Salt affected soils of Thiruvarur District	Rabi 2019	ICAR	4	4	2	8	10	-
4	Rice	Varietal Introduction	Demonstration of Traditional rice variety with Eco friendly management	Rabi 2019	ICAR	4	4	2	8	10	-

5	Rice	Farm Mechanization	Demonstration of complete mechanization in rice cultivation	Rabi 2019	ICAR	4	4	2	8	10	-
6	Blackgram	Varietal Introduction	Introduction of Rice Fallow blackgram variety ADT 6 in Thiruvarur District	Rice fallow 2020	ICAR	2	2	2	8	10	-
7	Bhendi	Hybrid Introduction	Demonstration of bhendi hybrid as border/bund crop in paddy field of Thiruvarur District	Rabi 2019	ICAR	2	2	2	8	10	-
8	Brinjal	Integrated Pest Management	Eco friendly management of shoot and fruit borer in brinjal	Rabi 2019	ICAR	2	2	1	4	5	-
9	Cotton	Integrated Pest Management	Demonstration of ecofriendly methods for the management of mealy bug in cotton	Summer	ICAR	4	4	2	8	10	-
10	Cowpea	Varietal Introduction	Demonstration of fodder cowpea variety Co 9 in Thiruvarur District	Summer	ICAR	3	3	3	12	15	-
11	Fodder	Varietal Introduction	Demonstration on CoFS-31 fodder crop	Rabi 2019	ICAR	1	1	2	8	10	-

c. Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					
Rice	Khraif 2019	Irrigated	Clay loam	L	M	M	Pulses	02.06.2019	20.10.2019	505.8	35
Rice	Rabi 2019	Irrigated	Clay loam	L	M	M	Pulses	03.08.2019	27.01.2020	1084.1	55
Rice	Rabi 2019	Irrigated	Clay loam	L	M	H	Pulses	05.08.2019	28.01.2020	1084.1	55
Rice	Rabi 2019	Irrigated	Clay loam	L	M	M	Pulses	04.08.2019	28.01.2020	1084.1	55
Rice	Rabi 2019	Irrigated	Clay loam	L	M	M	Pulses	10.08.2019	04.02.2020	1084.1	55
Blackgram	Rice fallow 2020	Irrigated	Clay loam	L	M	M	Rice	07.01.2020	10.03.2020	46.7	1
Bhendi	Rabi 2019	Irrigated	Sandy clay loam	L	M	H	Rice	03.08.2019			

Brinjal	Rabi 2019	Irrigated	Sandy clay loam	L	M	H	Vegetables	12.06.2019	20.10.2019	505.8	35
Cotton	Summer	Irrigated	Clay loam	L	M	M	Rice	10.01.2020			
Cowpea	Summer	Irrigated	Sandy clay loam	L	M	M	Rice	-			
Fodder	Rabi 2019	Irrigated	Sandy clay loam	L	M	M	Rice	-			

d. Technical Feedback on the demonstrated technologies

S. No		Feed Back
1	Demonstration of Newly released Non lodging short duration Paddy variety ADT 53 with ICM in Thiruvarur District	Demonstration of new paddy variety (ADT 53) recorded more number of productive tillers, more number of grains per panicle, very less incidence of leaf folder, stem borer and blast, higher grain, straw yield, more net income as compared to check variety of (ASD 16) farmers practice. This variety is recommended for Thiruvarur district as Alternate for ASD 16
2	Demonstration of Co52 paddy variety (MGR 100) for Thaladi (Rabi)season	This variety perform very well during Thaladi season and it can be better replacement for BPT 5204, in terms of resistance in pest and diseases and consumption of fertilizers
3	Demonstration of ICM for Salt affected soils of Thiruvarur District	Paddy variety, CSR 36 recorded more number of productive tillers per hill, higher grain yield, tolerant to saline condition and performed very well compared to check variety ADT 49. So, the paddy variety CSR36 would be better option for saline condition
4	Demonstration of Traditional rice variety with Eco friendly management	The highest yield in check plot was 55.8q/ha whereas in demo it was 37.2q/ha. The BCR of demo plot was 2.07 and control plot 1.7. Though the yield was comparatively low, market price of organic rice seed and grain were higher. This variety is tolerant to drought and flooding
5	Demonstration of complete mechanization in rice	Besides saving cost , the yield also improved significantly if the farmers prefer to

	cultivation	go for transplanting
6	Introduction of Rice Fallow blackgram variety ADT 6 in Thiruvarur District	
7	Demonstration of bhendi hybrid as border/bund crop in paddy field of Thiruvarur District	Farmers praise the kvk scientists for Bhendi as bund crop in paddy field instead of other bund crops. One constraints from farmers side is higher seed cost.
8	Demonstration of fodder cowpea variety Co 9 in Thiruvarur District	Livestock animal prefer to feed green fodder Cowpea or slightly dry fodder. But animal shows less affection towards to feed dry fodder cowpea.
9	Demonstration of Bhendi ring cutter	Harvest efficiency was increased and easy to harvest
10	Demonstration on CoFS-31 fodder crop	The crop is easy to raise and it can withstand water logging
11	Demonstration of ect-endo parasitic control in goats	Cyclical use of dewromer coupled with training on dose calcuaiton based on on body weight produced an excellent outcome
12	Demonstrating the Efficiency of Whatsapp in dissemination of technologies related to Rice Cultivation	Whatsapp seems to be effective in dissemination of technology and could be an effective tool to be explored by the Extension scientists to tide over the crises of manpower, time and accessibility
13	Demonstration of Nutritional garden in Anganwadis in Thiruvarur district	Yield was increased. Fulfilled RDA recommendation for children at anganwadi. Organic vegetables were produced
14	Demonstration on ready to eat and ready to cook mushroom products	Utilization of mushroom value addition was increased. Production of multiple mushroom products were increased. This technology was promoted through entrepreneurial training programmes

e. Farmers' reactions on specific technologies

S. No		Feed Back
1	Demonstration of Newly released Non lodging short duration Paddy variety ADT 53 with ICM in Thiruvarur District	Very less incidence of pest and diseases and also fetched higher market price, cost of pesticide spray is also drastically reduced from Rs.5000 to Rs.2500/acre, higher paddy straw yield (75 bale/acre) also recorded in ADT 53 paddy variety.
2	Demonstration of Co52 paddy variety (MGR 100) for Thaladi (Rabi)season	Lesser pest and diseases attack and lesser fertilizer consumption compare to BPT 5204
3	Demonstration of ICM for Salt affected soils of Thiruvarur District	CSR 36 performed very well in the salt affected areas. Grain type was long slender than TRY 3 and it also tolerant to drought also. Paddy grain also suitable for cooking. There are interested to grow in the forthcoming season.
4	Demonstration of Traditional rice variety with Eco friendly management	Farmers felt following observation The organic rice was sold at the rate of Rs. 30 per kg, and it made organic rice cultivation more rewarding economical as well health promoting High quality straw for his cattle was assured. This made way for sustainable agriculture, using locally available natural resources with compost, vermin-compost and local seed materials. By adopting this method of organic farming, it was able to achieve better crop productivity per acre of land under scanty rainfall conditions.
5	Demonstration of complete mechanization in rice cultivation	In future this is the only way as labour scarcity is booming large. More number of rice transplanters should be arranged by Agricultural Engineering department
6	Demonstration of bhendi hybrid as border/bund crop in paddy field of Thiruvarur District	Bhendi raised as border crop in paddy field bunds gives additional income. It bears an average of 25 Bhendi fruits starting from 35 DAP th no additional inputs except seeds.
7	Demonstration of fodder cowpea variety Co 9 in Thiruvarur District	Higher biomass yield is achieved in shorter period with in 50 DAS

8	Demonstration of Bhendi ring cutter	The farmers are very much satisfied about this technology. Easy to handled. Picking efficiency was increased. Harvesting hurdles, number of labour and labour cost was reduced. Time taken for harvesting was less. Damage was less during bhendi harvest.
9	Demonstration on CoFS-31 fodder crop	The fodder becomes a base for starting an animal farm. There is no scratchy part in leaves and animal can eat it without wastage.
10	Demonstration of ect-endo parasitic control in goats	Tick controlled using ectoparasite, recurring in three months. Weight gain improved after deworming
11	Demonstrating the Efficiency of Whatsapp in dissemination of technologies related to Rice Cultivation	It is easier to get the problem solved as there is no need to go to KVK or expecting scientist to come to field. It is effective and it can be further utilized
12	Demonstration of Nutritional garden in Anganwadis in Thiruvarur district	Availability of organic vegetables were increased. Nutritional requirements were fulfilled during COVID19
13	Demonstration on ready to eat and ready to cook mushroom products	Knowing the technology for mushroom value addition

g. Performance of Frontline demonstrations

i) Frontline demonstrations on crops

Crop	Thematic Area	technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
			Domo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Average										
Pulses																			
	Varietal Introduction	Introduction of Rice Fallow blackgram variety ADT 6 in Thiruvarur District	ADT 6	ADT 5	10	2	8.7	5.7	7.2	5.5	31	21700	64800	43100	2.99	20500	49500	29000	2.41
Oilseeds																			
Cereals																			
Rice	Varietal Introduction	Demonstration of Newly released Non lodging short duration Paddy variety ADT 53 with ICM in Thiruvarur District	ADT 53	ADT 46	10	4	58.2	47.4	56.4	48.4	17	40000		50240	2.26	40000		37440	1.94

Crop	Thematic Area	technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
			Domo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Average										
Rice	Varietal Introduction	Demonstration of CO52 paddy variety (MGR 100) for Thaladi (Rabi)season	MGR 100	BPT & TKM 13	10	4	56	45	53	44	20	33200	86100	52900	2.59	34100	67800	33700	1.99
Rice	Integrated Crop Management	Demonstration of ICM for Salt affected soils of Thiruvarur District	CSR36	BPT	10	4	52.5	48	49.6	41.2	20	40000		39360	1.98	40000	65920	25920	1.65
Rice	Varietal Introduction	Demonstration of Traditional rice variety with Eco friendly management	Mapillai samba	ADT 51	10	4	46.00	34.75	37.2	55.8	-33	45000	93000	48000	2.07	52500	89300	36780	1.7
Commercial crops																			
Cotton	Integrated Pest Management	Demonstration of ecofriendly methods for the management of mealy bug in cotton	RCH		10	4	On going												
Millets																			

Crop	Thematic Area	technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
			Domo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Average										
Vegetables																			
Brinjal	Integrated Pest Management	Eco friendly management of shoot and fruit borer in brinjal	Ravaya	Ravaya	10	4	51.4.5	41.05	48.75	41.25	18	166250	585000	418750	3.52	162250	495000	332750	3.05
Fruits																			
Plantation crops																			
Spices and condiments																			
Flowers																			
Fodder cowpea	Varietal Introduction	Demonstration of fodder cowpea variety CO 9 in Thiruvarur District	CO 9	CO 7	15	3	207	189	198	163	21	13400	39600	26200	2.96	13100	33800	20700	2.58

Crop	Thematic Area	technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
			Domo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Average										
Fodder	Varietal Introduction	Demonstration on CoFS-31 fodder crop	CoFS-31	Open gracing	10	10	85	70	21	-	-	680	2550	1870	3.75	1810	2100	260	1.16

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

** BCR= GROSS RETURN/GROSS COST

s.no	Title of the FLD	Mean Knowledge gain in Test Group (n=20)	Mean Knowledge Gain in control group (n=20)	Mean Efficiency Index in Test Group (Sum total of Content adequacy, Understandability, Interactivity)	Mean Adoption of Technologies in Test Group (Out of Ten Technologies)	Mean Adoption of technologies in Control group (Out of Ten Technologies)	Mean Cost Saved in Test Group	Mean Cost Saved in Control group	Mean Yield in Test group farmers Field	Mean Yield in Control group farmers Field	Net income Test Group	Net income in Control group
	Demonstrating the Efficiency of Whatsapp in dissemination of technologies related to Rice Cultivation	33.80 (Max: 40.00)	25.40 (Max:40.00)	76.30 (Max:90)	7.10 (Max: 10.00)	4.20 (Max: 10.00)	Rs.1325 (Max: Rs.2000)	Nil	5.2 t/ha	4.8 t/ha	Rs. 43260/ha	Rs. 38560/ha

ii) Frontline demonstrations on Livestock

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No.of Units (Animal/ Poultry/ Birds, etc)	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.)				Economics of check (Rs.)			
					Demo	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
Cattle																	
Buffalo																	
Dairy																	
Poultry																	
Sheep																	
Goat	Disease Management	Demonstration of ect endo parasitic control in goats	10	6	360	330	9	-	-	90000	198000	108000	3.2	90000	174000	84000	2.93

IFS	IFS	Demonstration of khaki campbell and Indian runner duck in wetland IFS	5	5	Under Progress

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

iii) Frontline demonstrations on Fisheries

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.)				Economics of check (Rs.)			
					Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

iv) Frontline demonstrations on Other enterprises

Category	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.) or Rs./unit				Economics of check (Rs.) or Rs./unit			
				Demo	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
Mushroom																
Apiculture																
Maize Sheller																
Value Addition	Demonstration on Ready to eat and ready to cook mushroom products	10	10	Sensory evaluation	Sensory evaluation	61.50	-	-	12500	13493	993	1.28	7740	8230	490	1.26
Vermi Compost																

v) Frontline demonstrationson Women Empowerment

Category	Name of technology	No. of demonstrations	Name of observations	Demonstration	Check

vi) Frontline demonstrations on Farm Implements and Machinery

Name of the implement	Crop	Technology demonstrated	No. of Farmer	Area (ha)	Major parameters	Filed observation (man hour/ha)		% change in major parameter	Labor reduction (man days)				Cost reduction (Rs./ha or Rs./Unit etc.)			
						Demo	Check		Transplanting	Power weeding	Combine Harvester	Total	Transplanting	Power weeding	Combine Harvester	Total
Hiring of Transplanter, Power weeder and Combine Harvester	Rice	Demonstration of complete mechanization in rice cultivation	10	4	Transplanting	10	300	2900	290	95	288	673	2630	1250	2750	6630
					Power weeding	5	100	1900								
					Combine Harvester	2	300	14900								
Ring cutter	Bhendi	Demonstration of bhendi ring cutter	5	1	Time taken	6	14	57	-	-	-	-	-	-	-	-

vii) Frontline demonstrations on Other Enterprise: Kitchen Gardening

Category and Crop	Thematic area	Name of the technology demonstrated	No. of Farmer	No. of Units	Yield (Kg)		% change in yield	Other parameters		Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
					Demonstration	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
	Nutri garden development	Establishment of Nutri garden in anganwadi	5	5													
Bhendi					24600	19600	26	-	-	38500	45700	84200	1.18	32100	34610	66710	1.30
Brinjal					19000	16400	16	-	-	49162	72388	122000	1.47	39700	29700	69400	1.27
Chilli					7000	5400	30	-	-	17080	5520	22600	1.17	12000	2700	14700	1.19
Cluster bean					6500	4800	35	-	-	11200	2500	13700	1.22	9900	1400	11300	1.24
Annual moringa					53770	41090	31	-	-	86500	38000	124500	1.24	78650	32110	110760	1.11
Lab lab bush type					8540	6370	34	-	-	17590	15830	33420	1.17	16530	2370	18900	1.17
Amaranthus					8000	-	-	-	-	11700		28300	1.34	-	-	-	-

viii) Frontline demonstrations on crop hybrids *(Details of Hybrid FLDs implemented during 2019-20)*

Crop	technology demonstrated	Hybrid Variety	No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)			
					Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)
					High	Low	Average						
Oilseed crop													
Pulse crop													
Cereal crop													
Vegetable crop													
Bhendi	Demonstration of bhendi hybrid as border/bund crop in paddy field of Thiruvarur District	Hybrid	10	2	15.8	10.8	13.3	7.9	68	10750	47880	37130	1:4.45
Fruit crop													

Other (Cotton)														
	Demonstration of ecofriendly methods for the management of mealy bug in cotton	Hybrid RCH 659	10	4	Ongoing									

h) FLDs conducted with the FUNDING OF OTHER SOURCES including CFLD/ATMA/NABARD/other ICAR institutes etc

i) Other Source funded FLDS in CROPS

Crop	Source of fund	Thematic Area	technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
				Demo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
								High	Low	Average										

ii) Other Source funded FLDS in Livestock

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No.of Units (Animal/ Poultry/ Birds, etc)	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.)				Economics of check (Rs.)			
					Demo	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
Cattle																	
Buffalo																	
Dairy																	
Poultry																	
Sheep																	
Goat																	

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

** BCR= GROSS RETURN/GROSS COST

iii) Other Source funded FLDS in Fisheries

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.)				Economics of check (Rs.)			
					Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST

iv) Other Source funded FLDS in Other enterprises

Category	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.) or Rs./unit				Economics of check (Rs.) or Rs./unit			
				Demo	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)

v) Other Source funded FLDS in Women Empowerment

Category	Name of technology	No. of demonstrations	Name of observations	Demonstration	Check

vi) Other Source funded FLDS in Farm Implements and Machinery

Name of the implement	Crop	Technology demonstrated	No. of Farmer	Area (ha)	Major parameters	Filed observation (output/man hour)		% change in major parameter	Labor reduction (man days)				Cost reduction (Rs./ha or Rs./Unit etc.)			
						Demo	Check		Land preparation	Sowing	Weeding	Total	Land preparation	Labour	Irrigation	Total

4.TRAINING PROGRAMMES

4.1. Farmers' Training including sponsored training programmes (on campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										
Integrated Crop Management	2	41	18	59	2	6	8	43	24	67
Soil & water conservatioin										
Integrated nutrient management	1	30	10	40	15	0	15	45	10	55
Production of organic inputs										
Others (pl specify)										
Total	**3**	**71**	**28**	**99**	**17**	**6**	**23**	**88**	**34**	**122**
II Horticulture										
a) Vegetable Crops										
Production of low value and high valume crops										
Off-season vegetables										
Nursery raising										
Exotic vegetables										
Export potential vegetables										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Grading and standardization										
Protective cultivation										
Others (Roof top garden)	1	41	7	48	5	0	5	46	7	53
Total (a)	**1**	**41**	**7**	**48**	**5**	**0**	**5**	**46**	**7**	**53**
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)										
Total (c)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
GT (a-g)	**1**	**41**	**7**	**48**	**5**	**0**	**5**	**46**	**7**	**53**
III Soil Health and Fertility Management										
Soil fertility management	1	24	3	27	4	5	9	28	8	36
Integrated water management										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing										
Others (Remote senses used information for Crop coverage, Yield estimation and drought monitoring	1	15	32	47	0	0	0	15	32	47
Total	**2**	**39**	**35**	**74**	**4**	**5**	**9**	**43**	**40**	**80**
IV Livestock Production and Management										
Dairy Management										
Poultry Management										
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Disease Management										
Feed & fodder technology										
Production of quality animal products										
Others (Slatted goat rearing)	1	13	5	18	0	0	0	13	5	18
Total	**1**	**13**	**5**	**18**	**0**	**0**	**0**	**13**	**5**	**18**
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	1	11	8	19	0	6	6	11	14	25
Women empowerment										
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)										
Total	**1**	**11**	**8**	**19**	**0**	**6**	**6**	**11**	**14**	**25**
VI Agril. Engineering										
Farm Machinary and its maintenance										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (pl specify)										
Total										
VII Plant Protection										
Integrated Pest Management	2	42	19	61	5	2	7	47	21	68
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Others (pl specify)										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total	**2**	**42**	**19**	**61**	**5**	**2**	**7**	**47**	**21**	**68**
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production	1	33	11	44	6	0	6	39	11	50
Organic manures production										
Production of fry and fingerlings										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production	1	49	27	76	9	5	14	58	32	90
Apiculture										
Others (pl specify)										
Total	**2**	**82**	**38**	**120**	**15**	**5**	**20**	**97**	**43**	**140**
X CapacityBuilding and Group Dynamics										
Leadership development										
Group dynamics	1	15	3	18	1	3	4	16	6	22
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total	**1**	**15**	**3**	**18**	**1**	**3**	**4**	**16**	**6**	**22**
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems	2	94	27	121	17	0	17	111	27	138
Others (Environmental Awareness and Tree planting Programme)	1	18	85	103	5	17	22	23	102	125
Total	**3**	**112**	**112**	**224**	**22**	**17**	**39**	**134**	**129**	**263**
GRAND TOTAL	**16**	**426**	**255**	**683**	**69**	**44**	**113**	**495**	**299**	**794**

4.2 Farmers' Training including sponsored training programmes (off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										
Integrated Crop Management	2	57	2	59	5	0	5	62	2	64
Soil & water conservatioin										
Integrated nutrient management	3	91	28	119	11	5	16	102	33	135
Production of organic inputs										
Others (Improved production technology for SRI- TNIAMP)	2	78	3	81	0	0	0	78	3	81
Management of DSR during rainy season	1	38	10	48	0	0	0	38	10	48
High yielding technologies for rice fallow pulses	2	49	2	51	0	0	0	49	2	51
Total	**10**	**313**	**45**	**358**	**16**	**5**	**21**	**329**	**50**	**379**
II Horticulture										
a) Vegetable Crops										
Production of low value and high valume crops										
Off-season vegetables										
Nursery raising										
Exotic vegetables										
Export potential vegetables										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Grading and standardization										
Protective cultivation										
Others (pl specify)										
Total (a)										
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)										
Total (c)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
GT (a-g)										
III Soil Health and Fertility Management										
Soil fertility management	1	15	15	30	0	0	0	15	15	30
Integrated water management	1	63	17	80	6	0	6	69	17	86
Integrated Nutrient Management	2	60	35	95	0	0	0	60	35	95
Production and use of organic inputs	1	30	0	30	0	0	0	30	0	30
Management of Problematic soils	1	25	0	25	2	0	2	27	0	27

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing	1	36	2	38	0	0	0	36	2	38
Others (pl specify)										
Total	**7**	**229**	**69**	**298**	**8**	**0**	**8**	**237**	**69**	**306**
IV Livestock Production and Management										
Dairy Management										
Poultry Management	1	20	0	20	0	0	0	20	0	20
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Disease Management	1	29	10	39	10	0	10	39	10	49
Feed & fodder technology	2	50	6	56	5	0	5	55	6	61
Production of quality animal products										
Others (pl specify)										
Total	**4**	**99**	**16**	**115**	**15**	**0**	**15**	**114**	**16**	**130**
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet	1	5	12	17	0	0	0	5	12	17
Minimization of nutrient loss in processing										
Processing and cooking										
Gender mainstreaming through SHGs										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Storage loss minimization techniques										
Value addition	1	0	12	12	0	9	9	0	21	21
Women empowerment										
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)										
Total	**2**	**5**	**24**	**29**	**0**	**9**	**9**	**5**	**33**	**38**
VI Agril. Engineering										
Farm Machinary and its maintenance										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (Bhendi ring cutter)	1	7	4	11	3	1	4	10	5	15
Total	1	7	4	11	3	1	4	10	5	15
VII Plant Protection										
Integrated Pest Management										
Integrated Disease Management	1	24	0	24	6	0	6	30	0	30
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Others (pl specify)										
Total	**1**	**24**	**0**	**24**	**6**	**0**	**6**	**30**	**0**	**30**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production										
Apiculture										
Others (pl specify)										
Total										
X Capacity Building and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (pl specify)										
Total										
GRAND TOTAL	**25**	**677**	**158**	**835**	**48**	**15**	**63**	**725**	**173**	**898**

4.3 Farmers' Training including sponsored training programmes – CONSOLIDATED (On + Off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										
Integrated Crop Management	4	98	20	118	7	6	13	105	26	131
Soil & water conservatioin										
Integrated nutrient management	4	121	38	159	26	5	31	147	43	190
Production of organic inputs										
Others (pl specify)										
Others (Improved production technology for SRI- TNIAMP)	2	78	3	81	0	0	0	78	3	81
Management of DSR during rainy season	1	38	10	48	0	0	0	38	10	48
High yielding technologies for rice fallow pulses	2	49	2	51	0	0	0	49	2	51
Total	**13**	**384**	**73**	**457**	**33**	**11**	**44**	**417**	**84**	**501**
II Horticulture										
a) Vegetable Crops										
Production of low value and high valume crops										
Off-season vegetables										
Nursery raising										
Exotic vegetables										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Export potential vegetables										
Grading and standardization										
Protective cultivation										
Others (Roof top garden)	1	41	7	48	5	0	5	46	7	53
Total (a)	**1**	**41**	**7**	**48**	**5**	**0**	**5**	**46**	**7**	**53**
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)										
Total (c)										
d) Plantation crops										
Production and Management technology										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Processing and value addition										
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
GT (a-g)	**1**	**41**	**7**	**48**	**5**	**0**	**5**	**46**	**7**	**53**
III Soil Health and Fertility Management										
Soil fertility management	2	39	18	57	4	5	9	43	23	66
Integrated water management	1	63	17	80	6	0	6	69	17	86
Integrated Nutrient Management	2	60	35	95	0	0	0	60	35	95
Production and use of organic inputs	1	30	0	30	0	0	0	30	0	30

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Management of Problematic soils	1	25	0	25	2	0	2	27	0	27
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing	1	36	2	38	0	0	0	36	2	38
Others (Remote senses used information for Crop coverage, Yield estimation and drought monitoring	1	15	32	47	0	0	0	15	32	47
Total	**9**	**268**	**104**	**372**	**12**	**5**	**17**	**280**	**109**	**389**
IV Livestock Production and Management										
Dairy Management										
Poultry Management	1	20	0	20	0	0	0	20	0	20
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Disease Management	1	29	10	39	10	0	10	39	10	49
Feed & fodder technology	2	50	6	56	5	0	5	55	6	61
Production of quality animal products										
Others (Slatted goat rearing)	1	13	5	18	0	0	0	13	5	18
Total	**5**	**112**	**21**	**133**	**15**	**0**	**15**	**127**	**21**	**148**
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet	1	5	12	17	0	0	0	5	12	17
Minimization of nutrient loss in processing										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Processing and cooking										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	2	11	20	31	0	15	15	11	35	46
Women empowerment										
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)										
Total	**3**	**16**	**32**	**48**	**0**	**15**	**15**	**16**	**47**	**63**
VI Agril. Engineering										
Farm Machinary and its maintenance										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (Bhendi ring cutter)	1	7	4	11	3	1	4	10	5	15
Total	**1**	**7**	**4**	**11**	**3**	**1**	**4**	**10**	**5**	**15**
VII Plant Protection										
Integrated Pest Management	2	42	19	61	5	2	7	47	21	68
Integrated Disease Management	1	24	0	24	6	0	6	30	0	30
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others (pl specify)										
Total	**3**	**66**	**19**	**85**	**11**	**2**	**13**	**77**	**21**	**98**
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production	1	33	11	44	6	0	6	39	11	50
Organic manures production										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production	1	49	27	76	9	5	14	58	32	90
Apiculture										
Others (pl specify)										
Total	**2**	**82**	**38**	**120**	**15**	**5**	**20**	**97**	**43**	**140**
X CapacityBuilding and Group Dynamics										
Leadership development										
Group dynamics	1	15	3	18	1	3	4	16	6	22
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total	**1**	**15**	**3**	**18**	**1**	**3**	**4**	**16**	**6**	**22**
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems	2	94	27	121	17	0	17	111	27	138
Others (Environmental Awareness and Tree planting Programme)	1	18	85	103	5	17	22	23	102	125
Total	**3**	**112**	**112**	**224**	**22**	**17**	**39**	**134**	**129**	**263**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
GRAND TOTAL	**41**	**1103**	**413**	**1516**	**117**	**59**	**176**	**1220**	**472**	**1692**

4.4 Training for Rural Youths including sponsored training programmes (On campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming	2	68	4	72	5	1	6	73	5	78
Seed production	1	20	0	20	0	0	0	20	0	20
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production	1	40	15	55	2	0	2	42	15	57
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition	3	57	42	99	4	0	4	61	42	103
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										

Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (High yielding technologies for pulses production)										
TOTAL	7	185	61	246	11	1	12	196	62	258

4.5 Training for Rural Youth including sponsored training programmes (Off campus)

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production	1	30	20	50	0	0	0	30	20	50
Production of organic inputs										

Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition	2	26	42	68	5	3	8	31	45	76
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (High yielding technologies for pulses production)										
TOTAL	3	56	62	118	5	3	8	61	65	126

4.6 Training for Rural Youths including sponsored training programmes–CONSOLIDATED (On + Off campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming	2	68	4	72	5	1	6	73	5	78
Seed production	2	50	20	70	0	0	0	50	20	70
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production	1	40	15	55	2	0	2	42	15	57
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition	5	83	84	167	9	3	12	92	87	179
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing										

Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (pl.specify)										
TOTAL	10	241	123	364	16	4	20	257	127	384

4.7 Training programmes for Extension Personnel including sponsored training programmes (On campus)

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management	3	122	24	146	0	0	0	122	24	146
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										

Gender mainstreaming through SHGs										
Formation and Management of SHGs	1	41	7	48	0	0	0	41	7	48
Women and Child care										
Low cost and nutrient efficient diet designing	1	0	14	14	0	16	16	0	30	30
Group Dynamics and farmers organization	2	88	11	99	0	0	0	88	11	99
Information networking among farmers	2	85	12	97	0	0	0	85	12	97
Capacity building for ICT application	2	82	11	93	0	0	0	82	11	93
Management in farm animals	1	1	22	23	0	0	0	1	22	23
Livestock feed and fodder production										
Household food security										
Any other (Stage specific bio inaculants products for organic rice)	1	8	9	17	0	0	0	8	9	17
Monthly Zonal meeting-Ecofriendly methods of pest and disease management for paddy	2	90	9	99	0	0	0	90	9	99
TOTAL	15	517	119	636	0	16	16	517	135	652

4.8 Training programmes for Extension Personnel including sponsored training programmes (off campus)

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										

Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Management in farm animals										
Livestock feed and fodder production										
Household food security										
Any other (pl.specify)										
TOTAL										

4.9 Training programmes for Extension Personnel including sponsored training programmes – CONSOLIDATED (On + Off campus)

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management	3	122	24	146	0	0	0	122	24	146
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs	1	41	7	48	0	0	0	41	7	48
Women and Child care										

Low cost and nutrient efficient diet designing	1	0	14	14	0	16	16	0	30	30
Group Dynamics and farmers organization	2	88	11	99	0	0	0	88	11	99
Information networking among farmers	2	85	12	97	0	0	0	85	12	97
Capacity building for ICT application	2	82	11	93	0	0	0	82	11	93
Management in farm animals	1	1	22	23	0	0	0	1	22	23
Livestock feed and fodder production										
Household food security										
Any other (Stage specific bio inaculants products for organic rice)	1	8	9	17	0	0	0	8	9	17
Monthly Zonal meeting-Ecofriendly methods of pest and disease management for paddy	2	90	9	99	0	0	0	90	9	99
TOTAL	**15**	**517**	**119**	**636**	**0**	**16**	**16**	**517**	**135**	**652**

4.10 Sponsored training programmes

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Increasing production and productivity of crops										
Commercial production of vegetables										
Pest management in blackgram	1	14	0	14	4	0	4	18	0	18
IPDM in cotton	1	20	0	20	3	0	3	23	0	23
Stage specific bio inaculants products for organic rice	8	117	109	226	19	9	28	136	118	284
Production and value addition										
Fruit Plants										
Ornamental plants										
Spices crops										
Soil health and fertility management										
Production of Inputs at site										
Methods of protective cultivation										
Others (pl. specify)										
Total	**10**	**151**	**109**	**260**	**26**	**9**	**35**	**127**	**118**	**295**
Post harvest technology and value addition										
Processing and value addition										
Others (pl. specify)										
Total										
Farm machinery										
Farm machinery, tools and implements	1	32	0	32	4	0	4	36	0	36
Others (pl. specify)										
Total	**1**	**32**	**0**	**32**	**4**	**0**	**4**	**36**	**0**	**36**

Livestock and fisheries										
Livestock production and management										
Animal Nutrition Management										
Animal Disease Management										
Fisheries Nutrition										
Fisheries Management										
Others (pl. specify)										
Total										
Home Science										
Household nutritional security										
Economic empowerment of women										
Drudgery reduction of women										
Others (pl. specify)										
Total										
Agricultural Extension										
CapacityBuilding and Group Dynamics										
Others (pl. specify)										
Total										
GRAND TOTAL	**11**	**183**	**109**	**292**	**30**	**9**	**39**	**213**	**118**	**331**

4.11 Name of sponsoring agencies involved : ATMA, NMSA-NADP

4.12 Details of vocational training programmes carried out by KVKs for rural youth

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Crop production and management										
Commercial floriculture										

Commercial fruit production										
Commercial vegetable production										
Integrated crop management										
Organic farming	1	24	0	24	0	0	0	24	0	24
Others (pl. specify)										
Total	**1**	**24**	**0**	**24**	**0**	**0**	**0**	**24**	**0**	**24**
Post harvest technology and value addition										
Value addition	1	0	17	17	0	3	3	0	20	20
Others (Nutri garden)	1	0	22	22	1	3	4	1	25	26
Total	**2**	**0**	**39**	**39**	**1**	**6**	**7**	**1**	**45**	**46**
Livestock and fisheries										
Dairy farming										
Composite fish culture										
Sheep and goat rearing										
Piggery										
Poultry farming										
Others (pl. specify)										
Total										
Income generation activities										
Vermicomposting										
Production of bio-agents, bio-pesticides,										
bio-fertilizers etc.										
Repair and maintenance of farm machinery										
and implements										
Rural Crafts										

Seed production										
Sericulture										
Mushroom cultivation	1	0	50	50	0	12	12	0	62	62
Nursery, grafting etc.										
Tailoring, stitching, embroidery, dying etc.										
Agril. para-workers, para-vet training										
Others (pl. specify)										
Total	**1**	**0**	**50**	**50**	**0**	**12**	**12**	**0**	**62**	**62**
Agricultural Extension										
Capacity building and group dynamics										
Others (pl. specify)										
Total										
Grand Total	**4**	**24**	**89**	**113**	**1**	**18**	**19**	**25**	**107**	**132**

5. EXTENSION PROGRAMMES

5.1 Extension programmes conducted

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	TOTAL
Advisory Services	617	2841	107	2948
Diagnostic visits	162	595	24	619
Field Day	20	320	11	331
Group discussions	16	300	2	302
KisanGhosthi	2	917	12	929
Film Show	88	3283	34	3317
Self -help groups	6	284	0	284
KisanMela	5	1710	15	1725
Exhibition	11	12518	37	12555
Scientists' visit to farmers field	127	1035	33	1068
Plant/animal health camps	9	3215	20	3235
Farm Science Club				0
Ex-trainees Sammelan				0
Farmers' seminar/workshop	5	560	25	585
Method Demonstrations	94	3374	21	3395
Celebration of important days	7	368	9	377
Special day celebration	4	447	5	452
Exposure visits	3	90	2	92
Others (Awareness programmes)	4	474	16	490
Swatcha activities	17	421	0	421
Total	**1197**	**32752**	**373**	**33125**

5.2 Details of other extension programmes

Particulars	Number
Electronic Media (CD./DVD)	6
Extension Literature	19
News paper coverage	302
Popular articles	17
Radio Talks	24
TV Talks	3
Animal health amps (Number of animals treated)	50
Others (Bi Monthly Newsletters)	1
Farmers visit to KVK	928
Lectures delivered as resource person	38
Research Articles	9
Success stories	4
Total	**1401**

6. MOBILE ADVISORY SERVICES

6.1. No of registered farmers on m-kisan portal:

6.2 Details of messages sent through m-kisan portal

Types of Messages	Crop		Livestock		Weather		Marketing		Awareness		Other enterprise		Total	
	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	messages	No of farmers
Text only	63	691990	9	75268			2	22390	3	29650	5	48793	82	868091
Voice only														
Voice & Text														
Total	63	691990	9	75268			2	22390	3	29650	5	48793	82	868091

6.3 MOBILE ADVISORY SERVICES THROUGH OTHERS

No of registered farmers: 13248

Types of Messages	Crop		Livestock		Weather		Marketing		Awareness		Other enterprise		Total	
	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers	No of messages	No of farmers
Text only	268	27699	22	2511	52	5288	11	1427	104	8554	5	576	462	46055
Voice only	5	517	5	537	-								10	1054
Voice & Text	2	206	1	7									3	213
Total	275	28422	28	3055	52	5288	11	1427	104	8554	5	576	475	47322

7. DETAILS OF TECHNOLOGY WEEK CELEBRATIONS

Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
Gosthies			
Lectures organised			
Exhibition			
Film show			
Fair			
Farm Visit			
Diagnostic Practicals			
Distribution of Literature (No.)			
Distribution of Seed (q)			
Distribution of Planting materials (No.)			
Bio Product distribution (Kg)			
Bio Fertilizers (q)			
Distribution of fingerlings			
Distribution of Livestock specimen (No.)			
Total number of farmers visited the technology week			

8. PRODUCTION OF SEED/PLANTING MATERIAL AND BIO-PRODUCTS

8.1 Production of seeds by the KVKs (quintal)

Enterprise	Name of crop	Variety	Seed produced		Seed supplied to farmers						Seed supplied to other agencies	
					Free seed			Priced seed				
			Quantity (q)	Value (Rs)	Quantity (q)	No of farmers	Value (Rs)	Quantity (q)	No of farmers	Value (Rs)	Quantity (q)	Value (Rs)
CEREALS	Wheat											
	Paddy	CR 1009 sub 1	319	852812	0	0	0	319	138	852812	0	0
	Maize											
	Sorghum (Jowar/Cholam/Jonna)											
	Pearl Millet (Bajra/Cumbu/Sajja)											
	Finger millet (Ragi)											
	Foxtail Millet (Korra/Thenai)											
	Barnyard Millet (Kuthiraivali/Udalu, Kodisama)											
	Kodo Millet (Varagu/Arikelu)											
	Little Millet (Samai/Samalu)											
	Proso Millet (PaniVaragu/variga)											
	Barley											
	Brown top millet											
	Total Cereals		**319**	**852812**	0	0	0	**319**	**138**	**852812**	0	0
OIL SEEDS	Groundnut											
	Sunflower											
	Safflower											

	Sesame											
	Castor											
	Niger											
	Rapeseed & Mustard											
	Linseed											
	Soybean											
	Total Oil Seds											
PULSES	Pigeon pea (Red Gram)											
	Chick pea (Bengal gram)											
	Green gram											
	Black gram											
	Cowpea											
	Horse gram											
	Lentil											
	Rajma											
	Field pea											
	Total Pulses											
VEGATABLES	Bhendi (Okra/Ladies finger)											
seeds	French bean											
	Radish											
	Onion											
	Chilli (Seeds)											
	Tomato (Seeds)											
	Brinjal (Seeds)											
	Gourds (snake, bottle, bitter, ribbed etc)											
	Pumpkin											
	Vegetable Pea											
	Total Vegetables											

FRUITS												
seeds												
	Total Fruits											
FLOWERS												
seeds												
	Total Flowers											
SPICES	Turmeric rhizome											
seeds	Coriander											
	Garlic											
	Fenugreek											
	Total Spices											
FODDER	Fodder Sorghum											
seeds	Fodder Cowpea											
	Desmanthus/Hedge lucerne											
	Lucerne											
	Stylo											

	Alfalfa											
	Berseem											
	Total Fodder											
Special Planting	Potato											
Materials	Small onion bulb											
(Quintals)	Sugarcane setts (if sold by weight)											
	Total special planting materials											
GREEN	Dhaincha											
MANURE	Sesbania											
seeds	Sunnhemp											
	Other Green manure seeds											
	Total Green Menure seeds											
COMMERCIAL	Cotton											
CROPS	Other Commercial Crop seeds											
seeds	Other Commercial Crop seeds											
	Total Commercial Crops											
	Grand Total of Seeds		**319**	**852812**	0	0	0	**319**	**138**	**852812**	0	0

8.2 Production of planting materials by the KVKs (seedlings, cuttings. Slips in numbers)

Enterprise	**Name of crop**	**Variety**	**Planting material produced**		**Planting material supplied to farmers**						**Planting material supplied to other agencies**	
					Free supply			**Priced**				
			Quantity (Nos)	**Value (Rs)**	**Quantity (Nos)**	**No of farmers**	**Value (Rs)**	**Quantity (Nos)**	**No of farmers**	**Value (Rs)**	**Quantity (Nos)**	**Value (Rs)**
VEGATABLES	Brinjal seedlings											

	Chilli seedlings											
	Tomato seedlings											
	Cabbage seedlings											
	Cauliflower seedlings											
	Broccoli seedlings											
	Capsicum seedlings											
	Onion seedlings											
	Onion bulb (aggregatum)											
	Cucumber seedlings											
	Bottle gourd seedlings											
	Bitter gourd seedlings											
	Sponge gourd seedlings											
	Pumpkin seedlings											
	Knolkhole seedlings											
	Summer Squash seedlings											
	Marrow seedlings											
	Total Vegetable planting materials											
FRUITS	Aonla											
grafts	Litchi											
seedlings and	Mango											
cuttings	Papaya seedlings											
	Guava											
	Jack fruit											
	Beal											
	Citrus											
	Lemon											
	Mausammi											
	Karonda											

	Pomegranate											
	Custard apple											
	Apple											
	Ber											
	Jamun											
	Pear											
	Peach											
	Kiwi											
	Apricot											
	Walnut											
	Banana succers											
	Banana seedlings											
	Total Fruit planting materials											
FLOWERS AND	Marigold											
ORNAMENTAL	Tube Rose (Rajnigandha)											
PLANTS	Chrysanthmum											
seedlings and	Rose											
cuttings	Hibiscus (Gudhal)											
	Crotan plant											
	Calandula (Pot marigold)											
	Vervina											
	Pendula											
	Baugainvillia											
	Durenta Golden											
	Gladiolus											
	Harshingar											
	Glardia											

	Ficusbenajamina											
	Red erration											
	Poppy											
	Sweet William											
	Chirayata											
	Ashok											
	Total Flowers and Ornamental planting materials											
MEDICINAL	Lemon Grass											
AND	Aswagandha											
AROMATIC	Satawar											
PLANTS	Mahogani											
seedlings and	Turmeric											
cuttings												
	Total medicinal and aromatic											
FORESTRY	Poplar											
AND	Arjun											
PLANTATION	Siris											
CROPS	Catechu											
seedlings and	Chironji											
cuttings	Mahua											
	Karanj											
	Neem											
	Teak											

	Eucalyptus											
	Saguan											
	Samel											
	Casuarina											
	Coconut seedlings											
	Arecanut seedlings											
	Total forest and plantation crops											
FODDER	Napier grass											
slips	Para grass											
	Super Napier grass	Super Napier	27851	33421	0	0	0	27851	32	33421	0	0
	Sudax Chery											
	Cumbu Napier grass (Co 3, Co 4, Co 5 etc)											
	Other fodder plants (Specify)											
	Total Fodder crops	Super Napier	27851	33421	0	0	0	27851	32	33421	0	0
SPICES	Turmeric											
	Coriander											
	Garlic											
	Fenugreek											
	Other Fibre Crops (Specify - seed only)											
	Total Spices											
	Fodder Sorghum											
	Fodder Cowpea											
	Desmanthus/Hedge lucerne											
	Lucerne											
	Stylo											

	Alfalfa											
	Berseem											
	Other Fodder Seeds											
	Total Fodder											
GREEN	Dhaincha											
MANURE	Sesbania											
	Sunnhemp											
	Other Green manure seeds											
	Total Green Menure seeds											
Special Planting	Mushroom spawn											
Materials	Sugarcane setts (If sold by Numbers)											
sold by numbers	Other seed materials (sold by numbers)											
	Total special planting materials											
Any other planting material sold by numbers	Paddy seedlings											
	Any other (specify)											
	Total Commercial Crops											
	Grand Total of Seeds	Super Napier	27851	33421	0	0	0	27851	32	33421	0	0

8.3 Production of Bio-Products

Category	Name of the product	Commercial name (if any)	Bio-products produced		Bio-products supplied to farmers						bio-products supplied to other agencies	
					Free distribution			Priced				
			Quantity (kg)	Value (Rs)	Quantity (kgs)	No of farmers	Value (Rs)	Quantity (kgs)	No of farmers	Value (Rs)	Quantity (kgs)	Value (Rs)
Bio-fertilizers	Rhyzobium											
	Azotobacter											
	Acetobacter											
	Azospirillum											
	BGA											
	Azolla	-	54	2700	0	0	0	54	26	2700	0	0
	VAM											
	Phosphate solubilizers											
	Potassium Solubilizers											
	Sulphur Solubilizers											
	Waste decomposer											
	Bio composting culture											
	Other Effective Micro Organisms (Specify)											
	Total bio-fertilizers		54	2700	0	0	0	54	26	2700	0	0
Bio-inputs	Panchakavya											
	Vermicompost		3400	34000	0	0	0	3400	128	34000	0	0
	Earthworms for vermicompost											
	Compost											
	Other bio-inputs (specify)											
	Total bio-inputs		3400	34000	0	0	0	3400	128	34000	0	0

Bio-Pesticides	*Beauveriabassiana*											
for insect pests	*Trichoderma viridi*											
Fungal diseases	*Metarrhiziumanisoplae*											
Nematodes	*Psuedomonas*		1732	290976	0	0	0	1732	465	290976	0	0
	EPN											
	Trichogramma (Unit)											
	Insect Parasitoids (Specify)											
	Insect Parasitoids (Specify)											
	Insect Parasitoids (Specify)											
	Insect Parasitoids (Specify)											
	Insect Parasitoids (Specify)											
	Neem Soap											
	Pongamia Soap											
	Botanicals (Specify)											
	Total bio-pesticides		1732	290976	0	0	0	1732	465	290976	0	0
	Total bio-products		5186	327676	0	0	0	5186	619	327676	0	0

8.4 Production of livestock materials

Category	**Name of the livestock/fish/feed**	**Variety/improved species name/Commercial name (if any)**	**Production**		**Supplied to farmers**						**Supplied to other agencies**	
					Free distribution			**Priced**				
			Quantity (No)	**Value (Rs)**	**Quantity (No)**	**No of farmers**	**Value (Rs)**	**Quantity (No)**	**No of farmers**	**Value (Rs)**	**Quantity (No)**	**Value (Rs)**
Dairy	Cow											

cattle												
	Cow											
	Cow Calf											
	Cow Calf											
	Bufallo											
	Bufallo											
	Bufallo calf											
	Bufallo calf											
	Other diary cattle (Specify)											
	Total Dairy Cattle											
Goat and Sheep	Goat	Tellichery goat	5	31500	0	0	0	5	5	31500	0	0
	Goat											
	Goat											
	Sheep											
	Sheep											
	Sheep											
	Lamb											
	Lamb											
	Other goat/sheep (Specify)											
	Total goat and sheep	Tellichery goat	5	31500	0	0	0	5	5	31500	0	0
Poultry	Desi bird											
	Desi bird											
	Desi bird chicks											
	Desi bird chicks											
	Broiler											
	Layer											

	Dual purpose birds											
	Japanese Quail											
	Turkey											
	Emu											
	Ducks											
	Desi bird egg											
	Broiler hybrid egg											
	Layer egg (breeding)											
	Egg (Commercial)											
	Quail egg (breeding)											
	Quail egg (commercial)											
	Others under poultry (specify)											
	Total poultry											
PIGGERY	*Pigs adults*											
	Piglets											
	Pork											
	Others related to piggery)											
	Total Piggery											
FISHERY	Fingerlings of Fish type (specify)											
	Fish meat (kg)											
	Total Fishery											
	Grand Total Livestock and fishery		5	31500	0	0	0	5	5	31500	0	0

9. DETAILS OF SOIL, WATER AND PLANT ANALYSIS

Samples/ SHC	No. of Samples		No. of Farmers	No. of Villages	Amount realized (Rs.)
	Using Mini Soil Testing Lab	Through Traditional Lab			
Soil samples	435	-	393	163	40686
Soil Health Cards (SHC)	435	-	393	163	

Samples	No.of Samples	No.of Farmers	No.of Villages	Amount realized (Rs.)
Water	63	56	29	3181
Plant				
Manure				
Others (pl.specify)				
Total	63	56	29	3181

10. SCIENTIFIC ADVISORY COMMITTEE

Date of SAC meeting	Number of members attended
07.03.2020	26

Note: please attach the proceedings of sac meeting along with the list of participants

Scientific Advisory Committee Meeting- proceedings

The 9th Scientific Advisory Committee Meeting of ICAR-Krishi Vigyan Kendra, Needamangalam was held at KVK, Needamangalam on 07.03.2020. **Dr. M.Jawaharlal**, Director of Extension Education, TNAU, Coimbatore, presided over the function. **Dr. R. Rajendran**, Dean, AC&RI, Thanjavur graced the occasion by his presence and offered valuable suggestions. **Th.V.Balakrishnan, IPS**, DIG of Trichy region visited KVK and participated as a special guest on that event

The following official and non official members of Scientific Advisory Committee participated in the meeting.

S. No	Name	Designation	Address	Affiliation
1	Dr.M.Jawaharlal	Director of Extension Education	Tamil Nadu Agricultural University, Coimbatore-3	Member
2	Dr. R. Rajendran	Dean	AC&RI, Thanjavur	Special invitee
3	Dr.A.Baskaran	Principal Scientist	ATARI, Zone X, Hydrabad	Member
4	Th.A.Raveendran	Deputy Director of Agriculture (GOI)	Collectorate Complex, Thiruvarur	Member
5	Th. Patrick Jasper	District Development Manager	NABARD, Tiruvarur	Member
6	Dr. M.A. Johnson Charles	Assistant Director of Animal Husbandry	Department of Animal Husbandry, Mannargudi	Member
7	Th.D.Ramajeyam	Principal Scientist (Horticulture)	NRCB, Trichy	Member
8	Dr. M.Kathirchelvan	Associate Professor and Head	Farmers Training Centre,(TANUVAS) Tiruvarur	Member
9	Er.Mohamed Bahrutheen	PA to Executive Engineer(AED),	Department of Agricultural Engineering , Thiruvarur	Member
10	Th.K.Elavarasan	Assistant Director of Horticulture	Department of Horticulture, Mannargudi	Member
11	Th.M.Chandramani	Inspector of fisheries	Department of fisheries, Thiruvarur	Member

12	Dr.R.Suresh	Assistant Professor (Agronomy)	Tamil Nadu Rice Research Institute, Aduthurai	Member
13	Th.M.Periasami	Forester	District Forest office, Thiruvarur	Member
14	Th.A.Ashok	PA (Agri)	Collectorate Complex, Thiruvarur	Member
15	Th.M.Raja	Agriculture Officer	Agricultural Business and Marketing, Thiruvarur	Member
16	Th.Elilarasan	Lead District Manager	Indian Overseas Bank, Thiruvarur	Member
17	Tmt.S.Shanthi	Junior Inspector of Sericulture	Regional office, Department of Sericulture, Trichy	Member
18	Th. R.Sureshkumar	Agricultural Officer	Office of the Assistant Director of Agriculture Thanjavur Road, Needamangalam	Member
19	Th.S.Ganeshkamalakannan	Progressive farmer- Big Farmer	Kothankudi, Arasavanankadu Kodavasal Taluk, Thiruvarur District	Non-official member
20	Th.V.R.Gopalakrishnan	Progressive farmer-Small Farmer	No 10/13A, Rajan street Vaduvur Thenpathi, Needamangalam Taluk Thiruvarur District	Non-official member
21	Tmt.M.Maharani	Progressive farmer-Women Farmer	Tmt.M.Maharani 59/B Mela kudiyana street, Rishiyur Peramboor Post, Needamangalam Taluk Thiruvarur Districrt	Non-official member

22	Mrs.G.Latha	Progressive farmer-Women Farmer	Mrs.G.Latha 1, Karaimettutheru, Pullavarayan kudikadu (Post), Needamangalam (Tk), Thiruvarur (Dt).	Non-official member
23	Mr.Paramasivam	Agri –entrepreneur	S/o Chidambaram Ovarkudi , Thiruthuraipoondi (TK) Thiruvarur District	Agri – entrepreneur
24	Th.U.Elangovan	Agri –entrepreneur	Poovanur Post Needamangalam Taluk Thiruvarur District	Agri – entrepreneur
25	Mrs.S.Mohanammal	Chair person of Women Self Help Group	W/o. Selvakumar Keezhapattu, Rayapuram post Needamangalam(TK) Thiruvarur District	Head, SHG
26	Dr.M.Ramasubramanian	Programme Coordinator	ICAR Krishi Vigyan Kendra, Needamangalam Thiruvarur District	Member Secretary

Dr.M.Ramasubramanian, Programme Coordinator, welcomed the gathering of the meeting and explained the action taken on the recommendations of the 8 th SAC meeting conducted on 15.03.2019. He also presented the overview of ICAR-KVK and its mandatory activities since last SAC.

During the presidential address, the Respected Director of Extension Education, appealed to SAC members to provide their valuable suggestions to be executed by ICAR-KVK for the welfare of the farmers of Thiruvarur District. He has insisted that the ICAR-KVK and line departments have to work together for uplifting the socio economic conditions of farmers of Thiruvarur District

All the SAC members gave their valuable suggestions for strengthening TOT activities of ICAR-KVK in the forthcoming year. A book on Rice cultivation techniques along with 7 folders covering various hitech technologies suitable for Cauvery Delta Zone were released during this programme. Exhibition showcasing innovations of youth and products of entrepreneurs were also displayed.

At the end **Dr. A.Anuratha**, Subject Matter Specialist (SS&AC) proposed vote of thanks.

11. PUBLICATIONS

Publications in journals

S.No	Authors	Year	Title	Journal
1	A.Anuratha, R.Ravi and J.Selvi	2019	Cluster front line demonstration in green gram variety CO 8 at Nagapattinam district of Tamil Nadu.	Journal of pharmacognosy and phytochemistry 8 (sp 2), 726-729
2	A.Anuratha, R.Ravi and J.Selvi	2019	Impact of cluster front line demonstration on Black gram in Nagapattinam district of Tamil Nadu	Journal of pharmacognosy and phytochemistry 8 (sp 2), 722-725
3	A.Anuratha, V.Vigila, V.Krishnan and R.Chandirakala	2019	Performance of salt tolerant paddy varieties for Nagapattinam district of Tamil Nadu.	International Journal of Chemical Studies-7(6), 1257 – 1259.
4	Anuratha, M. Ramasubramanian, V.Vigila and R. Ramesh	2019	Paddy - Pulses system as an alternative resilient technology for livelihood security at NICRA Village in Thiruvarur district of Tamil Nadu.	International Journal of Chemical Studies 7(6), 480-482.
5	A.Anuratha, M.Ramasubramanian, V.Vigila and R. Ramesh.	2019	Distribution of Soil nutrients and fertilizer recommendation for paddy at NICRA village in Thiruvarur district of Tamil Nadu	International Journal of Chemical Studies. 7(6), 483-486.
6	A Anuratha, V Vigila, M Ramasubramanian and R Ramesh	2019	Flood tolerant paddy variety (Swarna sub 1) impart resilience to farmers in flood prone areas of NICRA village, Thiruvarur district, Tamil Nadu, India	International Journal of Chemical Studies,SP 6 PP 165-167 NAAS rating for 2019 5.31
7	J.Vanithasri and R.Kathurithilagam	2019	Quality parameters of Lentil boondhi	International Journl of Applied Home Science. Vol 6 (1),18-22
8	J.Vanithasri, S.Kanchana and P.Karuppasamy	2019	Storage stability of Tamarind Ready To Serve (RTS) beverages	International Journl of Current Microbiology and Applied Science.Vol 8 (11), 1752-1761
9	R.Kasthurithilagam,	2019	Effects on Anti microbial activity of Vathal	International journal of current

	R.Saravanakumar and J.Vanithasri		kulambu dry spice mix on Food borne pathogens	microbiology and applied science. Vol (8) 8, 2625 - 2630

Other publications

S.No	Item	Year	Authors	Title	Publisher
1	Books	2019	A.Rajeshkumar, M.Ramasubramanian, A.Anuratha, Raja Ramesh, J.Vanitha sree and V.Vigila	Different rice cultivation techniques suitable for various climate	Shanlax publication, Madurai ISBN No:978-93-88398-70-1
2	Books	2019	M.Ramasubramanian, A.Anuratha, Raja Ramesh, J.Vanitha sree,A.Rajeshkumar,T.Rekha,Durai.Nakkiren, R.Sakunthala and V.Vigila	Water management in Agriculture	Shanlax publication, Madurai ISBN 978-93-89146-60-8
3	Books	2020	Ramesh.R., M.Jawaharlaal,M.Ramasubramanian	Technical Newsclippings suitable for crops of Cauvery Delta Zone	Shanlax publication, Madurai ISBN 978-93-89658-96-5
4	Books	2019	Ramesh.R.,M.Jawaharlaal, M.Ramasubramanian, A.Anuratha	High yielding techniques for paddy	Forschung Publications, Mogappair, Chennai ISBN 978-93-87865-28-0
2	Book chapters / manuals				
3	Training manuals				
4	Conference,				

	proceeding papers, popular articles, Bulletins, Short communications				
	Seminar / Conference papers				
1		2019	A.Anuratha, M. Ramasubramanian and V.Vijila	Use of Decision Supporting System for Integrated Fertilizer Recommendation (DSSIFER) software for Rice - AEC&RI, KUMULUR, TNAU	ISBN:978-93-5001-594-0.
2		2019	M. Ramasubramanian ,R. Ramesh and A.Anuratha	An analysis of value chain and Impact of Farmer Producer Companies (FPCS) in Tamil Nadu in doubling the Farmers Income- TNAU, Coimbatore	
3		2019	M.Ramasubramanian, A.Anuratha , R.Ramesh and V.Vijila	Economic fillip through fish enterpreneurship in National Innovations in Climate Resilient Agriculture (NICRA) Project in Thiruvarur district - Department of Veterinary and Animal Husbandry Extension Education, Madras Veterinary College, TANUVAS, Chennai, Tamil NADU, India	ISBN:978-93-85418-56-3
4		2019	J.Vanithasri and S.Kanchan	Physico chemical characters of barnyard millet	
5		2019	M. Ramasubramanian ,R. Ramesh and	An analysis of value chain and Impact	ISBN:978-93-5001-594-0.

			A.Anuratha	of Farmer Producer Companies (FPCS) in Tamil Nadu in doubling the Farmers Income. AEC&RI, KUMULUR, TNAU	
6		2020	R. Ramesh and M. Ramasubramanian	Biointensive Management of Rugose spiralling whitefly in coconut gardens of Thiruvarur District	
	Proceeding papers				
1		2019	A.Anuratha, M. Ramasubramanian and R.Chandirakala	Performance of salt tolerant rice varieties for Thiruvarur district of Tamil Nadu	
2		2019	A.Anuratha, V.Vigila, M. Ramasubramanian and R. Ramesh.	Paddy –Pulses system as an alternative resilient technology for Paddy – Fallow system	
3		2019	A.Anuratha , M. Ramasubramanian, R. Ramesh and V.Vigila	Assessment of Soil nutrients and recommendation of balanced fertilizer for enhancing rice productivity in NICRA village	
4		2019	A.Anuratha, M. Ramasubramanian, and K.Sivakumar	Spatial Distribution of Available Nutrients in the Soils of NICRA Village of Ramanathapuram District, Tamil Nadu	
	Popular articles				
1		2019	A.Anuratha , M.Ramasubramanian and A.Baskaran.	Technologies for direct sown rice suitable to Cauvery delta district Uzhavarin Valarum Velanmai- 10 (10) 9-13	
2		2019	A.Anuratha , V.Vigila and M.Ramasubramanian	Soil health management by organics Patchai Boomi August 2019	
3		2019	Dr.A.Rajeshkumar and Dr. M.	Super nappier. King of fodders.	

			Ramasubramanian	Ulavarin valarum velanmai Sep 2019	
4		2019	A.Anuratha , V.Vigila and M.Ramasubramanian	New technologies for summer irrigated black gram. Kaalnadai velanmai 18-21 Nov 2019	
5		2019	A.Rajeshkumar and M. Ramasubramanian	Integrated farming syastem-Dinamani velanmani, 16.11.2019	
6		2020	A.Rajeshkumar and M. Ramasubramanian	Sesame cultivation techniques for enhancing the farmers income. Dinamani velanmani, 20.02.2020	
7		2019	A.Rajeshkumar and. M. Ramasubramanian	ICM in minor millets, Dinamani velanmani, 19.11.2019	
8		2019	R.Rajeshkumar M.Ramasubramanian	Duck farming Kaalnadai Velanmai, 20.02.2020	
9		2019	A.Anuratha , V.Vigila and M.Ramasubramanian	Integrated Nutrient Management for pulses Nilavalam 52 (7),Oct 2019	
10		2019	J.Vanithasri and M.Ramasubramanian	Meengalirundhu mathippoottapatta unavu porutkkal Pachai boomi April 2019 40-42	
11		2019	J.Vanithasri and M.Ramasubramanian	Puradhu sathu mikka payaruvagaigalin mukiyathuvam Dinamani	
12		2019	J.Vanithasri and M.Ramasubramanian	Manathalum gunthalum suvai migundha palaoandhangal- Krishi Jagran (19-21) July 2019	
13		2019	J.Vanithasri and M.Ramasubramanian	Murungaiyilirundhu mathippoottapatta unavu porutkkal Vuzhavarin valarum velanmai (36-41)	

				Dec 2019	
14		2019	R. Ramesh and M.Ramasubramanian	Care to be taken during spraying pesticides	
15		2019	Rajeshkumar, A, M. Ramasubramanian and R. Ramesh	Slatted goat rearing	
16		2019	Dr. R. Ramesh & Dr. M.Ramasubramanian	Bio fertilizers application for soil health management Dinamani - Velanmani 19.09.2019	
17		2019-20	Dr. R. Ramesh & Dr. M.Ramasubramanian	Pest control in pulses. Dinamani-Velanmani 30.01.2020	
18		2019	R. Ramesh and M.Ramasubramanian	Beneficial insects in paddy ecosystem	
19		2019	R. Ramesh and M.Ramasubramanian	Green manure crops-Pachchai Boomi 10. June 2019	
20		2019	R. Ramesh and M.Ramasubramanian	Rodent pest management September 2019 Pachchai Boomi 32-34.	
21		2019	R. Ramesh and M.Ramasubramanian	Natural enemies in paddy Dinamani - Velanmani 05.09.2019	
22		2019	Dr. R. Ramesh & Dr. M.Ramasubramanian	Ways to save paddy crop from pests. Dinamani - Velanmani- 03.10.2019	
23		2019	Dr. R. Ramesh & Dr. M.Ramasubramanian	Red palm weevil in coconut-Dinamani - Velanmani-20.06.2019	
24		2020	Vijila, M, R. Ramesh and M.Ramasubramanian	Integrated gall midge management in paddy Pacchai boomi Feb 2020 Page .38-39	
25		2020	Dr. R. Ramesh & Dr. M.Ramasubramanian	Mealy bug management in papaya Dinamani-Velanmani-05.03.2020	
26		2020	Vijila, M, R. Ramesh and M.Ramasubramanian	Nematode management by Agronomic practises- Nilavalam-Feb 2020 P.No 26-	

				27	
27		2019	Rajeshkumar.A and M. Ramasubramanian	Seasame in 6 Qtl per acre- Pacchai boomi -p31-32	
28		2019	Rajeshkumar.A and M. Ramasubramanian	Ways to maintain the crops in organic methods	
29		2019	Dr. R. Ramesh & Dr. M.Ramasubramanian	Techniques to save paddy crop in rainy season Dinamani-Velanmani-31.10.2019	
30		2019	Rajeshkumar.A and M. Ramasubramanian	Vermicompost techniques-Dinathanthi - Velanmai seithikal	
31		2019	Rajeshkumar R and M.Ramasubramanian	Azolla as fodder for livestock-Agri doctor	
32		2019	Rajeshkumar R and M.Ramasubramanian	Azolla as fodder for livestock-Agri doctor	
33		2019	Ramesh.R & M.Ramasubramanian-	Ways to control fall army warm-Pachchai Boomi 9 (3) 24-25.	
34		2019	Ramesh.R & M.Ramasubramanian-	American fall army warm in Maize-Dinamani - Velanmani	
35		2019	Ramesh.R & M.Ramasubramanian	How to control rat?-Dinamani - Velanmani	
36		2020	Ramesh.R & M.Ramasubramanian	Pest control in cottonn-Dinamani-Velanmani -06.02.2020	
5	**Technical bulletin/ Folders**				
1		2019	A.Anuratha,V.Vijila, M.Ramasubramanian, Raja Ramesh, J.Vanithasree and A.Rajeshkumar	Management of saline and alkaline soils	
2		2019	A.Anuratha,V.Vijila, M.Ramasubramanian, Raja Ramesh, J.Vanithasree and A.Rajeshkumar	ICM for flood tolerant paddy variety	

3		2019	A.Anuratha,V.Vijila, M.Ramasubramanian and S.Saravanan	Foliar application of nutrients.	
4		2019	A.Anuratha, M.Ramasubramanian, V.Vijila and Raja Ramesh.	INM for direct sown rice	
5		2019	A.Anuratha, M.Ramasubramanian, V.Vijila and J.Vanithasree	.INM for Rice	
6		2019	A.Anuratha, M.Ramasubramanian, V.Vijila and A.Rajeshkumar	Importance of biofertilizers and its uses	
7		2019	A.Anuratha, M.Ramasubramanian, V.Vijila and A.Rajeshkumar	Uses of Farm pond	
8		2019	A.Anuratha, M.Ramasubramanian, V.Vijila and Raja Ramesh	Irrigation water qualities and its management suitable for Cauvery delta	
9		2019	R.Sakunthala M.Ramasubramanian D.Reka D.Nakkiran	Drip Irrigation	
10		2019	R.Sakunthala M.Ramasubramanian D.Reka D.Nakkiran	Sprinkler Irrigation	
11		2019	R.Sakunthala M.Ramasubramanian D.Reka D.Nakkiran	Water measuring devises	
12		2019	J.Vanithasri, A.Baskran, M.Ramasubramanian, A.Anuratha and R.Ramesh	Nelli kaniyilirundhu mathippoottapatta unavu porutkkal thayarithal	

13		2019	J.Vanithasri, A.Baskran, M.Ramasubramanian, A.Anuratha and R.Ramesh	Arisiyilirundhu mathippoottapatta unavu porutkkal thayarithal	
14		2019	J.Vanithasri, A.Baskran, M.Ramasubramanian, A.Anuratha and R.Ramesh	Maambazhthilirundhu mathippoottapatta unavu porutkkal thayarithal	
15		2019	J.Vanithasri, M.Ramasubramanian, A.Anuratha and R.Ramesh, A.Rajeshkumar	Kaalanirundhu mathippootiya unavu porutkal	
16		2020	**R. Ramesh,** M.Ramasubramanian, A.Anuratha and S.Saravanan,	Integrated nematode management	
17		2019	**Dr.A.Rajeshkumar** M.Ramasubramanian	Paddy varieties suitable for Kuruvai season	

6	**Reports**	
i	Annual Progress Report- 2018-19	1
ii	Annual Action Plan 2019-20	1
iii	Scientific Advisory Committee Report-07.03.2020	1
iv	QRT Report (2012-13-2018-19)	1
v	NICRA Annual Report 2018-19	1
vi	NICRA Action Plan Report 2019-20	1
vii	Cluster FLD Annual Report 2018-19	1
viii	Monthly Reports to ATARI and DEE	1
ix	TNIAMP Annual Report 2018-19	1
x	Other Technical Reports	8
7	**others- Booklets**	
1		2019
2		2019
3		2019

4		2019
5		2019
8	**Success Story**	
1	Success Story	2019
2	Success Story	2020
3	Success Story	2019
9	News items	2019-20

Newsletter/Magazine

Name of News letter/Magazine	Frequency	No. of Copies printed for distribution
Nerkalanjiam	Quarterly	50

12. Training/workshops/seminars etc details attended by KVK staff

Trainings attended in the relevant field of specialization (Mention Title, duration, Institution, location etc.)

Name of the staff	Title	Dates	Duration	Organized by
Dr.R.Ramesh	Workshop on Picture Based Diagnosis	06.06.2019-07.06.2019	2 days	MSSRF & CABI at Trichy
Dr.R.Ramesh	3rd Grantsmanship Worshop to Faculty of CPPS	10.06.2019-12.06.2019	3 days	TNAU,Coimbatore
Dr. M.Ramasubramanian	International Seminar on Innovative Extension Management for uplifting livelihood of farmers- Status, Initiatives and Way forward-ISEM2019 Conference	27.06.2019-28.06.2019	2 days	MVC, Chennai

Dr.R.Ramesh	Workshop on Maize Fall Armyworm Management Technology Capsule and Workshop on Field Diagnoss and Managemnt of Plant Parasitic Nematodes in Hortcultural Crops	22.07.2019-23.07.2019	2 days	TNAU,Coimbatore
Dr.S.Saravanan	Biogas Technology for Sustainable fuel and organic manure	26.8.2019-29.08.2019	4 days	TNAU,Coimbatore
Dr.A.Anuratha	National Conference on Climate Smart Agriculture for Livelihood Security: Challenges and Opportunities	13.09.2019 - 14.09.2019	2 days	ADAC &RI, Trichy.
Dr.R.Ramesh	Geotagging TNIAMP interventions using Mobile Application	24.09.2019	1 day	TNAU, Coimbatore
Dr.R.Ramesh	Enhancing the Innovation Ability of the Agricultural Scientists and Technicians in the Belt and Road Countries in South Asia	21.10.2019-25.10.2019	5 days	Vegetable Research Institute,(GAAS), China
Dr.A.Anuratha	Training on seed quality maintenance in sunhemp and Roselle	04.11.2019	1 day	TRRI, Aduthurai
Dr.A.Anuratha	84th Annual Convention of the Indian Society of Soil Science, And National Seminar on Developments in Soil Science - 2019	15.11.2019-18.11.2019	4 days	BANARAS HINDU UNIVERSITY, Varanasi
Dr.R.Ramesh	Result Sharing Workshop and received Best Stakeholder Award	29.11.2019	1 day	MSSRF, Chennai
Dr M. Ramasubramanaian	International conference Esard 2019	13.12.2019-17.12.2019	5 days	Sutturu, Mysuru

Dr M. Ramasubramanaian Dr.A.Anuratha Dr. A. Rajeshkumar	National Conference on Doubling farmers income through scientific approach	20.12.2019-21.12.2019	2 days	Agricultural Engineering College and Research Institite, Kumulur, Trichy,
Dr M. Ramasubramanaian Dr.A.Anuratha Dr.R.Ramesh Dr.S.Saravanan Dr. A. Rajeshkumar	Second state level farmers conference	08.03.2020-09.03.2020	2 days	TamilNadu Cauvery farmers Association- Mannargudi

13. DETAILS ON RAIN WATER HARVESTING STRUCTURE AND MICRO-IRRIGATION SYSTEM

Activities conducted				
No. of Training programmes	**No. of Demonstration s**	**No. of plant materials produced**	**Visit by farmers (No.)**	**Visit by officials (No.)**
4	4	-	2854	212

***Special lecture. Demonstration and film show a on Rain water harvesting was conducted during the JAL SHAKTI ABHIYAN awareness programmes**

14. INTERVENTIONS ON DISASTER MANAGEMENT/UNSEASONAL RAINFALL/HAILSTORM/COLD WAVES ETC

Introduction of alternate crops/varieties

Crops/cultivars	**Area (ha)**	**Extent of damage**	**Recovery of damage through KVK initiatives if any**
Total			

Major area coverage under alternate crops/varieties

Crops	**Area (ha)**	**Number of beneficiaries**
Oilseeds		
Pulses		
Cereals		
Vegetable crops		
Tuber crops		
Total		

Farmers-scientists interaction on livestock management

Livestock components	**Number of interactions**	**No.of participants**
Total		

Animal health camps organised

Number of camps	**No.of animals**	**No.of farmers**
Total		

Seed distribution in drought hit states

Crops	**Quantity (qtl)**	**Coverage of area (ha)**	**Number of farmers**
Total			

Large scale adoption of resource conservation technologies

Crops/cultivars and gist of resource conservation technologies introduced	Area (ha)	Number of farmers
Total		

Awareness campaign

	Meetings		Gosthies		Field days		Farmers fair		Exhibition		Film show	
	No.	No.of farmers	No.	No.of farmers	No.	No.of farmers	No.	No.of farmers	No.	No.of farmers	No.	No.of farmers
Total												

15. Awards/rewards received by KVK and staff

Recognitions &Awards/Special attainments and Achievements of Practical Importance			
Recognitions & Awards (Team Award/individual			
Item of Recognition	Year	Awarding Organization National / International / Professional; Society	Individual/ collaborative
Best mechanized farmer award	2020	Mechanized Mela- TNAU, Coimbatore on 14.02.2020/State	Individual (Th.D.Rajkumar of Devangudi)
Best oral presentation award	2019	National Conference on Doubling farmers income through Scientific Approaches -AEC&RI, Kumulur- 20-21 Dec 2019/National	Individual (Dr. M.Ramasubramanian)
Best oral presentation award	2019	eSARDD-2019 jointly organized by ATARI, Bangaluru, EES, Coimbatore and ICAR-JSS KVK,Mysuru-14-16 Dec 2019 at Mysuru/State	Individual (Dr. M.Ramasubramanian)

Best stakeholders award	2019	MSSRF&CABI-29.11.2019 at Chennai/State	Individual (Dr. R.Ramesh)
Best extension professional award	2019	foundation day at TNAU on 01.07.2019/State	Individual (Dr. A.Anuratha)

Special Attainments & Achievements of Practical Importance(patents, technologies, varieties, products, concepts, methodologies etc.)

Category	Title	Year	Individual/ Collaborative	Additional Details/Information

16. Details of sponsored projects/programmes implemented by KVK

S.No	Title of the programme / project	Sponsoring agency	Objectives	Duration	Amount (Rs)
1	SPC – SBGF Project	State Planning Commission –SPGF	• Retrival of millets in Thiruvarur District • Value addition in millets for entre preunership development	Feb 2015-July 2020	10.58
2	TN-IAMP	World Bank through Govt of Tamil Nadu	• Introduction of Maize as on alternate crop during Kuruvai season • Water saving in paddy using field water tubes	April, 2019-March 2020	45.08
3	NICRA	ICAR	• Introduction of Climate resistant varieties – flood tolerant varieties CR 1009 sub1 and Swarna Sub1 • Natural Resourses management	April 2019-March 2020	16.00

Please attach detailed report of each project/programme separately

1. Revival of Millets in Cauvery Delta through Capacity Building on Improved Production Technologies and Value Addition in Millets

During the farmers interactive meetings conducted by KVK, it was observed that the farmers previously cultivated millets and cultivation of rice has replaced the millets during the last 4-5 decades and obvious reasons like change in life style, increase in per capita income etc could be attributed to this change. Due to prolonged exclusion of millets in the dietary schedule, increased incidence of anaemia and nutritional related disorders become omnipresent in the backward blocks thereby affecting the vital health parameters like IMR, MMR, etc.

Presently the resource poor farmers are not aware of improved production technologies for increasing the production and productivity of millets as the cultivation of millets became an obsolete practice and there exists a potential demand for revival back of Millets in Cauvery Delta. The need for creating awareness among the farmers is felt necessary as consumption of millets would confer substantial nutritional benefits to the farmers.

Millet were once mainly cultivated under rainfed condition with little water management in this block thereby pressure on need for water was ingeniously managed. Nowadays, the area under rice cultivation has become exponentially large and water stress conditions grew geometrically which has serious repercussions on the agriculture in the delta. Moreover, the farmers do not posses enough awareness of the latest varieties and hybrids and improved production technologies for increasing the yield in millets. In addition to this, awareness on minimal processing and value addition is very low among the farmers which constrain the sustainability of their livelihood.

Most of the programmes implemented in this area did not address/focus this particular issue as much emphasis has been given only on rice in the delta. The efforts taken by the department of agriculture and Tamil Nadu Agricultural University in popularising millets has percolated and now increased awareness on millets has emerged potentially.

The prime objective is to bring back millets in the Cauvery Delta as the cultivation of millets was in vogue during 4-5 decades back. With this in view, the project envisages for increase the per capita income of the resource poor farmers on hand and ensuring better nutrient security to them. There is a set of practices are introduced in this area to revive the production of millet crops and value addition of millets to fetch good market price for these products through generation of employment opportunities by adoption of millets processing activities**.**

2.Tamil Nadu- Irrigated Agriculture Modernization Project (TN IAMP)

The major production constraints that are met with in the CDZ such as i) Definite dates of opening and closing of Mettur Dam water for irrigation is not known. This reflects in planning of rice and rice based cropping system. ii) Torrential rains during North East Monsoon, hindering both kuruvai harvest as well as thaladi transplanting. iii) Monocrop of rice in the delta region coupled with unfavourable weather conditions lead to heavy incidence of pests/diseases. iv) Labour shortage during peak season of harvesting or planting v) Lodging of rice crop leads to field germination. Lack of means to preserve kuruvai grain vi) Lack of adequate drainage facility in the delta region vii) Low light intensity prevailing in samba season results in poor yield

Green Manure-SRI-Pulses

In cauvery delta zone, rice is the major crop and cultivated as mono cropping which leads to soil degradation. In order to improve the status of soil condition, KVK has introduced GM-SRI-Pulses cropping system in 10 ha. This is not only helped in improving the soil condition and also reduced the consumption of water as paddy was cultivated in a single season. It was followed by pulses cultivation, which also requires less water and the left over root nodules of pulses improve the soil condition, after harvest of pulse crop.

Hence, GM-SRI-Pulses cropping pattern has helped in reducing inorganic fertilizer cost, improves the soil condition by organic means and also minimises the exploitation of ground water for paddy cultivation.

Upscaling of Rice fallow Pulses (RFP)

The farmers are getting very low yield due to non adoption of proper cultivation practices, improper foliar nutrient management in pulses. Growing of high yielding varieties with proper management practices helps to improve the productivity in pulses. During 2018-19, rice fallow pulses were cultivated in 50 ha in Thiruvarur District. The three technologies adopted in RFP for higher yield are as follows, the higher seed rate i.e. 30kg/ha instead of 25kg/ha for better and optimum plant population, the broadcasting of pulses seed 5-7 days before the harvest of paddy instead of 10-12 days prior to harvest of paddy and more importantly use of chain or belt type combined harvester instead of tyre type which perform well only in dry condition of soil where as chain or belt type combined harvester do well even in wet condition of soil.

Direct Seeded Rice (DSR)

The farmers of cauvery delta zone skipping their kuruvai season paddy cultivation due to late release of water from mettur dam. Hence, farmers of tail end area cultivate paddy in single season i.e. Samba season without nursery raising, simply broadcast the seeds in the ploughed land so as to not depend on cauvery water and the germination is purely depends on the rain water and subsequent irrigation either through cauvery water or rain received from north east monsoon. The main problem in DSR is higher seed rate and weed menace. Hence, in this intervention, we demonstrated 75 ha and sowing was carried out using seed drill and integrated weed management practises.

3.NATIONAL INNOVATIONS ON CLIMATE RESELIENT AGRICULTUE (NICRA)

Background

Climate change has become an important area of concern for India to ensure food and nutritional security for growing population. The impacts of climate change are global, but countries like India are more vulnerable in view of the high population depending on agriculture.

Technology Demonstration

The technology demonstration component deals with demonstrating proven technologies for adaptation of crop and livestock production systems to climate variability. Several interventions in the village panchayats are finalized following a participatory approach through the Village Climate Risk Management Committee (VCRMC), after the PRA to assess the climate related problems in the village and baseline survey.

Early Outcome:

The project has made significant initial impact and was well received in most of the districts. Technologies such as on-farm water harvesting in ponds, supplemental irrigation, introduction of early maturing drought tolerant varieties, paddy varieties tolerant to sub-mergence in flood prone districts, improved drainage in water logged areas, recharging techniques for tube wells, site specific nutrient management and management of sodic soils, mulching, use of zero till drills were enthusiastically implemented by the farmers in NICRA villages across the country.

Overall, the project has generated high enthusiasm among farmers and raised hopes that by combining technology solutions with community mobilization, we can help small and marginal farmers to cope with current climate variability, to some extent.

17. SUCCESS STORIES

1.Improved poultry variety for increasing farm income

1. Situation analysis/Problem statement: Mr. Elanchelian, a retired assistant director of agriculture wanted to start a integrated farming system with his retirement benefits. He started a goat farm, goose-fish pond based IFS unit. he wanted to start a poultry unit, but due to breed preference he tried Siruvedai breed where the weight gain is very low. His farm-system is incomplete without a good quality native chicken breed. Though the local breed is preferred more in terms of consumption the availability of chicks is a bigger problem as the poultry farming depends on sustainability in production of birds and chicks availability.

2. Plan, Implement and Support: for the year 2019-2020, an OFT on assessment of suitable breed for backyard poultry was conducted by ICAR-KVK. The trial is assessing the suitability TANUAVS Aseel Vs Nicobari Vs local breed. As a trial, 50 TANUVAS aseel chicks were given to assess its performance. Continuous monitoring and support was given in the form of feed and vaccination and medicines for initial growth. The birds were

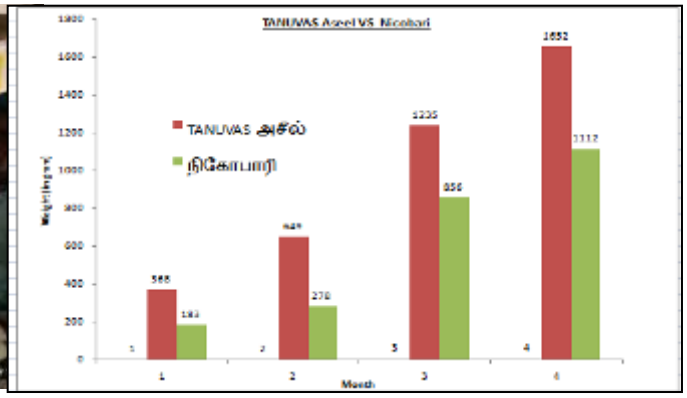
weighed monthly and health checkup done while assessing the weight. Locally available feed were advised to cut the cost of production.

3. **Output**: the birds achieved 0.85-1 kg body weight by three months with local feed. Mortality was less than 5%. By third month and the birds performed well with adverse rainfall and windy condition.

4. Outcome: The cocks were sold at the price of Rs.500/kg b.wt. Despite there is a comment stating that these are farm birds and not pure breeds, the consumers took the bird at nominal cost. The birds were reared in free range hence no cannibalism or pecking reported. During the corona outbreak time, there was huge demand for country chicken as the rumor of broiler meat took toll on the sales. the birds were sold at Rs.700/bird. Now he is maintaining the birds for egg production and producing chicks for next generation. The BCR for this enterprise alone is 1:3.56.

Seeing his progress, the farmers are interested to procure TANUVAS Aseel as the weight gain and other performance is excellent compared to local breed. For the present year, an FLD on TANUVAS Aseel is proposed following this success.

5. Impact: TANUVAS Aseel birds will be given in wider scale for its rearing and adoption and a marketing channel will be created to overcome the monopoly over local breed. The birds can fetch profit with BCR of 1:2.1, even if it is sold at the rate of Rs.300/ birds as the cost of production comes around Rs.120 only.



2.Farm land - fish pond -A two way channel to boost income

1. Situation analysis/Problem statement:

The topography of the land in Thiruvarur District is flat terrain and soil type is heavy clay to clay loam which is periodically prone for prolonged water inundation and poor income from rice cropping. The soil in Thiruvarur District is heavy clay and clayey loam which retains water without any percolation loss. The soil is therefore highly suited for fresh water pond culture of fish.

Inland fish culture has been proved to be a remunerative option to compliment the income of farmers. Inland composite fish culture is popular in Cauvery delta region of Tamil Nadu since the water in fish ponds could be maintained for at least six months. The increasing consciousness among people about their health made them to include fish as an important component in their food basket which has increased the demand for fish in the market. It serves as an important component in Integrated Farming System where a farmer can effectively utilize the farm wastes as fish feed.

Composite carp culture has been practiced in around 500 ha of land in Thiruvarur district. Common carps like roghu, mrigal, catla, silver carp and grass carp are very well adopted in this district. The marketing price for these varieties is highly fluctuating while the man power, economy and yield is quite less. The effort and man hours includes the same when compared to any kind of fish type to be cultured. Hence like alternate cropping system for paddy to follow cash crops we have to move to a fish culture that fetches more return.

2. Plan, Implement and Support:

Realising this gap the KVK, Needamangalam has identified the promotion of **Sea Bass, Murrel and Prawn culture** as one of the thrust area and channelized its efforts to diffuse the scientific growing of this practise

The focus was given to sensitizing farmers on scientific stocking ratio, balanced fish feed management and water quality management. The reach out programmes were well planned to cater to the larger number of inland fish growers. Intensified efforts were taken from yesteryear and it is being continued with rigour. Rearing of these fingerlings in hapas and transferring them to bigger pond is the basic training wherein we can practise controlled feeding and loss of carps/shrimps to predators.

One more problem is that the ponds created for the purpose of fish rearing will be left out during summer season. The dry pond could not be used for any cultivation purpose. Hence an innovative applicable technology of converting **farm land to fish land and vice versa** was suggested to overcome this issue. This was successfully practised by farmers of Thiruvarur district and gaining more importance.

Thiru K. Asokan, from Thiruvalansuzhi, Kottur block of Thiruvarur district has been practicing paddy cultivation in 15 acres of land from boyhood. He is one of the eminent farmer of Thiruvarur district and good contact farmer of Krishi Vigyan Kendra. Owing to his achievements in farming he was awarded entitled "farmer motivator" award by Tamilnadu Agricultural university, Coimbatore in a farmers mela during 2015-16.

He realised that he couldn't generate enough income from single paddy cultivation practise as he had a instinct that the potential of his land is high. He attended training from KVK Needamangalam and gained knowledge in alternate cropping, animal husbandry and advanced fish farm practices. Scientists from visited his farm land and necessary advice was given for initiating an integrated farming system for better income. Initially he had a poultry unit, goat unit and fish culture ponds along with paddy cultivation. The income significantly increased from animals husbandry, still he felt there is always room for improvement.

He had a regular income from composite fish culture during monsoon, but the cost involved in terms of feed, maintenance and labour charges makes a big cut in net return. Also a dedicated pond area for this practise is required. He needs a technology to get more income with same cost involved in common carp cultivation. Our kV scientist introduced fresh water Seabass (Striped bass) carps which have high marketing value in short period of time. He followed the advice of KVK scientists and gathered information from the other contact farmers of KVK.

The expenditure mainly incurred for feed, labour and disease management. Common problem faced in this cultivation is depriving oxygen level in pond and ammonia accumulation. Since it's a onetime practice in a year and that too in monsoon, he could stock

fresh water easily. The stocked water is periodically replaced with fresh water wither from underground source or by rainfall.

The farm land and available water facilities during monsoon is used more efficiently than the common paddy cultivation technique. Soil fertility improved by the stocking of prawns wherein the output from the pond in the form of excreta improves the nitrogen content of the soil. The outlet of the farm pond is fitted with a filtering system wherein the prawns cannot escape while the nitrogen rich water can be fed to paddy fields.

Since Mr. Asokan also practices composite carp culture along with high profitable fishes like fresh water sea bass and murrel. He had stocked tilapia fish especially for the feeding purpose to these high profitable carnivorous fish. A part of tilapia fish is harvested and dried for making fish powder that would be used as a feed for the prawn culture, thus it cuts cost of feeding.

3. Output: In the year of 2016-17, he could get nearly 40% increase in income from a single harvest of fresh water seabass. The average size attained by 6-8 months is 0.8-1kg and some of them attained 2.5-3kg with ten months. He realised similar to alternate crops for traditional paddy, fish farming should improvise.

This made him to develop an applicable innovative technology of converting paddy field into a temporary pond. The technology involves the raising of bund height to five feet when the expected rainfall is high say for this 2019-20 monsoon. The fresh water will be stored in the pond and one carp culture can be done in the short period of 150 days.

4. Outcome: He had converted one acre of his farm land intended for paddy cultivation into a pond and presently doing fresh water prawn culture for a season. He had stocked one lakh prawn in one acre of the converted field in the previous year. After 150 days he had sold the prawns at Rs. 180/kg and the gross return was around Rs. 12,00,000/-. The total expenditure incurred for this practice is Rs. 4,00,000 and the BCR turns to be 1:3, with a net income of Rs. 8,00,000 in a short period of time.

5. Impact: Presently more number of farmers visiting his field-pond inter conversion idea to get better income. Scientist from KVK advices farmers of Thiruvarur district to adopt his model which can efficiently utilize the potential of their land for increased income.




3.Cultivation of traditional paddy variety under organic methods

1.Situation analysis/Problem statement:

Mr.K.Gunaseelan,S/o Th.Kalayanasundram is a 51 years old farmer residing at Sarabojipuram , Kudavasal block of Thiruvarur district. He is involved in the farming activity for the past 20 years. Earlier, he grows a medium duration BPT paddy variety in about 1.5 ha under inorganic cultivation. Pest and disease incidence was higher in this variety which in turn reduced the yield and Soil health was declined. Often severely affected by drought and floodings and crop was damaged due to these incidences. Market price of the variety was less when compare to organic rice.

He has impressed by speech of Namayzavar and Nel jayaraman and he want to cultivate the paddy under organic farming.

He discussed with the scientists from ICAR - KVK, Needamangalam regarding the new technologies for cultivating traditional paddy variety. Based on the idea received from ICAR - KVK, Needamangalam he started to cultivate the traditional paddy varieties like Mapillai Samba, Seeraga Samba, Salem Channa, Karuppu Kavini, Kitchlil Samba and Poongar with

guidance of Nel jayaraman. He has cultivated the traditional paddy varieties with organic inputs from seed to harvest.

2. Plan, Implement and Support:

He approached the ICAR - KVK, Needamangalam for getting guidance for the intensive cultivation of Traditional paddy varieties. Moreover, he attended the useful training related to modern techniques for cultivating the organic farming like Vermicomposting technology, Preparation of composted coir pith, Preparation of waste decomposer and Ecofriendly management of pest and diseases. He started to cultivate the Traditional paddy varieties with new technologies since 2010 with the advice received from the ICAR - KVK, Needamangalam. He adopted the following recent technologies in the traditional cultivation of paddy varieties under organic farming:

- Application of Farm yard manures @ 4 ton per acre to enhance microorganism content of soil
- Multiple crops was incorporated a few days ahead of the final ploughing Multiple crops cultivation means cultivation of four crops of cereals, pulses, oilseeds, aromatic crops, green manure crops in rice field. Totally 20 kg of seeds of the above crops were broadcasted and in-situ ploughing was done at 40^{th} day. Then it was inundated in water for decomposition. After the decomposition of these crops, rice seedlings were transplanted.
- "He grew medium-duration (140 days) traditional varieties. The seeds were treated with *Panchakavya*, and the nursery was treated with organic amendments.
- Three rounds of spray with 3 per cent solution of Panchakavya was given 15 day after transplanting. On the 30th day, a combination of coconut milk and butter milk, mixed in equal volume was sprayed in the ratio of 1:10 (0ne part spray mixture and ten part water) on the crop to promote active plant growth and tillering. On the 60^{th} day, another round of spray with *Panchakavya* (3 per cent solution using high volume sprayer) was given. A bio-insect repellent was sprayed on the 45^{th} day of transplantation.

3. Output:

- He was getting 5250 kg/ha in conventional planted rice. After converting to organic farming rice he got 4500 kg/ha. Though the yield was comparatively low, market price of organic rice seed and grain were higher. When he sold as organic rice seed,

he got Rs 54,000/ha- and when he sold as organic rice grain, he got Rs 1,20,000/ha. Finally benefit cost ratio of organic farming was 1:1.51 for seed and 1:3.36 for grain. No symptoms of pest and diseases are seen in the field gradually after the practice of organic farming. It reduces the cost of pesticides.

- Yield of around 1500 -1800 kg of paddy are obtained in an acre roughly from all the varieties.
- Most of the organic inputs were produced by locally available materials
- These varieties are tolerant to drought and flooding

4. Outcome

- The organic rice was sold at the rate of Rs. 30 per kg, and it made organic rice cultivation more rewarding economical as well health promoting
- High quality straw for his cattle was assured.
- This made way for sustainable agriculture, using locally available natural resources with compost, vermin-compost and local seed materials. By adopting this method of organic farming, it was able to achieve better crop productivity per acre of land under scanty rainfall conditions.
- If other farmers follow the organic farming method he has practised all these years, it will greatly benefit them in maintaining sustainable agriculture and getting remunerative income from agriculture operations under uncertain and unpredictable rain fed conditions.
- This enabled me to 5 MT of vermi-compost and 500 LIT of Panchakaviya every year. With these organic products, it was able to produce sustainable crops that are naturally better than those produced through inorganic farming practices. Every day, a minimum of 5 lit of bio repellents were produced; 100 kg of neem seed kernel with the seeds collected from 8 neem trees.

5. Impact:

Area under organic farming in this district was expanded from 20 ha in 2009-10 to 420 ha in 2019-20. The number of organic paddy growers also increased from 20 to 200. The unimaginable Traditional paddy production from 300 t to 2887 t is due to expanded area under organic farming and technological improvement coupled with adoption by farmers.

4. Mechanised Rice Cultivation has transformed the life of Mr. Ganeshan of Vaduvur Sathanur in Thiruvarur District

Situation Analysis/Problem Statement

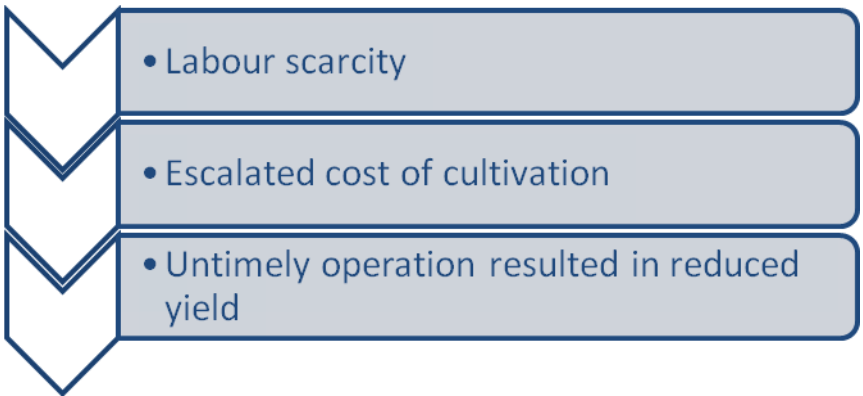
The increasing demand for labour and unavailability of labour during peak seasons in rice growing tracts of Tamil Nadu has been a regular phenomena. This crisis is more prominent in Cauvery delta which is the rice bowl of Tamil Nadu. Mechanised rice cultivation is the only way out to tackle the labour shortage for various operations in rice cultivation.

Among various operations, the plucking of seedlings from nursery and transplanting in the main field are the labour intensive operations which requires huge money to be invested by farmers. The plucking of seedlings and transporting to the main field for one acre consumes six A type labours for whom Rs. 450/day/person is to be incurred and approximately Rs. 3000 is to be incurred for this operation alone. Fifteen B type labours are required for transplanting one acre of land for whom an amount of Rs. 180/labour is to be incurred and a total amount of Rs. 2700 is required to be paid for this operation.

There are several models of rice transplanters which has been released for the past one and half decade. The mechanism has been simplified from driver operated eight row transplanter to hand operated four row transplanter which is handy and easy to operate. Farmers in Thiruvarur District reported that they could able to save Rs. 4000/acre by using machine transplanter rather than going in for manual transplanting. According to the report from Joint Director of Agriculture, Thiruvarur District, rice is being cultivated in 1.90 lakh hectares out of which 80000 hectares are being covered under Direct sown rice. Among the total area under rice cultivation only 25-30 % of area is transplanted using machine transplanter. There is huge gap in the adoption.

Weeding is another important operation which consumes huge labour and an amount of Rs. 3000 used to be incurred by farmers per acre for weeding. Power weeders are being recommended but the adoption level is very low and it ranged from 5-10 percent only.

The following figure depicts the problem lucidly



Mr.Ganeshan of Vaduvur Sathanur village in Mannargudi block of Thiruvarur District felt the above said constraints in rice cultivation. He is a regular visitor of KVK, Needamangalam and maintained good rapport with all scientists. A tip off from the discussion we had with Mr.Ganeshan made him to think and he went for mechanizing the entire rice cultivation

Plan, Implement and Support

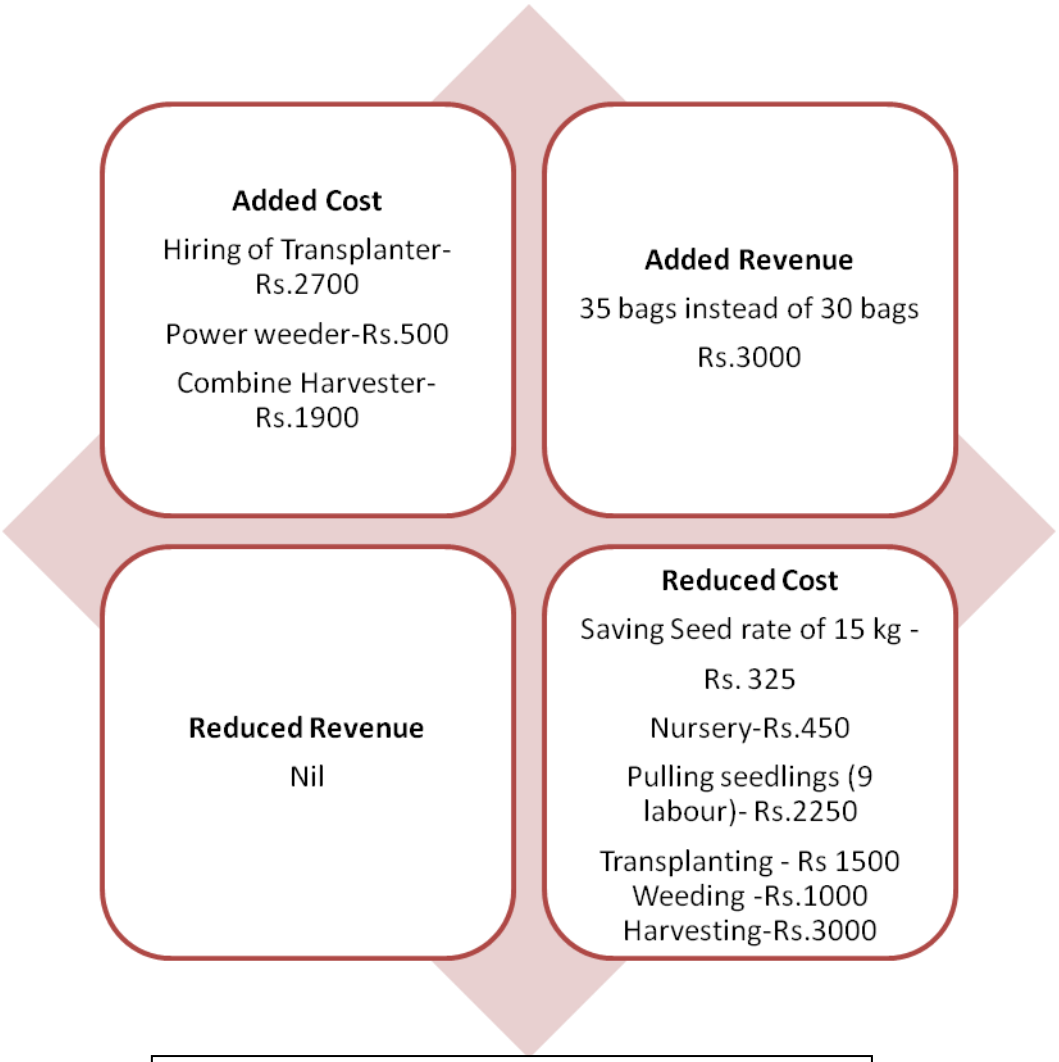
- Mr. Ganeshan has been visited by the KVK Scientists twice to convince him for entire mechanisation of three important operations namely Transplanting, Weeding and Harvesting which consumes more number of labourers.
- First, an FLD on Mechanisation of Rice cultivation was laid down in his field in Vaduvaur Sathanur wherein he has been facilitated in all the three operations with four row rice transplanter, mechanised weeder and combine harvester.
- A folder containing the advantages of mechanisation has been ciruculated to Mr. Ganeshan and his fellow farmers
- A demonstration of transplanting using four row rice transplanter was conducted in Mr.Ganeshan's field in which 25 farmers participated
- A video was shot about the experience of Mrs. Ganeshan and it has been disseminated through Thiruvarur Whatsapp group
- Karikalan Pulse Producer Company in which Mr.Ganeshan is one of the member was facilitated to utilise the opportunity of collective farming through which machineries can be purchased

Output

The results of Front line demonstrations which were conducted at KVK, Needamangalam on complete mechanization revealed impressive results. In all the selected villages farmers could get atleast Rs.20,000 from one acre of rice cultivation by employing transplanter, power weeder and harvester. Among the villages Chickapattu topped the list with Rs.52,500 from one ha of mechanized rice cultivation with BCR 1:3.75. This was followed by Melapoovanur and Pilavadi where average income of 51450 and 50100 has been recorded.

The farmers could earn at least Rs.5000- 6000 more by switching over to mechanized cultivation of rice from conventional cultivation. Partial budgeting was worked out as given in the figure which revealed that a total of Rs.6425 could be saved by farmers

from one acre of land if they resort to mechanized rice cultivation. This may even increase if farmers organize themselves into group and can lobby for reduction in rent for transplanter and harvester



Net change in income (B)- (A) = Rs. 6425.00

Outcome

Besides, income the outlook of Mr.Ganeshan has changed as many farmers have been contacting him to get to know the success of mechanized cultivation. The horizontal spread of Rice Mechanization is nearly 100 acres in the Vaduvur Sathanur village through the effort of KVK, Needamangalam. Mr. Ganeshan has invested the income that he has accrued out of mechanized rice cultivation in expanding the pipeline facility in his farm

Impact

The visible impact of the intervention is the movement of at least ten Rice transplanters in the village. Karikalan Pulse Producer company has initiated process to purchase machineries to be hired out to its members. The long pending demand of the farmers to use MGNREGA labourers for Agricultural operations has been taken care of as the mechanized rice cultivation drastically reduced the requirement of labour

5.Increase the farm income through the cultivation of Bhendi as a border crop in paddy field

1.Situation Analysis/Problem statement:

A progressive farmer Mr. Deivamani residing at Vadakkuthottam village of Kottur taluk of Thiruvarur District. He is an innovative and intensive farmer under the guidance of KVK, Thiruvarur.He has to grow ruling varieties of paddy in his field regularly. Based on the advise of KVK, Needamangalam, a common vegetable bhendi was soon as bund crop in the paddy field inspite of common regular pulse crop like Blackgram, Redgram. When we are growing vegetable crops like bhendi as a bund crop reduce the insect problem in main crop because bund crops acts as a barrier are called catch crop to reduce the pest problem of the main crop. Bund crop is act as a alley crop and assure the effective utilization of the space of the bund and avoid the residing platform for rats in paddy field.Increases the farm income, reduce the weed problem in the bunds, disturb the life cycle of the pests of main crop and ensure the regular income of the farmers. Hence growing a bund crop is one of the component in integrated pest management.
After the intervention of the KVK, Needamanagalam from the the frontline demonstration he has to grow bhendi as one of the bund crop for samba season paddy. The varieties suitable in the bund crop are CO-2, CO-3, MDU1, Arka anamika, Arka abhay, Parbani kranti, Pusa sawani, Varsha uphar, COBH-1, COBH-3 & CO BH-4

2. Plan, implement and support

He selected CO-4 hybrid bhendi for growing the bund crop for an acre of paddy field. This variety has 110 days duration with average yield of 10 tonnes/ acres which is higher yield potential than CO BH1 and Sakthi hybrid and suitable for all districts except hilly tracts of Tamil Nadu. Each plant is capable of yielding 25 to 30 fruits and tolerance to YVMV (Yellow Vein Mosaic Virus) with average number of harvest is 20-25. Bhendi is a tropical vegetable crop

which prefer long day. Cold climate and temperature regions are not suitable for bhendi crop. It will come up well in all types of soil. In fertile soil, it will come up well and moderately tolerance to salinity they will come up well in all seasons as like paddy. 200g of seed is required for growing one acre of bunds paddy filed.Before 24 hours of sowing the seeds are trteated with 2 g Capton or Thiram. After, 400g of Azospirillum is mixed with rice gruel in half an hour and dried at shade place. This treated seeds are sown in bunds of rice field at the spacing of 30 cm in 2 seeds (hill with depth of 2 cm).

3. Output

The first harvest was after 38 days. The fruits were harvested before over maturity.

Every alternate day, the harvest should be done. Average yield of 38 kg? harvest was maden with 2 days interval. The 532 kg of total yield was obtained in an acre of paddy field.

4. Outcome

Totally 532 kg of tender bhendi fruits was harvested with the worth of Rs. 19152 @ Rs.36 /kg in 19 harvest an average of 28 kg/ harvest. From this bhendi crop sown as a bund crop, the farmers sown with the investement of Rs. 4300/ acre. The Benefit cost ratio is 1: 4.45 & was obtained in an area of one acre bund crop crop of bhendi in paddy field.

5. Impact

Based on this technology, the farmers are very much interested to grow vegetable crops like bhendi as a bund crop. Getting additional and regular income through our cropping season of paddy are engaged in the farming operations. It was indirectly reduced the rodant population in he paddy field and reduced the pest and disease problem in paddy field.

18. CASE STUDIES

DEMONSTRATION OF TECHNOLOGY ON ROLE OF TNAU PULSE WONDER IN INCREASING YIELD OF BLACK GRAM

Introduction

Black gram is one of the most important pulse crop in Thiruvarur district. It is cultivated to an extent of 25670 ha in Thiruvarur district with a total productivity of 800 kg/ha. It is mostly cultivated in Needamangalam, Valangaiman, Mannarkudi, Kurdacherry, Kodavasal blocks of Thiruvarur. ADT 5 is mostly cultivated by farmers.

Problems

Continuous cropping without soil test based fertilizer recommendation leads to the widespread nutrient deficiency in the soil and reduction in yield of crops. As per results of

soil, Thiruvarur district soil is neutral in pH,non-saline,medium in OC, low, high and medium in available N,P and K respectively; with respect to available S and micronutrients, Zn was predominately deficient . Flower drops, pest & disease occurrence and poor withstanding capacity under drought condition might be associated with nutrient deficiency and thus leads to 20-25% reduction in yield of crops.

Intervention

To address the above problems, KVK, Thiruvarur has conducted Cluster Front Line Demonstration (CFLD) in 125 farmer's field in an area of 50 ha at Vadakandam and Devankudi villages of Needamangalam block with ADT 5 black gram variety. The following interventions were included with ICM practice

- Soil application of biofertilizers & biocontrol agents.
- Soil test based macro nutrient application
- Foliar application of TNAU Pulse wonder @ 2 kg per acre during flowering
- Need based plant protection measures

Result

The CFLD results revealed that Foliar application of TNAU pulse wonder with ICM practices recorded highest number of pods/plant (28), Number of seed per plant (8) and 100 grain weight (3.8 gram). Its proved its superiority by recording 30% yield increase over check and having highest net income of Rs.60,445/- with a benefit cost ratio of 3.52 when compared to farmers practice having net income of Rs.44,230/- with a benefit cost ratio of 2.87.

Output

- After completing CFLD trials, farmers opined that foliar application of TNAU pulse wonder with ICM practices improved the size of single pod in the plant, number of pods per plant, grain weight and pod yield.
- Hence farmers fetched more yield on an average of one quintal per acre. Near by farmers also adopted this technology by seeing the practice of FLD farmers. Beneficiaries & neighboring farmers started to purchase TNAU pulse wonder themselves in Agriculture Department.

Out come

The technology more viable in increasing the yield of pulses and hence farmers are being continuously adopted this technology Since 2016. The success of this technology being popularized in KVK routine training, regular advisories, farmers group meetings and extension functionaries programme.

Table Yield and Economics of Black gram (VBN 6)

Parameters	Demo	check
Plant height (cm)	25	20
Number pod per plant	27	24
Number seed per pod	8	6
100 grain weight	3.7	3.0
Yield (Q/ha)	9.38	7.20
Gross income (Rs./ha)	84420	64800
Cost of cultivation (Rs./ha)	23975	22570

Net profit (Rs/ha)	60445	44230
B:C ratio	3.52	2.87

19. INNOVATIVE METHODOLOGY OR TRANSFER OF TECHNOLOGY DEVELOPED AND USED DURING THE YEAR: Nil

20. ITKs

Indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)

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

21. IMPACT OF KVK ACTIVITIES (NOT TO BE RESTRICTED FOR REPORTING PERIOD).

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./ha)	After (Rs./ha)
Short duration & YMV resistant pulses varieties (Green gram – CO8 & Black gram – VBN 8)	1880	46	36120	49200
Short duration paddy variety ADT 53	120	21	52000	65000
Foliar application of cotton plus in cotton with ICM	19	23	78000	83000
Soil test based fertilizer application in paddy with ICM practice of salt affected soil	25	34	45,000	55,000

Cases of large scale adoption (Please furnish detailed information for each case):-
Details of impact analysis of KVK activities carried out during the reporting period : -

22. Functional linkage with different organizations

Name of organization	Nature of linkage
NABARD	Participation in Meeting and conduct of Training on crop production and precision technology of Agricultural and allied sectors.
SPGF	Project: Revival of Millets in Cauvery Delta through Capacity Building on Improved Production Technologies and Value Addition in Millets

Department of Agriculture	Monthly Zonal Workshop, Field survey , Diagnostic Visit, Joint implementation, Participation in Meeting and conduct of Training on crop production and Protection technologies of mandatory crops of Agricultural crops.
Department of Horticulture	Field survey, Diagnostic Visit, Joint implementation, Participation in Meeting and conduct of Training on crop production and Protection technologies of Horticultural crops.
Department of Agriculture Engineering	Participation in Meeting and conduct of Training on crop production and precision technology of Agricultural and Horticultural crops.
Department of Animal Husbandry	Field survey, Diagnostic Visit, Joint implementation, Participation in Meeting and conduct of Training on crop production and Protection technologies of Cattle, Goat and Poultry.
Department of Fishery	Field survey, Diagnostic Visit, Joint implementation, Participation in Meeting and conduct of Training on Fishery technology.
Department of Forestry	Field survey, Diagnostic Visit, Joint implementation, Participation in Meeting and conduct of Training on trees
Department of Sericulture	Field survey, Diagnostic Visit, Participation in Meeting and conduct of Training on mulberry and silkworm.
Department of Agricultural Marketing and Agriculture Business	Participation in Meeting and conduct of Training on regulated market committee and storage.
District Administration – Thiruvarur	Technological backstopping during Farmers grievance day of every third Thursday of the month.
Indian Institute of Food Processing and Technology, Thanjavur	Training to farmers, Rural Youth and data analysis for value addition, post harvest and processing.

List special programmes undertaken by the KVK and operational now, which have been financed by State Govt./Other Agencies

Name of the scheme	**Date/ Month of initiation**	**Funding agency**	**Amount (Rs.in lakhs)**
SBGF – Revival of millets in Cauvery Delta	Feb 2015- July 2020	State Planning Commission – SPGF	10.58
TNIAMP- Tamil Nadu Irrigated Agriculture Modernization Project	April, 2019- March 2020	World Bank through Govt of Tamil Nadu	45.08

Sd/xxx
Programme Coordinator