KRISHI VIGYAN KENDRA, KOZHIKODE

ANNUAL REPORT-2019

(FOR THE PERIOD FROM 01 January 2019 TO 31 December 2019)

ICAR - Krishi Vigyan Kendera, Kozhikode
(ICAR-Indian Institute of Spices Research,
Marikunnu (P.O.), Kozhikode, Kerala)

PART I - GENERALINFORMATION ABOUT THE KVK

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

KVK Address	Telephone		E mail	Web Address
	Office	Fax		
ICAR-Krishi Vigyan Kendra, ICAR- Indian Institute of Spices Research, Peruvannamuzhi (P.O), Kozhikode, Kerala Pin-673 528	0496-2666041	0091-496-2666041	kvk.kozhikode@icar.gov.in kvkcalicut@gmail.com kvk@spices.res.in	www.kvkcalicut.gov.in

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

Address	Telephone		E mail	Web Address
	Office	Fax		
ICAR-Indian Institute of Spices Research, Post Bag No.1701, Marikunnu (P.O.) Kozhikode-673 012, Kerala.	0495-2731410	0091-495-2731187	mail@spices.res.in	www.spices.res.in

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

Name	Telephone / Contact		
	Residence	Mobile	Email
P. Ratha Krishnan	-	8547544765	ratha.krishnan@icar.gov.in rathakrishnan@spices.res.in

1.4. Year of sanction: 1993

1.5. Staff position as on 31 December 2019

Sl. No.	Sanctioned post	Name of the incumbent	Designation	M/F	Discipline	Highest Qualification (for PC, SMS and Prog. Asstt.)	Pay Scale	Basic pay	Date of joining KVK	Permanent /Temporary	Category (SC/ST/ OBC/ Others)
1	Head/Senior Scientist	P Ratha Krishnan	Programme Coordinator	M	Forestry	Ph.D in Forestry	37400-67000 +10000	157600	19.08.15	Per.	OBC
2	Scientist/SMS	P.S. Manoj	Subject Matter Specialist	M	Horticulture	Ph.D in Horticulture	15600-39100 +7600	123953	30.05.94	Per.	OBC
3	Scientist/SMS	S. Shanmugavel	Subject Matter Specialist	M	Animal Husbandry	PG in Vet. Science	15600-39100 + 7600	146700	03.08.95	Per.	SC
4	Scientist/SMS	K.M. Prakash *	Subject Matter Specialist	M	Agronomy	PG inAgrl. Science	15600-39100 +7600	115800	10.12.96	Per.	Others
5	Scientist/SMS	A. Deepthi	Subject Matter Specialist	F	Home Science	PG in Home Science	15600-39100 + 5400	76200	08.03.10	Per.	SC
6	Scientist/SMS	B. Pradeep	Subject Matter Specialist	M	Fisheries	Ph.D in Fisheries	15600-39100 + 5400	76200	30.03.10	Per.	Others
7	Scientist/SMS	Aiswariya K.K.	Subject Matter Specialist	F	Plant Protection	Ph.DinAgrl. Science	15600-39100 + 5400	76200	26.04.10	Per.	OBC
8	Programme Assistant (Lab Tech.)	MariyaDainy M S**	Programme Assistant	F	Soil Science	PG in Agrl Science	9300-34800 +4200	38700	30.06.14	Per.	OBC
9	Programme Assistant	C.K. Jayakumar	Programme Assistant	M	-	P G in Computer	5200-20200+	43600	01.02.10	Per.	Others

	(Computer)					Science	2800				
10	Programme Assistant/ Farm Manager	Vacant	Programme Assistant	-	-	-	-	-	-	-	-
11	Assistant	Vacant	Accountant/ Superintendent (Assistant)	M	-	-	-	-	-	-	-
12	Jr. Stenographer	K. Faisal	Stenographer Gr.III	M	-	-	9300-34800 +4200	55200	01.04.02	Per.	OBC
13	Driver - 1	T.C. Prasad	Driver-cum-Mechanic	M	-	-	5200-20200 +2800	52000	17.05.93	Per.	Others
14	Driver - 2	P. Prakash***	Driver	M	-	-	5200-20200 +2800	38100	27.06.02	Per.	Others
15	SS-1	Vacant									
16	SS-2	C. Ravindran	Skilled Supporting staff	M	-	-	4440-7440 +1400	34000	10.11.94	Per.	SC

*- Doing Ph.D; ** - Resigned on 13-03-2019; ***- Superannuated on 31st April, 2019

1.6. Total land with KVK (in ha):20.3 ha ha

S. No.	Item	Area (ha)
1	Under Buildings	0.65
2.	Under Demonstration Units	3.60
3.	Under Crops	0.20
4.	Plantation crops	3.25
5.	Under road, tree stands, newly developed vegetable cultivation area	4.80
6	Others including natural forest stand	7.80

1.7. Infrastructural Development:

A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Lakhs Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1	Administrative Building	ICAR	4.12.98	552	46.44	-	-	-
2	Farmers Hostel	ICAR	4.12.98	466	39.44	-	-	-
3	Staff Quarters	-	-	-	-	-	-	-
4	Old KVK office building (Farm office)	ICAR	16.1.96	360 sq. ft.	1.83	-	-	-
5	Demonstration Units					-	-	-
	1. Old Animal Clinic	ICAR	16.1.96	358.31	1.00	-	-	-
	2.Poultry	ICAR	20.9.03	43.8	0.84	-	-	-
	3.Dairy	ICAR	25.10.06	39.32	1.83	-	-	-
	4.Vermiculture	ICAR	3.1.08	9.00	0.11	-	-	-
	5. Semi – permanent nursery shed	ICAR	30.3.2019	144	1.69			
	6. Semi- Permanent poultry shed	ICAR	31.3.2019	100	2.49			
6	Rainwater harvesting system	ICAR	21.09.2013	2000m^3	9.62	-	-	-
7	Nursery with shed and fencing	ICAR	16.1.96	500.0	0.50	-	-	-
8	Store room cum working shed	ICAR	31.3.2019	18 x 14 ft	2.49	-	-	-
9	Goatary	ICAR	31.3.09	64.0	2.78	-	-	-
10	Training shed	SHM	25.11.08	90.0	2.69	-	-	-
11	Temporary vehicle shelter	ICAR	18.6.04	35.0	0.48	-	-	-
12	Water tank	ICAR	2.2.99	10,000	0.22	-	-	-
13	Pond with pump, storage tank etc.	ICAR	31.3.08	15X13M	8.44	-	-	-
14.	Bore well	ICAR	2013	90 m depth	0.25		-	-
15.	Water tank	ICAR	02.02.1999	10000	0.22	-	-	-

16	Hatchery shed	ICAR	04.01.2014	680	2.00			
17.	Black pepper polyhouse nursery	ICAR	31.3.2015	200 m2	3.96	-	-	-
18.	Entrance with arch	ICAR	31.3.2017	4.5m height x 6m width	0.995	-	-	-
19	Home Science – Processing unit	ICAR	31-5-2018	8 X 5 m	4.8	-	-	-
20	Mushroom production unit	ICAR	31.3.2018	4 x 3.6 m	0.45	-	-	-

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Motor cycle Suzuki	2009	49,980	36820	Good
Mini bus DCM Toyota	1995	5,22,670	207869	Working with high maintenance cost
Mahindra Bolero Jeep	2017	669270	37725	Good
Power Tiller	2012	1,50,000	-	Not working, needs to be repaired
Tractor – New Holland 3630 TX plus – 50-55 hp	2019	651786	17.2 hr	Good
Small Tractor with small trolley and cultivator	2019	510300	30.1 hr	Good
Power tiller – 12 hp	2019	158380	-	Good
Kamco power tiller	2019	164654	-	Good

C) Equipment & AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
TV	1996	25800	Not working
VCP	1996	10850	Not working
Kettle	1996	1375	Good
Sewing machine (2 nos.)	1996	4800	“
1.5 HP pump	1997	8100	“
Grafting machine	1998	4950	“
Public address system	1999	30656	“
Water cooler	1999	13000	Not working
Water purifier	1999	2745	“
3.5 Hand compression sprayer	1999	1200	“
UPS (1 KVA)	2002	17250	Good
Refrigerator	2002	21308	“
7.5 KVA Generator	2003	56,950	Good
Computer with accessories	2003	61,175	“
Scanner	2003	13,400	“
Overhead projector	2004	32,095	“
Pressure cooker (22 l)	2004	3,047	“
LCD Projector	2004	73,210	“
Electronic physical balance	2005	6160	“
Chemical balance	2005	42162	“
PH meter	2005	14388	“
Video camera	2005	19,000	“
Oven	2005	15476	“
Water distillation still	2005	41340	“
Digestion and distillation system	2005	1,30,802	“
Hot plate	2005	4,120	“
Spectrophotometer	2005	55,230	“
Shaker	2005	48,038	“
Conductivity meter	2005	14,960	“
Flame photometer	2005	37,026	“

Refrigerator	2005	16,890	“
Grinder	2005	1,950	“
Fax machine	2006	7,500	“
PABX	2006	31,985	“
Digital Camera	2007	10,580	“
DLP Projector	2007	54,563	Not working
Computer	2007	37,600	“
DTH System with accessories	2007	4,165	good
Iron Box	2007	830	Not working
UPS	2008	27060	“
Stabilizer	2008	10920	Good
Laser fax	2009	14378	“
Printer	2009	5386	“
Digital camera	2009	14890	“
UPS	2009	6500	“
Weed Cutter	2010	34930	“
Chaff Cutter	2010	23800	“
Generator	2010	100000	Not working
Air conditioner 2 ton	2011	34000	Good
Stabilizer 5 KVA	2011	2900	“
Computer – 2 nos.	2012	65000	“
Power Tiller	2012	150000	“
PABX system	2012	50000	“
Double distillation unit	2012	63250	“
Electronic balance	2012	6800	“
Horizontal autoclave	2012	278615	“
BOD Incubator	2012	62790	Not working
Motorized Sieve	2012	44737	“
Laminar air flow	2012	45070	Good
Inkjet printer	2012	8,900	“
Water treatment plant	2013	59800	“
3KVA UPS	2013	27000	“
laptop	2013	54530	“
Mridaparikshak	2016	89775	“
Pulveriser	2016	40671	“
LED TV 43”	2017	48500	“
Desktop Computers (7 nos)	2017	194250	“
LCD Projector	2017	36000	“
Photostat Machine	2017	54500	“
All in one inkjet printer	2017	11800	“
Solar drier	2017	34000	“
Mridaparishak	2017	90300	“
Coconut climbing machine	2018	9400	„
Straw chopper / Shredder	2019	120000	“
Shrub master cutter cum spreader	2019	34746	“
Shrub master	2019	26695	“
Power weeder	2019	64286	“
Multipurpose pulveriser with 10 HP motor	2019	169995	“
Rotavator	2019	120536	“
Disc plough	2019	80357	“
Cultivator	2019	44642	„
Bund former	2019	35714	“
Plastic mulch laying machine (Mulcher)	2019	225000	“

Mini tractor trailer	2019	129464	"
Small Tractor with small trolley and cultivator	2019	510300	"
Mini oil mill	2019	24780	"
Conoweeder / wetland weeder	2019	34000	"
Post hole digger	2019	124500	,,
Solar water pump	2019	249600	"
Mini pulveriser	2019	49996	"
Sprayer	2019	5400	"
Pepper thresher	2019	23993	"
Coconut de-husker	2019	124992	"
Grinder	2019	7332	"
Touch screen display unit	2019	68962	"
Laminar air flow HLF	2019	69300	"

1.8. Details of SAC meeting conducted during 2019

Date	Number of Participants	Salient Recommendations	Action taken	Remarks, if any
26.02.2019	30	Variety specific planting material production including bush pepper need to be strengthened. KVK has to upgrade a model bush pepper demonstration unit with different age groups of materials.	Variety specific spice and fruit plants are produced by KVK for sale. A bush pepper demo unit with different age groups is established	
		All the KVK publications need to be digitalized and uploaded in KVK web site immediately.	Some of the KVK publications (softcopy) are already available in KVK website. Remaining is in progress	
		Leaflets on Tree spices cultivation practices to be released.	Leaflet on nutmeg already published. Rest in progress.	
		Development of KVK campus with demo models including IFS is advised. Diverse the activities including seed production towards enhancing income generation of KVK may be attempted.	About eight demo models installed at KVK campus. Turmeric and vegetables seed production initiated in IFS plot	
		Efforts may be made for telecast of KVK activities through Doordarshan, Trivandrum, for which DD office at Kozhikode will facilitate the programme.	This will be followed	
		Since availing loan and financial facility from Banks are easier for groups, KVK may be promoted more number of farmers groups	"	
		Farmers maintaining layer chicks may be facilitated to form egger nursery to meet the hatching eggs demand. Already Departments of Animal Husbandry is undertaking such activity successfully in Kozhikode district	Due to difficulties functioning of hatchery is not carried during this year	
		Friends of Coconut training may be scheduled with crown cleaning, palm health management activities, etc along with coconut climbing using machine.	Already conducted two FoCT trainings with the modified schedule.	
		Demonstration on "Nutrition garden" may be established with the data of nutrition availability, suitable	In progress	

		crops/variety etc.		
		While introducing crops such as Aloe vera, medicinal plants for cultivation, importance to be given for value added products developments also.	Will be followed	
		Good quality coconut seedlings including Hybrid may be made available for famers of Kozhikode district through KVK for which the seed nuts may be procured from CPCRI, Regional Station, Kayamkulam.	Hybrid seedlings are not available at CPCRI, more Kuttiyady seedlings produced at KVK for sale	
		Awareness about FMD among farmers through camp, pamphlets etc. May be conducted. Meanwhile confirm the FMD control in KVK adopted villages.	Awareness camps conducted an association with AH department	
		OFTs and FLDs observations may be carried with scientific data like water use efficiency, nutrient efficiency, pest and disease resistance etc.	Will be followed	
		Publications in the form popular articles, research article may be published atleast 5 per each SMS.	Following are the articles publications by PC-8, SMS (Horti)- 14; SMS (Fish)- 4, SMS (PP)- 3. SMS (Agro, AS, HS)- Nil.	
		Issuing of Soil Health card to all the farmers of KVK adopted village may be ensured	In progress (34 cards issued recently)	
		Each Scientists/SMS of KVK should possess external funded projects for getting more manpower and financial assistance.	Proposal submitted by SMS (Horti) to NHM	
		Activity such as nursery development, large scale seed production of ginger and turmeric, processing of turmeric, poultry unit may be attempted by KVK in Naduvannurpanchayat with handholding of Kavunthara Service Cooperative Bank	Seed production of turmeric and vegetables in progress.	
		Technology (suitable fodder grasses, hydroponic fodder production etc.) for availability of green fodder during summer may be identified and popularised	Will be followed	
		Joint venture of trainings in association with RSETI, Kozhikode may be carried to enhance the job opportunities.	Will be followed	
		Mother garden of Tapioca and other tuber crops may be maintained at KVK for the supply of planting materials to the farmers.	In progress. Limitation is damage by wild animals like wild boar, deers, etc.	
		Economically viable model / units of "Ornamental fish cultivation" with data on fish varieties, numbers, activities, expenditure and income may be developed and documented	Backyard ornamental fish culture of guppy varieties is taken as FLD for Doubling Farmers Income (DFI). The data of guppy varietal culture, income etc. will be collected and documented.	
		Mites problem found in goats may be reported to IVRI, Bareilly	"	

		Data on impact in honey production by KVK activities may be collected. More efforts for honey based products development may be attempted.	Will be followed.	

PART II - DETAILS OF DISTRICT

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

S. No	Farming system/enterprise
1	Homestead based farming system with coconut as the main crop. Intercrops cultivated are spices, fruits, vegetables and other plantation crops. Most homesteads also have other enterprises like poultry and dairy in small scales. Many farmers also practice goat rearing, pisciculture, piggery etc. Coconut based value added products by individuals and societies is the major enterprise activity

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

S. No	Agro-climatic Zone	Characteristics
1	West coast Plains & Ghats Zone (12)	This region extends over the Malabar and Konkan coasts and the Sahyadris and is covered by laterite and coastal alluvials. This is a humid region with annual rainfall above 200 cm and average temperatures of 26°C-32°C in July and 19°C-28°C in January. Rice, coconut, oilseeds, sugarcane, millets, pulses and cotton are the main crops. The region is also famous for plantation crops and spices which are raised along the hill slopes of the Ghats.

S. No	Agro ecological situation	Characteristics
1.	Northern Mid lands V	Altitude: upto 500 m above (Low altitude zone-hot humid tropics, spread over the entire state) Rainfall: Poorly distributed rainfall; south west monsoon with July maximum and concentrated in 3-4 months. Northeast monsoon relatively weak (North of 11^0 N Latitude). Soil type: Laterite soil with well defined B horizon (Natural midlands) Topography: Valleys less extensive hills with moderate gradients and top with egg shaped hump, steep slopes.

2.3 Soil type/s

S. No	Soil type	Characteristics	Area in ha
1	Laterite	All these soils are acidic with low water holding capacity and are poor in NPK and organic matter content. The laterite soil is generally suitable for most of the dry land crops. It is mainly cultivated with coconut, arecanut, banana, tapioca, pepper, vegetables, fruit crops etc. Liming is required for correcting soil acidity.	2,09,996

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

S. No	**Crop**	**Area (ha)**	**Production (Metric tons)**	**Productivity (kg /ha)**
1.	Paddy	1987	2935	1477
2.	Pulses	8	4	500
3.	Sugar crops	127.008	0	0
4.	Pepper	3755	1059	282
5.	Ginger	62	143 (Cured)	2306
6.	Turmeric	272	681 (Cured)	2504
7.	Cardamom	220	3 (Processed)	14

8.	Arecanut	10261	7386	720
9.	Tamarind	749	1633	2180
10.	Vanila	6	NA	
11.	Cloves	61	4 (Dry)	66
12.	Nutmeg	609	447	734
13	Cinnamon	22	NA	NA
14.	Other spices	33	NA	NA
15.	Jack	9710	21 (Million nos)	2163
16	Mango	8335	31731	3807
17	Banana	1864	17264	9262
18	Plantain	3609	17885	4956
19	Pineapple	163	9128	5595
20	Pappaya	2160	8580	3972
21.	Lemon (big)	19	NA	
22.	Lemon small	35	NA	
23.	Other fresh fruits	702	NA	
24.	Cashew	1756	553 (Raw)	315
25	Tapioca	1477	42128	28523
26.	Elephant foot yam	212	NA	NA
27.	Colocasia	438	NA	NA
28.	Yam	28	NA	NA
29.	Sweet potato	10	153	15300
30.	Koorka	9	NA	NA
31	Nanakizhangu	5	NA	NA
32	Other tubers	56	NA	NA
33.	Drumstick	1683	646	384
34	Amaranthus	127	NA	NA
35	Bitter gourd	74	NA	NA
36	Snake gourd	30	NA	NA
37	Ladies finger	42	NA	NA
38	Brinjal	24	NA	NA
39	Green Chillies	129	129	1000
40	Bottle gourd	6	NA	NA
41	Little gourd	33	NA	NA
42	Ash gourd	60	NA	NA
43	Pumpkin	59	NA	NA
44	Cucumber	89	NA	NA
45	Payar (Achinga)	149	NA	NA
46	Cabbage	1	NA	NA
47	Tomato	9	NA	NA
48	Cauliflower	1	NA	NA
49	Other vegetables	26	NA	NA
50	Coconut	119064	878 (Million nos)	7030 (Nos/ha)
51	Rubber	21930	23000	1049
52	Cocoa	839	607	723
53	Fodder grass	76	NA	NA
54	Green manure crops	1398	NA	NA
55	Other crops and trees	3130	NA	NA
56	Teak	526	NA	NA
57	Medicinal plants	48	NA	NA

* Source: Farm Information Bureau, Dept. of Agriculture, Govt. of Kerala, 2019. NA- Not available

2.5. Weather data

Month	**Rainfall (mm)**	**Temperature ^{0} C**		**Relative Humidity (%)**
		Maximum	**Minimum**	
January-2019	0.00	34.60	18.64	65.94

February	0.00	35.85	21.30	68.20
March	12.00	37.08	23.14	68.37
April	84.00	37.20	24.67	70.00
May	115.00	36.40	25.15	73.72
June	561.80	33.70	24.63	79.92
July	1116.6	29.94	23.82	90.79
August	1555.2	29.97	23.65	89.58
September	751.40	31.53	24.05	88.92
October	539.80	32.18	23.97	84.68
November	111.80	34.02	24.72	79.94
December	138.00	34.70	23.08	77.47

(Source: Experimental farm, IISR, Peruvannamuzhi)

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

Category	Population	Production	Productivity
Cattle			
Crossbred	100573	217ML	13 litre
Indigenous	62831	41.6ML	4 litre
Buffalo	1185	2.26ML	11 litre
Sheep			
Crossbred			
Indigenous			
Goats	51824	1036 tons	25 kg
Pigs			
Crossbred	2318	289.7 ton	125 kg
Indigenous			
Rabbits	5278	13.2 ton	2.5 kg
Poultry			
Hens	566103		
Desi	169831	11.88 M eggs.	70
Improved	396272	103 M Eggs	260
Ducks	12057	0.96 M eggs	80
Turkey and others	30925	278 tons kg	9 kg.

Source: Department of Animal Husbandry, Kerala, 2003.

Category	Area	Production	Productivity
Fish	317.97 ha*	268.911 tonnes*	845.7 Kg/ha
Marine	71 Km*	**46000 tones#**	
Inland	3800 ha*	**5000 tones#**	
Prawn	-	-	-
Scampi	-	-	-
Shrimp	46.46 ha*	50.37 tonnes*	1 ton/ha*

*Success story of "Matsyakeralam" ,2009 of Fisheries Department.
#Economic Review 2017, State Planning Board, Thiruvananthapuram, Kerala, India

2.7 District profile maintained in the KVK has been **Updated** for 2019: Yes / ~~No~~

2.8 Details of Operational area / Villages

Sl.No.	Taluk	Name of the block	Name of the village	How long the village is covered under operational area of the KVK (specify the years)	Major crops & enterprises	Major problem identified	Identified Thrust Areas
	Quilandy	Balussery	Naduvannur, Ulliyeri	2 years	Coconut, banana, vegetables	Low productivity of turmeric, Low productivity of nendran banana, Low production of vegetables, Low income in coconut mono-cropping, Low productivity of cassava	Improving production of spices, vegetables and tuber crops, Improving yield of fruits by INM, Improving income from coconut based cropping systems
	Quilandy	Balussery block	Ulliyeri,Naduvannur	3 yrs	Paddy	Crop loss due to pests and diseases	IPDM in paddy
	,,	Balussery block	Ulliyeri,Naduvannur	3 yrs	Ginger, Turmeric	Soft rot, bacterial wilt, stem borer	Variety introduction, IPDM in spice crops
	,,	Balussery block	Ulliyeri,Naduvannur	3 yrs	Black pepper	Quick wilt, Slow wilt, pollu disease and pollu beetle, nutrient defeciency	IPDM in spice crops
	,,	Balussery	Ulliyeri,Naduvannur	3 yrs	Vegetables	Low yield due to pests and disease problems	IPDM in vegetables
	,,	Balussery	Ulliyeri,Naduvannur	3 yrs	Banana	Attack of pseudo stem weevil, rhizome weevil, mealy bugs, Sigatoka leaf spot,	IPDM in fruit crops
	,,	Baluserry	Naduvannur, Thodanur, Mundoth	2 yrs	Kasturi manjal	Non availability of original	Seed production
	Quilandy	Baluserry	Naduvannur	3 yrs	Livestock under homestead agriculture	Non availability of quality layer chicks,poor kidding in goats,poor conception in cows	Production management in poultry,breeding management in goats and cows
	Quilandy	Baluserry	Ulleyeri,Chakittapara	2	Fresh and brackishwater fishes	Non utilization of large water bodies for fish culture. Lower durability of PVC cages	Aquaculture

	Quilandy, Kozhikode	Baluserry Chelannur	Atholi and Chelannur	2	Fisheries: edible fish	Poor performance of Indian Major Carps in small ponds <0.04ha & Early sexual maturation and poor growth for existing common carp	Freshwater aquaculture with Amur common carp
	Quilandy, Kozhikode Thamarashery	Baluserry Pandalayani Chelannur Thamarashery	Ulleyeri, Atholi, Chemencherry, Kakkor, Narikunni Uniikulam Namninda Panangad	1	Fisheries: ornamental fish	Poor colouration in ornamental fishes resulting in lower price for these fishes	Freshwater ornamental fish culture with quality feed
	Quilandy, Kozhikode	Baluserry Pandalayani Chelannur	Ulleyeri, Chemencherry, Thalakulathur	2	Fisheries: edible fish	Lack of knowledge on candidate species for fish culture. Low water pH during monsoon in culture ponds.	Brackishwater aquaculture with milkfish
	Quilandy	Perambra	Chakittapara At KVK	25	Fisheries: edible fish	Poor growth of fishes in small ponds due to low dissolved oxygen and high ammonia. Lack of knowledge about cropping systems, suitable fishes and crops for aquaponics	Integrated fish farming with aquaponics system
	Quilandy	Perambra	Muthukad	2	Community health and nutrition	Malnutrition among farm families lack of quantification of food consumption data	Nutritional adequacy
	Quilandy	Perambra	Muthukad	1	Community health and nutrition	Unawareness about nutritious food, non utilization of resources- water, space and organic waste	Nutritional adequacy
	Quilandy	Perambra Balussery	Chembanoda Palery Nettur	3	Coconut	Scarcity of coconut climbers	Farm mechanization
	Quilandy	Perambra	Maruthonkara Kallanod	2	Spices	Lack of technical knowledgeUnavailability of equipments	Value addition
	Quilandy,	Balussery, Perambra, Koduvally ,Thamarassery	Unnikulam, Thiruvambadi, Changaroth, Koothali	5 years	Coconut, arecanut, black pepper, banana, vegetables	Severe incidence of *Phytophthora* foot rot of black pepper	Growing of disease resistant grafted plants
	Kozhikode	Kozhikode	Kozhikode city	10 years	Coconut, vegetables	Low productivity of black pepper, acute shortage of water in summer season	Improving production of spices, improving water use efficiency

	All taluks	All blocks	Different panchayaths	--	All horticultural crops	Unavailability of quality planting materials, Lack of knowledge about scientific cultivation practices	Quality planting material production, Improving production of horticultural crops
	All Taluks	Different blocks in Kozhikode district	Different villages in Kozhikode district	3 yrs	Apiculture	Absconding of bees, Wax moth attack	Doubling farmers' income through apiculture
	All Taluks	Different blocks in Kozhikode district	Different villages in Kozhikode district	3 yrs	Coconut,Are ca nut	Bud rot, Tanjore wilt, Stem bleeding, Rhinoceros beetle, Rugose whitefly	IPDM in coconut

2.8 Details of Benchmark Information collected from DFI villages

Sl.No.	Taluk	Name of the block	Name of the village	Name of the Head of Household	Annual Gross Income (Rs.)	Annual Expenditure (Rs.)	Annual Net Income (Rs.)

2.10 Priority thrust areas

S. No	**Thrust area**
1	Improving production of vegetables
2	Improving yield of tuber crops
3	Improving yield of fruits by INM
4	Improving the production of spices
5	Improving income from coconut based cropping systems
6	Quality seed, planting material production
7	Improving production of horticultural crops
8	Growing of disease resistant grafted plants
9	Integrated Pest and disease management
10	Pest and disease management by organic methods
11	Doubling farmers' income through apiculture
12	Breeding management dairy cows and goats
13	Laying performance in poultry
14	Production of improved breeds of layer chicks
15	Freshwater aquaculture
16	Freshwater ornamental fish
17	Brackishwater aquaculture
18	Integrated fish farming
19	Nutritional adequacy
20	Nutrition security
21	Farm mechanization
22	Value addition
23	Medicinal plants

PART III - TECHNICAL ACHIEVEMENTS (2019)

3.A. Target and Achievements of mandatory activities (new only

OFT				FLD			
1				2			
OFTs (No.)		Farmers (No.)		FLDs (No.)		Farmers (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
5	4	28	26	16	16	145	145

Training				Extension Programmes			
3				4			
Courses (No.)		Participants (No.)		Programmes(No.)		Participants (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
100	109	5000	5807	3000	3480	15000	19816

Seed Production (Q)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
2	7.4	15000	21194

Livestock, poultry strains and fingerlings (No.)		Bio-products (Kg)	
7		8	
Target	Achievement		
20000	23844	12000	14000

3.B1. Abstract of interventions undertaken

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions									
				Title of OFT if any	Title of FLD if any	Number of Training (farmers)	Number of Training (Youths)	Number of Training (extension personnel)	Extension activities (No.)	Supply of seeds (Qtl.)	Supply of planting materials (No.)	Supply of livestock (No.)	Supply of bio products	
1	Improving the production of spices	Turmeric	Limited number of short duration varieties with high curcumin content		Participatory seed production programme of a HYV of turmeric viz. IISR Pragati	1	-	-	1	2	-	-	No.	Kg
2	Improving production of vegetables	Yard Long Bean	Low productivity of vegetables		Demonstration of a HYV of YLB viz. Githika	1	-	-	-	0.05	-	-		11.5
3	Improving the production of spices	Black pepper	Low productivity of black pepper		Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	1	1	-	-	-	60	-	-	-
4	Improving yield of cassava	Cassava	Low productivity of cassava	Assessment of customized fertilizer application in cassava for higher yield	-	1	-	-	-	-	-	-	-	-

5	Pest management in banana using organic methods	Banana	Yield loss due to pseudo stem weevil attack		Entomo pathogenic nematodes (EPN) for pseudo stem weevil management in banana	1	-	-	-	-	EPN -12000 cadavers	-	-	-
6	Integrated management of pests and diseases of paddy	Paddy	Yield loss due to pests and diseases in paddy	-	Integrated Pest and Disease Management in Paddy	-	-	-	-	-	Pseudomonas fluorescens -28 kg. Beuveria bassiana- 5 kg	-	-	-
7	Disease management in ginger	Ginger	Yield loss due to incidence of diseases in ginger		Demonstration on production of healthy ginger seeds	1	-	-	-	-	GAB-107-70 kg	-	-	-
8	Pest Management in chillies	Chillies	Severe attack of sucking pests in chillies	Management of sucking pests in chillies	-	-	-	-	-	-	Neen soap-4 kg Nanma-7 litres Trichoderma-30 kg Pseudomonas-20 kg Chitin enriched Pseudomonas-10 kg	-	-	-
9	Feeding and production management of layers	Poultry	Non availability of quality layer chicks, low growth rate, poor laying performance and feather pecking etc	Assessment of production performance of layer chicks under cage system of rearing	-	2	2	-	2	-	-	-	-	-
10	Breeding and Fertility management in goats	Goatary	Intermittent estrus,irregular kidding,kid mortality,poor management practices,economic loss to farmers	-	Estrus Synchronization and Fixed Time Breeding in Goats	2	2	1	-	-	-	-	-	-
11	Breeding management in dairy cattle	Dairy	Repeat breeding,long intercalving interval,low milk yield	-	Ovsynch for Repeat Breeder cows	2	2	2	-	-	-	-	-	-

12	Aquaculture	Edible fishes	Non utilization of large water bodies for fish culture. Lower durability of PVC cages	-	Cage culture of pearlspot fish (2017-18) Progressing	-	1	-	-	-	-	1375 pearl spot fingerlings	-	-
13	Freshwater aquaculture with Amur common carp	Edible fishes	Non utilization of large water bodies for fish culture. Lower durability of PVC cages	Assessment of Amur common carp for freshwater aquaculture	-	-	-	-	-	-	-	1200 Amur common carp fingerlings	-	-
14	Freshwater ornamental fish culture with quality feed	Oranmental fish	Poor performance of Indian Major Carps in small ponds <0.04ha & Early sexual maturation and poor growth for existing common carp	-	Use of Carotenoid rich feed for freshwater ornamental fish culture	-	-	-	-	-	-	-	Fish feed	5 kg
15	Brackishwater aquaculture with milkfish	Edible fishes	Poor colouration in ornamental fishes resulting in lower price for these fishes	-	Scientific farming of milkfish (*Chanos chanos*) in brackishwater ponds with water acidity management	-	1	-	-	-	-	1860 milkfish fingerlings	-	-
16	Integrated fish farming with aquaponics system	Edible fishes	Lack of knowledge on candidate species for fish culture. Low water pH during monsoon in culture ponds.	-	Demonstration of aquaponics farming system	-	-	-	-	-	-	500 Anabas fingerlings	-	-
17	Medicinal plants cultivation	Kasturi turmeric,	Non availability of seed and knowledge of medicinal plants cultivation	-	Demonstration of cultivation of kasturi turmeric	-	-	-	02	27	-	-	-	-
18	"	Aloe vera	Lack of knowledge	-	Demonstration on *Aloe vera* cultivation	-	-	-	01	-	150	-	-	-
19	Water conservation	Vegetables	Scarcity of water	-	Waste water recycling and vegetables cultivation	3	1	-	01	-	-	-	-	-

20	Nutritional adequacy	Vegetables and fruits	Malnutrition,lack of quantification of food consumption	Assessment of methods for nutritional adequacy in agro based farming system	Demonstration of nutria farms for year round nutrition security among farm families	9	3	1	10	-	70 nos	-	No	Kg
21	Farm mechanization	Coconut	Scarcity of coconut plam climbers	-	EDP-Training on Mechanized Coconut palm climbing using machine	-	28	-	-	-	-	-	-	-
22	Value addition	Spices – Ginger processing	Lack of technical knowledge in processing of spices. 2.Unavailability of equipment	-	Production of ginger RTS functional beverages	2	-	-	-	-	-	-	-	-
23	Value addition	EDP-Spices processing	Lack of technical knowledge in processing of spices. 2.Unavailability of equipment	-	Production and marketing of processed products of spices	2	-	-	-	-	-	-	-	-
24	Growing of disease resistant grafted plants	Black pepper	Severe incidence of *Phytophthora* foot rot of black pepper	Performance evaluation of grafted black pepper (started during 2014-15)		1	-	-	-	-	Grafted pepper- 50 each	-	-	-
25	Improving water use efficiency	Vegetables	Acute shortage of water in summer season	Assessing the performance of different micro-irrigation systems in grow bag cultivation of vegetables and spices (2017-18)	-	1	-	-	1	Protray raised vegetable seedlings	-	-	Pseudomonas Neem soap Trichoderma	4 kg 2 kg 5 kg
26	Improving income from coconut based cropping systems	Banana	Low income in coconut mono-cropping	-	Demonstration of Big Ebanga as an intercrop in coconut gardens (2017-18)	1	-	-	-	-	TC plants of Big Ebanga-660	-	-	-

27	Improving yield of fruits by INM	Banana	Low productivity of nendran banana	-	Demonstration of soil application of banana micro-nutrient mixture viz. AYAR in nendran banana (2016-17)	-	-	-	-	-	-	-	Pseudomonas Nanma	15 kg 25 l
28	Pest management in banana using organic methods	Banana	Crop loss due to pseudo stem weevil attack	Assessment of organic methods for pseudo stem weevil management in banana (2017-18)	-	-	1	-	-	-	-	-	Pseudomonas Beauveria Metarrhizium Nanma	50 kg 20 kg 20 kg 10 litres
29	Improving yield of tuber crops	Cassava	High cost of potassic fertilizers, low to marginal content of soil exchangeable K in Kerala soils		FLD on Demonstration of a K use efficient variety of cassava viz. Sree Pavithra	1					325			16
30	Improving yield of tuber crops	Lesser Yam	Poor yield of local cultivars		FLD on Demonstration of a HYV variety of Lesser Yam viz. Sree Latha	1				0.40				13
31	Improving yield of spices	Turmeric	Limited number of short duration varieties with high cucrcumin content		Participatory seed production programme of a HYV of turmeric viz. IISR Pragati	1				1.5				30
32	INM of spices	Ginger	High cost of organic manures	OFT on Assessment of performance of NPK capsules in organic ginger production										
33	Integrated management of pests and diseases in cowpea	Cowpea	Yield loss due to incidence of pests and diseases n cowpea		Demonstration on integrated pest and disease managementin cowpea(2019-20)	1					Trichocaps-15 Pseudomonas 10 kg			

34	Income generation and crop residue utilisation	Mushroom	Lack of popularity of mushroom in our daily food		Demonstration of different oyster mushroom varieties in Kozhikode district (2019-20)		2				Spawn of Pleurotes florida- 15 Spawn of Hypsizygous ulmarius - 15 Spawn of Pleurotes oeus-15			
35	Organic method of pest management in paddy	Paddy	Yield loss due to incidence of pests and diseases n cowpea	Assessment of ecofriendly management methods of rice bug (2019-20)							Beauveriab assiana-8 kg Fish amino acid-5 litre Chitin based Pseudomonas fluorescens-8 kg			
36	Fisheries: Aquaculture	Ornamental fish	Poor colouration in ornamental fishes resulting in lower price for these fishes		Freshwater ornamental fish culture with quality feed (2018-19)									
37	Fisheries:Aquaculture	Edible fish	Poor growth of fishes in small ponds due to low dissolved oxygen and high ammonia. Lack of knowledge about cropping systems, suitable fishes and crops for aquaponics		Integrated fish farming with aquaponics system (2018-19)									
38	Fisheries : Aquaculture	Edible fish	Poor water quality in high density aquaculture system affecting growth of fishes		Dentrodigest for bioremediation of detritus in aquaculture									
39	Fisheries : Aquaculture	Ornamental fishes	Low income for farmers due to culturing of ordinary and non varietal guppies.		Backyard ornamental fish culture of guppy varieties		1			150 guppies				

40	Fisheries: Aquaculture	Edible fish	Poor production of fishes owing to high ammonia and low dissolved oxygen		High density fish farming using biofilters									
41	Home Science: Assessment of read y to cook dehydrated jack fruit	Jackfruit	Value addition		-	-	-	-	-	-	-	-	-	-
42	Wild life damage to crops	Plantation crops	Man – Wild life conflicts and damage to crops	Assessment of different innovative technologies for deterring crop raiding wild elephants										
43	Feeding and breeding management in dairy cattle	Dairy	low milk yield, low fat content in milk, poor conception, repeat breeding problem in dairy cattle	Probiotics supplementation on Lactation and conception in Milch cows	-	2	1	-	2	Probiotics 10kgs Mineral mixture 10kgs	-			
44	Breeding management in dairy cattle	Dairy	repeat breeding, long intercalving interval, low milk yield	-	Ovsynch for Repeat Breeder cows	1	1	-	2	Inj.GnRh				

3.B2. Details of technology used during reporting period

S.No	Title of Technology	Source of technology	Crop/enterprise	No.ofprogrammes conducted			
				OFT	FLD	Training	Others (Specify)
1	2	3	4	5	6	7	8
1	High Yielding Variety of turmeric IISR Pragati	ICAR-IISR, Kozhikode	Turmeric	-	1	1	1 - Field day
2	HYV of YLB	KAU, Thrissur	Yard Long Bean	-	1	1	-
3	Bush pepper cultivation in pots	ICAR-IISR, Kozhikode	Black pepper	-	1	1	1 - Method demonstration
4	Customized fertilizer application in cassava	ICAR- CTCRI, Thiruvananthapuram	Cassava	1	-	1	-
5	Grafted black pepper	ICAR-IISR, Kozhikode	Black pepper	1	-	-	-
6	Management of pseudostem weevil in banana using entomopathogenic nematodes(EPN)	AICRP on Fruit crops, KAU	Banana	-	5	1	1 - Field day
7	Integrated Pest and Disease Management in paddy	KAU	Paddy	-	10	-	-
8	Production of healthy ginger seeds	ICAR-IISR	Ginger	-	5	1	Field Day -1

9	Application of rice gruel water on the under surface of leaves, Spray application of Nanma, 5-7 ml/litre from the initial stage of infestation, Spray application of Neem soap 10-15 g/litre , thrice at 7 days interval, from the initial stage of infestation, Spray application of chitin enriched Pseudomonas 2 % twice at 15 days interval, from the initial stage of infestation	Farmers' practice KAU IIHR TNAU	Chillies	10	-	-	-
10	Assessment of Production performance of layer chicks under cage system of rearing		Poultry	1	-	2	-
11	Estrus Synchronization and Fixed Time Breeding in Goats	KVASU	Goatary	-	1	2	2
12	Ovsynch for Repeat Breeder cows	KVASU	Dairy	-	1	2	2
13	Cage culture of pearlspot fish (2017-18)	CMFRI Cochin	Fresh and brackishwater fishes	-	1	-	-
14	Assessment of Amur common carp for freshwater aquaculture (2018-19)	KVAFSU, Bidar	Fisheries: edible fish	3	-	-	-
15	Use of Carotenoid rich feed for freshwater ornamental fish culture (2018-19)	CIFE, Mumbai	Fisheries: ornamental fish	-	10	-	-
16	Scientific farming of milkfish (*Chanos chanos*) in brackishwater ponds with water acidity management (2018-19)	CMFRI Cochin	Fisheries: edible fish	-	5	1	-
17	Demonstration of aquaponics farming system (2018-19)	KAU	Fisheries: edible fish	-	1	-	-
18	Cultivation of kasturi turmeric	IISR, Calicut	kasturi turmeric	-	1	-	-
19	Cultivation of Aloe vera	KAU	Aloe vera	-	1	-	-
20	Waste water recycling for vegetable cultivation	CWRDM, Calicut	Vegetables	-	1	-	-
21	Assessment of methods for nutritional adequacy in agro based farming system	AICRP	Community health and nutrition	5	5	2	1(Nutrition education)
22	Demonstration of nutria farms for year round nutrition security among farm families	AICRP	Community health and nutrition	5	5	2	1(Nutrition education)
23	Preparation and quality evaluation of ginger based RTS functional bevarage	KAU	Value addition	-	2	2	1(Exhibition)
24	Processing of spices	IISR,Calicut	Value addition	-	-	-	-
25	Mechanized Coconut palm climbing using machine	KAU	Farm mechanization	-	2	2	-
26	Micro irrigation systems	CWRDM Kozhikode and KVK Ernakulam	Vegetables	1	-	-	Method demonstration
27	Cultivation of Big Ebanga banana	KAU, Thrissur	Banana	-	1	-	-
28	Micro-nutrient mixture application in banana	KAU, Thrissur	Banana	-	1	1	Method demonstration
29	Assessment of organic methods for pseudo stem weevil management in banana	(Farmers' practice) ICAR-CTCRI KVK Malappuram KAU	Banana	1	-	1	-
30	High Yielding Variety of turmeric IISR Pragati	ICAR-IISR, Kozhikode	Turmeric		1	1	
31	K use efficient variety of cassava viz. Sree Pavithra	ICAR- CTCRI, Thiruvananthapuram	Cassava		1	1	
32	FLD on Demonstration of a HYV variety of Lesser Yam viz. Sree Latha	ICAR- CTCRI, Thiruvananthapuram	Lesser Yam		1	1	
33	Assessment of performance of NPK capsules in organic ginger production	Encapsulation technology: ICAR- IISR, Kozhikode Bio agents: IARI & NCIM	Ginger		1		
34	Demonstration on integrated pest and disease management in cowpea(2019-20)	KAU	Cowpea		5	1	
35	Demonstration of different oyster mushroom varieties in Kozhikode district (2019-20)	KAU	Mushroom		5	2	
36	Assessment of ecofriendly management methods of rice bug (2019-20)	Farmers' practice, KAU, TNAU	Paddy	5			
37	Dentrodigest for bioremediation of detritus in aquaculture	National Centre for Aquatic Animal Health CUSAT, Cochin	Edible fish		2		
38	Backyard ornamental fish culture of guppy varieties	CIFE Mumbai	Ornamental fishes		3	1	

39	High density fish farming using biofilters	CIFE Mumbai	Edible fish		3		
40	Assessment of read y to cook dehydrated jack fruit	-	-	-	-	-	-
41	Assessment of different innovative technologies for deterring crop raiding wild elephants	TNAU	Wild life	1			
41	Demonstration on rain house cultivation of leafy vegetables	KAU	Vegetables		1		1- method demonstration
42	Probiotics supplementation on Lactation and conception in Milch cows	PDKV	Dairy	1	-	3	2
43	Ovsynch for Repeat Breeder cows	kvasu	Dairy		1	2	2

3.B2 contd..

No. of farmers covered															
OFT				**FLD**				**Training**				**Others (Specify)**			
General		**SC/ST**		**General**		**SC/ST**		**General**		**SC/ST**		**General**		**SC/ST**	
M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
9	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
-	-	-	-	**8**	**2**	-	-	**34**	**10**	-	**3**	**9**	**7**	-	-
-	-	-	-	**6**	**4**	-	-	**3**	**14**	-	-	-	-	-	-
-	-	-	-	**7**	**13**	-	-	**11**	**12**	-	-	**8**	-	-	-
8	**2**	-	-	-	-	-	-	**58**	**1**	**3**	**1**	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	**4**	**0**	**1**	**0**	**17**	**1**	**4**	**1**	-	-	-	-
-	-	-	-	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	-	-	-	-
-	-	-	-	**3**	**2**	**0**	**0**	**34**	**10**	**0**	**3**	-	-	-	-
10	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**34**	**8**	**1**	**2**	-	-	-	-
2	**1**	-	-	-	-	-	-	**52**	**18**	**3**	**2**	-	-	-	-
-	-	-	-	**5**	**3**	-	-	**48**	**8**	**4**	**3**	**4**	**2**	**2**	**2**
-	-	-	-	**12**	**11**	**2**	-	**23**	**4**	**6**	**6**	**22**	**13**	**8**	**4**
-	-	-	-	**2**	-	-	-	-	-	-	-	-	-	-	-
3	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	**9**	**1**	-	-	-	-	-	-	-	-	-	-
-	-	-	-	**5**	**0**	-	-	-	-	-	-	-	-	-	-
-	-	-	-	**1**	-	-	-	**1**	-	-	-	-	-	-	-
-	-	-	-	**2**	**1**	**0**	**1**	-	-	-	-	-	-	-	-
-	-	-	-	**2**	**0**	**0**	**0**	-	-	-	-	-	-	-	-
-	-	-	-	**1**	**0**	**0**	**0**	-	-	-	-	-	-	-	-
-	-	**7**	**8**	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	**25**	**27**	-	-	-	-	-	-	**3**	**11**
-	-	-	-	-	-	-	-	**2**	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	**18**	**4**	**4**	**2**	-	-	-	-
1	3	-	-	-	-	-	-	-	-	-	-	1	3	-	-
-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-
-	-	-	-	9	1	-	-	-	-	-	-	-	-	-	-
5	**0**	**0**	**0**	-	-	-	-	**25**	**3**	**2**	**0**	-	-	-	-
				-	**5**	-	-	**5**	**9**	-	-	-	-	-	-
				3	**1**	-	**1**	**3**	**15**	**2**	**2**	-	-	-	-
				1	**4**	-	-	**3**	**15**	**2**	**2**	-	-	-	-
1 (KVK)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				1	**4**	**0**	**0**	**35**	**10**	-	-	-	-	-	-
				2	**3**	**0**	**0**	**23**	**5**	**4**	**4**	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				2											
					1		2	11	8	1	1				
				2		1									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	--	-	-	-	-	-
-	-	-	-	1 (KVK)	-	-	-	-	-	--	-	-	-	-	-
4	-	-	**1**	-	-	-	-	**58**	**26**	**5**	**3**	**4**	**2**	**1**	-
-	-	-	-	**10**	**7**	**2**	**1**	-	-	-	-	-	-	-	-

PART IV - On Farm Trial(2019)

4.A1. Abstract on the number of technologies assessed in respect of crops

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	TOTAL
Integrated Nutrient Management	-	-	-	-	-	-	-	-	1	1

Varietal Evaluation	-	-	-	-	-	-	-	-	-	-
Integrated Pest Management	-	-	-	-	1	1	-	-	-	2
Integrated Crop Management	-	-	-	-	-	-	-	-	-	-
Integrated Disease Management	-	-	-	-	-	-	-	-	-	-
Small Scale Income Generation Enterprises	-	-	-	-	-	-	-	-	-	-
Weed Management	-	-	-	-	-	-	-	-	-	-
Resource Conservation Technology	-	-	-	-	1	-	-	-	-	1
Farm Machineries	-	-	-	-	-	-	-	-	-	-
Integrated Farming System	-	-	-	-	-	-	-	-	-	-
Seed / Plant production	-	-	-	-	-	-	-	-	-	-
Value addition - Spices	-	-	-	5						5
Drudgery Reduction	-	-	-	-	-	-	-	-	-	-
Storage Technique	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-
Integrated Crop Management								1		1
Integrated Pest Management	1				1					2
Total	1			5	3	1		1	1	12

4.A2. Abstract on the number of technologies refined in respect of crops: Nil

4.A3. Abstract on the number of technologies assessed in respect of livestock enterprises

Thematic areas	Cattle	Poultry	Piggery	Rabbit	Fisheries	TOTAL
Evaluation of Breeds	-	-	-	-	-	-
Nutrition Management	-	-	-	-	-	-
Disease of Management	-	-	-	-	-	-
Value Addition	-	-	-	-	-	-
Production and Management	-	1	-	-	-	1
Feed and Fodder	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	-	-
Feeding and breeding Management	1					1
TOTAL	1	1	0	0	0	2

4.A4. Abstract on the number of technologies refined in respect of livestock enterprises

4.B. Achievements on technologies Assessed and Refined

4.B.1. Technologies Assessed under various Crops

Thematic areas	Crop	Name of the technology assessed	No. of trials	Number of farmers	Area in ha (Per trial covering all the Technological Options)
Integrated Nutrient Management	Cassava	Customized fertilizer application	10	10	1
	-	-	-	-	-

Varietal Evaluation	-	-	-	-	-
	-	-	-	-	-
Integrated Pest Management	Chillies	Management of sucking pets in chillies (2018-19)	10	10	0.02
	Banana	Assessment of organic methods for pseudo stem weevil management in banana (2017-18)	5	5	0.1
Integrated Crop Management	-	-	-	-	-
	-	-	-	-	-
Integrated Disease Management	-	-	-	-	-
	-	-	-	-	-
Small Scale Income Generation Enterprises	-	-	-	-	-
	-	-	-	-	-
Weed Management	-	-	-	-	-
	-	-	-	-	-
Resource Conservation Technology	Vegetables and spices	Micro irrigation systems	4	4	25 grow bags each
	-	-	-	-	-
Farm Machineries	-	-	-	-	-
	-	-	-	-	-
Integrated Farming System	-	-	-	-	-
	-	-	-	-	-
Seed / Plant production	-	-	-	-	-
	-	-	-	-	-
Value addition	-	-	-	-	-
	-	-	-	-	-
Drudgery Reduction	-	-	-	-	-
	-	-	-	-	-
Storage Technique	-	-	-	-	-
	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-
	-	-	-	-	-
Integrated Crop Management	Ginger	NPK capsules in organic ginger production	1	1 (KVK farm)	6 beds of 3m x 1 m size each
Integrated Pest Management	Chillies	Management of sucking pets in chillies (2018-19)	10	10	0.02
	Paddy	Assessment of ecofriendly management methods of ricebug	5	5	
Value addition	Jack fruit	Assessment of ready to cook dehydrated jack fruit	5	5	
Total			29	29	-

4.B.2. Technologies **Refined** under various Crops: Nil

4.B.3. Technologies assessed under Livestock and other enterprises

Thematic areas	Name of the livestock enterprise	Name of the technology assessed	No. of trials	No. of farmers
Evaluation of breeds	Amur- common carp fish	Assessment of Amur common carp for freshwater aquaculture	1	3
Nutrition management	-	-	-	-
Disease management	-	-	-	-
Value addition	-	-	-	-
Production and management	Poultry	Assessment of Production performance of layer chicks	1	3

		under cage system of rearing		
Feeding and breeding management	Dairy	T.O.1:Feeding Concentrate along with normal feeding of green grasses. T.O.2: Feeding Concentrate@ 400Gms/lit milk yield along with mineral mixture @30 Gms/cow/day with normal feeding of green grasses. T.O.3:Feeding concentrate along with Multistrain Probiotics@20Gms/cow/day along with normal feeding of green grasses	5	5
Small scale income generating enterprises				
Total			7	11

4.B.4. Technologies Refined under Livestock and other enterprises: Nil

4.C1.Results of Technologies Assessed

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Source of technology	Yield	Unit of yield	Observations other than yield	Gross Return Rs. / unit	Net Return Rs. / unit	BC Ratio (Gross income/ Gross Cost)
1	2	3	4	5	6	7	8	9	10	11	12	13
Cassava	Irrigated	Low productivity of cassava	Assessment of customized fertilizer application in cassava for higher yield	10	T.O.1 (Farmers practice): cultivation of local types with unbalanced manuring	-	-	-	-	-	-	Application of both chemical fertilizers as per PoP as well as customized fertilizers has been completed. The plants are growing satisfactorily.
	-	-	-	-	T.O.2: nutrient management as per PoP of KAU. (N:P2O5: K2O (kg per ha)- 50: 50: 50 , 10 - 15 DAP and 45 – 60 DAP	KAU, Thrissur	-	-	-	-	-	-
	-	-	-	-	T.O.3: use of customized fertilizer for cassava @25g/plant at 10 - 15 DAP and 45 – 60 DAP	ICAR –CTCRI, Thiruvananthapuram	-	-	-	-	-	-
Black pepper	Irrigated and rainfed	Severe incidence of *Phytophthora* foot rot of black pepper	Performance evaluation of grafted black pepper	5	T.O.1 (Farmers practice): Growing local varieties of black pepper	-	3.9 (dry)	q/ha	*Phytophthora* foot rot symptoms were noticed in 18 % local varieties	7020 per ha	1.05	Fourth year yield
	-	-	-	-	T.O.2: Growing grafted	ICAR-IISR, Kozhikode	4.7 (dry)	q/ha	No incidence of *Phytophthor*	7520 per ha	1.05	Fourth year yield

					pepper with irrigation				*a* foot rot was reported in any of the grafted plants. The grafts grown without irrigation showed wilting symptoms by 25- 30 days and hence have to be irrigated especially in upland conditions. grafts planted in low lying areas could withstand up to two months without irrigation.			
	-	-	-	-	T.O.3: Growing grafted pepper without irrigation	ICAR-IISR, Kozhikode	5.7 (dry)	q/ha	No incidence of *Phytophthor a* foot rot was reported in any of the grafted plants.	21950	1.12	Fourth year yield
Micro-irrigation systems	Irrigated	Low production of vegetables in the State	Assessing the performance of different micro-irrigation systems in grow bag cultivation of vegetables and spices	5	T.O.1 (Farmers practice):Hos e / water can irrigation of vegetables and spices gown in grow bags	-	28.5	Kg per unit per year (25 bags per unit)		Rs.285 per unit per year	1.20	-
	-	-	-	-	T.O.2:: Use of low cost micro-irrigation system developed by KVK, Ernakulam (Irrigateasy)	by KVK, Ernakulam	45	Kg per unit per year (25 bags per unit)	-	Rs.1125 per unit per year	1.77	-
	-	-	-	-	TO3: Use of wick irrigation system developed by CWRDM, Kozhikode	CWRDM, Kozhikode	54.75	Kg per unit per year (25 bags per unit)	Growth of leaf vegetables like amaranthus was superior with dark red/ green leaves of the plants.	Rs.1460 per unit per year	1.80	Pest incidence was found to be relatively lesser in irrigation systems placed in terraces compared to those kept in the ground.
Chillies	Mixed crop	Poor crop growth due to severe attack of sucking pests in chillies	Management of sucking pests in chillies (2018-19)	10	T.O.:1 Farmer's practice – Application of rice gruel water on the under surface of leaves	-	-	-	-	Trial continuin g		The crop is in yielding stage
	-	-	-	-	T.O.:2 : Spray application of Nanma, 5-7 ml/litre from the	CTCRI	-	-	-	-	-	-

					initial stage of infestation							
	-	-	-	-	T.O.:3 Spray application of Neem soap 10-15 g/litre , thrice at 7 days interval, from the initial stage of infestation	IIHR	-	-	-	-	-	-
	-	-	-	-	T.O.:4 Spray application of chitin enriched Pseudomonas 2 % twice at 15 days interval, from the initial stage of infestation	TNAU	-	-	-	-	-	-
Banana	Pure crop	Crop loss due to pseudo stem weevil attack	Assessment of organic methods for pseudostem weevil management in banana (2017-18)	5	T.O.1 (Farmer practice) : No specific management practice	-	135	Q/ha	Per cent pest attack: 38.2	82500	1.21	
	-	-	-	-	T.O.2: Phytosanitation+ Prophylatic spray of Nanma 5% on the pseudostem and leaf axil filling when the plants are at 5,6 and 7 month old stage	ICAR-CTCRI	222.5	Q/ha	Per cent pest attack: 10.2	424000	1.91	-
	-	-	-	-	T.O.3: Phytosanitation + Prophylatic application of neem cake @50g/plant in the leaf axils of plants, when the plants are at 4 and 6 month old stage	KVK Malappuram	184.25	Q/ha	Per cent pest attack: 19.4	303000	1.69	-
	-	-	-	-	T.O.:4 Phytosanitation + Spray application on pseudo stem and leaf axil filling with *Metarrhizium anisopliae* @ 20g/litre at 5,6 and 7 month old stage	KAU	206.75	Q/ha	Per cent pest attack: 13.2	385000	1.87	-
	-	-	-	-	T.O.:5 Phytosanitation + Spray application on pseudo stem and leaf axil filling with *Beauveria bassiana* @ 20g/litre at 5,6 and 7 month old stage	KAU	208.50	Q/ha	Per cent pest attack: 12.1	392000	1.88	-
Poultry	Intensive system of poultry rearing	Non availability of quality layer chicks, low growth rate, poor laying performanc e and	Assessement of production performance of layer chicks under cagesystem of rearing	3	T.O.1 (Farmers practice) Layer chicks reared under domestic cages	-	162 eggs per annu m	162	Age at sexual maturity(days) 178 Average egg size 43gms	12460	2.2	

		feather pecking										
	-	-	-	-	T.O.2 Layer chicks reared under improved cages	KVASU	199 eggs per annum	199	Age at sexual maturity(days) 169 Average egg size 49gms	7420	-	1.3
Fisheries: Aquaculture	Low density farming of edible fishes	Poor performance of Indian Major Carps in small ponds <0.04ha & Early sexual maturation and poor growth for existing common carp	Freshwater aquaculture with Amur common carp (2018-19)	3	T.O.1 (Farmers practice)	Culture of Indian major carps (FP)	37.42	quintal/ha	Survival :86.3%	35.10/m^2	37.3/m^2	2.05
	"	"	"		T.O.2	Culture of Amur common carp	39.85	quintal/ha	Survival :88.6%	39.85/m^2	44.06/ m^2	2.23
Community health and nutrition	Health and nutrition	Nutrition adequacy	Assessment of methods for nutritional adequacy in agro based farming system	3	TO1: 24 Hr Recall method TO2: Food frequency questionnaire TO3 :Diet recall method	-	-	-	-	-	-	-
Ginger	Rainfed	High cost of organic manures	Assessment of performance of NPK capsules in organic ginger production	1	T.O.1 (Farmers practice): Unbalanced manuring	-	-	-	-	-	-	-
Paddy	Pure crop	Yield reduction due to attack of rice bug	Assessment of ecofriendly management methods of ricebug (2019-20)	5	T.O.1-Farmers practice (Field torches)					Trial yet to start		
					T.O.:2 : Spray application of Beauveria bassiana @ 20g/l	KAU						
					T.O.:3 : Spray application of Fish amino acid	KAU						
					T.O.4: Spray application of chitin based Pseudomonas fluorescens	TNAU						
Chillies	Mixed crop	Poor crop growth due to severe attack of sucking pests in chillies	Management of sucking pests in chillies (2018-19)	10	T.O.:1 Farmer's practice – Application of rice gruel water on the under surface of leaves		4327.6	Kg/ha	31.8%	17193.4	1.07	
					T.O.:2 : Spray application of Nanma, 5-7 ml/litre from the initial stage of infestation	CTCRI	11090	Kg/ha	13.84 %	346400	2.08	
					T.O.:3 Spray application of Neem soap 10-	IIHR	13220	Kg/ha	11.7 %	431700	2.19	

					15 g/litre , thrice at 7 days interval, from the initial stage of infestation							
					T.O.:4 Spray application of chitin enriched Pseudomonas 2 % twice at 15 days interval, from the initial stage of infestation	TNAU	7822.5	Kg/ha	19.1 %	180350	1.62	
Jack fruit	Homestead		Assessment of read y to cook dehydrated jack fruit		T.O.1 Jack fruit dried under sunlight	Farmers practice)						Program is ongoing
					T.O.2Jack fruit dried after blanching with electrical /solar dryer	KAU						
					T.O.3Blanched pretreated jack fruit bulb is dehydrated with spice mix at 650C for 4-5 hrs	KAU						
Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Source of technology	Yield	Unit of yield	Observations other than yield	Gross Return Rs. / unit	Net Return Rs. / unit	BC Ratio (Gross income/ Gross Cost)
Planation crops	rainfed	Wild animals damage	Assessment of different innovative technologies for deterring crop raiding wild elephants	2	1. Use of lights and sensors 2. Use bio products as repellent	TNAU	Yet to start					

4.C2. Details of Successfully completed / concluded technology assessment (support with necessary summary of data and photographs)

OFT-1

1. Title of Technology Assessed: Performance evaluation of grafted black pepper
2. Performance of the Technology on specific indicators: No incidence of *Phytophthora* foot rot was reported in any of the grafted plants. *Phytophthora* foot rot symptoms were noticed in 18 % local varieties. The grafts grown without irrigation showed wilting symptoms by 25- 30 days and hence have to be irrigated especially in upland conditions. But grafts planted in low lying areas could withstand up to two months without irrigation. By the fourth year, the average yield obtained in grafts with irrigation was 1.6 kg green pepper per vine while grafts without irrigation yielded 1.4 kg per vine. Local varieties also gave an yield of 1.2 kg green pepper per vine.
3. Specific Feedback from farmers: Performance of Panniyur 1 grafts was better compared to Subhakara in terms of growth performance and incidence of viral diseases. Pepper grafts of Subhakara variety was found to be more susceptible to virus disease compared to Panniyur 1. By growing grafted pepper plants, we can totally eliminate *Phytophthora* foot rot. But irrigation of grafts is required especially in summer season.

4. Specific Feedback from Extension personnel and other stakeholders: The technology needs to be popularized in areas where availability of water is not a problem as well as in low lying areas.
5. Feedback to Research System based on results and feedback received: Longevity of grafts as well as performance of grafts under water stress need to be studied. Irrigation schedule also to be standardized.

OFT-2

1. Title of Technology Assessed: Assessing the performance of different micro- irrigation systems in grow bag cultivation of vegetables and spices
2. Performance of the Technology on specific indicators: Among the three technological options tested, wick irrigation system developed by CWRDM, Kozhikode was found to be superior followed by micro-irrigation system developed by KVK, Ernakulam. It was also noted that growth of leaf vegetables like amaranthus was superior with dark red/ green leaves of the plants. Pest incidence was found to be relatively lesser in irrigation systems placed in terraces compared to those kept in the ground.
3. Specific Feedback from farmers: Though wick irrigation system was found to be superior, its initial high cost is a limiting factor in promoting the technology. Further, assistance of a skilled person is required to install the system. But the basic system can be used for many years, only the grow bags needs replacement after one or two years. Micro-irrigation system of KVK Ernakulam is cheaper, relatively easy to install. But it needs to be replaced every year.
4. Specific Feedback from Extension personnel and other stakeholders: Cost or wick irrigation system to be reduced further to popularize the technology.
5. Feedback to Research System based on results and feedback received: Micro- irrigation system of KVK Ernakulam should be modified in such a way that it last for atleast one year.

OFT-3

1. Title of Technology Assessed : Assessment of organic methods for pseudo stem weevil management in banana (2017-18)
2. Performance of the Technology on specific indicators: The treatment Nanma reported a pest attack of only 10.2%, with a BC ratio of 1.91 and average yield of 222.5 Q/ha, while in neemcake it was 19.4% pest attack and a BC ratio and yield of 1.69 and 184.25 Q/ha, respectively. The two entomopathogenic fungi *Metarrhizium anisopliae* and *Beauveria bassiana* recorded 206.75 and 208.50 Q/ha yield, with a BC ratio of 1.87 and 1.88 ; and percent pest attack of 13.2 and 12.1, respectively.The control plot recorded only 135 Q/ha yield, BC ratio of 1.21 and a pest attack of 38.2%. The treatment Nanma recorded minimum pest attack, while neem cake recorded a higher percentage of pest attack, compared to the entomopathogens.
3. Specific Feedback from farmers: Nanma performed better compared to the entomopathogens, while powdered neemcake recorded a lower control of the weevil.
4. Specific Feedback from Extension personnel and other stakeholders: The efficiency of entomo pathogens is mainly influenced by weather factors.
5. Feedback to Research System based on results and feedback received

OFT-4

1. Title of Technology Assessed : Assessment of Production performance of layer chicks under cage system of rearing
2. Performance of the Technology on specific indicators

Result

Parameters	Layer chicks reared under improved cages	Layer chicks reared under domestic cages
Age at sexual maturity(days)	169	178

Average Egg production	199	162
Average Egg size(Gms)	49	43
Gross cost Rs	20440	10220
Gross return Rs	27860	22680
Net profit Rs	7420	12460
Mortality %	5	10
B:C	1.3	2.2

3. Specific Feedback from farmers

   Suitable for small land holders and farm women

   Protection from predators

   Minimise feed intake and reduce wastage of energy

   Coloured eggs fetch more market price

   Feed cost is higher

4. Specific Feedback from Extension personnel and other stakeholders

   Suitable technology for small land holding farm woman

   Can rear more number of birds in limited space

5. Feedback to Research System based on results and feedback received

   Confined rearing and restricted movement

   Eggs produced may not equal value as desi eggs

OFT-5

1. Title of Technology Assessed : Assessment of customized fertilizer application in cassava for higher yield
2. Performance of the Technology on specific indicators: Technological option with application of customized fertilizer was found to be superior with respect to yield as well as tuber length. Number of tubers per plant was also higher in both technological options following PoP of KAU and customized fertilizer application compared to farmers practice.
3. Specific Feedback from farmers: Intensity of CMD was found to be lesser in Technological option with customized fertilizer application.
4. Specific Feedback from Extension personnel and other stakeholders: Availability of customized fertilizer need to be ensured.
5. Feedback to Research System based on results and feedback received: Planting materials of CMD tolerant or resistant varieties is to be made available to farmers. Management of CMD with INM or IPDM needs to be standardized.

OFT-6

1. Title of Technology Assessed : Pest and disease management in chillies
2. Performance of the Technology on specific indicators

Four different organic methods tested were, Application of rice gruel water on the under surface of leaves (Farmer's practice), Spray application of Nanma, 5-7 ml/litre from the initial stage of infestation (CTCRI), Spray application of Neem soap 10-15 g/litre , thrice at 7 days interval, from the initial stage of infestation (IIHR), Spray application of chitin enriched Pseudomonas 2 % twice at 15 days interval, from the initial stage of infestation (TNAU). The treatments Spray application of Neem soap 10-15 g/litre , thrice at 7 days interval, from the initial stage of infestation recorded a yield of 13220 kg/ ha with a net return of Rs. 431700 per ha, with a pest infestation of only 11.7%. While Nanma reported a yield of 11090 kg/ ha with a net return of Rs. 346400 per ha, with a pest infestation of only 13.84%.. The treatment chitin enriched Pseudomonas fluorescens reported a yield of 7822.5 kg/ ha with 19.1% pest attack and net returns of 180350 and BC ratio of 1.62, while the treatment of Farmer's practice – Application of rice gruel water on the under surface of leaves recorded 4327.6 kg/ha yield and net returns of 17193.4 only. The BC ratio was 1.07 in control plot while nanma and neemsoap recorded a BC ratio of 2.08 and 2.19 respectively.

3. Specific Feedback from farmers

-

4. Specific Feedback from Extension personnel and other stakeholders

The trial revealed that the treatment Neemsoap was found to be most effective in controlling sucking pests in chillies followed by Nanma. The treatment chitin enriched Pseudomonas was less effective, probably due to the high temperature that prevailed during the season.Can rear more number of birds in limited space

5. Feedback to Research System based on results and feedback received-

OFT- 7

1. Title of Technology Assessed : Freshwater aquaculture with Amur common carp
2. Performance of the Technology on specific indicators: Yield, Survival, BCR
3. Specific Feedback from farmers: Growth performance of amur carp was found to be better than Indian Major carps (IMC), but its performance was not good as Nile tilapia. The growth rate of fish reduced with the reduction in size of the pond even with the same stocking density.
4. Specific Feedback from Extension personnel and other stakeholders: Performance of amur carp is better than IMC but for small ponds below 0.02 ha Nile tilapia is a better choice.
5. Feedback to Research System based on results and feedback received: The growth rate of amur carp fish was low with the reduction in size of the pond even with the same stocking density. Hence its performance below 0.02 ha ponds need to be further evaluated. Farmers preferred Nile tilapia over amur carp in small ponds.

4.D1.Results of Technologies Refined: Nil

4.D.2. Details of Technologies refined: Nil

PART V - FRONTLINE DEMONSTRATIONS (2019)

5.A. Summary of FLDs implemented

Sl. No.	Category	Farming Situation	Season	Crop	Variety/ breed	Hybrid	Thematic area	Technology Demonstrated	Area (ha)		Farmers (No.)		Farmers (No.)	
									Proposed	Actual	SC/ST	Others	Small/ Marginal	Others
1	Cereals	Pure crop	Puncha	Paddy	Matta thriveni	-	IPDM	Integrated Pest and Disease Management package of paddy in which bio contol agents like chitin based *Pseudomonas fluorescens*, entomopathogens, Tricho cards, and need based plant protection chemicals (2018-19)	2.5	2.5	-	10	10	0
2	Vegetables	Irrigated	Summer	Yard Long Bean	Githika	--	Improving production of vegetables	Demonstration of a HYV of YLB viz. Githika	1	1	0	10	10	0
3	"	Pure crop, Inter crop in coconut gardens	January-April	Bitter gourd	Preethi	-	Integrated Pest and Disease Management	Integrated Pest and Disease Management package of bitter gourd in which entomopathogens, plant protection chemicals, pheromone traps, sticky traps, etc will be included (KAU) (2017-18)	0.2 ha	0.2 ha	-	5	5	-
4	Fruit	Pure crop	Rabi	Banana	Nendran	-	IPM	Field sanitation + Destruction of pseudo stem of harvested plants + Application of EPN *Heterorhabditis bacteriophora* @ 1 X 1^{09} IJ/ha at 5,6 and 7 MAP in the leaf axils (AICRP on Fruit crops, KAU) (2018-19)	1	1	1	4.	5	0
5	Fruit	Irrigated	Summer	Banana	Nendran		Improving	Demonstration of banana	1.5 ha	1.5.ha	-	10	10	-

							yield of fruits	micro-nutrient mixture containing Ca, Mg, Zn, B and S viz. AYAR + PoP (2017-18)						
6	Fruit	Irrigated	Summer	Banana	Big Ebanga	-	Improving income from coconut based cropping systems	Demonstration of Big Ebanga as an intercrop in coconut gardens (2017-18)	0.25 ha	0,25 ha	-	5	5	-
7	Spices and condiments	Rainfed	Kharif	Turmeric	IISR Pragati	-	Improving the production of spices	Demonstration of a HYV of turmeric viz. IISR Pragati	0.1 ha	0.1 ha	-	10	10	0
8	"	Irrigated	Perennial	Black pepper	Sreekara		Improving the production of spices	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	60 pots	60 pots	0	20	20	0
9	"	Intercrop in coconut gardens	Kharif	Ginger	Varada	-	IDM	Soil solarisation, Seeds of Varada variety, Rhizome treatment with GAB107, drenching GAB 107 at 30, 45 and 60 DAP, ginger micronutrient spray (ICAR-IISR) (2018-19)	0.5	0.5	5	0	5	0
10	Medicinal and aromatic	Rainfed	May to February	Kasturi turmeic	NA	-	Seed production and cultivation of medicinal plants	Seed production of original kasturi turmeric	10 cents	10 cents	1	3	4	
11	"	Rainfed	Sep to Aug	Aloe vera	Plantlets from MAPRS, KAU, Ottakalli	-	Cultivation of medicinal plants	Cultivation of Aloe vera	5 cents	5 cents		2	2	
12	Dairy	Semi intensive farming system under homesteads	All season	Milch cow	Crossbred	-	Breeding and fertility management	Ovsynch for Repeat Breeder cows	50	50	2	23	9	16
13	Sheep and goat	Semi intensive farming system under homesteads	All season	Goats	Malabari goats	-	Breeding management	Estrus Synchronization and Fixed Time Breeding in Goats	50 goats	43 goats	-	8	6	2
14	Common carps	Non utilization of large water bodies for fish culture. Lower durability of PVC	August to June	Edible fishes	Pearlspot,	No	Aquaculture :Cage culture	Cage culture of pearl spot fish (*Etroplus suratensis*) (2017-18)	2 units (1 at KVK)	2 units	0	2	0	1
15	"	Non scientific fish and shrimpculture	August to May	Edible fishes	Milk fish *Chanos chanos*	No	Brackishwater aquaculture	Scientific farming of milkfish (*Chanos chanos*) in brackishwater ponds with water acidity management	5	5	0	0	3	2
16		Fish and vegetables cultured separately	Sept- July	Edible fishes	Anabas, Tilapia	No	Integrated fish farming	Demonstration of aquaponics farming system	1	1		1		1
17	Ornamental fishes	Fish culture using shrimp feed	Oct- May	ornamental fish culture	Gupp, Oscar	No	Freshwater ornamental fish culture	Use of Carotenoid rich feed for freshwater ornamental fish culture	10	10	0	10	10	
18	Water conservation	Irrigated	Feb - July	Vegetables	NA	-	Waste water recycling and using it for vegetables cultivation	Waste water recycling	4 cents	4 cents	1	-		1
19	Community Health and nutrition	NA	NA	Fruit and vegetables	NA	NA	Nutrition adequacy	Demonstration of nutria farms for year round nutrition security among farm families	NA	NA	10 families	-	-	-
20	EDP – Ginger													

	RTS functional beverages													
21	EDP - Spice processing													
22	Spices and condiments	Rainfed	Kharif	Turmeric	IISR Pragati		Improving yield of spices	Demonstration of a HYV of turmeric viz. IISR Pragati	0.25	0.25	-	5	5	-
23	Spices and condiments	Irrigated	Perennial	Black pepper	Sreekara		Improving yield of spices	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	60 pots	60 pots	-	20	20	
24	Tubers	Rainfed	Kharif	Cassava	Sree Pavithra		Improving yield of tuber crops	Demonstration of a K use efficient variety of cassava viz. Sree Pavithra	0.20	0.20	1	4	5	
25	Tubers	Rainfed	Kharif	Lesser Yam	Sree Latha		Improving yield of tuber crops	Demonstration of a HYV variety of Lesser Yam (Dioscorea esculenta) viz. Sree Latha	0.20	0.20	-	5	5	
26	Mushrrom	-	-	Mushroom		-	Popularisation of mushroom varieties	Demonstration of different oyster mushroom varieties in Kozhikode district	-	-	-	5	5	0
27	Vegetables	-	-	Cowpea	Geethika		IPDM	**Application of FYM, enriched with Trichocap dissolved water, *Pseudomonas fluorescens* seed treatment, foliar application at 30 and 45 DAP, soil drenching with Trichocap dissolved water at 45 DAP, use of entomopathogens and need based PP chemicals.** **Source: KAU, ICAR-IISR (Encapsulation of *Trichoderma*)** (2019-20)	0.5	0.5	-	5	5	0
28	Dairy	Semi intensive under homesteads	All	Dairy	Cross breed	-	Breeding and fertility management	**inj GnRh@100mcgm/animal at the time of first Artificial Insemination followed by second AI at 24 hrs interval.**	25 cows	25 cows	1	4	5	-

5.A. 1. Soil fertility status of FLDs plots, if analysed

Sl. No.	Category	Farming Situation	Season and Year	Crop	Variety/ breed	Hybrid	Thematic area	Technology Demonstrated	Season and year	Status of soil			Previous crop grown
										N	P	K	
1	Vegetables	Irrigated	Summer 2018	YLB	Githika	-	Improving production of vegetables	Demonstration of a HYV of YLB viz. Githika	Summer 2018	Medium	High	Medium	Ginger, turmeric, cassava etc.
2	Fruit	Irrigated	Summer 2017-18	Banana	Nendran		Improving yield of fruits	Demonstration of banana micro-nutrient mixture containing Ca, Mg, Zn, B and S viz. AYAR + PoP (2017-18)	-	Medium	High	Medium	Vegetables
3	Fruit	Irrigated	Summer 2017-18	Banana	Big Ebanga		Improving yield of fruits	Demonstration of Big Ebanga as an intercrop in coconut gardens (2017-18)	-	Medium	High	Medium	Vegetables
4	Spices and condiments	Rainfed	Kharif 2018	Turmeric	IISR Pragati	-	Improving the production	Demonstration of a HYV of turmeric viz.	Kharif 2018	Medium	High	Medium	Vegetables and tubers

							of spices	IISR Pragati					
5	"	Irrigated	Perennial-2018	Black pepper	Sreekara	-	Improving the production of spices	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	Perennial-2018	-	-	-	Potted plants
6	Tubers	Rainfed	Kharif 2019	Cassava	Sree Pavithra		Improving yield of tuber crops	Demonstration of a K use efficient variety of cassava viz. Sree Pavithra	Kharif 2019	Medium	High	Medium	Vegetables
7	Tubers	Rainfed	Kharif 2019	Lesser Yam	Sree Latha		Improving yield of tuber crops	Demonstration of a HYV variety of Lesser Yam (Dioscorea esculenta) viz. Sree Latha	Kharif 2019	Medium	High	Medium	Vegetables
8	Spices and condiments	Rainfed	Kharif 2019	Turmeric	IISR Pragati	-	Improving the production of spices	Participatory seed production programme of a HYV of turmeric viz. IISR Pragati	Kharif 2019	Medium	High	Medium	Vegetables and tubers
9	Spices and condiments	Irrigated	Perennial - 2018	Black pepper	Sreekara	-	Improving the production of spices	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	Perennial - 2018	-	-	-	Potted plants

5.B. Results of FLDs

5.B.1. Crops

Crop	Name of the technology demonstrated	Variety	Hybrid	Farming situation	No. of Demo.	Area (ha)	Yield (q/ha)				% Increase	Economics of demonstration (Rs./ha)			Economics of demonstration (Rs./ha)		
							Demo			Check		Gross Return	Net Return	BCR	Gross Return	Net Return	BCR
							H	L	A								
Cereals	IPDM in paddy	Matta Thriveni	-	Pure crop	10	2.5	49.25	46.25	47.75	31.69	33.63	147890	89690	2.54	98525.5	43925.5	1.80
Vegetables	Demonstration of a HYV of YLB viz. Githika@	Githika	--	Irrigated	10	1 ha	210	182	192	162	18.52	864000	456450	2.12	729000	332800	1.84
"	Integrated Pest and Disease Management in bitter gourd	Preethi	-	Intercrop, Pure crop	5	0.2	109.5	103	106.25	50.10	52.84	476100	246225	2.07	175350	12700	1.07
Fruit	Demonstration of soil application of banana micro-nutrient mixture viz. AYAR in nendran banana	Nendran	--	Irrigated	10	1.5 ha	330	252.5	302.5	245	23.47	907500	307500	1.51	735000	185000	1.33
"	Demonstration of Big Ebanga as an intercrop in coconut gardens	Big Ebanga	--	Irrigated	5	0.25	358.33	247.5	311.5	240	29.79	1090250	502750	1.86	840000	277500	1.49
"	EPN for pseudostem weevil management in banana	Nendran	-	Pure crop	5	1 ha	30000	25500	27750	16618	40.11	980000	495000	2.02	531776	91776	1.209
Spices and condiments	Demonstration of a HYV of turmeric viz. IISR Pragati	IISR Pragati	-	Rainfed	10	1 ha	275	150	199	124	60.48	995000	476771	1.92	620000	150304	1.32

"	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode @	Sreekara	-	Irrigated	20	60 pots											
"	Production of healthy ginger seed	Varada	-	Intercrop	5	0.5	106.5	96	101.25	48.50	52.09	1341563	323229.2	1.32	388000	-92833.3	0.81
Medicinal and aromatic	Seed production of original kasturi turmeric	Original	-	Rainfed	4	10 cents	45	35	40	-	-	600000	340000	2.30	-	-	-
	Cultivation of *Aloe vera*	KAU	-	Rainfed	2	5 cents	3.5 kg/bag	1.8 kg /bag	2.4 kg / bag	-	-	-	-	-	-	-	-
Water conservation	Waste water recycling and using it for vegetables cultivation	CWRDM, Calicut	-	Irrigated	1	4 cents	Demo in progress	-	-	-	-	-	-	-	-	-	-
Spices and condiments	Demonstration of a HYV of turmeric viz. IISR Pragati	IISR Pragati		Rainfed	5	0.25	Harvesting yet to be taken up										
Spices and condiments	Demonstration of cultivation of potted bush pepper in urban areas of Kozhikode	Sreekara		Irrigated	20	60 pots	Demonstration continuing.										
Tubers	Demonstration of a K use efficient variety of cassava viz. Sree Pavithra	Sree Pavitha		Rainfed	5	0.25	Demonstration continuing										
Tubers	Demonstration of a HYV variety of Lesser Yam (Dioscorea esculenta) viz. Sree Latha	Sree Latha		Rainfed	5	0.25	Demonstration continuing										

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST
H – Highest Yield, L – Lowest Yield A – Average Yield

Data on additional parameters other than yield (viz., reduction of percentage in weed/pest/diseases etc.)

Data on other parameters in relation to technology demonstrated		
Parameter with unit	**Demo**	**Check**
a) Attractiveness and uniformity of bunches b) Pest and disease incidence	a) The bunches of demonstration plots were of more uniform in size with attractive golden yellow coloured fingers. b) No major pests or diseases were observed.	a) Less uniform. b) No major pests or diseases were observed.
Pest and disease incidence in banana	2- 4 % plants were infested with pseudostem weevil	3- 5 % plants were infested with pseudostem weevil
Pest and disease incidence in turmeric	No major pests or diseases were observed.	No major pests or diseases were observed.
Paddy-Disease incidence (%)	No diseases were noticed	Only 10.5% incidence of sheath blight was reported
Ginger-Disease incidence (%)	11	37
Bitter gourd- Disease incidence (%)	11.2	31.2

5.B.2. Livestock and related enterprises

Type of livestock	Name of the technology demonstrated	Breed	No. of Demo	No. of Units	Name of the parameter with unit	Yield (kg/animal)				% Increase	*Economics of demonstration Rs./unit)			*Economics of check (Rs./unit)		
						Demo			Check if any		Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR
						H	L	A								
Dairy	inj GnRh@100mcgm/animal at the time of first Artificial Insemination followed by second AI at 24 hrs interval	Crossbred cow	50	50		66	42	49	40	22.5	-	-	-	-	-	-
Sheep and goat	Injection $PGF_2\alpha$ at 11 days apart and fixed time breeding at 72 and 96 hrs	Malabari	50	43		61.70	36	48.85	30	62.8	-	-	-	-	-	-

* 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.)

Data on other parameters in relation to technology demonstrated		
Parameter with unit	**Demo**	**Check if any**

5.B.3. Fisheries

Type of Breed	Name of the technology demonstrated	Breed	No. of Demo	Units/ Area (m^2)	Name of the parameter with unit	Yield (q/ha)				% Increase	*Economics of demonstration (Rs./unit)			*Economics of check (Rs./unit)		
						Demo			Check if any		Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR
						H	L	A								
Common carps																
Pearlspot	Cage culture of pearl spot fish (*Etroplus suratensis*) (2017-18)	Pearl spot	2	2		-	-	-	No		25375	11875	1.88	-	-	-
	Scientific farming of milkfish (*Chanos chanos*) in brackishwater ponds with water acidity management (Demonstration under progress)	Milk fish *Chanos chanos*	5	5 (size 400-800 m^2	Yield Survival %	35.6 85	28.25 82.8	31.42 83	-	-	90.52/ m^2	59.83 /m^2	2.95	-	-	-
	Demonstration of aquaponics farming system (Demonstration under progress)	Anabas, Tilapia	1	1	Yield	-	-	1239	-	-	3712/ m^2	877 /m^2	1.34	-	-	-
	Dentrodigest for bioremediation of detritus in aquaculture (2019-20; Demonstration under progress)	Nile Tilapia	2	416	Yield Survival (%) Ammonia (ppm)											
	High density fish farming using biofilters. (2019-20; Demonstration under progress)	Tilapia	3	17	Yield Survival (%) Ammonia (ppm)											
Ornamental fishes	Use of Carotenoid rich feed for freshwater ornamental fish culture (2018-19)	Guppy, oscar	10	10	Value of one fish in (Rs) Survival (%)	8 93.6	6 87.6	6.7 92.03	4.9 91.01	36.7	1851	1332	3.56	1340	870	2.85

	Backyard ornamental fish culture of guppy varieties (2019-20; Demonstration under progress)	Guppy varieties	3	5	Value of one fish in (Rs) Survival (%)											

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST
H-High L-Low, A-Average

Data on additional parameters other than yield (viz., reduction of percentage diseases, effective use of land etc.)

Data on other parameters in relation to technology demonstrated		
Parameter with unit	**Demo**	**Check if any**

5.B.4. Other enterprises

Enterprise	Name of the technology demonstrated	Variety/ species	No. of Demo	Units / Area {m^2}	Name of the parameter with unit	Yield				% Increase	*Economics of demonstration (Rs./unit) or (Rs./m2)			*Economics of check (Rs./unit) or (Rs./m2)		
						Demo			Check if any		Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR
						H	L	A								
Others (pl.specify)																
Community health and nutrition	Methods for nutritional adequacy in agro based farming system	-	3families	-		-	-	-	-	-	-	-	-	-	-	-
Community health and nutrition	Demonstration of nutria farms for year round nutrition security among farm families	-	10 families	-		-	-	-	-	-	-	-	-	-	-	-
Value addition	Processing of spices	spices	1unit	200	300	100	66	180	250	70	1.38 200	300	100	66	180	1.38
Value addition	Preparation and quality evaluation of ginger based RTS functional bevarage	Ginger	1unit								30	120	2	150	40	1.5

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST
H-High L-Low, A-Average

Data on additional parameters other than yield (viz., additional income realized, employment generation, quantum of farm resources recycled etc.)

Data on other parameters in relation to technology demonstrated		
Parameter with unit	**Demo**	**Local**
• Dietary pattern • Nutrition adequacy • Knowledge status • Morbidity status	• A regular diet consumption pattern began to getting started • Trying for right choice for available low cost nutrient rich food like pulses and leafy vegetables for making balanced diet • Morbidity status s yet to be conducted	Avoiding break fast for most of the days RDA does not match due to poor consumption of balanced diet lack of knowledge regarding balanced food and right choice of foods available
• Total production of vegetables	• Established nutrition	The intake of fruits and vegetables are much below due to poor purchasing

• Daily utilization of fruits and vegetables • Amount saved • Preference • Food adequacy	• garden helped in ensuring accessibility and food adequacy • Harvesting is continuing	ability
Employment opportunity Economic status Quality assessment Shelf life period acceptability	• Increased the employment opportunities and income of women entrepreneurs • Can up lift the skills of the members who have interest in food sector. • quality evaluation is under progress Reduced the losses of raw ginger - occur during storage period Ginger squash can kept for 8 months without any change	Poor technical knowledge in processing of spices. More fresh and tender ginger is lost during storage period

5.B.5. Farm implements and machinery

Name of the implement	Cost of the implement in Rs.	Name of the technology demonstrated	No. of Demo	Area covered under demo in ha	Name of the operation with unit	Labour requirement in Mandays		% save	Savings in labour (Rs./ha)	*Economics of demonstration (Rs./ha)			*Economics of check (Rs./ha)		
						Demo	Check			Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR
EDP - Coconut Palm climbing machine	24000.00	Demonstration of coconut palm climbing by using climbing machine	2	-	-	-	-	-	-	-	-	-	-	-	-

* 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 laboursaved (viz., reduction in drudgery, time etc.)

Data on other parameters in relation to technology demonstrated		
Parameter with unit	**Demo**	**Local**
Economic status Employment opportunities	• Better economic status are achieved with in a short time. • It can be climbed at any season especially during monsoon. It is possible to climb up to 50-60 coconut tree per day. Therefore they can earn good income.	• Can not be climbed during monsoon season. In the case of manual climbing ,it is possible to climb up to 30 trees per day.

5.B.6.Extension and Training activities under FLD

Sl.No.	Activity	No. of activities organised	Number of participants	Remarks
1	Field days	5	192	Fish harvest, harvesting of crop turmeric, banana, Kasturi turmeric. Demonstration on production of healthy ginger seeds
2	Farmers Training	31	1384	-
3	Media coverage	9	1000s	-
4	Training for extension functionaries	3	48	To staff of agricultural dept.
5	Others (Please specify) Exhibitons, demos, etc	3	92	Sale of seeds of turmeric, kasturimanjal, bush pepper, etc.

PART VI – DEMONSTRATIONS ON CROP HYBRIDS(2019)

Demonstration details on crop hybrids:

Type of Breed	Name of the technology demonstrated	Name of the hybrid	No. of Demo	Area (ha)	Yield (q/ha)				% Increase	*Economics of demonstration (Rs./ha)			*Economics of check (Rs./ha)		
					Demo			Check		Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR
					H	L	A								
Cereals															
Bajra															
Maize															
Paddy															
Sorghum															
Wheat															
Others (pl.specify)															
Total															
Oilseeds															
Castor															
Mustard															
Safflower															
Sesame															
Sunflower															
Groundnut															
Soybean															
Others (pl.specify)															
Total															
Pulses															
Greengram															
Blackgram															
Bengalgram															
Redgram															
Others (pl.specify)															
Total															
Vegetable crops															
Bottle gourd															
Capsicum															
Others (pl.specify)															
Total															
Cucumber															
Tomato															
Brinjal															
Okra															
Onion															
Potato															
Field bean															
Others (pl.specify)															
Total															
Commercial crops															
Sugarcane															
Coconut															
Others (pl.specify)															
Total															
Fodder crops															
Maize (Fodder)															
Sorghum (Fodder)															
Others (pl.specify)															
Total															

H-High L-Low, A-Average

*Please ensure that the name of the hybrid is correct pertaining to the crop specified

PART VII. TRAINING(2019)

7.A.. Training of Farmers and Farm Women including sponsored training programmes (On campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Micro Irrigation/Irrigation										
Seed production										
Nursery management										
Integrated Crop Management										
Soil and Water Conservation										
Integrated Nutrient Management										
Production of organic inputs	2	46	23	69	5	7	12	51	30	81
Vegetable production in organic method/ Scientific veg cultivation	4	154	70	224	12	8	20	166	78	244
Horticulture										
a) Vegetable Crops										
Production of low value and high volume crop										
Off-season vegetables										
Nursery raising										
Exotic vegetables										
Export potential vegetables										
Grading and standardization										
Protective cultivation										
Others (pl.specify)										
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl.specify)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										

Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl.specify)										
d) Plantation crops										
Production and Management technology	1	29	2	31	0	0	0	29	2	31
Processing and value addition										
Plant propagation techniques& Nursery practices	1	28	6	34	0	0	0	28	6	34
Intercropping in coconut garden	1	34	8	42	1	2	3	35	10	45
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
f) Spices										
Production and Management technology	2	79	15	94	3	1	4	82	16	98
Plant propagation techniques & Nursery practices	4	41	101	142	0	5	5	42	106	148
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl.specify)										
Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated nutrient management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient use efficiency										
Balanced use of fertilizers										
Soil and water testing										
Others (pl.specify)										
Livestock Production and Management										
Dairy Management	2	48	14	62	3	0	3	51	14	65
Poultry Management	3	54	20	74	4	1	5	58	21	79
Quail rearing	1	5	6	11	3	1	4	8	7	15
Piggery Management										
Rabbit Management										
Goatary management	7	226	76	302	21	11	32	247	87	334
Animal Nutrition Management										
Animal Disease Management	1	2	0	2	0	0	0	2	0	2
Feed and Fodder technology										

Production of quality animal products										
Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking	7	51	138	189	0	10	10	51	148	199
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	2	8	14	22	1	7	8	9	21	30
Women empowerment										
Location specific drudgery production										
Rural Crafts										
Women and child care										
Others (pl.specify)										
Agril. Engineering										
Farm machinery and its maintenance (Friends of coconut)	1	11	0	11	0	0	0	11	0	11
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (pl.specify)										
Plant Protection										
Integrated Pest Management										
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides	1	1	33	34	0	2	2	1	35	36
Integrated pest and disease management	4	116	27	143	0	2	2	116	28	144
Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										

Pearl culture										
Fish processing and value addition										
Others (pl.specify)										
Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom production	**8**	**145**	**110**	**255**	**10**	**10**	**20**	**152**	**123**	**275**
Apiculture										
Others (pl.specify)										
CapacityBuilding and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
Others (pl.specify)										
Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (Pl. specify)										
TOTAL	52	1078	663	1741	63	67	130	1139	732	1871

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

Area of training	**No. of Courses**	**No. of Participants**								
		General			**SC/ST**			**Grand Total**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										

Micro Irrigation/Irrigation										
Seed production										
Nursery management										
Integrated Crop Management										
Soil and Water Conservation										
Integrated Nutrient Management										
Production of organic inputs										
Others (pl.specify)										
Horticulture										
a) Vegetable Crops										
Production of low value and high volume crop										
Off-season vegetables										
Nursery raising										
Exotic vegetables										
Export potential vegetables										
Grading and standardization										
Protective cultivation										
Vegetable production	3	102	67	167	0	0	0	102	67	169
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl.specify)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl.specify)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										

f) Spices										
Production and Management technology	4	80	37	117	0	0	0	80	37	117
Processing and value addition										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl.specify)										
Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated nutrient management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient use efficiency										
Balanced use of fertilizers										
Soil and water testing										
Others (pl.specify)										
Livestock Production and Management										
Dairy Management	1	11	2	13	0	0	0	11	2	13
Poultry Management	1	14	16	30	2	4	6	16	20	36
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Animal Disease Management	2	916	662	1578	102	105	207	1018	767	1735
Feed and Fodder technology	2	13	17	30	4	4	8	17	21	38
Production of quality animal products										
Integrated farming	2	61	23	84	5	8	13	66	31	97
Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking	1	15	41	56	0	0	0	15	41	56
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition										
Women empowerment										
Location specific drudgery production										
Rural Crafts										

Women and child care										
Compost making	1	7	4	11	1	25	26	8	29	37
Others (pl.specify)										
Agril. Engineering										
Farm machinery and its maintenance (Mechanized coconut climbing)	1	13	2	15	4	1	5	17	3	20
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (pl.specify)										
Plant Protection										
Integrated Pest Management										
Integrated Disease Management	1	48	23	71	1	1	2	49	25	77
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Integrated pest and disease management	1	22	0	22	0	0	0	22	0	22
Others (pl.specify)										
Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl.specify)										
Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										

Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom production										
Apiculture										
Others (pl.specify)										
CapacityBuilding and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
Others (pl.specify)										
Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (Pl. specify)										
TOTAL	20	1302	894	2194	119	148	267	1421	1043	2417

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

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops	8	167	189	356	0	0	0	167	189	356
Vegetable cultivation	1	65	35	100	0	0	0	65	35	100
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching	3	0	42	42	0	8	8	0	50	50

Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries	7	290	31	321	22	4	26	312	35	347
Composite fish culture	2	105	6	111	3	1	4	108	7	115
Freshwater prawn culture	1	4	3	7	0	1	1	4	8	12
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Aquaponics	3	102	11	113	5	3	8	107	14	121
Any other (pl.specify)										
Vegetable gardening with scrap	1	11	16	27	0	0	0	11	16	27
TOTAL	26	744	333	1077	30	17	47	774	354	1128

7.D. Training for Rural Youths including sponsored training programmes (off campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops	1	38	27	65	0	0	0	38	27	65
Production and management of Horticulture crops	1	29	25	54	0	0	0	29	25	54
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production (Quality seed grower)	1	3	15	18	0	2	2	3	17	20
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Farm mechanization	1	6	1	7	0	0	0	6	1	7
Value addition										
Small scale processing										

Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries	4	106	34	140	9	12	21	115	46	161
Composite fish culture										
Freshwater prawn culture										
Freshwater fish culture	1	3	17	20	0	0	0	3	17	20
Shrimp farming										
Brackish water aquaculture	1	23	1	24	1	1	2	24	2	26
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Aquaponics										
Health and nutrition	1	1	6	7	9	22	31	10	28	38
TOTAL	11	209	126	335	19	37	56	228	163	391

7.E.Trainingprogrammes for Extension Personnel including sponsored training programmes (on campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										

Management in farm animals										
Livestock feed and fodder production										
Household food security										
Any other (pl.specify)										
Total										

7.F. Training programmes for Extension Personnel including sponsored training programmes (off campus)

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Management in farm animals										
Livestock feed and fodder production										
Household food security										
Any other (pl.specify)										
Total										

7.G. Sponsored training programmes conducted

S.No.	Area of training	No. of Courses	No. of Participants								
			General			SC/ST			Grand Total		
			Male	Female	Total	Male	Female	Total	Male	Female	Total
1	**Crop production and management**										
1.a.	Increasing production and productivity of crops										
1.b.	Commercial production of vegetables										
2	**Production and value addition**										
2.a.	Fruit Plants										
2.b.	Ornamental plants										
2.c.	Spices crops (Quality seed grower)	1	3	15	18	0	2	2	3	17	20
3.	**Soil health and fertility management**										
4	**Production of Inputs at site**										
5	**Methods of protective cultivation**										
6	**Others (pl.specify)**										
7	**Post harvest technology and value addition**										
7.a.	Processing and value addition										
7.b.	Others (pl.specify)										
8	**Farm machinery**										
8.a.	Farm machinery, tools and implements	1	13	2	15	4	1	5	17	3	20
8.b.	Others (pl.specify)										
9.	**Livestock and fisheries**										
10	**Livestock production and management**										
10.a.	Animal Nutrition Management										
10.b.	Animal Disease Management										
10.c	Fisheries Nutrition										
10.d	Fisheries Management										
10.e.	Others (pl.specify)										
	Broiler goat rearing (Paid training)	2	57	4	61	3	1	4	60	5	65
	Breeding and culture of ornamental fishes (Paid)	1	44	1	45	4	0	4	48	1	49
11.	**Home Science**										
11.a.	Household nutritional security										
11.b.	Economic empowerment of women										
11.c.	Drudgery reduction of women										
11.d.	Garment making (Paid training)	**2**	**0**	**26**	**26**	**0**	**7**	**7**	**0**	**33**	**33**
12	**Agricultural Extension**										
12.a.	CapacityBuilding and Group Dynamics										
12.b.	Others (pl.specify)										
	Total	7	117	48	165	11	11	22	128	59	187

Details of sponsoring agencies involved

1. ASCI, Govt. of India

2. Coconut Development Board, Cochin

7.H. 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		
			Male	Female	Total	Male	Female	Total	Male	Female	Total
1	**Crop production and management**										
1.a.	Commercial floriculture										
1.b.	Commercial fruit production										
1.c.	Commercial vegetable production										
1.d.	Integrated crop management										
1.e.	Organic farming										
1.f.	Others (pl.specify)										
2	**Post harvest technology and value addition**										
2.a.	Value addition										
2.b.	Others (pl.specify)										
3.	**Livestock and fisheries**										
3.a.	Dairy farming										
3.b.	Composite fish culture										
3.c.	Sheep and goat rearing										
3.d.	Piggery										
3.e.	Poultry farming										
3.f.	Others (pl.specify)										
4.	**Income generation activities**										
4.a.	Vermi-composting										
4.b.	Production of bio-agents, bio-pesticides, bio-fertilizers etc.										
4.c.	Repair and maintenance of farm machinery and implements										

4.d.	Rural Crafts										
4.e.	Seed production										
4.f.	Sericulture										
4.g.	Mushroom cultivation										
4.h.	Nursery, grafting etc.										
4.i.	Tailoring, stitching, embroidery, dying etc.										
4.j.	Agril. para-workers, para-vet training										
4.k.	Others (pl.specify)										
5	**Agricultural Extension**										
5.a.	Capacity building and group dynamics										
5.b.	Others (pl.specify)										
	Grand Total										

7.F. Details of Skill Training Programmes carried out by KVKs under ASCI

S. No.	Name of Job Role	Date of Start	Date of Close	Total Participants	No. of Participants									Date of Assessment	No of Participants passed assessment
					General			SC/ST			Grand Total				
					Male	Female	Total	Male	Female	Total	Male	Female	Total		
1	**Quality seed grower**	**19.2.2019**	**23.3.2019**	**20**	**3**	**15**	**18**	**0**	**2**	**20**	**3**	**17**	**20**	**29.3.2019**	**20**
2.	**Friends of coconut tree**	**19.02.19**	**29.03.19**	**19**	**13**	**2**	**15**	**4**	**1**	**5**	**17**	**3**	**20**	**“**	**19 ***
Only 19 participants in the Job Role: Friends of Coconut Tree attended the Assessment. There was one absentee on the date of assessment.															

PART VIII – EXTENSION ACTIVITIES(2019)

8.1. Extension Programmes (including extension activities undertaken in FLD programmes)

Nature of Extension Programme	No. of Programmes	No. of Participants (General)			No. of Participants SC / ST			No.of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Field Day	6	136	55	191	4	2	6	9	3	3
KisanMela	1									
KisanGhosthi	1	63	32	95	6	3	9	2	0	2
Exhibition	8	1000s								
Film Show	7	139	100	239	4	2	6	4	6	10
Method Demonstrations	18	266	179	445	11	42	53	4	2	6
Farmers Seminar	10	516	246	762				14	4	18
Group meetings	4	51	15	66	0	3	3	2	3	5
Lectures delivered as resource persons	23	680	314	994	17	14	31	37	16	53
Newspaper coverage	136									
Radio talks	2									
TV talks	4									
Popular articles	7									
Extension Literature	6									
Training manual	2									
Advisory Services	2136	811	78	889	10	3	13	11	5	16
Scientific visit to farmers field	71	258	115	373	6	20	26	10	1	11
Farmers visit to KVK	240	7072	4021	11093						
Sudents visit	26	631	630	1261				35	39	74
Other state farmers visit	4	56	4	60				2	0	2
Diagnostic visits	17	29	10	39				6	9	15
Exposure visits	2	21	18	39	2	6	8	0	3	3
Ex-trainees Sammelan	1	3	16	19						
Animal Health Camp	1									
Soil test campaigns	1	52	53	105				2	0	2
Celebration of important days- World soil day, Agri Education day, Yoga day, Constitution day etc.	10	384	364	748	2	4	6	30	12	
Consultancy	201	345	90	435	12	10	32	10	6	16
E-mails	417	15	2	17				3	0	3
Artificial Insemination	70	42	19	61						
Swatchbharat Activity	17	105	34	139				72	50	122
Meetings attended	24	170	116	286				141	99	240

Awareness camps	5	302	251	553	10	6	16	7	5	12
Organic farming	2	66	16	82	2	0	2	1	0	1
Total	**3480**	**12213**	**6778**	**18991**	**86**	**115**	**211**	**402**	**263**	**614**

8.2 Special Extension Programmes

Nature of Extension Programme	Date(s) conducted	No. of farmers (General)			No. of farmers SC / ST			No.of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Jal Shakti Abhiyan	-	-	-	-	-	-	-	-	-	-
Fertilizer Use Awareness Campaign	22.10.2019	56	35	91	-	-	-	5	5	10
National Animal Disease Control Programme	11.09.2019	18	4	22	-	-	-	3	0	3
Tree Plantation Campaign	12.09.2019	14	13	27	-	-	-	3	0	3
World environment day	06.06.2019	0	6	6	-	-	-	6	2	8
World yoga day	21.06.2019	0	7	7	-	-	-	10	3	13
National fish farmers day	10.07.2019	46	19	65	2	4	6	4	1	5
Farmers day	17.08.2019	40	15	55	-	-	-	7	4	11
World coconut day	02.09.2019			106				3	2	5
Constitution day	26.11.2019			30				8	4	12
Agriculture education day	03.12.2019	-	-	425				8	2	10
World Soil Day	05.12.2019			105				5	-	5

PART IX – PRODUCTION OF SEED, PLANT AND LIVESTOCK MATERIAL (2019)

9.A. Production of seeds by the KVKs

Crop category	Name of the crop	Name of the Variety	Name of the Hybrid	Quantity of seed (q)	Value (Rs)	Number of farmers to whom provided
Cereals (crop wise)						
Oilseeds						
Pulses						
Commercial crops						
Vegetables	Brinjal, Okra, Cowpea, Chilli, Tomato, etc	KAU varieties	-	0.1	41440	868
Flower crops						
Spices	Turmeric	IISR - Pragathi	-	7.39	73890	48
Fodder crop seeds						
Fiber crops						
Forest Species						
Others (specify)						
Total				**7.49**	**115330**	**916**

9.B. Production of planting material by the KVKs

Crop category	Name of the crop	Variety	Hybrid	Number	Value (Rs.)	Number of farmers to whom provided
Commercial						
Vegetable seedlings	Cabbage, cauli flower, chilli, tomato, brinjal etc.	-	-	3332	9996	308

	Mint	-	-	63	189	20
Fruits	Mango graft	Vellakolumban		6	600	3
	Rose apple (Chamba)			66	1650	28
	Passion fruit - Kaveri	Kaveri		6	120	4
Ornamental plants	Misc. Ornamental plants	-		207	4140	48
Medicinal and Aromatic	Neem seedlings			30	600	18
Plantation	Arecanut	Mohitnagar		2154	102160	102
	Coconut	Kuttiyadi		163	24450	37
	Coconut (More than 6 months)			84	21000	32
Spices	Nutmeg	IISR Keralasree		460	138000	30
	Nutmeg	IISR Viswasree		36	10800	2
	Ginger in grow bags	Varada		1	150	1
	Bush pepper (Polybag)			4304	430400	117
	Bush pepper with 2 spikes			1293	155160	22
	Bush pepper small pot			1	150	1
	Bush pepper (4" pot)			39	7800	21
	Bush pepper - 6" Pot			44	11000	20
	Bush pepper - 12" Pot			3	2250	2
	Black pepper graft			5	750	2
	Piper chaba (Thippali)			137	2740	41
	Mango graft			6	600	4
	Garcinia graft			74	18500	29
	Piper colubrinum RC			94	1880	30
	Piper Colubrinum 3 noded cutttings			400	800	2
	RC of Black Pepper			7952	159040	493
	Top shoots			231	8990	27
	Cinnamon	-	-	1	25	1
Tuber						
Fodder crop saplings						
Forest Species	Teak	-	-	2	40	1
Others(specify)						
Total				**21194**	**11,13,980**	**1446**

9.C. Production of Bio-Products

Bio Products	Name of the bio-product	Quantity (q)	Value (Rs.)	Number of farmers to whom provided
Bio Fertilizers	Poultry litter	41 kg	492	2
	Azolla	29.25 kg	1755	68
Bio-pesticide	Neam soap 150g	79 nos.	4740	40
	Neam soap 100g	43 nos.	1720	22
	Nanma – 200ml	2 nos.	220	2
	Menma -200ml	1 nos.	115	1
	Nanma – 500ml	8 nos.	1800	5
	Pheromone Traps – MET	46 nos.	4600	31
	Pheromone Traps – Cuelure	56 nos.	6625	29
Bio-fungicide	Pseudomonas	2.5q	23750	82
	Trichoderma	4.15q	41500	91
Bio Agents				
Micronutrient mixtures	Banana Micronutrient mixture	1.12q	22400	54
	Ayar	2.25q	13500	44
Mushroom spawn	Mushroom spawn	871 pkt	26630	86
Fish Feed	Live feed culture - Moina, grindle worm, vinegar eel culture inoculums 50ml	82	4100	41
	Peruma Feed	1.77kg	442.5	3
	Fish feed-Starter	23.665	5046.4	15
	Fish feed 1mm	30.955	3095.5	20
	Fish feed 2mm	48	3600	22
	Fish feed 3mm	198.5	10917.5	37
	Fish boost	4	360	2
Total		**-**	**177408.9**	**697**

9.D. Production of livestock

Particulars of Livestock	Name of the breed	Number	Value (Rs.)	Number of farmers to whom provided
Dairy animals				
Cows				
Buffaloes				
Calves				
Others (Pl. specify)				
Poultry				
Broilers				
Layers	Gramasree			
Day old layer chicks		13745	302390	408
3 to 7 day old		2432	65664	112
8 to 15 days old		1923	67305	89
16 to 18 days old		823	37035	64
19 to 28 days old		480	26400	26
29 to 35 days old		476	33320	31
36 to 40 days old		342	29070	21
45 days old layer chicks		451	45100	40
47 to 54 days old		432	49680	38
55 to 62 days old		264	34320	25
62 to 69 days old		114	16530	12
Karinkozhi (Kadaknath - Day old)		394	19700	45

Duals (broiler and layer)				
Japanese Quail	-	100	5000	
Turkey				
Emu				
Ducks	-	20	5000	-
Others (Pl. specify)- Goat	Beetel, Sirohi, etc	4	50000	
Piggery				
Piglet				
Others (Pl.specify)				
Fisheries				
Fingerlings	Guppy, Angel, Molly, gold fish etc	1844	18670	194
Others (Pl. specify)				
Total		**23844**	**805184**	**1105**

PART X – PUBLICATIONS, SUCCESS STORY, INNOVATIVE METHODOLOGY, ITK, TECHNOLOGY WEEK

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

(A) KVK Newsletter:
Date of start: 01.07.2018Periodicity: 6 monthsCopies printed in each issue: 50

(B) Literature developed/published

Item	Number
Research papers- International	-
Research papers- National	1
Technical reports	2
Technical bulletins	-
Popular articles - English	2
Popular articles – Local language	5
Extension literature	6
Others (Pl. specify) Training manual	2
Handbook on scientific cultivation of coconut palms for the trainees of Friends of Coconut training programme, KVK Calicut, 79 p.	1
TOTAL	**19**

10.B. Details of Electronic Media Produced

S. No.	Type of media	Title	Details
1	CD / DVD	Gardeners training	ASCI training
		Success story of Mr K.T. Francis, Mullankunnu, Integrated farming model	Produced by farmer
2	Mobile Apps		
4	Social media groups with KVK as Admin	6+	Nursery, mushroom, fishes, goat, etc
4	Facebook account name	www.facebook/kvkcalicut	
	Instagram account name		

10.C. Success Stories / Case studies, if any (two or three pages write-up on each case with suitable action photographs. The Success Stories / Case Studies need not be restricted to the reporting period).

This will be considered only with suitable photos for further reporting/reference.

The Broad outline for the case study may be

Title

Background

Interventions
- Process
- Technology

Impact
- Horizontal Spread
- Economic gains
- Employment Generation

10.C.A.i Title: Farmer participatory seed production programme of a HYV of turmeric viz. IISR Pragati

10.C.A.ii. Background

Turmeric is an important spice crop cultivated in Kerala in an area of 2632 ha with a total production of 6506 t of cured turmeric. It occupies an area of 272 ha with a production of 681 t in Kozhikode district. It is mainly grown as an intercrop in coconut gardens. Recent findings that the crop contains curcumin, a polyphenol, which can retard the growth of cancer cells, have raised renewed interest in this crop. Further, it has many medicinal and cosmetic properties.

Most of the farmers of the district are either marginal or small farmers and they are unable to take up cultivation of turmeric on a large scale due to less farm holding size. Further they are cultivating local types which are low in yield as well as curcumin content. Hence cultivation of high yielding types with high curcumin content is a viable option to enhance the production of turmeric as well as to earn a reasonable income for the farmer. But the availability of seed material of HYVs is less to meet the demand. In this backdrop, KVK, IISR, Kozhikode attempted to promote farmer participatory seed production as well as cultivation of turmeric in different parts of Kozhikode district.

10.C.A.iii. Interventions

To create awareness among farmers, KVK organized on and off campus training programmes on the technology in Kozhikode district. During the last five years, 16 training programmes were organized benefitting 831 farmers.

In addition, on a pilot scale KVK organized 20 farmer participatory seed production cum demonstration programmes in Naduvannur and Ulliyeri panchayaths covering an area of about 1.3 ha during the period 2017 - 20.

10.C.A.iv. Process

For the seed production programme, KVK introduced a new HYV of turmeric viz. IISR Pragati which is having an average yield of 38 t/ha with a potential yield of 52 t/ha. It is a short duration variety (180 days) and has 30 % and 34% yield increase over national and local turmeric varieties. This is a stable and high

curcumin (5.02%) variety across different locations. It is moderately resistant to root knot nematode also. Hence this variety was selected for demonstration and popularization.

10.C.A.v. Impact of Technology

The details of demonstration programmes conducted during 2017- 20 are furnished below.

Year	No. of Demo.	Area (ha)	Yield (q/ha)		Percentage increase	Economics of demonstration (Rs./ha)			Economics of check (Rs./ha)		
			Demo	Check		Gross Return	Net Return	BCR	Gross Return	Net Return	BCR
2017-18	5	0.05	300.40	180	66.89	608000	358000	2.43	349600	119600	1.52
2018-19	10	1	199.00	124.00	60.48	995000	476771	1.92	620000	150304	1.32
2019-20	5	0.25	Harvesting started.								

Yield in the demonstration plots ranged from 199 q/ha to 300.40 q/ha with an average of 249.70 q/ha. Yield in the local check ranged from 124 q/ha to 180 q/ha with an average of 152 q/ha. The entire produce was sold as seed material to needy farmers directly and through KVK sales outlet. On an average, the yield increase was 63.69 per cent over local check. No major pests or diseases were observed in both demonstration as well as in check plots.

KVK also conducted Field days on the day of harvest to popularize the variety among more farmers and extension personnel.

10.C.A.vi. Horizontal Spread

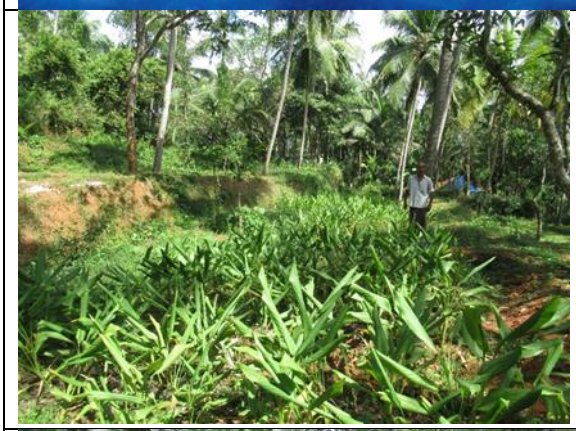
Convinced by the superior performance of the variety over local types, all the participating farmers have decided to cultivate the crop in more area during following seasons. Success of the seed production programme was also published as a popular article and media reports to popularize the technology. As a consequence, more farmers have come forward from different panchayaths of the district for taking up cultivation of the variety. KVK also joined hands with KVK Kannur and KVK Kottayam for popularizing the variety in the respective districts. KVK is assisting farmers to sell the seed material produced by them to needy farmers all over the State through seed melas, exhibitions etc.

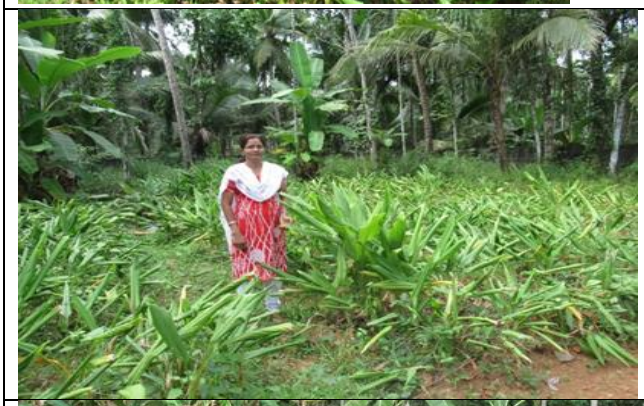
10.C.A.vii. Economic gains

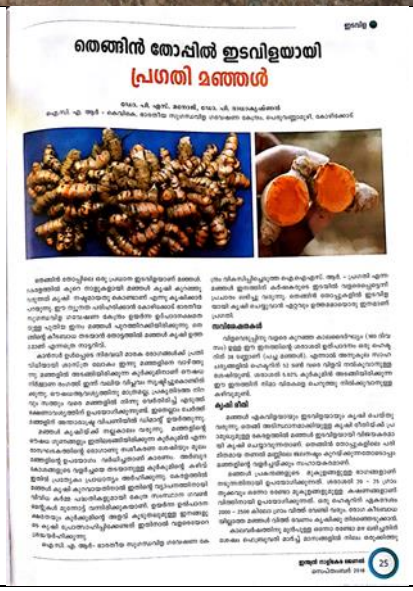
Turmeric is a profitable crop especially if grown for seed production purposes as the cost of certified seed material is about Rs.100 per kg compared to Rs.20- 25 per kg of local types. The average net returns per ha is Rs.4,14,385 for HYVs compared Rs.1,34.952 of local types with a BCR of 2.18 and 1.42 respectively.

10.C.A.viii. Employment generation

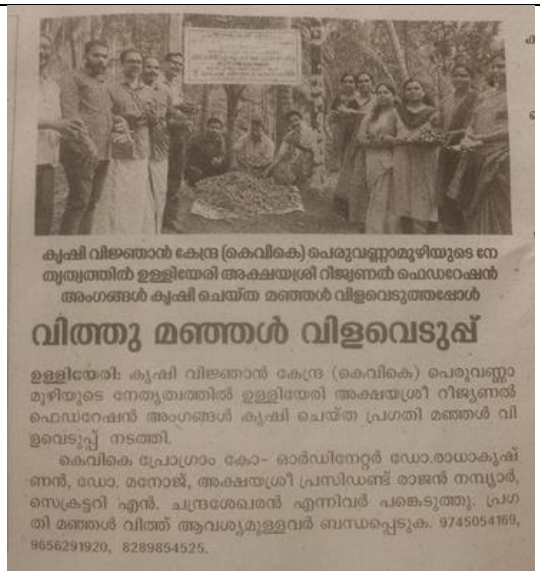
The crop is mainly raised as an intercrop in coconut gardens. The main labour requirements are for land preparation, planting, manuring and harvesting. As the hired labour is very expensive in Kerala, family labour was mainly utilized for all these operations.







തെങ്ങിൻ തോപ്പിൽ ഇടവിളയായി
പ്രഗതി മഞ്ഞൾ



കൃഷി വിജ്ഞാൻ കേന്ദ്ര (കെവികെ) പെരുവണ്ണാമൂഴിയുടെ നേതൃത്വത്തിൽ ഉള്ളിയേരി അക്ഷയശ്രീ റിജ്യണൽ ഫെഡറേഷൻ അംഗങ്ങൾ കൃഷി ചെയ്ത മഞ്ഞൾ വിളവെടുത്തപ്പോൾ

വിത്തു മഞ്ഞൾ വിളവെടുപ്പ്

ഉള്ളിയേരി: കൃഷി വിജ്ഞാൻ കേന്ദ്ര (കെവികെ) പെരുവണ്ണാമൂഴിയുടെ നേതൃത്വത്തിൽ ഉള്ളിയേരി അക്ഷയശ്രീ റിജ്യണൽ ഫെഡറേഷൻ അംഗങ്ങൾ കൃഷി ചെയ്ത പ്രഗതി മഞ്ഞൾ വിളവെടുപ്പ് നടത്തി.

കെവികെ പ്രോഗ്രാം കോ- ഓർഡിനേറ്റർ ഡോ.രാധാകൃഷ്ണൻ, ഡോ. മനോജ്, അക്ഷയശ്രീ പ്രസിഡണ്ട് രാജൻ നമ്യാർ, സെക്രട്ടറി എൻ. ചന്ദ്രശേഖരൻ എന്നിവർ പങ്കെടുത്തു. പ്രഗതി മഞ്ഞൾ വിത്ത് ആവശ്യമുള്ളവർ ബന്ധപ്പെടുക. 9745054169, 9656291920, 8289854525.

10.C.B.i Title:

Backyard Ornamental fish culture: A viable rural enterprise

ii. Background:

Ornamental fish keeping is considered to be the second most popular hobby globally after photography. Ornamental fishes are also known as “living jewel” owing to their colour, shape and behavior. Initially aquarium keeping was popular in developed countries but recently its popularity has increased in developing countries too. This is evident as two third of the total export value comes from developing countries. The average annual growth rate of ornamental fish trade in the world is 14 per cent and its domestic growth rate in India is 20 %. India is still considered as a sleeping giant as its contribution to this sector globally is only 1%. India, especially its southern parts is blessed with congenial environmental conditions to culture these tropical ornamental fishes. This passion for ornamental fishes in global market and domestic market gives a new hope for youth to venture to this field. This can earn them a livelihood and increase the export earnings of the country. Off late there has been a renaissance in India especially in Kerala to boost this sector. Our KVK has taken many steps in popularizing ornamental fish culture by giving regular trainings and demonstrations on freshwater ornamental fish culture to youth and farmers in Kerala. The Kendra has developed low investment culture techniques by utilizing scrapped refrigerator/fridge boxes, used flex banners and wooden planks used for glass transportation. This technology encourages farmers to do up-cycling of unwanted scrap materials which can be procured at low price and transform them to fish tanks for producing ornamental fishes. A fish

feed has also been developed by us which enhances the colour and heath of fishes. Ornamental fish culture can be a done as a low investment backyard extensive fish culture activity or as an intensive high density farming practice with modern aeration and filtration systems. This can be incorporated to other farming systems as one of the strategies for doubling farmers income.

iii. Interventions done in the area:

a) Training programmes: We have been organising vocational and one day training programmes for rural youth, practicing farmers and extension functionaries on their request. In the past five years alone we have conducted thirty eight on and off campus training programmes benefitting 1301 individuals from Kozhikode and other districts of Kerala. During the training programme the trainees are given hands on training on various aspects of ornamental fish culture including the breeding, culture of ornamental fishes, fish feed preparation, aquarium tank, hood construction, water quality, disease management, live feed culture etc. Film shows, method demonstrations and exposure visits are also organised during the vocational trainings.

b) Front line demonstrations and on farm trails: In order to benefit the farmers in this sector we had taken up programmes to improve the quality of fish by enhancing its colour and health status. A OFT was taken on "use of carotenoid rich feed for freshwater ornamental fish culture" at 10 farmers field and later on this was demonstrated to another 10 farmers. Demonstrations were also taken up to improve the water quality of ornamental fish culture tanks by using biofilters and probiotics. Backyard ornamental fish culture using guppy varieties is also being taken up for benefiting rural women who were unaware about this sunrise sector.

c) Seminars and exposure visits: Seminars are organised in collaboration with line departments.

d) Externally funded projects:

A three year project entitled "Empowerment of rural women and youth in Kozhikode district through ornamental fish culture applying biotechnologies" was implemented with the funding support of Department of Biotechnology, New Delhi. The project which was implemented in 2015-18 utilising 25.25677 lakhs under societal development programme of DBT. Twenty five ornamental fish culture units were established under the project for empowering rural women through freshwater ornamental fish culture. These women were trained on various aspects of ornamental fish breeding and farming. They were also taken for an exposure visit to a commercial ornamental fish farm. These women had established ornamental fish culture unit at their backyard and have started earning an average monthly income of Rs.2802/-. A marketing unit was also established at KVK under the project to assist these women in marketing of fishes. Two self help groups have been formed by the beneficiaries, based on the block panchayaths in which they are residing. This was envisaged to strengthen marketing, resource sharing and for getting additional benefits from Panchayath. Water quality analysis and disease surveillance was also carried out. A fish feed was developed by incorporating immunostimulant, gut probiotic, carotenoids and vitamin mineral mix which was found to improve the health status and coloration of ornamental fish. This feed is marketed under the brand name "Peruma".

e) Collaboration with NGOs: KVK had joined hand with an NGO IDC Thamarasherry to popularise ornamental fish culture in the district. This NGO had implemented the project with the funding support of NABARD and technical backup from KVK and had started 250 JLGs involved in fish culture.

iv. Technology:

KVK has standardized two technologies namely low investment ornamental fish culture technique and high density farming using biofilteration.

Low investment high value culture techniques

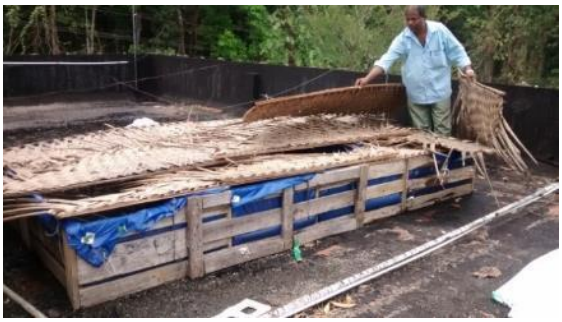
This technique involves production of ornamental fishes in pools holding less than 1000 liter water or in used refrigerator/ fridge containers with 100-200l capacity. The pools are setup using used flex or silpaulin sheets 9 x 6 feet for pool size 1.5m length x 0.8m breadth x 0.4 m depth or 12 x 9 feet for pool size of 2.5 m x 1.5m x 0.4m. These pools need to be constructed at elevated area or at a higher terrain so as to facilitate water exchange by gravity. At weekly interval 20 % of bottom water is exchanged and this water is used for irrigating plants. This integrated farming approach uses more cops per drop of water. The pools for fish culture can also be erected on roof top of house employing wooden frames or at backyard using bricks/laterite stones.

Various varieties of freshwater live bearer fishes like pure strains of guppy (*Poecilia reticulate),* Platy (*Xiphophorus sp.),* Molly *(Poecilia latipinna)* orSwordtail *(Xiphophorus helleri),* which belong to the family poecillidae are best fishes suited for these small pools. These small size fishes with less than 10 cm length reach marketable size in four months. They start breeding in 4 months period and subsequently each month they give birth to 30-60 young ones. Hence the farmers get an assured income from four months of culture. Since the pools are of small dimension and depth they can be easily erected at backyard by farm women.

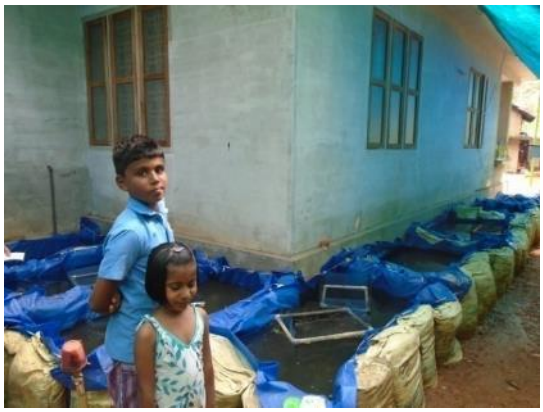
Used fridge boxes which are often thrown as scrape after removal of metal part can also be used for culturing and breeding ornamental fishes. The holes in the rigid foam/plastic (poly urethane/ polystyrene) can be easily sealed with adhesives like m-seal or by plastering with cement. Such fridge boxes are ideal for culturing live bearers fishes and for breeding egg laying fishes like gold fishes, small carps, Oscars etc. These containers are as good as fiber tanks which can cost up to Rs.4000 for same dimension. The rigid foam facilitates stacking of boxes one above other thus enabling effective utilisation of floor area. The cost of these fridge boxes in scrape market range from Rs.75 to Rs.125. There are now specialized scrape dealers who effectively separate the metal part without damaging the inner foam in Kozhikode and sell these containers for culturing fish. On an average Rs.1000 can be earned from these boxes in a year by culturing ornamental fishes. The farmer can anytime sell back the boxes as scrape if any damage occurs, thus getting maximum benefit from it. This technique was popularized by KVK and presently there is huge demand for these scrape boxes which are being brought from other districts.

The fish culture tanks should be covered with net to protect the fishes from birds and other predators. Excess algal bloom can be controlled by covering the tanks with shade nets.

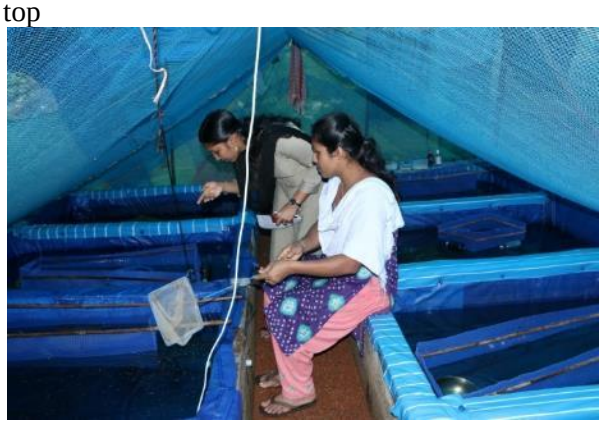
Fish culture in old fridge boxes



Culture in wooden plank silpaulin tanks on roof top



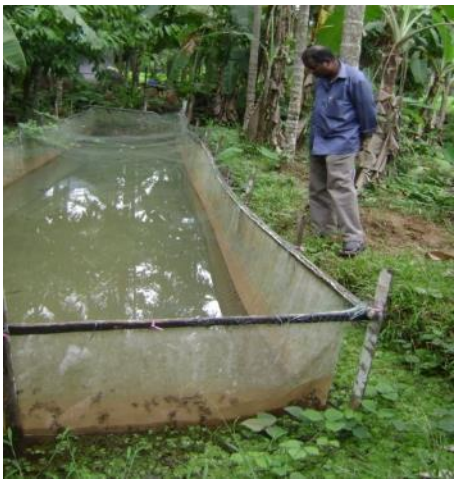
Mud filled cement bag supported pools



Brick lined supported silpaulin pools

Culture of fishes in earthen ponds

There are many water logged areas between coconut and arecanut channels where water depth is <1m and water availability is for <10 months. These areas remain unutilized as edible fish culture cannot be taken up profitability here as an extensive system. Here nursery rearing of edible fishes or ornamental fish culture can be taken up. Bigger size ornamental fishes like gold, carp, oscar and other egg layers do not perform well in small silapulin pools, but these can be cultured very profitably in these channels. Since weight is not a criteria for sale of ornamental fishes these can be reared in these pools and can be marketed from 1 month of rearing onwards at regular interval. The feed cost also will be lover due to availability of natural planktons. The channels need to be enclosed with small mesh nets from all sides and top to prevent the entry of predators and escape of fish during flash floods.



Fish culture in channels

High density farming

Biofilteration based culture system

Lowering of dissolved oxygen and rise in ammonia are the two major constrains effecting fish culture. The low investment technique which does not require any electrical equipment can produce on 1 guppy fish from two

liters of water. While the high density techniques can produce up to 4 guppies from a liter of water. For this the concrete tank or fiber tanks should have a separate filtration compartment. The filter compartment comprise of biosponge, recron, activated carbon, bioballs and granite stones. The water through the filter is driven by air. So a single aerator is enough to run large number of filters in separate tanks. These tanks are constructed above ground level and should have depth of 0.7 to 1 m. A ball valve is also installed at the bottom of the tank to facilitate easy water exchange.

Farming using filteration system

v. Impact:

Nearly 80% of the trainees have fancied fish culture after attaining training at KVK due to its low investment nature. Mrs. Gracy Joseph, Thadathil puthenpurayil (h) Adivaram P.O Kozhikode had started her unit with the low investment techniques after attaining training from KVK and then she expanded her unit to a hitec one. The confidence and profit gained from the low investment venture enabled her to expand the unit with financial assistance from Marine Product Export Development Authority (MPEDA). Similar was the case with Mr. Benny Thomas from Koorachundu. Many other farmers like Mr. Sumesh, Mr. Deepak Gosh V.M and Mr. Rajeesh K, Mr Saneesh, Mr. Ajey, Mr. Chandran, Mr. Navas have established their units in this manner and have become successful entrepreneurs earning more than 30,000/ month. Presently more than 15 large scale units and more than 500 small scale units are operational in the district. The small scale units which are setup using low investment techniques are run mostly by women as a part time activity. These women are earning an average monthly income of Rs. 2800 by spending 1-2 hrs/day for fish culture. The survey conducted under DBT project has shown that 22 new units were established in the locality of the direct beneficiaries.

Marketing which is the major concern for any farming system has not been a major concern for the individual who had ventured to ornamental fish culture. The influence of social media like whatsApp and face book has increased the profit share of fish farmers through direct marketing. KVK also has linked wholesalers with the farmers who are directly taking fish from farm. Farmers also can sell their produce trough the marketing unit at KVK by providing 10% of the sales value. This initiative as attracted many farmers and buyers.

SHG women engaged in fish marketing

The end to end support activities of KVK including training, technical advisory service, water quality analysis, mobilize input support such as quality fish, feed, aquarium accessories and marketing support has helped to provide employment generation, higher economic gain leading to development of this unnoticed sector.

10.C.C. Backyard poultry rearing

Backyard/ free range poultry farming is characterized by rearing chicken in small numbers (10-15) by each household in the backyards under free range system. The birds are allowed for foraging during the day time while at night they are provided with shelter, made of locally available low cost materials. It is the most potent source for subsidiary incomes for landless and poor farmers. It is an enterprise with low initial investment but higher economic returns and can easily be managed by women, children and old aged persons of the households. Now-a-days, poultry meat and eggs have been the best and cheapest sources for meeting out the per capita requirement of protein and energy for rural areas of India. Now-a-days, the backyard poultry can easily start with good egg laying birds like Gramasree,Bv 380, RIR (Rhode Island Red), kalingabrown,Athulya etc. Raising of local poultry breeds in backyard is an important source of livelihood for the rural people.

In Kozhikode district, farm women involved in poultry rearing were keeping 5-20 Desi birds. The birds were reared in the backyards on household wastes. The birds reared under such conditions had poor growth performance, produced 60-70 eggs/per year and were frequently suffering from respiratory disease, conjunctivitis and enteritis. Massive death of birds was also very common. The eggs and meats produced from these birds were only sufficient to meet their family needs. The farmers lack knowledge on scientific rearing of birds for high production and income generation.

Farm women after attending training programmes on Backyard poultry rearing were supplies forty five days old immunised Gramasree layer chicks @Rs 100/-per chick from krishi vigyan Kendra.The birds were reared under homesteads along with other livestocks like cattle and goats.The birds were reared scientifically by making fencing by using wire mesh and Glyricidia without damaging other crops.These birds were have been reared by feeding termite and insects which was produced by utilizing fresh cow dung,waste cloths,papers,cardboards etc over which moisture was maintained by applying water.Fresh green grasses and tree leaves were allowed to fed by hanging.The birds reared by this method were produced an annual egg production of 220 to 230 eggs and fetched market price of Rs 7/- per egg.Red light were provided to birds at night during non laying period to recoup laying performance.Details of farmers engaged in backyard poultry rearing and their income are given in table below

Sl. No.	Name	Year of training	No. of improved birds	No.of Eggs produced	Annual income (Rs.)
1.	Pradeepan variyarkandy ,Avadukka	2018	15+3	195	23000
2.	MiniParambukattil,chembonoda	2019	20+4	210	30000

3.	Girija mudiyanchalil,Pattanippara	2019	18+2	215	27090
4.	Divya poothottathil,koorachundu	2019	20+4	198	27720
5.	Nassriya Poyyil,kakkattil	2019	16+2	225	26200
6.	Aneesh kizhekkeypoiyathu,Vilayattur	2099	10+6	205	16600
7.	Seema kanakkancherry,chembonoda	2019	16+4	220	28000
8.	Nisanth Peettakandy,Maruthonkara	2019	15+4	195	22000
9.	Rejitha Udhayam,Ulliyeri	2019	20+5	215	33000
10.	Raghavan poolachalil,Naduvannur	2018	11+3	205	16700
11.	Jomol sabu Arackal,Koorachundu	2019	15+5	210	22000
12.	Ramya pradeep Thandorappara,valayankandam	2019	20+3	215	33000
13.	Rincy Thazheparambil,koorachundu	2019	20+4	195	27300
14.	Saritha ulliyeri	2019	15+3	210	23000
15.	Santha ezhuthupuraikkal,Peruvannamuzhy	2019	20+4	205	28700

10.D. Give details of Innovative Methodology or Innovative Approach of Transfer of Technology developed and used during the year

10.E. Give details of Indigenous Technical Knowledge 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	Scientific Rationale

10 F. Technology Week celebration during 2019:

Period of observing Technology Week: From 12.3.19 to15.3.19
Total number of farmers visited : 800
Total number of agencies involved : 12
Number of demonstrations visited by the farmers within KVK campus : 15

Other Details

Types of Activities	No. of Activities	Number of Farmers	Related crop/livestock technology
Gosthies	-		
Lectures organized	15	300	Coconut, Vegetables, Ornamtal fish, Poultry
Exhibition	1	800	
Film show	4	300	
Fair	-	-	-
Farm Visit	2	150	
Diagnostic Practical	-	-	-
Supply of Literature (No.)	2	300	
Supply of Seed (q)	1	200	Vegetables, turmeric, ginger
Supply of Planting materials (No.)	1	1000	Spices, vegetables, planation crops
Bio Product supply (Kg)	2	42 kg	Trichoderma, micronutrient mixture
Bio Fertilizers (q)	-	-	-
Supply of fingerlings	2	500	Fish and layer chicks
Supply of Livestock specimen (No.)	-	-	-
Total number of farmers visited the technology week	6	800	

10.E. Recognition and Awards: Please give details about National and State level recognition and awards

- KVK supported farmer Mr. K T Francis, Mullankunnu received State level Kera Kesari Award -2018
- KVK supported farmer Mrs. Rekha Reshmik was selected for Mahila Kisan award DD Kisan

PART XI – SOIL AND WATER TEST

11.1 Soil and Water Testing Laboratory

A.Status of establishment of Lab : Functioning

1. Year of establishment : 2010
2. List of equipments purchased with amount :

Sl. No	Name of the Equipment	Qty.	Cost	Status
1	Electronic physical balance	1	6160	Working
2	Chemical balance	1	42162	"
3	pH meter	1	14388	"
4	Oven	1	15476	"
5	Water distillation still	1	41340	"
6	Digestion and distillation system	1	130802	"
7	Hot plate	1	4120	"
8	Spectrophotometer	1	55230	"
9	Shaker	1	48038	"
10	Conductivity meter	1	14960	"
11	Flame photometer	1	37026	"
12	Refrigerator	1	16890	"
13	Grinder	1	1950	"
14	Double distillation unit	1	63250	"
15	Electronic balance	1	6800	"
16	Mridaparishak	2	180000	"
Total		**17**	**678592**	

B. Details of samples analyzed since establishment of SWTL:

Details	No. of Samplesanalyzed	No. of Farmers benefited	No. of Villages
Soil Samples	3275	3275	88

Water Samples	107	107	19
Plant samples			
Manure samples			
Others (specify)			
Total	**3387**	**1289**	**107**

C. Details of samples analyzed during the 2019:

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages
Soil Samples	**42**	**42**	
Water Samples	**8**	**8**	
Plant samples			
Manure samples			
Others (specify)			
Total	**50**	**50**	

11.2 Mobile Soil Testing Kit

A. Date of purchase and current status

Mobile Kits	Date of purchase	Current status
1.	March. 2017	Working

B. Details of soil samples analyzed during 2019 and since establishment with Mobile Soil Testing Kit:

	Progress during 2019	Cumulative progress
Samplesanalyzed (No.)	-	200
Farmers benefited (No.)	-	345
Villages covered (No.)	-	17

11.3 Details of soil health cards issuedbased on SWTL &Mobile Soil Testing Kitduring 2019:

Particulars	Date (s)	Villages (No.)	Farmers (No.)	Samples analyzed (No.)	Soil health cards issued (No.)
SWTL	-	4	42	42	42
Mobile Soil Testing Kit	-	-	-	-	-

11.4 World Soil Health Day celebration

Sl. No.	Farmers participated (No.)	Soil health cards issued (No.)	VIPs (MP/ Minister/MLA attended (No.)	Other Public Representatives participated	Officials participated (No.)	Media coverage (No.)
1	105	34	-	President, Naduvannur Gram Panchayat	5	Yes

PART XII. IMPACT

12.A. Impact of KVK activities (Not 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)
Gardening and landscaping	20	30	12000 per unit per year	28000 per unit per year
Bush pepper production	301	7.31	15,400 per unit per year	Rs.52,000 per unit per year

Planting material production and nursery management	293	23.21	2200 per unit per year	1,10,000 per unit per year

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

12.B. Cases of large scale adoption (Please furnish detailed information for each case with suitable photographs)

12.C. Details of impact analysis of KVK activities carried out during the reporting period

PART XIII - LINKAGES

13A. Functional linkage with different organizations

Name of organization	Nature of linkage
ATMA	MTA meetings, diagnostic visits
NABARD	Financial assistance for bankable projects of KVK beneficiary farmers
KAU	Technical support, supply of technological inputs
Department of Agriculture	As resource person for training programmes, beneficiary identification for various training programmes, conduct of field days, participation in meetings, joint field visits etc.
NGO's, Farmers' clubs etc	As resource person for training programmes
Kudumbashree mission	Organization of training programmes
ASCI	Conduct of sill development training programmes
All India Radio, Kozhikode	Participating in farm radio programmes, wide publicity to KVK training programmes
Kozhikode Agri-horti Society, Kozhikode	Arrangement of exhibitions
Other KVKs	Deployment of experts for programmes, training. sale and procurement of inputs
Kerala State Animal Husbandry department	Animal health campaign,seminar,training etc
Keraka Livestock Development Board	Supply of Frozen Seman for artificial insemination in cows and goats
Dairy Department	Organizing seminar,Ksheerthsavom,Kissan khosti
Cooperative milk societies	Training,Animal Health Campaign etc
ATMA, Agricultural Dept., Fisheries Dept	Training

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

13B. List of special programmes undertaken by the KVK and operational now, which have been financed by State Govt./Other Agencies

Name of the scheme	Date/ Month of initiation	Funding agency	Amount (Rs.)
"Integrated Management of Pests and Diseases of vegetables with special emphasis on cucurbits"	February 2019	Department of Agriculture Development and Farmers' Welfare	3.00 Lakhs

13C. Details of linkage with ATMA

Coordination activities between KVK and ATMA

S. No.	Programme	Particulars	No. of programmes attended by KVK staff	No. of programmes Organized by KVK	Other remarks (if any)
01	**Meetings**	**MTA Meetings**	**4**		
02	**Research projects**				

03	**Training programmes**		**15**		
04	**Demonstrations**				
05	**Extension Programmes**				
	KisanMela		**3**		
	Technology Week		**2**		
	Exposure visit				
	Exhibition		**4**		
	Soil health camps				
	Animal Health Campaigns		**2**		
	Others (Pl. specify)	**Diagnostic visits**	**2**		
06	**Publications**				
	Video Films				
	Books				
	Extension Literature				
	Pamphlets				
	Others (Pl. specify)				
07	**Other Activities** (Pl.specify)				
	Watershed approach				
	Integrated Farm Development				
	Agri-preneurs development				

13D. Give details of programmes implemented under National Horticultural Mission

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Constraints if any

13E. Nature of linkage with National Fisheries Development Board

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks
1	Demonstration of improved fish varieties - Amur common carp	**Demonstration**	10500	10500	-

13F. Details of linkage with RKVY

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

13G. Kisan Mobile Advisory Services

Month	Message type (Text/Voice)	SMS/voice calls sent (No.)						Total SMS/Voice calls sent	Farmers benefitted (No.)
		Crop	Livestock	Weather	Marketing	Awareness	Other enterprises		

								(No.)	
January	Text	1	0	0	0	0	0	1	124944
February	Text	0	0	0	0	1	0	1	124958
March	Text	0	1	0	0	0	0	1	126737
April	Text	0	0	0	0	0	1	1	126737
May	-	0	0	0	0	0	0	0	0
June	Text	0	0	0	0	0	1	1	126822
July	-	0	0	0	0	0	0	0	0
August	Text	0	0	0	0	0	1	1	113411
September	Text	0	1	0	0	0	0	1	113400
October	-	0	0	0	0	0	0	0	0
November	-	0	0	0	0	0	0	0	0
December	-	0	0	0	0	0	0	0	0
Total		**1**	**2**	**0**	**0**	**1**	**3**	**7**	**857009**

PART XIV- PERFORMANCE OF INFRASTRUCTURE IN KVK

14A. Performance of demonstration units (other than instructional farm)

Sl. No.	Demo Unit	Year of establishment	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Produce	Qty.	Cost of inputs	Gross income	
1	Vermicompost	2019	0.01	-	Compost	-	-	-	Unit starts functioning

14B. Performance of instructional farm (Crops) including seed production

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
Cereals									
Pulses									
Oilseeds									
Fibers									
Spices & Plantation crops									
Turmeric	May, 2018	Feb, 2019	0.2	Pragathi	Seed rhizome	2.89 q	10000	28890	
Floriculture									
Fruits									
Vegetables									
Brinjal, Okra, Cowpea, Chilli, Tomato, etc	-	-	-	KAU varieties	seeds	0.1 q	26000	41440	
Others (specify)									

14C. Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.,)

Sl.	Name of the	Qty	Amount (Rs.)	Remarks

No.	Product		Cost of inputs	Gross income	
1	Poultry litter	41 kg	NA	492	
2	Azolla	29.25 kg		1755	Bio Fertilizers
3	Neam soap 150g	79 nos.		4740	
4	Neam soap 100g	43 nos.		1720	
5	Nanma – 200ml	2 nos.		220	
6	Menma -200ml	1 nos.		115	
7	Nanma – 500ml	8 nos.		1800	
8	Pheromone Traps – MET	46 nos.		4600	
9	Pheromone Traps – Cuelure	56 nos.		6625	Bio-pesticide
10	Pseudomonas	2.5q		23750	
11	Trichoderma	4.15q		41500	Bio-control agents
12	Banana Micronutrient mixture	1.12q		22400	
13	Ayar	2.25q		13500	Micronutrient mixtures
14	Mushroom spawn	871 pkt		26630	Mushroom spawn
15	Live feed culture - Moina, grindle worm, vinegar eel culture inoculums 50ml	82		4100	
16	Peruma Feed	1.77		442.5	
17	Fish feed-Starter	23.665		5046.4	
18	Fish feed 1mm	30.955		3095.5	
19	Fish feed 2mm	48		3600	
20	Fish feed 3mm	198.5		10917.5	
21	Fish boost	4		360	Fish Feed

14D. Performance of instructional farm (livestock and fisheries production)

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed	Type of Produce	Qty.	Cost of inputs	Gross income	
1	Day old layer chicks	Gramasree	Layers	13745		302390	
	3 to 7 day old			2432		65664	
	8 to 15 days old			1923		67305	
	16 to 18 days old			823		37035	
	19 to 28 days old			480		26400	
	29 to 35 days old			476		33320	
	36 to 40			342		29070	

	days old						
	45 days old layer chicks			451		45100	
	47 to 54 days old			432		49680	
	55 to 62 days old			264		34320	
	62 to 69 days old			114		16530	
2	Karinkozhi (Kadaknath - Day old)			394		19700	

14E. Utilization of hostel facilities

Accommodation available (No. of beds)

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
January	10	2	-
February	13	6	-
March	12	8	-
April	18	22	-
May	50	12	-
June	11	4	-
July	43	16	-
August	24	18	-
September	10	12	-
October	16	9	-
November	18	7	-
December	11	5	-

14F. Database management

S.No	Database target	Database created
KVK website (www.kvkcalicut.gov.in)	12 months	Maintained and updated each month

14G. Details on Rain Water Harvesting Structure and micro-irrigation system

Amount sanction (Rs.)	Expenditure (Rs.)	Details of infrastructure created / micro irrigation system etc.	Activities conducted					Quantity of water harvested in '000 litres	Area irrigated / utilization pattern
			No. of Training programmes	No. of Demonstration s	No. of plant materials produced	Visit by farmers (No.)	Visit by officials (No.)		
10.00 lakhs	9.62 lakhs	Pond, Irrigation facility for KVK nursery	**2**			**1000**	**2**	**NA**	**5 ha**

PART XV –SPECIAL PROGRAMMES

15.1 Paramparagath Krishi VikasYojana (PKVY)

Sl No.	Name of cluster village	Initial soil fertility status (Average of cluster village)				Facilities created for organic source of manure	Name of Crops cultivated	Variety	Organic inputs applied including bio-agents and botanicals treatment	Yield (q/ha)	Economics	
		Aval. N	Aval. P	Aval. K	OC %						Cost of cultivation (Rs/ha)	Net returns (Rs/ha)
1	1.											
	2.											
	3.											
	4.											
	5.											
2	1.											
	2.											
	3.											
	4.											
	5.											

15.2 District Agriculture Meteorological Unit (DAMU)

	Agro advisories			Farmers awareness programmes	
Sl No.	No of Agro advisories generated	No of farmers registered for agro advisories	No of farmers benefitted	No of programmes	No of farmers benefitted
1					
2					
3					
4					

15.3 Fertilizer awareness programme 2019

State	Name of KVK	Details of Activities/programmeOrganised	Number of Chief Guests	No. of Farmers attended program	Total participants
Kerala	**Kozhikode**	Fertilizer Use Awareness Campaign	**1**	**91**	**101**

15.4. Seed Hub

Crops	*Variety*	*Year of release*	*Production*				*Remarks*
			Target (q)	*Area (ha.)*	*Actual Production (q)*	*Category (FS/CS)*	

15.5 CFLD on Oilseed : As per the excel sheet enclosed

15.6 Seed on Pulses : As per the excel sheet enclosed

15.7 Krishi KalyanAbhiyan

Type of Activity	Date(s) conducted	No. of farmers (General)			No. of farmers SC / ST			No.of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total

15.8 Micro-Irrigation

Type of Activity	Date(s) conducted	No. of farmers (General)			No. of farmers SC / ST			No.of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total

PART XVI - FINANCIAL PERFORMANCE

16A. 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 (IISR, Calicut)	State Bank of India	Calicut	000861	ICAR Unit, IISR, Kozhikode	30302810771	673002001	SBIN0000861
With KVK	-	-	-	-	-	-	-

16B. Utilization of KVK funds during the year 2018-19(Rs. in lakh)

S. No.	Particulars	Sanctioned	Released	Expenditure
A. Recurring Contingencies				
1	**Pay & Allowances**	17000000	17000000	0
2	**Traveling allowances**	480000	480000	0
3	**Contingencies**			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	408753	401013	7740
B	POL, repair of vehicles, tractor and equipments	264218	264218	0
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)	51350	51350	0
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the	11696	11696	0

	training)			
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)	359200	359144	53
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)	55000	54997	3
G	Training of extension functionaries	0	0	0
H	Maintenance of buildings	67157	67157	0
I	Establishment of Soil, Plant & Water Testing Laboratory	0	0	0
J	Library	9000	9000	0
I	IFS	0	0	0
J	EDP (2 Nos)/ Innovative activities	30000	30000	0
K	Farmer's Field School	30000	30000	0
TOTAL (A)				
B. Non-Recurring Contingencies				
1	**Works**			
2	**Equipments including SWTL & Furniture**			
3	**Vehicle** (Four wheeler/Two wheeler, please specify)			
4	**Library** (Purchase of assets like books & journals)			
TOTAL (B)		0	0	0
C. REVOLVING FUND		**2642075**	**2472236**	**169839**
GRAND TOTAL (A+B+C)		**21427075**	**21249438**	**177638**

16C. Status of revolving fund (Rs. in lakh) for the last three years

Year	Opening balance as on 1st April	Income during the year	Expenditure during the year	Net balance in hand as on 1st April of each year
April 2016 to March 2017	5.42	37.9	40.78	2.54
April 2017 to March 2018	2.54	34.8	32.10	5.24
April 2018 to March 2019	5.24	26.42	24.72	1.70
April 19 to Dec, 19	1.70	15.74	14.97	NA

17. Details of HRD activities attended by KVK staff

Name of the staff	Designation	Title of the training programme	Institute where attended	Dates
T.C. Prasad	Driver	Automobile maintenance, road safety and behavioral skills	CIAE, Bhopal	16.1.19 to 22.1.19
S. Shanmugavel	SMS, Animal Science	ASCI – Skill India Training	GKVK, Bengaluru	20 to 22.11.19

18. Please include any other important and relevant information which has not been reflected above (write in detail).

PROJECT

A project entitled "Integrated Management of Pests and Diseases of vegetables with special emphasis on cucurbits" has been implemented by KVK, IISR, Peruvannamuzhi, Kozhikode district.

Field visits for pest and disease surveillance were conducted along with the staff of Department of Agriculture Development and Farmers' Welfare to diagnose and provide recommendations for the management of field problems, to the

farmers of the district. The major problems addressed were Sigatoka leaf spot and rhizome rot of banana, stem bleeding, tanjore wilt and bud rot of coconut, *Phytophthora* foot rot of black pepper, Shot hole borer in clove and nutmeg. Reports in the daily newspapers on the diagnostic visits is as follows

Sl.No.	Title of news report	Newspaper reported
1	Plantain farmers feel the pinch after disease outbreak	The Times of India, June 30, 2018
2	*Vaazhayude keedarogangalkku pradhividhi nirddaeshichu Peruvannamuzhi KVK*	Deepika Malayalam daily, July 6, 2018
3.	*Vaazhakalil vyaapakamaayi keedarogam: Vidagdhar parishodhana nadathi*	Malayala Manorama daily newspaper, July 7, 2018
4	*Vaazhakalil Ilappulli rogam vyaapakamennu padanam*	Mathrubhoomi daily newspaper, July 13, 2018
5	*Rogabaadha: Kerakarshakarkku nirdaeshangalumaayi vidagdha sangham*	Mathrubhoomi daily newspaper, July 31, 2018
6	*Thengukalude rogabaadha thadayaan KVK yum krishivakuppum*	Deepika Malayalam daily, August 6, 2018
7	*Krishiye baadhichathu thanduthurappan vandu*	Malayala Manorama daily newspaper, September 2, 2018
8	*Pralaya shaesham karshakaray valachuputhiya thanduthurappan vandu*	Mathrubhoomi daily newspaper, September 17, 2018

Advisories were given for the management of major pests and diseases affecting vegetables, banana, mango, coconut, areca nut, paddy, black pepper, ginger, turmeric, nutmeg, clove etc.

Two trainings were conducted on aspects like “Production of vegetable in organic methods” and “Vegetables as intercrops in coconut gardens” on 13.03.19

A seminar on “Problems and prospects of vegetable cultivation” was also organized on 24th February 2019.

An All in One touch screen PC was also purchased for display at the Kendra for information dissemination, which will also be taken to different Krishi Bhavans on fortnightly basis for display, for the benefit of farmers of the district.

Printing of booklets on Nutmeg, leaflets on cultivation aspects of black pepper, *Garcinia* and nutmeg were also done under the project and distributed during seminar and trainings.

Frontline demonstrations were conducted on Integrated Pest and Disease Management in bittergourd with special emphasis on fruitflies and downy mildew in five farmers’ fields in summer season.

It is also proposed to conduct Front Line Demonstrations on IPDM in bitter gourd in rainy season as well. Three training programmes, one exposure visit, and printing of publications, etc. are yet to be carried out under the project.

Farmers’ Field School (FFS)

An FFS on Apiculture and value added products using honey was conducted at Thiruvallur panchayat of Thodannur block. The field school consisted of 17 female and 8 male participants. The programme started with an orientation training on Beekeeping, and thereafter a meeting was organized for the selection of beneficiaries. As part of FFS, nine training programmes were organized on different days and covered topics like biology of bees, types of bees,identification of bees, bee hive management, pests and diseases affecting bee colony, management during honey production period, migratory bee keeping, preparing the colony for honey extraction, honey extraction etc.

Apart from this, class on value addition was organized by SMS (Home Science) and has prepared different products like dried banana in honey, ginger in honey, aonla in honey, dried fruits bar, etc. The group has been supplied with bee colonies and other accessories to learn by doing, and it has been installed at the homestead of a woman farmer.

Besides, classes were also arranged on management aspects on bee keeping, division of bee colony, making of artificial queen in the colony, management during lean period, artificial feeding, etc. Exposure visit to Apiary run by Saji Madathiparambil, Koorachund was conducted to provide firsthand information about the topic. Class on crystallisation of honey, honey processing and packing was also conducted at Koorachund.

The group is actively involved in beekeeping and the bee colony is still being maintained well by the trainees in the school. The participants in the school have gained skill and confidence by practicing the art of bee keeping.