Annual report 2018-19

ICAR-Krishi Vigyan Kendra

ICAR-Indian Institute of Spices Research

Peruvannamuzhi, Kozhikode - 673528, Kerala

KRISHI VIGYAN KENDRA KOZHIKODE

ANNUAL REPORT-2018-19

(FOR THE PERIOD FROM 01 APRIL 2018 TO 31 MARCH 2019)

KVK, 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 with phone, 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	rathakrishnan@spices.res.in ratha.krishnan@icar.gov.in

1.4. Year of sanction:

1.5. Staff position as on 31 March 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 +9000	153000	19.08.15	Per.	OBC
2	Scientist/SMS	P.S. Manoj	Subject Matter Specialist	M	Horticulture	Ph.D in Horticulture	15600-39100 +7600	120353	30.05.94	Per.	OBC
3	Scientist/SMS	K.M. Prakash *	Subject Matter Specialist	M	Agronomy	PG inAgrl. Science	15600-39100 +7600	112400	10.12.96	Per.	Others
4	Scientist/SMS	S. Shanmugavel	Subject Matter Specialist	M	Animal Husbandry	PG in Vet. Science	15600-39100 + 7600	142400	03.08.95	Per.	SC
5	Scientist/SMS	A. Deepthi	Subject Matter Specialist	F	Home Science	PG in Home Science	15600-39100 + 5400	74000	08.03.10	Per.	SC
6	Scientist/SMS	B. Pradeep	Subject Matter Specialist	M	Fisheries	Ph.D in Fisheries	15600-39100 + 5400	74000	30.03.10	Per.	Others
7	Scientist/SMS	Aiswariya K.K.	Subject Matter Specialist	F	Plant Protection	Ph.D inAgrl. Science	15600-39100 + 5400	74000	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 (Computer)	C.K. Jayakumar	Programme Assistant	M	-	P G in Computer Science	5200-20200+ 2800	42300	01.02.10	Per.	Others
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	53600	01.04.02	Per.	OBC
13	Driver - 1	T.C. Prasad	Driver-cum-Mechanic	M	-	-	5200-20200 +2800	50500	17.05.93	Per.	Others
14	Driver - 2	P. Prakash**	Driver	M	-	-	5200-20200 +2800	38100	27.06.02	Per.	Others
15	SS-1	C.V. Ravindran	Skilled Supporting staff	M	-	-	4440-7440 +1400	33000	01.07.93	Per.	SC
16	SS-2	C. Ravindran	Skilled Supporting staff	M	-	-	4440-7440 +1400	33000	10.11.94	Per.	SC

* Doing PhD ** Resigned on: 13-03-2019

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

S. No.	Item	Area (ha)
1	Under Buildings	0.60
2.	Under Demonstration Units	3.60
3.	Under Crops	0.25
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 (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) – Mushroom unit *	ICAR SHM	16.1.96 (7.3.09)	358.31 358.31	1.00 0.84	-	-	-
	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 shed	ICAR	30.3.2019	144	1.69 lakhs			
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	Shade house-Anthurium	ICAR	25.3.09	144.0	1.21	-	-	-
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	-	-	4.8 Lakhs	-	-	-
20	Mushroom production unit	ICAR	31.3.2018	4 x 3.6 m	0.45	-	-	-
21	Store room cum working shed	ICAR	31.3.2019	18 x 14 ft	2.49 lakhs	March, 2019		In progress

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Motor cycle Suzuki	2009	49,980	36130	Good
Mini bus DCM Toyota	1995	5,22,670	206184	Working with high maintenance cost
Mahindra Bolero Jeep	2017	669270	29719	Good
Power Tiller	2012	1,50,000	-	Not working, needs to be repaired

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	,,

1.8. Details of SAC meeting conducted during 2018-19

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.	Will be followed	
		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 will be uploaded shortly.	
		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.	This will be followed	
		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	"	
		Friends of Coconut training may be scheduled with crown cleaning, palm health management activities, etc along with coconut climbing using machine.	"	
		Demonstration on "Nutrition garden" may be established with the data of nutrition availability, suitable crops/variety etc.	"	
		While introducing crops such as Aloe vera, medicinal plants for cultivation, importance to be given for value added products developments also.	"	
		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.	"	
		Awareness about FMD among farmers through camp, pamphlets etc. May be conducted. Meanwhile confirm the FMD control in KVK adopted villages.	"	

		OFTs and FLDs observations may be carried with scientific data like water use efficiency, nutrient efficiency, pest and disease resistance etc.	"	
		Publications in the form popular articles, research article may be published atleast 5 per each SMS.	"	
		Issuing of Soil Health card to all the farmers of KVK adopted village may be ensured	"	
		Each Scientists/SMS of KVK should possess external funded projects for getting more manpower and financial assistance.	"	
		Activity such as nursery development, large scale seed production of ginger and turmeric, processing of turmeric, poultry unit may be attempted by KVK in Naduvannur panchayat with handholding of Kavunthara Service Cooperative Bank	"	
		Technology (suitable fodder grasses, hydroponic fodder production etc.) for availability of green fodder during summer may be identified and popularised	"	
		Joint venture of trainings in association with RSETI, Kozhikode may be carried to enhance the job opportunities.	"	
		Mother garden of Tapioca and other tuber crops may be maintained at KVK for the supply of planting materials to the farmers.	"	
		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.	"	

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-2018	0.00	34.74	19.56	67.48
February	0.00	36.34	20.57	67.89
March	78.00	35.85	23.67	71.85

April	131.00	35.40	24.86	75.12
May	468.20	33.14	24.59	83.58
June	1305.20	29.10	24.03	88.38
July	1666.40	28.58	23.77	89.90
August	1488.80	28.29	23.63	89.93
September	97.20	32.67	23.75	79.16
October	662.80	32.03	23.25	81.06
November	66.00	34.35	23.33	72.38
December	69.60	33.70	21.90	72.71

(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 2018-19: 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
1	Quilandy	Balussery	Naduvannur, Ulliyeri	10 years	Coconut, banana, vegetables	Low productivity of turmeric, Low productivity of nendran banana, Low production of vegetables, Low	Improving production of spices, vegetables and tuber crops, Improving

						income in coconut mono-cropping, Low productivity of cassava	yield of fruits by INM, Improving income from coconut based cropping systems
2	Quilandy, Thamarassery	Balussery, Perambra, Koduvally	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
3	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
4	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
5	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	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 block	Ulliyeri,Naduvannur	3 yrs	Vegetables	Low yield due to pests and disease problems	IPDM in vegetables
		Balussery block	Ulliyeri,Naduvannur	3 yrs	Banana	Attack of pseudo stem weevil, rhizome weevil, mealy bugs, Sigatoka leaf spot,	IPDM in fruit crops
6	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
7	All Taluks	Different blocks in Kozhikode district	Different villages in Kozhikode district	3 yrs	Coconut,Areca nut	Bud rot, Tanjore wilt, Stem bleeding, Rhinoceros beetle, Rugose whitefly	IPDM in coconut
8	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
9	Quilandy	Balusherry	Villages (Ulleyeri,,Chakittapara)	2	Fresh and brackishwater fishes	Non utilization of large water bodies for fish culture. Lower durability of PVC cages	Aquaculture (started in 2017-18)

10	Quilandy, Kozhikode	Balusherry 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
11	Quilandy, Kozhikode Thamarashery	Balusherry 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
12	Quilandy, Kozhikode	Balusherry 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
13	Quilandy	Perambra	Chakittapara At KVK		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
14	Koilandy	Perambra	Muthukad	2018-19	Community health and nutrition	Malnutrition among farm families lack of quantification of food consumption data	Nutritional adequacy
15	Koilandy	Perambra	Muthukad	2018-19	Community health and nutrition	Unawareness about nutritious food, non utilization of resources- water, space and organic waste	Nutritional adequacy
16	Koilandy Balussery	Perambra Balussery	Chembanoda Palery Nettur	2017-18	Coconut	Scarcity of coconut climbers	Farm mechanization
17	Koilandy	Perambra	Maruthonkara Kallanod	2018-19	Spices	Lack of technical knowledgeUnavailability of equipments	Value addition

2.9 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 in 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 (2018-19)

3.A. Target and Achievements of mandatory activities

OFT				FLD			
1				2			
OFTs (No.)		Farmers (No.)		FLDs (No.)		Farmers (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
4	4	26	26	16	16	145	138

Training				Extension Programmes			
3				4			
Courses (No.)		Participants (No.)		Programmes (No.)		Participants (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
77	80	3500	3105	150	779	3925	5141

Seed Production (Q)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
40	37.65	25000	33915

Livestock, poultry strains and fingerlings (No.)		Bio-products (Kg)	
7		8	
Target	Achievement	Target	Achievement
Day old layer chicks 90000	37,974	Azolla 20 kg	28
45 days old layer chicks 5000	4,853	Trichoderma -1000 kg	Trichoderma -577 kg
Poultry Manure 300 cft	230cft	Neemsoap-15 kg	Neemsoap-18.5 kg
Table eggs 1000	512	Pheromone traps-Cuelure-50	Pheromone traps-Cuelure-80
Chipped eggs 500	323	Pheromone traps-Methyl euginol traps- 50 Mushroom spawn- 600 kg	Pheromone traps-Methyl euginol traps- 40 Mushroom spawn-415 kg
Sale of goats 20	24	-	-
Goat breeding 100	70	-	-
Powdered goat manure	52kgs	-	-
Artificial Insemination	83	-	-
5000 ornamental fishes	2690 (Guppy, platy, swordtail, moly, barb, gold fish, carp, fighter, gourami) worth Rs.23,323	-	-

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	
													No.	Kg
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	-	-	-
4	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	-	-	-
8	Feeding and production management of layers	Poultry	Non availability of quality layer chicks, low	Assessment of production performance	-	2	2	-	2	-	-	-	-	-

			growth rate, poor laying performance and feather pecking etc	of layer chicks under cage system of rearing										
9	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	-	-	-	-	-	-
10	Breeding management in dairy cattle	Dairy	Repeat breeding,long intercalving interval,low milk yield	-	Ovsynch for Repeat Breeder cows	2	2	2	-	-	-	-	-	-
11	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	-	-
12	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	-	-
13	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
14	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	-	-
15	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	-	-
16	Medicinal plants cultivation	Kasturi turmeric,	Non availability of seed and knowledge of medicinal plants cultivation	-	Demonstration of cultivation of kasturi turmeric	-	-	-	02	1.2	-	-	-	-
17	“	Aloe vera	Lack of knowledeg	-	Demonstration on *Aloe vera* cultivation	-	-	-	01	-	150	-	-	-

18	Water conservation	Vegetables	Scarcity of water	-	Waste water recycling and vegetables cultivation	-	-	-	01	-	-	-	-	-
19	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
20	Farm mechanization	Coconut	Scarcity of coconut plam climbers	-	EDP-Training on Mechanized Coconut palm climbing using machine	-	28	-	-	-	-	-	-	-
21	Value addition	Spices – Ginger processing	Lack of technical knowledge in processing of spices. 2.Unavailability of equipment	-	Production of ginger RTS functional beverages	2	-	-	-	-	-	-	-	-
22	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	-	-	-	-	-	-	-	-
23	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	-	-	-
24	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
25	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	-	-	-
26	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

27	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

3.B2. Details of technology used during reporting period

S.No	Title of Technology	Source of technology	Crop/enterprise	No.of programmes 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	-
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	-

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**	-	-	-	-

PART IV - On Farm Trial(2018-19)

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	-	-	-	-	-	-	-	-	-	-
Drudgery Reduction	-	-	-	-	-	-	-	-	-	-
Storage Technique	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	0	2	1	0	0	1	4

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	-	-	-	-	-	-
TOTAL	0	1	0	0	0	1

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

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	-	-	-	-	-
	-	-	-	-	-
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 under cage system of rearing	1	3
Feed and fodder	-	-	-	-
Small scale income generating enterprises				
Total			2	6

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

4.C1.Results of Technologies Assessed

Results of On Farm Trial

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**	**Net Return Rs. / unit**	**BC Ratio**	**Remarks if any**
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	KAU, Thrissur	-	-	-	-	-	-

					as per PoP of KAU. (N:P2O5: K2O (kg per ha)- 50: 50: 50 , 10 - 15 DAP and 45 – 60 DAP							
	-	-	-	-	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 pepper with irrigation	ICAR-IISR, Kozhikode	4.7 (dry)	q/ha	No incidence of *Phytophthora* 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.	7520 per ha	1.05	Fourth year yield
	-	-	-	-	T.O.3: Growing grafted pepper without irrigation	ICAR-IISR, Kozhikode	5.7 (dry)	q/ha	No incidence of *Phytophthora* 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):Hose / 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	CWRDM, Kozhikode	54.75	Kg per unit	Growth of leaf vegetables like	Rs.1460 per unit per year	1.80	Pest incidence was found to

					system developed by CWRDM, Kozhikode			per year (25 bags per unit)	amaranthus was superior with dark red/ green leaves of the plants.			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 continuing		The crop is in yielding stage
	-	-	-	-	T.O.:2 : Spray application of Nanma, 5-7 ml/litre from the initial stage of infestation	CTCRI	-	-	-	-	-	-
	-	-	-	-	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 +	KAU	208.50	Q/ha	Per cent pest attack: 12.1	392000	1.88	-

					Spray application on pseudo stem and leaf axil filling with *Beauveria bassiana* @ 20g/litre at 5,6 and 7 month old stage							
Poultry	Intensive system of poultry rearing	Non availability of quality layer chicks, low growth rate, poor laying performance and feather pecking	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 annum	162	Age at sexual maturity(days) 178 Average egg size 43gms	12460	2.2	
	-	-	-	-	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
Common Carps	Freshwater aquaculture	Non utilization of large water bodies for fish culture. Lower durability of PVC cages	Assessment of Amur common carp for freshwater aquaculture		T.O.1 (Farmers practice)	Culture of Indian major carps (FP)						Progressing Fish attained 90g in 5 months Survival ~90%
	"	"	"		T.O.2	Culture of Amur common carp						Fish attained only 100g (avg. in 5 months) Survival ~90%
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	-	-	-	-	-	-	-

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

4.D1.Results of Technologies Refined: Nil

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

PART V - FRONTLINE DEMONSTRATIONS (2018-19)

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 yield of fruits	Demonstration of banana micro-nutrient mixture containing Ca, Mg, Zn, B and S viz. AYAR + PoP (2017-18)	1.5 ha	1.5.ha	-	10	10	-
6	Fruit	Irrigated	Summer	Banana	Big Ebanga	-	Improving income from coconut based	Demonstration of Big Ebanga as an intercrop in coconut gardens (2017-18)	0.25 ha	0,25 ha	-	5	5	-

							cropping systems							
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													

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 of spices	Demonstration of a HYV of turmeric viz. IISR Pragati	Kharif 2018	Medium	High	Medium	Vegetables and tubers
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

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 check (Rs./ha)			
							Demo			Check		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	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	58200	147890	89690	2.54	54600	98525.5	43925.5	1.80
Vegetables	Demonstration of a HYV of YLB viz. Githika@	Githika	--	Irrigated	10	1 ha													
"	Integrated Pest and Disease Management in bitter gourd	Preethi	-	Intercrop, Pure crop	5	0.2	109.5	103	106.25	50.10	52.84	229875	476100	246225	2.07	162650	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	600000	907500	307500	1.51	550000	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	587500	1090250	502750	1.86	562500	840000	277500	1.49
"	EPN for pseudostem weevil management in banana	Nendran		Pure crop	5	1 ha	-												
Spices and condiments	Demonstration of a HYV of turmeric viz. IISR Pragati	IISR Pragati	-	Rainfed	10	1 ha	275	150	199	124	60.48	518229	995000	476771	1.92	469696	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	1018333	1341563	323229.2	1.32	480833	388000	-92833.3	0.81
Medicinal and aromatic	Seed production of original kasturi turmeric	Original	-	Rainfed	4	10 cents	45	35	40	-	-	260000	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	-	-	-	-	-	-	-	-	-	-	-	-

* Economics to be worked out based total cost of production per unit area and not on critical inputs alone.
** BCR= GROSS RETURN/GROSS COST
@ Demonstration continuing
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	2- 4 % plants were infested with pseudostem weevil	3- 5 % plants were infested with pseudostem weevil
Pest and disease incidence	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- Pest incidence (%) Bitter gourd- Disease incidence (%)	9.6 11.2	37.8 31.2

5.B.2. Livestock and related enterprises

Type of livestock	Name of the technology demonstrated	Breed	No. of Demo	No. of Units	Yield (kg/animal)				% Increase	*Economics of demonstration Rs./unit)				*Economics of check (Rs./unit)			
					Demo			Check if any		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	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)	Yield (q/ha)				% Increase	*Economics of demonstration Rs./unit) or (Rs./m2)				*Economics of check Rs./unit) or (Rs./m2)			
					Demo			Check if any		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	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		13500	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 400-800m^2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Demonstration of aquaponics farming system (Demonstration under progress)	Anabas, Tilapia	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ornamental fishes	Use of Carotenoid rich feed for freshwater ornamental fish culture (Demonstration under progress)	Guppy, oscar	10	10	-	-	-	-	-	-	-	-	-	-	-	-	-

* 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}	Yield				% Increase	*Economics of demonstration (Rs./unit) or (Rs./m2)				*Economics of check (Rs./unit) or (Rs./m2)			
					Demo			Check if any		Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	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	-	2 units	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Value addition	Preparation and quality evaluation of ginger based RTS functional bevarage	-	2units	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* 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 • Daily utilization of fruits and	• Established nutrition • garden helped in ensuring accessibility	The intake of fruits and vegetables are much below due to poor purchasing ability

vegetables • Amount saved • Preference • Food adequacy	and food adequacy • Harvesting is continuing	
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	Labour requirement in Mandays		% save	Savings in labour (Rs./ha)	*Economics of demonstration (Rs./ha)				*Economics of check (Rs./ha)			
					Demo	Check			Gross cost	Gross Return	Net Return	** BCR	Gross Cost	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 , Demonstration on production of healthy ginger seeds
2	Farmers Training	25	1084	-
3	Media coverage	5	1000s	-
4	Training for extension functionaries	2	74	To staff of agricultural, depts.
5	Method demonstration	3	92	-

PART VI – DEMONSTRATIONS ON CROP HYBRIDS(2018-19)

Demonstration details on crop hybrids: Nil

PART VII. TRAINING(2018-19)

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										
Soil and Water Conservation	1	23	0	23	0	0	0	23	0	23
Others - Integrated Pest Management	2	31	13	44	5	2	7	36	15	51
Integrated Disease Management	2	39	0	39	3	0	3	42	0	42
Bio-control of pests and diseases	2	68	16	84	2	4	6	70	20	90
Horticulture	-	-	-	-	-	-	-	-	-	-
a) Vegetable Crops	-	-	-	-	-	-	-	-	-	-
b) Fruits	-	-	-	-	-	-	-	-	-	-
Plant propagation techniques	2	11	38	49	1	5	6	12	43	55
c) Ornamental Plants	-	-	-	-	-	-	-	-	-	-
Others - Bonsai making	1	52	28	80				52	28	80
d) Plantation crops	-	-	-	-	-	-	-	-	-	-
e) Tuber crops	-	-	-	-	-	-	-	-	-	-
Production and Management technology	1	58	1	59	3	1	4	61	2	63
f) Spices	-	-	-	-	-	-	-	-	-	-
Production and Management technology	3	85	17	102	3	4	7	88	21	109
g) Medicinal and Aromatic Plants	-	-	-	-	-	-	-	-	-	-
Soil Health and Fertility Management	-	-	-	-	-	-	-	-	-	-
Livestock Production and Management	-	-	-	-	-	-	-	-	-	-
Dairy Management	2	37	12	49	4	3	7	41	15	56
Poultry Management	4	69	29	98	2	2	4	71	31	102
Goat Management	4	84	52	136	6	3	9	90	55	145
Home Science/Women empowerment	-	-	-	-	-	-	-	-	-	-
Value addition	4	88	41	129	1	24	25	89	65	154
Agril. Engineering	-	-	-	-	-	-	-	-	-	-
Plant Protection	-	-	-	-	-	-	-	-	-	-
Fisheries	-	-	-	-	-	-	-	-	-	-
Production of Inputs at site	-	-	-	-	-	-	-	-	-	-
Mushroom production	**3**	**55**	**40**	**95**	**8**	**9**	**17**	**63**	**49**	**112**
Apiculture	**1**	41	17	58	2	0	2	43	17	60
CapacityBuilding and Group Dynamics	-	-	-	-	-	-	-	-	-	-
Agro-forestry	-	-	-	-	-	-	-	-	-	-
TOTAL	**32**	**741**	**304**	**1045**	**40**	**57**	**97**	**781**	**361**	**1142**

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	-	-	-	-	-	-	-	-	-	-
Horticulture	-	-	-	-	-	-	-	-	-	-
a) Vegetable Crops	-	-	-	-	-	-	-	-	-	-
Production of low value and high volume crop	1	3	14	17	0	0	0	3	14	17
Off-season vegetables	1	89	69	158	0	0	0	89	69	158

b) Fruits										
Plant propagation techniques	1	98	22	120	0	0	0	98	22	120
c) Ornamental Plants	-	-	-	-	-	-	-	-	-	-
d) Plantation crops	-	-	-	-	-	-	-	-	-	-
e) Tuber crops	-	-	-	-	-	-	-	-	-	-
f) Spices	-	-	-	-	-	-	-	-	-	-
Production and Management technology	2	46	24	70	0	0	0	46	24	70
g) Medicinal and Aromatic Plants	-	-	-	-	-	-	-	-	-	-
Soil Health and Fertility Management	-	-	-	-	-	-	-	-	-	-
Livestock Production and Management	-	-	-	-	-	-	-	-	-	-
Dairy Management	2	30	16	46	12	12	24	42	28	70
Poultry Management	5	92	63	155	30	22	52	122	85	207
Indigenous Medicines	2	25	71	96	18	14	32	43	85	128
Stress Management	2	35	14	49	5	4	9	40	18	58
Animal Disease Management	3	90	54	144	34	27	61	124	81	205
Fertility Management in Dairy cattle	1	28	14	42	11	6	17	39	20	59
Home Science/Women empowerment	-	-	-	-	-	-	-	-	-	-
Value addition	3	43	76	119	0	0	0	43	76	119
Agril. Engineering	-	-	-	-	-	-	-	-	-	-
Plant Protection	-	-	-	-	-	-	-	-	-	-
Fisheries	-	-	-	-	-	-	-	-	-	-
Composite fish culture	1	17	21	38	0	2	2	17	23	40
Production of Inputs at site	-	-	-	-	-	-	-	-	-	-
CapacityBuilding and Group Dynamics	-	-	-	-	-	-	-	-	-	-
Agro-forestry	-	-	-	-	-	-	-	-	-	-
TOTAL	**24**	**596**	**458**	**1054**	**110**	**87**	**197**	**706**	**545**	**1251**

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	2	41	24	65	2	3	5	43	27	70
Seed production	1	3	15	18	0	2	2	15	5	20
Bee-keeping	1	21	10	31	2	10	12	23	20	43
Dairying	1	16	7	23	0	2	2	16	9	25
Ornamental fisheries	4	131	16	147	3	1	4	134	17	151
Composite fish culture	1	37	5	42	3	0	3	40	5	45
Any other (pl.specify) Integrated fish farming	1	18	9	27	1	0	1	19	9	28
Aquaponics	2	98	10	108	6	2	8	104	12	116
Farm mechanization -(Friends of coconut)	1	13	2	15	4	1	5	17	3	20
Any other (pl.specify)Farm mechanization	2	29	20	49	15	2	17	44	22	66
TOTAL	**16**	**407**	**118**	**525**	**36**	**23**	**59**	**455**	**129**	**584**

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
Integrated farming- Livestock based	3	25	16	41	6	7	13	31	23	54
Quail farming	1	16	30	46	2	4	6	18	34	52
Ornamental fisheries	3	64	24	88	4	3	7	68	27	95
Composite fish culture	1	32	8	40	2	1	3	34	9	43
Integrated fish farming	1	18	9	27	1	0	1	19	9	28
Brackishwater aquaculture	1	26	2	28	0	0	0	26	2	28
TOTAL	**10**	**181**	**89**	**270**	**15**	**15**	**30**	**196**	**104**	**300**

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

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Soil and spice crops management after flood in Kerala for the ATMA staff of Kozhikode District	1	15	35	50	0	0	0	15	35	50
Any other (pl.specify) Processing and value addition	1	11	13	24	0	0		11	13	24
Total	**2**	**26**	**48**	**74**	**0**	**0**	**0**	**26**	**48**	**74**

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
Any other - Integrated fish farming	3	25	42	67	0	1	1	25	43	68
Total	**3**	**25**	**42**	**67**	**0**	**1**	**1**	**25**	**43**	**68**

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	2	68	16	84	2	4	6	70	20	90
1.b.	Commercial production of vegetables	-	-	-	-	-	-	-	-	-	-
1c	Planting material production and nursery management	**1**	**5**	**35**	**40**	**0**	**5**	**5**	**5**	**40**	**45**
2	**Production and value addition**	**-**	-	-	-	-	-	-	-	-	-
3.	**Soil health and fertility management**	**-**	-	-	-	-	-	-	-	-	-
4	**Production of Inputs at site**	**-**	-	-	-	-	-	-	-	-	-
5	**Methods of protective cultivation**	**-**	-	-	-	-	-	-	-	-	-
6	**Quality seed production**	**1**	**3**	**15**	**18**	**-**	**2**	**2**	**3**	**17**	**20**
	Apiculture	1	21	10	31	2	10	12	23	20	43
7	**Post harvest technology and value addition**	**-**	-	-	-	-	-	-	-	-	-
8	**Farm machinery**	**-**	-	-	-	-	-	-	-	-	-
8.a	Farm mechanization- Friends of coconut tree	1	13	2	15	4	1	5	17	3	20
8.b	Farm mechanization	**2**	**18**	**4**	**22**	**4**	**2**	**6**	**22**	**6**	**28**
9.	**Livestock and fisheries**	**-**	-	-	-	-	-	-	-	-	-
10	**Livestock production and management**	**-**	-	-	-	-	-	-	-	-	-
11.	**Home Science**	**-**	-	-	-	-	-	-	-	-	-
12	**Agricultural Extension**	**-**	-	-	-	-	-	-	-	-	-
	Total	**8**	**128**	**82**	**210**	**12**	**24**	**36**	**140**	**106**	**246**

Details of sponsoring agencies involved

1. Kudumbasree Mission, Kozhikode district
2. ASCI, New Delhi
3. Coconut development board, Cochin
4. Department Of Agriculture, Govt. of Kerala, Trivandrum
5. Horticorp

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 - Good agricultural practices	**1**	**7**	**21**	**28**	**3**	**1**	**4**	**10**	**22**	**32**
2	**Post harvest technology and value addition**	-	-	-	-	-	-	-	-	-	-
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 -Breeding and culture of ornamental fish culture	**1**	**24**	**3**	**27**	**3**	**0**	**3**	**27**	**3**	**30**
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 -Apiculture	1	21	10	31	2	10	12	23	20	43
5	**Agricultural Extension**	-	-	-	-	-	-	-	-	-	-
	Grand Total	**3**	**52**	**34**	**86**	**8**	**11**	**19**	**60**	**45**	**105**

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

S. No.	Name of Job Role	Date of Start	Date of Assessment	Total Expenditure (Rs.)	No. of Participants									No of Participants passed assessment
					General			SC/ST			Grand Total			
					Male	Female	Total	Male	Female	Total	Male	Female	Total	
1	Quality Seed Production	19.2.2019	26.3.2109	1,65,200	3	15	18	0	2	2	3	17	20	20
2.	Friends of coconut tree	19.02.19	29.03.19	1,65,200	13	2	15	4	1	5	17	3	20	19
	Total				**16**	**17**	**33**	**4**	**3**	**7**	**20**	**20**	**40**	**39**

PART VIII – EXTENSION ACTIVITIES(2018-19)

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	5	133	43	176	3	0	3	4	7	11
Kisan Mela	1	1000s	-	-	-	-	-	-	-	-
Kisan Ghosthi	3	91	97	188	16	11	27	79	73	152
Exhibition	14	1000s	-	-	-	-	-	-	-	-
Film Show	31	643	236	879	29	9	38	3	9	12
Method Demonstrations	29	349	104	453	15	5	20	0	0	0
Farmers Seminar	5	325	107	354	13	10	23	16	12	28
Workshop										
Group meetings	3	34	5	39	0	0	0	0	1	1
Lectures delivered as resource persons	23	207	223	430	16	15	31	81	32	113
Newspaper coverage	8	-	-	-	-	-	-	-	-	-
Radio talks	1	-	-	-	-	-	-	-	-	-
TV talks	6	-	-	-	-	-	-	-	-	-

Popular articles	9	-	-	-	-	-	-	-	-	-
Extension Literature	20	232	628	860	0	0	0	14	20	34
Advisory Services	1119	1074	28	350	8	5	13	9	8	17
Scientific visit to farmers field	170	245	76	321	6	2	8	1	5	6
Farmers visit to KVK	-	8032								
Diagnostic visits	86	81	9	42	1	0	1	31	9	40
Exposure visits	4	74	70	144	0	0	0	0	0	0
Ex-trainees Sammelan	1	12	8	40	0	0	0	0	0	0
Soil health Camp	1	15	8	23					1	1
Animal Health Camp	2	48	24	72	3	2	5	4	3	7
Agri mobile clinic	-	-	-	-	-	-	-	-	-	-
Soil test campaigns	-	-	-	-	-	-	-	-	-	-
Farm Science Club Conveners meet	-	-	-	-	-	-	-	-	-	-
Self Help Group Conveners meetings	-	-	-	-	-	-	-	-	-	-
Mahila Mandals Conveners meetings	-	-	-	-	-	-	-	-	-	-
Celebration of important days (specify)	-	-	-	-	-	-	-	-	-	-
International yoga day	1	7	4	11	1	1	2	1	0	1
Agricultural Education day	1	200	250	450	-	-	-	17	13	30
World Soil day	1	30	35	65	5	3	8	2	2	4
National Productivity week	1	30	27	57	8	6	14	2	3	5
Krishi Kalyan Diwas	1	56	36	92	4	1	5	0	3	3
Synchronization by $PGF_2\alpha$	50 cows	14	9	23	2	-	2	-	-	-
Help line	-	2867	-	-	-	-	-	-	-	-
Vaccination-RDV IBD	7500 chicks 6000	-	-	-	-	-	-	-	-	-
Diagnostic field visits		48	-	-	-	-	-	-	-	-
Parasitic control	112 animals	112	-	-	-	-	-	-	-	-
Ksheerothsavom	1	100's	-	-	-	-	-	-	-	-
Goat breeding	72 goats	64	-	-	-	-	-	-	-	-
Animal Health Campaign	2	42	13	55	12	10	22	7	-	7
Meetings attended	7	110	46	156	0	0	0	67	174	241
Total		**14084**	**2086**	**5280**	**142**	**80**	**222**	**338**	**375**	**713**

PART IX – PRODUCTION OF SEED, PLANT AND LIVESTOCK MATERIAL (2018-19)

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
Vegetables	Brinjal	Vengeri brinjal	-	500 g	1700	68
	Amaranthus	Arun		240 g	1200	41
Spices	Turmeric	IISR Pragati		2 q	20000	64
	Ginger	IISR Varada		0.65 q	9750	18
	Turmeric – (participatory)	IISR Pragati		30q	300000	300
	Ginger (Participatory)	IISR Varada		4q	60000	50
Total				**37.65q**	**392650**	**191**

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	NS 183		2668	8004	100

	seedlings					
	Cauliflower seedlings	NS 60 N		2617	7851	108
	Ash gourd, pumpkin, bitter gourd, snake gourd, cucumber, okra, amaranthus, bottle gourd, tomato, chillies, brinjal	All released varieties		829	2487	107
Fruits	Mango graft	Vellaikolumban		164	16400	110
	Rose apple rooted cuttings	Elite line		60	1500	41
Plantation	Arecanut seedlings	Mohitnagar		3875	96875	138
	Coconut seedlings	WCT		32	4800	7
Spices	Bush pepper	Sreekara Subhakara, Panniyur -1		4196	419600	344
	Black pepper rooted cuttings	Subhakara, Panniyur -1, IISR Thevam, IISR Shakthi, IISR Girimunda, IISR Malabar Excel etc		11678	233560	275
	Nutmeg graft	IISR Vishwashree		825	247500	86
	Nutmeg graft	IISR Keralashree		376	112800	44
	Garcinia graft	Elite line		176	43750	108
	Piper chaba rooted cuttings	Elite line		160	3200	28
	Piper chaba rooted cuttings	Elite line		160	3200	28
	Piper colubrinum rooted cuttings	--		83	1660	34
Total				**27899**	**1203187**	**1558**

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	Banana micronutrient mixture	2	40000	165
Bio-pesticide	Neem soap	0.1875	7500	112
Bio-fungicide				
Bio Agents -	Trichoderma	5.84	58400	420
Pheromone traps	Cuelure	80 nos	10000	58
	MET	40 nos	4000	32
	Mushroom spawn	4.15	49800	375
	Azolla	0.28	1680	47
Total		**12.48q & 120 nos**	**171380**	**1209**

9.D. Production of livestock

Particulars of Livestock	Name of the breed	Number	Value (Rs.)	Number of farmers to whom provided
Dairy animals				
Others-AI	Artificial Insemination	83	3735.00	
Poultry				
Layers	Day old layer chicks	37,974	8,35,428.00	
	45 days old layer chicks	4,853	2,22,361.00	2235
Others	Cockrels	115	16,594.00 .	
	Table eggs	512	3,072.00	
	Chipped eggs	323	1,292.00	
	Poultry Manure	230cft	2,700.00	
Sheep and Goat	Sale of goats	24	1,09,250.00	
	Goat breeding	70	5,250.00	
	Powdered goat manure	0.52	1040.00	
	Booklets	11	55.00	
Fisheries				
Fingerlings	Guppy, platy, swordtail, moly, barb, gold fish, carp, fighter, gourami	2690	23323	958
Others -Aquarium plants	Java moss and carpet plants	200	3830	56
Live feed culture for fish	Moina, Microworm, grindle worm, vinegar eel	47	2350	47
Total		**46902**	**1213686**	**3296**

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:__2007_____ Periodicity: half yearly_____Copies 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	1
Popular articles – Local language	8
Extension literature	4
Others (Pl. specify)	-
Book chapter	2
Training manual	2
Others (Pl. specify) Handbook on scientific cultivation of coconut palms for the trainees of Friends of Coconut training programme, KVK Calicut, 79 p. News letter, ICAR- Krishi Vigyan Kendra, IISR, Peruvannamuzhi, 11 (1) Jan – June, 2018 (Edited: P. Ratha Krishnan, K.K. Aiswarya; Compiled: P.S. Manoj, S. Shanmugavel, K.M. Prakash, A. Deepthi, B. Pradeep, K.K. Aiswarya, M.S. Mariya Dainy and C.K. Jayakumar), published by Director, IISR, Calicut, 8p.	2
TOTAL	**20**

Papers in research journals(National)

- Archan Verma, Pradeep Kumar, Ratha Krishnan, P., Saresh N.V., Shrawan Kumar and Praveen Kumar. 2018. Seedling vigour of *Prosopis cineraria* (L.) in response to different growth media and polybag sizes in arid climatic conditions. Range Management and Agroforestry, 39 (2), 206 – 214.

Popular article – English

1. Manoj, P.S. and Ratha Krishnan, P. 2018. Strategies for doubling farmer's income through integrated crop management practices in nendran banana. Kerala kersheka e journal, 6 (5): 34 -37.

Popular articles - Malayalam

1. Aiswarya, K.K., Pradeep, B., Manoj, P.S, and K.M. Prakash. 2018. Francisinu Krishiyil Nooril Noor, Karshakan , 26 (7): 31 – 34.
2. Neethu.V.S. and Pradeep, B. 2018. Samardham Ozhuvakkam Malysyarogagalum, Karshakasree, Aug, 94-95.
3. Manoj, P.S. and Ratha Krishnan, P. and Aiswarya, K.K. 2018. Govindankutty mash inte krishiyida pereekshangalkku vijayechita par thooval. Krishiyanganem, 1 (5) : 26 – 27.
4. Manoj, P.S., Ratha Krishnan, P. and Prakash, K.M. 2018. Kuttikurumulakilum graft (Malayalam) (Bush pepper grafts), Kershikashree, 24 (10): 32 – 33.
5. Manoj, P.S. and Ratha Krishnan, P. 2018. Kekkikkulliler Kera kershaken, Indian Nalikera Jpournal, 9 (11) 8-10.
6. Manoj, P.S. and Ratha Krishnan, P. 2018. Thengin thoppil idavilayayie Pragathi manjal (Malayalam) (Pragathi turmeric as an intercrop in coconut garden), Indian Nalikera Journal, 9 (9): 25-26.
7. Manoj, P.S. and Ratha Krishnan, P. 2019. Kavilumparayilay Kershika Koottayma- Pratheeksheum Munnottu, Indian Nalikera Journal: 10 (1): 17-18.
8. Manoj, P.S. and Ratha Krishnan, P. 2019. Menalaranyathil ninnu vile varividhathilekku, Krisiyenkanam, 1 (6): 44-45.

Extension Folder

1. P. Ratha Krishnan, 2019. Protection of plant varieties and farmer's rights authority (Malayalam), ICAR- KVK, IISR, Peruvannamuzhi, Calicut, 8 p, 250 copies

2. Mariya Dainy, M.S. and Ratha Krishnan, P. 2018. Vila samrudhikku shasthreega mannu parisodhana (Malayalam), ICAR- KVK, IISR, Calicut, 6p. 1000 copies

3. Handouts on Black pepper cultivation, Nutmeg and Garcinia cultivation. 2019. KVK, IISR, Peruvannamuzhi. 2 p. 2000 copies.

4. P.S. Manoj, 2019. Booklet on Nutmeg, KVK, IISR, Peruvannamuzhi, 8p, 1000 copies

Book chapters

- Ratha Krishnan, P. 2018. Trees: A potential component of watershed development. In: Training manual "Advances in integrated watershed management and rural Livelihood"(Eds: Raja, P., Rajan, K and Kannan, K) held during 12 – 23 Nov, 2018 at ICAR- Indian Institute of Soil and water conservation, Research Centre, Ooty, 290 – 306.

- Manoj, P.S. 2019. Nutmeg. In: Farm Guide, Rashtra Deepika Ltd, Kottayam, 168-172.

Training manual

I. Manoj, P.S., and Ratha Krishnan, P. 2018. Training manual: Plant material production and nursery management (Malayalam), KVK, IISR Peruvannamuzhi, 59 pp.

II. Manoj, P.S., and Ratha Krishnan, P. 2019. Training manual: Kunanalamudaiya vidukaludee udpadanam (Malayalam), ASCI sponsored training on "Quality seed production" KVK, IISR Peruvannamuzhi, 102 pp.

10.B. Details of Electronic Media Produced

S. No.	Type of media	Title	Details
1	CD / DVD	Video documentary on Gardeners training programme	As part of skill development training supported by SHM- Kerala
2	Mobile Apps	-	-
3	Social media groups with KVK as Admin	KVK Fish shoal	WhatsApp group of KVK Kozhikode trained ornamental fish farmers.

			Admin: SMS- Fisheries
4	Facebook account name	kvkcalicut	https://www.facebook.com/kvkcalicut
5	Youtube account name	kvkcalicut	https://www.youtube.com/kvkcalicut

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).

10.C.1

i Title: Bush pepper cultivation in homesteads for self-sufficiency in black pepper

ii. Background

Black pepper, the "King of spices" is a major spice crop cultivated in Kozhikode district. It is mainly grown as an intercrop in coconut and arecanut gardens and also as a pure crop on various tree standards. Most of the farmers of the district are either marginal or small farmers and they are unable to take up cultivation of this export oriented crop on a large scale due to less farm holding size. Cultivation of bush pepper hence is a viable option wherein pepper can be grown without trailing on a standard tree in potted form in places where no land space is available especially in urban or semi urban areas. It also ensures the availability of green pepper through the year. In this backdrop, KVK, IISR, Kozhikode attempted to promote the production as well as cultivation through trainings, demonstrations etc.

iii. Interventions

KVK organized on and off campus training programmes on the technology to create awareness as well as to promote its cultivation in Kozhikode and neighbouring districts. During the last five years, 17 training programmes were organized benefitting 631 farmers (Table 1).

Table 1. Training programmes conducted in last five years on bush pepper technology

No. of training and participants (year wise)											
2014-15		**2015-16**		**2016-17**		**2017-18**		**2018-19**		**Total**	
No. of trainings	No. of participants	No. of trainings	No. of participants	No. of trainings	No. of participants	No. of trainings	No. of participants	No. of trainings	No. of participants	No. of trainings	No. of participants
4	114	2	45	2	109	5	231	4	132	17	631

In addition, KVK also took up the production and sale of bush pepper plants to meet the demand from farmers. A total of 16,698 plants were supplied to 1603 farmers mainly for homestead cultivation (Table 2).

Production and supply of bush pepper plants in last five years under KVK RF

No. of plants supplied and farmers benefitted (year wise)											
2014-15		**2015-16**		**2016-17**		**2017-18**		**2018-19**		**Total**	
No. of plants produced	Farmers benefitted	No. of plants produced	Farmers benefitted	No. of plants produced	Farmers benefitted	No. of plants produced	Farmers benefitted	No. of plants produced	Farmers benefitted	No. of plants produced	Farmers benefitted
2218	214	4726	402	2561	256	2997	387	4196	344	16698	1603

In addition, cultivation of bush pepper in pots was demonstrated in Naduvannur panchayat and the Grama Panchayat was convinced with the interventions and implemented as panchayat project in household level.

iv. Process

Bush pepper plants are multiplied by rooting of plagiotropic cuttings. Bush pepper in polybags is used as planting material. About six month old, 5-8 leaf stage plants were planted in 12 inch earthen pots. They were maintained in partial shade with organic inputs.

v. Impact of Technology

After attending the training programmes about 25 nursery units were started by KVK trainees over a period of time. The income of these units ranges from Rs.10,000 to Rs.15 lakhs per year. A list of such successful units is furnished below.

1. Panakkavayal Agricultural Nursery, C/o Mr.George Thomas, Panakkvayal House, Koorachundu, Kozhikode - 673 527
2. Ms.Preeja Suresh and group (six members), Peruvannamuzhi engaged in KVK for planting material production
3. Mr.Jojo Jacob, Randuplackal Horticultural Nursery, Kadiyangadu, Kozhikode
4. Harithasree Karshika nursery, Mananpoyil, Balussery – 10 women under the leadership of Ms.Bindu
5. Jancy Thomas, Kunduthode, Kozhikode
6. Buds and Blooms, Chalikkara, Kozhikode
7. Buds and Blooms, Koothali, Kozhikode
8. Mr. Hamza, Koyilandi, Kozhikode
9. Mr.Muhammed, Poonoor, Balussery, Kozhikode
10. Saji Madathiparambil, Koorachundu, Kallanode
11. Xavier, Vazhppally, Koorachundu, Kozhikode
12. Binu John, Peruvannamuzhi, Kozhikode
13. Jaiva Karshika nurseries under block panchayats – 13 Nos.

In addition, at household level, farmers are producing about 300 g to 4.5 kg green pepper per plant from various locations in Kozhikode district. This is sufficient for their internal requirement and a few sell surplus produce also.

At Naduvannur panchayat, 684 households were given 10 plants each by Grama Panchayat and plants have started yielding.

vi. Horizontal Spread

More Panchayats are presently impressed by these interventions and Krishi Bhavans like Velam in Kozhikode district, Muthuvalloor in Malappuram District were also procured about 2000 bush pepper each from KVK, Calicut and distributed to households. The technology is fast spreading to more locations.

vii. Economic gains

The bush pepper plants will start yielding as early as six months onwards. It is expected to yield at least 150 g per plant after second year. The yield will be increased gradually as per plant management and high yield levels of 4 – 4.5 kg can be realized from 12 – 14 year old potted plants.

10.C.2

i Title: Application of banana micro-nutrient mixture in nendran banana for enhancing yield

ii. Background

Nendran is one of the most important banana cultivar of Kerala. It occupies an area of 3288 ha with a production of 14886 t in Kozhikode district. The average yield realized in this popular variety is about 4.5 tonnes per ha against the potential of 25 – 30 tonnes per ha. Meanwhile, secondary and micro-nutrients especially Ca and B has been observed deficit in many banana fields, which might be the reason for low

production. In this backdrop KVK, IISR, Kozhikode attempted to increase the yield of Nendran banana through the use micro- nutrients.

iii. Interventions

At present two technologies are available viz. foliar application of the nutrient solution (ICAR-IIHR, Bangalore technology) and soil application of nutrient mixture (KAU, Thrissur technology). The foliar application @ 5g/l of water is to be carried out from 4 months after planting till bunching at monthly interval. The soil application is done at 2 months and 4 months after planting @ 100g each per plant.

iv. Process

In order to test its potential, ICAR - Krishi Vigyan Kendra, ICAR - IISR, Kozhikode conducted On-farm trails during 2012 and further demonstrated these technologies for enhancing productivity in nendran banana and ultimately to increase the net income of farmers. These programmes were implemented in Naduvannur, Ulliyeri, Changaroth, Perambra, Kavilumpara, Cheruvannur and Maruthonkara panchayats of Kozhikode district during 2012 to 2016. After soil nutrient analysis, soil health cards were issued to farmers and critical inputs such as micronutrient formulation and essential PP chemicals were supplied to farmers. KVK Scientists frequently visited the demo plots for proper monitoring of the programme and timely guidance. In addition, training and awareness programmes were also organized for famers with emphasis on method demonstration.

v. Impact of Technology

The demonstration was a huge success with foliar application leading to early bunching and enhanced bunch weight. The plants bunched by about 6 months after planting while check plots showed bunching by 7 months only. About 36.54 percent increase in yield with the production of bunches of about 14.2 kg/plant was reported while it was only 10.4 kg in check plots. Like foliar application of micro-nutrients, soil application also evoked similar results. In the demonstration plots, an yield increase of 19.59 percent with 11.6 kg per plant was obtained compared to 9.7 kg of local check. Moreover, the bunches of micronutrient applied plots were of more uniform in size with attractive golden yellow coloured fingers. It also helped the farmers to reduce harvesting and transportation cost due to its uniform maturity.

vi. Horizontal Spread

All the participating farmers were convinced by the success of the technology; they continued to use micro-nutrient formulation even after the completion of the demonstration. The technology is also spreading to nearby farmers as well as nearby panchayats in a very fast manner. The foliar micro-nutrient formulation was evolved by ICAR-IIHR, Bengaluru and KVK took exclusive license to produce and sell the formulation for the benefit of farming community of Kozhikode and nearby districts. To further popularize the technology, the programme was suggested for large scale implementation by ATMA/Department of Agriculture. As a result, it is being implemented by majority of Panchayats through Krishi Bhavans. KVK also provides need based training to farmers and extension officers on the technology.

vii. Economic gains

With the combined efforts by KVK and Department of Agriculture, Kozhikode, productivity of nendran banana in Kozhikode district has increased from 4259kg/ha of 2011-12 to 5427kg/ha in 2015-16

with an increase of 27 percent. The intervention of soil nutrient test based application of nutrients especially micronutrient in nendran banana costs about Rs.6,000 (foliar application) to Rs.25,000 (soil application) extra while enhanced the income to Rs.9.68 lakhs /ha from Rs 7.53 lakhs /ha (of control). In addition, the bunches of micronutrient applied plants were of uniform in size, golden yellow coloured fingers and reduce harvesting and transportation cost due to its even maturity and assures quick sale owing to attractive size and colour. If this technology is adopted by all the farmers of the district, the nendran banana yield can be further enhanced.

10.C.3

i. Title: Cage system of layer birds maintenance

ii. Background: Limitation of space for maintain layer birds for eggs was managed after demonstration of cage system if layer birds maintenance.This technology was demonstrated in farmers field as FLD during 2016-17. KVK also ensure the supply of layer chicks (one day to 45 days old) through its hatchery.

iii. Interventions

Process : Maintaining PV 380, Gramasree layer birds in cages

Technology: Cage system of layer maintenance.

iv. Impact:

v. Horizontal Spread: Initially, Chakkittapara Service cooperative Bank with the technical support of KVK implemented cage system of layer birds maintenance, After making improvements in cage structure, KVK implemented FLDs in Naduvannur and Ulliyeri Panchayats. Presently one in twenty households of Ulliyeri panchayts are maintaining this model Cage layer maintenance and ensure production of delicious desi eggs.

vi. Economic gains: Women are involving in maintenance of layer birds and earning decent income

vii. Employment Generation: Ensure the employment of one person per cage of 100 to 250 birds.

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

a. Grafted bush pepper cultivation

Generally grafting in pepper vines is practiced to overcome *Phytopthora* infestation. Innovatively a farmer (Mr. Xavier, Kallanode) developed grafting in bush pepper with different layers to develop about 10ft Canopy. It removed the barriers of lesser canopy size and yield of bush pepper. This innovative method has been popularized by KVK during trainings, exhibitions etc.

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

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1	Cassava	Rat damage is a serious issue in the cultivation of cassava. In homestead cultivation of cassava, planting of a few ginger seed rhizomes around the cassava mounds will reduce attack by rats.	To reduce rat damage of cassava .

10 F. Technology Week celebration during 2018-19:

Period of observing Technology Week: From 12.3.19 to 15.3.19
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 Practicals	-	-	-
Supply of Literature (No.)	2	300	
Supply of Seed (q)	1	200	
Supply of Planting materials (No.)	-	-	-
Bio Product supply (Kg)	-	-	-
Bio Fertilizers (q)	-	-	-
Supply of fingerlings	-	-	-
Supply of Livestock specimen (No.)	-	-	-
Total number of farmers visited the technology week		800	

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	3233	1135	88
Water Samples	107	107	19
Plant samples	-	-	-
Manure samples	-	-	-
Others (specify)	-	-	-
Total	**3337**	**1239**	**106**

C. Details of samples analyzed during the 2018-19:

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages
Soil Samples	32	32	4
Water Samples	3	3	1
Plant samples	-	-	-
Manure samples	-	-	-
Others (specify)	-	-	-
Total	**35**	**35**	**5**

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 2018-19 and since establishment with Mobile Soil Testing Kit:

	Progress during 2018-19	Cumulative progress
Samplesanalyzed (No.)	-	200
Farmers benefited (No.)	-	345
Villages covered (No.)	-	17

11.3 Details of soil health cards issued based on SWTL &Mobile Soil Testing Kitduring 2018-19:

Particulars	Date (s)	Villages (No.)	Farmers (No.)	Samples analyzed (No.)	Soil health cards issued (No.)
SWTL	-	4	32	32	32
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 participate (No.)	Media coverage (No.)
1	89	26	-	President, Naduvannu Grama 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	40	12000 per unit per year	24000 per unit per year
Bush pepper production	186	6.45	15,600 per unit per year	Rs.48,000 per unit per year
Planting material production and nursery management	225	25.78	2500 per unit per year	1,20,000 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)

Mentioned in success stories

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.)
Demonstration of improved fish varieties - Amur common carp	19.9.18	NFDB, Hyderabad	10500
"Integrated Management of Pests and Diseases of vegetables with special emphasis on cucurbits"	Nov, 2018	Department of Agriculture Development and Farmers' Welfare	3.00 Lakhs
Friends of coconut	June 2018& February-2019	Coconut Development Board,Kochi	1.12 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	6	1	
		AMC, GB	3	-	-
02	Research projects	-	-	-	-
		-	-	-	-
03	Training programmes	Trainings on Mushroom cultivation, value addition	3	5	
04	Demonstrations	-	-	-	-
05	Extension Programmes	-	-	-	-
	Kisan Mela	Krishi Unnati Mela	2	-	-

	Technology Week			-	-
	Exposure visit	Field visits	3	-	-
	Exhibition	Exhibitors	3	-	-
	Soil health camps			-	-
	Animal Health Campaigns			-	-
	Kisan Gosthi	Organized at Kunnamangalam	1	-	-
	Diagnostic visits	-	2	-	-
06	**Publications**	-	-	-	-
07	**Other Activities** (Pl.specify)	-	-	-	-

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-Jayanti Rohu / Amur carp	Sponsor agency	10500	21000	Demonstration on Amur Carp Cultivation carried out.

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 (No.)	Farmers benefitted (No.)
		Crop	Livestock	Weather	Marketing	Awareness	Other enterprises		
April 2018	Text	1	0	0	0	1	0	2	198064
May	Text	1	0	0	0	1	0	2	198084
June	Text	0	0	0	0	1	0	1	99055
July	Text	1	1	0	0	0	0	2	102667
August	Text	0	0	0	0	0	0	0	0
September	Text	1	0	0	0	0	0	1	3676
October	Text	0	0	0	0	2	0	2	249846
November	Text	2	0	0	0	0	0	2	3676
December	Text	0	0	0	0	0	0	0	0
January 2019	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
Total	**Text**	**7**	**2**	**0**	**0**	**6**	**0**	**15**	**1231707**

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	Nursery	1996	300 m^2	Released varieties and elite lines of fruits, plantation crops and spices, vegetables etc.	Grafts, rooted cuttings, seedlings etc. of different horticultural crops	12,45,337	Rs.8.956 lakhs	Rs.12.45 lakhs	-

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	
Spices & Plantation crops									
Turmeric	25.5.18	24.1.2019	150 beds	IISR Pragati	Seed Rhizomes	2 q	16000	20000	Used for sale as well further seed multiplication
Ginger	May 2018	January 2019	1500 grow bags	IISR Varada	Seed Rhizome	0.65q	5000	9750	Used for sale

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

Sl. No.	Name of the Product	Qty	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
1	Trichoderma	5.84	11680	58400	-
2	Mushroom spawn	4.15	18675	49800	-
3	Banana micronutrient mixture	2	24000	40000	-
4	Neem soap	0.1875	3825	7500	-
5	Cuelure	80	3200	10000	-
6	MET	40	1600	4000	-

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	Ornamental fishes	Guppy, platy, swordtail, moly, barb, gold fish, carp, fighter, gourami	Ornamental fishes	2690	14682	23323	From Ornamental fish demo unit
2	Aquatic plants	Java moss, carpet plants	Aquatic plants	200	200	3830	From Ornamental

		and other aquatic plants					fish demo unit
3	Live feed for ornamental fishes	Moina, Microworm, grindle worm, vinegar eel	Starter culture	43	1000	2350	From Ornamental fish demo unit

14E. Utilization of hostel facilities

Accommodation available (No. of beds): 26

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
April 2018	16	12	-
May	17	6	-
June	17	6	-
July	2	1	-
August	0	0	-
September	0	0	-
October	6	1	-
November	27	3	-
December	9	3	-
January 2019	10	2	-
February	13	6	-
March	12	8	-

14F. Database management

S.No	Database target	Database created
-	-	-

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.)		
1 Lakh	1 lakh	Drip and sprinkler system for spices, fruit plants cultivation	-	1	-	-	-	-	1 acre
10.00 lakhs	9.62 lakhs	Pond, Irrigation facility for KVK nursery	8	2	27899	682	14	200	1 ha

PART XV - FINANCIAL PERFORMANCE

15A. 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	-	-	-	-	-	-	-

15B. Utilization of KVK funds during the year 2018-2019(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 training)	11696	11696	0
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**

15C. 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

16. Details of HRD activities attended by KVK staff

Name of the staff	Designation	Title of the training programme	Institute where attended	Dates
Deepthi A	Subject matter Specialist(Home Science)	Value addition in Coconut	CPCRI, Kasaragode	22.04.18 to 26.04.18
P.S.Manoj	SMS (Horticulture)	Training of Trainers on Quality Seed Grower	GKVK Bangalore	24.9 2018 to 26.9.2018

Aiswariya.K.K.	Subject Matter Specialist (Plant Protection)	Trainers training programme – organized by ASCI	GKVK, Bengaluru	24.9 2018 to 26.9.2018
T.C. Prasad	Driver	Automobile maintenance, road safety and behavioral skills	CIAE, Bhopal	16.1.19 to 22.1.19

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

1. External funded 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.

2. 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.

3. Special fund for flood relief from ICAR, New Delhi

A special fund of Rs 15 lakhs is being used for rebuilding the flood damages at KVK. Accordingly repairing of poultry shed, nursery shed, Roads, compound wall, leak proofing in main office area are carried.

4. Farm mechanization mission

Several farm implements including tractor with implements, Pulveriser, , mini tractor, trailer, Solar pumpset, worth about 28 lakhs is being purchased after using the special allocation of fund under farm mechanization mission.

5. Mass awareness programmes

a. International Yoga Day

Class on "Exercises and simple yoga practices" was handled by Smt. R. Indumathy, Yoga Teacher, Vazhka Valamudan Mandram, Tirunelveli. In continuation training on ornamental fish culture was conducted by Dr. B. Pradeep, Subject Matter Specialist of KVK, IISR. The training covers topic on ornamental fish varieties, fish breeding methodologies, disease and feed management. These programmes were participated by staff of KVK, Experimental farm, IISR and farmers from Kozhikode, Koothali, Koorachandu, Vatakara, Nanminda, Kallachi, Perambra, areas.

b. **World Soil Day Celebration**

Krishi Vigyan Kendra, ICAR -Indian Institute of Spices Research, Kozhikode observed world soil day by distributing soil health cards and micro nutrient mixture for pepper to farmers. In this connection, a seminar on soil health was inaugurated at Kavunthara by Smt. T. Yasodha, President, Naduvannur Grama Panchayat. Soil health cards and micro nutrient mixture were distributed by Dr P. Ratha Krishnan, Programme Coordinator, KVK. An expert class was delivered by Dr. V. Srinivasan, Principal Scientist, IISR, Kozhikode. The farmers from Naduvanur and Kavunthara Panchayats were also visited District Soil Testing Lab and District Coconut Nursery, Thikkodi.

c. Productivity Week Celebration

Seminar on "Tropical tubers cultivation" during national productivity week celebration. Expert class on "Tropical tuber crops cultivation" with history, varieties, important traits, cultivation and management practices of important tuber crops was carried by Dr. Sushan K. John, Principal Scientist, Central Tuber Crops Research Institute, Trivandrum. The programme was attended by farmers from Kozhikode, Mukkam, Thiruvallur, Meppayur, Padanilam, Karaparamba, Chembanoda.

d. PPVFRA Awareness Programme

Awareness seminar on "Protection of plant varieties and Farmer Rights Act was inaugurated by Mr. Sivadasan, K.M., Lead Bank Manager – Canara Bank, under the preside ship of Dr. K.V. Saji, Principal Scientist, Indian Institute of Spices Research (IISR), Calicut. Expert class on Farmer' s Plant varieties registration – Dr. Johnson George, K, Principal Scientist, IISR; Spice crop Varieties and diversity – Dr. K.V. Saji, Principal Scientist, IISR and Geographical indicators – Prospects and challenges - Dr. C. R. Elsy, Professor & Convener, IPR Cell, KAU, Thrissur were held. Mr. James P. George, AGM, NABARD, Malappuram felicitated the programme and narrated various schemes implemented by NABARD and its presnt status for the benefit of farmers. The programme was attended by farmers from Kozhikode, Baluserry, Thamaraserry, Naduvanur, Maruthonkara, Perambra, Meppayur, Chembanoda, Kuttiyadi, Nadapuram area farmers. .

e. Pre-Rabi Awareness Programme

Pre-rabi awareness programme on summer season vegetable and pulsed cultivation was held on 12th March 2019 at KVK, Peruvannamuzhi. Experts from Agriculture Department, Kozhikode and RARS, Pattambi handled classes

f. Swachh Bharat Activities:

Awareness on and off campus activities like rallies, street play, drawing competition, monthly cleaning activities were actively participated by staff for the benefit of public.

6. Others

Erecting uni-pole hoardings under Live stock mission fund, Establishment of micro irrigation demonstration model under PMKSY, Establishment of vermicompost units at adopted village under Swatchta plan are in progress.