

PROFORMA FOR PREPARATION OF ANNUAL REPORT (April 2018-March 2019)

APR SUMMARY

(Note: While preparing summary, please don't add or delete any row or columns)

1. Training Programmes

Clientele	No. of Courses	Male	Female	Total participants
Farmers & farm women	161	3282	1139	4421
Rural youths	10	170	127	297
Extension functionaries	19	598	312	910
Sponsored Training	15	287	152	439
Vocational Training	-	-	-	-
Total	205	4337	1730	6067

2. Frontline demonstrations

Enterprise	No. of Farmers	Area (ha)	Units/Animals
Oilseeds	131	50	-
Pulses	200	80	-
Cereals	15	6	-
Vegetables	43	1.4	-
Other crops	72	24.4	-
Total	461	161.8	
Livestock & Fisheries	56	0.4	30 dairy Animals 50 Small Ruminants Duck-70nos Cage -2nos (8X8X2m)
Other enterprises	-	-	-
Total	56	0.4	150
Grand Total	517	162.2	150

3. Technology Assessment & Refinement

Category	No. of Technology Assessed & Refined	No. of Trials	No. of Farmers
Technology Assessed			
Crops	6	40	40
Livestock	2	20	20
Various enterprises	1	10	10
Total	9	70	70
Technology Refined	-	-	-
Crops			
Livestock			
Various enterprises			
Total			
Grand Total	9	70	70

4. Extension Programmes

Category	No. of Programmes	Total Participants
Extension activities	571	25883
Other extension activities	565	22715

Total	1136	48598
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5. Mobile Advisory Services

Name of KVK	Message Type	Type of Messages						Total
		Crop	Livestock	Weather	Marketing	Awareness	Other enterprise	
	Text only	37	3	55	1	5	0	101
	Voice only	-	-	-	-	-	-	-
	Voice & Text both	-	-	-	-	-	-	-
	Total Messages	37	3	55	1	5	0	101
	Total farmers Benefitted	410	462	831	45	417	-	2165

6. Seed & Planting Material Production

	Quintal/Number	Value Rs.
Seed (q)	349.99	13299200
Planting material (No.)	11922	297415
Bio-Products (kg)	5893.5	484625
Livestock Production (No.)	13382	1028700
Fishery production (No.)	15520	53540

7. Soil, water & plant Analysis

Samples	No. of Beneficiaries	Value Rs.
Soil	600	96,910.00
Water	312	37,720.00
Plant	-	-
Total	912	1,34,630.00

8. HRD and Publications

Sr. No.	Category	Number
1	Workshops	4
2	Conferences	8
3	Meetings	78
4	Trainings for KVK officials	10
5	Visits of KVK officials	6
6	Book published	2
7	Training Manual	1
8	Book chapters	9
9	Research & Popular articles	15&20
10	Lead papers	-
11	Seminar papers	1
12	Extension folder	21
13	Proceedings	2 & 3
14	Award & recognition	6
15	On going research projects	3

Tamil Nadu Veterinary and Aimal Sciences University
Directorate of Extension Education
ICAR-Krishi Vigyan Kendra
VC&RI campus, Namakkal

Detail report of Annual Progress Report 2018-19

1. GENERAL INFORMATION ABOUT THE KVK

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

Address	Telephone		E mail
	Office	FAX	
ICAR-KRISHI VIGYAN KENDRA Veterinary College and Research Institute Campus, Namakkal - 637 002 Tamil Nadu.	04286 - 266345, 266650	-	kvk-namakkal@tanuvas.org.in, kvknamakkal.2004@gmail.com Website : www.namakkalkvk.com

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

Address	Telephone		E mail
	Office	FAX	
Tamil Nadu Veterinary and Animal Sciences University Madhavaram Milk Colony, Chennai - 600 051.	044 - 25551584	044- 25551585	registrar@tanuvas.org.in Website : www.tanuvas.ac.in

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

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr.N.Akila	45A, Kongu Nagar, Vengamedu, Karur – 639 006	97908 85431 89039 32591	akila2528@gmail.com

1.4. Year of sanction:2004

1.5. Staff Position (as on 31th March, 2019)

Sl. No	Sanctioned post	Name of the incumbent	Designation	Discip-line	Pay Scale (Rs.)	Present basic (Rs.)	Date of joining	Perman-ent /Temporar-y	Category (SC/ST/ OBC/ Others)
1	Programme Coordinator	Dr.N. Akila	Senior Scientist and Head	Animal Science	37400-67000 + 10000	46500+10000	16.12.15	Permanent	OBC
2	Subject Matter Specialist	Dr.C.SharmilaBharathi	Scientist	Horticulture	15600-39100 + 8000	30110+8000	25.05.06	Permanent	OBC
3	Subject Matter Specialist	Dr. P.Murugan	Scientist	Agronomy	15600-39100 + 7000	26900+7000	23.06.17	Permanent	OBC
4	Subject Matter Specialist	Dr.K.R. Pushpanathan	Scientist	Agronomy	15600-39100+6000	27670+7000	23.08.18	Permanent	OBC
5	Subject Matter Specialist	Dr.C.Kathirvelan	Scientist	Animal Science	15600-39100+8000	29720+8000	01.11.18	Permanent	OBC
6	Subject Matter Specialist	Dr. S.Sathya	Scientist	Soil Science	15600-39100 +6000	21170+6000	18.11.15	Permanent	OBC
7	Subject Matter Specialist	Dr.S.Paulpandi	Scientist	Fisheries	15600-39100 +6000	17610+6000	18.11.15	Permanent	SC
8	Programme Assistant	Th.S.Shrinivasan	Programme Assistant (Technical)/ Assistant	--	20600-65500	35100	16.05.12	Permanent	OBC
9	Computer Programmer	Th.K.Sundaraganesan	Programme Assistant (Computer)	--	20600-65500	29400	12.07.18	Permanent	SC
10	Farm Manager	Tmt. M. Daisy	Farm Manager	Agronomy	35900-113500	52600	25.05.06	Permanent	SC

11	Accountant / Superintendent	Tmt. M. Chandrika	Assistant (Office)	--	36900-116600	45300	12.07.2018	Permanent	SC
12	Stenographer	Th.N.Sundararajan	Stenographer Gr.III	--	20600-65500	25300	19.09.11	Permanent	OBC
13	Driver	Th.S. Kalaimani	Driver (Spl.Gr.)	--	35900-113500	55800	06.07.09	Permanent	OBC
14	Driver	Th. T.Puttasamy	Driver	--	19500-62000	30400	10.02.14	Permanent	OBC
15	Supporting staff	Tmt. M.Nagammal	Supporting staff	--	15700-50000	27600	14.09.05	Permanent	OBC
16	Supporting staff	Th.M.Periyasamy	Supporting staff	--	15700-50000	23800	20.11.12	Permanent	SC

1.6. Total land with KVK (in ha) :

S. No.	Item	Area (ha)
1	Under Buildings	1250 Sq.m
2	Under Demonstration Units	
	a) Goat Shed Slatted floor shed for goat Slatted floor shed for sheep Slatted floor shed for kids and lambs (ICAR Funding)	57.50 Sq.m 42.00 Sq. m 57.80 Sq.m
	b) Dairy Shed	52.03 Sq.m
	c) Desi bird shed Deep liter system Cage for Chicks Semi-intensive shed for alternate poultry	33.70 Sq.m 34.80 Sq.m 193.4 Sq.m
	d) Piggery shed	23.23 Sq. m
	e) Ornamental fish hatchery	40.00 Sq.m
	f) Fish unit- fingerlings management	1000 Sq.m
	g) Natural fish pond (earthen)	2500 Sq.m
	Under Crops	
	1. Total cropped area (Agricultural and Horticultural crops)	7.28 ha.
	2. Total non cropped area (using for livestock grazing land)	12.5 ha
	Other units	
	a) Shade net- Azolla Production unit	121.41 Sq.m.
	b) Shade net- poly bag nursery (Fruit and vegetable saplings)	198.00 Sq.m.
	c) Coconut nursery	40.00 Sq.m.
	d) Mushroom unit	6.50 Sq.m
	e) Vermi compost unit (2 nos.)	40 Sq.m
	f) Automatic Weather station	40.00 Sq.m
	g) Honey Bee unit	0.3 Sq.m.
	h) Green fodder demo unit	80 sq.m.
	i) Crop waste Composting pit	40 sq.m
	j) Lazer drip model unit (Groundnut)	800 sq.m.
	k) Rain water Harvesting Structure	20.06 sq.m.
	l) Fodder protein bank –Agathi trees	40.00 Sq.m.
	m) Bio-inputs production units	10.00 Sq.m.
3.	Under Crops	
	Fodder sorghum var: CoFS 31	1.00ac
	Fodder Cow pea varCoFc 9	0.45 ac
	Thenai	0.45 ac
	Groundnut var.CO-7, GJG-9, VRI-8	0.20 ac
	Castor var: YRACH 1, DCH 519, DCH 177	0.90 ac
	Fodder cowpea varCoFc 9	1.00 ac
	Maize , cotton , green gram, cotton	1.00ac
	Sesamum	0.75 ac
	Fodder sorghum var: CoFS 31	5.00 ac
	Fodder cowpea Co Fc 9	0.25ac
	Progeny Orchard -Fruit Trees (Pome, Amla, uava, Lime, Sapota, Naval) + inercrop vegetable cowpea	1.20 ac
	Vegetable crops - Cluster bean,	1.00 ac

	Vegetable cowpea	1.00 ac
	Tree crops- <i>Magnolia sp., Mimusops sp., Bauhinia, sp., albizia sp., Syzygium sp.,</i> (Convergence with District Forest Department, Namakkal)	4.00 ac
	Sub total	7.28 ha

1.7. Infrastructural Development:

A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction (Completed/ in progress/ to be initiated)
1.	Administrative Building	ICAR	29.10.2008	550.0	45.13		--	Completed
2.	Farmers Hostel	ICAR	29.10.2008	300.0	30.52		--	Completed
3.	Staff Quarters (No.)						--	Completed
	1. Supporting staff Quarters.	ICAR	29.10.2008	100.0	44.35		--	Completed
	2. Subject matter specialist Quarters	ICAR		300.0			--	Completed
4	Demonstration Units	ICAR						Completed
	1. Goat unit		09.10.2009	57.8	2.98			Completed
	2. Desi bird unit		09.10.2009	66.26	2.98			Completed
	3. Composting pit		25.05.2018	40.0	8500	-	-	Completed
	4. Mushroom production units	ASCI ATARI	25.03.2018	352.0	95000.00	-	-	Completed
5	Fencing	ICAR	09.06.2008	980 RM	3.13		--	Completed
6	Rain Water harvesting system	ICAR-RF		20.06			--	Completed
7	Threshing floor	PPP fodder	27.03.2018	30 x 30 ft	1,38,804		--	Completed
8	Farm godown	ICAR-RF					--	Completed
9	Shed (Farm equipment)	--	--	--	--	--	--	Completed
10	Rural Bank, Agri mart (Sales and store room) and Community Radio Station	ICAR, TANUVA S, ATMA		163.14	88.95		--	Completed
11	Animal laboratory	ICAR		100.0			--	Completed
12	Compound wall	ICAR	03.03.2008	174 m	4.70		--	Completed
13	New bore well	ICAR	22.06.2017	--	2.00		--	Completed
14	Energizing bore well		29.08.2007	--	0.58		--	
15	Vehicle shed 1 Vehicle shed 2	ICAR					--	Completed
16	BT road (providing premix carpet over existing BT road from KV main entrance upto office rear side of KVK campus, Namakkal)	PPP fodder	27.03.2018	770 Sq.m	1,50,796		-	Completed

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Tractor	2005	4,99,997	2140 hrs.	Under repair
TVS Star city	2006	39,996	68911	Good
Honda Aviator	2009	49,925	38810	Good
Tempo Traveller (Force)	2012	(Transferred from FTC, Theni)	65536	Good
Jeep(Mahindra Bolero)	2017	737664.00	23515	Good

C) Equipments& AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
Computer system	31.03.2005	33414.40	In working condition
Xerox machine	31.03.2005	34362.51	"
HCL Laptop	30.03.2007	23680.32	"
Total Mixer Ration (TMR) feed plant	31.03.2009	69031.81	"
PA systems	31.03.2009	18791.93	"
Generator	31.03.2010	129290.14	"
Power Tiller	31.03.2010	88573.50	"
Brush cutter	20.03.2009	10602.25	"
LCD TV	28.07.2010	10679.58	"
Deep Freezer with Stabilizer	15.09.2010	13476.03	"
Refrigerator 280 lt	28.07.2010	12731.17	"
UV Spectrophotometer	31.03.2011	268778.53	"
Flame Photometer	30.03.2011	41052.01	"
Nitrogen Analyser	31.03.2011	245325.29	"
Electronic weighing balance	31.03.2011	40022.10	"
Portable Carp Hatchery unit	20.03.2011	94191.21	"
Laptop	21.11.2012	23545.00	"
Multi functional printer	08.11.2012	59116.00	"
Rotavator	31.03.2014	53796.00	"
Sony LED TV	16.09.2014	59209.00	"
PUSA STFR soil testing kit	16.02.2016	72500.00	"
MRIDAPARIKSHAK Mini soil testing lab	27.03.2017	90300.00	"
LCD projector	31.03.2017	27500.00	"
CCTV camera	31.03.2017	20000.00	"
Samsung LED monitor	31.03.2017	23400.00	"
Desktop dell	31.03.2017	31600.00	"
LCD screen logic wall mounted	31.03.2017	12850.00	"
Lenova tablet	31.03.2017	17000.00	"
Sony projector	31.03.2017	30750.00	"
Sony Digital camera	31.03.2017	26000.00	"
Desktop dell	31.03.2017	28300.00	"
Laminar Air Flow	31.03.2017	71420.00	"
Double distillation unit	31.03.2017	47600.00	"
Hot air oven digital	31.03.2017	19045.00	"
Autoclave	31.03.2017	19045.00	"
Elctronic microscope - olympus	31.03.2017	142550.00	"
Lab equipment work table	31.03.2017	95200.00	"
Weighing bridge	31.03.2017	45000.00	"
Shed cleaner	31.03.2017	30000.00	"
Brush cutter	31.03.2017	25000.00	"
Refrigerator	31.03.2017	25000.00	"
Milking machine	31.03.2017	50000.00	"
Bolero jeep	31.05.2017	737664.00	"
Sand bath	28.03.2018	11505.00	"
HP Laser Jet Pro printer - 1	28.03.2019	15200.00	"
HP Laser Jet Pro printer - 1	28.03.2019	15200.00	"

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

Sl.No.	Date	No of Participants	Salient Recommendations
1.	09.01.2019	52	<ul style="list-style-type: none"> • Impact study should be taken up for all programmes implemented by KVK • Low cost IFS model need to be developed for enhancing income through convergence by involving small scale enterprises viz., mushroom and quails • Impact study for soil health card distribution should be taken up • OFT/FLD data should be validated and published • Feedback and constraints faced by farmers should be informed to the research system • Impact of KVK programmes should be taken up as Ph.D research studies • Use of Masti guard to prevent occurrence of mastitis should be popularized through KVK programmes. • Farmers success stories should be published through <i>ValarumVelaanmai</i> and <i>KalnadaiKathir</i> magazines • KVK training programme to include awareness on bank credit facilities and marketing facilities • Necessity of development of improved varieties in Wayanad 2, sorghum CO4, Groundnut TMV7 should be informed to Tamil Nadu Agricultural University, Coimbatore • Successful OFT/FLD technologies should be popularized in large scale for adoption • Home science faculties from nearby KVKs may be utilized to conduct value addition training programmes • Alternative packaging material for milky mushroom package should be arranged • Extension functionaries to be trained regularly with recent technologies • Faculties of the Department of Poultry Science may be invited to identify the problems with incubators and defects rectified • ICAR varieties should be included in OFT/FLD programmes and feedback to be given to concerned institute • Kurnool Nandiyal Foxtail millet may be included in OFT trails • ICAR released varieties of groundnut, greengram and desi birds should be included in OFT/FLD programmes • Utilization of poultry litter to agricultural purpose may be explored • External funded projects should be obtained for DFI villages activities • Successful technologies of NICRA scheme should be popularized throughout the district • Identify 50 farmers from of Namakkal district and connect them in <i>kalkudi</i> marketing platform • Organic farming projects should be developed to utilize PKVY scheme in ATARI • In mkisan portal 10000 farmers has to be included • Efforts may be taken to allot separate stall for KVK trained farmers in <i>UzhavarSandhai</i> • Line department schemes should be informed to farmers during KVK training programmes • Awareness should be created on ICT tool among farmers (Agritech Portal & Uzhavan App) • Effectiveness of ASCI training programme should be studied • Impact of organic farming training should be done and the reasons for non adoption should be identified • One farmer may be added as admin in KVK farmers whatsapp group to delete the unwanted contacts • Technological messages should be documented during monthly zonal workshop • More number of farmers to be nominated for ICAR and other awards • ATMA funds to be utilized to subscribe magazine for farmers • Grafted brinjal should be popularized among farmers • Post harvest techniques in onion may be evolved/promoted • Roof top garden trainings may be conducted through paid mode • Problem based researchable issues should be taken up for trail • Cost of production for agricultural produce may be done

			<ul style="list-style-type: none"> • OFT and FLD has to be decided based on rainfall pattern of Namakkal district • The major crops of Namakkal district like sorghum, groundnut and tapioca should be taken for OFT/FLD/training programmes • Awareness should be created among farmers on disaster management during KVK training programmes • Poultry manure utilization should be explored • Awareness on livestock insurance should be created among farmers • Rain water harvesting and recharge model should be popularized and reported to ICAR • Awareness cum exhibition on farm mechanization should be continued as done earlier • Each SMS should conduct a minimum of one vocational training in a year • Success stories of farmers to be shared in AIR, Trichy • Prioritized researchable issues should be informed to Director of Research in TNAU & TANUVAS • Each SMS has to conduct impact study with 30 farmers as sample size along with few measurable parameters • Each SMS should publish at least one OFT/FLD research paper per annum • Training on importance of tree coverageshould be organized with forest department • Vocational Training programmes should be organized for Forest Development Groups • By convergence mode livelihood activities may be planned for farmers/landless labourers • Farmer beneficiaries may be selected for tree cultivation in association with the Department of Forest • Improved paddy variety for Wyanaad 2, Groundnut TMV7 and Sorghum CO4 variety may be given • Entomology SMS may be placed in KVK to curb incidences of pest • Demo on biological method of control measures for basal rot in small onion need to be addressed • Trial should be conducted on slow/quick wilt management in pepper at kollihills • Alternate package of practice may be suggested for keeping quality of small onion variety CO5 • Low cost small onion storage structure may be introduced • Technology should be promoted to increase bunch weight of banana • Biological control measures for pest and disease in horticulture crops should be given. • Suitable varieties and technology's for off seasonmoringa/mango will be given • Training on coconut value addition and Neera will be conducted by KVK by utilizing experts of marketing department. • Trial to be taken in large animals with feeding of mulberry leaves • All schemes related to 60% subsidies should be popularized among farmers • Use of solar driers may be encouraged among the farmers • Success of farmers experience should be documented and broadcasted • Regular conduct of Farm Radio School may be done • Formation and functioning of FPOs may be motivated among farmers • Awareness on functioning of FPO may be taken up to motivate farmer • Technology has to be promoted to avoid onion rot during storage period • Automatic weather stations / rain gauge at village level may be established to record rainfall status • Groundnut harvesting machine utility may be promoted among farmers
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2. DETAILS OF DISTRICT (2018-19)

2.0. Operational jurisdiction of KVKs (Andhra Pradesh & Telangana only)/ Give names of districts & Tehsils – Not Applicable

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

S. No	Farming system/enterprise
1	<p>Agricultural crops Pulses - Groundnut - Maize Paddy- Maize - Pulses Pulses – Cotton / Sorghum Sorghum – Green gram / Groundnut Paddy –Sugarcane Cotton-Maize -pulses Sugarcane- Sugarcane</p> <p>Fruit crops Mango- Amla-Sapota-Pomegranate-Guava-Banana</p> <p>Vegetable Crops Chillies-Brinjal-Onion-Lablab (Garden Bean)</p> <p>Plantation crop Coconut-Fodder crops + Intercrop with pulses Arecanut Pepper-coffee</p> <p>Allied Sector Livestock-Poultry-Fisheries</p> <p>Enterprises Milk processing-Value addition millets and Fisheries</p>

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

S. No	Agro-climatic Zone	Characteristics
1.	North Western Zone	This zone covers an area of 18,271 Sq. kms (10,28,097 hectares) of which 56.3 per cent is under cultivation. Out of total area of cultivation, only 23 percent i.e., 2,35,828 hectares are irrigated area. The annual normal rainfall of the zone is 849 mm. This zone has been identified as moderately drought prone. Paddy, Maize, Ragi, Bajra, Sugarcane, Groundnut, Cotton, Sunflower, and mango are the major crops of this zone. Forest area in this zone constitutes nearly 30 percent i.e. 5,35,282 hectares of the area of the zone, which is nearly 25 per cent of the total forest area of the State. KVK located with geological position N11°09.296' Latitude, E78°09.708' longitude with MSL 509.

2.3 Soil types

S. No	Soil type	Characteristics	Area in ha
1.	Red loam & Red sandy soil	Light texture, Porous structure, and absence of lime. Poor fertility, Low Base Exchange capacity.	1,98,438
2.	Lateritic	Light texture, open free draining structure, deficient in lime and moderately acid in reaction.	77,357
3.	Black	Porous, compact and impervious, swells on wetting and shrinks, cracks in drying.	38,678
4.	Alluviul	Structure of loose and free draining, compact and impervious.	21,525

2.4. Area, Production and Productivity of major crops cultivated in the district for 2018-19

Khariif

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl/ha)
1	Sorghum	76252	497925	6.53
2	Pearl millet	167	5344	32.0
3	Finger millet	486	17156	35.3
4	Foxtail millet	87	522	6.0
5	Little millet	367	3670	10.0
6	Redgram	639	4965	7.77
7	Greengram	4541	22160	4.88
8	Blackgram	1600	20800	13.0

9	Cowpea	588	4962	8.44
10	Mochai	135	945	7.00
11	Other Pulses	1964	19640	10.00
12	Groundnut	19624	131284	6.69
13	Sesame	464	1856	4.00
14	Castor	1300	19500	15.00
15	Banana	1989	9049950	4550
16	Mango	2393	1148640	480
17	Tomato	788	342780	4350
18	Brinjal	708	1670880	2360
19	Bhendi	482	60250	1250
20	Annual moringa	136	78880	580
21	Black pepper	1741	95755	55

Rabi

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl /ha)
1	Paddy	7635	448938	58.80
2	Maize	9151	654662	71.54
3	Green gram	1855	9052	4.88
4	Black gram	745	9685	13.0
5	Bengalgram	308	2310	7.50
6	Horsegram	1191	10719	9.00
7	Groundnut	12440	83233	6.69
8	Cotton	1733	20102	11.6
9	Sugarcane	10812	7892760	730
10	Tapioca	16150	6460000	4000
11	Small onion	3451	5003950	1450
12	Chilies	285	64125	225
13	Ribbed gourd	202	25250	1250
14	Snake gourd	74	88800	120
15	Bitter gourd	68	13600	200
16	Lab lab	100	8000	80
17	Radish	199	23880	120
18	Cabbage	46	8280	180
19	Beans	5	350	70

Summer

S. No	Crop	Area (ha)	Production (Qtl)	Productivity (Qtl /ha)
1	Cotton	715	8294	11.6
2	Turmeric	2126	488980	230

(Source: Department of Agriculture and Horticulture, 2018-19)

2.5. Weather data

Month	Rainfall (mm)	Temperature °C		Relative Humidity (%)	
		Maximum	Minimum	Maximum	Minimum
April 2018	3.00	36.35	24.53	68.47	36.97
May 2018	78.00	36.52	24.14	83.06	52.58
June 2018	34.00	35.37	24.82	81.40	62.10
July 2018	29.70	34.99	24.50	81.58	51.10
August 2018	65.80	34.86	23.95	83.61	50.32
September 2018	166.2	34.59	23.28	87.07	52.17
October 2018	133.9	32.93	22.66	92.71	61.03
November 2018	43.50	31.71	21.51	91.03	62.90
December 2018	6.20	31.37	20.27	91.55	60.32
January 2019	2.00	32.10	17.79	91.55	49.06
February 2019	0.00	35.18	21.43	89.96	42.39
March 2019	0.00	37.09	23.34	84.94	37.61

(Source: AFAQAL, VC and RI, Namakkal-2)

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

Category	Population	Production	Productivity
Cattle			
<i>Crossbred</i>	258400	2842400 LPD	11 lit.
<i>Indigenous</i>	49670	248350 LPD	5 lit.
Buffalo	219987	1319922 LPD	6 lit.
Sheep			
<i>Crossbred</i>	151786	2428576 kg	16 kg (6 months)
<i>Indigenous</i>			
Goats	462934	7869878 kg	17 kg (6 months)
Pigs			
<i>Crossbred</i>	13927	1114160 kg	80 kg (10 months)
<i>Indigenous</i>	3831	249015 kg	65 kg (10 months)
Rabbits	852	1278 kg	1.5 kg (6 months)
Poultry			
Hens			
<i>Desi</i>	693212	1386424 kg	2 kg (1 year)
<i>Improved</i>	41787830	2.7 crore egg	190 eggs/bird (72 wks)
Ducks	987	2467.5 kg	2.5 kg (1year)
Turkey and others	710	3550 kg	5 kg (1 year)

Category	Area	Production	Productivity
Fish	25ha	55ton	2.2ton/ha
<i>Marine</i>	0	0	0
<i>Inland</i>	25ha	55ton	2.2ton/ha
Prawn	0	0	0
Scampi	0	0	0
Shrimp	0.4ha	1710	8ton/ha

(Source: Department of Animal husbandry, Namakkal, 2018-19)

2.7 Details of Adopted Villages (2018-19)

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	Mohanur	Mohanur	Peramanda palayam	2014	Groundnut, Sorghum, Black gram, Maize	Non availability of high yielding varieties, Non adoption of ICM practices, yield loss due to color rot and root rot diseases in groundnut	Demonstration of high yielding groundnut varieties (GJG-9 & CO-7), Black gram variety (VBN-8) along with ICM practices. Awareness cum Demonstration on Integrated pest and diseases management in groundnut.
2	Mohanur	Mohanur	Aniyapuram	2015	Sorghum, Castor	Malnutrition among farm women, Cultivation of existing local sorghum & castor varieties	Awareness programme on Nutrition week celebration and Demonstration of multicut fodder sorghum variety and castor hybrid along with ICM practices.
3	Namakkal	Mohanur	Tholur & Aniyapuram	2018	Tuberose Marigold	Market fluctuation in marigold (Rs.5-10/kg), Low yield (4 t/ha)	ICM practices in Chrysanthemum var.Co1

						&Notpreferred for religious functions Seasonal	
4	Rasipuram	Namagiripettai	Kalkuruchi	2018	Tapioca	Low yielding varieties 12t/0.4 ha (Mulluvadi, H226 & white rose) Susceptible to CMD (95%) Low Starch content : 22- 23%	High yielding variety having high starch content
DFI villages							
1	Rasipuram	Vennandur	Moolakadu	2018	Groundnut, Sorghum, Maize	Cultivation of local variety (TMV-7), Non availability of HYV, Diseases incidence (root rot), Non adoption of ICM practices. Poor utilization of farm resources, shortage of green fodder for livestock and less farm income.	Demonstration of High yielding groundnut varieties (GJG-9 & CO-7) and ICM Practices. Training on ICM in groundnut and Maize, Farm school on ICM in Maize and Fall armyworm management Demonstration of integrated farming system for proper recycling of farm resources, green fodder production, sustainable farm income.
					Small ruminants	High feed cost	Unconventional feeds for livestock and sericulture.
					Composting technologies Soil & water analysis	Lack of information on availability of microbial culture Time consuming in conventional method, Inefficient decomposing process in traditional method Lack of awareness on fertility status of soil	Assessment of suitable microbial consortium for waste decomposition Soil & water collection, analysis & issue of soil health cards
2	Rasipuram	Namagiripettai	Ondikadai	2018	Maize, Groundnut, Black gram, Sorghum	Non availability of high yielding groundnut and black gram varieties, Higher incidence of fall armyworm pest	Demonstration of High yielding groundnut varieties (TCGS-1073 & K-9) and ICM Practices. Training on ICM in Maize & Fall armyworm management. Farm school on ICM in Groundnut
					Chilli	Unaware of IPDM technology on field and	FFS- Adoption of IPDM technology for pest and disease management of

					horticultural crops	chilli crop	
					Tomato Tapioca Cabbage Beans Onion	French bean Low yield in local varieties (12 t /ha) Rust incidence (25%) Seasonal Demand throughout the year	ICM Practices in French bean with high yielding variety
					Bellary Onion	Price fluctuation in multiplier onion (Rs.10 – 100). Non availability of Bellary onion during June – September. Price rise due to sharp fall in arrivals from Maharashtra.	ICM Practices in Bellary onion with high yielding variety
					Ribbed gourd	Higher seed cost of private hybrids (Naga) low yield (26 t/ ha)	Assessing the performance of Ribbed gourd varieties.
					Soil & water analysis	Lack of awareness on fertility status of soil	Soil & water collection, analysis & issue of soil health cards
					Dairy	Occurrence of mastitis and high somatic cell count	Clean milk production
3	Mohanur	Mohanur	Ganapathipalaya m	2018	Banana	Single cropping Lack of information on intercropping, Moisture conservation practice, weeds problem and labour scarcity	Demonstration of Banana-Cowpea intercropping with Integrated Crop Management practice
					Composting technologies	Deficiency in OC, available Nitrogen & Zinc. Lack of information on availability of microbial culture.	Assessment of suitable microbial consortium for waste decomposition
					Soil & water analysis	Time consuming in conventional method Inefficient decomposing process in traditional method Lack of	Soil & water collection, analysis & issue of soil health cards

						awareness on fertility status of soil	
					Dairy	Shortage of feed	Alternative feeds for dairy animals

2.8 Priority/thrust areas

Crop/Enterprise	Thrust area
Paddy	Introduction of New paddy varieties and SRI Methods
Maize	Demonstration of integrated pest management practices (FAW)
Pulses	Demonstration of high yielding pulses varieties (CO-8, VBN-6, VBN-8) with ICM practices
Groundnut	Introduction of high yielding varieties (GJG-9, CO-7, & TCGS-1073) and Integrated pest & disease management
Castor	Introduction of New castor hybrids and ICM Practices
Minor millets	Introduction of high yielding variety (ML-365) & Integrated crop management and value addition
Tapioca	Low yielding variety with low starch content
Ribbed gourd	Higher seed cost of private hybrids & low yield
Chrysanthemum	Alternate crop for Marigold
French bean	Low yielding variety
Bellary onion	Price fluctuation & low yield in small onion
Banana	Demonstration of Banana-Cowpea intercropping with ICM practice
Cotton	Demonstration of green manuring in cotton with ICM practice
Jasmine	Assessment of timely application of fertilizers for inducing lean season and quality flowering in jasmine
IFS	Integrated Farming system models for various ecosystem
Composting technology	Assessment of suitable composting culture in waste decomposition
Green fodder	Intensive fodder cultivation and seed production in fodder crops
Livestock Infertility Management	Assessment of suitable infertility treatment in dairy animals of Namakkal district
Livestock Nutrition Management	Demonstration of Mulberry leaves for better weight gain in Small Ruminant production system
Livestock Disease Management	Demonstration of Mastiguard to prevent Mastitis in dairy animals
Livestock Disease Management	Assessment of Ethno Veterinary treatment for control of Endo parasites in Small ruminant
Livestock Infertility Management	Demonstration of EVM for treatment of Repeat breeding in dairy animals
Livestock Nutrition Management	Demonstrating Moringa (PKM1/2) as a substitute for protein forage in Large Ruminants Feeding
Duck cum fish culture	Farming system model for various ecosystem
Murrel seed production	Introduction of Seed production methods
Cage culture technology	Introduction of New technology for fish culture Practices

2.9 Salient Achievements of (April 2018-March, 2019) (Mandated activities/ Projects)

S.No	Activity	Target	Achievement
1.	Technologies Assessed and refined(No.)	10	9
2.	On-farm trials conducted (No.)	75	70
3.	Frontline demonstrations conducted (No.)	17	16
4.	Farmers trained (in Lakh)	0.0285	0.0472
5.	Extension Personnel trained (No.)	250	910
6.	Participants in extension activities (in Lakh)	0.20	0.485
7.	Production of Seed (in Quintal)	222	349.99
8.	Planting material produced (in Lakh)	0.09	0.119

9.	Live-stock strains and finger lings produced (in Lakh)	0.15	0.29
10.	Soil, Water, plant, manures samples tested (in Lakh)	0.00950	0.00912
11.	Mobile agro-advisory provided to farmers (in Lakh)	0.200	0.0216
12.	No.of Soil Health Cards issued by Mini Soil Testing Kits (No.)	350	356
13.	No.of Soil Health Cards issued by Traditional Laboratory (No.)	250	244

Give Salient Achievements by KVK during the year in bullet points:

- Conducted cluster front line demonstration on high yielding groundnut varieties (TCGS-1073, GJG-9) in 125 farmers field of 50 ha and farmers recorded higher pod (43pods/plant) and haulm yield (3190 kg/ha) and fetched 18percentadditional income due to bold pods and good market acceptability. Also 6 farmers involved groundnut seed production with PPP Mode implemented by KVK, Namakkal and So far, 3150 kgs of groundnut pods received from farmers.
- Conducted cluster front line demonstration on high yielding green gram variety (CO-8) in 100 farmers field and out of 100 farmers, 26 farmers involved seed production (2150bkgs) with tie up of Agricultural department and KVK Salem seed hub project and obtained 35 percent more income.
- Under PPP Mode 56 Farmers involved fodder seed production and produced30059 kgs of different fodder seeds for Rs. 99,50,800/- and same distributed to the needy farmers, line departments and other institutes forRs.10369923during 2018-19.
- Offered training programme for vermicompost production among block development officials and 249 kg of earthworms supplied from KVK, Namakkal for 21 vermicompost units developed in different villages during 2018-19.
- Totally 25635 farmers, entrepreneurship, rural youth, school childrens, college student, school dropouts were benefitted by different programmes conducted by KVK, Namakkal in 2018-19.
- 6 new varieties introduced for the benefit of farming community in 2018-19
- 18 livestock farmers, fish farmers and integrated farmers were established in 2018-19
- 5 entreprenuer were developed.
- 349.99 kgs of seeds, 11922 planting materials, 1418 kgs of bioproducts, 8266 numbers of livestock & poultry chicks, 15520 number of fingerlings were produced and supplied to the needy farmers.
- Continued successful NICRA interventions to the other parts of the district.

3. TECHNICAL ACHIEVEMENTS

3.A. Details of target and achievements of mandatory activities by KVK during 2018-19

OFT (Technology Assessment)				FLD (crop/enterprise/CFLDs)			
1				2			
Number of technologies		Total no. of Trials		Area in ha		Number of Farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
10	9	75	70	30 ha & 90 animlas	26 ha & 90 animals	140	130

Training (including sponsored, vocational and other trainings carried under Rainwater Harvesting Unit)					Extension Activities			
3					4			
Number of Courses			Number of Participants		Number of activities		Number of participants	
Clientele	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Farmers	100	161	2500	4421	400	1136	20000	48598
Rural youth	5	10	350	297				
Extn. Functionaries	5	19	250	910				
Seed Production (Qtl.)				Planting material (Nos.)				
5				6				
Target		Achievement	Distributed to no. of farmers		Target	Achievement	Distributed to no. of farmers	

Agricultural crop seeds	20.0	45.83	121	Horticultural crop planting material - 4000 Nos	4872	502
Vegetable seed	2.0	2.87	1349	Fodder slips – 5000 Nos.	7050	5
Fodder seeds	200.00	301.29	12491			

3.b. TECHNOLOGY ASSESSMENT

Summary of technologies assessed under various CROPS by KVKs

Thematic areas	Crop	Name of the technology assessed	Source of technology with year	No. of trials	No. of farmers
Integrated Nutrient Management	Jasmine	Assessment of timely application of fertilizers to induce lean season & quality flowering	IIHR, Bengaluru, 2012 TNAU, Coimbatore, 2013	10	10
Varietal Evaluation	Paddy	Assessment of paddy varieties suitable for Kollihills region of Namakkal district	KAU, 2018	5	5
	Castor	Assessment of Castor hybrids suitable for Namakkal district as Pure crop	IIOR, 2006, TNAU, 2009	5	5
	Tapioca	Assessing the performance of Tapioca varieties in Namakkal District	CTCRI, 2013& 2017	5	5
	Ribbed gourd	Assessing the performance of Ribbed gourd varieties in Namakkal district	TNAU, 2017& IIHR, 2016	5	5
Integrated Pest Management	Banana	Assessment of Suitable management practices against Banana Stem weevil in kolli hills	NRCB -2009, TNAU, 2012 &CTCRI, 2015	5	5
Others (Pl. specify)	Composting technology	Assessment of suitable microbial consortium for waste decomposition	NCOF, Ghaziabad 2016 UAS, Dharwad, 2016 TNAU, Coimbatore, 2012	10	10
Total				45	45

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	Dairy	Assessment of suitable infertility treatment in dairy animals of Namakkal district	10	10
	Small ruminants (goat)	Assessment of Ethno Veterinary treatment for control of Endo parasites in Small ruminant	10	10
Total			20	20

3.c. TECHNOLOGY ASSESSMENT IN DETAIL

OFT -1 (Agronomy)

- Thematic area:** Varietal Evaluation
- Title:** Assessment of Castor hybrids suitable for Namakkal district as Pure crop
- Scientists involved:** Dr.P.Murugan, Scientist (Agronomy) & Dr.N.Akila, Senior Scientist & Head
- Details of farming situation**
 - ❖ **Location of trial**

Castor is an important oilseed crop, cultivated in Elachipalayam, Tiruchengode and Mallasamudhiram blocks of Namakkal district in an area of 1300 ha during Kharif season of every year. The most of the small and marginal farmers in the blocks are cultivating castor as intercrop and pure crop under rainfed and irrigated condition. Farmers are cultivating unknown varieties and private hybrids of castor and getting low yield in both rainfed and irrigated condition. Further scope for enhancing yield is limited due to non adoption of high yielding hybrids, pest and disease incidences. Hence, KVK Namakkal conducted On Farm trial on Assessment of Castor hybrids suitable for Namakkal district as Pure crop at five farmers field of Kokkalai and

Unjanai villages of Elachipalayam block during Kharif season 2018-189. Kokkalai village is situated at 11.37° N latitude and 77.89° E longitude and Unjanai village is located at 11.35° N latitude and 77.95° E longitude.

❖ **Major crops grown**

Kokkalai – Sorghum, Castor, Groundnut, Black gram, Green gram, Tapioca

Unjanai – Sorghum, Maize, Groundnut, Castor, Green gram, Sesame, Tapioca.

❖ **Season**

The main cropping systems followed by the farmers is Groundnut – Green gram, Sorghum – Castor, Castor – Maize and Sorghum – Green gram / Black gram, Tapioca followed by minor millets. Main season for Castor cultivation in both villages is June - October (Kharif season).

❖ **Farming situation (Irrigated/Rainfed)**

Eighty per cent of Elachipalayam block is under rainfed condition. More than 95 percent of castor farmers cultivating castor crop under rainfed condition. If water source is available, they could irrigate the field.

❖ **Climatic condition during the crop period**

The average annual rainfall of Namakkal District in 2018-19 was 562.3 mm. Out of which, the rainfall received during South West Monsoon is 373.0 mm. Kokkalai and Unjanai villages received an average rainfall of 32 mm with 3 rainy days in June, 14 mm of rainfall in 2 rainy days during July, 34 mm of rainfall in one rainy day in August and 100 mm of rainfall in 7 rainy days in September 2018. During the crop period (June 2018 – September 2018) totally 180 mm of rainfall was received in 13 rainy days. Maximum monthly mean temperature was 32.3°C and minimum was 23.6°C.

❖ **Soil type and fertility status**

The soil type is red sandy loam with a pH of 7.72 and EC of 0.7 dSm⁻¹ with a soil nutrient status of low Nitrogen (212 kg/ ha), medium Phosphorus (10.2 kg / ha) and high Potassium (306 kg /ha).

5. Problem definition / discription

- Traditionally farmers cultivate local castor variety as a border crop of rainfed groundnut, sorghum and pulses cultivation in Namakkal district.
- The incidence of leaf hopper and lodging is a severe problem in local variety and results in low yield. And also fetches low market price of groundnut and other oilseeds compared to castor.
- No awareness on pure crop cultivation of castor under both rainfed and irrigated condition.
- Non adoption of improved crop management practices in castor cultivation.
- Poor grain yield.
- Less farm income.
- Farmers expected high yielding castor hybrids suitable for rainfed condition.
- The main objective of the study was to assess the performance of high yielding castor hybrids as a pure crop under rainfed condition of Namakkal district.

6. Technology Assessed

Three castor hybrids were assessed with integrated crop management practices under rainfed condition.

1. **Cultivation of Castor hybrid (YRCH-1)Farmers Practice** - Cultivation of YRCH-1, 150 days duration, profuse branching, Non lodging & Non shattering, more female flower on the spike (95%), resistant to wilt & sucking pest, tolerant to capsule borer, 49% oil content and higher yield (1950 - 2200 kg/ha), suitable for Tamil Nadu and released by TCRS, TNAU.
2. **Cultivation of Castor hybrid (DCH-177)**- 155 days duration, resistant to wilt and white fly, high yield (2000-2500kg/ha), oil content (49%) , released by ICAR-IIOR, Hyderabad.
3. **Cultivation of Castor hybrid (DCH-519)** - Cultivation of DCH-519, Early maturity (130-150 days), tolerant to drought, resistant to fusarium wilt and leaf hopper, higher yield (2130 hg/ha), Oil content (50%) and suitable for all Castor growing area in southern parts of India, Released by ICAR-IIOR, Hyderabad during 2006.

Other integrated crop management practices viz., seed treatment with pseudomonas, spacing (180 x 90 cm), blanket recommendation of fertilizer application, weeding, foliar spray of Castor gold and integrated pest and diseases management practices were adopted.

7. Critical inputs given

<i>Name of the critical inputs</i>	<i>Quantity (kgs)</i>	<i>Cost (Rs.)</i>
Castor hybrid (DCH-177)	10 kg	2500
Castor hybrid (YRCH-1)	10 kg	2500
Castor hybrid (DCH-519)	10 kg	2500
Pseudomonas for seed treatment	5 kg	750
Castor gold (hormone for induce female flower)	1.5 litre	3000
Oilseed Mineral Mixture	2 no.	2000

8. Results:

Table : 1. Performance of the technology

<i>Technology Option</i>	<i>No. of trials</i>	<i>Yield (t/ha)</i>	<i>Net Returns (Rs. in Lakhs)</i>	<i>B:C ratio</i>	<i>Spike length (cm)</i>	<i>Leaf hopper incidence (%)</i>
<i>Farmers Practice (Hybrid Castor YRCH-1)</i>	5	1.297	0.411	2.73	38.4	3.20
<i>Technology 1 (Hybrid Castor DCH-177)</i>		1.037	0.282	2.19	35.8	13.6
<i>Technology 2 (Hybrid Castor DCH-519)</i>		1.311	0.419	2.77	44.4	2.20

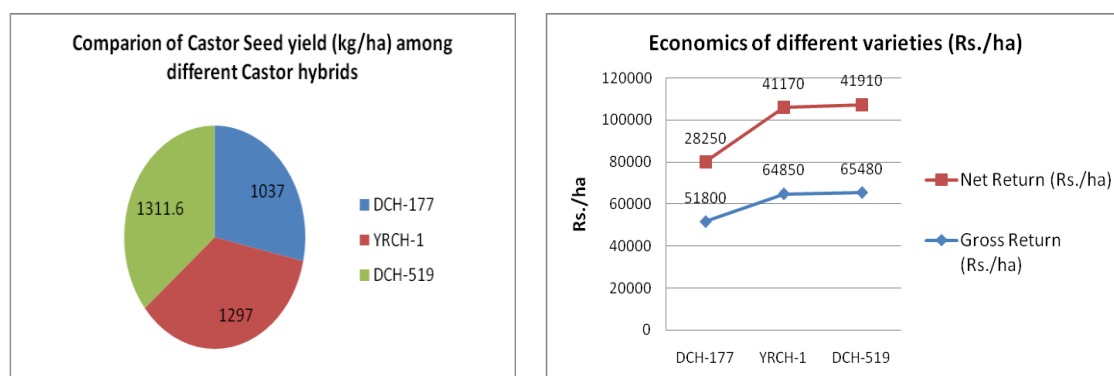
Description of the results

- ✓ The on farm trials was conducted in five farmers field at Kokkalai and Unjanai village during Kharif season (June - September) 201-18. KVK offered off campus training, distributed critical inputs to the beneficiaries and trails were carried out. The yield data recorded in OFT fields under different castor hybrids along with farmers hybrids. The average yield and yield parameters recorded in the field are mentioned below.

<i>Parameters</i>	<i>Castor hybrid (DCH-177)</i>	<i>Castor hybrid YRCH-1(FP)</i>	<i>Castor hybrid DCH-519</i>
Plant height (cm)	173.0	136.0	194.4
Days to 50% flowering	77.0	67.0	72.0
No. of effective spikes/plant	37.40	43.80	38.20
Spike length (cm)	35.80	38.40	44.40
No. of capsules / spike	46.20	53.40	57.40
Leaf hopper incidence (%)	13.60	3.20	2.20
100 seed weight (g)	24.00	24.32	25.02
Seed yield (tons/ha)	1037.0	1297.0	1311.6
Gross cost Rs. /ha	23630	23620	23570
Gross return Rs. /ha	51800	64850	65480
Net return Rs. /ha	28250	41170	41910
BCR	2.19	2.73	2.77

- ✓ On farm trial results revealed that cultivation of castor hybrid (DCH-519) with integrated crop management practices recorded more number of effective spikes per plant (38.20), more number of capsules per spike (57.4), very less incidence of leaf hopper (2.20 %), higher grain yield (1311.6 kg/ha) as compared to other hybrid (DCH-177) and farmer practice (YRCH-1).
- ✓ With regard to farmer practice (YRCH-1), more number of effective spikes per plant (43.80), more number of capsules per spike (53.4), very less incidence of leaf hopper (3.2 %), higher grain yield (1297 kg/ha). It is on par with DCH-519 hybrid.

- ✓ The least grain yield (1037 kg/ha) and higher incidence of leaf hopper (13.6 %) were observed in DCH-177 hybrid.



- ✓ Economics of the study revealed that cultivation of castor hybrid (DCH-519) with integrated crop management practices (DCH-519) registered higher net returns (Rs.41910/ha) and benefit cost ratio (2.77) followed by YRCH-1 hybrid.
- ✓ Fetched higher castor market price (Rs.48/kg) for all hybrids compared to groundnut and most of the farmers were accepted preference for DCH-519 and YRCH-1 hybrids.
- ✓ The study showed that cultivation of castor hybrids (DCH-519 and YRCH-1) under rainfed condition responded well in terms of yield attributes, grain yield and higher net returns.

Constraints faced:

No constraints faced by the farmers for cultivation of YRCH-1 and DCH-519. But Cultivation of DCH-177 resulted heavy incidence of leaf hopper and botrytis disease with reduced yield. The same was reported to TCRS, Yethapure and it was revealed by the the crop is suitable for Rabi season cultivation. However, this practice is not prevalence in Namakkal district.

9. Feed back of the farmers involved:

Cultivation of castor hybrids viz., DCH-519 and YRCH-1 recorded more number of spikes per plant, more number of capsules per spike and higher grain yield compared to DCH-177 under rainfed condition. Very less incidence of pest and diseases was observed in YRCH-1 & DCH-519 hybrids and also fetched good market price for all hybrids. The more number of pesticides spray (2-3 spray) is required for DCH-177 hybrid to control sucking pest and botrytis disease. Instead of intercropping with groundnut, castor cultivation in sole crop yielded more profit. Profit. Many farmers were accepted to cultivate castor hybrids as a pure crop under rainfed or irrigated condition due to less cost of cultivation, easy management and less labour required crop during field day.

10. Feed back to the scientist who developed the technology:

DCH-177 castor hybrid not suitable for namakkal district during kharif season.

OFT-2 (Agronomy)

1. **Thematic area:** Varietal evaluation
2. **Title:** Assessment of paddy varieties suitable for Kollihills region of Namakkal district
3. **Scientists involved:** Dr.P.Murugan, Scientist (Agronomy) & Dr.N.Akila, Senior Scientist & Head
4. **Details of farming situation**
 - ❖ **Location of trial**

Kollihills block is hill tract (1200 MSL) of the Namakkal district. Mostly tribal farmers growing traditional paddy variety Wayanad-II during early samba season in every year. The Wayanad-II Paddy occupied in 380 ha area under both rainfed and irrigated condition in Kollihills area. the This Paddy variety is long duration (5-6 months), non lodging, less tillering, bold grain, red rice, very less yield potential (950 kg/ha), incidence of leaf folder & stem borer, less farm income and mostly consumed by tribal people of this tract. Kollihills farmers and Agricultural department requested with KVK, Namakkal that this variety is to be replaced by new

paddy variety with high productivity and red rice type. Hence, KVK conducted On farm trial to assess the performance of suitable paddy variety for Kollihills region at five farmers field of Elangiyampatti and Vasalurpatti villages during Rabi 2018-19 season. Elangiyampatti and Vasalurpatti villages is situated at 11.23° N latitude and 78.20° E longitude.

❖ **Major crops grown**

Elangiyampatti and Vasalurpatti – Paddy (Both rainfed and irrigated condition), Finger millet, Banana, Tapioca, pepper and Coffee.

❖ **Season**

The main cropping systems followed by the farmers are Paddy – Paddy, Tapioca – Banana, Coffee with silver oak. Paddy is cultivated both kharif and rabi season of every year under rainfed condition and irrigated condition. On farm trial sowing has taken up during October month (Rabi season) with available water source.

❖ **Farming situation (Irrigated/Rainfed)**

Paddy mainly cultivated in irrigated condition and some parts under rainfed condition in both villages.

❖ **Climatic condition during the crop period**

The annual rainfall of Kollihills during 2018-19 was 1079 mm. Vasalurpatti and Elangiyampatti villages received an average rainfall of 185 mm with 9 rainy days in September, 212 mm of rainfall in 12 rainy days during October, 143 mm of rainfall in 9 rainy days in November and No rainfall during December and January 2019. During the crop period (September 2018 – January 2019), totally 540 mm of rainfall was received in 30 rainy days. Maximum monthly mean temperature was 29.6°C and minimum was 18.5°C.

❖ **Soil type and fertility status**

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 (238 kg/ ha), medium Phosphorus (11.6 kg / ha) and high Potassium (365 kg /ha).

5. Problem definition / discription

- Non availability of alternate paddy varieties for WAYANAD-II
- Long duration (5-6 months)
- Lodging type, less tillering, bold grain, red rice
- Low yield potential (950 kg/ha)
- Heavy Incidence of leaf folder & stem borer and mostly consumed by tribal people of this tract.
- Less farm income
- Non adoption of integrated crop management practices
- The main objective of the study was to assess the performance of paddy varieties (Anashwara and Supriya) suitable for Kollikills region along with local check variety (Wayanad-II) under rainfed and irrigated condition for higher grain yield and more farm income.

6. Technology Assessed

Two paddy varieties were assessed with integrated crop management practices under rainfed and irrigated condition along with check variety (Wayanad-II).

1. **Cultivation of Wayanad-II Paddy variety (Farmers practice)** – Cultivation of WAYANAD II variety long duration (150 days), low yield, lodging and tolerance to drought and red rice variety
2. **Cultivation of Anashwara Paddy variety (PTB-58)** - 130 days duration, Photosensitive, semi tall variety, red medium bold, non lodging nature, moderately resistant to blast, sheath blight, leaf folder, stem borer and gall fly, grain yield (4500-4800 kg/ha)
3. **Cultivation of Supriya Paddy variety** - 140 days duration, semi tall variety, red tinge medium bold, tolerance leaf folder & stem borer, non lodging, grain yield (6000-6500 kg/ha)

7. Critical inputs given

<i>Name of the critical inputs</i>	<i>Quantity (kgs)</i>	<i>Cost (Rs.)</i>
Paddy seeds (Anashwara)	25	1875
Paddy seeds (Supriya)	25	1875

Pseudomonas	5	750
Pheromone traps	25	1875
Azospirillum for soil application	5	300

8. Results

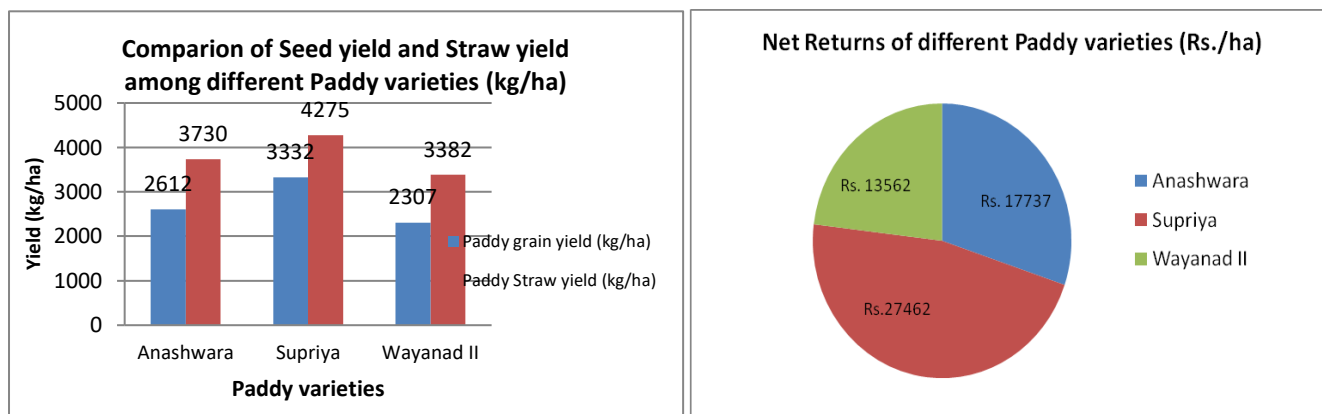
Table : 1. Performance of the technology

<i>Technology Option</i>	<i>No. of trials</i>	<i>Paddy grain Yield (t/ha)</i>	<i>Net Returns (Rs.in lakhs)</i>	<i>B:C ratio</i>	<i>No. of productive tillers (No.)</i>	<i>Leaf folder incidence (%)</i>
<i>Farmers Practice</i> (Cultivation of Wayanad-II Paddy variety)	5	2.30	0.135	1.64	8.2	6.1
<i>Technology 1</i> (Cultivation of Anashwara Paddy variety)		2.61	0.177	1.82	13.2	3.0
<i>Technology 2</i> (Cultivation of Supriya Paddy variety)		3.33	0.274	2.21	14.2	1.5

Description of the results

<i>Arameters</i>	<i>Anashwara (PTB-58)</i>	<i>Supriya (New)</i>	<i>Wayanad -II Check variety</i>
Germination %	86.6	87.4	85.2
Plant height (cm)	47.80	61.8	50.0
No. of productive tillers /plant (Nos)	13.20	14.2	8.2
No. of panicle / plant	10.50	11.5	7.5
No. of grains / panicle	129.5	144	127.5
Blast incidence (%)	2.5	2.5	7.25
Stem borer incidence (%)	Nil	Nil	6.6
Leaf folder incidence (%)	3.0	1.5	6.05
Panicle length (cm)	15.95	17.95	14.8
Grain yield (kg/ha)	2612	3332	2307
Paddy straw yield (kg/ha)	3730	4275	3382
Gross cost Rs. /ha	21450	22525	21050
Gross return Rs. /ha	39187	49987	34612
Net return Rs. /ha	17737	27462	13562
BCR	1.82	2.21	1.64

- ✓ The On farm trials were conducted in five farmers field at Vasalurpatti and Elangiyampatti village during Rabi season 2018-19. 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 Supriya paddy variety recorded more plant height (61.8 cm), more number of productive tillers per plant (14.2), less incidence of blast (2.5%) & leaf folder (1.5%) , no incidence of stem borer, higher grain yield (3332 kg/ha), higher paddy straw yield (4275 kg/ha) and higher farm net income (Rs.27462/ha) as compared to Anashwara and Wayanad –II paddy varieties.
- ✓ The least paddy grain yield (2307 kg/ha) and more incidence of pest and diseases were observed in local check variety (Wayanad-II).
- ✓ Economics of the study revealed that cultivation of Supriya paddy variety registered higher net returns (Rs.27462/ha) and benefit cost ratio (2.21) followed by Anashwara variety and local check variety.
- ✓ Out of five OFT trials, three trials conducted under rainfed condition. All the three trials were dried due to non receipt of rain during December and January.
- ✓ The study showed that cultivation of Supriya paddy variety performed well under irrigated condition but kollihills farmers are not accepted white coloured grains. Regarding to Anashwara paddy variety, recorded average grain yield and red coloured and not performed well in kollihills area in yield and income wise.

Constraints faced: Low paddy grain and straw yield recorded in Anashwara paddy variety.

9.Feed back of the farmers involved

Supriya paddy variety lodged during physiological maturity stage and also white coloured grain not preferred. Anashwara variety not performed well in yield and also recorded less paddy straw yield.

10. Feed back to the scientist who developed the technology:

Since, Anashwara has not performed well, suitable red rice varieties may be recommended to kollihills region of Namakkal district.

OFT- 3 (Horticulture)

1. **Thematic area:** Varietal assessment

2. **Title:** Assessing the performance of Tapioca varieties in Namakkal District

3. **Scientists involved:** Dr.C.Sharmila Bharathi Scientist (Horticulture) & Dr.N.Akila, Senior Scientist & Head

4. **Details of farming situation:**

❖ Area of Demonstration

On Farm Testing on “Assessing the performance of Tapioca varieties in Namakkal District “ was carried out at five farmers’ field in an area of one ha in Kalkuruchi village, Sendamangalam block of Namakkal District during Kharif & Rabi season 2018 - 19. Kalkuruchi village is situated at 11.13⁰ N latitude and 78.40⁰ E longitude and at an elevation of 107 m above mean sea level. It is located 12 km towards East from District head quarters Namakkal and this village is surrounded by Kollihills towards East.

❖ Crops grown

Tapioca, Black gram, Green gram.

❖ Season

The main cropping systems followed by the farmers are Tapioca – Green gram / black gram – Tapioca. Most of the farmers cultivated Tapioca throughout the year under irrigated condition but the main sowing seasons are May –June as rain fed crop and Dec - January for irrigated crop.

❖ Farming situation (Irrigated/Rainfed)

Both open wells (depth 60 -100 feet) and bore wells (Depth 1000 feet) act as a main irrigation source. 95 % of the farmers used drip irrigation whereas 5 % of the farmers followed flood irrigation to cultivate Tapioca.

❖ Weather and climate during the study period

The average annual rainfall of Namakkal District during 2018-19 was 581.3 mm. Out of which, the rainfall received during South West and North East Monsoon was 479.3 mm. Kalkuruchi village received an average rainfall of 65.8 mm with 5 rainy days in August, 166.2 mm of rainfall in 9 rainy days during September, 133.9 mm of rainfall in 4 rainy days in October, 43.5 mm rainfall in 5 rainy days during November and 6.2 mm of rainfall received during December in 1 rainy day. During the study period (August 2018 – May 2019), totally 415.6 mm of rainfall was received in 24 rainy days. Maximum monthly mean temperature was 32.3°C and minimum was 27.1°C. Maximum monthly mean relative humidity was 90.0 per cent and minimum was 62.1 per cent at 07.22 and 14.22 hr, respectively.

❖ Soil type and fertility status

The soil type is red sandy loam with a pH of 7.2 and EC of 0.064 dSm⁻¹ with a soil nutrient status of low Nitrogen (214 kg/ ha), medium Phosphorus (12 kg / ha) and low Potassium (116 kg /ha).

5. Problem definition / description:

- The farmers faced major problems such as low yield (12 tonnes/0.4 ha) and the major cultivating varieties such Mulluvadi, H226 & white rose are susceptible to Cassava Mosaic Disease (CMD). Tapioca growers in the village used synthetic pesticides like Profenophos and Triazhophos for management of sucking pest as a vector for CMD. The frequency of applications ranges from one spray/week depending upon the season and pests and disease load.
- In addition, the farmers prefer high yielding variety which is has the same duration, low cost involved for cultivation and also having high starch content to get premium price in the market.
- In response to the threat of low yield in Tapioca and high cost involved for cultivation particularly for pest management & disease in Tapioca, Krishi Vigyan Kendra, Namakkal, Tamil Nadu has formulated and implemented an OFT on Assessing the performance of Tapioca varieties in Namakkal District in 5 farmers field covering one ha area at Kalkuruchi village during August 2018 – June 2019.
- The objective of the study was to assess the performance of Tapioca variety Sree Pavithra as a alternate variety for Mulluvadi / White rose/H226, reduce cost of production by reducing the input cost for Tapioca cultivation as well as to increase the net income of the farmer.
- The intervention consisted of six components viz., Tapioca cultivation through supply of planting materials of high yielding variety, sett cutting with tapioca sett cutter, sett treatment with bio control agents, soil test based manuring, foliar spray of micronutrients and IPDM for major pest and diseases.

6. Technology Assessed:

Technological Options		Variety features
TO 1	Mulluvadi variety (Farmers practice)	Yield :30 tonnes/ha, Starch: 22-24 %,Duration 10 months
TO2	Sree Athulya (Source: CTCRI,2013)	High yielding (39.00 t /ha) variety with high starch content (34.80%). Suitable for starch extraction as well as cattle feed.
TO3	Sree Pavithra (Source: CTCRI,2017)	High yielding (45t/ha)at low levels of potassium (K) good starch content (38.0%) and low cyanogenic glucoside (26ppm).

7. Critical inputs given:

Name of the Critical Inputs	Quantity per trial	Cost of inputs / Trial (Rs)	Total cost
Planting materials of Sree Pavithra (Including transport)	150 stems	1500	Rs.7500/-
Sett treatment with T.viride @ 4gm/lt & Soil application along with FYM	1 kg	-	
Soil test based fertilizer application	-	-	
Foliar spray of Feso ₄ , Zn so ₄ & Borax each @ 3gm/lt from 3MAP at fortnightly interval	Each 1 kg	-	

8. Results: The crop is in tuber development stage (8 months old)

Table : Performance of the technology

Technology Option	No. of trials	Yield (t/ha)	Net Returns (Rs. in /ha)	B:C ratio	Stem length (feet)
Farmers Practice (Mulluvadi)	10				3.5
Technology 1(Sree Athulya)					4.2
Technology 2(Sree Pavithra)					4.7

Description of the results: **Trial under progress**

OFT- 4 (Horticulture)

1. **Thematic area:** Varietal assessment

2. **Title:** Assessing the performance of Ribbed gourd varieties in Namakkal District

3. **Scientists involved:** Dr.C.Sharmila Bharathi Scientist (Horticulture) & Dr.N.Akila, Senior Scientist & Head

4. **Details of farming situation:**

❖ Area of Demonstration

On Farm Testing on “Assessing the performance of Ribbed gourd varieties in Namakkal District “ was carried out at five farmers’ field in an area of one ha in Ondikadai village, Namagiripettai block of Namakkal District during Rabi summer. Ondikadai village is situated at 11.45⁰ N latitude and 78.27⁰ E longitude and at an elevation of 341 m above mean sea level. This village is located at foothills of Kollihills.

❖ Crops grown

Tropical vegetables such as Tomato, Chillies, Tapioca, Cucurbits & Temperate vegetables / Cole season vegetables such as Cabbage, Cauliflower and Beans are commercially cultivated in an area of 317 ha under irrigated condition.

❖ Season

The main cropping systems followed by the farmers are Tomato – Cucurbits (Ribbed gourd, Bitter gourd and Snake gourd). Most of the farmers cultivated vegetables throughout the year but the main sowing seasons are June – July and Dec - January.

❖ Farming situation (Irrigated/Rain fed)

Both open wells (depth 100 -110 feet) and bore wells (Depth 700-1000 feet) act as a main irrigation source. 90 % of the farmers used drip irrigation whereas 10 % of the farmers followed flood irrigation to cultivate vegetables.

❖ Weather and climate during the study period

The average annual rainfall of Namakkal District during 2018-19 was 581.3 mm. Ondikadai village received an average rainfall of 183.6 mm with 10 rainy days during North East Monsoon. During the study period (February 2019 – May 2019), totally 22 mm of rainfall was received in 2 rainy days. Maximum monthly mean temperature was 31.2 °C and minimum was 25.4°C. Maximum monthly mean relative humidity was 89.0 per cent and minimum was 61.3 per cent at 07.22 and 14.22 hr, respectively.

❖ Soil type and fertility status

The soil type is red sandy loam with a pH of 7.3 and EC of 0.067 dSm⁻¹ with a soil nutrient status of low organic carbon (0.5 %), low available Nitrogen (212 kg/ ha), medium available Phosphorus (12.8 kg / ha) and medium available Potassium (194 kg /ha).

5. Problem definition / description:

- In this village the farmers faced major problems such as higher seed cost of private hybrids as well as low yield (26 t/ha). The farmers directly sold their produce at Mettala market and *Uzhavar santhai*, Rasipuram. In these market the farmers preferred medium length ribbed gourd hybrids instead of very lengthy fruit.
- In response to the high demand of and non availability of medium length ribbed gourd hybrids, Krishi Vigyan Kendra, Namakkal, Tamil Nadu has formulated and implemented an OFT on Assessing the performance of Ribbed gourd hybrids in Namakkal District in 5 farmers field covering 0.4 ha area at Ondikadai village during February 2019 – May 2019.
- The objective of the study was to assess the performance of Ribbed gourd hybrids to meet the demand of the market, make availability of the medium sized ribbed gourd fruits as wells as to increase the net income of the farmer.
- The intervention consisted of four components *viz.*, promoting cultivation of medium fruit sized ribbed gourd hybrids in the existing pandhal system through supply of seed materials, soil test based manuring, foliar spray of micronutrients and integrated pest management practices for major pest and diseases.

6. Technology Assessed:

Technological Options		Variety features
TO 1	Naga (Farmers practice)	First picking – 40 days , Green colour, yield :26 tonnes/ha, Duration 90 -100 days
TO2	CoH1 (Source: TNAU,2017)	First picking - 35 Days; Green, 45 cm long, tender fruits; Yield 34 t/ha; 17 harvests; Duration 120 days
TO3	Arka Vikram (Source: IIHR,2016)	First picking - 46 Days; Green, long, Tender fruits; Yield 34.0 t/ha; Duration 120 -135 days

7. Critical inputs given:

Name of the Critical Inputs	Quantity per trial	Cost of inputs / Trial(Rs)	Total cost
Seeds – CoH 1	400 g	1,000	Rs.2360/-
Seeds – Arka Vikram	400 g	1,000	
Arka Vegetable Special	2 kg	360	

8. Results: The crop is in fruiting stage

Table : Performance of the technology

<i>Technology Option</i>	<i>No.of trials</i>	<i>Yield (t/ha)</i>	<i>Net Returns (Rs. in /ha)</i>	<i>B:C ratio</i>	<i>Fruit length (cm)</i>
<i>Farmers Practice(Niga)</i>	10				27.0
<i>Technology 1(COHI)</i>					27.8
<i>Technology 2(Arka Vikram)</i>					29.6

Description of the results: Trial under progress

OFT- 5 (Plant protection)

- 1. Thematic area:** Integrated Pest management
- 2. Title:** Assessment of suitable management practices against Banana Stem weevil in kolli hills of Namakkal district as Pure crop
- 3. Scientists involved:** Dr.K.R. Pushpanathan, Scientist (Agronomy) & Dr.N.Akila, Senior Scientist & Head

4. Details of farming situation

❖ Location of trial

Banana is an important commercial crop, cultivated in Ariyur Nadu, Kolli hill Block, Sendamangalam Taluk, of Namakkal district in an area of 450 ha. during Kharif season of every year. The most of the small, marginal and big farmers in the blocks are cultivating Namanan banana as pure crop under rainfed and irrigated condition. Farmers are cultivating known Namanan banana and other banana varieties and getting low yield in both rainfed and some patches under irrigated condition. Further scope for enhancing yield is limited due to non adoption of integrated nutrient management, integrated pest and disease incidences. Hence, KVK Namakkal conducted On Farm trial on Assessment of C suitable management practices against Banana Stem weevil in kolli hills of Namakkal district as Pure crop for Namakkal district at five farmers field of Ariyur Nadu of Kollihills block during Kharif season 2018-19. Kolli Hills is situated in the Namakkal district of Tamil Nadu, South India (780 17' 05" E to 780 27'45" E and 110 55' 05" N to 110 21'10" N) are a low ranging hills of Eastern Ghats spread over an area of 441 sq.km. Kolli Hill has an area of 282. 92 sq. km.

❖ Major crops grown

Pineapple and banana are the major horticultural crops grown. Tapioca, acid lime, mango, coffee, cardamom, coriander, jack, orange and guava are also cultivated on a large scale. Ginger, turmeric, pepper and mustard are grown in certain pockets only. Chillies are the major vegetable crop grown on a commercial basis. In leveled areas and in some valleys, paddy, is grown. It is the only irrigated crop, grown in this hill tract. Besides paddy, ragi, small millets and pulses are also grown. Irrigation is only through the natural streams and flooding is the irrigating method followed.

❖ Season

Main season for banana cultivation in Kolli hills is June - October (Kharif season).

❖ Farming situation (Irrigated/Rainfed)

Ninety per cent of Kolli hill block is under rainfed condition. More than 70 percent of farmers cultivating Namanan banana crop under rainfed condition. If water source is available, they could irrigate the field.

❖ Climatic condition during the crop period

The average annual rainfall of Kolli hills, Namakkal District in 2018-19 was 823.00 mm. Out of which, the rainfall received during South West Monsoon is 467.0 mm and North East monsoon season is 356 mm. Ariyur Nadu village received an average rainfall of 70 mm with 3 rainy days in June, 38 mm of rainfall in 2 rainy days during July, 174 mm of rainfall in 9 rainy day in August and 185 mm of rainfall in 9 rainy days in September ; 212 mm of rainfall in 12 days of October, 143 mm rainfall in 10 rainy days of November, and No rainfall in December 2018. During the crop period (June 2018 – December 2018) totally 823 mm of rainfall was received in 45 rainy days. The Mean annual temperature ranges from 14°C to 28°C.

❖ Soil type and fertility status

The soil type is red soil with a pH of 7.72 and EC of 0.7 dSm⁻¹ with a soil nutrient status of low Nitrogen (212 kg/ ha), medium Phosphorus (10.2 kg / ha) and high Potassium (306 kg /ha).

5. Problem definition / description

- Traditionally farmers cultivate local Namaran banana variety as a sole crop of rainfed in Kolli hills of Namakkal district.
- The incidence of stem weevil is a severe problem in local Namaran banana variety and results in low yield. And also fetches low market price of banana bunches compared to other banana fruits.
- Srtem weevil incidence in Namaran banana – 25 %
- Crop lodging -15 %
- Unaware of stem weevil management practices.
- Non Adoption of crop rotation.
- Non adoption of improved pest management practices in cultivation.
- Poor bunch yield.
- Less farm income.
- Farmers expected high bunches per banana per fruit suitable for rainfed condition.
- The main objective of the study was “Assessment of suitable management practices against Banana Stem weevil in Kolli hills” of Namakkal district.

6. Technology Assessed

Three castor hybrids were assessed with integrated crop management practices under rainfed condition.

Tech. option	Name the technology assessed	Salient Features
TO -1	Farmer practices: Local variety Namaran Banana	(Farmers practice) Cultivation of local variety (Namaran) with Non adoption of crop rotation.
TO -2	(Source: NRCB, 2009)	Banana pseudo stem trap @ 100/ha Swabbing the cut surface of the traps with <i>Beauveria bassiana</i> or <i>Heterorhabditis indica</i> @ 20g /trap.
TO -3	(Source: TNAU, 2012)	Dilute 54 ml of Monocrotophos 36 WSC with 350 ml of water and inject 4 ml (2 ml at 45 cm from the ground level another 2 ml 150 cm from the ground level) in the pseudo stem at monthly interval from 5 th to 8 th month.
TO -4	(Source: CTCRI, 2015)	Injection of Menma @ 50 ml / lit of water in sucker or smear the cow dung paste with Nanma. Foliar spraying of Nanma @ 50 ml / lit of water during 4 th or 5 th month and 7 th or 8 th month of DAP. (Bio molecules developed from cassava leaves & tuber rind)

7. Critical inputs given

Tech	Name of critical input	Critical input /Trail (0.2ha) (kg)	Budget /Trial (Rs.)
TO2	<i>Beauveria bassiana</i> -2 lit /ha @ Rs 600 /lit	400 ml	300
TO3	Monocrotophos -2lit/ha @ Rs 400 /lit	Farmers contribution	
TO4	Bio molecules (Nanma, Menma) 60 Lit/ha (2 times)@ Rs 150/lit	12 lit.	1800

8. Results:

Table : 1. Performance of the technology

<i>Technology Option</i>	<i>No.of trials</i>	<i>Yield (t/ha)</i>	<i>Net Returns (Rs.in Lakhs)</i>	<i>B:C ratio</i>	<i>No. of fingers/bunches & No. of bunches/tree</i>	<i>Data on the performance indicators</i>
TO1- Farmers Practice- namaran banana	5					
TO 2 Beauveria basiana -2 lit/ha.	5					
TO 3 Monocrotophos- 2lit/ha.	5					
TO 4 Bio molecule (Nanma/ Menma) 60lit/ha.(2 times)	5					

a. **Description of the results:** Trial is under progress

OFT-6 (Soil Science)

- 1. Thematic area:** composting technology
- 2. Title:** Assessment of suitable microbial consortium for waste decomposition
- 3. Scientists involved:** Dr.S.Sathya, Assistant Professor (Soil Science) & Senior Scientist & Head
- 4. Details of farming situation:**

❖ **Area of Demonstration**

On Farm Testing on “Assessment of suitable microbial consortium for waste decomposition” was carried out in ten farmers’ field in an area of 0.4 ha in DFI village – Moolakkadu village, Vennandur block & Ganapathipalayam village, Mohanur block of Namakkal District during Rabi season 2018 - 19. Moolakkadu village is situated at 11.81° N latitude and 077.77° E longitude and Ganapathipalayam village is situated at 11.02° N latitude and 078.16° E longitude

❖ **Crops grown**

Groundnut, tomato, tapioca, small onion, maize, mulberry, pulses, coconut are the major crops grown in Moolakkadu village to an area 180 ha (18 ha rainfed & 162 ha irrigated) whereas paddy, turmeric, sugarcane, tapioca, maize, groundnut, banana, sorghum, Coconut, Korai (Cyperus) are the major crops grown in Ganapathipalayam village to an area of 81 ha (12 ha rainfed & 75 ha irrigated).

❖ **Season**

Groundnut/Tapioca/Tomato – sorghum/Maize – pulses are the major cropping system followed in Kharif, Rabi & summer season at Moolakkadu village. Paddy/Tapioca/Turmeric-Banana/Sugarcane-groundnut/pulses are the major cropping system followed in Kharif, Rabi & summer season at Ganapathipalayam village. 102 tonnes of farm waste being generated and left unutilized or burned at village.

❖ **Farming situation (Irrigated/Rainfed) – Irrigated condition**

Bore well and well is the main source of irrigation for Moolakkadu village whereas including bore well and well, canal irrigation also possible in Ganapathipalayam village.

❖ **Soil type and fertility status**

The experimental soil type was red & black in colour, sandy loam in texture and calcareous to non calcareous. The soil was neutral in soil reaction (7.54 & 7.64), non saline (0.28 dS m⁻¹&0.32 dS m⁻¹), low in organic carbon (0.45% & 0.49%), low in available nitrogen (219 kg ha⁻¹& 248 kg ha⁻¹), medium in available phosphorus (20.21 kg ha⁻¹& 24.8 kg ha⁻¹), medium in available potassium (158 kg ha⁻¹& 178 kg ha⁻¹), medium in available sulphur (14.25 ppm &13.09 ppm), deficient in available zinc (0.98 ppm & 1.01 ppm) and boron (0.46 ppm & 0.41 ppm) respectively in Moolakkadu & Ganapathipalayam villages.

❖ **Weather and climate during the study period**

From April 208 to March 2019, average rainfall of 247.9 mm with 24 rainy days and 577 mm in 38 rainy days was received respectively in Mohanur block Vennandur block. Of which the block received 38.2 mm of rainfall in 5 rainy days during the experimental period at Mohanur block & no rainfall at Vennandur block..

5. Problem definition / description:

- ❖ Crop residues generated are being left unutilized and burned causes deterioration in soil health and creates environmental pollution

- ❖ Lack of information on additive required for quick composition.
- ❖ Conversion of raw material into manure is time consuming without addition of additive like composting culture

6. Technology Assessed:

TO1	Farmers practice	Natural decomposition without adding any microbial cultures (Farmers practice)
TO2	Recommended practice (Source: TNAU, Coimbatore, 2012)	TNAU Biominerlizer @ 2 kg / 1 tonne of waste (Mixed with 20 litres of water and sprayed)
TO3	Alternate practice (Source: NCOF, Ghaziabad 2016)	Waste Decomposer @ 30 g /10000 metric tonne of waste (Diluted with 200 ml jaggery solution & sprayed)
TO4	Alternate practice (Source: UAS Dharwad, 2016) Released during 1980 & popularized during 2016	Composting culture @ 1 kg / 1 tonne of waste (Mixed with 20 litres of water and sprayed)

7. Critical inputs given:

S.No.	Name	Qty (kg /litre)	Unit cost (Rs.)	Total cost (Rs.)
1.	TNAU biominerlizer	1 kg	60	60
2.	NCOF waste decomposer	1litre	20	20
3.	UAS Dharwad Composting culture	1kg	100	100

8. Results:

Table : Performance of the technology

Technology Option	No.of trials	Composted manure (kg/tonne)	Net Returns (Iakhs/ tonne of waste)	B:C ratio	Data on Other performance indicators*
Farmers Practice	10	564	0.01020	1.57	Results will be included after getting report from TNAU, CBE
TNAU biominerlizer		634	0.01310	1.70	
NCOF waste decomposer		678	0.01570	1.86	
UAS Dharwad Composting culture		654	0.01370	1.72	

Description of the results:

- ✓ NCOF waste decomposer applied compost pit produced 678 kg of compost/ tonne of residues with in three months after incubation followed by UAS, Dharwad composting culture (654 kg) and TNAU biominerlizer (634 kg) applied compost pit.
- ✓ NCOF waster decomposer reutilized by farmers for foliar spraying and soil drenching whereas in other institute culture it could not be possible.
- ✓ In case farmer practice, composting period-extended upto 5 ½ months and required equal quantity of cow dung slurry.

Constraints faced:

Collection and shredding of residues were laborious and moisture maintenance and turning once in 15 days is labour extensive process

9. Feed back of the farmers involved:

Due to water scarcity, maintaining 60% moisture was difficult especially under drought period.

10. Feed back to the scientist who developed the technology:

Longevity of culture should be extended upto one year to use them whenever farmers needed. Institute may come forward to supply the composting culture also in small quantities.

OFT-7 (Soil Science)

1. **Thematic area:** Nutrient Management
2. **Title:** Assessment of timely application of fertilizers to induce lean season and quality flowering in jasmine
3. **Scientists involved:** Dr.S.Sathya, Assistant Professor (Soil Science) & Senior Scientist & Head
4. **Details of farming situation:**

❖ **Area of Demonstration**

On Farm Testing on “Assessment of timely application of fertilizers to induce lean season and quality flowering in jasmine” was carried out in ten farmers’ field in an area of 1.2 ha in Vadugapatti village, Erumapatti block Namakkal District during Rabi season 2018 - 19. Vadugapatti village is situated at 11.080 N latitude and 078.140 E longitude wit mean sea level of 139 MSL.

❖ **Crops grown**

Jasmine, Groundnut, sorghum, maize, small onion, pulses, coconut are the major crops grown in Vadugapatti village to an area 109 ha under irrigated and rainfed condition. Jasmine is the main crop; farmers are getting year round income on daily basis. They are doing pruning process from November to January based on the availability of water and yielding potential of jasmine.

❖ **Season**

The main cropping systems followed by the farmers are jasmine/Jasmine/Jasmine and Groundnut/pulses/maize/sorghum are the major cropping system followed in Kharif, Rabi & summer season at Ganapathipalayam village.

❖ **Farming situation (Irrigated/Rainfed) – Irrigated condition**

Bore well and well is the main source of irrigation. 15 % of the farmers used drip irrigation whereas 85 % of the farmers followed flood irrigation to irrigate jasmine.

❖ **Soil type and fertility status**

The experimental soil type was red & black in colour, sandy loam in texture and calcareous to non calcareous. The soil was neutral in soil reaction (7.68), non saline (0.048 dS m⁻¹), low in organic carbon (0.41%), low in available nitrogen (222 kg ha⁻¹), medium in available phosphorus (18.42 kg ha⁻¹), medium in available potassium (148 kg ha⁻¹), medium in available sulphur (12.10 ppm), deficient in available zinc (0.78 ppm) and boron (0.35 ppm).

❖ **Weather and climate during the study period**

The annual rainfall of Erumapatti block was 312 mm with 28 rainy days. Of which, experimental season received received was November 2018 to May 2019, average rainfall of 135.9 mm with 17 rainy days. Maximum monthly mean temperature was 30.6°C and minimum was 19.5°C.

5. **Problem definition / description:**

- ✓ Unaware about timely fertilizer application
- ✓ Lack of balanced fertilization
- ✓ Reduction in yield of crops

6. **Technology Assessed:**

TO1	Farmers practice	Application of complex fertilizer (17:17:17) and Muriate of potash – each @ 50 g /tree as basal dose
TO2	Recommended practice (Source: TNAU, Coimbatore, 2013)	Recommended practice (NPK @ 60:120:120 g/plant/year is applied in 2 equal splits during November (after pruning) and June-July along with 10 kg FYM per plant. (urea – 130 g, SSP – 750 g & MOP- 200 g) Biofertilizers: Azospirillum ,Phosphobacteria , VAM each @ 50 g / plant
TO3	Alternate practice (Source: IIHR, Bangalore, 2016)	Recommended practice (NPK @ 60:120:120 g/plant/year is applied in 4 equal splits during February, May, September and December along with 10 kg FYM per plant. Biofertilizers : Azospirillum, Phosphobacteria , VAM each @ 50 g / plant.

7. Critical inputs given:

S.No.	Name	Qty (kg /litre)	Unit cost (Rs.)	Total cost (Rs.)
1.	Azospirillum	1 kg	55	55
2.	Phosphobacteria	1 kg	55	55
3.	Zinc sulphate	3 kg	149.86	149.86
4.	Borax	3 kg	255.02	255.02
5.	Ferrous sulphate	3 kg	59.98	59.98
6.	Copper sulphate	3 kg	599.76	599.76

8. Results: Trail is under progress

Table : Performance of the technology

Technology Option	No.of trials	Composted manure (kg/tonne)	Net Returns (Iakhs/ tonne of waste)	B:C ratio	Data on Other performance indicators*

Description of the results: **Trial is under progress**

OFT- 8 (Livestock)

1. Thematic area: Livestock Infertility Management

2. Title: Assessment of suitable infertility treatment in dairy animals of Namakkal district

3. Scientists involved: Dr.C.Kathirvelan, Dr.M.Jothilakhmi and Dr.N.Akilla

4.Details of farming situation:

In Namakkal district, the cattle and Buffalo population as per 19th livestock census is 220700,107830 respectively and mainly small and marginal farmers possess more than 50 % of the cattle population. The farming system is of Semi intensive system representing mixed crop–livestock farming. As cattle and buffalo are the preponderant and the most interactive species, subsisting on crop residues and contributing milk, meat, draft power and farmyard manure. Mostly the farmers’ rear crossbred Jersey and HF animal for higher milk production. Infertility is a common problem in high yielding animals and most predominantly due to hormonal imbalance.

5. Problem definition / discription:

Reproductive performance is one of the most important factors affecting dairy farm profitability and the development of national economy, as well as the living standard of rural and urban societies, Because, it directly or indirectly influences the yield of milk, reproductive culling rate and the cost for breeding and calf sales. Dairy cows should calve one time every year to maximize economic efficiency. Cows that have been highly selected for milk production in recent decades have suffered a decline in cow fertility, fertility is a multi-factorial trait and its deterioration has been caused by a network of genetic, environmental and managerial factors and their complex interactions. Majorly, Hormonal imbalance is the prime reason for causing infertility in dairy animals.

6. Technology Assessed:

TO1	Farmers practice	Non adoptin / improver infertility treatment strategies
TO2	Recommended practice	Controlled Internal Drug Release (CIDR) for Progesterone
TO3	Alternate practice	ProSync-NC Nano Cream Progesterone

7. Critical inputs given:

S.No	Name	Qty (Kg)	Unit cost (Rs.)	Total cost (Rs.)
1.	CIDR	1	1200	12000
2.	ProSync-NC Nano Cream	1	350	3500

3.	Mineral mixture & Dewormer	1 kgs & 3 gm	100	2000
Total cost				17500

8. Results:

Table : Performance of the technology

<i>Technology Option</i>	<i>No. of trials</i>	<i>Yield (t/ha)</i>	<i>Net Returns (Rs./animal)</i>	<i>B:C</i>	<i>Data on Other performance indicators*</i>
Farmers Practice: No treatment /irrational use of various treatments	10	8 lit/animal 240 lit for 30d	250	1.04	In 90 days of treatment animal conceived at the end of 60 days
Technology 1 (Controlled Internal Drug Release (CIDR) for Progesterone)		8 lit/animal 720lit for 60 d	11100	2.60	In 90 days of treatment animal conceived immediately
Technology 2 (ProSync-Nano Cream Progesterone)		8 lit/animal 480lit for 60 d	6100	2.03	In 90 days of treatment animal conceived at the end of 30 days.

Parameters	TO-1 Farmers practice	TO-2 CIDR	TO3- Prosync
No of animals positive for pregnancy	1	7	4
Benefit in days of lactation due to early pregnancy by using this technology	30 days	90 days	60 days
Milk yield (average)	8 lit/day/animal	8 lit/day/animal	8 lit/day/animal
Gross return (Rs)	30 days x 8 lit x Rs 25 = Rs 6000/-	90 days x 8 lit x Rs 25 = Rs 18000/-	60 days x 8 lit x Rs 25 = Rs 12000/-
Gross cost (Rs)	5750	6900	5900
Benefit Cost Ratio	1.04	2.60	2.03

Constraints faced:

- Once the animal conceived, the farmer sold the animal.
- Nano cream pasted sheath fell down since it pasted in the back region of the animal.

9. Feed back of the farmers involved:

The farmers felt that using of CIDR technology in repeat breeding dairy animals has promising results and able to produce the next calf within 12-14 months of interval. However, the farmers expressed the cost of technology was high. In other side, the nanopro sync technology having drawback of falling down the cloth adhered in backside of the animal. Hence farmers are more satisfied with the CIDR and interested to use in future also.

10. Feed back to the scientist who developed the technology:

The cost of CIDR technology has to come down for wider application and the Nano cream pasted sheath has to adhered tightly in back region of animal to prevent fall down in ground.

OFT- 9(Livestock)

1. Thematic area: Livestock Disease Management

2. Title: Assessment of Ethno Veterinary treatment for control of Endo parasites in Small ruminants

3. Scientists involved: Dr.N.Akilla, Dr.C.Kathirvelan and Dr.M.Jothilakhmi

4. Details of farming situation:

In Namakkal district, the small ruminant population as per 19th livestock census is 375246 and mainly small and marginal farmers possess more than 70 % of the sheep and goat population. The farming system is of Semi intensive system representing mixed crop–livestock farming. As rearing of small ruminants gives the stable income to the small marginal farmers, health of animals are more important for income generation. Mostly the farmers' rear desi or cross bred goat population for meat production.

5. Problem definition / description:

Small ruminant rearing is an asset of livelihood for the farmers among poor and developing countries. The diseases caused by helminth parasitism especially gastrointestinal parasitism in small ruminants are one of the major health problems and productivity constraints in the tropics and subtropics. Among various helminthes, nematodes are considered to be of utmost importance considering their prevalence and adverse effect worldwide.

6. Technology Assessed:

TO1	Farmers practice	Adopting irregular deworming strategies
TO2	Recommended practice	dewormer (NIF, DST, GOI, New Delhi)
TO3	Alternate practice	EVM for deworming (TANUVAS)

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

S.No	Name	Qty (Kg)	Unit cost (Rs.)	Total cost (Rs.)
1	Dewormer (NIF)	1	900	9000
2	EVM for deworming (TANUVAS)	1	300	3000
3	Mineral Block	2 kgs	100	2000
Total cost				14000

8. Results:

Table 2: Performance of the technology

<i>Technology Option</i>	<i>No.of trials</i>	<i>Yield (body weight in kg / animal)</i>	<i>Net Returns (Rs. /animal)</i>	<i>B:C ratio</i>	<i>Data on Other performance indicators* Worm load at 21 day</i>
Farmers Practice Adopting irregular deworming strategies	10	13	420	1.12	1600
Technology 1(dewormer (NIF, DST, GOI, New Delhi))		15	990	1.28	1200
Technology 2(EVM for deworming (TANUVAS))		16	1280	1.47	900

Constraints faced:

- In farmers practice (T1), the farmers were following the irregular deworming schedule and repeated using the same dewormer for animal which may lead to development of resistance

- In case of recommended practice (T2), the dewormer purchased from NIF has moderate effect on egg count compare to the EVM practice.
- In case of recommended practice (T3) – The EVM practice has promising results on the egg count and in terms of body weight gain.

9. Feedback of the farmers involved:

Ethno Veterinary practices have promising results on performance, however, the recipe preparation needs some time daily. However, EVM cheaper than NIF dewormer.

10. Feed back to the scientist who developed the technology:

Ready to use EVM formulation may highly useful for practical field condition to counter the loss due to internal parasitic infestation.

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
1	Banana	Nutrient management	Demonstration of ICM in Banana	Training, demonstration, group discussion with farmers, exhibition and meeting with extension personnel	12	49	57
2	Crop residue composting technology	Residue recycling / Management	Demonstration of insitu mulching of sugarcane trash in ratoon sugarcane	Training, demonstration, group discussion with farmers, exhibition and meeting with extension personnel	4	16	20

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

Sl. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Source of funds	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
						Proposed	Actual	SC/ST	Others	Total	
1	Paddy	Varietal introduction and ICM practices	Demonstration and Seed production of new paddy variety CO 52 under SRI Method	Rabi, 2018	ICAR	6	6	-	15	15	-
2	Finger millet	Varietal introduction and ICM practices	Demonstration of Finger Millet var. ML-365 & ICM Practices in Kollihills region	Kharif, 2018	ICAR	4	4	10	-	10	-
3	Groundnut	Varietal introduction and ICM practices	Demonstration and Seed production of new Groundnut variety TMV-14 & ICM Practices	Kharif, 2018	ICAR	1.2	0.2	-	1	1	Non availability of seeds from TNAU.
4	Chrysanthemum	Crop production	ICM practices in Chrysanthemum var.Co1	Rabi 2018	ICAR	0.4	0.4	1	9	10	-
5	French bean	Crop production	ICM practices in French bean var.Arka Sharath	Rabi 2018	ICAR	0.4	0.4	0	20	20	-
6	Bellary Onion	Crop production	ICM practices in Bellary Onion var.Arka Bheem	Rabi 2018	ICAR	1	1	1	19	20	-
7	Cotton	Soil Fertility management	Multigrain green manuring with ICM practice	Kharif, 2018	ICAR	3	3	0	15	15	-

8	Tapioca	Soil Fertility management	Split application of potassium & ICM practice	Rabi 2017	ICAR	6	6	0	15	15	-
9	Banana	Soil Fertility management	Banana-Cowpea intercropping and ICM Practices	Kharif, 2018	ICAR	15	6	0	15	15	-
10	Cotton	Integrated pest management	Demonstration of integrated pest management in pink bollworm	Kharif-2018-19	ICAR	4.0	4.0	-	10	10	-

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					
Paddy	Rabi 2018	Irrigated	Sandy clay loam	Medium	Low	High	Sorghum, Tapioca	12.10.2018 to 22.10.2018	27.02.2019 to 10.03.2019	487.5	13
Finger millet	Kharif 2018	Rainfed	Sandy loam	Medium	Medium	High	Banana, Samai	05.08.2018 to 14.08.2018	18.11.2018 to 27.11.2018	571.0	22
Groundnut	Kharif 2018	Rainfed	Red soil	Low	Medium	High	Castor	15.08.2018	10.12.2018	323.4	9
Chrysanthemum	Rabi 2018	Irrigated	Red sandy loam	Medium	Low	medium	Marigold	19.7.2018	5.11.2018	412.4	28
French bean	Rabi 2018	Irrigated	Red sandy loam	High	Medium	Medium	Tomato	25.11.2018	8.01.2019	49.7	5
Bellary onion	Rabi 2018	irrigated	Red sandy loam	Medium	Low	Medium	Cabbage / Tomato	15.09.2018	20.02.2019	415.6	25
Cotton	Kharif 2018	Irrigated	Black soil	Low	Medium	Medium	Cotton	05.08.2018	11.02.2019	304	20
Tapioca	Rabi 2018	Irrigated	Black soil	Low	Medium	Low	Groundnut	25.02.2018	07.02.2019	416	35
Banana	Kharif 2018	Irrigated	Black soil	Low	Medium	Medium	Paddy	13.05.2018	-	-	-
Cotton	Kharif 2018	Rainfed/Irrigated	Red	Medium	Low	high	Sorghum	14.07.2018	26.12.2018	368.7	28

Technical Feedback on the demonstrated technologies

S. No	Feed Back
Paddy	Demonstration of new paddy variety (CO-52) under SRI method of paddy cultivation 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 (BPT-5204) farmers practice. This variety is recommended for Namakkal district as Alternate for BPT 5204.
Finger millet	Demonstration results revealed that cultivation of finer millet variety (ML-365) recorded more number of productive tillers per plant, more finger length, more number of fingers per ear head, less incidence of blast disease, higher grain yield, straw yield and more net income compared to kollihills local chek variety. During Gaja cyclone, most of the plants lodged. Kollihills farmers were accepted this variety for further cultivation.
Groundnut	Demonstration of new groundnut variety (TMV-14) not performed well in R.Pudupatti village of Namakkal district. Result data collected from one location only. Number of pods per plant, root rot incidence, groundnut pod yield and haulm yield were recorded and worked out net returns. Results revealed that 12.5 per cent higher yield compared to check variety.
French bean	French bean Arka sharath recorded a maximum plant height of 36.6 cm at 45 days after sowing. With respect to pod characters, it registered a maximum pod length of 14.5 cm, pod girth of 1.12 cm and number of pods/plant (25). 42 kg of pod harvested from 5 cent area per harvest.
Bellary onion	Bellary onion var.Arka Bheem exhibited the maximum plant height of 53.2 cm and 19 no.of leaf sheath/plant at 45 days after transplanting. This variety recorded a maximum polar diameter (7.1 cm) equatorial diameter (7.9 cm) of onion bulb and a single bulb weight of 117 gm.
Chrysanthemum	Chrysanthemum var.Co1 recorded a maximum plant height of 68.82 cm in 5 months after planting, 11.8 number of primary and 19 number of secondary branches at 5 months after planting. Noticed flower bud initiation on 92 days after planting. It registered a maximum flower diameter of 4.8 cm, stalk length of 8.65 cm and yielded 28.1 kg of flower/day/harvest.
Tapioca	Application of potassium as MOP in equal splits at the time of planting and 5 months after planting along with ICM practice recorded higher tuber yield of 322 q/ha and with 24.81% increase in yield over farmers practice (258 q/ha).
Cotton	The highest cotton yield of 16.27 q/ha was recorded in demo plot receiving insitu incorporation of multigrain green manuring with ICM practice. During the boll setting stage rainfall was not there and hence continuous irrigation with poor quality irrigation water (EC12-15dS m ⁻¹) crop was infected with wilt symptoms and lost its yielding potential.
Cotton	Demonstration of pheromone trap and Yellow sticky trap gave a good alternative way to control for the borer and sucking pest without much of cost and damage to environment. (No of adults / Traps - 42.5 nos). Higher symbolical branches (17.7 /plant), Healthy Boll formation (77.8/plant), yield (18.15 Q/ha) and increase in yield was (21.64%) was observed .Overall performance of the IPM module showed higher yield realization of 19.4 q/ha than the local check of 16.9q/ha .The intensity of pesticides spray has been reduced to 3 no's from 5 that saved an amount of Rs.5424/-
Livestock Nutrition Management Small ruminants	Feeding of mulberry leaves has proved potential alternate feed resources for small ruminants especially during lean season. Feeding of mulberry resulted in 1.5-2.0 kg extra body weight gain over a period of 3 months
Livestock Disease Management Dairy Animals	Using of mastigaurd prominently resulted in reduction of mastitis incidence and almost nil incidences. The somatic cell count was in normal range which in turn ensured the clean milk production.
Livestock Infertility Management Dairy animals	EVM treatment has resulted in 40 % success in field condition and moreover, there was difficulty in procuring the raw materials for EVM formulation.
Livestock Nutrition Management Large ruminants	Moringa leaves has excellent source of protein (22.8%) and feeding resulted in increase in milk yield (600ml/day) compared to check.
Duck cum fish culture (IFS)	Get additional income from small area, disease free environment in the pod.

Fish Seed production	Induced breeding of <i>C.striatus</i> was successfully accomplished by a single intramuscular injection of different doses of hormones
Cage technology	Growth performance and economic return, 50 fish/m ³ exhibited the highest performance, the successful cage culture of GIFT tilapia

Farmers' reactions on specific technologies

S. No	Feed Back
Paddy	Very less incidence of pest and diseases and also fetched higher market price, cost of pesticide spray is also drastically reduced from Rs.6000 to Rs.2500/acre, higher paddy straw yield (75 bale/acre) also recorded in CO-52 paddy variety.
Finger millet	All the demo farmers are appreciated and accepted the Finger millet variety ML-365 due to higher grain yield, more fingers, more finger length and higher straw and grain yield and also bold size grains compared to local check variety.
Groundnut	Farmer are not accepted TMV-14 variety due to less pod yield and haulm yield. Size of the pod also small size.
French bean	Farmers felt that pest and disease incidence was very less in French bean var.Arka sharath and also yielded for 60 days, provided good irrigation and maintenance.
Bellary onion	In Bellary onion cultivation, farmers felt that the procurement price of bellary onion is high @ Rs.15/kg when compared to small onion @Rs.8-10/kg. They much prefer the colour of the onion bulbs has good market value.
Chrysanthemum	In Chrysanthemum the farmers felt that duration of flowering extended up to 6 months after planting. Yellow colour chrysanthemum flower fetched good price due to high market preference.
Tapioca	Farmers felt that starch content in tapioca (32%) and tuber yield (322q/ha) was more in ICM practice with split application K upto five months after planting.
Cotton	Farmers felt that adequate rainfall is required to nullify the salt stress during peak flowering & boll setting phase (3-5 month after planting).
Cotton	Due to demonstrated IPM practices, damaged boll was reduced and 21.4 percent of yield increased. 3 pesticides spray was reduced.
Livestock Nutrition Management Small ruminants	Farmers are observed that feeding of mulberry resulted increased body weight gain compared to check. However, in lactating goats, continuous feeding of mulberry resulted in over weight in terms of fat deposition that's leads to animal not showing heat symptoms.
Livestock Disease Management Dairy Animals	Farmers are willing to continue the practice of using mastiguard along with teat protect for clean milk production and even ready to buy teat protect and mastiguard for clean milk production
Livestock Infertility Management Dairy animals	Farmers are expressed there was difficulty in preparation of recipe for five days daily and few farmers not followed the protocol resulted in low incidence of success.
Livestock NutritionManagement Large ruminants	Problems in planting of moringa seeds and water availability for irrigation is not sufficient due to poor rainfall in north east monsoon.
Duck cum fish culture (IFS)	Cost of production was reduced, pond water recycled for agricultural crops and additional income of Rs.7600/0.2 ha.
Fish Seed production	Quality and quantity seeds available through out the year.
Cage technology	Farmers felt the new intervention for helpful to gaining good profit.

Extension and Training activities under FLD

Sl.No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field days	2	26.11.2018	38	Demonstration on Finger millet variety ML-365 Field day conducted at Elangiyampatti village along with line department officials and KVK Officials and awareness created on new finger millet variety.
		1	10.12.2018	20	Demonstration of chrysanthemum
2	Farmers Training	2	22.06.2018 27.11.2018	75	Two off campus training programme on integrated crop management in minor millets and rainfed management technologies conducted at Elangiyampatti and Koochakaripatti village.
		3	02.08.2018 13.11.2018 11.12.2018	84	Field day on Demonstration of bellary onion, seed treatment in French bean and ICM practices in French bean
		2	23.07.2018 20.08.2018	15 14	Importance of green manuring for soil fertility management & role of micronutrient mixture in yield improvement
		3	20.11.2018, 11.12.2018, 6.02.2019	35	3 Off campus trainings pertaining to IPDM management in cotton and ICM practices in cotton at Thoppampatty and Jadarpalayam villages, Rasipuram Taluk, Namakkal District
		4	07.12.2018 07.01.2019 22.01.2018 11.01.2018 26.02.2019	50	Divulged training on Nutritive value of mulberry leaves for small ruminants, use of teat protect and c mastiguard in clean milk production, importance of EVM treatment in case of repeat breeding animals and feeding potential of moringa leaves to large ruminants.
		1	23.07.2018	23	Off campus training on Cage culture technology at Jedar palayam village
		1	23.07.2018	23	Off campus training on Cage culture technology at Jedar palayam village
3	Media coverage	4	08.09.2018	7	Integrated farming system, fodder seed production, mushroom production, curry leaf production, value addition in millets
4	Training for extension functionaries	4	09.10.2018 14.08.2018 17.07.2018 13.11.2018	175	Recent paddy, groundnut, pulses and minor millet varieties suitable for Namakkal district, integrated crop management practice and pest & diseases management practices also dealt with extension officials. Demonstrated foliar spray of groundnut rich in groundnut crop
		1	09.10.18	45	Multigrain green manuring for soil fertility improvement

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										
Chrysanthemum	Crop production / Alternate crop	ICM Practices in Chrysanthemum	Co1	Marigold-Yellow	10	0.4	114	89	93	87	7	100600	465000	364400	4.6	42800	130500	87700	3.0
Banana	Soil fertility management	Banana-Cowpea intercropping and ICM Practices	Poovan	Without intercrop	15	15	Trial under progress												

FLD 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																		
Dairy animals	Livestock Disease Management	Demonstration of EVM for treatment of Repeat breeding in dairy animals	10	10	Estrous sign- 8 animals No. of AI- 2/animal	Estrous sign- 4 animals No. of AI- 4/animal	40% success over check	No. of animals pregnant- 4	No. of animals pregnant- Nil	6800	24000	17200	3.52					
Dairy animals	Livestock Nutrition Management	Demonstrating Moringa (PKM1/2) as a substitute for protein forage in Large Ruminants Feeding	20	20	Milk yield 8.2 lit/day/animals	Milk yield 7.3 lit/d/animal	0.9lit/day/ animal	Fat % 3.6	Fat % 3.4	4305	6250	1845	1.42	3942	5425	1683	1.38	
Dairy animals	Livestock Disease Management	Demonstration of Mastiguard to prevent Mastitis in dairy animals	10	10	Milk yield=8.5 lit/d	Milk yield=7.0 lit/d	1.5 liters/day /animal	SCC= <100000 Mastitis incidence - 10%	SCC= >400000 Mastitis incidence -40%	4940	6375	1435	1.30	4780	5250	450	1.09	
Goat																		
Small Ruminants	Livestock Nutrition Management	Demonstration of Mulberry leaves for better weight gain in Small Ruminant production system	10	50	Body weight 19 kg	Body weight 16 kg	3.0 kg	Level of mulberry intake 1.5 kg along with other fodder	--	3420	5700	2280	1.66	3300	4800	1500	1.45	

FLD 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)
Fisheries																	
IFS	IFS	Demonstration and dissemination of integrated Duck cum fish culture technology	2	2	1267	1067	18.74	Monthly weight 110 g	Monthly weight 70 g	607960	913125	305165	1.50	493210	644750	151540	1.30
GIFT tilapia	Aquaculture Technology	Community based initiative in cage culture of gift tilapia	2	2	585	350	67.14	Nil	Nil	27837	46800	17963	1.68	19550	29120	10270	1.48
Murrel seeds	Seed production technology	Murrel seed production/Hormone Injection method	2	2	55%	32%	71.87	Nil	Nil	466488	103665	57017	2.20				

FLDs conducted with the funding of other sources including CFLD/ATMA/NABARD/other ICAR institutes etc

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)			
				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										
CFLD - PULSES																				
Green gram (Kharif)	NFSM	30	Demonstration of high yielding green gram variety with ICM practices	CO-8	VBN-3	75	30	8.57	7.64	8.15	5.90	38.13	18450	49715	31265	2.69	18250	35990	17740	1.97
Green gram (Rabi)	NFSM	10	Demonstration of high yielding green gram variety with ICM practices	CO-8	CO-7	25	10	8.52	7.68	8.20	6.02	36.21	18940	49200	30250	2.59	18550	36120	17570	1.94
Black gram (Kharif)	NFSM	30	Demonstration of high yielding black gram variety with ICM practices	VBN-6	T-9	75	30	8.48	7.47	7.95	5.72	38.98	18850	47700	28850	2.53	18150	34320	16170	1.89
Black gram (Rabi)	NFSM	10	Demonstration of high yielding black gram variety with ICM practices	VBN-6	CO-6	25	10	8.96	7.68	8.14	6.05	34.54	19050	48840	29790	2.56	18400	36300	17900	1.97
CFLD - Oilseeds																				
Groundnut (Kharif)	NMOOP	20	Demonstration of high yielding Groundnut varieties with ICM practices	GJG-9	TMV-7	30	12	14.0	10.2	12.52	9.10	37.58	35905	82293	46388	2.29	35560	61850	26290	1.73
				CO-7	TMV-7	20	8	14.10	10.85	12.69	8.89	42.74	35946	83048	47102	2.31	34885	61295	26415	1.75
Groundnut (Rabi)	NMOOP	30	Demonstration high yielding Groundnut varieties with ICM practices	TCGS-1073,K-9 and VRI-8	TMV-7	75	30	Trial under progress.												
NICRA																				
Groundnut	ICAR	ICM	Drought Resistant	TCGS 1073	TMV-7	23	4.6	21.5	18.5	20	8.15	145.3	38250	100000	61750	2.61	32800	40750	7950	1.24
Black gram	ICAR	ICM	Short duration var.	VBN-6	T9	36	7.2	8.13	7.25	7.69	6.2	24.03	17540	46140	28600	2.63	16380	37200	20820	2.27
Small onion	ICAR	IPDM	IPDM	CO-4	CO-4 (Non IPDM)	65	26	123	105	114	104	12.5	78500	175500	97000	2.23	74860	156000	81140	2.08

4. Training Programmes

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										
Resource Conservation Technologies	1	34	1	35	2	0	2	36	1	37
Cropping Systems	1	6	0	6	0	0	0	6	0	6
Crop Diversification	1	22	0	22	2	0	2	24	0	24
Integrated Farming	2	8	3	11	2	0	2	10	3	13
Seed production	1	11	0	11	1	0	1	12	0	12
Integrated Crop Management	4	42	13	55	4	2	6	46	15	61
Total	10	123	17	140	11	2	13	134	19	153
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	4	67	7	74	5	0	5	72	7	79
Others (pl specify) Organic Roof Top Vegetable gardening	1	13	4	17	2	1	3	15	5	20
Total (a)	5	80	11	91	7	1	8	87	12	99
b) Fruits										
Training and Pruning	1	31	2	33	1	0	1	32	2	34
Cultivation of Fruit	1	17	0	17	0	0	0	17	0	17
Total (b)	2	48	2	50	1	0	1	49	2	51
c) Ornamental Plants										
Others (pl specify) Cultivation of flowers	2	28	1	29	3	0	3	31	1	32
Total (c)	2	28	1	29	3	0	3	31	1	32
e) Tuber crops										
Production and Management technology	1	7	0	7	0	0	0	7	0	7
Total (e)	1	7	0	7	0	0	0	7	0	7
f) Spices										
Production and Management technology	1	6	0	6	0	0	0	6	0	6
Total (f)	1	6	0	6	0	0	0	6	0	6
GT (a-g)	21	292	31	323	22	3	25	314	34	348
III Soil Health and Fertility Management										
Integrated Nutrient Management	6	114	14	128	1	6	7	115	20	135
Production and use of organic inputs	1	10	1	11	0	0	0	10	1	11
Management of Problematic soils	1	9	1	10	0	0	0	9	1	10
Soil and Water Testing	1	143	72	215	15	7	22	158	79	237
Others (pl specify)	1	11	1	12	0	0	0	11	1	12
Total	10	287	89	376	16	13	29	303	102	405
IV Livestock Production and Management										
Dairy Management	2	30	6	36	4	1	5	34	7	41
Poultry Management	12	290	52	342	84	33	117	374	85	459
Piggery Management	1	12	0	12	5	2	7	17	2	19
Feed & fodder technology	1	4	2	6	0	0	0	4	2	6
Others (pl specify) Sheep and Goat	4	151	31	182	24	12	36	175	43	218
Total	20	487	91	578	117	48	165	604	139	743
VII Plant Protection										
Integrated Pest Management	5	59	5	64	0	0	0	59	5	64

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated Disease Management	3	27	2	29	0	0	0	27	2	29
Total	8	86	7	93	0	0	0	86	7	93
VIII Fisheries										
Integrated fish farming	2	48	8	56	12	6	18	60	14	74
Carp breeding and hatchery management	1	18	3	21	8	2	10	26	5	31
Carp fry and fingerling rearing	1	12	4	16	5	0	5	17	4	21
Composite fish culture	1	21	3	24	5	1	6	26	4	30
Hatchery management and culture of freshwater prawn	1	24	2	26	4	0	4	28	2	30
Breeding and culture of ornamental fishes	1	18	2	20	3	0	3	21	2	23
Portable plastic carp hatchery	1	8	0	8	2	0	2	10	0	10
Shrimp farming	3	54	4	58	6	1	7	60	5	65
Fish processing and value addition	1	17	8	25	2	0	2	19	8	27
Others (pl specify) Fish Disease and Health Management in Aquaculture Production	1	7	3	10	5	0	5	12	3	15
Pangasius culture technology	2	33	5	38	6	1	7	39	6	45
Seabass breeding and hatchery management	1	16	1	17	8	1	9	24	2	26
Cage culture technology	1	13	2	15	4	0	4	17	2	19
Total	17	289	45	334	70	12	82	359	57	416
IX Production of Inputs at site										
Vermi-compost production	1	29	3	32	2	2	4	31	5	36
Production of fry and fingerlings	4	54	03	57	12	00	12	66	03	69
Production of Fish feed	1	16	02	18	02	00	02	18	02	20
Total	6	99	8	107	16	2	18	115	10	125
GRAND TOTAL	82	1540	271	1811	241	78	319	1781	349	2130

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										
Resource Conservation Technologies	1	0	8	8	0	32	32	0	40	40
Cropping Systems	1	49	22	71	12	2	14	61	24	85
Crop Diversification	1	0	0	0	18	22	40	18	22	40
Integrated Farming	2	29	45	74	16	0	16	45	45	90
Micro Irrigation/irrigation	1	16	0	16	1	0	1	17	0	17
Seed production	3	121	52	173	0	0	0	121	52	173
Integrated Crop Management	5	123	37	160	24	16	40	147	53	200
Soil & water conservatioin	1	0	0	0	25	15	40	25	15	40
Total	15	338	164	502	96	87	183	434	251	685
II Horticulture										
a) Vegetable Crops										
Production of low value and high valume crops	2	25	2	27	10	1	11	35	3	38
Nursery raising	2	14	8	22	0	0	0	14	8	22

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others (pl specify) Production of high value crop	1	20	1	21	0	0	0	20	1	21
Total (a)	5	59	11	70	10	1	11	69	12	81
b) Fruits										
Training and Pruning	1	15	7	22	1	0	1	16	7	23
Cultivation of Fruit	1	16	0	16	7	0	7	23	0	23
Total (b)	2	31	7	38	8	0	8	39	7	46
e) Tuber crops										
Production and Management technology Tuber crops production	5	96	41	137	23	2	25	119	43	162
Total (e)	5	96	41	137	23	2	25	119	43	162
GT (a-g)	27	524	223	747	137	90	227	661	313	974
III Soil Health and Fertility Management										
Soil fertility management	2	38	4	42	0	0	0	38	4	42
Total	2	38	4	42	0	0	0	38	4	42
IV Livestock Production and Management										
Dairy Management	12	31	6	37	10	3	13	41	9	50
Feed & fodder technology	1	14	9	23	5	2	7	19	11	30
Others (pl specify)	6	12	2	14	4	2	6	16	4	20
Total	19	57	17	74	19	7	26	76	24	100
VII Plant Protection										
Integrated Pest Management	5	138	42	180	102	18	120	240	60	300
Integrated Disease Management	1	0	0	0	41	9	50	41	9	50
Bio-control of pests and diseases	1	8	4	12	0	0	0	8	4	12
Others (pl specify)	1	23	7	30	5	0	5	28	7	35
Total	8	169	53	222	148	27	175	317	80	397
VIII Fisheries										
Integrated fish farming	3	37	31	68	01	14	15	38	45	83
Carp breeding and hatchery management	2	28	05	33	14	01	15	42	6	48
Carp fry and fingerling rearing	1	05	03	08	15	01	16	20	04	24
Composite fish culture	3	25	150	175	00	58	58	25	208	233
Hatchery management and culture of freshwater prawn	1	14	04	18	06	02	08	20	06	26
Breeding and culture of ornamental fishes	2	23	06	29	18	06	24	41	12	53
Shrimp farming	1	02	10	12	00	00	00	02	10	12
Fish processing and value addition	1	21	04	25	00	00	00	21	04	25
Others (pl specify) Cage culture technology	2	35	21	56	13	08	21	48	29	77
Pangasius culture technology	1	11	00	11	00	00	00	11	00	11
Total	17	201	234	435	67	90	157	268	324	592
IX Production of Inputs at site										
Bio-agents production	1	18	2	20	0	0	0	18	2	20

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Vermi-compost production	1	46	9	55	0	0	0	46	9	55
Production of fry and fingerlings	2	37	07	44	12	05	17	49	12	61
Production of Fish feed	1	13	06	19	08	09	17	21	15	36
Total	5	114	24	138	20	14	34	134	38	172
X Capacity Building and Group Dynamics										
Group dynamics	1	7	5	12	0	2	2	7	7	14
Total	1	7	5	12	0	2	2	7	7	14
GRAND TOTAL	79	1110	560	1670	391	230	621	1501	790	2291

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										
Resource Conservation Technologies	2	34	9	43	2	32	34	36	41	77
Cropping Systems	2	55	22	77	12	2	14	67	24	91
Crop Diversification	2	22	0	22	20	22	42	42	22	64
Integrated Farming	4	29	48	77	18	0	18	47	48	95
Micro Irrigation/irrigation	1	16	0	16	1	0	1	17	0	17
Seed production	4	132	52	184	1	0	1	133	52	185
Integrated Crop Management	9	165	100	265	28	18	46	193	118	311
Soil & water conservation	1	0	0	0	25	15	40	25	15	40
Total	25	453	231	684	107	89	196	560	320	880
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	6	92	9	101	15	1	16	107	10	117
Nursery raising	2	14	8	22	0	0	0	14	8	22
Others (pl specify) RTG & Production of high value crops	2	33	5	38	2	1	3	35	6	41
Total (a)	10	139	22	161	17	2	19	156	24	180
b) Fruits										
Training and Pruning	2	46	9	55	2	0	2	48	9	57
Cultivation of Fruit	2	33	0	33	7	0	7	40	0	40
Total (b)	4	79	9	88	9	0	9	88	9	97
c) Ornamental Plants										
Others (pl specify) Flower cultivation	2	28	1	29	3	0	3	31	1	32
Total (c)	2	28	1	29	3	0	3	31	1	32
e) Tuber crops										
Production and Management technology	6	103	41	144	23	2	25	126	43	169
Total (e)	6	103	41	144	23	2	25	126	43	169
f) Spices										
Production and Management technology	1	6	0	6	0	0	0	6	0	6

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Pearl culture	0	0	0	0	0	0	0	0	0	0
Fish processing and value addition	2	38	12	50	2	0	2	40	12	52
Others (pl specify) Fish Disease and Health Management	1	7	3	10	5	0	5	12	3	15
Pangasius culture technology	3	44	5	49	6	1	7	50	6	56
Seabass breeding and hatchery management	1	16	1	17	8	1	9	24	2	26
Cage culture technology	3	48	23	71	17	8	25	65	31	96
Total	33	471	276	747	132	101	233	603	377	980
IX Production of Inputs at site										
Bio-agents production	1	18	2	20	0	0	0	18	2	20
Vermi-compost production	2	75	12	87	2	2	4	77	14	91
Production of fry and fingerlings	6	91	10	101	24	5	29	115	15	130
Production of Fish feed	2	29	8	37	10	9	19	39	17	56
Total	11	213	32	245	36	16	52	249	48	297
X CapacityBuilding and Group Dynamics										
Group dynamics	1	7	5	12	0	2	2	7	7	14
Total	1	7	5	12	0	2	2	7	7	14
GRAND TOTAL	161	2623	878	3501	627	307	934	3282	1139	4421

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
Production of organic inputs	1	17	7	24	3	1	4	20	8	28
Sheep and goat rearing	1	16	5	21	5	4	9	21	9	30
Composite fish culture	1	14	4	18	3	0	3	17	4	21
Murrel fish culture	1	20	00	20	13	02	15	33	02	35
GIFT tilapia fish culture	1	11	10	21	19	10	29	30	20	50
TOTAL	5	78	26	43	43	17	60	121	43	164

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	1	10	1	11	7	0	7	17	1	18
Production of organic inputs	1	0	30	30	0	15	15	0	45	45
Value addition	1	11	29	40	0	0	0	11	29	40
Fish harvest and processing technology	2	21	09	30	00	00	00	21	09	30
TOTAL	5	42	69	111	7	15	22	49	84	133

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	1	10	1	11	7	0	7	17	1	18
Production of organic inputs	2	17	37	54	3	16	19	20	53	73
Value addition	1	11	29	40	0	0	0	11	29	40
Sheep and goat rearing	1	16	5	21	5	4	9	21	9	30
Murrel fish culture	1	20	00	20	13	02	15	33	02	35
Composite fish culture	1	14	4	18	3	0	3	17	4	21
GIFT tilapia fish culture	1	11	10	21	19	10	29	30	20	50
Fish harvest and processing technology	2	21	09	30	00	00	00	21	09	30
TOTAL	10	120	95	215	50	32	82	170	127	297

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	4	89	28	117	27	22	49	116	50	166
Integrated Pest Management	1	15	8	23	8	4	12	23	12	35
Integrated Nutrient management	2	48	35	83	0	0	0	48	35	83
Protected cultivation technology - Production of Horticultural planting material under shade net	3	76	28	104	0	0	0	76	28	104
Production and use of organic inputs	1	17	5	22	10	6	16	27	11	38
Care and maintenance of farm machinery and implements	1	16	4	20	6	4	10	22	8	30
Any other (pl.specify) -Hydroponic fodder production	1	28	13	41	13	4	17	41	17	58
TOTAL	13	289	121	410	64	40	104	353	161	514

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	1	32	18	50	14	4	18	46	22	68
Production and use of organic inputs	3	95	49	144	52	19	71	147	68	215
Integrated fish culture	2	42	26	68	10	35	45	52	61	113
TOTAL	6	169	93	262	76	58	134	245	151	396

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	5	121	46	167	41	26	67	162	72	234
Integrated Pest Management	1	15	8	23	8	4	12	23	12	35
Integrated Nutrient management	2	48	35	83	0	0	0	48	35	83
Protected cultivation technology Production of Horticultural planting material under shade net	3	76	28	104	0	0	0	76	28	104
Production and use of organic inputs	4	112	54	166	62	25	87	174	79	253
Care and maintenance of farm machinery and implements	1	16	4	20	6	4	10	22	8	30
Any other (pl.specify) -Hydroponic fodder production	1	28	13	41	13	4	17	41	17	58
Integrated fish culture	2	42	26	68	10	35	45	52	61	113
TOTAL	19	458	214	672	140	98	238	598	312	910

Table. 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
Production and value addition										
Production of Inputs at site	1	17	7	24	3	1	4	20	8	28
Others (pl. specify) Bee Keeping	1	14	1	15	5	2	7	19	3	22
Mushroom production	1	12	3	15	5	0	5	17	3	20
Paid training on soil fertility management	3	44	49	93	9	7	16	53	56	109
Total	6	87	60	147	22	10	32	109	70	179
Livestock and fisheries										
Livestock production and management	1	16	5	21	5	4	9	21	9	30
Paid training on scientific livestock farming	6	102	47	149	14	15	29	116	62	178
Fisheries Nutrition	1	17	08	25	04	00	04	21	08	29
Fisheries Management	1	13	02	15	07	01	08	20	03	23
Total	9	148	62	210	30	20	50	178	82	260
GRAND TOTAL	15	235	122	357	52	30	82	287	152	439

Name of sponsoring agencies involved: MANAGE, Hyderabad, ASCI, New Delhi, ATMA, Muthayammal arts and science college.

5. Extension Programmes

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	TOTAL
Advisory Services	134	3983	165	4148
Diagnostic visits	43	78	13	91
Field Day	19	460	39	499
Group discussions	9	161	6	167
Film Show	36	770	173	943
KisanMela	1	2295	340	2635
Exhibition	14	9231	740	9971
Scientists' visit to farmers field	179	439	49	488
Farmers' seminar/workshop	4	532	18	550
Method Demonstrations	28	1054	103	1157
Celebration of important days (Mahila Kisan Diwas, International Soil day, National Productivity week, Vigilance awareness week, Swachhta Bharat, World egg day, Rabbits day, International fish day)	8	525	135	660
Special day celebration (International Women, National nutritional week)	2	135	15	150
Exposure visits	47	1982	68	2050
Others (pl. specify) Guest lectures	30	1514	125	1639
Awareness programme on biogas production technology	1	82	7	89
Farmers group meeting	7	192	21	213
TN Govt sheep/goat training	9	432	1	433
Total	571	23865	2018	25883

Details of other extension programmes

Particulars	Number
Electronic Media (CD./DVD)	1
Extension Literature (Pamphlets)	25
News paper coverage	15

Popular articles	20
Radio Talks	33
TV Talks	6
Animal health camps (Number of animals treated)	436
Others (pl. specify)	
Booklets	22
Video lesson of success story	6
Farm Radio school	1
Total	565

Messages sent

MOBILE ADVISORY SERVICES THROUGH MKISAN PORTAL - Nil MOBILE ADVISORY SERVICES THROUGH OTHERS

Types of Messages	Type 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	37	410	3	462	55	831	01	45	5	417			101	2165

6. DETAILS OF TECHNOLOGY WEEK CELEBRATIONS

Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
Lectures organized	8	1150	Related to crop production, soil fertility management, integrated farming system, integrated pest management, livestock production, poultry farming, fish farming
Exhibition	1	2635	Exhibition on recent production technologies on crop, livestock, fisheries and organic farming
Film show	2	300	Emerging issues in Coconut pest management
Distribution of Literature (No.)	15	2635	Fodder production, integrated farming, organic manures production, livestock production, poultry farming
Distribution of Seed (q)	4	1455	Fodder seeds, vegetable seeds
Distribution of Planting materials (No.)	2	124	Fruit saplings
Bio Product distribution (Kg)	178	195	Vermicompost, biocontrol agents
Bio Fertilizers (q)			
Distribution of fingerlings	500	3	Composite fish fingerlings
Total number of farmers visited the technology week		2635	

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

Production of seeds by the KVKs

Enterprise	Name of crop	Variety	Seed produced		Seed supplied to farmers						Seed supplied to other agencies	
			Quantity (q)	Value (Rs)	Free seed			Priced seed			Quantity (q)	Value (Rs)
					Quantity (q)	No of farmers	Value (Rs)	Quantity (q)	No of farmers	Value (Rs)		
CEREALS												
	Sorghum (Jowar/Cholam/	CO-4	4.02	18090	-	-	-	-	-	-	4.02	18090

	Jonna)												
	Total Cereals		4.02	18090	-	-	-	-	-	-	-	4.02	18090
OIL SEEDS													
	Groundnut	CO-7,GJG-9,VRI-8 and TCGS-1073	38.37	306960	-	-	-	31.12	78	248960	7.25	58000	
	Total Oil Seds		38.37	306960	-	-	-	31.12	78	248960	7.25	58000	
PULSES													
	Green gram	CO-8	1.44	18720	-	-	-	1.44	18	18720	-	-	
	Black gram	VBN-6	2.0	26000	-	-	-	2.00	25	26000	-	-	
	Total Pulses		3.44	44720	-	-	-	3.44	43	44720	-	-	
VEGATABLE SEEDS													
	Bhendi (Okra/Ladies finger)	Arka Anami ka	0.12	6000	-	-	-	0.12	52	6000	-	-	
	French bean	Arka komal	0.07	3500	-	-	-	0.07	45	3500	-	-	
	Radish	Pusa chetki	0.1	5000	-	-	-	0.1	66	5000	-	-	
	Onion	Co(On)5	1	270000	-	-	-	0.24	87	66150	0.63	16875	
	Chilli (Seeds)	K1	0.05	5500	-	-	-	0.05	63	5500	-	-	
	Tomato (Seeds)	PKM1	0.03	3300	-	-	-	0.03	57	3300	-	-	
	Brinjal (Seeds)	Varika thiri	0.03	3300	-	-	-	0.03	82	3300	-	-	
	Gourds (snake, bottle, bitter, ribbed etc)	Co2,Arka Bahar, Co1, Jaipur long	0.16	27000	-	-	-	0.16	189	27000	-	-	
	Cluster bean	PNB	0.47	14100	-	-	-	0.47	217	14100	-	-	
	Annual moringa	PKM1	0.19	57000	-	-	-	0.19	161	57000	-	-	
	Lab lab	Co(GB)14	0.1	4200	-	-	-	0.1	132	4200	-	-	
	Amaranhus	All varieties	0.45	13350	-	-	-	0.45	147	13350	-	-	
	V.Cowpea	PKM1	1.0	300	-	-	-	1.0	51	3000	-	-	
	Total Vegetables		2.87	415250	0	0	0	2.11	1349	211400	0.63	16875	
FODDER SEEDS													
	Fodder Sorghum	COFS 31	18.18	727200	-	-	-	16.71	615	668320	-	-	
	Fodder Sorghum	COFS 29	122.08	4883200	-	-	-	50.59	2586	2023640	73.76	2987077	
	Fodder Cowpea	COFC 9	9.61	144900	-	-	-	11.04	551	165517.5	-	-	
	Desmanthus/He dge lucerne	Co-2	108.04	5402000	-	-	-	15.27	1915	763475	88.48	4468240	
	Lucerne	CO-1	5.60	308000	-	-	-	4.81	655	264605	-	-	
	Stylo	hamata	5.78	231200	-	-	-	4.55	913	182020	-	-	
	Subabul	Local	2.72	81600	-	-	-	3.80	1545	113910	-	-	
	Agathi	Local	6.06	303000	-	-	-	5.61	2230	280710	-	-	
	Anjan Grass	Blue	9.16	320600	-	-	-	9.52	1023	333287.5	-	-	
	Fodder Maize	African tall	14.06	112480	-	-	-	18.43	458	147404	-	-	

	Total Fodder		301.29	12514180	-	-	-	140.33	12491	4942889	162.24	7455317
	GRAND TOTAL		349.99	13299200				177.00	13961	5447969	174.14	7548282

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	
			Quantity (Nos)	Value (Rs)	Free supply			Priced			Quantity (Nos)	Value (Rs)
					Quantity (Nos)	No of farmers	Value (Rs)	Quantity (Nos)	No of farmers	Value (Rs)		
VEGATABLES SEEDLINGS												
	Annual moringa seedling	PKM1	120	1840	-	-	-	120	7	1840	-	-
	Total		120	1840	-	-	-	120	7	1840	-	-
FRUITS GRAFTS, SEEDLINGS & CUTTING												
	Aonla	NA7	117	5850	-	-	-	117	24	5850	-	-
	Mango	Alphonso Banganapalli Imam pasand Neelum S.Bangalora	3818	229080	-	-	-	3818	128	229080	-	-
	Guava	L49	320	16000	-	-	-	320	73	16000	-	-
	Citrus	Balaji	120	12000	-	-	-	120	13	12000	-	-
	Sweet orange	Kodur 1	89	8900	-	-	-	89	57	8900	-	-
	Pomegranate	Bagawa	97	9700	-	-	-	97	57	9700	-	-
	Total		4561	281530	-	-	-	4561	352	281530	-	-
FLOWERS												
	Neerium	Pink	117	5850	-	-	-	117	82	5850	-	-
	Taberna	Double & single	52	2600	-	-	-	52	41	2600	-	-
	Ixora	Red	22	1320	-	-	-	22	20	1320	-	-
	Total		191	9770	-	-	-	191	143	9770	-	-
FODDER SLIPS												
	Cumbu Napier grass (Co 3, Co 4, Co 5 etc)	CO-4	5550	2775	-	-	-	5550	3	2775	-	-
	Other fodder plants Guinea grass	COGG3	1500	1500	-	-	-	1500	2	1500	-	-
	Total		7050	4275	-	-	-	7050	5	4275	-	-
	Grand Total		11922	297415	-	-	-	11922	507	297415	-	-

Production of Bio-Products

Category	Name of the product	Comm ercial name (if any)	Bio-products produced		Bio-products supplied to farmers						bio-products supplied to other agencies	
			Quantity (kg)	Value (Rs)	Free distribution			Priced			Quantity (kgs)	Value (Rs)
					Quantity (kgs)	No of farmers	Value (Rs)	Quantity (kgs)	No of farmers	Value (Rs)		
Bio-fertilizers												
	Rhizobium	Rhizobium	4	220	-	-	-	4	2	220	-	-
	Azospirillum	Azospirillum	207	11385	-	-	-	207	99	11385	-	-
	Azolla		179	12530	-	-	-	179	360	12530	-	-
	VAM	-	60	7200	-	-	-	60	38	7200	-	-
	Phosphate solubilizers	Phosphobacteria	200	11000	-	-	-	200	93	11000	-	-

	Waste decomposer	NCOF Waste decomposer	114	3280	-	-	-	114	26	3280	-	-
	Bio composting culture	TNAU biominerlizer	23	1380	-	-	-	23	3	1380	-	-
	Other Effective Micro Organisms (Specify)		50	9250	-	-	-	50	1	9250	-	-
	Total bio-fertilizers		837	56245	-	-	-	837	622	56245	-	-
Bio-inputs												
	Panchakavya	-	459	45900	-	-	-	459	240	45900	-	-
	Vermicompost		2366	23660				2366	286	23660	-	-
	Earthworms for vermicompost	<i>E.eug</i>	284	113600	-	-	-	284	71	113600	-	-
	Total bio-inputs		3109	183160	-	-	-	3109	597	183160	-	-
Bio-Pesticides												
	<i>Beauveria bassiana</i>	-	47	5645	-	-	-	47	68	5645	-	-
	<i>Trichoderma viridi</i>	-	236	28350	-	-	-	236	214	28350	-	-
	<i>Metarrhiziumanisoplae</i>	-	29	3480	-	-	-	29	24	3480	-	-
	<i>Pseudomonas</i>	-	255	30570	-	-	-	255	213	30570	-	-
	Neem Soap	-	22.5	9000	-	-	-	22.5	18	9000	-	-
	Pongamia Soap	-	9	3600	-	-	-	9	7	3600	-	-
	Botanicals (Specify) Inchi poondu Karaisal	-	43	4300	-	-	-	43	23	4300	-	-
	Botanicals (Specify) Pest repellent	-	218.5	8740	-	-	-	218.5	88	8740	-	-
	Mealy bug parasitoids	-	190	190	-	-	-	190	12	190	-	-
	Total bio-pesticides	-	1050	93875	-	-	-	1050	667	93875	-	-
	Total bio-products	-	4996	333280	-	-	-	4996	1886	333280	-	-
Crop booster	TNAU crop booster	Pulse wonder	204	48960	-	-	-	204	102	48960	-	-
		Groundnut rich	26	6240	-	-	-	26	8	6240	-	-
		Cotton plus	47.5	11400	-	-	-	47.5	18	11400	-	-
		Sugar cane booster	10	4200	-	-	-	10	6	4200	-	-
	Horticulture crop boosters	IIHR Banana booster	147	26800	-	-	-	147	136	26800	-	-
		IIHR Veg booster	134	24120	-	-	-	134	84	24120	-	-
		IIHR Mango booster	39	7800	-	-	-	39	35	7800	-	-
	Total		607.5	129520	-	-	-	607.5	389	129520	-	-
Micronutrient mixture	TNAU micronutrient mixtures	Rice	15	975	-	-	-	15	1	975	-	-
		Pulses	20	2000	-	-	-	20	1	2000	-	-

		Groundnut	45	2800	-	-	-	45	3	2800	-	-
		Cotton	5	400	-	-	-	5	1	400	-	-
		Sugarcane	50	3250	-	-	-	50	1	3250	-	-
		Coconut	155	12400	-	-	-	155	8	12400	-	-
	Total		290	21825	-	-	Total	290	15	21825	-	-
	GRAND TOTAL		5893.5	484625				5893.5	2290	484625		

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	
			Quantity (No)	Value (Rs)	Free distribution			Priced			Quantity (No)	Value (Rs)
					Quantity (No)	No of farmers	Value (Rs)	Quantity (No)	No of farmers	Value (Rs)		
Dairy												
	Mineral mixture	TANUVAS	38 04	209220	-	-	-	3804	248	209220	-	-
Goat and Sheep												
	Goat	Thallacherry cross	40	180000	-	-	-	8	5	36000	32	144000
	Sheep	Nariswarna	6	18480	-	-	-	6	1	18480	-	-
	Salt lick	TANUVAS	1312	131200	-	-	-	1312	142	131200	-	-
Poultry												
	Desi bird chicks	Aseel Kadakanath Namakkal chicken	8220	489800	-	-	-	7200	84	398000	1020	91800
Fisheies												
Fingerlings	Fingerlings	Tilapia, Ornamental fish	15520	53540				15520	82	53540		
	TOTAL		28902	1082240	-	-	-	27850	562	814040	1052	235800

8. 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	356	244	456	123	96910.00
Soil Health Cards (SHC)	356	244	456	123	

Samples	No. of Samples	No. of Farmers	No. of Villages	Amount realized (Rs.)
Water	312	286	109	37,720.00
Total	312	286	109	37,720.00

9. SCIENTIFIC ADVISORY COMMITTEE

Date of SAC meeting	Number of members attended
09.01.2019	52

10. PUBLICATIONS

Publications in journals

S. No	Authors	Year	Title	Journal
1.	Sharmila Bharathi,C and B.Mohan	2018	Integrated Pest and Disease Management in Small onion at NICRA village in Namakkal District of Tamil Nadu. Vol.7 (Special Issue): 403-407	International Journal on Multilogic in Science
2.	Sharmila Bharathi,C and B.Mohan	2018	Community small onion/Multiplier onion (<i>Allium cepa</i> var <i>aggregatum</i>) nursery as a contingency measure for delayed planting in NICRA village of Namakkal District, Tamil Nadu, India.	International Journal of Current Microbiology and Applied Sciences.7(3) :403-407
3.	Sharmila Bharathi,C and L.Pugalendhi	2018	Off Season Production of Annual Moringa (<i>Moringa oliefera</i> Lam.) cv. PKM 1 through Canopy Management and Chemical Manipulation Practices.	Journal of Pharmacognosy and Phytochemistry,2018,SPI: 2218-2224
4.	Sharmila Bharathi,C.,L.Pugalendhi and B.Mohan	2019	Effect of Canopy management and chemical manipulation on morphological attributes of off season production in Annual moringa Cv.PKM1	<i>Int.J.Curr.Microbiol.App.Sci</i> 8(2): 2642-2648
5.	Sharmila Bharathi,C., B.Mohan and N.Akila	2019	Review article - Role of KVK, Namakkal in Floriculture - <i>Floriculture makes fragrance to farmers' livelihood</i>	<i>Int.J.Curr.Microbiol.App.Sci</i> 8(2): 2649-2658
6.	M. Daisy , K. Rajendran and M. Mohamed Amanullah	2018	Effect on Microbial Population, Quality Parameters and Green Fodder Yield of Leguminous Crops under Bt Cotton Intercropping System	<i>International Journal of Current Microbiology and Applied Sciences</i>
7.	M Daisy, K. Rajendran, K. Senthilkumar and R Sureshkumar	2018	Effect of increased level of fertilizers on Btcotton and green fodder yield under cotton + legume fodder intercropping system of western zone of Tamil Nadu	International Journal of Chemical Studies
8.	K Senthil Kumar and M Daisy	2018	Effects of concentrate supplementary feeding on performance growth and reproduction in local goats	International Journal of Chemical Studies
9.	K Senthil Kumar and M Daisy	2018	Performance of Tellicherry Crossbred Goats in Age, Sex and Season under Semi-intensive Production System	International journal of pure & Applied Bioscience
10.	M. Daisy and N. Thavaprakaash	2018	Influence of SCI Practices on Yield, Nutrient Uptake and Oil Yield of Castor (<i>Ricinuscommunis</i> L.) var: YRCH-1 under Irrigated Condition of Western Zone of Tamil Nadu	International journal of pure & Applied Bioscience
11.	K Senthil Kumar and M Daisy	2018	Effectiveness of Training Programme on Scientific Method of Goat Rearing	International journal of pure & Applied Bioscience
12.	M. Daisy, P. Jeyakumar and K. Senthilkumar	2018	Performance of Intercropping On Physiological Characters and Competitiveness of BtCotton with Leguminous Fodder Under Irrigated Condition	Chemical Science Review and Letters
13.	Dr.P.Murugan Dr.A.Velayutham Dr.N.Akila	2018	Demonstration of potential technologies for enhancing yield in groundnut	International Conference proceeding on Invigorating Transformation of Farm Extension towards Sustainable Development : Futuristic Challenges and

				Prospects	
14.	Dr.P.Murugan Dr.P.Kumaravel Dr.N.Akila		2019	Profitable integrated farming system model suitable for Kancheepuram	International Conference on Role of Veterinary science in farmers livelihood.
15.	Elayarajan, K.Arulmozhiselvan, S.Sathya J.Balamurugan & P.Muthuvel	M.,	May 2018 6(3):16 93- 1695	Heavy metal accumulation in soils under long term fertilization	International journal of chemical studies

Other publications

S.No	Item	Year	Authors	Title	Publisher
1	Books	-	-	-	-
2	Book chapters / manuals	2018	Dr.P.Murugan Dr.N.Akila	Minor Millet production technology and Value addition	KVK, Namakkal
		2018	Dr.N.Akila Dr.P.Murugan	Climate resilient technology in agriculture	KVK, Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Farm innovations documented 1.Mango craft – grafts on a single tree to produce multiple varieties (P.No.27 -28) 2.Go green – Organic vegetable cultivation (P.No.29-30) 3.Chips maker – value addition in cassava (P.No.71-72) Published in the Book on Farm Innovators : Take the challenge and be the challenge – published by ICAR ATARI, Hyderabad,2018	ATARI,Hyderabad
		2018	Sharmila Bharathi,C and N.Akila	Mobile sprinkler for supplemental irrigation in small onion,P.No.66 Published in the Technical report Farm Innovations in Climate Resilient Agriculture – Published by ICAR – CRIDA,Hyderabad.2018	NICRA, CRIDA, Hyderabad
		2018	Sharmila Bharathi,C	Book on General Agriculture Q &A: Chapter 13 - Vegetable science ISBN: 978-93-87314-24-5	Lakshmi Printers
		2019	Dr.P.Murugan Dr.N.Akila Th.S.Vignesh	Production of Biocontrol agents for agricultural purpose	KVK, Namakkal
		2019	Dr.N.Akila Dr.P.Murugan	Climate Resilient practice for agricultural production	KVK, Namakkal
		2019	S.Sathya & N. Akila	Demonstration of technology package for sugarcane trash mulching in ratoon sugarcane with ICM for Namakkal district	Successful interventions of KVK, NKL 2015-2018 Pp41-44
		2019	S.Sathya & N. Akila	Demonstration of technology on role banana booster in increasing yield of banana	Successful interventions of KVK, NKL 2015-2018 Pp.46-48
3	Training manuals	2018	Dr.S.Paulpandi	Aquatic Animal Diseases, Health	TANUVAS,

			and Dr.A.Arulmozhi	care and Management	Chennai
4	Conference, proceeding papers, popular articles, Bulletins, Short communications, Research paper	2018	Sharmila Bharathi C., B.Mohan and N.Akila	Sustainability,livelihood security and resilience to climate variability of small holders through vegetable and flower cropping in NICRA villageof Namakkal District. Pp.No.7	Published in Abstract book of International conference on Recent Scenario in plant science, Research, climate change and its associated variation
		2018	Sathya, S., N.Akila, R.Prabhakaran and K.Sathish Kumar	Soil fertility status and yield of small onion as influenced by multigrain green manuring practice	State level seminar manual on dynamics of technology for achieving resilience of vegetable production especially onion and garlic for enhance farmers income, Organized by ICAR- Krishi Vigyan Kendra, Gandhigram, Dindigul.
5	Popular articles	2018	Sharmila Bharathi,C and N.Akila	Madi thottam amaippu matrum payir tozhilnutpangal	Naveena Velanmai – Monthly Tamil Magazine
		2018	Sharmila Bharathi,C and N.Akila	Improved production techniques in Mango cultivation – Pp.No.50- 53	Naveena Velanmai – Monthly Tamil Magazine
		2018	Sharmila Bharathi,C and N.Akila	Techniques to get good yield in banana	Dhinamani – Daily Tamil Newspaper
		2018	Sharmila Bharathi,C and N.Akila	Recent production techniques in Bellary onion	Kalaikathir – Daily Tamil Newspaper
		2018	Sharmila Bharathi,C	Chinna vengayathil naveena sagupadi tozhilnutpangal	State level seminar manual on dynamics of technology for achieving resilience of vegetable production especially onion and garlic for enhance farmers income, Organized by ICAR- Krishi Vigyan Kendra, Gandhigram, Dindigul
		2019	Sharmila Bharathi,C and N.Akila	Tips to enhance bellary onion production	Kalaikathir Daily Newspaper
		2019	Sharmila Bharathi,C and N.Akila	Coccinia cultivation techniques	Kalaikathir Daily Newspaper
		2019	SharmilaBharath i,C, B.Mohan	Small onion var.Co (On)5 – boon for onion growers.	Kisan world

			and N.Akila		
		2018	Sathya,S., N.Akila, S.Alagudurai, C.Sharmila Bharathi & C.Sankar	Role of pulses in soil fertility improvement	Nilavalam- Tamil Magazine May (Vaigasi) 2018 : 29-32
		2018	Sathya, S., N.Akila, R.Prabhakaran & K.Sathish Kumar	Adopt Integrated nutrient management practice to improve the soil fertility	State level seminar manual on dynamics of technology for achieving resilience of vegetable production especially onion and garlic for enhance farmers income, Organized by ICAR- Krishi Vigyan Kendra, Gandhigram, Dindigul.
		2018	M.Daisy, K.Sendhilkumar & M.Sakthipriya	Management of parthenium weeds and composting techniques	Pachhai Bhoomi
		2018	M.Daisy M.Sakthipriya	Medicinal properties of Senna	Pachhai Bhoomi
		2018	M.Daisy K.Sendhilkumar & N.Akila	Fodder trees suitable for summer season	Naveena Velanmai
		2018	M.Daisy K.Sendhilkumar & N.Akila	Production techniques in Lucerne fodder crop	Naveena Velanmai
		2018	N.Akila	Conservation of fruit and vegetable waste as livestock feed	Indian Farmers Digest
		2018	Bharathy,N. and N.Akila	Silage making using bag	Indian Farmers Digest
		2018	M.Jothilakshmi &Dr.N.Akila	Quail farming	Kalaikathir Tamil Daily
		2018	M.Jothilakshmi &Dr.N.Akila	Vanaraja & gramma priya rearing for rural livelihood security	Kalaikathir Tamil Daily
		2019	S.Paulpandi and N.Akila	Cage culture technology	Kalaikathir Daily Newspaper
		2019	S.Paulpandi and N.Akila	Fish diseases Management	Kalaikathir Daily Newspaper
6	Technical bulletin/ Folders	2018	Sathya, S. N.Akila	Importance of soil and water testing	KVK, Namakkal
				Role of macro nutrients, its deficiency symptoms and their corrective measures	
				Role of micro nutrients, its	

				deficiency symptoms and their corrective measures	
				Application of crop boosters and micronutrient mixtures for crop productivity and soil fertility improvement	
				Strategies to improve the soil fertility under rainfed condition	
				Plant residue composing technology	
			Akila, N. and S.Sathya	KVK activities –Tamil	
				KVK activities –Tamil	
		2019	N.Akila C.Sharmila Bharathi P.Murugan K.R.Pusphanathan C.Kathirvelan S.Paulpandi S.Sathya	Successful interventions of KVK, NKL 2015-2018	
6	Reports	Nov 2018	Dr.P.Murugan Dr.N.Akila	Report on Cluster FLD on Kharif pulses 2018-19	KVK, Namakkal
		Feb 2019	Dr.P.Murugan Dr.N.Akila	Report on Cluster FLD on Rabi pulses 2018-19	
		Dec 2018	Dr.P.Murugan Dr.N.Akila	Report on Cluster FLD on Kharif Oilseeds 2018-19	
		March 2019	Dr.P.Murugan Dr.N.Akila	Report on Skill training of Rural youth on Production of bio-control agents	
		2018	Sathya,S. & N.Akila	KVK Annual report, 2017-18 Word & Powerpoint	
				ICAR Action plan (Pre action plan & Final Action plan) Word & Power point	
				KVK monthly report & KVK portal updation	
7	Pamphlets	2018	Sharmila Bharathi,C and N.Akila	Recent production and propagation techniques for Marigold, Jasmine, Rose and Tuberose	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Canopy management and production technology for Mango & Pomegranate	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Recent production techniques in turmeric.	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Recent production techniques in small onion	KVK,Namakkal
		2018	Sharmila Bharathi,C and	Roof top vegetable gardening	KVK,Namakkal

			N.Akila		
		2018	Sharmila Bharathi,C and N.Akila	Protray nursery techniques and recent production techniques in hybrid tomato	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Off season cultivation of annual moringa and curry leaf	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Integrated Crop Management practices in Acid lime, Pomegranate and Guava.	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Recent production techniques in Bhendi, Chillies,Brinjal and bush type lab lab.	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	Rapid multiplication and recent production techniques in Tapioca	KVK,Namakkal
		2018	Sharmila Bharathi,C and N.Akila	ICM practices in Small onion var.Co(On)5	KVK,Namakkal
		2018	S.Paulpandi and N.Akila	Duck cum Fish culture	KVK,Namakkal
		2018	S.Paulpandi and N.Akila	Pig cum Fish culture	KVK,Namakkal
		2018	S.Paulpandi and N.Akila	Composite fish culture	KVK,Namakkal
		2018	S.Paulpandi and N.Akila	Backyard ornamental fish culture	KVK,Namakkal
	Abstracts	2018	M. Daisy and K. Rajendran	Fibre -Fodder intercropping for improving soil fertility and maintaining seed cotton productivity with variable fertilizer levels under Brcotton based cropping system in north western zone of Tamil Nadu, India	International Symposium on Innovations and Advancements in Agriculture and Plant Sciences (IAAPS 2018)

Newsletter/Magazine

Name of News letter/Magazine	Authers	Frequency	No. of Copies printed for distribution
KVK newsletter January - March 2018	Akila.N., S.Sathya, C.Sharmil Bharathi, P.Murugan, C.Sankar, M.Jothilakshmi, S.Paulpandi & M.Daisy	Quarterly	100
KVK newsletter April - September 2018	Akila.N., S.Sathya, C.Sharmil Bharathi,	Half yearly	100

	P.Murugan, C.Sankar, M.Jothilakshmi, S.Paulpandi & M.Daisy		
KVK newsletter October - December 2018	Akila.N., S.Sathya, C.Sharmil Bharathi, P.Murugan, K.R.Pushpanathan, C.Kathivelan, M.Jothilakshmi, S.Paulpandi & M.Daisy	Quarterly	100

Training/workshops/seminars etc details attended by KVK staff

Name of the staff	Title	Dates	Duration	Organized by
Dr.C.Sharmila Bharathi Assistant Professor (Horticulture)	Farm Innovators Meet	14.4.18	One day	ATARI, Hyderabad.
	Bee keeping training	6.9.18	One day	Dept of Entomology, TNAU,Coimbatore
	Training of trainers On Bee keeping , sponsored by Agricultural Skill Council of India.	25.09.18 to 27.09.18	3 days	Professor Jeyashankar Telangana State Agricultural University, Hyderabad.
	Training programme on Recent production and processing of spices	21.1.19- 4.2.19	15 days	Indian Institute of Spices Research,Calicut,Kerala
Dr.P.Murugan Asst Professor (Agronomy)	Biogas technology for sustainable fuel and organic manures	17.09.18 to 20.09.18	4 Days	Tamil Nadu Agricultural University, Coimbatore
	DST Sponsored training Programme on Integrated Nutrient Management and Nutrient Budgeting through Advanced Models to Improve crop productivity	22.10.18 To 26.10.18	5 Days	ICAR – Institute of Soil and Water Conservation, Research centre, Udhagamandalam (Ooty)
	State level ATMA Action Plan 2019-20 workshop	03.01.19 To 04.01.19	2 Days	BWDA, Courtallam
	PFMS – Public Financial Managemnet System	07.01.19 To 08.01.19	2 Days	TNAU, Coimbatore
	International Tamil Conference Oral presentation	22.02.19 To 23.02.19	2 Days	TANUVAS, Chennai
	Brain storming session on Agromet advisory system	18.03.2019	1 Days	VC&RI, Namakkal
	Discussion on Fall armyworm management in Maize	21.03.19	1 Days	Directorate of Agriculture, Chennai
	Group discussion on Promotion of ELS Cotton in Tamil Nad	21.03.19	1 Days	Directorate of Agriculture, Chennai
	Workshop on KVK Pre action plan meeting	23.03.19	1	TNAU, Coimbatore

Dr.S.Sathya Assistant Professor	Orientation training programme for officers involved in soil health card scheme	22.10.18 to 26.10.18	5 days	MANAGE Hyderabad
Dr.C.Kathirvelan	Preparation of Bankable projects for livestock	20.02.19 to 22.02.19	3	VCRI, Namakkal
	Ethno Veterinary Practices for livestock	25.02.19	1	VCRI, Orthanadu.
	International Tamil Conference Oral presentation	22.02.19 To 23.02.19	2 Days	TANUVAS, Chennai
Dr.S.Paulpandi	Fish seed production technology and Quality Assurances	05.02.19 to 14.02.19	10 days	AQUACULTURE Dept, College of Fisheries, Brahmapur, Odisha
Dr.N.Akila	Interactive Workshop on Agro Forestry	9.11.2018	1 day	Forest College & Research Institute Campus, Mettupalayam

11. 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.)
1	8 (Laser spray irrigation)		265	48

12. 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
Hybrid Castor	75	45 ha	Less groundnut yield and crop failure during pod development stage due to shortage of rainfall and frequent drought occurred in Elachipalayam block of Namakkal district. KVK recommended Castor as alternate crop instead of groundnut in the last two years. Now a day's farmers cultivating castor as pure crop in groundnut growing areas. Current year farmers obtained 845 kgs of castor yield and sold at the rate of Rs.50/kg of grains. Castor crop withstand well in drought and less rainfall (180mm) and recorded good yield compared to groundnut. Farmers obtained Rs.13250 higher income in castor compared to groundnut.
Total	75	45 ha	

Major area coverage under alternate crops/varieties

Crops	Area (ha)	Number of beneficiaries
Oilseeds		
Groundnut – Var. TCGS-1073	22.0	50
Groundnut – Var. CO-7	10.0	25
Groundnut – Var. GJG-9	1.0	5

Groundnut – Var. VRI-8	4.0	10
Groundnut – Var. K-9	10.0	25
Pulses		
Green gram – Var. CO-8	40.0	100
Black gram – Var. VBN-6	40.0	100
Flower crops		
Flower crops	20.0	42
Total	147	357

Animal health camps organised

Number of camps	No.of animals	No.of farmers
5	633 sheep and goats	30
Total	633	30

Seed distribution in drought hit states

Crops	Quantity (qtl)	Coverage of area (ha)	Number of farmers
Groundnut – Var. CO-7	8.50	4.5	20
Groundnut – Var. GJG-9	10.25	5.5	25
Green gram – Var. CO-8	2.00	10	25
Black gram – Var. VBN-6	2.00	10	25
Hybrid Castor – YRCH-1	0.25	4.0	10
Finger millet – ML365	0.50	5.0	15
Small onion var.Co(On)5	0.22	8.8	22
Total	23.72	47.8	142

Large scale adoption of resource conservation technologies

Crops/cultivars and gist of resource conservation technologies introduced	Area (ha)	Number of farmers
Multigrain green manuring for soil fertility improvement	38	145
Total	38	145

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
	2	41	0	0	1	23	0	0	0	0	0	0
	2	84			3	96	1	245	1	245	1	35
	2	43	0	0	0	0	0	0	1	320	0	0
	1	237	-	-	-	-	-	-	1	237	-	-
Total	7	405	0	0	4	119	1	245	3	802	1	35

13. Awards/rewards 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 Innovative Farmer Award	2018	ICAR – CRIDA, Hyderabad on the occasion of Foundation day	Individual – Th.P.Ramasamy, Vadavathur village – Adoption and Popularization of improved livestock and

			fodder production practices.
Farm Innovation Award - Multi grafting in a single mango tree	2018	Farm Innovation Award received from DDG, ICAR at ATARI, Hyderabad on 14.4.2018	Individual - Th.P.Allimuthu, Minnakkal, Namakkal Distric
Farm Innovation Award - Organic cucurbitaceous vegetable cultivation			Individual - Th.P.Saravanan, Ariyagound ampatti, Namakkal District
Farm Innovation Award - Value addition in Cassava by using Cassava chips making machine			Individual - Th.J.R.Dhanaraj, Kalkuruchi, Vellalapatti, Namakkal District\
Best farmer award for farm mechanization in horticultural crops	2019	TNAU, Coimbatore during Farm machinery mela, February 2019	Individual - Th.P.Saravanan, Ariyagound ampatti, Namakkal District
“IARI Farmer Award for 2019” by DG, ICAR on in the valedictory ceremony of the National Fair – Pusa Krishi Vigyan Mela 2019	2019	IARI, New Delhi on 7.3.19.	Individual - Th.P.Saravanan, Ariyagoundampatti, Namakkal District – Organic Cucurbitaceous vegetable cultivation

14. Details of sponsored projects/programmes implemented by KVK

S.No	Title of the programme / project	Sponsoring agency	Objectives	Duration	Amount (Rs)
1	TNLDA Phase-I & Phase II Farmers Orientation Programme	TNLDA	To impart knowledge and skill on scientific feeding practices to get higher conception rate in dairy animals	2 day 28.08.18 27.12.18	1,17,648.00
2	Skill training of Rural Youth	MANAGE, Hyderabad	To create awareness on production techniques in bio-control agents.	28.01.19 to 02.02.19 (6 days)	42,000.00
3	Skill training of Rural Youth	MANAGE, Hyderabad	To create awareness on production techniques in Goat farming	08.10.18 TO 13.10.18 (6 days)	42,000.00

4	Krishi Mela 2018	ATMA	To create awareness on recent production techniques in agricultural, horticultural crops, livestock & poultry and integrated farming	26.12.2018 to 28.12.2018 (3 days)	1,20,000.00
5	Mushroom grower	ASCI- ATARI	To impart knowledge and skill on scientific mushroom production techniques and marketing	25 days	1,94,240.00
6	Bee Keeping	ASCI- ATARI	Self-employment	25 days	1,41,200.00

15. Success stories

1. IMPACT ON ADOPTION OF SRI METHOD OF PADDY CULTIVATION IN PERAPPANCHOLAI VILLAGE OF NAMAKKAL DISTRICT

Situation analysis/Problem statement

Paddy is the important food grain crops because it is not only a dominant food crop but also an important crop in the state economy. It accounts for a major share of cereal consumption, ranging from 60% in Tamil Nadu. North Western Zone of Tamil Nadu is dominated by rice – maize and millets – groundnut, cotton - vegetables and sugarcane cropping system under both irrigated and rainfed farming. Paddy is a main food crop cultivated in Namagiritpettai block of Namakkal district in a area of 465 ha during Samba season (Rabi) of every year. More than 23 per cent of the area is occupied by rice cultivation in different season. Perappancholai is a potential village in Namagiripettai block and cultivated paddy in 185 ha during samba season. The farmers of perappancholai village are small and marginal farmers, who have already exploited 28 per cent of the potential rice cultivation and further scope for enhancing yield is limited due to pest and diseases, non adoption of high yielding varieties and system of rice intensification (SRI) technology. The average paddy yield of this village is 4650 kg/ha. The farmers facing low yield as major problems in paddy cultivation is due to heavy incidence of stem borer, leaf folder, blast and BPH disease, non availability resistant variety. The cost of cultivation of rice also increased from Rs.30,000 to Rs.37500 per hectare due to the traditional method of paddy cultivation along with existing paddy varieties (BPT 5204, ADT 45). In this regards, KVK Namakkal conducted On Farm trial and Front line demonstration since 2015 at farmers field of Perappancholai village of Namagiripettai block. This village is situated at 11.42° N latitude and 78.46° E longitude. The soil type is sandy clay loam with a pH of 7.4 and EC of 0.4 dSm⁻¹ with a soil nutrient status of low Nitrogen (230 kg/ ha), medium Phosphorus (10.4 kg / ha) and high Potassium (312 kg /ha). The average rainfall of perappancholai village is 350 mm during samba seasons.

Plan, Implement and Support

The Krishi Vigyan Kendra (KVK), Namakkal has taken steps for demonstrating system of rice intensification technologies along with improved high yielding paddy varieties through on farm trials, front line demonstration, awareness campaign programmes to increase the paddy cultivating area under SRI Method and increase the paddy productivity level. The following KVK mandatory programmes in collaboration with state department of agriculture conducted during last three years.

- On farm trial on assessment of different paddy cultivation practices including SRI method, drum seeder method and existing farmers practices.
- Introduction of new paddy variety (CO-51) by supplying 350 kgs of seeds as critical input
- Farmers Field School on SRI Paddy cultivation at Perappancholai and Mullukuruchi, Unanthangal villages during 2016-17.
- Front line demonstration on new paddy variety (TKM-13) – 10 demonstrations
- Front line demonstration on new paddy variety (CO-52) – 10 demonstrations
- On campus, Off campus training on SRI Method of paddy cultivation – 18 Nos.
- Seed production training programme – 3 nos.
- Awareness programme on SRI Method of paddy cultivation – 2 nos.
- Farmers – Scientist Interaction meet – 3 nos.
- Diagnostic field visit – 24 farmers field visits
- Booklet / Pamphlets on SRI technology – 250 nos distributed to farmers
- SRI Technology disseminated in daily newspaper – 1
- Bio products distributed (*Pseudomonas*, *Beauveria bassiana*, *metorhizum anisophilae*, *neem oil*, *pheromone traps*) – 225 kg
- Tie up arrangement with agriculture department for paddy seed production

Output

The yield data recorded from different farmers field in Perappancholai village under SRI method of paddy cultivation. Two farmer teachers developed to handle training class on SRI Method of paddy cultivation and created awareness on new paddy varieties (CO-51, TKM-13, CO-52) which is high suitable for samba season in Namagiripettai block. The average yield and other parameters in SRI method mentioned below.

Table 1: Average yield, pest and disease incidence and economic parameters recorded in SRI Paddy plot from Perappancholai village during 2016-17

Parameters	SRI Method (Var:CO-52)	Drum seeder method (Var:CO-52)	Traditional paddy cultivation BPT5204 (check)
Germination %	96	91	92
No. Productive tillers / hill (Nos)	38.4	31.5	18.3
Blast incidence (%)	1.6	1.8	3.4
Stem borer incidence (%)	2.1	2.3	7.2

Leaf folder incidence (%)	2.3	2.6	8.2
1000 grain weight (g)	15.27	15.25	15.55
Seed yield (tons/ha)	7.40	6.13	5.20
Straw yield (tons/ha)	7.55	6.85	6.15
Gross cost Rs. /ha	41000	38250	39500
Gross return Rs. /ha	118452	98175	83200
Net return Rs. /ha	77452	59925	43700
BCR	2.88	2.56	2.10

Farmers Feedback: SRI Method of paddy cultivation recorded higher productive tillers and seed yield compared to drum seeder and existing farmers practices. CO-52 prone to less incidence of blast, leaf folder and stem borer incidence and also fetched higher market price for seeds (Rs.19 / kg). And also CO-51 recorder higher grain (7155 kg/ha) yield and fetched higher market price (Rs.19.50).

Outcome:

- After implementation of KVK activities especially demonstration, awareness programme, farmers field school, training and diagnostic field visit on SRI Method of paddy cultivation along with improved high yielding paddy varieties, 82.16 per cent of paddy cultivators adopted SRI technology, 152 ha area covered under SRI method in Perappancholai village during 2018-19 (Table 2).
- Farmers explained that cost of cultivation of paddy is reduced to Rs.6000/ha due to lesser application of pesticides and fungicides, resistant paddy variety i.e. CO-51/CO-52 and less seed rate under SRI Method. The higher paddy straw yield (187 bales/acre) also recorded in SRI Method.

Table 2: Adoption level of SRI technology along with improved high yielding paddy varieties (CO-51, CO-52) in Perappancholai village during Rabi season 2018-19.

<i>Parameters</i>	<i>Area covered (ha)</i>	<i>SRI Method area covered(ha)</i>	<i>SRI Technology Adoption (%)</i>
Paddy cultivation in Namakkal district	7635	5850	76.62
Paddy cultivation in Perappancholai village	185	152	82.16%

(Source: Department of Agriculture, Namakkal, 2018-19)

Impact

- KVK intervention had lead to effective changes in increasing SRI method of paddy cultivation area through various activities in SRI technology along with improved high yielding varieties.
- SRI Paddy growing area increased to 152 ha in perappancholai village and achieved 82.16 per cent area and also increased district SRI paddy cultivation area (5850 ha) with 76.62 percent.
- Every farmers from that village obtained higher grain yield, straw yield and cost of production drastically reduced.(Rs.6500/ha) due to SRI method of paddy cultivation.

- The adopted farmers got 37 percent additional income through SRI technology due to higher grain yield and less production cost compared to traditional paddy cultivation.
- Nearly 15.6 tonnes of CO-51 paddy seeds produced from SRI method in Perappancholai village and handed over to agricultural department for farmer's distribution with subsidy.

2. POPULARIZATION OF CTCRI TAPIOCA VARIETIES IN NAMAKKAL DISTRICT

Situation analysis/Problem statement

- Tapioca is the major tuber crops cultivated in Namakkal District in an area of 15000 ha with a productivity of 32 tonnes / ha during 2006. It is almost grown in 15 blocks of this District.
- Namakkal District occupies second position in tapioca cultivation, which covers 40 per cent of tapioca area of the Tamil Nadu as an industrial crop for sago industry.
- Even though area is more in Namakkal District, its production is low due to low productivity which is lower than the state average productivity (48 t/ha). 99 % of tapioca area is under the variety of Mulluvadi.
- The yield potential of this variety is 30 /ha and it is also susceptible to Cassava Mosaic Disease and highly infected by red spider mite, mealy bug and spiralling whitefly.

Plan, Implement and support

- KVK, Namakkal has formulated 3 OFTs and 5 FLDs with an objective of maximizing yield through introduction of high yielding tapioca varieties (H226, Sree Vijaya, Sree Padmanaba, Sree Athulya, Sree Apporva, Sree Harsha, Sree Rekha and Sree Pavitha) released from Central Tuber Crops Research Institute, Trivandrum and (Co4 & Yethapur 1) TNAU, Coimbatore with integrated crop management practices since 2007 at Sendamangalam, Namagiripettai, Mohanur, Tiruchengode and Rasipuram blocks.
- **Varieties wealth – Introduced to Namakkal District by KVK, Namakkal since 2007**

Variety	Duration (Months)	Irrigated / rainfed	Yield (t/ha)	Starch content (%)	Special features
H-226	10	Rainfed	30-35	28-30	Drought tolerant
Sree Prakash	7	Irrigated	30-35	29-31	Early maturing and tolerant to leaf spot
Sree Harsha	10	Rainfed	35-40	38-41	Drought tolerant
Sree Vijaya	6-7	Irrigated	25-28	27-30	Early maturing and tolerant to leaf spot

Sree Rekha	8-10	Irrigated	45-48	28-30	Excellent cooking quality
Sree Athulya	10	Both irrigated & rainfed	38.7	30.2	High extractable starch (30.2%)
Sree Apoorva	10	Both irrigated & rainfed	38.0	29.9	High extractable starch (30%)
Sree Padmanabha	9-10	Irrigated	38	25.8	CMD resistant
Sree Pavithra	10	Irrigated	38	35	High yielding (40 t/ha) & tolerant to CMD
TNAU					
CO (TP) 4	8.5	Both irrigated and rainfed	50.6	40	Moderately susceptible to Indian Cassava Mosaic Virus
CO (Tp) 5	9 to 10	Irrigated	38	28	Resistance to cassava mosaic disease
Tapioca YTP 1	9 to 10	Both irrigated and rainfed	49.5	25 to 27	Very low incidence of mosaic virus

- In addition several multi location trails also conducted in farmers field through supply of planting materials of new varieties released from CTCRI, Trivandrum at Tiruchengode and Sendamangalam blocks by KVK, Namakkal. These varieties also showing resistance as well as tolerance to the major pest and diseases of Tapioca.
- Then training cum demonstration on precision farming techniques in Tapioca was conducted at all blocks of Namakkal District in coordination with Department of Horticulture under the financial and technical guidance of Precision Farming Centre, TNAU, Coimbatore from 2006 to 2009.
- Rainfed Tapioca cultivation practices also demonstrated and totally 52 trainings were conducted at all blocks of Namakkal district from 2006 to till date in coordination with Department of Horticulture, Namakkal District.
- Recent production technology in Tapioca also popularized by means of regular advisory services, field visit, diagnostic visits and also made farmers exposure visit to CTCRI, Trivandrum since 2006.
- By seeing the yield potential of CTCRI tapioca varieties, 17 farmers from Rasipuram block got the planting materials from CTCRI, Trivandrum through prior booking.

Output

The area under CTCRI high yielding varieties has increased from 261 ha 770 ha especially in Sendamangalam and Namagiripettai block of Namakkal District through interchange of planting materials among the farmers for the past 10 years. Now 20 % of the farmers in these blocks are cultivating H226, Sree Vijaya, Sree Athulya and Co4 varieties of Tapioca under irrigated condition mainly through drip fertigation and got the yield of 32 – 40 tonnes/ha. Among the four varieties H226 & Sree Vijaya occupies major area of cultivation. In addition

farmers also experienced complete control of red spider mite incidence through cultivation of resistant variety Sree Athulya and 100 % control of CMD through cultivation of Sree Padmanabha variety.

Outcome

A total of 2700 ha of tapioca area in Namakkal district occupies CTCRI varieties. Since tapioca price fixation is done based on starch content of the tubers. The new varieties also having high starch content (28 %) when compared to Mulluvadi (22 %) and provides good income (Rs. 60,000/0.4 ha) to the farmers. The undersized tubers used for making dried chips as a concentrate feed for cattle.

Impact

- Apart from Namakkal district, the planting materials of improved varieties of tapioca also supplied by KVK farmers to other District farmers mainly through KVKs (Trichy & Salem) to cover 12 ha.
- The gradual reduction of area under Tapioca cultivation was noticed from 15260 ha to 7400 ha in 2010 – 2011 & 6000 ha in 2015 -16 due to occurrence of severe drought. But again the area under tapioca also regained to 16150 ha producing 646000 MT with a productivity of 40 t/ha since 2017 with new improved varieties (Source: State Department of Horticulture, Namakkal District, 2018).
- The productivity is increased from 32 tonnes/ha (2006) to 40 tonnes/ha in 2016 -18. So the farmers got better economic returns thus helped to educate their children in the good colleges.

3. COMMERCIAL WHITE PIG REARING

Name of the farmer

Mr.P.SatishKumar, S/o K.Palanivel, Poosarikadu, Mallasamudram, Namakkal District.

Introduction, problem statement, possible solution

Due to various social factors and un awareness, white pig rearing was not initiated by farmers in Namakkal District. However, very few farmers were started the white pig rearing and Mr.Satish kumar was one among the farmers who started white pig rearing in 2015. The common problem in white pig rearing is lack of scientific knowledge on feeding of animals and marketing of meat/animal. Hence Mr. P.Satishkumar approached KVK to start a white pig rearing in a commercial mode.

Intervention

Mr.P.Satishkumar started the white pig rearing with 20 female and 2 male animals. At this point, he do not have any knowledge on feeding and disease management of pigs.

During initial period, he reared the white pigs only on food waste and not followed the vaccination schedules. So that he was experienced poor body weight gain, infertility problem in female and mortality. In this scenario he approached KVK, Namakkal to acquire knowledge on white pig rearing.

Mr.P.Sathiskumar has undergone on campus training on “white pig rearing” and ASCI skill training on “Commercial white pig rearing”. KVK, Namakkal given technologies on, concentrate feed preparation for pigs, nipple drinkers, vaccinators, creep guard and other

by KVK technical assistant in person then and there. Also bankable project was prepared for him to get credit in bank for Rs.30.0 lakhs.

The above interventions, Mr. P.Satishkumar persuaded to adopt feeding and disease management to his dairy animals which found expedient compared to his earlier feeding and disease management, two farm visits were made to enrich the farmer's knowledge in feeding and disease management. Extension literatures were distributed, consultancy was given through phone and office calls regularly to make the farm successful.

Results

By the KVK interventions, Mr. P.Satishkumar was fully equipped to manage the nutrition and feeding management of his farm and this was reflected in his farm performance.

Productivity and Economic returns of scientific management in white pig rearing

S.No	Performance indicator	Before KVK intervention	After KVK intervention
1	No of animals	50 animals	500 animals Over three years
2	Concentrate feeding	No	Yes
3	No of young ones	4-6	8-10
4	Birth weight of young one	0.8 kg	1.3-1.5 kg
5.	Weight of market age @ 8 months	55-60	75-80
6	Vaccination for Swine influenza and FMD	No	Yes. Yearly once.
7	Mortality experienced in young ones by using creep guard	40%	Nil
8	Mortality experienced in adults	10%	Nil
9	Contacts for marketing created	Nil	Acquired contacts for marketing
9	Annual income	Expenditure and revenue was equal.	Rs 2.0 lakhs per month and Rs 24.0 lakhs per annum

Extension aspects and brief outcome

KVK, Namakkal conducted various activities to equip knowledge on white pig rearing to Mr.P.Satishkumar. Now he is a successful entrepreneur and giving guidelines to other farmers to start white pig farming. At present his Annual net profit is around Rs 24 lakhs per annum.

Outcome

By seeing success of Mr.P. Satishkumar another twofarmers (Mr. Jagadesh, Mallur and Mr.Sankaran)were started the swine farm in Namakkal district.

Impact

Scientific swine farming will arouse interest of many farmers to start the enterprise in this district.

15. B. Give details of innovative methodology or innovative technology of Transfer of Technology developed and used during the year

Many blocks of Namakkal district is drought prone area and get sufficient income from crop cultivation is very difficult due to uncertainty of rainfall during crop growth period. Farmers getting additional income from dairy farming to met out the crop cultivation expenses. Most of the dairy farmers have cultivating green fodder in a small area for their fodder requirement. Similarly But the gap in availability of quality vegetable seeds/ Planting materials is still wide open. An attempt has been made by KVK, Namakkal to encourage Livestock/Agricultural farmers to produce quality fodder seeds and buy back arrangement has been made from farmers, which will be tested for quality and supplied to needy farmers/departments through KVK under PUBLIC PRIVATE PARTNERSHIP MODE (PPP Mode).

S.No	Methodology	Total qty of Seed / Planting material supplied	Amount realised (Rs.)	No. of farmers signed MOU
1.	Public Private Partnership mode in Fodder seeds	Fodder seeds (Fodder Sorghum. CoFS 29, CO31,Hedge lucerne,Fodder Cowpea, Subabul,Agathi, Fodder maize-African tall, Lucerne, Cenchrus, stylosanthus seeds) – 30255 kgs	1,23,98207.00	67

15. C. Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development - Nil

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

16. IMPACT

16.A. 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./Unit)	After (Rs./Unit)
Short duration & YMV resistant pulses varieties (Green gram – CO8 & Black gram – VBN 8)	1880	46	36120/ha	49200/ha

Drought tolerant Groundnut varieties CO6,CO.7,GJG-9, TCGS-1073	825	39	60815/ha	87407/ha
Fodder cultivation & seed production	212	26	62000/ha	125500/ha
Hybrid Tomato cultivation	173	22	28000/0.4 ha	45000/0.4 ha
Seed propagated small onion/Aggregatum onion var.Co(On)5	264	30	60000/0.4 ha	82000/0.4 ha
Jasmine	87	5	43000/0.4 ha	70000/0.4 ha
Scientific desi chicken rearing	20	95	6000	20000
Jasmine	87	5	43000/0.4 ha	70000/0.4 ha
Foliar application of cotton plus in cotton with ICM	19	23	Rs.78000/ha	Rs.83000/ha
Foliar application of Arka microbial consortia in Pome Granate with ICM practice	2	-		
Soil test based fertilizer application in sugarcane with ICM practice	25	34	Rs.87,000/ha	Rs.96,000/ha
Foliar application of IIHR formulated banana booster with ICM practice	48	34	Rs.86,000/ha	Rs.1,25,000/ha

16.B. Cases of large scale adoption

1.DEMONSTRATION ON TECHNOLOGY PACKAGE ON GROUNDNUT CULTIVATION IN NAMAKKAL DISTRICT

Introduction

Groundnut (*Arachis hypogaea* L.) is a unique and important oilseed crop of Tamil Nadu. In Tamil Nadu, groundnut is cultivated in 3.39 lakh ha with a production of 7.85 lakh tonnes and productivity of 2751 kg ha⁻¹ (2012-13). The groundnut kernel is used mainly for edible oil and contains nearly half of the essential vitamins and one-third of the essential minerals. Hence, groundnut played an important role in nutritional security to the resource poor farmers. In addition, the haulms provided excellent fodder for livestock, cake obtained after oil extraction was used in animal feed and overall the crop acted as good source of biological nitrogen fixation. Groundnut is a important rainfed crop in both kharif and rabi season in Namakkal district. The district average was 845 kg/ha. With regards to area and production are 27450 ha, 23195 tonnes respectively (2015-16).

Problems

The majority of rainfed farmers cultivating groundnut in kharif and rabi season of every years. They have recorded very low yield due to continuous cultivation of traditional groundnut varieties, incidence of root rot diseases & wilt, non availability of high yielding varieties and non adoption of improved crop management practices viz., seed treatment with pseudomonas and rhizobium, recommended fertilizer application, gypsum application, proper weed management, foliar nutrition and integrated pest management. Finally farmers obtained low yield and less farm income.

Intervention

To introduce high yielding varieties (CO-7, GJG-9) and integrated crop management practices to increase the groundnut productivity in Namakkal district through cluster front line demonstration (CFLD) under National Mission on Oilseeds and Oilpalm (NMOOP) since 2016. KVK Namakkal were conducted Cluster front line demonstrations (CFLD) in area of 136 hectares of 340 selected farmer's fields. The demonstrations aimed to attain the higher groundnut pod yield, less cost of cultivation and higher net income. KVK Scientist imparted training programme on improved groundnut production technologies and demonstrated seed treatment with pseudomonas and rhizobium, foliar spray of groundnut rich and integrated pest and diseases management practices. The

critical inputs like seeds (CO-7 & GJG-9), Pseudomonas, Groundnut rich were provided to the farmers. KVK Agronomist facilitated in regular field visits, group discussions, farmer-scientist interaction and field days were conducted to enlighten the farmers about the benefits of the demonstrated technology. The yield was recorded and economics was worked out based on the current market price of inputs and produce.

Output

The farmers obtained higher groundnut pod yield who followed technology package module demonstrated by Krishi Vigyan Kendra, Namakkal during 2017-18. Introduced groundnut varieties produced on an average 1441 kg/ha in demonstration plots while 988 kg/ha in farmers practice. The yields were increase over farmers' practice 45 per cent. Groundnut variety (CO-7/GJG-9) were recorded more number of pods per plant (42 pods / plant), higher pod yield per acre, good withstand under drought condition and lesser incidence of root rot and wilt diseases compared to traditional groundnut variety (TMV-7) cultivation. This was possible because of the intensive capacity building programmes, demonstration and various extension activities by KVK scientists.

Table 1: Average growth and yield parameters and economics of groundnut variety (CO-7/ GJG-9) and integrated crop management practices adopted by farmers in Namakkal district during 2017-18

Parameters	Groundnut var. CO-7	Groundnut var. GJG-9	Groundnut Check (TMV-7)
Germination %	93.2	94.6	87.3
No. of pods / plant (No)	43	41	25
Root rot incidence (%)	3.2	2.8	9.1
Wilt	1.9	2.0	7.6
Pod Yield (kg/ha)	1458	1425	988
Percentage of yield increase	47.5	44.2	-
Gross cost (Rs./ha)	36910	36550	34630
Gross return (Rs./ha)	87480	85500	59280
Net return (Rs./ha)	50570	48950	24650
BCR	2.37	2.33	1.71

Outcome

The farmers got relatively higher net return in Groundnut i.e. Rs 49760/ha by adopting improved production technology of Groundnut and high yielding varieties than the Rs. 24650 per ha by using traditional variety and technology in past years and this is at near two time fold from local practice return. The Net Return was 101 per more recorded in case CFLD demonstration fields. The benefit cost ratio was recorded higher 2.35 in adopting improved practices than the local practice 1.71.

Impact

Finally, it is concluded that the high yielding groundnut varieties and improved production technology in cluster approach was highly impacted on yield, socio-economic status of the farmers of Namakkal district. Many CFLD farmers produced groundnut seeds and return back to KVK for getting higher prices. Due to involvement of seed production by the farmers, latest high yielding varieties were spread to more number of unreached farmers in the. The high yielding and improved production technology in groundnut not only improve the socio-economic status, it is also recorded improvement in soil health and environment and increase the productivity of the land and make it available of dry fodder (haulm) to the their farm animals.

Table 2: Number of seed producing farmers involved in groundnut seed production along with improved production practices during 2016-18. in Namakkal district

Year	No. of farmers involved in seed production	Variety	Technology adopted
2015-16	23	CO-7/GJG-9	<ul style="list-style-type: none"> • Seed treatment with Pseudomonas & Rhizobium, • Foliar spray of Grounndut Rich, • IPDM practices
2016-17	35	CO-7/GJG-9	
2017-18	48	CO-7/GJG-9	
2018-19	19*	CO-7/GJG-9	

*Kharif season only. Rabi season details will be included after sowing.

2. ROLE OF KRISHI VIGYAN KENDRA IN BLACK GRAM CULTIVATION IN NAMAKKAL DISTRICT

Intervention

To popularize latest black gram variety (VBN-6) along with integrated crop management practices, KVK Namakkal conducted Cluster front line demonstrations (CFLD) were conducted in area of 82 hectares of 205 selected farmer's fields. The critical inputs like seeds, bio agents for seed treatment, pulse wonder and need based pesticides were provided to the farmers. The recent black gram variety (VBN-6) along with local check variety (T-9) was demonstrated in an area of 0.4 ha for comparison in 205 farmers fields. KVK Namakkal also conducted on and off campus training programmes on improved black gram production technology such as seed treatment with bioagents like rhizobium, trichoderma, PSB and pulse wonder spray at flowering and pod initiation stage. KVK Agronomist facilitated in performing the field operations like seed treatment, sowing, manuring, weeding, spraying, harvesting and post harvest handling activities. During the crop production pre-season meetings, regular field visits, training programmes, group discussions, farmer-scientist interaction and field days were conducted to enlighten the farmers about the benefits of the demonstrated technology. The yield was recorded and economics was worked out based on the current market price of inputs and produce.

Achievements

The latest black gram variety (VBN-6) variety, moderately resistant to yellow mosaic virus, stem necrosis and moderately resistant to root rot led to higher grain yield (814 kg/ha), lower cost of cultivation (Rs.19050/ha) resulting to higher net returns (Rs.29790/ha) as compared to local varieties. On the contrary the local variety of black gram i.e. T-9 was susceptible to yellow Mosaic Virus (YMV), long duration and other sucking pests and for control of these pests and diseases farmers used more pesticides. This was possible because of the intensive capacity building programmes, demonstration and various extension activities by KVK scientists.

Table 1: Average growth and yield parameters and economics black gram variety and integrated crop management practices adopted by farmers in Namakkal district during 2018-19

Parameters	Black gram var. VBN-6	T-9 (Check)
Germination %	95.2	93.2
No. of pods / plant (No)	62.0	45.2
YMV incidence (%)	1.8	6.2

Grain Yield (Q/ha)	8.14	6.05
Percentage of yield increase	34.5 %	-
Gross cost (Rs./ha)	19050	18400
Gross return (Rs./ac)	48840	36300
Net return (Rs./ac)	29790	17900
BCR	2.56	1.97

Outcome

The latest black gram variety (VBN-6) being a short duration variety and integrated crop management practices, helped the farmers to cultivate even in kharif and rabi season and which in turn helped in improving the economy of the farming community. Under NFSM, KVK, Namakkal undertook cluster FLD demonstration in every year in area of 30 hectares area and by-back arrangement was made with Salem KVK seed hub programme and Department of Agriculture for seed procurement. By popularizing these technologies, additional area is being achieved under black gram cultivation and more number of farmers doing seed production in Namakkal district.

Table 2: Number of seed producing farmers involved in black gram variety VBN-6 along with integrated crop management practices during 2016-19 in Namakkal district

Year	No. of farmers involved in seed production	Variety	Technology adopted
2016-17	36	VBN-6	Seed treatment with <i>Pseudomonas</i> & <i>Rhizobium</i> , Foliar spray of Pulse wonder, IPDM practices (Neem oil, yellow sticky trap and etc)
2017-18	58		
2018-19	76		

Table 3: Share of Black gram (VBN-6) variety to the total area and productivity of black gram in Namakkal district

Year	Area under Black gram (ha)	Area of Black gram variety VBN-6 (ha)	Productivity of black gram before intervention (kg/ha)	Productivity of black gram After intervention (kg/ha)
2015-16	1345	242.1	520	766
2016-17	1410	338.4	520	620
2017-18	3276	1015.5	520	763
2018-19	3577	1251.9	520	814

Conclusion

The adoption of recent green gram variety (VBN-6) along with integrated crop management through intervention of Krishi Vigyan Kendra, Namakkal in cluster approach enhanced the productivity leading to sustainable income.

3. TECHNOLOGY PACKAGE DEMONSTRATED ON FLOWER CROPS CULTIVATION IN NAMAKKAL DISTRICT

Introduction

Floriculture has emerged as an alternative source of livelihood for small and marginal farmers. Floriculture was adopted because of various advantages associated with it, such as limited (or less) seed capital requirement since it is a small-scale cultivation, generated faster income compared to other farming, and easy management, not to forget the permanent income opportunity from selling the flowers. The area under flower crops in Namakkal District is 375 ha with a production of 1750.32 MT /year. The major flower crops being cultivated in this District are Jasmine, Tuberose, Marigold, Rose, Neerium, Chrysanthemum, Celosia, Ixora and Taberna. Among the 15 blocks in Namakkal District, Erumapatti, Rasipuram, Namagiripettai, Mohanur and Sendamangalam are the major flower producing blocks.

Shift to floral crops

Tapioca is the major tuber crops cultivated in Namakkal District in an area of 15260 ha during 2006. Due to severe reduction of price in tapioca tuber @ 4800-5000/tonne and also long crop duration (10 months), monopoly in the marketing system and minimum net profit (Rs.32000/0.4 ha in 10 months) led to gradual reduction of area under tapioca cultivation from 15260 ha to 7400 ha in 2010 – 2011 & 6000 ha in 2015 -16.

Moreover less arrival of flowers from Namakkal due to minimum area of flower crops cultivation and low production creates more demand for flowers in the Namakkal market. Since 2008, most of the flowers such as Jasmine, Tuberose, Chrysanthemum, Marigold and Rose arrived from neighbouring districts viz., Salem, Dindigul, Trichy and Dharmapuri to Namakkal district for garland making.

Hence 20 % of the horticultural farmers converted from tapioca farming to flower cultivation. Because of its short duration, daily income and market preference.

Technology interventions by KVK

1. Tuberose- *Polianthes tuberosa*

Problems

Tuberose, one of the important flower crop in Namakkal district of Tamil Nadu, cultivated in an area of 135 ha with a productivity of 4.2 tonnes / ha. Majority of the farmers cultivated Boomudi local variety of tuberose, which is a low yielder.

Interventions

KVK, Namakkal conducted Front Line Demonstration (FLD) in 20 farmer's field in an area of 2 ha at Valyapatti to assess the performance of high yielding tuberose cv. Prajwal with integrated crop management practices.

Result

The results of the experiment revealed that Tuberose cv. 'Prajwal' performed best in certain parameters including days to sprouting of bulb (7.80), bulblet weight at planting (47.8 g), number of bulblets per clump (20.81), plant height (107.24 cm) number of leaves per plant (208.13), days to spike emergence (86.2), flowering duration (15.6), spike length (83.12 cm), rachis length (28.91 cm), number of florets per spike (51.2), length of the floret (6.20 cm), weight of florets per spike (73.55 g), number of spikes/m² (52 nos), yield of florets per plot (size 2 x 2 m – 4.45 kg), enhanced flower yield of 11.3 tonnes/ha and highest net income of Rs.2,32,000/- with a benefit cost ratio of 2:1 when compared to Tuberose variety Boomudi local.

Achievement

- All the farmers practiced tuberose cultivation opined that tuberose cv.Prajwal cultivation is more profitable and flower merchants from local markets make arrangements for the daily procurement.
- The price fluctuation is heavy and it ranges from Rs. 40 /- to Rs.100/- per kg depending upon the production and market demand. This gives daily income for about nine months a year and in addition to effective utilization of time and resources.

By seeing the success of this technology 76 number of farmers in the same village and adjoining villages of N.Pudhupatti, Vadugapatti, Aniyapuram, Paramathi, Rasipuram, Sendamangalam and Mekkalanayakanpatti are cultivating Tuberose cv.Prajwal in an area of 132 acres.

2.Jasmine - *Jasminum sambac*

Problems

In Vadavathur & Jambumadai village, small onion is the major vegetable crop cultivated as an annual crop in more than 400 acres and it is the only source of income. In scarce rainfall situations in NICRA village of Vadavathur and Jambumadaipractice of sole cropping is predominant but it is risky and often results in low yields or sometimes even in crop failure due to erratic monsoon rainfall and skewed distribution. To alleviate these problems in such areas of drought villages of Namakkal district crop diversification with perennial crop is a feasible option to minimize risk in crop production, ensure reasonable returns with limited care.

Interventions

Additional crop of onion with Jasmine is more profitable and is a key drought coping strategy especially for small and marginal farmers. Hence jasmine (20 cent) + small onion (80 cent) cultivation model is demonstrated in crop component mode in NICRA village instead of cultivating small onion as a sole crop in an area of 1 acre/ 0.4 ha.

During 2011 and 2012, KVK,Namakkal has supplied 20,000 number of three months old rooted cuttings of jasmine variety Ramanathapuram Gundu malligai to fourteen number of farmers covering in an area of 5 acres as a sustainable livelihood income generating activity to mitigate drought and poverty.

Result

In Vadavathur village, Jasmine plants started flowering at 4 months after planting. But commercial flowering was started two years after planting. From second year onwards, beneficiaries harvested an average of 100 grams of unopened flower buds / plant for a period of seven months.

Each flower cluster consisted of nine buds with 2.8 – 3 cm of bud length, 1.1 – 1.3 cm of diameter and 50 grams of flower contained 160 flower buds. The peak flowering season was April – June and lean period was October to January.

The farmers involved in jasmine cultivation sold the flowers at flower auction centre located in Namakkal flower market. The flower merchants maintained individual account for each farmer and wherein the quantity of flower sold, price prevailed in the market and commission towards transport and local middle man for carrying flowers from bus stand to auction centre are recorded.

The flower rates in the market varied daily on the basis of demand and supply. The farmers were paid on a monthly basis after deducting the expenditure incurred on marketing. Each member spent 10 % of the sale price towards transport and marketing. The price of one kg flower bud of

Jasminum Sambac ranged between Rs.100 – 300/- till July. Thereafter, the price of one kg of Jasmine flower fetched around Rs.700. It touched Rs.2000/- per kg during October end – January.

For the past seven years, the farmers earned more than Rs.40,000/- from selling jasmine flower per year. Not only this money helped to improve the quality of life, education and health of the farm family but also helped them build their asset base by repairing of their house / vehicles.

When comparing water requirement, in jasmine irrigation is given only during summer (February) and peak flowering period (March – August). Though it is a perennial crop, irrigation is required for only 7 months period viz., February to August at 5 cm depth under flood irrigation.

Totally 21 irrigations in 7 months @ 10 days interval or 3 irrigation per month is needed for economic harvest of jasmine flower buds. Since it is a drought tolerant crop, remaining months (September to January), sufficient water met from rainfall. 840000litre of water is irrigated to jasmine from 21 number irrigation in an area of 20 cent in 7 months period.

Whereas in small onion, irrigation is given at same depth of 5 cm under flood irrigation with a crop duration of 3 months. Totally 16 number of irrigation is required @ 5 days interval. So 25,60,000 litre of water is supplied from 16 irrigations to small onion. For 2 crops in a year, totally 51, 20,000 litre of water is required in an area of 80 cent.

Table 1: Jasmine Flower yield/20 cent from July 2012- May 2017

Year	Month	Flower yield (Kgs)	Sales amount (Rs)	Debit amount (Bus fare @10 % in total sales amount (Rs.))	Net sales amount (Rs.)
2012	July 12 – Oct 12 Total	23.9	4561	456	4105
2013	Jan 13 – Nov 13 Total	296.05	46272	4627	41645
2014	Jan 14 – Nov 14 Total	420.1	64195	6419	57776
2015	Jan 15 – Nov 15 Total	545.6	81750	8175	73575
2016	Jan 16 – Nov 16 Total	505.2	101040	10104	90936
2017	Jan 17 – Nov 17	520.6	104120	10412	93708
2018	Jan 17 – Nov 18	618.2	123640	12364	111276
	Grand Total	2929.65	525578	52557	473021

Achievement

14 number of farmers benefitted under NICRA scheme. By seeing the success of this technology 56 number of farmers in the same village and adjoining villages of Vadugapatti, N.Pudhupatti, Vazhavanthi and Mekkalnayakanpatti upscaled the Jasmine cultivation in an area of 40ha.

3. Marigold - *Tagetes erecta*

Problem

Marigold is an annual flower crop. In Namakkal District, it is cultivated in Mohanur, Paramathi, Erumapatti, Namagiripettai and Rasipuram blocks in an area of 42 ha with a productivity of 6

tonnes/acre. The major problem faced by farmers in marigold cultivation is occurrence of male flower bud, low yield & low blooming period.

Interventions

KVK, Namakkal conducted Front Line Demonstration (FLD) in 10 farmer's field at Puliampatti, Aniyapuram and Tholur villages in Mohanur block of Namakkal District in an area of 0.4 ha to rectify the above mentioned problems.

Result

- Marigold cv.Arka Alankara came to flowering 40 days after transplanting and continues to flowering for next 65 days. Flowers are medium in size with 6.8 – 7.5 cm diameter and 6.7 – 10.4 cm of stalk length.
- Every day 50 - 70 kg of flowers harvested from 1000 plants in 20 cent area and sold at the rate of Rs.20/Kg. When compared to other varieties and private hybrids, it yielded 10 tonnes of flowers per acre in 4 months crop duration.
- Single plant produced 48 to 65 flowers in good condition. The farmers got net income of Rs.1, 20,000 with a benefit cost ratio of 2.5: 1.0.

Achievement

The area under marigold cultivation is extended from 42 ha to 64 ha in last 2 years.

Other interventions

Under PPP mode KVK, Namakkal supplied planting materials of flower crops & ornamental plants. Mainly Jasmine, Tuberose, Neerium, Taberna and Ixora. Farmers regularly booking planting material for cultivation. Among the planting material of flower crops Jasmine (15595 numbers) and Tuberose (307 Kg), Neerium occupied the major sales from 2011 to till date. So far 157 number of farmers benefitted and cultivated in an area of 7 acres.

Table.2. Sale of planting materials of flower crops under PPP mode

S.No	Name of the planting material	Variety	Number sold	Amount realized (Rs.)
1.	Rose	Miniature rose, Andhra Red rose	762	38100.00
2.	Jasmine	Ramanathapuram	15595	187140.00
3.	Hibiscus	Hybrid	209	6970.00
4.	Neerium	Red, Pink, White	2623	52460.00
5.	Taberna	Single, Double	519	25950.00
6.	Ixora	Red, Orange	402	18185.00
7.	Tuberose	Prajwal	307 kg	9629.00
8.	Shenbagham	Sandal	395	39500.00
9.	Parijatham	-	100	5000.00
	Total	20605 Nos / 307 Kg		382934.00

In addition to FLD and OFT programmes, regular field visits, diagnostic visits and advisory services were made by KVK, Namakkal to flower growers relevant to variety, cultivation aspects, management of micronutrient deficiency symptoms and IPDM practices.

2018 -2019 activities

This year we had taken up FLD on ICM practices in Chrysanthemum var.Co1 in an area of 1 ha in 7 farmers' field in Mohanur block. Flowering started 4 months after planting. 30 kg of flowers harvested from 40 cent area/ day and sold @ Rs.60-80/kg. Totally 1000kg harvested from 40 cent area and got the net profit of Rs.58,900/-

Conclusion

20 % of farmers in Namakkal District cultivating Jasmine, Marigold, Tuberose / Neerium as a daily income source in an area of 25 cent to 50 cent throughout the year under the guidance of KVK, Namakkal through demonstrations, field visits and advisory services since 2008. The farmers directly sell flowers at Namakkal and Karur markets. The Area under flower crops in Namakkal District increased from 112 ha to 375 ha in the last 10 years since floriculture fetch more income to the farmers. Hence the present study revealed that the interventions made by KVK, Namakkal on flower crops cultivation have empowered farmers of Namakkal District, through technological literacy as well as income generation.

4. DEMONSTRATION ON TECHNOLOGY PACKAGE FOR SUGARCANE TRASH MULCHING IN RATOON SUGARCANE WITH INTEGRATED MANAGEMENT PRACTICE FOR NAMAKKAL DISTRICT

Introduction

The global demand for sugar is the primary driver of sugarcane agriculture. Cane accounts for 80% of sugar produced; most of the rest is made from sugar beets. Sugarcane (*Saccharum officinarum*.) is an important sugar crop of Tamil Nadu also. In Namakkal district it cultivated to an extent of 11852 ha with an annual production of 9481600 quintal and productivity of 800 q/ha. Sugarcane produces about 10 to 12 tonnes of dry leaves per hectare per crop and accounts 50-60% at the time of harvest. The detrashing is done on 5th and 7th month during its growth period. This trash contains 28.6%-organic carbon, 0.35 to 0.42% nitrogen, 0.04 to 0.15% phosphorus, 0.50 to 0.42% potassium. The sugarcane trash incorporation in the soil influences physical, chemical and biological properties of the soil. There is a reduction in soil EC, improvement in the water holding capacity, better soil aggregation and thereby improves porosity in the soil. Sugarcane trash incorporation reduces the bulk density of the soil and there is an increase in infiltration rate and decrease in penetration resistance. The direct incorporation of chopped trash increases the availability of nutrients leading to improvement in soil fertility.

Problems

Now-a-days shortage of agricultural labour is most promising problem in Indian Agriculture especially at monsoon period. Hence farmers are reluctant to incorporate the residues in the field and they have done field cleaning by burning. Then they allow the field for reestablishment of ratoon sugarcane. Due to continuous burning, environment got polluted slowly, soil lost its nutrients through volatilization process and caused death of beneficial microorganisms in the burned field which ultimately lead to the deterioration in soil fertility. Continuous cultivation and imbalanced fertilizer application also associated with deficient in most of nutrients in soil. As per soil test values, soil was deficient in organic carbon (78%), nitrogen (71%), zinc (86%) and boron (29.5) & sulphur (18.6%).

Intervention

To keep above points in view, front line demonstration (FLD) was in Kokkarayanpettai village of Namakkal district in area of 15 acres (6 ha) in 15 farmer's fields. The following interventions were included with ICM practice

- ❖ Insitu mulching of trashes with biomineralizer – shredding of trashes followed by biominerlizer application (2kg TNAU biominerlizer recommended for 1 tonne of waste)
- ❖ Soil test based fertilizer application - Biofertilizers, inorganic fertilizers
- ❖ Enriched sugarcane micronutrient application
- ❖ Foliar spraying of sugarcane booster – 1, 1.5 & 2 kg for 45, 60 & 75 days after planting
- ❖ Integrated crop management practice

Output

The insitu incorporation of trashes followed by biomineralizer application with ICM practice recorded the highest cane yield of 57.61 t/ha and net income of Rs. 76,931/ha with BC ratio of 2.06. The cane yield increase in demo plot was recorded 15.77% than farmers practice. Similarly organic carbon content was improved from 0.31 % to 0.67 % in demo plot after 3 months of trash decomposition. TNAU biominerlizer decomposed the trashes with in 3 months and supplied the nutrients to ratoon crop. Hence farmers need not apply organic manure for next crop, saved up to Rs.13,333/-, controlling weeds and reduced frequent irrigation during initial phase.

Outcome

- ❖ The success of this technology being popularized in KVK routine trainings (3 nos.), regular advisories (123 nos), farmers group meetings (3 nos.), extension functionaries programme (2 nos.) and plant residue composting campaign (2 nos.).
- ❖ Different methods of composting pit (pit method with aeration and pit method without aeration) was established in KVK farm. By seeing the results, farmers voluntarily came forward and started using TNAU biominerlizer (22 kg) and NCOF waste decomposer (49 litres) from KVK, Namakkal.
- ❖ Sugarcane booster and sugarcane micronutrient mixture usage also increased among the farmers. 180 kg of above items utilized by 18 farmers from 2018 in Namakkal district.
- ❖ Farmers could save 30% of unnecessary fertilizers while adopting Soil test based fertilizer of biofertilizers, major and micro nutrients. Hence they could save Rs. 7500/- per ha per time of application.
- ❖ Weeds growth and moisture loss also be reduced. One time irrigation could be saved while giving irrigation at 15 days intervals instead of weekly.

Table 1: Yield and economics of sugarcane

Parameters	Biomineralizer application (Demo)	Farmers practice (Check)
Organic carbon content (%) – Initial soil	0.31	0.31
Organic carbon content (%) – 90 Days after trash composting	0.67	0.40
Grain yield (t/ha)	57.61	49.76
Per cent increase over check	15.77	-
Gross return (Rs./ha)	149784	129376
Gross cost (Rs./ha)	72853	86186
Net returns (Rs./ha)	76931	43190

B:C Ratio	2.06	1.50
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5. DEMONSTRATION OF TECHNOLOGY ON ROLE OF BANANA BOOSTER IN INCREASING YIELD OF BANANA

Introduction

Banana is one of the most important fruit & cash crops in Tamil Nadu as well in Namakkal district. It is cultivated to an extent of 1525.5 ha in Namakkal with a total production of 488174 q/ha and productivity of 320 q/ha. It is mostly cultivated in Mohanur, Namagiripettai, Thriuchengode, Sendamangalam, and Kollihills blocks of Namakkal. Poovan, Rasthali, Karpoora vazhai, Monthan, Red banana and Namaran are the varieties 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, Namakkal soil is deficient in Organic carbon (78%), Nitrogen (71%), Zinc (86%) and Boron (29.5) & Sulphur (18.6%). Flower drops, fruit cracking, pest & disease occurrence and poor withstanding capacity under drought condition might be associated with nutrient deficiency and thus leads to 18-25 % reduction in yield of crops.

Intervention

To address the above problems, KVK, Namakkal has conducted Front Line Demonstration (FLD) in 10 farmer's field in an area of 4 ha at Ganganaickenpatti & Sevitturanganpatti villages of Mohanur block with Poovan banana variety. The following interventions were included with ICM practice

- ❖ Soil application of biofertilizers & biocontrol agents.
- ❖ Soil test based macro nutrient application
- ❖ Foliar spraying of IIHR banana booster from 3 month after planting upto fruit stage with 1 month intervals
- ❖ Need based plant protection measures

Result

The FLD results revealed that Foliar spraying IIHR formulated banana booster with ICM practices recorded highest number of hands/bunch (10.35), bunch weight (25.5 kg) and yield of 34.72 t/ha. Its proved its superiority by recording 20% yield increase over check and having highest net income of Rs.2,20,184/- with a benefit cost ratio of 2.65 when compared to farmers practice having net income of Rs.1,12,857/- with a benefit cost ratio of 1.87.

Output

- ❖ After completing FLD trails, farmers opined that foliar application of IIHR formulated Banana booster with ICM practices improved the size of single fruit in the bunch, number of hands per bunch and over all bunch weight. Hence farmers fetched more price on an average of Rs. 75 /- per bunch. Near by farmers also adopted this technology by seeing the practice of FLD farmers. Beneficiaries & neighboring farmers started to purchase banana booster themselves in KVK, Namakkal.
- ❖ So far, 168 kg of boosters from KVK, Namakkal purchased by 72 farmers by themselves from various blocks of Namakkal district.

Out come

- ❖ The technology more viable in increasing the yield of banana 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 1. Yield 7 economics of banana

Parameters	Demo	check
No. of hands/bunch	10.35	9.24
Bunch weight (g)	25.5	23.94
Yield (t/ha)	34.72	29.06
Gross income (Rs./ha)	353249	243232
Cost of cultivation (Rs./ha)	133065	130375
Net profit (Rs/ha)	220184	112857
B:C ratio	2.65	1.87

6. USE OF MASTIGAURD IN CLEAN MILK PRODUCTION AND REDUCTION IN MASTITIS INCIDENCE PREAMBLE

Introduction

In Namakkal district, the cattle and Buffalo population as per 19th livestock census is 220700,107830 respectively and mainly small and marginal farmers possess more than 50 % of the cattle population. The farming system is of Semi intensive system representing mixed crop–livestock farming. As cattle and buffalo are the preponderant and the most interactive species, subsisting on crop residues and contributing milk, meat, draft power and farmyard manure. Mostly the farmers' rear crossbred Jersey and HF animal for higher milk production. Annual milk production in Namakkal during 2018-19 was 152.93 million litres and more than 80% of milk marketed through organized sector.

Mastitis is a multi-etiological and complex disease with inflammation of parenchyma of mammary glands. It is characterized by physical, chemical and, usually, bacteriological changes in milk, and pathological changes in glandular tissues. The occurrence of disease is an outcome of interplay between three major factors: infectious agents, host resistance, and environmental factors. Mastitis is a global problem as it adversely affects animal health, quality of milk and the economics of milk production, and causes huge financial losses. The affected cows lose fifteen percent of production potential and affected quarter loses up to thirty percent milk producing capacity. In addition, bacterial contamination of milk render it unfit for human consumption and provide a mechanism of spread of diseases like tuberculosis, sore-throat, brucellosis, leptospirosis etc. and has zoonotic importance.

Sub - clinical infections are those for which no visible changes occur in the appearance of milk or the udder, but milk production decreases, somatic cell count increases, pathogens are present in the secretion and the milk composition is altered. The prevalence of sub - clinical mastitis has been shown to be 15 to 40 times more than the clinical mastitis and it forms the basis of herd outbreaks. As no gross abnormality in milk and udder is noticed, sub - clinical mastitis goes unnoticed by the farmers. Therefore, sub-clinical mastitis is considered more important due to negative impact on the economy. Somatic cells are indicators of both resistance and susceptibility of cows to mastitis and can be used to monitor the level or occurrence of sub - clinical mastitis in herds or individual cows. Somatic cell count is a useful predictor of intramammary infection and therefore, an important component of milk assessment in terms of quality, hygiene and mastitis control

Efforts of Krishi Vigyan Kendra, Namakkal in sustainable clean milk production

Krishi Vigyan Kendra, Namakkal, had conducted several on and off campus training, skill training, On Farm Trails, Front Line Demonstrations and FFS on use of mastiguard in clean milk production. Video on clean milk production was prepared and released to farmers benefit.

Current Scenario of mastitis management in Namakkal district

In farmers practice, the farmers were not adopted any measure to prevent mastitis and the somatic cell count of milk was in higher side (> 4.5-5.0 lakhs) and if the animal went under stress (which may be of physiological, environmental etc., immediately resulted in somatic cell count beyond the threshold value (>5,00,000) and mastitis occurrence (25-30%) was noticed. The milk production during mastitis was reduced to 8ltr/day and treatment cost also added in the production cost. In addition additional labour of one man day was needed for total treatment period of regime.

Performance of mastigaurd in field condition

<i>Performance indicators</i>	<i>Farmers practice</i>	<i>Use of Mastiguard</i>
<i>Milk yield (Lt/d)</i>	8.0	10.5
<i>Mastitis incidence</i>	40%	Nil
<i>Net returns (Rs/animal)</i>	400	1260

In Mastiguard usage, the somatic cell count was very low (<50,000) and mastitis occurrence was nil. Additional average milk production of .75 ltr was also recorded as teat protect anti septic spray after milking closed the teat pores prevent excess calf feeding. Even the animal with prior history of seasonal mastitis occurrence also have the lower somatic cell (<.5 lakh) with healthy udder.

Conclusion

The farmers advised to use Mastiguard/teat protect to spray over the udder opening after milking twice a day and through washing of udder with clean water before milking. In addition they were taught to use TANU check SCC kit to identify the sub clinical mastitis from pooled milk sample immediately after milking by assessing somatic cell count.

7. INTRODUCTION OF SHRIMP CULTURE IN LOW SALINE WATER AREAS OF NAMAKKAL DISTRICT

Introduction

Shrimp farming has grown a traditional, small-scale business In India extensive production systems of shrimp culture is more profitable (Leung & Engle 2006) than the other culture systems. Technological advances have led to growing shrimp at even higher densities. Almost all the farmed shrimp are penaeid group of the family Penaeidae and only two shrimp species tiger shrimp *Penaeusmonodon* and Pacific white shrimp *Litopenneausvannamei* occupied more than 90% of the farmed shrimp production. Krishnan and Birthal (2002) have also explained that due to the demand and growth of coastal aqua culture in India, it also has been quite a promising sector for accelerating the exports and improving the foreign exchange. The shrimp has been introduced and farmed in Asia since the mid 1990s, (Balakrishnan et al, 2011). Development of shrimp farming is an important activity in coastal waters of Andhra Pradesh in India. The shrimp production has grown at phenomenal rate during the year 1992-1994 and later started decreasing due to outbreak of diseases. The rapid growth of shrimp farming led to an economic boom but, the out break of viral diseases has increased the economic risks and slowed the industry development (Flegel, 2006). The Marine Products Export Development Authority (MPEDA) in association with Network of Aquaculture Centres for Asia- Pacific (NACA) has started a programme in Mogalthur, West Godavri district in 2002 which helped the farmers to adopt Better Management Practices (BMPs) for disease control and

sustainable farming. The programme was successful in organising the small scale farmers into self-help groups for adoptions of BMPs. freshwater prawn farming in India developed in 1999 due to sudden surge in demand and in response to the decline in marine shrimp production caused by White Spot Syndrome Virus and the Supreme Court judgement on coastal regulation zones (CRZ) (Mohanakumaran Nair and Salin, 2006).

Study Area

The geographical area of the Namakkal district is of about 3363sq.km. It lies between 11°13'8.4" North latitudes and 78°10'1.2" East longitudes. Namakkal district is surrounded by Salem and Trichy on the eastern side, Erode on western side, Salem on northern side, Karur on southern side. The northern sides of the Namakkal district are mountains and the southern sides are plain areas.

Problems

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district. Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in Bay of Bengal. The southwest monsoon rainfall is highly erratic and summer rains are negligible.

The ground water is suitable for drinking and domestic uses in respect of all the constituents. The total Hardness as CaCO₃ as well as nitrate is observed to be in excess of permissible limits in about 66 and 86 percent of samples analysed. Fluoride in excess of the drinking water limit of 1.5 mg/l is observed in 30 percent of the samples. In about 14 percent of the samples sulphates was in excess of the drinking water limit of 400 mg/l. The incidence of high total hardness and fluoride is attributed to the composition of lithounits constituting the aquifers in the district, whereas the nitrate pollution is most likely due to the use of fertilizers and other improper waste disposal. Excess of fluoride is observed in places such as Venandur, Udaiyarpalayam, Talamabadi, V.G.Patti and Mohanur.

The ground water in the phreatic zone may cause high to very high salinity hazard and medium to high alkali hazard when used for irrigation. Proper soil management strategies are to be adopted in the major part of the district while ground water for irrigation. So this water suitable for shrimp culture.

Intervention

The present study was conducted in low saline waters of one culture ponds over a period of 90 days. The ponds were stocked with Post larvae (PL) 10 at rate of 40 nos. per m² in 1 ha pond. The post larvae were acclimatized to respective low salinity before stocking. Initially, the inland low pond waters were treated with Lime stone and Magnesium Sulphate / Magnesium chloride, to increase the concentration of Mg and Ca in waters at 1:1.5, 1:2 ratio.

The performance and nutrient retention of the shrimp were evaluated in terms of the following parameters:

Survival (%) = (Shrimp initial number – Dead shrimp number)/shrimp initial number × 100

Weight gain (g) (WG) = Final weight (g) – Initial weight (g)

Specific growth rate (%) (SGR) = 100 * (ln final weight (g) – ln initial weight (g))/days of experiment

Feed conversion ratio (FCR) = Feed intake (dry matter) (g)/Weight gain (g)

Outcome:

The farmers got relatively higher net return in vannamei shrimp culture i.e. Rs.11 lakhs /ha by low saline semi-intensive pond culture technique of shrimp in 90 days duration than the Rs.14208 per ha by raising traditional fish culture in ten months duration in the past years and this farmer to be nearly 8 to 10 timesfold higher yielding return. The benefit cost ratio was recorded as 1.41 in adopting improved practices than the local practice at 1.14.

Table 1. Growth attributes and Economics

Parameters	Demo	Local
No. of trails	2	1
ABW(gm)	22	780.5
% of Survival rate	64.73	80.4
Production(kg)	10734	1255
FCR	1.17	1.7
Gross Cost (Rs/ 1ha)	26,64,489.00	98746
Gross Return(Rs/1 ha)	37,67,346.00	112954
Net profit (Rs/ 1ha)	11,02,857.00	14208
B:C	1.41	1.14

Outcome

Last three years 5 training wer imparted to adopt shrimp farming in low saline water ares. Three farmers doing shrimp farming at Vennandur, Mallasamudram blocks of Namakkal district. Nearby farmers and advisry farmers are instructed to visit shrimp farming in above villages.

Impact:

The farmers of the namakkal district at for attending various FLD programmes on low saline semi intensive culture methods of shrimp held at KVK namakkal came forward to take up this new culture practice. Since higher reduce were obtained in less culture duration than the traditional fish culture methods, farmers slowed keen interest more over due to climate change with less rainfall occurring in this district in particulars the ground water also turning saline, the farmers adopted this alternate methods of culture for improving this economics standard.

16.C. Details of impact analysis of KVK activities carried out during the reporting period- Nil

17. LINKAGES

17.A. Functional linkage with different organizations

Name of organization	Nature of linkage
Tamil Nadu Agricultural University, Coimbatore	Technical guidance, Supply of seeds and planting materials, Exposure visit, Farmers day, plant growth booster & bio-fertilizers
Tamil Nadu Veterinary and Animal Science University	Technical guidance, Supply of Mineral mixture, Grama priya and Vana raja chicks, Namakkal chicken 1, Extension farm literatures both in print and CDs, Exposure visit.
Tamil Nadu Dr.J.Jayalalitha Fisheries University	Technical guidance, Supply of recent fish seeds and raceway culture technology
Indian Institute of Oilseeds Research, Hyderabad	Getting castor seeds for OFT programmes
Indian Institute of Horticulture Research, Bangalore	Purchase of vegetable seed and planting materials of flower crops.
CTCRI, Tiruvananthapuram	Technologies relevant to tuber crops and purchase of planting materials of tuber crops.
National Research Centre for Banana, Trichy	Technologies relevant to Banana production
Indian Institute of Spices Research, Calicut	Technologies relevant to spice crops and purchase of planting materials of spice crops
Central Institute of Brackish Aquaculture, Chennai	Technologies relevant to shrimp and cage culture and purchase of probiotics

Regional Agricultural Research Station, ANGRAU, Tirupati, Andhra Pradesh	Getting groundnut seeds for CFLD programmes
Regional Agricultural Research Station, KAU, Pattambi, Kerala	Getting paddy seeds for OFT programmes
Regional fodder station, Alamathy, Chennai	Getting fodder seeds for PPP Mode programme
HC& RI,TNAU,Coimbatore & Periyakulam	Purchase of vegetable seed and planting materials of fruit crops.
NFDB, Hyderabad	Sponsoring agency for training programmes
National Seeds Corporation, GOI, Trichy	Getting groundnut seeds for CFLD programmes
Translational Research Platform in Veterinary Biologicals(TRPVB),TANUVAS	Technical partner for purchase of Mastiguard
Department of Agriculture, Namakkal	Preparation of ATMA technical action plan, conducting farmers Training at village level, joint field visit on farmers field oriented problems, conducting field days, act as resource persons for ATMA trainings and farm schools.
Agricultural Technology Management Agency	Partner in capacity building Programme
National Innovation Foundation, DST, New Delhi	Technical partner and Knowledge Sharing in the field of EVM
Department of Horticulture,Namakkal District	Technical review and participation in programmes
NABARD,Chennai	Sponsoring agency for CAT programmes
MYRADA KVK,Erode	Supply of horticultural crop boosters
KVK,Tumakuru	Exposure visit – NICRA activities
Department of Forestry, Namakkal	Planting of tree sapling with convergence mode for promoting Agro Silvipasture Model.
Tamilnadu Fisheries Department,Krishnagiri, Nagapattinam and Mettur	Purchase of GIFT Tilapia, Carps seeds seeds & Training Technologies relevant to Fish and shrimp
Tamil Nadu Livestock Development Agency	Financial partner for dairy farmer orientation Programme
Department of Animal Husbandry	Joint implementation in livelihood programmes
Tamil Nadu Co-operative Milk Producers' Federation Limited (Aavin)	Partner in dairy farmer knowledge management

17.B. 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.)
NICRA Scheme	Since 2011 to till date	ICAR- CRIDA, Hyderabad	9,55,000.00
PPP Mode for Fodder seed production and supply	Since 2010 to till date	TANUVAS Self financing project	Self financing
PPP mode of horticultural planting material production and supply	Since 2011 to till date	TANUVAS Self financing project	Self financing
Cluster FLD on Pulses	June, 2018	NFSM through ICAR-ATARI, Hyderand	7,80,000,00
Cluster FLD on Oilseeds	June, 2018	NMOOP through ICAR-ATARI, Hyderand	6,00,000.00

18. Revolving fund status of KVK, Namakkal

Schemes	Opening balance as on 01.04.2018 (Rs.)	Receipts during 2018-19 (Rs.)	Expenditure incurred during 2018-19 (Rs.)	Closing balance as on 31.03.2019 (Rs.)
Revolving Fund	6,48,570	44,56,509	35,71,349	15,33,730
PPP fodder seed scheme	18,11,991	1,10,78,736	1,13,91,509	14,99,218
PPP fruit saplings	4,56,195	4,83,644	7,81,904	1,57,935

General fund	1,77,967	10,78,756	9,50,799	3,05,924
TOTAL	30,94,723	1,70,97,645	1,66,95,561	34,96,807

19. Budget - Details of budget utilization (2018-19)

S.No.	Particulars	Sanctioned (Rs.)	Released (Rs.)	Expenditure upto 31.03.2019 (Rs.)
A	Recurring Contingencies			
A.1	Pay & Allowances	15362000	15362000	11897597
A.2	Traveling allowances	125000	125000	125000
A.3.	Contingencies			
a	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Including Swachhta action plan during 2017-18 Rs. 25000.00)	363991	363991	363991
b	POL, repair of vehicles, tractor and equipments	158887	158887	158887
c	Meals/refreshment for trainees	107180	107180	107180
d	Training material	10510	10510	10510
e	Training of extension functionaries	251	251	251
f	Publication of extension literature of farmers and extension functionaries	8138	8138	8138
g	Honorarium of trainer	1000	1000	1000
h	On farm testing	94759	94759	94759
i	Frontline demonstration	177127	177127	177127
j	Kisan mela/farmers fair at KVK farm	15517	15517	15517
k	Library	0	0	0
l	Maintenance of farm	138640	138640	138640
m	EDP	0	0	0
n	IFS	0	0	0
o	FFS	0	0	0
p	Establishment of Soil, Plant & Water Testing Laboratory	20000	20000	20000
q	Soil day	0	0	0
A.4	SC-SP component	191000	191000	191000
	Total contingencies	1287000	1287000	1287000
	Total Recurring	16774000	16774000	13309597
B	Total Non Recurring	0.0	0.0	0.0
	SC-SP component (creation of physical assest/repair/renovation)	147000	147000	147000
	GRAND TOTAL (A+B)	16921000	16921000	13456597

FARMERS FIELD SCHOOL (FFS) ON PESTICIDE RESIDUE FREE CHILLI PRODUCTION

Place: Ondikadai

Block: Namagiripettai

Total trainees: 25 farmers

Season: – Rabi – 2018

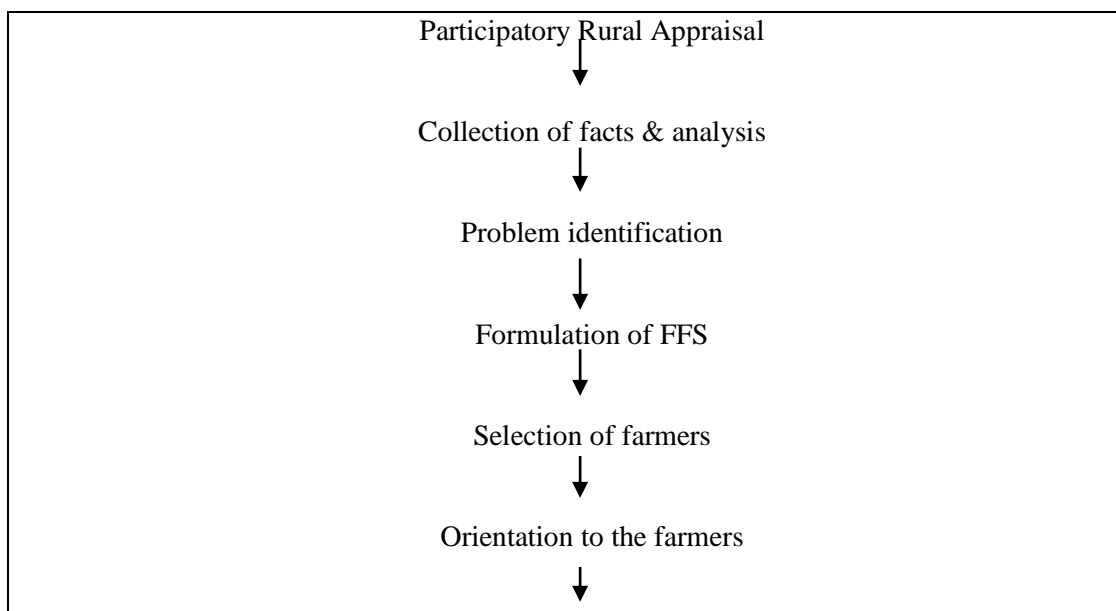
Scenario of Ondikadai

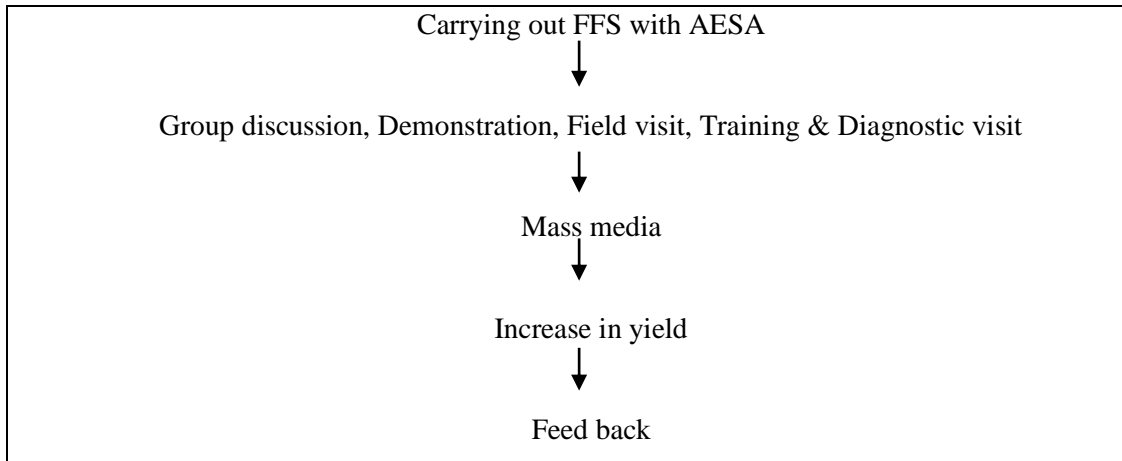
- Area under Chillies cultivation in Ondikadai village : 62.0 ha
- Name of Zone : North Western Zone
- Farming situation in the dist. : Irrigated (Rabi)
- Rainfall : 195 mm
- Maximum Temperature : 33.26° C
- Minimum Temperature : 18.44 ° C
- Relative Humidity : 91.99% to 53.75.%
- No. of Rainy days : 18days
- Productivity (average) : 8tonnes green chilli/ha
- Soils : Clay loam,
- Existing Cropping pattern : Sorghum – Chilli

Methodology of conducting FFS

Bench mark survey

A PRA exercise was conducted and all relevant information's like cropping system, intercropping, average yield level of chilli, local practices adopted in terms of irrigation, use of fertilizer, plant protection, problems exists in chilli, etc were collected. Based on the study and problems identified detailed FFS and its components were formulated by the team of our technical staff. Finally it was decided to demonstrate the pesticide residue production technologies in chilli. 25numbers of farmers were selected representing villages. They were given orientation first by explaining the problem, need for FFS, procedure they have to follow, production technologies, etc. The farmers were convinced to grow chilli. Demonstrations were conducted in step by step manner from seed treatment with bio fertilizers, raising seedlings, raising potray method of seedling, manuring, micronutrient application, pest and disease diagnosis etc., in order to educate them in all the required aspects with AESA





Hence, Ondikadai village was selected based on the survey done with the help of ADA, Namagiripettai and scientist from KVK, Namakkal

Problems identified

- Mono cropping
- Seed treatment for disease management is not followed
- Poor weed management
- Indiscriminate use of inorganic fertilizers
- Lack of knowledge on biological control of pest and disease
- Indiscriminate use of insecticides (60 ml / tank)
- Lack of awareness on IPM practices for pest management

KVK interverntion

- Soil Sampling and Analysis
- Village selection and Bench mark survey
- Climatic requirement and chilli plant characters & Physiology
- Chilli hybrid seedlings recommended
- Demonstration of Seed treatment (P.fluorescence)
- Basal application of Vermicompost @ 500 kg/ ha.
- Soilapplication(P.fluorescens 2.5kg/ha) on 30 DAS
- Setting up of Pheromone trap @ 12/ ha for fruit borer
- Setting up of Yellow Sticky trap @ 12 nos./ha
- Border trap crop -maize
- Need Based application of NSKE 5%
- Chilli, Planting method & population maintenance .
- Installation of Yellow sticky Trap, Pheromone trap, solar light trap & its importance
- Water &organic manure management
- Micro Nutrient Management
- Preparation & Usage of Botanical pesticide (Neem, Garlic & Chilli, Panchakavya, pest repellentand Ginger-Garlic solution)
- Effects of pesticide on predators & parasites
- Post harvest technology
- Field day

CURRICULAM FOR ELEVEN SESSIONS

S. No	Sessions and Date	Activities	Facilitators/Resources Persons
1	I (22.10.2018)	<ul style="list-style-type: none"> ➤ Village selection and Bench mark survey along with state Department through PRA exercise 	Entomologist with SMS Horticulture
2	II (30.10.2018)	<ul style="list-style-type: none"> ➤ Registration ➤ Inauguration ➤ Pre-Evaluation Test-Ballot Box method about Pesiticide residue chilli production ➤ Introduction to FFS ➤ Soil sample collection method 	Entomologist with SMS Horticulture
3	III (13.11.18)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Group formation & discussion ➤ Field walk ➤ Collection of flora & Fauna in the Chilli eco system ➤ segregation of Pests & Defenders <p>Special Topic</p> <ul style="list-style-type: none"> ➤ Climatic requirement and Chilli plant characters & Physiology ➤ Application of organic manure and bio fertilizer ➤ Planning for Next Session 	Entomologist with SMS Horticulture
4	IV (20.11.2018)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Introduction to Agro Eco Systems Analysis(AESA) <p>Special Topic</p> <ul style="list-style-type: none"> ➤ Chilli hybrid -Priyanka, Planting method & population maintenance approach for seedling diseases management ➤ Foliar spray of pest repellent to control of sucking pest ➤ Planning for Next Session 	Entomologist with SMS Horticulture
5	V (28.11.2018)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA) ➤ Observation, Drawing & Presentation <p>Special Topic</p> <ul style="list-style-type: none"> ➤ Installation of Yellow sticky Trap, pheromone trap, & its importance ➤ Spraying of panchakavya and pest repellent ➤ Planning for Next Session 	Entomologist with SMS Horticulture
6	VI (11.12.18)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA) ➤ Observation, Drawing & Presentation <p>Special Topic</p> <ul style="list-style-type: none"> ➤ IDM in Chilli ➤ Planning for Next Session 	Entomologist with SMS Horticulture
7	VII (21.12.2018)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA), ➤ Observation, Drawing & Presentation <p>Special Topic</p>	Entomologist with SMS Horticulture

		<ul style="list-style-type: none"> ➤ Water & Fertilizer management ➤ Planning for Next Session 	
8	VIII (14.01.2019)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA), Observation, Drawing & Presentation ➤ Comparison on FFS- Non FFS field Special Topic <ul style="list-style-type: none"> ➤ Micro Nutrient Management ➤ Planning for Next Session 	Entomologist and Horticulture
9	IX (25.01.2019)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA) - Observation, Drawing & Presentation ➤ Release of Egg Parasitoids Special Topic <ul style="list-style-type: none"> ➤ Preparation & Usage of Botanical pesticide (Neem, Garlic & Chilli, Panchakavya, pest repellent) ➤ Planning for Next Session 	Entomologist, Agronomist with SRF
11	XI (15.02.2019)	<ul style="list-style-type: none"> ➤ Recapitulation ➤ Agro Eco System Analysis(AESA) ➤ Observation, Drawing & Presentation Special Topic <ul style="list-style-type: none"> ➤ Effects of pesticide on predators & parasites ➤ Planning for Next Session 	Entomologist
12	XII (22.02.2019)	<ul style="list-style-type: none"> ➤ Recapitulation of all sessions activities ➤ Comparison of FFS & Non-FFS field Special Topic <ul style="list-style-type: none"> ➤ Post harvest technology ➤ Evaluation 	Senior Scientist and Head, Horticulture with SRF

Group meeting

Before commencement of the regular session in FFS, group meeting was organized during the season. Discussion was made on the importance of pesticide residue management and harmful effects of pesticides and relevant subjects. Farmers were selected based on their attitude interest and keenness of participation.

Among the farmers, five leading and progressive farmer were selected based on their experience and knowledge. Farmers groups were organized to allotted field for demonstration, application and bio-agents.

Documentation

All the activities undertaken in the demonstration sites have been recorded in the register accordingly. The records have been maintained by KVK scientist.

A. Observed Status of Pest and disease incidence on chilli with AESA

S.No	Name	Scientific Name	Crop stage	Status	
				FFS	Non FFS
1	Aphids	<i>Myzuspersicae</i>	Seedlings and Vegetative phase	Minor	Major
2	Thrips	<i>Scirtothripsdorsalis</i>	Vegetative phase	Minor	Major
3	Fruit borer	<i>Spodopteralitura.</i>	Vegetative and fruit formation	Minor	Major
4	Mite	<i>Polyphagotarsomenulatus</i>	Vegetative phase	Minor	Major
5	Damping off	<i>Phythiumaphanitermatum</i>	Vegetative phase	Minor	Major

6	Whitefly	<i>Bemisia tabaci</i>	Vegetative – harvest	Major	Major
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B. Observed Natural Enemies on chilli pest

S.No.	Natural Enemies	Host
1.	Coccinellid spp.	Aphids
2.	Syrphid fly	Aphids
3.	Green lacewing or Chrysoperla	Soft bodied insects
4.	Spider	Soft bodied insects
5.	Praying mantis	Soft bodied insects
6.	Wasps	Soft bodied insects

C. Impact of FFS

Farming situation	Hybrid		No. Farmer	Area (ha)	Average green chilli Yield(q/ha.)		% increase in yield	Cost of cultivation (Rs.)		C:B ratio	
	FFS	Non FFS			FFS	Non FFS		FFS	Non FFS	FFS	Non FFS
Irrigated	Priyanka	Priyanka	25	0.4	16.25	13.25	22.0	38500	36750	2.07	1.80

D.Pesticide Reduction:

Sl. No.	Name of village	No. of Spray/ha		Cost of Spray (Rs./ha)		Reduction in Cost of spray by residue free chilli farmers compared to non IPM farmers (Rs./ha)	Net income	
		FFS farmers	Non FFS farmers	FFS farmers	Non FFS farmers (Rs.)		FFS	Non FFS
1	Ondikadai	0	3	0	4500	4500	42750	29500

E. Parameters observed with AESA

S.No.	Parameters	FFS	Non FFS
1	Plant height (cm)	76.4	71.5
2	No of fruits per plant	124.5	98.4
3	Yield (q/ha)	16.25	13.25
4	Cost of cultivation/ha	38500	36750
5	Gross income/ha	81250	66250
6	Net income/ha	42750	29500
7	B.C. Ratio/ha	2.07	1.80
8	Yield Increased (%)	22.0%	

Feedback:

- Farmers expressed that due to the demonstration of organic based insect pest management with production technologies through FFS, they got increased yield. The crop at maturity and fruit bearing stage the crop severely affected by drought, so the yield was reduced.

Feedback from farmers under FFS

- As farmers said that we receive the technical assistance in time. This in turn helps us to get higher yield without much of loss.
- This created awareness of organic based crop production to improve the fertility status of the soil and get normal yield.

Utilization of budget

S. No	Items	Total amount
1	Refreshment @ Rs. 20/- trainee for 8 number of programmes (25x20x8)	Rs. 4000/-
2	Contingents expenditure, Banners for inaugural function of FFS	Rs. 350 /-
3	Distribution of (i). cost of training input materials –Bio inputs, Bio pesticides, seeds, Bio fertilizers (ii). Cost of pheromones/bio pesticides, emergency spray. Other relevant IPM literature	Rs. 6165/-
4	Distribution ofPesticide residue chilli production literature to trainnes	Rs. 1487/-
	Total	Rs. 12002/-

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