

ANNUAL REPORT 2018 - 19

FOR THE PERIOD

APRIL 2018 to MARCH 2019

ICAR – KRISHI VIGYAN KENDRA

Hosted by SCAD

Thoothukudi District, Tamilnadu

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	63	642	812	1456
Rural youths	46	355	74	430
Extension functionaries	2	51	53	104
Sponsored Training	18	186	477	663
Vocational Training	36	261	59	320
Total	165	1495	1475	2973

2. Frontline demonstrations

Enterprise	No. of Farmers	Area (ha)	Units/Animals
Oilseeds	100	40	
Pulses	100	40	
Cereals	20	8	
Vegetables	10	4	
Fruits	5	4	
Flowers	10	4	
Fodder	10	1	
Total	255	101	
Livestock & Fisheries	20		1020
Other enterprises	20		
Total	40		1020
Grand Total	295	101	1020

3. Technology Assessment & Refinement

Category	No. of Technology Assessed & Refined	No. of Trials	No. of Farmers
Technology Assessed			
Crops	2	10	10
Vegetable	2	10	10
Livestock	2	15	15
Various enterprises			
Total	6	35	35
Technology Refined			
Crops			
Livestock			
Various enterprises			
Total			
Grand Total	6	35	35

4. Extension Programmes

Category	No. of Programmes	Total Participants
Extension activities	642	17066
Other extension activities	6	72
Total	648	17138

5. Mobile Advisory Services

Name of KVK	Message Type	Type of Messages						Total
		Crop	Livestock	Weather	Marketing	Awareness	Other enterprise	
	Text only	24	13	50	-	8	-	95
	Voice only							
	Voice & Text both							
	Total Messages	24	13	50	-	8	-	95
	Total farmers Benefitted	18718	18718	18718		218		56372

6. Seed & Planting Material Production

	Quintal/Number	Value Rs.
Seed (q)	2.96	139800
Planting material (No.)	10213	334184
Bio-Products (kg)	6381	427675
Livestock Production (No.)	3944	351700
Fishery production (No.)	0	0

7. Soil, water & plant Analysis

Samples	No. of Beneficiaries	Value Rs.
Soil – 356	294	39160
Water – 51	45	2040
Plant – 9	4	1940
Total	343	43140

8. HRD and Publications

Sr. No.	Category	Number
1	Workshops	3
2	Conferences	0
3	Meetings	60
4	Trainings for KVK officials	10
5	Visits of KVK officials	4
6	Book published	2
7	Training Manual	4
8	Book chapters	0
9	Research papers	0
10	Lead papers	0
11	Seminar papers	0
12	Extension folder	2
13	Proceedings	0
14	Award & recognition	0
15	On-going research projects	3

PART I –GENERAL INFORMATION ABOUT THE KVK

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

KVK Address	Telephone		E mail	Web Address
	Office	Fax		
ICAR KVK Hosted by SCAD, Vagaikulam, Mudivaithanendal Post, Thoothukudi	0461- 2269306	NA	pescadkvk@gmail.com pckvktut.icar@gov.in	www.scadkvk.org

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

Address	Telephone		E mail	Web Address
	Office	Fax		
Social Change and Development (SCAD) 105A1, North Bye pass road, Vannarpettai, Tirunelveli - 3	0462- 2501008	NA	scb_scad@yahoo.com	www.scad.org.in

1.3. Name of the Senior Scientist and Head with phone & mobile No

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. V. Srinivasan	-	9942978486 7708084470	sritutkvk@gmail.com

1.4. Year of sanction: 1995

1.5. Staff Position (as 31st March 2019)

Sl. No	Sanctioned post	Name of the incumbent	Designation	M/F	Discipline	Highest Qualification	Pay Scale	Present Basic pay	Date of joining KVK	Permanent/Temporary	Category (SC/ST/OBC/ Others)
1	Programme Coordinator	Vacant									
2	SMS	Dr.V.Srinivasan	SMS& PC i/c	M	Animal science	M.V.Sc., (Vet. medicine)	15600-39100+5400	28930	8.7.1999	P	Others
3	SMS	S. Sumathi	SMS	F	Home science	M.Sc., (H.Sc.Ext.,)	15600-39100+5400	28200	1.12.2000	P	OBC
4	SMS	P.Velmurugan	SMS	M	Horticulture	M.Sc., (Horticulture)	15600-39100+5400	26480	30.1.2001	P	SC
5	SMS	A. Murugan	SMS	M	Agronomy	M.Sc., (Ag) (Agronomy)	15600-39100+5400	20440	18.07.2011	P	SC
6	SMS	P.K Muthu Kumar	SMS	M	Plant protection	M.Sc(Ag) (Entomology)	15600-39100+5400	15600	17.11.2018	P	OBC
7	SMS	C. Bhagavathsingh	SMS	M	Agriculture Extension	M.Sc(Ag). (Extension)	15600-39100+5400	15600	12.11.2018	P	OBC
8	Programme Assistant	K. Dhamodharan	Farm Manager	M	Agriculture	B.Sc.,(Agri)	9300-34800+4200	14660	31.8.2009	P	OBC
9	Programme Assistant	J. Jove	Computer	M	Computer science	M.C.A	9300-34800+4200	13580	01.04.2011	P	OBC
10	Programme Assistant	I. Jeyakumar	Lab. technician	M	Lab Assistant	M.Sc (Microbiology)	9300-34800+4200	11470	12.07.2013	P	Others
11	Assistant	S.S. Ganesan	Accountant	M	-	M.Com	9300-34800+4200	22110	1.6.1996	P	Others
12	Stenographer	A. Siva Bala Subramanian	Stenographer	M	-	HSC/ Stenography	7510-20200+2400	7510	12.11.2018	P	OBC
13	Driver 1	A. Dominic James	Driver	M	-	SSLC	5200-20200+2000	11540	01.06.1996	P	OBC
14	Driver 2	GulamRasul	Driver	M	-	SSLC	5200-20200+2000	11180	01.07.1996	P	OBC
15	Supporting staff 1	K. Rajeshwaran	Farm assistant	M	-	BA	5200-20200+1800	9520	01.12.1996	P	SC
16	Supporting staff 2	V. Xavier	Watchman	M	-	M.Com	5200-20200+1800	9010	12.11.2001	P	OBC

1.6. Total land with KVK (in ha) : 20 ha

S. No.	Item	Area (ha)
1.	Under Buildings	2.0
2.	Under Demonstration Units	0.8
3.	Under Crops	3.0
4.	Orchard/Agro-forestry	6.0
5.	Others	8.20

1.7 Infrastructural Development:**A) Buildings**

S. No	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	2001	1100	42 Lakhs			
2.	Farmers Hostel	ICAR	02.03.2011	305	35 Lakhs			
3.	Staff Quarters	ICAR	2007	650	24 Lakhs			
4.	Demonstration Units							
	. Poultry shed	ICAR	2006	160	1.49 Lakhs			
	. Vermicompost unit	ICAR	2006	40	0.4 Lakhs			
	. Mushroom shed	RF	2010	40	0.4 lakhs			
	. Slatted floor house for sheep	RF	2018	40	1.0 lakh			
	. Dairy unit	RF	2017	60	2.0 lakhs			
	. Azolla unit	RF	2010	5	0.025 lakhs			
	. Shade net house nursery	RF	2018	60	0.2 lakh			
	. Roof garden	RF	2017	10	0.2 lakhs			
	. Hydroponic fodder unit	RF	2018	3	0.2 lakhs			
5	Storage Godown	ICAR	2.3.2012	45	3 Lakhs			
6	Vehicle cum Implement shed	ICAR	2.3.2012	60	3 Lakhs			

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total Kms. Run	Present status
Tempo cruiser	3/30/2004	4.96	202840	Needs major repair and maintenance
Bajaj boxer CT 100 deluxe	4/18/2005	0.39	98894	Running
Hero Honda Splendor	4/13/2009	0.45	112576	Running

C) Equipments & AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
OHP	1996	18315	Good Condition
Fax machine	2009	15000	Good Condition
Power tiller	2010	150000	Good working condition
3 KVA UPS	2009	---	Good Condition
VSAT Modem	2009		not in use
LCD Projector (In focus)	2011	35490	Not in use to be condemned
AV aid	2011	15000	Good condition
Slide projector	1996	14265	Not in use
Mf tractor and trailer	1999	362400	Condemned
Electronic type writer	1996	19200	Not in use and condemned
Photo copier	2005	82840	Not in use To be condemned
Computer with printer and accessories	2005	68800	Not in use and condemned
Digital photo camera	2005	19990	Not in use To be condemned
EPABX	2011	15000	Not in use to be condemned
LCD projector screen and laptop computer	2007	98600	Under repair and spares not available To be condemned
Generator	2011	150000	Under repair, spares not available
Server computer – 1 Personal Computer – 5	2009	-	Supplied under e-linkage program 3 PCs are not in working condition

1.8. Details SAC meeting conducted in 2018 – 19(Date: 29.10.2018 – 14th SAC Meeting)

S. No	Date	SAC Member	Major recommendations	Status of action taken in brief
1	29.10.18	Dr. H. Philip, DEE, TNAU, Coimbatore	In the visitors book a column should be added to check weather their purpose of visit is solved or not	Adhered as recommended
2			The farmers data base collected and documented are very low (750 plus), the computer programmer should collect all the details of farmers visiting KVK. Since the Data base is very much essential to KVK, he should focus on this area in the coming days.	2358 farmers data base is now available at KVK and the process continues and we will cover 5000 farmers database in this year 2019-20
3			Impact on technologies transferred from KVK should be submitted, How many technologies disseminated, what's the adoption rate, why they are not following it etc should also be there in the impact study report	KVK conducted impact studies on technologies transferred in the last 4years with respect to varietal introduction, poultry introduction, green fodder , bio input usage, promotion of fruit trees
4			Out of 50 trained on Vermicompost preparation only 12 are producing Vermicompost. KVK should find and study why the other 38 are not following it up.	Adoption level very low due to the very low rainfall, 19 trainees could not start Vermicomposting as they did not have cattle in their farm to produce Vermicompost and 19 trainees did not start as they felt this process in cumbersome and needs investment for providing shade and construction of tank, purchase of silpaulin sheet, etc
5			The nutrition programme should be tried in boarding school to study the real impact created through nutrition intervention	Nutrition intervention will be carried out in boarding school for adolescent girls after obtaining permission from CEO and with their help we will select a few suitable boarding school for the purpose. Initially baseline survey will be conducted to study the nutritional status (Anaemic) of adolescent girls in those schools. Then nutrition interventions will be initiated in the school where more number of anaemic/malnourished children are studying. A feasibility report will be submitted at the start of new academic year by June 2019 for the purpose.
6		Dr. Y. G. Prasad, Director, ICAR-ATARI, Zone X Hyderabad	Successful OFTs should be converted into FLD to popularize the technology	OFT on alternative poultry rearing was converted into FLD in the year 2019-20 OFT on Paddy variety TKM 13 is converted into FLD in 2019-20 OFT on estruous synchronization using prosynch NC tech. was converted into FLD in 2019-20 OFT on assessing green gram variety was converted into FLD this year
7			Participation of all line departments with special reference to Horticulture and fisheries Department should be ensured in future meetings.	Will be adhered as recommended
8			House hold focus should be given to increase the farm income.	House hold base line detail was collected in DFI village for the purpose , SMS AE and Agronomy to create and maintain the file as required for the purpose
9			KVK should make diagnostic visit with line department officials to control FAW.	Joint diagnostic visit was made to the following villages along with department officials : Deivaseyalpuram, Pottalurani, Poovani, Kadambur cluster Apart from this KVK has displayed control measures in digital banner in Otanatham, vilathikulam, TN kulam, Poovani clusters for FAW control
10			Cost of pesticide spray should be brought down in pulses.	KVK promotes IPM modules to bring down the cost of pesticide spary, 12 training programe was conducted in adopted villages during the cropping season in 2018
11			KVK should concentrate on selective farm mechanization.	KVK promotes total mechanization in dry land pulses cultivation from sowing to harvest,
12			Micro irrigation in paddy should be	This year an OFT is planned for the Micro

			promoted, an OFT should be planned.	irrigation system in paddy 2019-2020 at KVK farm
13		Dr. Y. G. Prasad, Director, ICAR- ATARI, Zone X Hyderabad	Crop cafeteria should be established in KVK.	During the year in Rabi season following crop will be sown in the cafeteria : black gram, green gram, pearl millet, sorghum, bhendi, chilli, ground nut as suggested.
14			Paid training numbers should be increased and the training should help promoting entrepreneurship.	. In the year 18-19, 29 paid training were organized for 312 farmers/youth and generated Rs.36300 as revenue through these programmes and added in revolving fund.
15			Since sharing of information is very important, KVK staff should make visits and consult with the staff of all the Institutions, Research Stations etc to create good rapport with them.	Frequent visit are made to meet the experts in VCRI, Tirunelveli, ACRI Killikulam, ARS kovilpatti, to get technological information and to identify the problems and solving the issues frequent meeting with line department officials especially Agriculture and agriculture marketing was made during ATMA training programmes.
16			A study on value chain, supply chain systems, constraints, various stake holders, govt role in the supply chain system in district, state level should assessed by KVK. Prosopis, palmyrah, millets supply and value chain should be studied and submit a report to ATARI.	Prosopis value chain was assessed and will be submitted to ATARI
17			Recycling agriculture waste should be given priority in the coming days.	We have promoted waste decomposer to 40 farmers from October to March 2019 . Our KVK is also promoting vermicomposting, composting using Beneficial microbes through KVK training programmes
18			KVK Thoothukudi can help the farmers in the technological knowhow on the value addition aspects otherwise they have to travel to very distant locations like Hyderabad or Tanjore for the purpose.	KVK at present is not having fully equipped food processing unit and at present we are conducting simple value addition technologies through hands on training programme at our KVK with minimal machineries and equipments. In future (by July 2019) as per the recommendation KVK will submit a proposal for establishing minimal processing and value addition incubation unit to MOFPI (Ministry of Food Processing Industry) . A specific sponsored programme will be organized to take interested trainees to visit different value addition training centers at Thanjavur, Hyderabad, and Ludhiana. We will also invite the experts from food processing institute to KVK for transferring necessary skill through sponsored training programmes.
19		Mr. Nagarajan, Dy. Director, Agri business	Since banana sheath/bark has much potential, KVK should create awareness on this to the banana growers and explore possibilities in creating entrepreneurship	KVK is creating awareness about this issue among Banana growers. In addition to this, KVK has organized a buyer seller meet to utilize banana bark on March 2019. Due to this effort, a business plan is on trial to mobilize the Banana barks from the farmers to Bangalore based Industries crafts foundation. KVK is providing moral support to the Perunthalaivar FPCL in this business activity.
20			TKM13, a fine grain paddy variety can be promoted in a larger way.	We have planned to produce 10 quintal TKM13 seed.in 19-20
21		Dr. Ramalingam,Dean, ACRI, Killikulam	Cultivating Casuarinas as inter crop in Banana will be of great help to support the banana plantations. While planting banana casuarinas seedlings can also be planted along to help in scaffolding.	A trial with 10 farmers at Manjalneerkayal village will be initiated to study the feasibility during this year. The result will be uploaded in KVK portal.
22		Dr.R.Srinivasan, GM, TNPL, Karur	TNPL is ready to provide the seedlings to create an agro forestry model at KVK under its capital farming scheme.	25 acres of land is earmarked for establishing agro forestry in KVK instructional farm planting will be done during 19-20
23			Thoothukudi has potential to grow Subabul, KVK can promote trees like casuariana, subabul, eucalyptus, meliaazadiracta on contract basis. TNPL will procure the material from farmers.	This message will be spread in the KVK training programmes to invite interested farmers to take up agroforestry in their farm.

			Animal husbandry department is implementing important schemes in fodder development (Azolla, hydroponics, fodder seeds/seedlings) and backyard poultry promotion in this year , KVK can spread this message to the needy farmers through its contact.	Information regarding schemes like free backyard poultry, hydroponics, azolla rearing ,etc.. Were disseminated to the trainees and KVK contact farmers and also for the KVK adopted villages.
24		JD(AH), Thoothukudi	KVK's help is required in marketing the guava fruits for better prize	Efforts are on to train and procure 1000 nos of L-49 guava grafts from his field to KVK during Sep-October 2019
25		Mr.Narayanasamy, Farmer, Kollankinaru	KVK and Agri marketing should help to market the processed minor millet products.	KVK is providing technical support to Perunthalaivar FPCL in processing minor millets and making it to Nutri mix. They are advised to market through super markets. Similar activity will be initiated through other FPCL
26		Mr.Subbaraman, Chairman, FPC, Ottanatham	KVK should popularize the micro sprinkler system of irrigation to paddy.	paddy demo unit using micro irrigation will be established at KVK in the year 19-20
27		Mrs. Tamil Malar, JD i/c Department of Agriculture	KVK should help the department to promote TKM 13 paddy variety.	We have planned to produce 10 quintals of TKM13 seed.
28			Since department is giving subsidy to plant trees (Rs.17,000 for neem, Rs.20,000 for pungam) KVK can pass on this information to the interested farmers.	Information on this scheme is being informed to the trainees and contact farmers and also through what's app groups
29			KVK should help the department to create awareness on FAW infestation in maize	FAW control measures are being highlighted in all the ATMA training.
30			KVK should give more focus on dry land farming ARS is ready to coordinate with KVK to conduct weather based farming technique.	KVK forwarded the weather based advisory to its contact farmers in Whatsapp group, during 19-20 planned to send the same in m-kissan SMS services, and to keep information board in KVK adopted villages namely TN Kulam, Rajapudukudi, Villiseri, Kumarapuram, Kootampuli, Athimarapatti
31		Dr. Sudhakar, ARS, Kovilpatti	KVK can promote K12 sorghum in larger areas.	In 2019-20, a FLD program has been proposed in K12 Sorghum and we have planned to produce 10 quintal Sorghum K-12 seed in coming monsoon.
32			VCRI, Tirunelveli is supplying poultry chicks, feeds etc. KVK can promote the Japanese Quail rearing, and fodder production in Thoothukudi district through trainings.	9 training programme on alternative poultry rearing was organized during 18-19 to 175 farmers and youth .
33		Dr. Dhanaseelan, P&H Ag.extension department, VCRI, Tirunelveli	KVK can send the interested people to the training programmes of CMFRI	Will be done on need basis
34		Dr.Asha, Principal scientist, CMFRI, Thoothukudi	NABARD is ready to provide funding support for training programmes and research proposals to KVK.	2 CAT training programmes were organized during Jan and Feb 2019 with NABARD support. 6 more was planned during 19-20 and one research proposal on wood vinegar will be submitted in 19-20. Rural mart proposal was submitted in 19-20
35		Mr. K. Vijayapandian, DDM, NABARD, Thoothukudi	KVK should organize training programme on value addition of banana other than pickle.	KVK has organized a buyer seller meet to utilize banana bark during March 2019 and trying to make MOU between FPC and the Buyers
36		Mrs. Seema pandiayan, women farmer representative , Kootampuli	KVK should help to market the palmyrah palm tuber based products	Rural mart will be established with the support of NABARD for marketing SHG products
37		Mrs.Shenbagavadivu , women farmer representative , Vembar	KVK should help to market the hair oil produced by their SHG	In the upcoming year specified OFT program will be initiated with guidance from ATARI
38		Mrs. Uthami, women farmer representative, maravanmadam	Farmers are in need of simple technologies to control FAW infestation in maize and KVK should help in this regard.	
39		Mr.Madasamy, Farmer representative,	KVK should establish a good roof garden ,	KVK already has a roof garden on the staff quarters and it needs protection from peacock menace and this will be done in this year to

		Vanmalai FPC, Vilathikulam		improve its efficiency
40		Dr. S. K. Gopal, Advisor , SCAD	Can promote curry leaf cultivation and calf rearing in a larger way	Curry leaf seedling production will be taken up in KVK during 2019-20 KVK has increased its heifer calf rearing unit size to rear 10 calves at present KVK has one FLD programme to promote calf rearing in the year 2019-20 and 2018-19
41			KVK should ensure the adaptation of STL based manure application.	54% of the farmers who awarded with SHC adopted STL based manure application in their field as per our sample study
42		Dr. Baskaran, Principal scientist, ICAR –ATARI, Zone X, Hyderabad	KVK can print the pest and diseases and their control measures and include it along with soil health card.	We have planned to execute in the upcoming season and the same will be issued along with SHC
43			KVK should focus to obtain the maximum yield in all OFT, FLD and the complete package should be provided to achieve this.	Maximum yield was obtained in FLD and OFT programmes conducted during the year 18-19 because of complete package of practice given to them as suggested
44		Mr. Ignatius Xavier, General Manager , SCAD Group of Institutions	The farmers approaching KVK should get the benefit for their visit, KVK should help the farmers in all possible aspects.	The farmers visiting the KVK are received in kind manner at the entrance itself and they are satisfied as per their purpose of visit. The scientists are giving contact numbers to easily solve farm related queries if any. A separate note is maintained to monitor their purpose of visit and same is reviewed by SS &H periodically with the help of supporting staffs.

PART 2 – DETAILS OF DISTRICT

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

S. No	Farming system/enterprise
1	Dry farming – single crop in a year using NE monsoon, Major crops- chillies, pearl millet, maize, onion, fodder sorghum, sorghum, black gram , green gram, gingelly, sunflower, groundnut, castor, redgram, cotton, tomato, ,brinjal, cluster bean. Major livestock – goat, sheep, backyard poultry, Cross breed cattle, Non-descript cattle
2	Garden land farming – two or three crops in a year using open or tube well irrigation. Major crops- vegetables, banana, groundnut, flowers, chillies, drum stick, and cotton Major livestock- cross bred cattle,goat, backyard poultry
3	Tank fed/ river command area farming – one or two crops in a year. Major crops – Banana and paddy Major livestock – cross bred cattle, goat, sheep, backyard poultry
4.	Coastal region – Marine fishing, goat rearing, salt pan work

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

S. No	Agro-climatic Zone	Characteristics
01	Southern zone	The topography of the zone is undulating. This zone lies on the rain shadow area of the Western Ghats. The mean annual rainfall is 650mm with a contribution about 470mm from North East monsoon. The soil of this region falls under major groups viz., black, red, alluvial and lateritic. Saline coastal alluvial soils are also present in the coastal belt. In black soil only one crop, either cotton or sorghum is raised. Direct seeded rice is cultivated under rain fed condition. On red soil, groundnut crop is raised. Under garden land conditions, Bajra and chillies form the major crops.

S. No	Agro ecological situation	Characteristics
01.	Hot semiarid eco region (H ₁ D ₂)	Hot and dry summers and mild winters with a mean annual rainfall of 600 to 1000mm and a length of growing period of 90-150 days in a year. Soil type- red loamy soil, Rain fed cultivation is the traditional practice with crops like millets, pulses, and oilseeds under irrigated conditions cotton, sugarcane and rice are the major crops . Severity of the soil erosion and drought due to poor moisture holding capacity of soil are the major constraints.
	Hot subhumid to semiarid eco region with coastal alluvium derived soil (S ₇ CD ₂₋₅)	Crop growth period 90-210 + days, coastal alluvium soil type

2.3 Soil types

S.No	Soil type	Characteristics	Area (in ha)
1	Sandy soil	These are derived from granities ,graniloid,quartzites and sand stones .The colours are due to red hematite and yellow limonite .Base Exchange capacity is from 5 to 25 meq per 100 g of the soil and pHgenerally on the acidic side , ranging from pH 4.5-6.5	70,324
2	Clay soil	They have a characteristic dark colour ,varying from dark brown to deep black .They are formed by the weathering of trap rocks .These soils have a clay percentage ranging from 40-60%.the composition of clay is chiefly of the monomorillonite group and thus shows swelling and shrinking .The pH varies from 7.5-8.5	1,88,876
3	Sandy loam	Moderate medium sub angular blocky ,dry hard ,moist friable ,wet slightly sticky and very slightly plastic ;many fine roots ;many fine and common medium pores ;rapid permeability ;clear smooth boundary; pH6.8	31,722
4	Sandy clay loam	Weak fine sun angular blocky ;dry slightly hard ,moist friable ,wet slightly sticky and slightly plastic ,slight effervescence ; many fine roots ;many fine to medium irregular pores ;moderately rapid permeability ;clear smooth boundary ; p ^H 8.0	82,226
5	Sandy clay	Moderate medium sub angular blocky ,dry hard ,moist firm ,wet sticky and plastic ;many fine roots ;few fine pores and mild effervescence ;slow permeability ;clear wavy boundary; pH7.3	8,688

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

S. No	Crop	Area (ha)	Production (Metric tons)	Productivity (kg /ha)	% to the total area sown
1.	A. FOOD GRAINS:				
	a) CEREALS & MILLETS				
	Paddy	14160	62794	4434	7.25
	Sorghum	10322	25176	2439	5.29
	Cumbu	10515	22616	5327	5.39
	Maize	55715	110673	1986	28.55
	Ragi	33	124	3764	0.02
	Other millets	192	107	559	0.1
	Total Millets	76777	180119	2346	
	b) PULSES				
	Black gram	41319	31702	1728	21.17
	Green gram	23599	1251	1304	12.09
	Red gram	22	29.2	1328	0.01
	Bengal gram	10	6.47	647	0.01
	Cow pea	103	42.1	426.5	0.05
	Horse gram	7	31.1	449	0
	Other pulses	107	51.1	477	0.05
	Total Pulses	65167	43019	660	
2	B. FIBRE				
	Cotton	7172	6440	1.32	3.67
3.	C. OIL SEEDS				
	Ground nut	1050	1151	2227	0.54
	Sesame	1910	307	274	0.98
	Sun flower	1940	614	490	0.99
4.	D. OTHER CROPS				
	Chilli	12384	2058	176	6.34
	Banana	7379	287340	30000	3.78
	Drumstick	950	19000	20000	0.49
	Coriander (Grains)	2363	1023	315	1.21
	Onion	2783	18096	12000	1.43
	Other vegetables	1144	36896	16000	0.59

* Source: Joint Director of Agriculture, Thoothukudi District (Year 2018 – 19)

2.5. Weather data

Month	Rainfall (mm)	Temperature °C		Humidity (%)	
		Maximum	Minimum	Maximum	Minimum
April – 2018	39.23	31	28	85	68
May	39.30	34	26	80	64
June	1.21	34.8	27.2	82	67
July	5.78	34.7	28.9	80	69
August	14.74	34.2	29.9	84	71
September	35.55	34	26	85	73
October	200.29	32	26	86	74
November	126.63	31	24	90	79
December	15.24	30	23	90	79
January – 2019	1.83	29	22	90	61
February	5.31	35	22	96	63
March	0	35	24	97	76

Source: 1. scientific officer, Meteorological Observatory, ARS (Kovilpatti) (Temperature and Humidity)
District JDA office, Thoothukudi for RF

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

Category	Population
Cattle	124310
Dogs	36427
Sheep	188946
Goat	305842
Poultry	315157

Source: 18th livestock census

Category	Area	Production	Productivity
Fish			
<i>Marine</i>	163.5 km	41050 tones	-
<i>Inland</i>			
Prawn	NA	NA	NA
Scampi	NA	NA	NA
Shrimp	NA	NA	NA

Source: Assistant Director of Fisheries, Thoothukudi

2.7 Details of Adopted Villages (2018 – 19)

Year of Adoption:

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							
	Srivaikundam	Srivaikundam	Manjalneerkayal	2017-18	Paddy	Poor cultivation practice, Continuous usage of local seeds, Lack of awareness on IPDM practices, Lack of awareness on fine grain varieties Ruling fine varieties BPT-(R) 5204, Susceptible to Bacterial leaf blight – Yield loss 30-40 % Low land area (80%) Lack of awareness on saline resistant short duration varieties	Promotion of ICM practices
					Banana	Low return (Rs.55000/acre/year) in banana due to high cost of cultivation Yield loss due to pest and diseases (20%)	Promotion of ICM practices
	Srivaikundam	Karungulam	Poovani	2017-18	Paddy	Poor cultivation practice, Continuous usage of local seeds, Lack of awareness on IPDM practices, Lack of awareness on fine grain varieties Ruling fine varieties BPT-(R) 5204, Susceptible to Bacterial leaf blight – Yield loss 30-40 % Low land area (80%) Lack of awareness on saline resistant short duration varieties	Promotion of ICM practices
					Green gram	Low yield (3.75q/h) YMV and Pod borer affects yield up to 30 %	Promotion of ICM practices
					Groundnut	Reduction in area of cultivation from 164ha to 25 ha – problem of commission agents – low profitability	Promotion of ICM practices
					Sheep and Goat	Ill thrift/ low weaning body weight (avg.5.5kg) due to MN deficiency and worm load Mortality due to infectious diseases upto 20% Low weight gain due to Fodder shortage (50%) Mortality due to grain overloads (10%)	Comprehensive disease control measures in livestock Feeding and breeding management in cattle and goats

					Tomato	Lack of proper supply chain system Low price for vegetables during peak harvesting season Perishable nature of vegetables Lack of knowledge on minimal processing like grading, sorting and packaging Wastage of vegetables during marketing LCV attack in the local variety during fruiting stage (70%) Susceptibility of local variety-US 302, 95%) Little awareness on resistant varieties (90%) Lesser yield (34.ton/ha)and income	Introduction of high yielding , improved crop varieties in agriculture and horticulture
					Cattle	High cost of concentrate feed for high yielding cows reduces the profitability (85%) Excessive feeding of grain or gruel leading to development of SARA and locomotor abnormalities (25%) Green fodder shortage (90%) Poor nutritive value in straw and crop residue fed to cattle (80%) Reduced milk production due to mastitis (22%) and infertility (15%)	Comprehensive disease control measures in livestock Feeding and breeding management in cattle and goats
					Backyard poultry	Mortality upto 40% due to RD Low productivity of desi birds (95%) Lack of awareness in improved breeds for BYP (95%)	Promotion of alternative poultry farming, improved backyard poultry breeds, and artificial incubation of eggs.
	Vilathikulam	Vilathikulam	Vembar	2017-18	Onion	Fluctuation in the market price Low returns to the farmers during peak production season Need to knowledge on value addition on onion products	Promotion of value added product preparation
					Palmyrah tree	Lack of market outlet for Palm tuber in villages Lack of awareness about its value addition Underutilization of	Promotion of value added product preparation

						palm tuber even though it has high nutritive value Poor shelf life for fresh tuber	
	Vilathikulam	Vilathikulam	Sivagnanapuram	2018-19	Maize	Occurrence of terminal drought , moisture stress (60 %) resulting in reduced yield 12.5q/ac Lack of awareness on soil moisture conservation technology (75%) Lack of awareness on ICMP practice (65 %)	Promotion of ICM practices
					Sun flower	Lack of awareness on ICM Practices – yield loss 45 % Lack of awareness on high yielding new varieties and hybrid (45%) Poor pod filling due to MN deficiency (56%) Non availability of seed in time (82%)	Promotion of ICM practices
	Ottapidaram	Ottapidaram	Ottanatham	2018-19	Pearl millet	Less utilization of millets Lack of ready to eat millet foods	Promotion of value added product preparation
					Black gram	Low productivity in VBN -3 variety / crop loss due to drought situation Avg. yield 2 q/ac only	Promotion of ICM practices
					Green gram	Low yield (3.75q/h) YMV and Pod borer affects yield up to 30 %	Promotion of ICM practices
					Chilli	Use of local ,Low yielding varieties Susceptibility of local varieties to fruit rot and anthracnose Little awareness on improved high yielding varieties of genuine source	Promotion of ICM practices
					Guava	Underutilization of resources, Low production, productivity and net profit Little awareness on HDP system among the farmers	Introduction of high yielding , improved crop varieties in agriculture and horticulture
					Sheep and Goat	Ill thrift/ low weaning body weight (avg.5.5kg) due to MN deficiency and worm load Mortality due to infectious diseases upto 20% Low weight gain due to Fodder shortage (50%)	Comprehensive disease control measures in livestock Feeding and breeding management in cattle and goats Promotion of IFS model farming system

						Mortality due to grain overloads (10%)	
					Backyard poultry	Mortality upto 40% due to RD Low productivity of desi birds (95%) Lack of awareness in improved breeds for BYP (95%)	Promotion of alternative poultry farming, improved backyard poultry breeds, and artificial incubation of eggs.
					Cattle	High cost of concentrate feed for high yielding cows reduces the profitability (85%) Excessive feeding of grain or gruel leading to development of SARA and locomotor abnormalities (25%) Green fodder shortage (90%) Poor nutritive value in straw and crop residue fed to cattle (80%) Reduced milk production due to mastitis (22%) and infertility (15%)	Comprehensive disease control measures in livestock Feeding and breeding management in cattle and goats Promotion of IFS model farming system

DFI villages

	Kayathar	Kayathar	TN Kulam	2018-19	Paddy	Poor cultivation practice, Continuous usage of local seeds, Lack of awareness on IPDM practices, Lack of awareness on fine grain varieties Ruling fine varieties BPT-(R) 5204, Susceptible to Bacterial leaf blight – Yield loss 30-40 % Low land area (80%) Lack of awareness on saline resistant short duration varieties	Promotion of ICM practices
					Black gram	Low productivity in VBN -3 variety / crop loss due to drought situation Avg. yield 2 q/ac only	Promotion of ICM practices
					Groundnut	Reduction in area of cultivation from 164ha to 25 ha – problem of commission agents – low profitability	Promotion of ICM practices
					Tomato	Lack of proper supply chain system Low price for vegetables during peak harvesting season Perishable nature of vegetables Lack of knowledge on minimal	Promotion of ICM practices

					<p>processing like grading, sorting and packaging</p> <p>Wastage of vegetables during marketing</p> <p>LCV attack in the local variety during fruiting stage (70%)</p> <p>Susceptibility of local variety-US 302, 95%)</p> <p>Little awareness on resistant varieties (90%)</p> <p>Lesser yield (34.ton/ha)and income</p>	
				Bhendi	<p>Lack of proper supply chain system.</p> <p>Low price for vegetables during peak harvesting season</p> <p>Perishable nature of vegetables</p> <p>Lack of knowledge on minimal processing like grading, sorting and packaging</p> <p>Wastage of vegetables during marketing</p> <p>YMV infestation (75%)</p> <p>Susceptibility of ruling variety (MH - 10)(75%)</p> <p>Little awareness on resistant varieties (90%)</p> <p>Yield(14ton/ha) and income loss</p>	<p>Introduction of high yielding , improved crop varieties in agriculture and horticulture</p>
				Green gram	<p>Low yield (3.75q/h)</p> <p>YMV and Pod borer affects yield up to 30 %</p>	<p>Promotion of ICM practices</p>
				Cattle	<p>High cost of concentrate feed for high yielding cows reduces the profitability (85%)</p> <p>Excessive feeding of grain or gruel leading to development of SARA and locomotor abnormalities (25%)</p> <p>Green fodder shortage (90%)</p> <p>Poor nutritive value in straw and crop residue fed to cattle (80%)</p> <p>Reduced milk production due to mastitis (22%) and infertility (15%)</p>	<p>Comprehensive disease control measures in livestock</p> <p>Feeding and breeding management in cattle and goats</p>
				Onion	<p>Fluctuation in the market price</p>	<p>Promotion of ICM practices</p>

					Low returns to the farmers during peak production season Need to knowledge on value addition on onion products	
				Backyard poultry	Mortality upto 40% due to RD Low productivity of desi birds (95%) Lack of awareness in improved breeds for BYP (95%)	Promotion of alternative poultry farming, improved backyard poultry breeds, and artificial incubation of eggs.
				Sheep and Goat	Ill thrift/ low weaning body weight (avg.5.5kg) due to MN deficiency and worm load Mortality due to infectious diseases upto 20% Low weight gain due to Fodder shortage (50%) Mortality due to grain overloads (10%)	Promotion of IFS model farming system
				Jasmine	Low or nil flower production during winter (100%) Poor pruning management (85%) Non application of growth promoters (50%) Low production(8.4 ton/ha) and income	Introduction of high yielding , improved crop varieties in agriculture and horticulture

2.8 Priority thrust areas

Crop/Enterprise	Thrust area
All crops	Promotion of soil test based nutrient management
All crops	Improvement of soil fertility through sustainable practices
All crops	Introduction of high yielding , improved crop varieties in agriculture and horticulture
All crops	Promotion of ICM practices for major crops like Paddy, Banana, Chilli, Maize, Black gram, Green gram, Tomato, Onion and Cotton
All crops	Promotion of ecological pest control measures and organic farming techniques
All crops	Promotion of Bio fertilizers and Vermicompost usage
Horticulture	Promoting Tree planting in wastelands and in the backyards
Nutri garden	Ensuring nutritional security of farm women and children through Kitchen gardening, storage and healthy cooking habits
Value addition	Promotion of value added product preparation from Prosopis juliflora , milk ,fish ,banana , minor millets and vegetables
IFS	Promotion of IFS model farming system
All crops	Promotion of drought mitigation measure
Poultry	Promotion of alternative poultry farming, improved backyard poultry breeds, and artificial incubation of eggs.
Livestock	Comprehensive disease control measures in livestock
Livestock	Feeding and breeding management in cattle and goats
Fresh water fish	Promotion of inland freshwater fish cultivation in village ponds
EDP	Promotion of EDP and Capacity building

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

S.No	Activity	Target	Achievement
1.	Technologies Assessed and refined(No.)	21	21
2.	On-farm trials conducted (No.)	7	7
3.	Frontline demonstrations conducted (No.)	10	10
4.	Farmers trained (in No)	2500	2720
5.	Extension Personnel trained (No.)	100	104
6.	Participants in extension activities (in Lakh)	0.15	0.17
7.	Production of Seed (in Quintal)	3	2.96
8.	Planting material produced (in No)	10000	10213
9.	Live-stock strains and finger lings produced (in No)		3944
10.	Soil, Water, plant, manures samples tested (in No)		416
11.	Mobile agro-advisory provided to farmers (in lakhs)		0.56
12.	No. of Soil Health Cards issued by Mini Soil Testing Kits (No.)		356
13.	No. of Soil Health Cards issued by Traditional Laboratory (No.)		0

PART 3 – TECHNICAL ACHIEVEMENTS

3A. 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
7	7	40	40	101	101	295	295
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	Achievement
Farmers	43	63	860	1456	500	641	17066
Rural youth	15	46	100	430			
Extn. Functionaries	15	2	100	104			
Seed Production (Qtl.)				Planting material (Nos.)			
5				6			
Target	Achievement	Distributed to no. of farmers	Target	Achievement	Distributed to no. of farmers		
3.0	2.96	436	10000	10213	862		

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
Varietal Evaluation	Green gram	Assessing the performance of High yielding green gram varieties for dry land farming system	TNAU	5	5
	Bengal gram, sesame, castor	Assessing the suitability of alternate crop for black gram and green gram under dry land situation	TNAU	5	5
	Tomato	Assessment of Tomato hybrids for LCV resistance	IIHR	5	5
	Chilli	Assessment of High yielding chilli hybrids	IIHR	5	5
Total				20	20

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
Evaluation of Breeds	Poultry	Assessment of suitable poultry bird for backyard rearing	10	10
Production and Management	Dairy cattle	Assessment of different oestrus synchronization procedures for the management of infertility in dairy cows	10	10
Total			20	20

Summary of technologies assessed under various enterprises by KVKs

Thematic areas	Enterprise	Name of the technology assessed	Source of technology with year	No. of trials	No. of farmers
Value addition	Millet bar	Assessment of acceptability of beta carotene enriched millet bar	CSC&RI, AC&RI Madurai 2018	5	5

3.C – Technology Assessment in Details

OFT no.	1				
1	Title of Technology Assessed	Assessing the performance of High yielding green gram varieties for Dry land farming system			
2	Thematic area	ICMP			
3	Scientist Involved	Mr. A. Murugan (Agronomy)			
4	Farming Situation	Season : Rabi Farm situation : Irrigated Soil type : Black soil Fertility status :127.6 :10.2 :397 NPK Seasonal rainfall : Rabi season - 464mm No of Rainy days : 11 days			
5	Problem Definition	Low productivity (6.5qtl/ha) Lack of awareness on high yielding new variety (70%) Lack of awareness on YMV, Powdery mildew resistance variety (70%)			
6	Critical input	Name of Critical input	Qty / trial	Cost / trial	
		Seed (Co – 8)	8Kg	1200	
		Seed (DDG – 2)	8Kg	1200	
		Seed (VRM – 1)	8Kg	1200	
		Field Board	1	350	
		TOTAL per Trial			3950
TOTAL (5 Trials)			19750		
7	Details of technologies selected for assessment	T1 – Co (Gg) – 8	T2 – DDG (Gg) – 2	T3 – VRM (Gg) – 1	
8	Source of technology	TNAU 2013	UAS Dharwad 2014	TNAU 2009	
9	Performance of the Technology with performance indicators	Parameters	T1	T2	T3
		Plant population –Plant / m ²	20	21	21
		No of pods/plant	31.2	10.2	34.4
		No of seeds/pod	10.2	15.2	10.8
		Pod length (cm)	7.5	12.5	7.8
		1000 grain weight (g)	20.3	23.4	20.4
		Pod borer incidence %	4%	6%	4%
		YMV incidence %	Nil	Nil	Nil
		Days of Maturity	65	70	63
		Yield q/ha	842	887	941
		Gross cost	23217	23672	23542
		Gross return	46970	49705	52740
		Net return	23752	26033	28459
BC ratio	2.01	2.09	2.2		
10	Description of the results	<ul style="list-style-type: none"> Assessment of Green gram varieties revealed that VRM (Gg)-1 variety has resulted in higher no of pods (34.40), no of seeds /pods(10.8), low pest and disease incidence and higher yield than the Co(Gg) -8 and DDG (Gg)-2. All the varieties which were assessed have resistance to YMV and Drought. These varieties have very short duration (60-70Days). DDG-2 Variety has pod length (12.5), no of seeds (15) but very less no of pod per plant compared to VRM-1 and Co-8. Though VRM (Gg)-1 has lesser no of pods (34.4) than Co (Gg) -8 and DDG (Gg)-2, it has recorded higher yield (941qtl/ha) and BC ratio than Co(Gg) -8 and DDG (Gg)-2. VRM (Gg)-1 has performed well even in low rainfall areas. Hence, VRM (Gg)-1 is suitable for rain fed conditions in Thoothukudi district. Green gram variety VRM -1 can be recommended for take up sowing in rain fed conditions of Thoothukudi district. Prevalence of dry spell was experienced during previous year in Rabi season (only 456 mm rainfall was received as against average rainfall 			

		of 660 mm). • During that period the variety VRM-1 was performed better and withstood for more than two weeks period of dry spell. For further spread, CFLD will be conducted in the coming year.
11	Feedback from farmers	DDG -2 pods are shattering while plucking VRM1 and Co-8 pods are non shattering. VRM-1 variety is more preferable followed by DDG-2 and Co-8
12	Constraints identified and feedback for research	Nil
13	Feed back to the scientist who developed the technology:	The varieties VRM-1 and DGG-2 recorded higher grain yield of 2.2 and 2.09 percent respectively than Co-8 . BC ratio was higher in VRM -1 (2.2) followed by DDG-2 (2.09) and Co -8 (2.01).
14	Final recommendation	Green gram variety VRM -1 can be recommended for take up sowing in rain fed conditions of Thoothukudi district. Prevalence of dry spell was experienced during previous year in rabi season (only 456 mm rainfall was received as against average rainfall of 660 mm). During that period the variety VRM-1 was performed better and withstands for more than two weeks period of dry spell. For further spread CFLD will be conducted during the forthcoming year.

OFT no.	2					
1	Title of Technology Assessed	Assessing the suitability of alternate crop for black gram and green gram under dry land situation				
2	Thematic area	ICMP				
3	Scientist Involved	Mr. A. Murugan (Agronomy)				
4	Farming Situation	Season : Rabi Farm situation : Irrigated Soil type : Black soil Fertility status :122.3.6 :11.0 :422 NPK Seasonal rainfall : Rabi season - 464mm No of rainy days : 11 days				
5	Problem Definition	Vagarious nature of monsoon causing crop losses very often Very less price during harvesting period (Rs.3900/qtl) More pest and diseases incidence (75%) Cost of cultivation for pulses Rs. 28750/ha				
6	Critical input	Name of Critical input		Qty / trial	Cost / trial	
		Sesame (TMV-7)		2Kg	450	
		Bengal gram Co - 4		30Kg	2400	
		Castor (TMV(CH)-1)		2Kg	400	
		Field board		1	350	
		TOTAL per Trial			3600	
TOTAL (5 Trials)				18000		
7	Details of technologies selected for assessment	T1 – Sesame TMV-7	T2 – Bengal gram CO-4	T3 – Castor TMV(CH)-1		
8	Source of technology	TNAU	TNAU	TNAU		
9	Performance of the Technology with performance indicators	Parameters		T1	T2	T3
		Plant Population –/m ²		19.2	20.8	3
		Height /Plant(Harvest)		96.2	35.8	76.5 Days to drought Occur in flowering stage (65 to 70 days)
		No of capsules /pods / (No./plant)		74.2	17.3	-----
		Number of branches (No./plant)				
		Seeds/capsules		29	---	----
		Test wt		3.18	26.2	----
		Pod borer incidence (%)		6%	9%	----
		Fusarium wilt (%)		--	9%	---
		Phyllody incidence (%)		12%	---	---
		Days to Maturity		88	85	Drought Occur
		Yield q/ha		744	880	----
		Gross cost		34944	32758	----
		Gross return		44652	48444	----
Net return		9708	15685	-----		

		BC ratio	1.27	1.49	----
10	Description of the results	<ul style="list-style-type: none"> Assessment was conducted in Ottapidaram block, where farmers were cultivating Green gram and Black gram since three decades. As the Green gram and Black gram are predominant pulse crop in this region, it fetches low price in the market. By realizing the price fluctuations for these commodities, we planned to assess the alternative crop for Black gram and Green gram and assessed sesame, Bengal gram and caster. because long duration (150 days) due to low rainfall and reduce annual average rainfall 456mm caster crop failed miserably due to terminal droughts Bengal gram can be recommended for take up sowing in rain fed conditions of Thoothukudi district. Prevalence of dry spell was experienced during previous year in rabi season (only 456 mm rainfall was received as against average rainfall of 660 mm). During that period the Bengal gram was performed better than sesame crop. Bengal gram recorded higher yield (880Kg/ha), higher market preference, net income (15685kg/ha), BC ratio (1.49) than sesame crop. Sesame crop affected by Phyllody which affected the yield (744kg/ha) and BC ratio (1.2). So Bengal gram growing as an alternate crop for black gram and green gram under delay sowing under rain fed condition resulted in high yield, higher return and market preference. For further spread need, OFT will be conducted with high yielding new variety during the forthcoming year. 			
11	Feedback from farmers	Farmers are interested in Bengal gram growing as an alternate crop for black gram and green gram under rain fed condition for realizing high yield, income and market preference.			
12	Constraints identified and feedback for research	Caster is a long duration crop which was affected by terminal drought. Sesame affected by high incidence of Phyllody which resulted in low yield.			
13	Feed back to the scientist who developed the technology:	Bengal gram has been identified as the best suitable alternate crop for black gram and green gram in Thoothukudi district. So high yielding drought tolerance varieties may be developed for the farmers in dry tracts.			
14	Final recommendation	Bengal gram best alternate crop in Thoothukudi district it's provide higher yield, higher profit with less incidence of pest and diseases, good market preference and higher prize.			

OFT no.	3				
1	Title of Technology Assessed	Assessment of high yielding Chilli Hybrids			
2	Thematic area	Production Technology			
3	Scientist Involved	Mr. P. Velmurugan (Horticulture)			
4	Farming Situation	Season : Rabi Farm situation : Irrigated Soil type : Sandy clay loam Fertility status : NPK			
5	Problem Definition	Low yield of Chilli hybrid US – 305 (70%) Occurrence of chilli mosaic and anthracnose (65%) Poor awareness on high yielding hybrid varieties (80%) Low productivity (21ton/ha) and profitability			
6	Critical input	Name of Critical input	Qty / trial	Cost / trial	
		Co – 1 seed	50gm	1050	
		Arkameghana seed	50gm	1100	
		Vegetable special	2 Kg	350	
		Field board	1No	350	
		TOTAL per Trial			2850
TOTAL (5 Trials)			14250		
7	Details of technologies selected for assessment	T1 – US 305 (FP)	T2 – Co (Ch) – 1	T3 – Arkameghana	
8	Source of technology	Local	TNAU 2016	IIHR 2017	
9	Performance of the Technology with performance indicators	Parameters	T1	T2	T3
		Fruit length (cm)	8.2	10.3	11.0
		Number of fruits/plant	53	59	64
		Yield/plant (gm)	370	485	537
		Yield/ha Green pod(qtl)	156.7	183.15	191.40
		Gross cost/ha	66200	66500	68500
		Gross Return/ha	235050	274725	287100
		Net return/ha	168850	208225	218600
BC ratio	3.5	4.13	4.2		

10	Description of the results	The local hybrid (US-305) didn't withstand the hot humid condition and the flower shedding was so high. Whereas the T1 and T2 withstood the condition and yielded satisfactorily. The pale green colour of Co(CH)-1 has got low preference among the buyers.
11	Feedback from farmers	Private hybrids are not suitable in hot and humid condition. Yield was low due to thrips and heavy flower drop
12	Constraints identified and feedback for research	The colour of the Co(CH)1 pod was pale green which lowered the buyers preference and price as well.
13	Feed back to the scientist who developed the technology:	The colour of the green chilli should be enhanced to dark green to fetch reasonably higher price to the growers
14	Final recommendation	Both Arkameghana and Co(CH)-1 can be promoted to increase the production, productivity and income of the chilli growers of Thoothukudi District

OFT no.		4					
1	Title of Technology Assessed	Assessment of Tomato hybrids for LCV Resistance					
2	Thematic area	Production technology					
3	Scientist Involved	Mr. P. Velmurugan (Horticulture)					
4	Farming Situation	Season : Rabi Farm situation : Irrigated Soil type : Sandy clay loam Fertility status :117.6 :12.3 :490 NPK					
5	Problem Definition	LCV attack in the ruling commercial and Local variety during fruiting stage (70%) Susceptibility of -US 302 to LCV (55%) Little awareness on resistant varieties (90%) Lesser yield (340ton/ha)and income					
6	Critical input	Name of Critical input		Qty / trial	Cost / trial		
		Arka Rakshak		50gm	1050		
		Arka Samrat		50gm	1550		
		Veg. special		1Kg	175		
		Field board		1No	350		
		TOTAL per Trial			3125		
		TOTAL (5 Trials)					
		15625					
7	Details of technologies selected for assessment	T1 – US 302 (FP)	T2 – Arka Rakshak	T3 – Arka Samrat			
8	Source of technology	Local	TNAU 2016	IHR 2017			
9	Performance of the Technology with performance indicators	Parameters			T1	T2	T3
		Fruit weight(gm)			66	75	81.5
		Number of fruits/cluster			3	4.5	4.0
		Incidence of LCV(random sampling of 100plants)			9	3	4
		Yield/plant (kg)			4.5	7.10	7.02
		Yield/ha (qtl)			396.25	512.40	505.20
		Gross cost/ha			75400	84500	84000
		Gross Return/ha			317000	409920	404160
		Net return/ha			241600	325420	320160
BC ratio			4.2	4.85	4.81		
10	Description of the results	The farmers were satisfied with the yield. Staking the tomato plants individually to avoid the braking of branches was new to the beneficiaries. Otherwise yield would have increased 10-12% extra than the yield obtained from the field.					
11	Feedback from farmers	Staking individual plant was very difficult. Keeping quality of fruits of both varieties were very good. Very good demand for salad purpose					
12	Constraints identified and feedback for research	High cost of staking, drudgery in providing support to all the fruiting branches. Plants with more upright and strong branches may bring down the cost of staking to a minimum level.					
13	Feed back to the scientist who developed the technology:	Though the varieties are characterized as triple resistant (To LCV, Bacterial Wilt and Early blight) 3-4% of wilt occurrences was noticed in the trial plots during rainy days					
14	Final recommendation	Since both the varieties exhibited field resistance to LCV, BW and Early blight, Arka Rakshak and Arka Samrat can be promoted among the farmers of Thoothukudi district.					

OFT No.		5		
1	Thematic area	Production and management		
2	Title	Assessment of different oestrus synchronization procedures for the management of infertility in dairy cows		
3	Scientists involved	Dr.V.Srinivasan ,S.Sumathi and C.Bhagavatsingh		
4	Details of farming situation Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	Cross bred dairy cows maintained under semi intensive system of rearing in semi arid southern zone near coastal region with the annual mean rain fall of 652mm in 14 rainy days. The cows were allowed for grazing on the fields for 6-8 hours per day and hand milked twice daily in the homestead and each cows were provided with little bit of concentrate like wheat bran- 2kg, mixture cake- 2kg, gruel and other house hold food waste daily. The average milk yield per day per cow is 6.5lit.		
5	Problem definition / description: (one paragraph)	Out of the 20 dairy farmers surveyed during Feb 2018 , they reported that they face following problems in breeding the cows : Delayed inseminations (60%) due to inability to take the cattle in time for insemination, Repeat breeding (20%) and Infertility (20%)		
6	Technology Assessed:			
	T1 Farmers practice	Farmer practices AI / NS for cows in oestrus		
	T2	Oestrus synchronization using PGF ₂ α		
	T3	Oestrus synchronization using prosynch NC protocol		
7	Critical inputs given	Quantity per trial	Value Rs.	
	PGF ₂ α 25 mg	10ml	650	
	Prosynch NC	1 no.	450	
8	Results			
Performance of the technology in 180 days of observation period , non-pregnant cyclic cows in mid to late lactation / heifers were selected for this trial purpose				
Parameters of Assessment		Technology Assessed with Source		
		T1 –	T2 –	T3
Source and Year		Farmers practice	TANUVAS	TANUVAS
Efficiency in estrus synchronization				
time required for appearance of synchronized oestrus signs after 1st dose (hrs)		Not applicable	120 hrs	96 hrs
Intensity of synchronized oestrus signs (score: intense(3)/intermediate(2)/weak(1)/flaccid(0)		Not applicable	1.58	2.43
No. of inseminations required for successful fertilization		2.5	3	2.43
Inter calving period (in days)		491	441	427
Gross Cost/lactation		91492	84692	83692
Gross Return/lactation		98791	98791	98791
Net Return in Rs		7299	14099	15099
B.C Ratio		1.08	1.17	1.18
Farmers Feedback		Feed back to the scientist who developed the technology		
Synchronized oestrus induction technology with prosynch NC and PGF2Alpha are resulted in synchronized oestrus occurrence and ensured the availability of AI technician for artificial insemination. This technique does not increases fertility rate		1. Prosynch NC technique is very effective in bringing the animals into synchronized oestrus and simple procedure easily performed by the farmer, but it does not increase the fertility percentage after artificial insemination. 2. Further study is needed to improve the fertility percentage after oestrus synchronization using prosynch NC.		
Descripti on of the Result:	The problem in identification of cow in oestrus and synchronizing the availability of AI technician delayed the successful fertilization process and increased the inter calving period in cross bred cows. A simple on farm trial has been organized to improve the bovine fertility percentage using two different oestrus synchronization technique followed by AI at veterinary dispensary. Oestrus synchronization was done to 12 cows using single dose of PGF2Alpha injection and 8 cows with progesterone nano cream cutaneous application in diestrus. All the 8 cows/heifers applied with Progesterone nano cream showed synchronized oestrus signs at 96 hours post treatment, whereas only 9 out of 12 cows treated with PGF2Alpha developed synchronized oestrus signs at 120 hours post treatment. Progesterone nano cream cutaneous application technique does not needed the physical presence of the Veterinarian whereas the other procedure needed. After oestrus synchronization both the treatment required more than one AI for successful pregnancy, T2 required 3 AI and T3 needed 2.43 AI and both are not significantly different in terms of successful pregnancy. Intercalving period was significantly reduced from 491 days in T1 to 441 in T2 and 427 in T3. The intensity of observed synchronized oestrus signs score for T2 is 1.58 and T3 is 2.43 in 0 to 3 scale score card. Hence it is concluded that Progesterone Nano cream technique is a potential alternative oestrus synchronization procedure and the farmers can themselves apply it to their cyclic cow/heifer and take the cattle with synchronized oestrus for AI during the morning hours when the Veterinarian is available for insemination procedure.			
Constrai nts faced	Repeated synchronization was required for successful fertilization			

OFT No.		6			
1	Thematic area	Breed improvement			
2	Title	Assessment of suitable poultry bird for backyard rearing			
3	Scientists involved	Dr.V.Srinivasan SS and H i/c, C.Bhagavatsingh SMS AE and S.Sumathi SMS H.Sci.			
4	Details of farming situation Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc (about 500 words)	Backyard poultry are maintained under semi intensive system of rearing in semi arid southern zone near coastal region with the annual mean rain fall of 652mm in 14 rainy days. Mainly non descript desi birds are reared in the backyard condition which have the potential to produce 60-90 eggs and have the tendency to brood after each laying.			
5	Problem definition / description: (one paragraph)	Improved birds for backyard rearing was reported to prone for diseases and easily become a prey for hunting animals, In contrary the desi birds have good flight behavior and disease resistance but has less egg or meat conversion efficiency. 20 percentage of backyard poultry farmers reported that their desi birds had low body weight gain and low egg production potential and 65% of farmers reported low income from poultry due to factors like prey animals and cannibalism behavior in desi birds			
6	Technology Assessed:				
	T1 Farmers practice	Desi birds			
	T2	Gramapriya birds (Source: ICAR DPR – Hyderabad)			
	T3	TANUVAS Aseel Chicken (source: TANUVAS 2017)			
	T4	Srinidhi (Source: ICAR DPR Hyderabad 2015)			
7	Critical inputs given	Quantity per trial	Cost per unit	Total Qty	Total Cost(Rs.)
	TANUVAS Aseel Chicks (45 days old)	18	65	150	9750
	Gramapriya chicks (45 days old)	10	65	80	5200
	Srinidhi chicks (45 days old)	08	65	60	3900
8	Results				
Parameters of Assessment		Technology Assessed with Source			
Source and Year		T1 (Desi)	T2 (TANAUVAS Aseel)	T3 (Gramapriya)	T4 (Srinidhi)
Body weight gain (g)					
	45 th day	215	385	485	510
	90 th day	625	1080	1180	1060
Livability (%)					
	45 th day	82.5	96.5	95.5	95.5
Livability (%)					
	180 th day	78.0	85.3	82.4	DNA
Egg yield per annum		80	140	160	DNA
Age at start of egg laying (week)		28.5	No egg laying up to 22 wks	24.5	DNA
Selling prize per egg		12	10	8	8
Egg size		Small	medium	Large	Large
Egg weight in g		40	46	52	58
Egg preference by consumers		Very high	Very high	Medium	Medium
Gross Cost /25 hen units		11657	11657	11657	11657
Gross Return / 25 hen unit		32750	42500	37000	DNA
Net Return in Rs /25 hen unit		21093	30843	25343	DNA
B.C Ratio		2.81	3.65	3.17	DNA
Farmers Feedback			Feed back to the scientist who developed the technology		
1. TANUVAS Aseel has <u>broodiness</u> at the same time lay <u>more number of eggs</u> its eggs are <u>preferred at par with desi bird</u> eggs and meat. 2. Gramapriya and Srinidhi are slightly stout birds very good for egg production and meat purpose but <u>suitable for household consumption</u> and not preferred by the market at par with desi birds or TANUVAS Aseel			The birds with good flight behavior which can lay medium sized egg and light brown shell colour are most preferred by the consumers and hence TANUVAS Aseel is the best breed for desi poultry entrepreneurs and Gramapriya is the best breed for house hold egg and meat production and consumption.		
Description of the Result:	An on farm trial was conducted to assess the suitability of different improved poultry breeds released by ICAR DPR and TANUVAS under rural free range system of rearing conditions in Ottanatham and Vilathikulam cluster in Thoothukudi district .Gramapriya, TANUVAS Aseel and Srinidhi are the different breeds assessed. Ten trials were				

	<p>conducted and each farmer reared 10,18,8 numbers of Gramapriya, TANUVAS Aseel and Srinidhi breed of chicks respectively. All the breeds assessed have 60 to 70 percent higher body weight gain compared to desi breed at 90th day, livability percentage is comparable among the three improved breeds tested and it is more than desi breed probably due to rearing of these chicks under controlled brooding for 30 days where as desi birds are brooded by the hen under natural situation, but on 180th day improved breeds showed better livability when compared to desi birds probably due to good feeding and care given to them. TANUVAS Aseel gave 75% more egg yield and Gramapriya gave 100 per cent more egg yield over the desi breeds. Farmers who preferred more egg production for family consumption preferred Gramapriya followed by Aseel breed over Desi hen. The egg shell colour of GP is more darker than Aseel and Desi hen eggs, GP egg size is more than Aseel and Desi hen eggs. With respect to egg size and colour the consumer preference is for Desi and TANUVAS Aseel. With respect to body weight GP gained more body weight when compared to Aseel and Srinidhi breeds and all these three gained 66 to 70 percentage more body weight at 90th day but because of the body shape and elegant look TANUVAS Aseel was most preferred by the consumers when compared to GP and Srinidhi. The egg laying performance and livability data of Srinidhi is yet to be collected in this study, but based on the available data it is concluded that TANUVAS Aseel is the most suitable improved bird as it have higher egg production, better body weight characters and still retain its broodiness.</p>
Constraints faced	<p>At present Chicks or hatching eggs need to be transported a long distance from Hyderabad and Chennai for Srinidhi and TANUVAS Aseel. Parent chicks rearing unit need to be started within the district to make this breed available in nearby place to the needy farmers.</p>

3.D FRONTLINE DEMONSTRATIONS

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	Ground Nut	Drudgery reduction	Demonstration on groundnut stripper and decorticator	Through training programmes and exhibition	5	20	40
2	Snake guard	Vegetables	Co – 2 snake guard as inter cropping in drumstick	Demonstration and Training	12	380	165
3	Guava	Fruits	L-49 guava under HDP system	Demonstration and Training	5	22	14
4	Green fodder	Livestock feeding	Azolla cultivation in homestead	Method demonstration, technology pamphlets, distribution of azolla seeds and kit	128	1380	1
5	Green fodder	Livestock feeding	Mixed Green fodder cultivation (fodder sorghum+Hedgelucerne/Sesbania + Subabul + Hybrid cumbu Napier co-4)	Training, demonstration and pamphlets distribution and seed supply	368	4416	353
6	Livestock and poultry	Livestock feeding	Mineral mixture feeding to cows and goat (SMART mineral mixture / mineral lick)	Training, method demonstration, pamphlets distribution	450	8550	0
7	Livestock and poultry	Livestock feeding	Feeding unconventional feed (mesquite pod flour) to livestock	Training, method demonstration, pamphlets distribution	625	10450	0
8	Livestock and poultry	Disease management	Vaccinating the poultry chicks against Ranikhet disease	Training, method demonstration, pamphlets distribution	240	7560	0
9	Livestock and poultry	Disease management	Deworming the sheep and goat	Training, method demonstration, pamphlets distribution	1408	18150	0
10	Livestock and poultry	Disease management	Vaccinating the sheep and goat against PPR and ET diseases	Training, method demonstration, pamphlets distribution	1408	18150	0
11	Livestock and poultry	Disease management	Vaccinating the cows against FMD	Campaign mode	1821	28350	0
12	Sheep	Disease Management	Comprehensive disease control practices in sheep	Veterinary mass contact programmes and intensive disease control by vaccination Success story broad casting in you tube and social media	15	165	17000 sheep
13	Goat	Nutrition Management	Use of salt lick in promoting growth rate in goat kids	Success story broad casting in you tube and social media	60	150	1800 goats
14	Dairy cow	Nutrition Management	Feeding management of cross bred cows to improve the fertility	Success story broad casting in you tube and social media	15	85	120 cows
15	Dairy cow	Disease	Demonstration of calf care and	Pamphlets and distribution of first aid kit	01	20	

		Management	veterinary first aid Kit	Success story broad casting in you tube and social media			
16	Sheep	Disease Management	Targeted selective treatment for the control of haemonchosis in sheep using FAMACHA score card	Veterinary mass contact programmes Pamphlets and distribution of FAMACHA score card Success story broad casting in you tube and social media	02	10	

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	Season and Year	Crop	Variety/breed	Hybrid	Source of funding	Thematic area	Technology Demonstrated	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
								Proposed	Actual	SC/S/T	Others	Total	
1	Rabi 18 – 19	Paddy	TRY – 3		ICAR	ICMP	ICMP in Paddy TRY (R) - 3 (TNAU 2010) duration 135 days Medium bold (Y – 5.8 t/ha) INM Methods Green manure (Daincha)@ 50 kg seeds/ha (TNAU) Bio fertilizer seed treatment and gypsum application 500 kg /ha + NPK 150 : 50 : 50 + Zinc Sulphate - 25 kg /ha IWM - Pre-emergence herbicides - Butachlor 1.25kg/ha and IPDM Practices - Leaf folder and stem borer control by releasing T.chilonis and T.japonicum parasitoids respectively @ 2cc/acre - 3times at 15 days interval	4	4	10	0	10	
2	Rabi 18 – 19	Maize		Co – 6	ICAR	ICMP	Duration 110days Seed rate 20kg/ha Seed treatment Azophos Residue mulching (Tractor drawn Rotovator) Ridges and furrow formation NPK : 60:30:30Kg/ha Foliar spray of TNAU Maize Maxim @ 3 kg/acre in 200 liters of water Apply MN Mixer 7.5 kg /ha Apply Atrazine @ 0.25 kg/ha as pre-emergence on 3-5 DAS followed by 2,4-D @ 1 kg/ha on 20-25 DAS, IPDM	4	4	0	10	10	
3	Rabi 18 – 19	Bhendi		Co-4	ICAR	Varietal introduction with ICMP	Cultivation of YMV resistant CO(Bh) 4 with ICM practices	2	2	10	0	10	
4	Rabi 18 – 19	Banana	Nendran		ICAR	Crop Nutrition	1. Denaveling 2. Feeding of Blending 15 gm of (Approximately 7.5g of Urea) And 7.5 g of Sulphate of Potash dissolved in 500 ml water + 500 gm of fresh cow dung and applying the Slurry to the De-naveled stalk-end after the merge of last hand 3. Foliar application 3% panchakavya / EM after the last hand	4	4	0	10	10	

						emergence 4. Foliar application of 0.5% banana special on 3 rd , 5 th and 7 th month after planting							
5	Rabi 18 – 19	Jasmine	Madurai malli		ICAR	Crop management	Biofertilizer: Soil application of 2 kg each of <i>Azospirillum</i> and Phosphobacteria per ha at the time of planting. It is to be mixed with 100kg of FYM and applied in pits. Summer pruning (May-june) followed by manuring Media consortia: 5kgFYM + 500g Neem cake + 100g Vermicompost are applied per pit at the time of planting. Irrigation: Once in 3 days through drip system. Manuring: 100% RDF (60:120:120g NPK/plant/year) as WSF [Polyfeed (19:19:19), Flower induction through Potassium Nitrate (13:0:45) and 1% Urea foliar spray. Bio stimulants: Foliar spray of Panchagavya 3% + Humic acid 0.4% at monthly intervals. Micronutrients: Foliar spray of FeSO ₄ @ 0.5% + ZnSO ₄ @0.5% at monthly intervals. Yield: 12 t/ha.	4	4	10	0	10	
6	Rabi 18 – 19	Green fodder	COFS- 29, Hedge lucerne	Co CN-4	TANUV AS	Fodder cultivation	Mixed green fodder cultivation (CO CN -4, Hedge lucerne/Sesbania, Fodder sorghum CoFS 29)	1	1	10	0	10	
7	Rabi 18 – 19	Sheep & Goat			CSWRI	Disease management	Targeted selective treatment (TST) approach (CSWRI, 2017)			0	10	10	
8	Rabi 18 – 19	Cattle			TANUV AS	Disease management	Demonstration on veterinary first aid kit to reduce calf mortality (TANUVAS, 2018)			10	0	10	
9	Rabi 18 – 19	Vegetab les			TNAU	Processing farm produces	Demonstration on multi cropping and staggered sowing Demonstration on decontamination of pesticides residual methods Suitable methods of minimal processing and Packaging Market tie up with retail markets			10	0	10	
10	Rabi 18 – 19	Onion			CSC&RI, AC & RI Madurai 2018	Value addition	Demonstration of onion flakes, onion powder and onion Vadagam using local small onion variety Solar drier			0	10	10	

Details of farming situation

Sl. No	Farming Situation	Season and Year	Crop	Soil type	Status of soil			Previous crop grown	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
					N	P	K					
1	Irrigated	Rabi 2018 – 19	Paddy	Clay loam	169.5	10.51	439.9	Paddy	20,22,25 and 30.11.2018	15 to 20.03.2018	543.14	13
2	Rainfed	Rabi 2018 – 19	Maize	Black soil	140.9	11.61	470.2	Black gram	26,28 and 30.11.2018	15,18 and 21.03.2018	543.14	13
3	Irrigated	Rabi 2018 – 19	Bhendi	Red sandy	180.6	8.93	436.5	Vegetable	14.08.2018	28.12.2018	543.14	13
4	Irrigated	Rabi 2018 – 19	Banana	Clay loam	145.6	9.56	390.4	Paddy	14.03.2018	05.03.2019	543.14	13
5	Irrigated	Rabi 2018 – 19	Jasmine	Red sandy	152.0	10.12	410.6	Black gram	09.09.2018	12.03.2019	543.14	13
6	Irrigated	Rabi 2018 – 19	Fodder	Clay loam	160.2	9.8	430.9	Fodder	June 2018, and Jan 2019	Once in 40-60 days		

Feedback on Demonstration

Sl. No	Title of program	Technical Feedback on the demonstrated technologies	Farmers' reactions on specific technologies
1	Demonstration of Paddy TRY (R) 3 with ICM Practices for saline affected area	TRY-3 has been identified as the ideal variety for saline affected areas of Thoothukudi. It has also recorded high yield and less incidence of pest and disease.	Farmers expressed satisfaction on TRY-3 for its high yield and less pest and disease incidence in saline affected soil
2	Demonstration on TNAU Maize hybrid Co-6 with soil moisture conservation technology in Dry land farming	Maize Co(H) 6 is highly(76%) affected by fall army worm, very low yield and return	Maize crop Sevier affected by fall army worm due to very low yield, very low return ,high cost of cultivation and less fodder production
3	Demonstration of CO(Bh) 4 Bhendi	Since the demonstrated Co (BH) 4 variety resulted in high yield (218.2 qtl/ha) and exhibited resistance to YVMV, it can be promoted in Thoothukudi district	The thorny hair was very less on the fruit of the demonstrated variety which enabled them to harvest the fruits quickly. Expressed satisfaction on yield and field level resistance to YVMV.
4	Demonstration of technologies to enhance the bunch weight	Feeding the stalk immediately after the de-naveling with urea, SOP and cow dung in 500 ml of water increased the bunch weight of Nendran variety to 16.7 % over the control.	Though the technology boosted the bunch weight to 1-1.5kg, feeding the individual bunch with the solution was very cumbersome to adopt. Procurement of plastic bags was another problem in implementing the technology.
5	Demonstration of Precision Production Technology for yield enhancement in Jasmine	Pruning followed by foliar spray helped to get increased weight and yield of Jasmine flowers. The beneficiaries expressed confidence over the technology to follow in the coming season.	Early pruning in October and foliar application of 0.2% KNO ₃ after 30 days of pruning and 1% urea spray 15 days after the first spray induced the flower yield significantly and this technology can be promoted to enhance the Jasmine flower yield.
6	Mixed Green fodder cultivation	Saline resistant cultivars of CN Hybrid, fodder sorghum and hedgelucern is needed to increase the area under fodder cultivation in coastal region of Thoothukudi district	Palatability of CN hybrid, Fodder sorghum and hedge lucern are very good. It helps to improve the milk yield in summer months
7	Demonstration on Targeted selective treatment (TST) approach for management of haemonchosis in Sheep & Goat	Farmers are very reluctant to leave the non-anemic sheep from regular deworming fearing the loss in TST programme but only after continuous persuasion able to convince them for TST	This practice requires rechecking of sheep after 90 days for assessing the status of anemia development, where as in conventional system the shepherds will handle the sheep only

		approach. All the sheep were need to be handled to read the anaemic status using FAMACHA score card and for this they need 4 helpers for 1.5 hours duration for checking 100 animals. Hence designing of a portable equipment/gate like structure to reduce the requirement of helpers will certainly improve the acceptability of this practice.	two times for deworming and hence additional labour is needed for the purpose under TST for handling two more time.
8	Demonstration on Veterinary first aid kit to reduce calf mortality	Very useful kit, umbilical card clip was not needed in most of the calving.	First aid kit is very handy to provide immediate first treatment and this kit help us to reduce treatment cost for the wound and disease incidence in their cattle.
9	Demonstration of minimal processing for sustainable Value chain system for vegetables	<ul style="list-style-type: none"> • The farmers faced challenge while selling the produce directly to super market because of the traders dominating attitude and difficult to arrange transport facilities for small quantity of vegetables. • They able to sell 30% of their vegetables through retail sales / super market and remaining 70% through only whole sale • Easy to sell small quantity of vegetables in weekly sandy through proper grading • Able to avoid wastage of vegetables while marketing 	<ul style="list-style-type: none"> • The self life and consumer preference of the graded and packaged product is high. • The price for vegetables is low when the farmers take their product without sorting and grading to the market.
Continued FLD (2017 – 18)			
10	Demonstration on HDP in banana	Planting of two suckers per pit with 45-60 cm apart increased the suckers to 3200/ha as against the normal planting of 2000/ha. The bunch weight (24-28kg) of the closely planted bananas were also almost at par with that of control (27-30kg). The demonstrated technology resulted in 36.8% increase yield than the control field.	Yield was very satisfactory but the cost of production is also increased due to pitting, planting and scaffolding operations. Technology should be evolved to bring down the cost of cultivation specially the scaffolding cost. Increased the incidence of thrips due to high humidity prevailed in two / pit planting
11	Demonstration on HDP in Guava	Reduced spacing of 3x2m accommodated 1666 plants against 400 plants in the normal planting with 5x5m spacing. <ul style="list-style-type: none"> • The increased number of plants and regular pruning increased the production per unit area and income as well. • Canopy management helped the beneficiaries to carry out the intercropping operations very easily 	<ul style="list-style-type: none"> • The Pruning operation really boosted the side branch formation which increased the fruit yield • Beneficiaries have expressed satisfaction over the increased fruit yield (6,5Kg/tree) in 3rd year.

Performance of Frontline demonstrations

Frontline demonstrations on crops

Crop	Thematic Area	Technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
			Domo	Check			Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Avg										
Cereals																			
Paddy	ICMP	ICMP in Paddy TRY (R)-3 (TNAU 2010) duration 135 days Medium bold (Y – 5.8 t/ha) INM Methods Green manure (Daincha)@ 50 kg seeds/ha (TNAU) Bio fertilizer seed treatment and gypsum application 500 kg /ha + NPK 150 : 50 : 50 + Zinc Sulphate - 25 kg /ha IWM - Pre-emergence herbicides - Butachlor 1.25kg/ha and IPDM Practices - Leaf folder and stem borer control by releasing T.chilonis and T.japonicum parasitoids respectively @ 2cc/acre - 3times at 15 days interval	TRY-3	ASD-16	10	4	64.0	61.0	62.5	55.4	13%	58258	100104	41845	1.72	58377	88734	30357	1.52
Millets																			
Maize	ICMP	Duration 110days Seed rate 20kg/ha Seed treatment Azophos Residue mulching (Tractor drawn Rotovator) Ridges and furrow formation NPK : 60:30:30Kg/ha Foliar spray of TNAU Maize Maxim @ 3 kg/acre in 200 liters of water Apply MN Mixer 7.5 kg /ha Apply Atrazine @ 0.25 kg/ha as pre-emergence on 3-5 DAS followed by 2,4-D @ 1 kg/ha on 20-25 DAS, IPDM	Co – 6	Private Hybrid	10	4	18.56	15.42	16.62	12.86	30%	44304	34917	-9387	0.78	43751	27019	-16733	0.61
Vegetables																			
Bhendi	ICM Practices	Cultivation of YMV resistant CO(Bh) 4 with ICM practices	Co – 4		10	2	218.2	206.4	212.3	148	32.11	65300	169840	104540	2.60	60800	118400	57600	1.94

Crop	Thematic Area	Technology demonstrated	Name of the Variety/ Hybrid		No. of Farmers	Area (ha)	Yield (q/ha)			% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)				
			Domo	Check			Demo				Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
							High	Low	Avg										
Bhendi	Minimal processing for sustainable value chain system	Demonstration on staggered sowing, Grading, Suitable methods of minimal processing and packaging. Market tie up with retail markets.			10	2	215.00	204.5	201.5	146	32.09	66200	167600	101400	2.53	60200	116800	56600	1.94
Fruits																			
Banana	Production technology	Bunch feeding with SOP + Urea + Cow dung Foliar application of Banana Special ICM Practices	Nendran		10	4	360.5	310.5	334	304	9.86	91000	501000	410000	5.5	86500	456000	369500	5.27
Banana Continue FLD 2017 - 18	Planting techniques production technology	Planting of 2 suckers/pit ICM practices Foliar application and banana special	Sakkai		10	4	781.25	715.00	743.12	525.00	32.8	179100	781250	602150	4.36	134000	525000	391000	3.91
Guava Continue FLD 2017 - 18	High density planting techniques in Fruit crops	HDP system, Planting saplings in 2x3m spacing Canopy management with judicious pruning Foliar application of micro nutrient spray	L-49	L-49	5	1	42.0	34.8	38.4	18.75	55.3	71250*	105000	33750	1.4	28000	46875	18875	1.6
Flowers																			
Jasmine	Yield enhance Ment	Precision production technology	Ramanathapuramkundu (J.sambac)	Local	10	2	40.50	35.25	37.87	29.85	26.29	168750	568050	399300	3.36	152500	447750	308000	2.93
Fodder																			
Fodder	Mixed fodder	Mixed green fodder yield in 3:1:1 ratio 150:50:50 cents	Co-4+Hedge lucerne + Fodder sorghum CoFS-29	Co FS 29	10	1	2580	2300	2470	1550	59.35	87045	109250	22205	1.26	68750	77500	8750	1.13

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

** BCR= GROSS RETURN/GROSS COST

Data on additional parameters other than yield (viz., reduction of percentage diseases, increase in conceiving rate, inter-calving period etc.)

Parameter with unit	Check if any	Demo
Demonstration of Paddy TRY (R) 3 with ICM Practices for saline affected area		
Soil Oc – before	0.25	0.25
Soil Oc – After	0.25	0.29
Soil PH – before	8.5	8.5
Soil PH – After	8.5	7.7
Soil Ec – before	1.3	1.3
Soil Ec – After	1.3	1
No of hill /m ²	17.9	16.8
Productive tiller /Hill	23.1	30.8
No of seed /Panicle	156	211.8
Stemborerincidence(%)	4.3	4.3
Leaf folder incidence (%)	3.6	3.6
Rice blast	Nil	Nil
Demonstration on TNAU Maize hybrid Co-6 with soil moisture conservation technology in Dry land farming		
Population / m ²	6.0	6.3
Plant Height (cm)	163.7	170.6
Cob length (cm)	15.02	17.02
Cob weight (gm)	136.1	156.1
No of seed/Cob	100.2	155.8
Demonstration of CO(Bh) 4 Bhendi		
Fruit length (cm)	14.0	15.5
Number of fruits/plant	11.5	13
Days to first harvest	39	38
Demonstration of technologies to enhance the bunch weight		
No. of suckers/ha	2000	2000
Ave. Bunch weight (Kg)	15.2	16.7
Ave bunch price per kg	15	15
Demonstration of Precision Production Technology for yield enhancement in Jasmine		
Flower length (cm)	1.4	1.6
100 flower weight (gm)	18.10	20.85
Number of flowering days (after pruning and foliar application of KNO ₃)	87	114
Flower yield/plant (gm/plant)	475.5	625
Flower price (Ave. Rs.kg)	150	150
Mixed Green fodder cultivation		
No. of harvest/ each crop		
Fodder sorghum	5	5
Cumbu Napier Co – 4	0	7
Hedge Lucerne	-	5

Demonstration of minimal processing for sustainable Value chain system for vegetables		
No of sowing	1	2
Days between sowing	0	8 days
Increase price obtained after grading Rs/kg	0	1
Pre preparation loss while grading		12%
Shelf life	One day	Two days
Consumer preference	Average	Good
Continued FLD 2017 – 18		
Demonstration on HDP system in banana		
Average Bunch weight	28	25
No. of suckers/ha	2000	3200
No. of harvested bunch/ha	1875	3125
Bunch price (Rs/kg)	10	10
Demonstration on HDP system in Guava		
Fruit yield Kg per tree (1 st year)	0	1.2
Fruit yield Kg per tree (2 nd year)	1	3.4
Fruit yield Kg per tree (3 rd year)	4.8	6.5
Number of pruning 1 st year	0	2
2 nd year	1	2
3 rd year	1	2
Fruit weight(gm)	180	185
BCR (Calculated at the end of 3 rd year)	1.6	1.4

FLD on Livestock

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No. of Units (Animal)	Major parameters (livability % upto 6 th month)		% change in major parameter	Other parameter (calf body weight at 6 th month)		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																	
	Disease management	Demonstration of veterinary first aid kit to reduce calf mortality	10	20	100	85	15	88.5	65.5	10500	15500	5000	1.48	6500	8000	3500	1.23
Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No. of Units (Animal)	Major parameters (Cost of deworming per 100 sheep flock per annum)		% change in major parameter	Other parameter (Recurrence of anemia %)		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)
Sheep																	
	Disease management	Targeted selective treatment for the management of haemonchosis in sheep	10	1000	924	3000	-69.28	10.25	4.45	83924	274000	190076	3.26	86000	274000	188000	3.19

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

** BCR= GROSS RETURN/GROSS COST

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	Avg										
Pulse																				
Black gram	CFLD	ICMP	ICMP – VBN – 8 (TNAU,2016) (crop duration 65-75days, yield 900 kg/ha). Seed treatment - Pseudomonas fluorescens @ 10 g/kg seed – Rhizobium. Fertilizer application - Apply fertilizers basally before sowing. Rainfed : 12.5 kg N + 25 kg P2O5 + 12.5 kg K2O +10 kg S/ha. Foliar spray of 1% urea for yield improvement in black gram. Foliar spraying to mitigate moisture stress - Foliar spraying of 2% KCl. Twin hoe weeder for weeding. IWM - Pendimethalin 2.5 lit/ha application 3 DAS. Quizolofop ethyl @ 50g ai/ha and Imazethepyr@ 50g ai/ha application on 15-20 DAS. Pulse wonder spray 5kg/ha. IPDM Practices - Bt spray, Neem soap	VBN –8	VBN – 4	50	20	8.97	6.93	7.85	5.61	28%	28133	43175	15042	1.53	28099	31020	2921	1.10
Green gram	CFLD	ICMP	ICMP – Co - 8 (TNAU,2013) (crop duration 55 - 60 days, yield 900 kg/ha). Seed treatment - Pseudomonas fluorescens @ 10 g/kg seed – Rhizobium. Fertilizer application - Apply fertilizers basally before sowing. Rainfed : 12.5 kg N + 25 kg P2O5 + 12.5 kg K2O +10 kg S/ha. Foliar spray of 1% urea for yield improvement in black gram. Foliar spraying to mitigate moisture stress - Foliar spraying of 2% KCl. Twin hoe weeder for weeding. IWM - Pendimethalin 2.5 lit/ha application 3 DAS. Quizolofop ethyl @ 50g ai/ha and Imazethepyr@ 50g ai/ha application on 15-20 DAS. Pulse wonder spray 5kg/ha. IPDM Practices - Bt spray, Neem soap	Co – 8	Co – 6	50	20	9.97	7.92	8.73	5.57	36%	27867	52425	24558	1.88	28045	33452	5407	1.19
Oil seeds																				

Sunflower	CFLD	ICMP	KBSH53 Hybrid (95 days) year of release 2009 Seed treatment – <i>Azophos</i> @ 1kg/ac Fertilizer application – NPK :40:50:40 Kg/ha Gypsum application 200kg / ha IWM – Fluchloralin 2lit/ha application 3 DAS Micronutrient mixture 12.5 kg /ha basal application Effective microbes foliar application IPDM Practice	KB – 53	Modern	50	20	13.4	9.9	11.7	9.59	18%	20282	38448	18166	1.90	20273	28602	8329	1.41
Groundnut	CFLD	ICMP	ICMP with variety – Dharani Seed treatment - <i>Pseudomonas fluorescens</i> @ 10 g/kg seed Fertilizer application – NPK :30:60:90 Kg/ha Gypsum application 400kg / ha IWM - Pendimethalin 2.5 lit/ha application 3 DAS Quizolofop ethyl @ 50g ai/ha and Imazethepyr @ 50g ai/ha application on 15-20 DAS Micronutrient mixture 12.5 kg /ha Groundnut rich spray 5kg/ha IPDM Practice	Dharani	TMV-7	50	20	22.8	18.7	21	16.9	19.4	47142	88182	41040	1.8	46212	71030	24883	1.5

Extension and Training activities under FLD

Sl. No	Activity	No. of activities organized	Number of participants	Remarks
1	Field days	5	260	
2	Farmers Training	15	350	
3	Media coverage	6		
4	Training for extension functionaries	5	65	
5	Others (Please specify)			

5.B.7. Results of Integrated Farming system Demonstrations

Sl no	Name of the farmer and village	Farming situation	Existing or newly added	Crop /enterprise	Area in ha	unit size	Economics of IFS model				Remarks
							Gross expenditure in Rs.	Gross income in Rs.	Net return in Rs.	BCR	
1	Kingsly, Kutudankadu-Mangalagiri	Irrigated garden land	E	Goat		20	90000	135000	45000	1.50	
			E	Cows		10	475000	800000	325000	1.70	
			E	Coconut		20	4000	5000	1000	1.25	
			E	Banana	0.25	200	12000	24000	12000	2.0	
			E	Co (CN)-2	0.5 ac						
			E	Subabul	0.25ac						
			A	Co(FS)-29	0.25ac						
			E	Vermicompost	900 sq.ft		8000	16000	8000	2.0	
			E	Cow dung			2600	5000	2400	1.92	

			E	Cross bred chicken eggs		20 hen	7685	23200	15515	3.00	
			E	Cross bred chicks			15000	30000	15000	2.0	
			A	Bee Keeping		1 Hive	2500	3500	1000	1.40	
				Total	1.4		616785	1041700	424915	1.68	
2	S.Jeyaraj Meelatheru, TN Kulam	Dry land farming with irrigation	E	Cows		4	216000	300000	84000	1.4	
			E	Goat		20	120000	180000	60000	1.5	
			E	Backyard poultry		10	4050	12150	8100	3	
			E	Coconut	10 no.		3000	6000	3000	2	
			A	Co(FS)29	0.25 ac						
			A	Hedge Lucerne	0.25 ac						
			E	Black Gram	1.2		38500	60000	21500	1.55	
				Total	1.4		381550	558150	176600	1.46	
3	Muniyamma Theerku Theru TN Kulam	Dry land farming with irrigation	E	Cows		4	216000	300000	84000	1.4	
			E	Goat		2	12000	18000	6000	1.5	
			A	Hedge lucerne	0.25 ac						
			A	Co(FS)29	0.25 ac						
			E	Cluster bean	1 acre		17600	46000	28400	2.61	
			E	Grounut	1 acre		17500	45000	27500	2.57	
			E	Coconut	10 no.		3000	6000	3000	2	
				Total	1.0		266100	415000	148900	1.55	

Summary of IFS implemented during 2018-2019

Sl. No	Name of the farmer and village	Farming situation	Crop/enterprise	Area in ha	Economics of ifs model			
					Gross Expenditure in Rs	Gross income in Rs	Net income in Rs	BCR
1	Kingsly, Kutudankadu, Mangalagiri	Garden land	Goat + Cow + Backyard Poultry + <u>Fodder crop</u> + Coconut + Banana + Vermicompost + Bee Keeping	1.2	616785	1041700	424915	1.68
3	S.Jeyaraj Meelatheru, TN Kulam	Dryland farming with irrigation	Cow + Goat + <u>Fodder crop</u> + Backyard Poultry + Coconut + Black gram	1.4	381550	558150	176600	1.46
2	Muniyamma Theerku Theru TN Kulam	Dryland farming with irrigation	Cow + Goat+ <u>Fodder crop</u> + Coconut + Cluster bean + Groundnut	1.0	266100	415000	148900	1.55

PART 4. TRAINING**Training of Farmers and Farm Women including sponsored training programmes (On campus)**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
I Crop Production										
Integrated Crop Management	1	14	0	14	6	0	6	20	0	20
Production of organic inputs	1	18	0	18	15	2	17	33	2	35
Climate change awareness programme	1	22	18	40	8	9	17	30	27	57
Pre season awareness	1	3	23	26	0	19	19	3	42	45
Total	4	57	41	98	29	30	59	86	71	157
II Horticulture										
a) Vegetable Crops										
Production of low value and high value crops	3	4	10	14	8	11	19	12	21	33
Nursery raising	2	3	5	8	3	6	9	6	11	17
Poly house farming technology	1	5	0	5	6	0	6	11	0	11
Total (a)	6	12	15	27	17	17	34	29	32	61
Jasmine cultivation	2	3	1	4	3	0	3	6	1	7
Total (c)	2	3	1	4	3	0	3	6	1	7
III Livestock Production and Management										
Feed & fodder technology	2	13	2	15	5	0	5	18	2	20
Total	2	13	2	15	5	0	5	18	2	20
IV Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	2	7	4	11	7	4	11	14	8	22
Value addition	3	8	1	9	9	2	11	17	3	20
Preparation of organic input	8	11	7	18	9	3	12	20	10	30
Total	13	26	12	38	25	9	34	51	21	72
V Agril. Engineering										
Farm Machinery and its maintenance	1	4	0	4	5	0	5	9	0	9
Total	1	4	0	4	5	0	5	9	0	9
VI Plant Protection										
Total										
VII Production of Inputs at site										
Vermi-compost production	1	3	0	3	1	0	1	4	0	4
Total	1	3	0	3	1	0	1	4	0	4
GRAND TOTAL	29	122	71	193	90	56	146	212	127	339

Training of Farmers and Farm Women including sponsored training programmes (Off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
I Crop Production										
Weed Management	2	15	6	21	17	5	22	32	11	43
Resource Conservation Technologies	4	39	57	96	30	58	88	69	115	184
Seed production	1	3	0	3	1	0	1	4	1	5
Integrated Crop Management	4	30	13	43	25	14	39	55	27	84
Integrated nutrient management	3	19	17	36	30	22	52	49	39	88
Total	14	106	93	199	103	99	202	209	193	404
II Horticulture										
a) Vegetable Crops										
Production of low value and high valume crops	1	7	9	16	11	13	24	18	22	40
Cultivation technologies for hybrid Chilli and Tomato	1	6	1	7	8	1	9	14	2	16
Total (a)	2	13	10	23	19	14	33	32	24	56
III Livestock Production and Management										
Dairy Management	1	11	6	17	12	11	23	23	17	40
Poultry Management	3	17	13	30	17	19	36	34	32	66
Total	4	28	19	47	29	30	59	57	49	106
IV Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	4	0	48	48	0	53	53	0	101	101

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
Processing and cooking	1	16	3	19	26	2	28	42	5	47
Women empowerment	4	3	108	111	6	132	138	9	240	249
Value chain minimal processing of vegetables	2	15	6	31	17	9	26	32	15	47
Uses biogas training programme for women SHG members	1	2	12	14	4	34	38	6	46	52
Capacity Building and Group Dynamics	2	21	5	26	31	7	38	52	12	64
Total	14	57	182	249	84	237	321	141	419	560
GRAND TOTAL	34	204	304	508	235	380	615	439	685	1126

Training of Farmers and Farm Women including sponsored training programmes CONSOLIDATED (On + Off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
I Crop Production										
Integrated Crop Management	5	44	13	47	31	14	45	75	27	104
Production of organic inputs	1	18	0	18	15	2	17	33	2	35
Climate change awareness programme	1	22	18	40	8	9	17	30	27	57
Pre season awareness	1	3	23	26	0	19	19	3	42	45
Weed Management	2	15	6	21	17	5	22	32	11	43
Resource Conservation Technologies	4	39	57	96	30	58	88	69	115	184
Seed production	1	3	0	3	1	0	1	4	1	5
Integrated nutrient management	3	19	17	36	30	22	52	49	39	88
Total	18	163	134	287	132	129	261	295	264	561
II Horticulture										
a) Vegetable Crops										
Production of low value and high value crops	4	11	19	30	19	24	43	30	43	73
Nursery raising	2	3	5	8	3	6	9	6	11	17
Poly house farming technology	1	5	0	5	6	0	6	11	0	11
Cultivation technologies for hybrid Chilli and Tomato	1	6	1	7	8	1	9	14	2	16
Total (a)	8	25	25	50	36	31	67	61	56	117
b) Fruits										
Total (b)										
c) Ornamental Plants										
Jasmine cultivation	2	3	1	4	3	0	3	6	1	7
Total (c)	2	3	1	4	3	0	3	6	1	7
d) Plantation crops										
III Livestock Production and Management										
Dairy Management	1	11	6	17	12	11	23	23	17	40
Poultry Management	3	17	13	30	17	19	36	34	32	66
Feed & fodder technology	2	13	2	15	5	0	5	18	2	20
Total	6	41	21	62	34	30	64	75	51	126
IV Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	6	7	52	59	7	57	64	14	109	123
Value addition	3	8	1	9	9	2	11	17	3	20
Preparation of organic input	8	11	7	18	9	3	12	20	10	30
Processing and cooking	1	16	3	19	26	2	28	42	5	47
Women empowerment	4	3	108	111	6	132	138	9	240	249
Value chain minimal processing of vegetables	2	15	6	31	17	9	26	32	15	47
Uses biogas training programme for women SHG members	1	2	12	14	4	34	38	6	46	52
Capacity Building and Group Dynamics	2	21	5	26	31	7	38	52	12	64
Total	27	83	194	287	109	246	355	192	440	632
V Agril. Engineering										
Farm Machinery and its maintenance	1	4	0	4	5	0	5	9	0	9
Total	1	4	0	4	5	0	5	9	0	9

VI Production of Inputs at site										
Vermi-compost production	1	3	0	3	1	0	1	4	0	4
Total	1	3	0	3	1	0	1	4	0	4
VII Agro-forestry										
Total										
GRAND TOTAL	63	322	375	697	320	436	756	642	812	1456

Training for Rural Youths including sponsored training programmes (on campus)

Area of training	No. of courses	No. of Participants								
		General			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
Production of organic inputs	6	3	5	8	6	1	7	9	6	15
Training on coconut climbing using climbing device for coconut growers	2	13	0	13	27	0	27	40	0	40
Organic farming practices	2	8	2	10	3	2	5	11	4	15
Cultivation of Fruit	1	16	1	17	11	2	13	27	3	30
Training on coconut climbing using climbing device for coconut growers of Tuticorin district	12	13	0	13	27	0	27	40	0	40
Dairy Management	4	19	15	34	19	17	36	38	31	70
Poultry Management	6	43	3	46	51	4	55	94	7	101
Profitable goat and sheep rearing	6	29	3	32	18	5	23	47	8	55
Bee keeping technologies	2	10	1	11	9	0	9	19	1	20
Mushroom Production	3	7	3	10	8	6	14	15	9	24
Integrated Farming Systems	2	8	3	11	7	2	9	15	5	20
TOTAL	46	169	36	205	186	39	225	355	74	430

Training for Rural Youths including sponsored training programmes (off campus) – Nil**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		
		M	F	Tot	M	F	Tot	M	F	Tot
Production of organic inputs	6	3	5	8	6	1	7	9	6	15
Training on coconut climbing using climbing device for coconut growers	2	13	0	13	27	0	27	40	0	40
Organic farming practices	2	8	2	10	3	2	5	11	4	15
Cultivation of Fruit	1	16	1	17	11	2	13	27	3	30
Training on coconut climbing using climbing device for coconut growers of Tuticorin district	12	13	0	13	27	0	27	40	0	40
Dairy Management	4	19	15	34	19	17	36	38	31	70
Poultry Management	6	43	3	46	51	4	55	94	7	101
Profitable goat and sheep rearing	6	29	3	32	18	5	23	47	8	55
Bee keeping technologies	2	10	1	11	9	0	9	19	1	20
Mushroom Production	3	7	3	10	8	6	14	15	9	24
Integrated Farming Systems	2	8	3	11	7	2	9	15	5	20
TOTAL	46	169	36	205	186	39	225	355	74	430

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		
		M	F	Tot	M	F	Tot	M	F	Tot
Production and use of organic inputs	1	10	8	18	20	16	36	30	24	54
TOTAL	1	10	8	18	20	16	36	30	24	54

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		
		M	F	Tot	M	F	Tot	M	F	Tot
Integrated Nutrient management	1	7	13	20	14	16	30	21	29	50
TOTAL	1	7	13	20	14	16	30	21	29	50

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

Area of training	No. of courses	No. of Participants								
		General			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
Integrated Nutrient management	1	7	13	20	14	16	30	21	29	50
Production and use of organic inputs	1	10	8	18	20	16	36	30	24	54
TOTAL	2	17	21	38	34	32	66	51	53	104

Sponsored training programmes conducted

Area of training	No. of courses	No. of Participants								
		General			SC/ST			Grand Total		
		M	F	Tot	M	F	Tot	M	F	Tot
Production and value addition										
Production of Inputs at site	1	10	8	18	20	16	36	30	24	54
Promotion of hybrid vegetable cultivation among small and marginal farmers of Thoothukudi district for higher yield income	1	4	10	14	8	11	19	12	21	33
Training on coconut climbing using climbing device for coconut growers of Tuticorin district	2	13	0	13	27	0	27	40	0	40
Total	4	27	18	45	55	27	82	82	45	127
Livestock and fisheries										
Livestock production and management	1	8	11	19	9	12	21	17	23	40
Total	1	8	11	19	9	12	21	17	23	40
Home Science										
Household nutritional security	4	0	48	48	0	53	53	0	101	101
Economic empowerment of women	4	3	108	111	6	132	138	9	240	249
Uses biogas training programme for women SHG members	1	2	12	14	4	34	38	6	46	52
Preparation of organic input	2	11	7	18	9	3	12	20	10	30
Total	11	16	175	191	19	222	241	35	397	432
Agricultural Extension										
Capacity Building and Group Dynamics	2	21	5	26	31	7	38	52	12	64
Total	2	21	5	26	31	7	38	52	12	64
GRAND TOTAL	18	72	209	281	114	268	382	186	477	663

Details of sponsoring agencies involved

1. ATMA Tuticorin
2. Department of Horticulture, Animal husbandry, Marketing, SCAD
3. NABARD, Tuticorin

Details of Vocational Training Programmes carried out by KVKs for rural youth

S. No.	Area of training	No. of courses	No. of Participants								
			General			SC/ST			Grand Total		
			M	F	Tot	M	F	Tot	M	F	Tot
1	Production of organic inputs	6	3	5	8	6	1	7	9	6	15
2	Training on coconut climbing using climbing device for coconut growers	2	13	0	13	27	0	27	40	0	40
3	Organic farming practices	2	8	2	10	3	2	5	11	4	15
4	Cultivation of Fruit	1	16	1	17	11	2	13	27	3	30
5	Training on coconut climbing using climbing device for coconut growers of Tuticorin district	12	13	0	13	27	0	27	40	0	40
6	Dairy Management	1	0	0	0	12	18	30	12	18	30
7	Poultry Management	2	18	3	21	8	2	10	26	5	31
8	Profitable goat and sheep rearing	3	29	3	32	18	5	23	47	8	55
9	Bee keeping technologies	2	10	1	11	9	0	9	19	1	20
10	Mushroom Production	3	7	3	10	8	6	14	15	9	24
11	Integrated Farming Systems	2	8	3	11	7	2	9	15	5	20
	TOTAL	36	125	21	146	136	38	174	261	59	320

PART 5 – EXTENSION ACTIVITIES**Extension Programmes (including extension activities undertaken in FLD programmes)**

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	TOTAL
Advisory Services	256	1031	108	1139
Diagnostic visits	88	660	45	705
Field Day	5	260	12	272
Group discussions	4	68	4	72
Kisan Ghosthi	2	213	9	222
Film Show	8	1038	5	1043
Self -help groups	12	192	2	194
Kisan Mela	34	3694	28	3722
Exhibition	6	934	10	944
Scientists' visit to farmers field	173	1337	36	1373
Plant/animal health camps	5	21	2	23
Farm Science Club	8	144	5	149
Farmers' seminar/workshop	4	398	11	409
Method Demonstrations	21	266	7	273
Celebration of important days	6	806	25	831
Special day celebration	1	350	4	354
Exposure visits	3	304	9	313
Mobile Advisory	9	4914		4914
Total	642	16630	322	16952

Details of other extension programmes

Particulars	Number
Electronic Media (CD./DVD)	4
Extension Literature	11
News paper coverage	33
Popular articles	4
Radio Talks	16
TV Talks	4
Animal health camps (Number of animals treated) 5 camps	384 animals treated
Total	72

Messages sent**MOBILE ADVISORY SERVICES THROUGH MKISAN PORTAL**

(While filling mobile advisory data, only fill numbers under 'Type of messages'. Please don't add any text)

No of registered farmers:

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	12	18500	04	18500	02	18500							18	18500
Total Messages	12	18500	04	18500	02	18500							18	18500
Total farmers Benefitted	12	18500	04	18500	02	18500							18	18500

MOBILE ADVISORY SERVICES THROUGH OTHERS

(While filling mobile advisory data, only fill numbers under 'Type of messages'. Please don't add any text)

No of registered farmers: 218

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	12	218	09	218	48	218			08	218			77	218
Total Messages	12	218	09	218	48	218			08	218			77	218
Total farmers Benefitted	12	218	09	218	48	218			08	218			77	218

6. DETAILS OF TECHNOLOGY WEEK CELEBRATIONS – Nil

PART 7 – PRODUCTION OF SEED, PLANT, AND LIVESTOCK MATERIALS**Production of seeds by the KVKs (give quantity of seed in quintals only)**

Enterprise	Name of crop	Variety	Seed produced		Seed supplied to farmers						Seed supplied to other agencies	
			Qty (q)	Value (Rs)	Free seed			Priced seed			Qty (q)	Value (Rs)
					Qty (q)	No of farmers	Value (Rs)	Qty (q)	No of farmers	Value (Rs)		
Vegetables	Seed Kit (Nos)							781	286	25690		
	Moringa seed (Kg)							1.1	12	360		
Fodder	Velimasal		0.73	40150				0.40	62	22000		
	Fodder Sorghum	Co(FS)29	2.16	97200				1.83	68	82350		
	Subabul		0.07	2450				0.03	8	1225		
			2.96	139800				784.36	436	131625	2.96	139800

Production of planting materials by the KVKs

Enterprise	Name of crop	Variety	P.M Produced		Planting material supplied to farmers						P.M supplied to other agencies		
			Qty (No)	Value (Rs)	Free supplied			Priced supplied			Qty (No)	Value (Rs)	
					Qty (No)	No of farmers	Value (Rs)	Qty (No)	No of farmers	Value (Rs)			
Vegetables	Moringa Seedlings	PKM – 1						47	0	714			
	Erithirina	Local						1	0	25			
Fruits	Amla	NA – 7	200	5000				96	28	4095			
	Cashew	VRI – 1	200	10000				67	10	3595			
	Guava	L – 49		5904	162160				5706	113	216828		
		Thailand		300	13500				252	11	9132		
	Jack	Bandurutti	200	10000				102	32	6640			
	Jamun	Ram	200	12000				86	14	6080			
	Lemon	Balaji		306	19500				303	17	25725		
		Himampasanth		300	12000				266	41	15960		
	Mango	Alphonsa		100	3800				78	24	4680		
		Banganapalli		100	3800				98	4	5880		
		Banglura		100	3800				92	23	5520		
		Senthura		100	3800				86	17	5160		
		Neelum		0	0				45	18	2700		
	Orange	Kamal	100	4500				79	41	5415			
	Papaya	Red lady	0	0				4	2	100			
Pomegranate	Ganesh	200	10000				71	21	4255				
Sapota	PKM – 1	100	5300				94	34	6730				
Flowers	Jasmine	RMD Gundu	1103	8824				1103	86	10823			
	Neerium	Local	0	0				18	7	380			
	Rose	Edward	100	1200				81	12	1600			
Ornamental	Amaranthus							13	9	285			
	Clerotendiron							46	29	460			
	Crotons							1	1	20			
	Delonix							7	3	245			
	Drazina							1	1	20			
	Durando							23	18	345			
	Alamonda							4	2	85			
	Fish tail palm							2	1	160			
	Ixora							1	1	20			
	Minimuzando							2	1	70			
	Rival rani							5	3	155			
	Teccoma							3	2	75			
	Thangaarali							9	4	245			
	Zafirina							1	1	20			
	Medicinal	Alove							2	1	30		
		Neem							3	2	55		
	Plantation	Coconut	MD (Green)	200	15000				184	34	22080		
			MD (Orange)	200	15000				196	51	21560		
			D x T	200	15000				198	16	19800		
Forest tree								5	3	75			
Kumilsapling							1	1	15				
Mahakani							10	7	350				
Palm tuber							1	1	40				
Peltophoram							6	5	200				
Polyalthia							1	1	20				
Silk cotton							12	8	190				
Silver ock							1	1	10				
Teak							1	1	15				
Vengai							16	12	520				
Spices	Curry leaf							1	1	10			
Fodder	Co 4 sets							215	85	215			
	Glyricidia							1	1	15			
	Subabul							130	0	1790			
TOTAL			10213	334184				9877	862	411232			

Production of Bio-Products

Category	Product Name	Commercial name (if any)	Produced		Planting material supplied to farmers						Bio.Pro supplied to other agencies	
			Qty (q)	Value (Rs)	Free supplied			Priced supplied			Qty (q)	Value (Rs)
					Qty (q)	No of farmers	Value (Rs)	Qty (q)	No of farmers	Value (Rs)		
Bio fertilizer	Azophos		2.98	23840	-	-	-	3.14	95	25160		
	Rhizophos		1.34	10720				0.86	7	6880		
	TOTAL		4.32	34560				4	102	32040		
Bio pesticide	Waste decomposer (No)		100	2700	1	1	50	39	26	1950		
	T. Viridi		2.53	30360				2.05	66	24600		
	Pseudomonas		4.31	51720	0.05	1	600	3.63	122	44160		
	TOTAL		6.84	82080	0.05	1	600	5.68	188	68760		
Bio Inputs	Vermicompost		31.00	31000	6.00	1	6000	24.14	198	24140		
	BM (lit)		1330	199500	14	3	2100	1377	234	206550	208	31200
	CBM (lit)		224	33600	2	2	300	91	58	13650		
	Panchakavya (lit)		361	30685				237	117	19992		
	Pest repellent (lit)		250	16250				76	53	4515		
	TOTAL		2165	280035	16	5	2400	1781	462	244707	208	31200

Production of livestock materials

Category	Name of the livestock/fish/food	Variety/Improved species name/Commercial name (if any)	Production		Supplied to farmers						Supplied to other agencies	
			Qty (No)	Value (Rs)	Free distribution			Priced			Quantity (No)	Value (Rs)
					Quantity (No)	No of farmers	Value (Rs)	Quantity (No)	No of farmers	Value (Rs)		
Cattle	Cow	HF Cross	6	210000				2	2	60000		
	Cow Calf	HF Cross	6	40000								
Sheep	Sheep											
Poultry	Desi bird chicks	Gramapriya	2600	65000				2086	57	158536		
		Aseel cross	200	5600				176	5	13376		
		Aseel-TNAU	200	10000				168	9	12768		
		Srinithi	180	9000				162	8	12312		
		Kavari	300	7500				269	11	20444		
		Local Desi	52	2600								
		J. Quails	Japanese	400	2000				124	10	4210	
	TOTAL		3932	101700				2987	102	281646		
	J. Quails Egg	Japanese	156	468				156	87	468		

8. DETAILS OF SAMPLES ANALYZED SO FAR SINCE ESTABLISHMENT OF SWTL:

Details	No. of Samples analyzed		No. of Farmers benefited	No. of Villages	Amount realized (Rs.)
	Using Mini Soil Testing Lab	Through Traditional Lab			
Soil Samples	356	-	294	71	39160
Soil health card issued	356				

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages	Amount realized (Rs.)
Water Samples	51	45	39	2040
Plant samples	-			
Manure samples	-			
Compost samples	9	4	3	1940
Total				

9. SCIENTIFIC ADVISORY COMMITTEE

Date of SAC meeting	Number of members attended
29.10.2018	42

10. PUBLICATION**1. Publication of journals – Nil**

2. Other publication

S.No	Item	Year	Authors	Title	Publisher
1	Books	2019	Mr. P. Velmurugan	Banana cultivation technology	
2		2019	Mr. P. Velmurugan Mr. P.K Muthukumar	Organic Farming technologies for fruit crops	
3	Technical bulletin/ Folders	2018	Mr. P. Velmurugan	Hybrid Bhendi cultivation technology	
4		2018	Dr. V. Srinivasan	Backyard poultry rearing	
5		2018	Dr. V. Srinivasan Mr. A. Murugan	Mixed fodder cultivation	
6		2019	Mr. P. K. Muthukumar	Waste decomposer usage	

3.Literature Developed/Published (with full title, author & reference)

Item	Title	Authors name	Number

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

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

Name of the staff	Title	Date	Duration	Organized by
Dr. V. Srinivasan	Public Finance Management system	7 and 8 th Jan 19	2 days	TNAU, Coimbatore
Mr. J. Jove	Public Finance Management system	7 and 8 th Jan 19	2 days	TNAU, Coimbatore
Mr. S.S Ganesan	Public Finance Management system	18 & 19 th Jun 18	2 days	TNAU, Coimbatore
Mr. J. Jove	Public Finance Management system	18 & 19 th Jun 18	2 days	TNAU, Coimbatore
Mr. A. Murugan	Popularizing trees outside forest	14 to 16 th Nov 18	3 days	Institute of Forest Genetics and Tree Breeding, Coimbatore
Mr. P.K. Muthukumar	Strategy Planning meeting for Fall Armyworm Management	20 th Mar 19	1 day	Directorate of Agriculture, Chennai
Mr. C. Bhagavathsingh	Training on Agriculture Journalism	27 & 28 th Mar 19	2 days	MANAGE, Hyderabad
Mr. C. Bhagavathsingh	2ns Half yearly workshop for project implementing agencies	28 th Feb 2019	1 day	NABARD, Chennai
Dr. V. Srinivasan	ICT for empowering farm women	1 st to 6 th Feb 2019	6 days	NAARM, Hyderabad
Dr. V. Srinivasan	Interactive workshop on Agro-Forestry	09 th Nov 2018	1 day	FC&RI, Mettupalayam
All SMS	KVK Pre Action plan workshop 2019	22 nd March 2019	1 day	ICAR – ATARI Zone 10
Dr. V. Srinivasan	KVK Action plan workshop 2018	21 st , 22 nd April 2018	2 days	ICAR – ATARI Zone 10
Dr. V. Srinivasan	KVK Annual Review Workshop	20 th – 22 nd Sep 2018	3 days	ICAR – ATARI Zone 10

11. DETAILS ON RAIN WATER HARVESTING STRUCTURE AND MICRO-IRRIGATION SYSTEM – Nil

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
Pulses and Millet	75820	15250	1240

Major area coverage under alternate crops/varieties

Crops	Area (ha)	Number of beneficiaries
Vegetable crops – snakeguardCO-2 as an ideal intercrop in drumstick gardens	165ha	380
Total		

Farmers-scientists interaction on livestock management

Livestock components	Number of interactions	No. of participants
Managing livestock during drought situations	12	354
Disease prevention in livestock and poultry	06	125
Green fodder cultivation and feeding livestock	08	165
Total	26	644

Animal health camps organized

Number of camps	No. of animals	No. of farmers
05	1250	235
Total	1250	235

Seed distribution in drought hit states

Crops	Quantity	Coverage of area (ha)	Number of farmers
Seed Kit (Nos)	781	31.24	286
Moringa seed (Kg)	1.1	0.5	12
Velimasal (q)	0.40	3.33	62
Fodder Sorghum (q)	1.83	24.4	68
Subabul (q)	0.03	2.0	8
Total	784.36		436

Large scale adoption of resource conservation technologies

Crops/cultivars and gist of resource conservation technologies introduced	Area (ha)	Number of farmers
Vermicomposting		125
Waste decomposer	65	110
Beneficial Microbes	198.8	270
Drip irrigation	112	176

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
28	525	2	213	4	174	4	398	6	934	8	1038

* Water campaign in 400 villages

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

14. DETAILS OF SPONSORED PROJECTS/PROGRAMMES IMPLEMENTED BY KVK

S.No	Title of the programme / project	Sponsoring agency	Objectives	Duration	Amount (Rs in lakhs)
1.	Training on coconut climbing using climbing device for coconut growers of Tuticorin district	Coconut Development Board		2 program 6 days	108000
2.	CAT programme on Diary farming	NABARD		3 Days	46200
3.	CAT programme on cultivation practices for hybrid vegetables for high yield and income for small and marginal farmers	NABARD		3 Days	40700
4	Skill training for Rural youth on Organic input preparation	MANAGE		3 days	42000

Please attach detailed report of each project/programme separately

15. SUCCESS STORIES**15. A Template for preparing success stories/case studies****1. An innovative woman leads the village**

Mrs. K. Shanmugalakshmi from R. Sokkalingapuram, Vilathikulam in Thoothukudi district is a progressive farm woman in this area. From a homemaker to a successful farmer and trusted mentor, the story of Mrs. K. Shanmugalakshmi remains an motivational case of how women in farming sector can achieve their destiny.

Situation analysis

She owns 5 acres of land and cultivating black gram, green gram, maize, pearl millet and coriander. She is adopting various new technologies and varieties and diffusing the same to fellow farmers. She also rear scow to meet her home needs.

She had studied up to secondary school and her husband is working as taxi driver and children are studying under graduate courses. 12 years before She was being a home maker, running a hand to mouth life, had no knowledge on modern technologies being developed in farming. She had not much contact other than her relatives.

Moisture stress, erratic rainfall, labour shortage, high cost of fertilizers and pesticides, high cost of cultivation are the major challenges faced by her in this dry land tract where the annual rainfall is around 656 mm and that too in 14 rainy days and maximum rain occurs during Rabi season.

Plan, Implementation and Support

Mrs. Shanmugalakshmi joined in local NGO and started her work as Village level animator since 2009 and underwent regular training programme at KVK Thoothukudi on dry land crop cultivation especially pulses and millets and cattle management. She has good rapport with scientists and extension officials from this region. Through training and demonstrations she learned Integrated Crop Management practices. She was introduced with high yielding, short duration and drought resistant varieties like VBN 4,5,6&8 in Black Gram and Co 8 in Green Gram.

To reduce the cost of inter cultural operations use of Bio formulations like Rhizopium, Phospho bacterium and Beneficial Microbes were adopted by her. She used neem based bio pesticide formulation in case of pest attack. Soil test-based fertilizer dose were recommended.

Output

She adopted high yielding short duration crop varieties in Black Gram and Green gram and followed integrated crop management practices with emphasis on eco friendly farming in 5 acres of land. Since the year 2012-13 and every year they adopt new variety released by the university which are demonstrated by KVK. She adopted VBN 4 Black Gram during 2012-13, VBN 5 Black Gram during 2015-16 and VBN 8 Black Gram during 2017-18 and 2018-19. She adopted Co 6 Green Gram during 2014-15 and Co 7 green Gram during 2016-17 and Co 8 Green Gram during 2018-19 under 2 acres for each crop.

Outcome

She is a progressive farm woman who disseminates various technologies to the fellow farmers. Because of adoption of latest technology learned by her, she got good yield in Black Gram and Green Gram crops for last six successive years. On an average she is getting 4.5 quintals per acre in Black Gram and 5.2 quintals in Green Gram.

She is following improved farming practices in her farm which gives her better income. She never used herbicides and pesticides in her field. Mrs. Shanmugalakshmi is now meeting her home needs without any external debt.

She was awarded as Best felicitator by the KVK for her lead role in disseminating new varieties and in the field of seed production. She witnessed results of Bio products being used in her field.

Impact

Mrs. Shanmugalakshmi motivated other farmers around her village by showing better results in her field. Farmers after gradually realizing the results of practices adopted by her started to listen to her words. Now She become a mentor among village farmers. So far, She supplied quality 20 qlt seeds to fellow farmers and helped to extend the area of new variety in 100 Ha. She mobilized 230 farm women around her village cluster from women self help groups and formed a farmer producer company. The



technology of short duration, high yielding varieties and bio formulations has reached to 2000 farmers in 500 Ha her cluster in the last three years. Because of her efforts the farmers are now adopting short duration varieties and reduced the chemical pesticide application to a large extent. Pest and disease resistance and vigorous plant growth were observed because of bio formulations usage. She recommends the farmers to use eco friendly farming practices to improve the soil health and advises fellow farmers to use improved varieties available.

She and her village farmers are adopting new varieties and utilizing locally available resources. She gained more contact with the extension officials and turned as a trusted mentor among farmers of this region.

Contact details

K. Shanmugalakshmi

W/O Kathiresan

R.Sokkalingapuram, Kalukasalapuram PO

Vilathikulam, Thoothukudi – 628 907

Mobile No- 9943141244

2. Friends of Coconut Tree- a boon to coconut growers

Situation analysis/Problem statement

Coconut growing farmers around the Thoothukudi district are facing the heat of scarcity of tree climbers to harvest the nuts and also for crown cleaning purpose. Due to drudgery involved in tree climbing, many of traditional coconut tree climbers have shifted from their traditional profession to other jobs, which turned out to be a misery in the coconut farming sector.

The small and marginal farmers with less number of trees who depend on hired tree climbers, has to wait for harvest till he gets labor. Even though, Farmers were used to pay 100 rupees per tree for climbing, it became an uphill task to find the climbers during peak season. As a person could climb only 15 trees per day, this caused shortage of labor during peak season. There was a felt need for easing the climbing process among the farmers and labors.

In case of **Mr. Sri Murugan**, a rural youth belongs to TN Kulam village. He used to climb trees as a part time job whenever he was called and then he will look after other daily wage works. He used to climb only 6 to 8 trees per day due to drudgery involved in climbing the trees. He used to climb trees in nearby villages along with his friends. He will collect Rs.50 per tree, and able to take care of 100 trees.

Plan, Implement and Support

By realizing the circumstances, ICAR -Krishi Vigyan Kendra (KVK) Thoothukudi had conducted two batches of training programme in association with Coconut Development Board's Friends of Coconut Tree programme. Through this programme KVK has trained 40 unemployed rural youth and farmers for tree climbing by using coconut tree climber through specially trained Master trainers from Coconut Development Board during 2018-19. Mr. Murugan along with his village farmers participated in the training.

It is a six-day residential training programme for climbing and managing coconut tree using climber device. Besides, practical lessons on climbing coconut trees, sessions were also held on scientific coconut plantation management including pest and disease management techniques. The training programme also covered yoga, time management, and development of communication skills, etc.

Output

40 rural youth from TN Kulam in Kayathar block, Melapoovani and Maramangalam village from Srivaikundam, Alwarthirunagari blocks were trained for 6 days at our KVK during 2018-19 in the month of February 2019.

Outcome

Tree climber device was provided to all the trainees at free of cost. Introduction of the mechanized coconut tree climber cheered up the hope among the unemployed rural youth and farmers.

After the training, Mr. Murugan could able to climb 25 to 30 trees per day with the help of climber and gets Rs. 80 to 100 Rupees per tree based on demand. Earlier he used to climb trees for the period of 4 months. But after using tree climber device, he completes the task within 2 months and then he returns to his routine job. As the process of climbing the tree is speeded up through introduction of climber device, most of the farmers who had more trees are giving preference to Mr. Murugan for quick harvesting. Earlier he covered nearby 3 villages only. Now he can able to cover 10 more villages around Kayathar and able to generate about Rs. 30000 once in a quarter every year. Before he had the contact of only 10 farmers in nearby villages. But now, he is serving to about 50 farmers and taking care of 425 trees in his vicinity.



Impact

Through the knowledge gained from the training, Mr. Murugan is suggesting the management practices to various pest and diseases to the farmers. The scientific management practices are spreading to farming community. As he is receiving more calls for tree climbing, he is planning to form a group among

his fellow trainees to take it as a business. By looking at his progress, some of his friends are also willing to practice the tree climbing using tree climber.

As most of the trainees are small and marginal farmers, they are using this tree climber device to climb trees in their farms. They do not wait for labor to harvest the nuts. Through this they are saving the cost involved in climbing the trees which resulted in development of positive attitude towards coconut farming. Coconut plantation around Kayathar region is realizing the benefit of FOCT programme. As tree climber is seen as a silver lining in among small and marginal coconut growers, most of them are approaching KVK for the training and climbing device.

3. Promoting Micro Irrigation in Thamirabarani river command area through Farmer Producer

Company

Situational analysis/ Problem statement

Thamirabarani river command area is a potential belt for Banana and vegetables. Athimarapatti cluster is the lower command area of this riverbank. Since past few years, there is erratic rainfall due to climate change effect. Due to this water flow in the river bank is reduced and flood irrigation is not desirable owing to depletion of ground water table. Under prevailing situations cultivation area is shrinking, there is an immense need for precision use of water.

Plan, Implementation and Support

Drip irrigation was the need of the hour to the farmers. By realising this, Perunthalaivar Farmer Producer Company has started promoting drip irrigation among its members and other farmers. Perunthalaivar Vazhai Farmer Producer Company was formed in 2016 with the support of NABARD by KVK, Thoothukudi. The company has 315 shareholders across this region. PVFPCL has made a MOU with Jain irrigation system to install drip irrigation in farmer field by using subsidy from Department of Horticulture. This FPCL is facilitating the process of installing drip irrigation and availing subsidy from Department of Horticulture. They are also selling accessories for Drip irrigation, fertilizers and sprayers.

Output

Earlier there is less area under drip irrigation. Due to the intervention of company 55 acres were brought under drip irrigation by 2018-19. The small and marginal farmers are getting 100% subsidy while big farmers get 75%. By showing this the company has convinced many small and marginal farmers for installing drip irrigation. The Perunthalaivar FPCL getting the profit of Rs1.5 lakhs per year as service cost for laying drip irrigation for needy farmers.

Outcome

The significance of drip irrigation was felt by the farmers in this region after the involvement of Perunthalaivar FPCL with the support of KVK and Horticultural Department. The area under drip irrigation had increased from 10 acres in 2016 to 50 acres in 2018. Such an increase suggests that within couple of years drip irrigation will be the prevailing irrigation system in this region.

By taking up the business, the company created awareness on installing drip irrigation on subsidized rates. Earlier the farmers whoever willing to lay drip irrigation should visit Tirunelveli and Meenapuram which is about 20 km away from this area. Through their intervention, the farmers around this region are aware of subsidised drip irrigation installation and its advantage. In addition to this farmers are in convergence with department of horticulture to avail their schemes meant for farmers.

Through the effort of Perunthalaivar FPCL, 15 lakhs worth of subsidy amount was conveyed from Department of Horticulture within a year.

Impact

Drip irrigation uses less water and saves the water up to 40% compare to flood irrigation. Efficiency of drip irrigation is 95%. Evaporation is very less which is a problem with flood irrigation and weeds infestation also minimized. Since the water is applied daily/alternate days at low rate and at low pressure over a long period of time and directly into the vicinity of plant roots, it maintains the soil moisture level around the root zone close to field capacity. Of all these the greatest benefit of drip irrigation was less dependency on labour for weeding and fertilizer application, which was traditionally as much as 60% of farming cost and which is acute shortage today. The conversion from flood irrigation to drip irrigation would

cost farmers approximately Rs.50000 per acre, which in turn it returns as annual savings to the farmer in terms of time, labour inputs in irrigation and the cost associated with fertilizers applications and weeding.



4. VBN (Bg) 8 – Cost cutting variety with higher productivity

Situation analysis/Problem statement

In Thoothukudi district, Black gram is being cultivated in an area of about 20,500 hectares. About 90 per cent of this area under Black gram is being cultivated under rainfed condition during Rabi season. Existing ruling variety is VBN -4 require 75-80 days to mature. Here, due to uncertainty in rainfall, moisture stress at various crop growth stages leads to reduction in yield and crop loss to some extent. Apart from moisture stress, lack of knowledge on the availability of drought tolerant varieties, YMV resistant varieties, prevalence of nutrient deficiency, pest and disease incidence also affect the Black gram productivity.



Plan, Implement and Support

To overcome the problems faced by the farmers, front line demonstration was taken up by Krishi Vigyan Kendra, Thoothukudi to demonstrate the potential of the drought tolerant and short duration variety with the improved package of practices in the farmers holdings of Thoothukudi district.

KVKs intervention

- Creation of awareness about drought tolerant and high yielding varieties through meetings and trainings
- Training of farmers on integrated crop management practices in Blackgram
- Conduct of frontline demonstration on ICM in Blackgram with VBN (Bg) -8 variety
- Advisory services on integrated nutrient management, pest and disease management practices through regular field visit.
- Seed production and distribution through farmers producer company at Vilathikulam

Technological interventions

- ICMP – VBN (Bg) 8 (TNAU-2016) (Crop duration 65-70days, yield 900 kg/ha)
- Seed treatment – *T. Viridi* @ 4g/kg seed - Rhizobium
- Application of N:P:K – 12.5:25:12.5 Kg/ha
- Foliar spray to mitigate moisture stress - 2% KCl
- IWM – Application of Pendimethalin 2.5 lit/ha on 3 DAS
- Quizolofop ethyl @ 50g ai/ha and Imazethopyr @ 50g ai/ha application on 15-20 DAS,
- Twin hoe weeder for weeding
- IPDM Practices for Pod borer and YMV
- Pulse wonder spray 5kg/ha

Output

Farmers were impressed with the performance of the new variety Blackgram VBN (Bg) 8 in terms of short duration, higher number of pod per plant, length and higher no of seeds, tolerance to blast disease and yield under rain fed condition.

19 qtl of seed was supplied by KVK during 2017-18 and 2018-19 rabi season to farmers at Ottanatham (50acres) and Vilathikulam (137) Poovani (50acre) to 237 farmers

Sl. No	Parameters	Ruling Variety VBN-4	VBN 8
1.	No of pesticide spray	3	1
2.	YMV incidence	12%	Nil
3.	Yield/ Ha.	680 Kg.	902 Kg.
4.	Cost of cultivation	Rs. 28425	Rs. 23950
5.	Gross Income	Rs. 34000	Rs. 45000
6.	Net Income	Rs. 5575	Rs. 21050

Outcome

Cultivation of drought tolerant variety with integrated crop management practices increased the yield of Black gram VBN (Bg) 8 to the tune of 21.7 per cent compared to the farmers practice under rain fed condition. Since it is a short duration crop, no of pesticide spray also reduced which results in reduced cost of cultivation of RS.4475/ha. Hence, farmers could earn net income of about Rs.21050/ha.

Impact

Shorter duration and high yielding character of VBN 8 Black gram attracted more number farmers in the villages where the demonstration was conducted and this variety started spreading among the farmers and from next year this variety will become the ruling variety department agriculture also started seed production with this variety and hence the variety will spread to about 3500 ha area in the upcoming season 2019-20 in Thoothukudi district.

5. Joint Liability Group and its Social Influence

Problem statement

Thoothukudi district is situated in southern Tamilnadu that falls in southern zone of agriculture. One third of its population lives in rural villages and depend on dry land farming with livestock rearing for their life sustenance.

The economically weaker sections of these local communities are always looking for self-employment opportunities. As a consequence, they were either unable to be self employed, or abandoned their business ventures due to inadequate financial support. On a macro-level, the lack of financial capital has been a major obstacle to start any small and micro enterprise.

Plan, Implement and support:

The concept of Joint Liability Group was launched by NABARD, in 2006. JLGs, an informal group, comprising of 4-10 individual, generally from weaker section of the society, formed for the purpose of availing loan through mutual guarantee. Across the globe, conventional lending to the poor has traditionally been considered impracticable as a result of loan risks that are not secured with adequate collateral.

Knowing well about this issues, ICAR –SCAD KVK started opening JLGs from 2017 onwards. So for KVK formed 180 Joint Liability Group with the support of NABARD in Thoothukudi district. Each joint liability group comprises of five farmers. The group will be provided a loan of Rs.2,50,000 for any enterprise to start. The small farmers having their own land will be granted a loan in proportion to the area of the land.

Through SCAD-KVK JLG members were continuously trained in Capacity building, Entrepreneurship Development, vocational training and skill up gradation training programmes related to agriculture and allied activities. Apart from training programme KVK also facilitated the JLG members in availing financial assistance from bank for the trade they adopted. KVK scientist motivated and encouraged the JLG members owning livestock to insure their animals they get the claim if anything goes wrong.

Output

The initiative of Joint Liability Group (JLG) brought relief to rural poor through collateral free credit to support and enhanced their sustainable livelihood practice. At present 41 JLG received financial support from bank who involved in different enterprise like goat rearing, milch animal rearing, palmyrah, banana

cultivation, catering, etc to the tune of Rs 85, 45000 since its formation. List of JLGs formed in respect to trade were listed below

S. No	Name of the trade	No of JLG formed	No of JLG availed loan	Loan Amount (in Lakhs)
1.	Goat rearing	56	15	26
2.	Dairy cows	35	15	49
3.	Agriculture	8	5	5.3
4.	Jaggery	5	2	1.15
5.	Palm leaf basket	11	3	1.5
6.	Catering	2	1	2.5
7.	Auto driving	1		
8.	Centering	1		
9.	Flower	2		
10.	Fancy jewels	5		
11.	Tailoring	4		
12.	Chili	18		
13.	Banana	4		
14.	Fisherman	2		
15.	Dry fish	3		
16.	Charcoal	23		
Total		180	41	85.45

Outcome

The cases of successful women entrepreneur who created assets and improved their status of living were presented below.

Mrs. Angammal who is 52 years old widow, residing in Maravanmadam. Her husband Sudalai Kannu died due to Heart Attack before 5 years. She has two female children and one male child. Her son Muthu Krishnan studied up to 10thstd and took his career as a driver. Before one year he met with an accident and fractured in his right leg and hand. He is doing Physiotherapy and recovering slowly. Her two daughters got married.

Through KVK she joined as a member in Joint Liability Group and training programmes from KVK. She was also trained in livestock rearing the milch animal, Goat and Poultry rearing. Earlier she had only one cow to look after. Now she constructed Pucka Shed for Cattle Shelter. Angammal is developing and maintaining the dairy farming methods learned from KVK. As a result her cattle are producing higher quality of clean milk.

At present she has 5 cows and 4 calves. Through milch animal rearing she receives 25 liters of milk every day. Apart from selling to the society, she also sells her excess milk door to door for Rs.40/liter.

Apart from rearing milch animals she also started rearing Goat and Poultry for her household expense.

As a result of the training programs, the animals remain healthy and the yield of milk is also more. She is planning to re-invest the extra money that they have made from milk by adding another cow to their household. She says dairy farming is a more profitable and sustainable livelihood venture in order to run her family.

Mrs. T. Krishnammal (40) living in TherkuSilukanPatti Village near Pudhukottai, Thoothukudi district. She lives with her husband Thirumani of 44 years old along with 2 boys and 1 girl children. Both are agricultural labourers without any land holding. She also goes for NREGS work that the Government provides for rural people. She was keen to have additional income in order to meet out her growing family demands like her children's education, house repair etc. At this junction she became a member of KVK promoted JLG and she expressed her desire for milch animal rearing as an additional income for her family. She attended training programmes on Live Stock maintenance and Rearing Milch animal offered by KVK.

Through JLG she received loan of Rs.45000 for milch animal rearing. from Pandian Grama Bank. With that amount she bought a cow and fodder. After six months she received another Rs.45000 and bought one more cow.

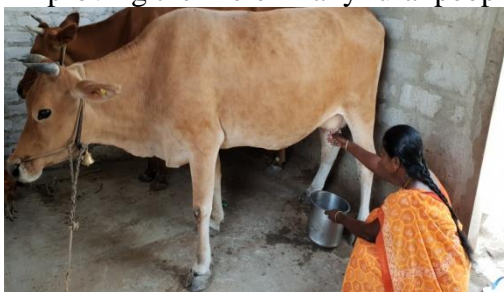
She feels more satisfied as she knows that she will get a fair price for her milk. She also rear goats and poultry in her backyard and earning extra money to meet her day to day expenses. With this income from milk sales she is able to manage her basic needs, children's education, fodder expenses for her cow etc. The JLG loan helped her to create an asset to start an enterprise and saved her family from the clutches of money lender.

Impact

The unity among women, have brought in radical changes in the life style, attitudes, approach and empowerment of once docile rural people. JLG is the best option to achieve all the above in one stroke.



The dynamics at the household level with regard to decision making has undergone a change. Now they are able to involve in decisions on social issues. Members of JLG are now bold and courageous enough to move independently and able to interact with the officials of various Government departments, NGO's, bank etc to fulfill their needs and rights. They are now not only managing their needs but also community needs. In addition to generating their own source of income within their group, their unity and their strength have opened new vistas for social development. Through JLG they have developed skills on farm and nonfarm activities. They have started sending their children to school and taking care of their health as well as children's health through nutritious food and proper immunization. JLG members are acting as an agent in spreading the developmental message thereby making aware of their entire family and community. Apart from the traditional house hold and agricultural work they are able to develop multiple skills and get into newer occupations.

JLG approach and KVK extension system are mutually benefitting each other by quickly disseminating technological information. It is a proved maxim that the economically backward communities who are empowered economically and socially become a strong and vigorous force for the removal of poverty and for the overall development of the society. Impact of these group activities are intangible in nature and played remarkable role in improving the life of many rural people.



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

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

S.No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1	Total mechanization in pulses	Tractor Drawn Mechanical Weeder (Line Sowing)	<ul style="list-style-type: none"> • Timely weeding will be taken • Reduce the cost of cultivation • Labour saving device
2	All crops	Fencing all around the field with iron string at the height of one fee to avoid the entry of peacock into the field.	<ul style="list-style-type: none"> • To ward off peacock and its damage to crops
3	Acid Lime	Indigenously designed acid lime Fruit Harvesters	<ul style="list-style-type: none"> • Minimize damage to the branches and fruits during harvest. • Availability of fruit harvesters in local stores
			

16. IMPACT

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)
Cattle feed preparation from Prosopis Juliflora pods	60	35	16150	20350
Rearing desi/cross bred chickens with proper care and management	26	90	2000/10 hen	7000/10 hen
Use of mineral lick feeding to goat	18	72	1500/goat	2500/goat
Regular Vaccination and Deworming to the goat	50	95	1500	2500
Green Fodder cultivation	25	80	16150	24350
Mineral mixture feeding to dairy cows	36	85	150/cow/day	160/cow/day
Kitchen garden	140	65	0	600/year
Supplementary feeding with Nutrimix to enhance the body weight and growth in children (Cost saved)	220	85	1000/year	3000/year
Use of certified seed in improving the yield in black gram and Greengram	42	80	13500/ac	15750/ac
Pulses wonder - Foliar application technology	42	68	2700	3150
ICMP including mechanization in greengram (labour savings)	25	95	10500	13500
Disease management in Banana (increased % of survival)	20	75	42000/ac	68000/ac
Co 14 lab lab cultivation techniques	20	50	45000/ac	61200/ac
High density planting in guava (On 3 rd year)	05	80	From 160trees 24000/ac	From 600trees 90000/ac

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

B. Cases of large scale adoption

(Please furnish detailed information for each case)(Note: OFT – O, FLD – F, Training – T, Extension Activities – E)

Discipline	Name of the technology	Source of the technology	How the technology transferred	Number of villages	Spread in Area (acre)	No of farmers
Agronomy	Use of weedicide to control weed in pulse crop	TNAU	F,T,E		30000	10500
Agronomy	Manual weeder usage in pulse crop	TNAU	F,T,E		10000	750
Agronomy	Total mechanization in green gram	TNAU	F,T,E		13500	820
Agronomy	Biofertilizer and Bio pesticide usage	TNAU	F,T,E		80000	22500
Agronomy	Soil sampling, testing	TNAU	T,E		80000	18200
	Seed production techniques in green gram Co-8	TNAU	F,T,E	12	450	325
	Seed production techniques in Black gram VBN-8	TNAU	F,T,E	8	325	290
Plant protection	Biofertilizer and Bio pesticide usage	TNAU	F,T,E	64	840	291
	Promotion of beneficial microbes	KVK	F,T,E	52	533	238
	Promotion of Banana special	IIHR	F,T,E		235	59
Horticulture	High density planting techniques in guava and banana	TNAU	F,T,E		300	251
Horticulture	Seed production techniques in MDU – 1 cluster bean	TNAU	F,T,E		50	50
Horticulture	Planting fruit crops in garden land	TNAU	T,E		100	100
Home Science	Kitchen gardening with improved vegetable varieties	TNAU	T,E	60	-	752
Home Science	Terrace garden	TNAU	T,E		100 units	100
Home Science	Value addition to banana and milk products	TNAU / TANUVAS	T,E		200	200
Animal Science	Promotion of backyard poultry rearing with improved breeds	TANUVAS	F,T,E		-	463
Animal Science	Prosopis pod flour as an alternative concentrate feed ingredient	CAZRI, Jodhpur	O,T,F, E		-	596
Animal Science	Comprehensive disease control in goats	TANUVAS	F,T,E		-	1640
Animal Science	Green fodder- CN hybrid CO-4	TNAU	F,T,E			750
Animal Science	Ranikhet disease vaccine- RDVK/R2B	TANUVAS	T,E			12500
	Promotion of mineral mixture	TANUVAS	F,T,E		331	69
	Promotion of Azolla	TANUVAS	T,E	15	-	120
Fisheries	Composite fish culture in village pond using stunted fingerlings	TANUVAS	F,T,E		67 ponds	67 Villages
Agro forestry	Tree planting in wastelands	TNAU	T,E	26	200	150

C. Details of impact analysis of KVK activities carried out during the reporting period – 2018 – 19**Impact study on Poultry training organized by Krishi Vigyan Kendra Thoothukudi****Introduction**

Krishi Vigyan Kendra (KVK) Thoothukudi has conducted many training programme to upgrade the knowledge of poultry growers on backyard poultry farming and to create entrepreneurship through poultry rearing. The training programme also intends motivate the farmers to adopt poultry farming with improved poultry breeds to increase the income through more production of egg and meat in rural areas.

The training was imparted on skill development regarding backyard Desi poultry bird production, housing, feeding management, selection of eggs for better hatchability, hatching management, brooding management for care of the newly hatched chicks, control of diseases, vaccination methods and marketing linkages etc. For this study 40 respondents were selected from list of trainees who had attended several poultry training organized in KVK, Thoothukudi for the last one year. The respondents were selected based on proportionate random sampling and data were collected through prefixed telephone interview.

General profile of the Respondents

Age	No of Respondents	Percentage
25-35 (Low)	14	35
36-50 (Medium)	19	47.5
Above50 (High)	7	17.5
Education		
SSLC(Low)	3	7.5
HSC(Medium)	10	25
Degree(High)	27	67.5
Occupation		
Govt. Sector	9	22.5
Private	19	47.5
Entrepreneur	6	15
Farming	6	15

The respondents were categorized into three categories viz., low, medium and high based on their age. Most of the respondents (47.5%) were belong to medium age category. This shows that medium age people showing more interest on training and entrepreneurial activities.

The trainees were categorized as low, medium and high based on educational qualification. More than half of the respondents (67.5%) were degree holders. This implies that literate people giving more preference to training. Nearly half of the trainees are working under private sector.

Adoption

Status	No of Respondents	Percentage
Adopted	27	67.5
Not adopted	13	32.5

Most of the respondents (67.5%) are rearing poultry. Most of the adopted respondents were rearing it as backyard poultry with Desi breeds. Few of the respondents were already owned poultry unit, they attended training for upgrading their existing knowledge. Remaining respondents were taking steps like site identification and construction of shed to start their venture. As Desi breeds has more demand, this venture got more attention among literate people, small and marginal farmers.

Number of birds

No of Birds	No of Respondents	Percentage
1-20	8	29.6
20-50	12	44.4
50-100	4	14.8
Above 100	3	11.1
Nature of Breed		
Desi breed	27	100
Improved breed	6	22.2
Source of Purchase		
Local market	18	66.7
Others	9	33.3

Nearly half of the respondents have 20-50 birds. Most of them are rearing poultry birds in their backyard. Almost all the respondents were rearing Desi breeds, while some of them rearing improved breeds too. Majority of the trainees purchased birds from local market or sourced through farmers in nearby villages. One third of the respondents were purchased from other sources like institutions and merchants.

Housing and Feeding

Housing	No of Respondents	Percentage
No shelter	2	7.4
Night shelter only	21	77.8
Full time shed	4	14.8

Above three fourth of the respondents (77.8%) were providing night shelter only. As most of them having a smaller number of birds they can manage those by free ranging and providing night shelter only. Night shelter in the form of Bamboo Basket, Aspetas sheet Shelter and other forms. The birds which receive night shelter were allowed to scavenge by themselves in the surroundings of the household during day time and provided with locally available feeds after the birds return to the shelter. Only 7.4% of the respondents do not provide any housing to the birds and it used to take shelter in the trees at night

Feed

Feed	No of Respondents	Percentage
Termite as feed		
Yes	18	66.7
No	9	33.3
Azolla as feed		
Yes	12	44.4
No	15	55.6

Two third of the respondents are using termite as a feed to their chicks. As most of the trainees have a smaller number of birds it is easy to prepare termite feed and also it needs no more investment. In addition to this, 44.4% of the respondents are using azolla as feed. As most of the respondents residing in town areas, found it difficult to grow azolla in summer season due to water scarcity. Restrictions posed by corporation health authorities not to allow any stagnant water in the vicinity of human dwelling fearing the breeding ground for disease spreading mosquitoes. Few of them were unable to maintain the azolla unit and requested further training on Azolla rearing.

Egg Box

Egg Box	No of Respondents	Percentage
Yes	20	74.1
No	7	25.9

Nearly three fourth of the respondents (74.1%) made a separate provision to lay eggs by the hen. The egg boxes in terms of trays, Buckets or shelves which are filled with paddy straw and other littering materials. Majority of the trainees are marketing eggs. So, for easy collection of eggs they are keeping these boxes for egg laying.

Hatching

Hatching	No of Respondents	Percentage
Natural hatching	23	85.2
Artificial hatcher	4	14.8
Own Hatcher	3	75
Rented Hatcher	1	25

Majority of the trainees (85.2%) were hatching eggs with chicks only. Less number of bird ownership may be contributed to this factor. Few of them are having own hatchery to hatch eggs.

Brooding

Brooding	No of Respondents	Percentage
Natural brooding	23	85.2
Artificial brooding	4	14.8

As most of the respondents follow natural hatching with hens, they prefer natural brooding along with hens.

Vaccination

Vaccination	No of Respondents	Percentage
Yes	19	70.4
No	8	29.6
Self-vaccination	13	68.4
Hired vaccinators	6	31.6

Above two third of the interviewers are following vaccination schedule. Among them most of the trainees were vaccinating their birds by themselves. Vaccination methods and safeguard measure were taught with demonstration as part of training. Rest of them hiring nearby veterinarians or looking for government veterinary hospitals. The respondents who were not adopting vaccination are adopting traditional veterinary practices.

Marketing

Mode of Marketing	No of Respondents	Percentage
Direct	24	85.2
Middle man	3	14.8
Selling Egg only	6	22.2
Selling Meat only	7	25.9
Selling Egg & Meat	12	44.4
For Home use	2	7.4

Most of the respondents (85.2%) were directly selling by avoiding middle man's intervention. As the trainees were familiar among their surrounding tenants, they are purchasing directly from the poultry growers. As the demand for Desi chicks picks up, consumers also prefer to buy from farm itself. All this contributed to direct selling of the produce. Nearly half of the respondents are selling meat and egg. Where at only one fourth of the respondents reported selling it for meat alone.

Selling Price

Price Range	No of Respondents	Percentage
Egg Price Rs./Piece		
7-10	5	27.8
10-15	13	72.2
Meat Price Rs./Kg	19	
Hen		
200-300	4	21.1
300-500	15	78.9
Cock		
200-300	4	22.2
300-500	14	77.8

In case of selling price of eggs, Majority of the farmers (72.2%) are selling to Rs. 10-15. Meanwhile majority of the respondents reported that they are selling hens at Rs. 300-500 per kilo gram of live weight. As hens can be used for further multiplication it fetches more price than cock. Desi bird's meat fetches more prices as compared to broiler's meat. The respondents reported that, the price of birds and eggs varied according to season and festivals.

Income per month

Rupees	No of Respondents	Percentage
1000-2500	10	37.0
2500-5000	13	48.1
Above 5000	4	14.8

From the poultry rearing, nearly half of the respondents (48.1%) are earning Rs. 2500-5000 per month. Most of them are looking this as a part time work. 37 % of them earning up to Rs. 1000-2500. Because they started their business before few months only and they are slowly picking up. Most of them are willing to upscale their business to get more profit.

Constrains in poultry rearing

Constrains	No of Respondents	Percentage
Preying	10	37.0
Disease attack	20	74.1
Low hatchability	3	11.1
Labour shortage	4	14.8

About Three fourth of the respondents (74.1%) revealed that disease attack was the main constraints of poultry rearing. Whereas 37% of them opined that preying by animals and lack of security as constrains. The respondents who owned large number of birds felt that labour shortage is major concern among these areas. Few of them also reported that low hatchability as a constrains in poultry rearing.

Conclusion

- ☞ The study has shown that the adoption level of poultry farming was 67.50% from the trained farmers in the year 2018-19. Most of them growing as backyard poultry.
- ☞ Desi bird rearing gained momentum as a secondary occupation for the adopted respondents. Knowledge gained through training in the areas of feeding, housing, hatching, brooding management and vaccination would go a long way to sustain Desi bird rearing.
- ☞ The study showed that the respondents had more involvement in improving health care of birds through vaccination and most of them vaccinating their birds themselves.
- ☞ Further, popularizing the successful cases of Desi bird rearing would motivate other farmers and literate people to adopt this enterprise.



Impact Study on Usage of Beneficial Microorganisms (BM) in Farming among the Thoothukudi District Farmers

Introduction

Microorganisms exist everywhere in nature. They are crucial for maintaining the ecological balance. Beneficial Microbes were used in farming. They carry out chemical processes that make it possible for all other organisms including humans to live. Beneficial Microbes familiarly known as BM is safe for humans, animals and the environment. It suppresses soil-born pathogens, accelerates the decomposition of organic waste, increases the availability of mineral nutrients and useful organic compounds to plants. It enhances the activities of beneficial micro-organisms, like mycorrhiza and nitrogen fixing bacteria and reduces the need of chemical fertilizers and pesticides for crops. BM will meet out the emerging demand to reduce dependence on synthetic chemical products within a holistic vision of developing and focusing environmental protection. Various study results found that BM usage increased the yield of the crops up to 15-20 percent.

ICAR Krishi Vigyan Kendra, Thoothukudi has been promoting BM since the year 2008. Farmers from various parts of the Thoothukudi district are purchasing the BM and using it in their fields. The mandatory activities of the KVK like training, demonstrations



and extension activities influenced the farmers in enhancing the knowledge level about BM usage.

An impact study was conducted among the farmers who used BM in their field crops from various blocks of Thoothukudi district. Forty farmers were randomly selected for the study and collected their feedback through pre constructed interview schedule. The responses were recorded and converted into percentage and presented.

BM distribution Details

The farmers are purchasing BM formulations from KVK outlet. For the last six months (October 2018 to March 2019) 1493.50 litres of BM were sold to the 270 farmers, which covers 497 acres around various blocks of Thoothukudi.

Month	Liter	No of farmers	Acres
October 2018	64	15	21.50
November 2018	527	93	175.50
December 2018	511	87	170.00
January 2019	104	20	34.50
February 2019	190	38	63.00
March 2019	97	17	32.50
Total	1493.50	270	497.00

The need for BM was highest during rabi season, the major period for crop cultivation in the district

Quantity of Purchase

Quantity (litres)	No of Respondents	Percentage
5-10	21	52.5
11-30	18	45
Above 30	1	2.5

Above half of the respondents (52.5%) have purchased 5-10 litres of BM, where as remaining 45% of respondents purchased 11-30 liters. Most of the small and marginal farmers they are purchased 5-10 litres of BM for their farming activities.

BM Usage

Methods of application	Purpose	Recommended Dose
Foliar spray	To improve the natural immune systems of the plant. To reduces significant number of hostile fungi or bacteria	3 litres BM: 200 litres of water per acre apply three times during crop period
Root dipping	To encourage root formation, dip the roots quickly into a solution of BM	Dip roots in solution of 1: 200 of BM: Water for one hour
Foliar spray of Beneficial cleaning microbes (CBM)	Cleaning floor, Kitchen, Toilets, Bath room, Poultry & Cattle sheet to Suppress bad odour and repel Mosquito and House fly	100ml CBM in 100 litres of water

BM should be sprayed in the evening hours. Un-chlorinated water only should be used for making spray solution. BM can be used as foliar spray, root dipping and fertigation.

Method of application	No of Respondents	Percentage
Foliar spray	40	100
Fertigation	3	1.5

All the respondents have used BM as foliar spray to their crops. Whereas few of farmers using it in fertigation also. As most of the farmers belong to dry tracts, foliar spray is convenient to them. Farmers are also spraying BM formulation in the drought situations to overcome moister stress.

Crop wise usage pattern

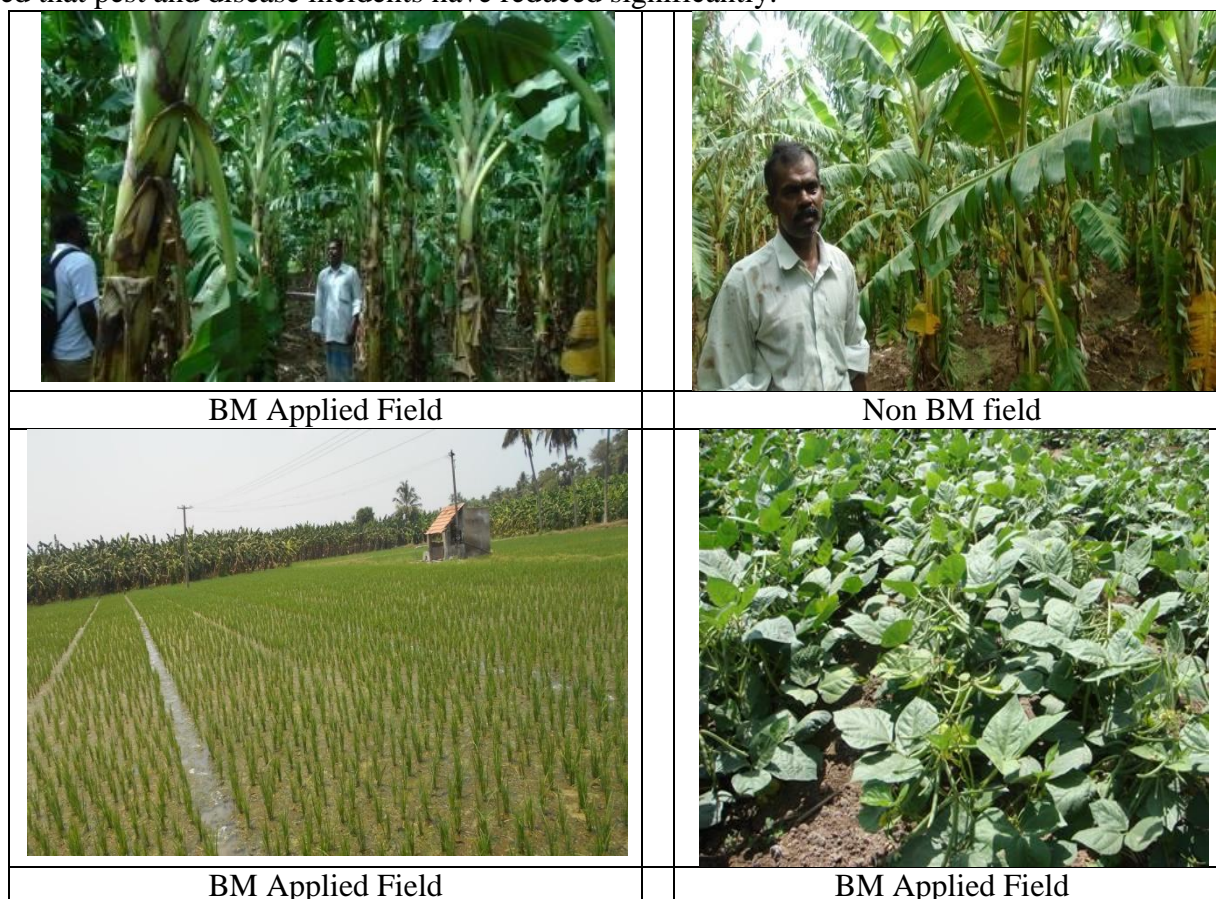
Crop	No of Respondents	Percentage
Paddy	1	2.5
Pulses	18	45
Cotton	1	2.5
Banana	20	50
Vegetables	5	12.5
Acreage		
Paddy	31	6.23
Pulses	155	31.18
Cotton	9	1.8
Banana	270	54.32
Vegetables	32	6.5

Half of the respondents have used BM in Banana plantations, while the others half of the farmers using it for Pulses, vegetables, paddy and cotton. In other hand out of 497 acres covered by BM spray, above half of the acreage (54.32%) are spread to Banana plantations. Where as one third of acreage (31.8%) is under pulses. Remaining acreage are under Vegetables, Paddy and cotton.

Effect of BM usage on Crops

Effect on crop	No of Respondents	Percentage
Good plant growth	40	100
Reduced Pest and Disease incidents	10	25
Reduced cost of cultivation	24	60

All the respondents opined that BM spray resulted in good plant growth. 60% of the farmers have reported that usage of BM reduced cost of cultivation as their required less number of pesticide spraying and less quantity of fertilizer. This resulted in reduced cost of cultivation. Whereas one fourth of the farmers revealed that pest and disease incidents have reduced significantly.



Conclusion

- ☞ The usage of Beneficial Microbes spray has spread among Small and Marginal farmers of the Thoothukudi district across different blocks and villages
- ☞ All the farmers interviewed have reported that BM spray has increased their crop growth and yield. The pest and disease incidents have come down to remarkable level
- ☞ BM found to be the best alternative to the chemical fertilizers and other chemical growth regulators which are used for crop cultivation.

A case detail on Organic farming in cotton inter cropped with black gram using BM

Season: Rabi summer 2018-19

Cropping situation: Dry farming



Name of the Farmer – Muthuvel, Kuthalurani, Vilathikulam block	
Treatment details	
Organic field	<ul style="list-style-type: none"> • Variety : Black gram VBN 8 , Cotton: Bt cotton • Manure and fertilizer: 5 tonnes of FYM as basal application per acre • Beneficial microbial spray @ 15ml/litre at 20 DAS, 40DAS, 55 DAS • Neem oil spray 5 ml/litre whenever the pest incidence was noticed above ETL
Inorganic chemicals used by the farmers	<ul style="list-style-type: none"> • Variety : Black gram VBN 8 , Cotton: Bt cotton • Manure and fertilizer: DAP 50 kg basal dressing per acre • Spraying of Dimethoate @2ml/lit or Imidacloprid @ 0.3ml/lit to control white fly and aphid • Spraying of chloripyripos @ 2ml per lit to control for cotton boll worm and pod borer control

Cost of cultivation for cotton and Black gram inter cropping

		Inorganic cultivation	Organic cultivation
1	Land Preparation	3100	3100
2	Seeds & sowing	1800	1800
3	Manures & Manuring	1800	7000
4	Weeding after cultivation & Irrigation	2000	2000
5	Plant protection	4000	1700
6	Harvest and other Expenses (Rs.)	17000	17000
	Total	29700	32600
7	Cotton Yield (kg) (black gram yield was equated to cotton yield)	8.5 q/acre	9.7 q/acre
	Gross Income (Rs.)	42500	47530
	Net income (Rs.)	12800	15000



Over view of organic and inorganic cultivation field

	
organic cultivation cotton + Black gram field	Inorganic cultivation cotton + Black gram field

17. LINKAGES

A. Functional linkage with different organizations

Name of the Organization	Nature of linkages
ACRI, Killikulam	Technical support to prepare pre action plan Technological input sharing to finalize the OFT, FLD Participation and critically review the KVK activities in SAC meeting Participation in Seminars, workshop and training programme
VCRI- Tirunelveli	Participation in Seminars, workshop and training programme Participation and critically review the KVK activities in SAC meeting Supply of inputs like chicks, fodder seeds etc., Expert advice on disease prevention and diagnosis Supply of Mineral mixture (cattle) 400 Kg Supply of Mineral mixture (sheep and goat) 150kg
ICAR KVK Erode	Supply of 200 Kg of banana special
Seed center, TNAU	For sourcing the seeds of paddy, green gram, black gram, Snake gourd, Chilli etc., for effective implementation of FLD, Oft programmes in time
DEE, TNAU	Technological back stopping in finalizing the action plan Participation and critically review the KVK activities in SAC meeting
Dept of Agriculture, Thoothukudi	Dissemination of technological information through on campus trainings and field demonstrations etc., supportive role in organizing meetings, seminars, village level trainings etc.,
NABARD	Promotion of FPOs, JLGs and financial support for seminar (1) CAT programmes(2) in Thoothukudi,
All India Radio, Tirunelveli	Recording the success stories of farmers (5), latest technologies in Agriculture, Horticulture, Animal Husbandry, Home science (16) and broadcasting the same
KVK Namakkal	Supply of fodders Hedge Lucern –20 Kg Suba bul – 10 Kg
ICAR KVK Theni	Supply of 200 Kg of banana special
ICAR KVK Dindigul	Supply of 15Kg of Veg. spl
ICDS	Participation in Seminar On Minor Millets and its value addition Technical information sharing on malnourishment and anaemic level among children and women
AC & RI, Madurai college of food science and nutrition	Technological back stopping for FLD and OFT programmes
Department of Agri Engineering, Thoothukudi	Technical support for solar drier, marketing of agro products and organising training programmes etc.

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

B. List Externally Funded Projects / schemes 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.)
Training on coconut climbing using climbing device for coconut growers of Tuticorin district	January 2019	Coconut Development Board	108000
CAT programme on Dairy farming	January 2019	NABARD	46200
CAT programme on cultivation practices for hybrid vegetables for high yield and income for small and marginal farmers	January 2019	NABARD	40700
Skill training for Rural youth on Organic Input Preparation		MANAGE & ATMA	42000

17. Farm life school:

Thematic area : Improving the health and nutritional security

Title : Farm life nutrition schools for achieving health and nutritional security

Village : Melapoovani

No of adolescent girls: 25

Critical inputs : Nutrimix, drum stick and curry leaf powder, nutrition garden seed kit pockets,

Session number	Activity/topics discussed/demonstration
1	Introduction and base line data collection. recording the anthropometric measurements and blood hemoglobin level
2	Demonstration on use of Nutrimix porridge preparation
3	Training on nutrition garden establishment and maintenance
4	Training on sanitation , health and hygiene
5	Visit to nutrition garden and identification its uses
6	Demonstration on Dosa and adai preparation using Moringa leaves
7	Training on nutrition for adolescent girls and demonstration of nutritious food preparation using locally available materials and Laddu and Paniyaram preparation with Nutrimix
8	Gender sensitization
9	demonstration on Puttu and kolukattai preparation using Nutrimix
10	Recording the anthropometric measurements ,blood hemoglobin level and change in Knowledge gained and sharing the outcome of farm life school

Results:

Parameters	Before	After
Average body weight	38 kg	44 kg
Blood hemoglobin percentage	10.5g%	11.2g%
Establishment of nutrition kitchen garden	15%	65%
Adoption in nutritional diet intake	43%	66%
knowledge level on Nutrition aspects	54%	72%
Knowledge level in Sanitation aspects	48%	64%
% of adolescent girls using toilet	18%	58%
Proper hand washing habits with soap	35%	76%

FINANCIAL PERFORMANCE**A. Details of KVK Bank accounts**

Bank account	Name of the bank	Location	Branch code	Account Name	Account Number	MICR Number	IFSC Number
With Host Institute	Central Bank of India	Tirunelveli Junction	280924	Main Account	3117090470	627016002	CBIN0280924
	South Indian Bank Ltd	Tirunelveli Junction	0254	Revolving Fund	0254073000000462	627059002	SIBL0000254

B. Utilization of KVK funds during the year 2018 – 19 (Rs. in lakh)

Sl. No	Particulars	Sanctioned RE	Expenditure Rs.
A	Recurring Contingencies		
	Pay & Allowances	97,74,000	97,55,436
	Traveling allowances		
	a. Field activities & programmes	1,25,000	1,19,384
	b. Training programmes		
	Contingencies		
	A. Office Contingencies		
	a. Stationery, telephone, postage and other expenditure on office running, publication of Newsletter	3,28,000	3,28,491
	b. POL, repair of vehicles, tractor and equipment		
	B. Technical Programme		
	a. Rs. 150/ person per day towards food and refreshment for kvk training programmes for farmers / extension personals		
	b. Teaching materials for training and demonstration		
	c. Training of extension functionaries		
	d. publication extension literature for farmers and extension functionaries		
	e. honorarium to farmers	5,10,000	5,11,822
	f. On farm testing (problem oriented)		
	g. Front Line demonstration on major crops		
	h. KissanMela / farmers fair (at KVK farm)		
	i. Library (Purchase of Journal, Periodicals, News Paper and Magazines)		
	j. Maintenance of farm		
	k. EDP / IFS / FFS / FLS		
	l. SCSP Component	1,91,000	1,91,000
	Total of Contingencies	10,29,000	10,31,313
	Total Recurring	1,09,28,000	1,09,06,133
B	Non-Recurring Contingencies		
	Works		0
	SCSP Component (Creation of Physical assets/Repairs/Renovation)	1,47,000	1,46,970
	Furniture & Equipments		0
	Vehicle (Four wheeler/Two wheeler, please specify)		0
	Library		0
	Total Non-Recurring		0
	REVOLVING FUND		0
	GRAND TOTAL (A+B+C)	1,10,75,000	1,10,53,103

C. Status of revolving fund (Rs. in lakh) for the year 2018 - 19

Year	Opening balance as on 01.04.2018	Income during the year	Expenditure during the year	Net balance as on 31.03.2018
April 2018 to March 2019	7.63	19.94	21.63	5.94