

# ANNUAL REPORT 2011-12



**Krishi Vigyan Kendra**  
Indian Institute of Spices Research  
(*Indian Council of Agricultural Research*)  
Peruvannamuzhi, Calicut - 673528, Kerala



## PART I - GENERAL INFORMATION ABOUT THE KVK

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

Address	Telephone		E mail	Web Address
	Office	FAX		
Krishi Vigyan Kendra, Peruvannamuzhi (P.O), Pin-673 528 Calicut, Kerala	0496- 2662372	0091-496- 2662372	kvk@spices.res.in kvkcalicut@gmail.com	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		
Indian Institute of Spices Research, Post Bag No.1701, Marikunnu (P.O.) Calicut-673 012, Kerala.	0495- 2731410	0091-495- 2730294	<a href="mailto:mail@spices.res.in">mail@spices.res.in</a>	www.spices.res.in

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

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. T. Arumuganathan	-	9447916007	arumuganathan@spices.res.in

### 1.4. Year of sanction: 1992

### 1.5. Staff Position (as 31<sup>st</sup> March 2012)

Sl.No.	Sanctioned post	Name of the incumbent	Designation	M/ F	Discipline	Highest Quln. (for PC, SMS and Prog. Asst.)	Pay scale	Basic Pay	Date of joining KVK	Per. / Temp.	Category (SC/ST/ Others)
1.	Programme Coordinator	Dr. T. Arumuganathan	Programme Coordinator	M	Agricultural Engineering	Ph.D. in agricultural	15600-39100+8000	32100	29.04.2011	Per.	Others

						processing					
2.	Subject Matter Specialist	P.S. Manoj	Subject Matter Specialist	M	Horticulture	Ph.D in Horticulture	15600-39100+7600	35580	30.5.94	Per.	OBC
3.	Subject Matter Specialist	K.M. Prakash	Subject Matter Specialist	M	Agronomy	PG in Agrl. Science	15600-39100+7600	32040	10.12.96	Per.	Others
4.	Subject Matter Specialist	S. Shanmugavel	Subject Matter Specialist	M	Animal Husbandry	PG in Vet. Science	15600-39100+7600	36170	3.8.95	Per.	SC
5	Subject Matter Specialist	A. Deepthi	Subject Matter Specialist	F	Home Science	PG in Home Science	15600-39100+5400	21000	08/03/2010	Per.	SC
6	Subject Matter Specialist	B. Pradeep	Subject Matter Specialist	M	Fisheries	Ph.D in Fisheries	15600-39100+5400	21000	30/03/2010	Per.	Others
7	Subject Matter Specialist	Aiswariya K.K.	Subject Matter Specialist	F	Plant Protection	Ph.D in Agrl. Science	15600-39100+5400	21000	28.4.2010	Per.	OBC
8.	Programme Assistant (Lab Technician)	Nazia Sherif	Programme Assistant	F	-	PG in Horticulture	5200-20200 + 2800	11700	29/01/2010	Per.	OBC
9	Programme Assistant (Computer)	K. Jayakumkar	Programme Assistant	M	-	P G in Computer Science	5200-20200+2800	11700	01/02/2010	Per.	Others
10	Farm Manager	S. Kannan	Programme Assistant	M	-	Degree in Forestry	5200-20200+2800	11700	08/02/2010	Per.	ST
11	Accountant/Superintendent (Assistant)	<b>Vacant</b>		-	-	-	9300-34800+4200	-			
12	Stenographer Gr.III	K. Faisal	Stenographer Gr.III	M	-	-	9300-34800+4200	16460	1.4.02	Per.	OBC
13	Driver-cum-Mechanic	T.C. Prasad	Driver-cum-Mechanic	M	-	-	5200-20200+2800	13510	17.5.93	Per.	Others
14	Driver	P. Prakash	Driver	M	-	-	5200-20200+2800	10840	27.6.02	Per.	Others
15	Skilled Supporting staff	C.V. Ravindran	Skilled Supporting	M	-	-	4440-7440+1400	10260	1.7.93	Per.	SC

16	Skilled Supporting staff	C. Ravindran	staff Skilled Supporting staff	M	-	-	4440-7440 +1400	9800	10.11.94	Per.	SC
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**1.6. Total land with KVK (in ha) : 20.3**

S. No.	Item	Area (ha)
1	Under Buildings	0.60
2.	Under Demonstration Units	1.90
3.	Under Crops	6.75
4.	Orchard/Agro-forestry	3.25
5.	Others	7.80

**1.7. Infrastructural Development:**

**A) Buildings**

SL. 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					-	-	-
6.	Rainwater harvesting system	ICAR			10.00	2012		Amount deposited with Minor Irrigation Dept.
7	1. (Old Animal Clinic) – Mushroom unit *	ICAR SHM	16.1.96 (7.3.09)	358.31 358.31	1.00 0.84	-	-	-
8	2.Poultry	ICAR	20.9.03	43.8	0.84	-	-	-
9	3.Dairy	ICAR	25.10.06	39.32	1.83	-	-	-
10	4.Vermiculture	ICAR	3.1.08	9.00	0.11	-	-	-
11	Nursery with shed and fencing	ICAR	16.1.96	500.0	0.50	-	-	-
12	Shade house-Anthurium	ICAR	25.3.09	144.0	1.21	-	-	-

13	Goatary	ICAR	31.3.09	64.0	2.78	-	-	-
14	Training shed	SHM	25.11.08	90.0	2.69	-	-	-
15	Temporary vehicle shelter	ICAR	18.6.04	35.0	0.48	-	-	-
16	Water tank	ICAR	2.2.99	10,000	0.22	-	-	-
17	Pond with pump, storage tank etc.	ICAR	31.3.08	15X13M	8.44	-	-	-

\*The original Animal clinic was modified as Mushroom unit with the help of SHM funds (Rs.84,000/-) (7.3.09)

## B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Motor cycle Suzuki	2009	49,980	164896	Good
Mini bus DCM Toyota	1995	5,22,670	36825	Good
TATA Sumo Jeep	2004	4,98,642	12540	Good

## C) Equipments & AV aids

Nature of the equipment	Year of purchase	Cost (Rs.)	Present Status
TV	1996	25800	“
VCP	1996	10850	“
Mixie	1996	2150	“
Juicer	1996	1505	“
Kettle	1996	1375	“
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	“
Water purifier	1999	2745	“
3.5 Hand compression sprayer	1999	1200	“
Computer with accessories	2001	28,400	“
Computer with accessories	2001	44,700	Upgraded in 2003
UPS (1 KVA)	2002	17250	Good
Refrigerator	2002	21308	“
Digital camera	2003	29500	Not Working
7.5 KVA Generator	2003	56,950	Good
Computer with accessories	2003	61,175	“
Scanner	2003	13,400	“

Slide projector	2004	17,895	“
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	“
Photocopier	2005	67,704	“
Fax machine	2006	7,500	“
PABX	2006	31,985	“
Digital Camera	2007	10,580	“
DLP Projector	2007	54,563	“
Computer	2007	37,600	“
DTH System with accessories	2007	4,165	“
Iron Box	2007	830	“
UPS	2008	27060	“
Stabilizer	2008	10920	“
Laser fax	2009	14378	“
Printer*	2009	5386	“
Computer*	2009	3770	“
Digital camera*	2009	14890	“
UPS*	2009	6500	“
Weed Cutter	2010	34930	“
Generator	2010	100000	“
Chaff Cutter	2010	23800	“
Air conditioner 2 ton	2011	34000	“
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	“
Motorized Sieve	2012	44737	“
Laminar air flow	2012	45070	“

\* Procured with State Horticulture funds.

### 1.8. Details SAC meeting conducted in 2011-12

Sl. No	Date	Number of Participants	No. of absentees	Major recommendations	Status of action taken in brief
01	23.6.11	26	9	The possibility of sourcing funds from ATMA and NABARD may be explored for conducting farmers' study tours.	So far two farmers study tours were organized to TNAU, Coimbatore utilizing NABARD fund.
				More emphasis may be given for technology assessment and refinement.	Twelve programmes under technology assessment and refinement are proposed during 2012-13.
				Hybrid coconut may be promoted among farmers.	Seven training programmes on HPT of coconut were organized during 2011-12 which also emphasize the cultivation of hybrid coconuts
				Activities of KVK may be taken up in other blocks of the district also in a phased manner.	More programmes are emphasized in blocks like Balussery, Chelannur, Kunnamangalam, Koduvally, Thodannur and Tuneri during 2012-13.
				Farmers need to be educated about banned pesticides and alternatives suggested for pest and disease management. Banned pesticides should not be used in any of the demonstrations or on-farm trials.	Banned pesticides are totally avoided in all the KVK demonstrations and On Farm trials.
				Proposal may be submitted to Zonal Project Directorate to develop infrastructure facilities for Layer chick hatchery unit.	Already submitted in 12 <sup>th</sup> Plan proposal.
				Collaborate with Department of Animal Husbandry, Government of Kerala more effectively for conducting programmes in Animal Science.	KVK is actively participating in training programmes, animal health campaigns, seminars etc. organized by AH department.
				Kisan Mobile Advisory Service should be given more importance especially in plant protection programmes.	12 SMS on Plant Protection aspects benefitting 4789 farmers were sent during the period. Information on details of training proposed, planting materials available etc. are also sent through SMS.
				Before taking up an on-farm trial, authenticity of the technology tried may be verified.	In Onfarm trails, if a technology developed by a farmer is tested, they are first validated in KVK Farm and then only





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

S. No	Crop	Area (ha)	Production (Tonnes)	Productivity (kg/ha)
1.	Coconut	119166	868 (Million nuts)	7284 Nos./ha
2.	Palmyra	180	NA	NA
3.	Rubber	20358	28275	1389
4.	Arecanut	10054	12710	1264
5.	Cocoa	680	369	542
6.	Cashew	2068	704	340
7.	Paddy	3277	4302	1312
8.	Pulses	20	15	750
9.	Jack	9169	23 (nos. in millions)	2508 nos/ha
10.	Mango	7430	22215	2989
11.	Banana	1476	11102	7522
12.	Pineapple	192	957	4984
13.	Papaya	2154	7016	3257
14.	Other fruits	642	NA	NA
15.	Tapioca	1823	51171	28069
16.	Elephant foot yam	191	NA	NA
17.	Colocasia	521	NA	NA
18.	Yam	29	NA	NA
19.	Sweet potato	17	194	11411
20.	Other tubers	119	NA	NA
21.	Drumstick	1749	519	296
22.	Amaranthus	144	NA	NA
23.	Bitter gourd	60	NA	NA
24.	Snake gourd	22	NA	NA
25.	Bhendi	23	NA	NA
26.	Brinjal	10	NA	NA
27.	Ivy gourd	15	NA	NA
28.	Ash gourd	51	NA	NA
29.	Pumpkin	54	NA	NA
30.	Cucumber	83	NA	NA
31.	Chillies green	110	74	672
32.	Other vegetables	166	NA	NA
33.	Pepper	7972	1010	NA
34.	Betel	10	580	NA
35.	Ginger	104	401	NA
36.	Turmeric	295	721	NA
37.	Cardamom	220	NA	NA
38.	Tamarind	720	1606	NA

39	Vanilla	42	NA	NA
40	Cloves	57	34	53
41	Nutmeg	415	121	291
42	Cinnamon	51	NA	NA
43	Fodder	123	NA	NA
44	Lemon grass	18	NA	NA
45	Medicinal plants	83	NA	NA

Source: Farm Information Bureau, Dept. of Agriculture, Govt. of Kerala, 2012.

NA- Not available

## 2.5. Weather data

Month	Rainfall (mm)	Temperature ° C		Relative Humidity (%)
		Maximum	Minimum	
April 2011	206.20	34.18	22.46	93.20
May	203.40	34.38	24.09	89.67
June	1519.60	27.66	23.06	98.66
July	1058.80	27.64	22.90	98.83
August	873.80	28.06	23.06	98.19
September	642.20	29.38	22.53	96.40
October	267.20	31.00	22.19	87.67
November	88.20	32.75	21.71	84.61
December	3.00	33.96	20.38	81.75
January 2012	0	34.37	20.33	82.46
February	0	35.20	18.48	79.53
March	28.00	35.14	21.29	82.77

Source: IISR, Expl. Farm, P.Muzhi.

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

Category	Population	Production	Productivity
<b>Cattle</b>			
<i>Crossbred</i>	100573	217ML	13 litre
<i>Indigenous</i>	62831	41.6ML	4 litre
<b>Buffalo</b>	1185	2.26ML	11 litre
<b>Sheep</b>			
<i>Crossbred</i>	-	-	-
<i>Indigenous</i>	-	-	-
<b>Goats</b>	51824	1036 tons	25 kg
<b>Pigs</b>			
<i>Crossbred</i>	2318	289.7 ton	125 kg

<i>Indigenous</i>	-	-	-
<b>Rabbits</b>	5278	13.2 ton	2.5 kg
<b>Poultry</b>			
Hens	566103	-	-
<i>Desi</i>	169831	11.88 M eggs.	70
<i>Improved</i>	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
<i>Marine</i>	71 Kms coast line	92221 tones *	-
<i>Inland</i>		2210 tones*	-
Prawn	8.428 ha	6.321 tons	1.0 ton/ha
Shrimp	46.46 ha*	50.37 tones**	1 ton/ha
Fish	60.28 ha**	174.49 tones**	2.5 tones/ha**

\* Success story of Matsyakeralam Department of Fisheries Kerala

\*\* Kerala State Fisheries- District profile 2005- Statistical cell Department of Fisheries Kerala

**2.7** District profile has been **Updated** for 2011-12: **Yes**

## 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 operation area of the KVK	Major crops & enterprises	Major problems identified	Identified thrust areas
1	Quilandy	Perambra, Ulliyeri	-	Since the inception of KVK	Coconut, pepper, Cassava, banana	Coconut- Non utilization of interspaces with suitable crops  Cassava- Lack of soil test based INM for local variety of high quality and taste for higher yield and quality  Pepper- 1) lack of HYVs of high	Crop intensification in mono cropped coconut garden.  Promotion of INM for crops  Promotion of HYVs of spices with high

						intrinsic quality.  2) Lack of sufficient field , constraint of labour, Unavailability of green pepper year round in semi urban areas.	intrinsic qualities  Popularization of new production technologies of crops
2	Quilandy	Perambra, Balussery, Ulliyery	Chakkittapara, Changaroth, Muthukadu, Koorachundu, Naduvannur Koothali Nochad	Since the inception of KVK	Vegetables	Lack of self sufficiency in vegetable production, pests and diseases, high residue of pesticides in the produce	Rain shelter cultivation of vegetables, promotion of nutrition garden, seed production of vegetables
					Spices	Unavailability of quality planting materials, lack of knowledge about scientific cultivation practices, low price for the produce	Quality planting material production, popularisation of HYVs of spices
					Floriculture	Inferior cultivars, improper marketing and exploitation by middlemen, lack of scientific knowledge about cultivation practices	Promotion of floriculture
					Fruits	Lack of availability of planting materials of elite varieties, unscientific cultivation practices	High density planting, promotion of fruit culture
3	Vadakara	Vadakara	Aroor	10 years	Mango	Irregular bearing, improper plant protection measures	Promotion of fruit culture
4	Kozhikode	Kunnamangalam, Koduvally, Meladi	Feroke, Mavoor, Nanmanda, Anakkampoyil Thamarassery, Calicut corporation area, Mukkom	12 years	Commercial flowers	Lack of know-how on scientific cultivation and unavailability of planting materials.	Promotion of floriculture
					Vegetables	Lack of self sufficiency in vegetable production, pests and diseases, high residue of	Promotion of nutrition garden and terrace gardening

						pesticides in the produce	
					Fruits	Lack of availability of planting materials of elite varieties, unscientific cultivation practices	Promotion of fruit culture
5	Quilandi	Perambra	Chakkittapara, Changaroth	Since the inception of KVK	Banana	Severe attack of pseudo stem weevil in banana	Pest management in banana
		Thikkodi	Meppayur	Since the inception of KVK	Paddy	Severe incidence of blast disease in paddy	Management of blast disease in paddy
		Perambra	Koothali, Changaroth	Since the inception of KVK	Black pepper	Incidence of <i>Phytophthora</i> foot rot of black pepper	Integrated Disease Management in black pepper
		Kakkur	Thalakkulathur	2 years	Bitter gourd	Attack of fruit flies in bitter gourd	IPM in vegetables
6	Quilandi	Perambra	Perambra, Cheruvannur, Koothali, Chakkittapara, Changaroth	Since the inception of KVK	Dairy, goatary, poultry.	Infertility in breeding, Non availability of quality chicks	Breeding management, Training, Guidance to produce improved poultry chicks
7	Vadakara	Thodannur	Ayancheri, Thiruvallur, Maniyoor	10 years	Dairy, Poultry, Goatary	Infertility, Sub fertility, Low milk yield, inbreeding in goats, Higher mortality in chicks.	Training, Animal health campaign, Breeding of cows at optimum time, Procurement of poultry chicks from reputed farm and training on poultry management, Periodical vaccination of birds
8	Kozhikode	Ulliyeri	Balusserry, Naduvannur, Ulliyeri	Since the inception of KVK	Dairy, Poultry, Goatary	Low milk yield, Repeat breeding, Calf mortality, Low egg production, Non availability of poultry chicks	Training, Animal health campaign, Procurement of improved layer chicks, Feeding management, Breeding

							management
9	Kozhikode	Kakkur	Thalakulathur, Chelanoor	4 years	Aquaculture – Cage culture	Non utilization of water logged area for fish culture. Poor water quality in ornamental fish farms	Cage culture of fishes, Water quality management in ornamental fish farms
10	Quilandy	Quilandy, Ulliyeri	Chemanchery, Atholi	5 years	Aquaculture – Cage culture	Non utilization of water logged area for fish culture. Poor water quality in ornamental fish farms	Cage culture of fishes, Water quality management in ornamental fish farms
11	Vadakara	Perambra, Kunnummal	Chakittapara, Kuttiyadi	Since the inception of KVK	Seed production of pearl spot	scarcity of quality pearl spot fingerlings for stocking in freshwater ponds	Seed production of pearl spot in fresh water ponds
12	Quilandy	Perambra	Chempanoda	Since the inception of KVK	Nutmeg	Under utilization of nutmeg pericarp	Value addition
			chakkittapara	Since the inception of KVK	Jack fruit	Under utilization of jack fruit seed	Value addition
			Muthukad	Since the inception of KVK	Mango ginger	Under utilization of Mango ginger	Value addition

## 2.9 Priority thrust areas

### Crops

Sl.No.	Thrust areas
1.	Crop intensification in coconut garden
2.	Promotion of HYV with high intrinsic qualities
3.	Promotion of new production technologies
4.	Promotion of INM for crops
5.	Production and supply of quality planting materials
6.	Creation of skilled labour in plant propagation
7.	Promotion of self employment oriented enterprises.
8.	Promotion of nutrition gardens in homesteads and schools
9.	Protected cultivation
10.	Improving fruit production
11.	Floriculture

12.	Pest management in banana
13.	Management of blast disease in paddy
14.	Disease Management in spices
15.	IPM in vegetables
16.	Soil testing – INM

#### Livestock, poultry, fisheries

Sl.No.	Thrust areas
1.	Breeding management in cows
2.	Feeding management in chicks
3.	Kid mortality inbreeding in goats
4.	Non availability of quality chicks and chick mortality
5.	Poultry carcass management
6.	Calf management

#### Others

Sl.No.	Thrust areas
1.	Income generation through self employment
2.	Value addition
3.	Popularization on packing of processed food
4.	Farm mechanization

### **PART III - TECHNICAL ACHIEVEMENTS**

#### 3.A. Details of target and achievements of mandatory activities

OFT				FLD			
1				2			
Number of OFTs		Number of farmers		Number of FLDs		Number of farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
8	8	78	108	10	10	85	87

Training				Extension Programmes			
3				4			
Number of Courses		Number of Participants		Number of Programmes		Number of participants	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
156	216	4440	9143	585	1045	3200	7221

Seed Production (Qtl.)		Planting materials (Nos.)	
5		6	
Target	Achievement	Target	Achievement
Ginger and turmeric - 5	10.96	5000nos.	6692 nos.
Fish fingerlings - Nil	3962 nos.	-	-
Livestock, poultry strains and fingerlings (No.)		Bio-products (Kg)	
7		8	
Target	Achievement	Target	Achievement
Pregnant heifer -10	6	Trichoderma-200 kg	273 kg
Goats-10	6	Pseudomonas – 200 kg	343 kg
Poultry – 10000	7689	Vermicompost – 1000kg	1050
-	-	FYM-5000	3835

### 3.B1. Abstract of interventions undertaken based on thrust areas identified for the district as given in Sl.No.2.7

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions										Supply of bio products	
				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.)	No.	Kg	
1	Crop intensification in coconut garden	Coconut+Banana+Nutmeg	Lack of suitable inter cropping practices in the coconut garden	Performance evaluation of mixed cropping of nutmeg variety <i>Viswasree</i> grafts in coconut garden		5	5	1	10	Seed Rhizome of Ginger variety-IISR Varada-5.78 Turmeric Variety-IISR Prabha-5.17(through participatory seed production Programme.)	923 viswasree grafts(through IISR Expl Farm)		No.	Kg	



2	Promotion of INM	Cassava	Non practicing of soil test based INM for yield and quality of choice variety of cassava	Effectiveness of Integrated nutrient management in local tapioca variety based on soil test data for higher yield and cooking quality		2			3					
3	Promotion of new production technologies	Black pepper	Lack of sufficient field , constraint of labour, Unavailability of green pepper year round in semi urban areas		Bush pepper production technology in pots	6	5	1	12		585 bush pepper			
4	Promotion of high yielding varieties	Black pepper	Low productivity of pepper		Demonstration of HY Vs of Black Pepper with high intrinsic qualities.	6	5	1	12		34917 rooted cuttings of HYVs of Black pepper(Through IISR Experimental Farm)			
5	Promotion of vegetable cultivation	Vegetables	Lack of self sufficiency in vegetable production	Protected cultivation of vegetables using low cost rainshelter	-	3			2	Seed as critical input			No.	Kg <i>Pseudomonas</i> – 3 kg

6	Promotion of fruit culture	Mango	Irregular bearing in mango	Induction of flowering in Olour mango through paclobutrazol application combined with INM and IPM		5	2	-	2	-	-	-	-	-
7.	Quality planting material production	Black pepper	Unavailability of quality planting materials	-	Serpentine method of rapid multiplication of planting material in black pepper”	1	1	-	2	-	50 rooted cuttings of released varieties	-	-	<i>Pseudomonas</i> – 20 kg <i>Trichoderma</i> – 50 kg
8.	Promotion of fruit culture	Banana	Low productivity of nendran banana		High density planting of tissue culture nendran banana	1			1		1666 tissue culture plants	-		<i>Pseudomonas</i> – 10 kg
9.	Promotion of nutrition garden and vegetable cultivation	Vegetables	Lack of self sufficiency in vegetable production			10	-	-	-	-	-	-	-	-
10.	Quality planting material production	Horticultural crops	Unavailability of quality planting materials				6	-	-	-	-	-	-	-

11.	High production technology of spices	Spices	Low productivity of spices			4		-	-	-	-	-	-	-
12.	Organic farming	Horticultural crops	Indiscriminate use of pesticides					2	-	-	-	-	-	-
13	Pest management	Bitter gourd	Attack of fruit flies in bitter gourd		Demonstration of pheromone trap for control of fruit fly in bitter gourd									
14	Disease management	Black Pepper	Incidence of Phytophthora foot rot in black pepper		Integrated disease management of Phytophthora foot rot of black pepper									
15	Pest management	Spice crops	Incidence of pests like pollu beetle, scale insects in pepper, shoot borer in ginger and turmeric			4								
16	Disease management	Spice crops	Incidence of quick wilt, slow wilt, pollu disease in pepper, soft rot, bacterial wilt in ginger, blight in nutmeg			4								
17	Management of pests and diseases	Coconut	Yield loss due to severe incidence of pests and diseases				3							

18	Pest and disease management	Paddy	Severe incidence of stem borer, leaf folder, blast, BLB, sheath rot , sheath blight			2								
19	Pest and disease management	Vegetables	Loss due to pests and diseases			2								
20	Popularisation of Bee Keeping	Apiculture	Lack of knowledge on enterprises for self employment				1							
21	Mushroom production	Mushroom	Lack of knowledge on mushroom production				1							
22	Familiarisation of botanicals and bio pesticides as a component of IPM	Vegetables	Residual effect of chemical pesticides on fruits and vegetables				1							
23	Integrated pest and disease management	Vegetables and banana	Loss due to pests and diseases			5								
24	Breeding management	Dairy	Infertility, poor conception, repeat breeding	Use of human placenta extract to augment fertility in repeat breeder crossbred cows	-	28	-	4	14	Human placenta extract and mineral mixture	-	-	-	-
25	Feeding management	Dairy	Low growth rate, late maturity, poor estrum response etc.	Effect of probiotic supplementation on growth performance in heifer calves	-	8	-	2	6	Calf starter, probiotics, Deworming	-	-	-	-

26	Waste management	Poultry	Unawareness of the use of poultry manure scorching effect	-	Demonstration of vermi composting using poultry manure	6	3	-	2	Vermi composting tank, earth worms	-	-	-	-
27	Poultry waste management	Poultry	Disposal of dead birds is a major problem	-	Composting of poultry carcass	6	3	-	2	Compost bin	-	-	-	-
28	Ornamental fish culture: Water quality management		Low survival rate of ornamental fishes. Disease out breaks. Poor water quality.	Use of bio-filters and probiotics in maintaining water quality of ornamental fish culture tanks		1		5						
29	Aquaculture: Cage culture of fresh and brackish water fishes		Non utilization of large water bodies for fish culture		FLD.1 Cage culture of <i>Pangasius</i> in large fresh water areas. FLD 2.Cage culture of pearl spot ( <i>Etroplus suratensis</i> ) in brackish water area	2		20						
30	Value addition	Nutmeg	Rapid fermentation of nutmeg squash	Quality analysis of nutmeg squash	-	17	16	1	6					

## 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	Performance evaluation of mixed cropping of nutmeg variety <i>Viswasree</i> graft in coconut garden 2	IISR	Nutmeg	1		5	Consultation-15+ Exposure visit of farmer groups-5+ Arranging planting material supply-10+ Popular article-1
2	Integrated nutrient management in choice variety of cassava based on soil test data for higher yield and cooking quality.	KAU	Cassava	1		3	Consultation -12+ Field visit-3+ Method demonstration-5
3	Demonstration of HYVs of Black Pepper with high intrinsic qualities.	IISR, Calicut	Black pepper		1	8	Consultation-15+ Method demonstration-10+ Farmer inter face-4
4.	Bush pepper production technology in pots	IISR, Calicut	Black pepper		1	4	Exposure visit-5+ Method demonstration-4+ Popular article-1
5	Rainshelter cultivation of vegetables	KAU, Thrissur	Vegetables	1	-	-	Radio talk – 1 Field day - 1
6	Induction of flowering in mango through hormone application combined with INM and IPM	CISH, Lucknow	Mango	1		1	Method demonstration – 1
7	High density planting of banana	KAU, Thrissur	Banana cv. Nendran	-	1	1	Method demonstration – 1
8	Serpentine method of planting material production in black pepper	KAU, Thrissur	Black pepper	-	1	4	Method demonstration – 3
9	Nutrition garden	KAU, Thrissur	Vegetables	-	-	7	-
10	Demonstration of pheromone trap for control of fruit fly in bitter gourd	KAU	Bitter gourd		1	2	
11	Integrated disease management of Phytophthora foot rot of black pepper	IISR	Black pepper		1	2	
12	Use of human placenta extract to augment fertility in repeat breeder crossbred cows	TANUVAS	Dairy	1	-	Y	Animal health campaigns, Field days
13	Effect of probiotic supplementation on growth performance in heifer calves	NDRI	Dairy	1	-	Y	Field day
14	Demonstration of vermicomposting using poultry manure	TANUVAS	Poultry	-	1	Y	Field day
15	Composting of poultry carcass	TANUVAS	Poultry	-	1	Y	Field day
16	Cage culture of fishes	Kerala Agriculture University (KAU)	Fresh and brackish water fishes		2	2	Field day 1
17	Water quality management of ornamental fish culture tanks	Central Institute of Fisheries Education (CIFE)	Ornamental fish	1		1	
18	Quality analysis of nutmeg squash	ITK	Nutmeg	1	-	34	

## 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
4		1						76	18	4	2	87	29	16	4
5								86	17	2	2	158	42	10	5
				9		1		38	9	2	1	141	26	4	2
				9	11	-	-	43	9	1	1	125	36	5	7
3	-	-	-	-	-	-	-	21	15	1	1	18	12	-	-
10	-	-	-	-	-	-	-	8	2	-	-	12	4	-	-
-	-	-	-	5	-	-	-	9	1	-	-	12	4	-	-
-	-	-	-	10	-	-	-	188	110	3	7	188	110	3	7
-	-	-	-	-	-	-	-	174	158	10	14	-	-	-	-
-	-	-	-	5	2	1	2	41	20	4	6	-	-	-	-
-	-	-	-	10	-	-	-	14	19	1	6	-	-	-	-
69	7	6	3	-	-	-	-	683	383	173	162	59	32	29	16
12	8	2	3	-	-	-	-	377	163	79	77	22	13	9	13
-	-	-	-	3	2	1	1	362	267	77	88	21	6	2	3
-	-	-	-	3	1	1	1	184	99	34	24	19	6	4	4
-	-	-	-	11	0	1	-	16	0	19	0	37	0	2	-
5	0	-	-	-	-	-	-	28	2	2	0	-	-	-	-
-	8	-	2	-	-	-	---	309	519	37	119	-	-	-	-

**PART IV - On Farm Trial**

## 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	2
Integrated Crop Management	-	-	-	-	-	1	-	-	-	1
Protected cultivation	-	-	-	-	1	-	-	-	-	1
<b>Total</b>	-	-	-	-	<b>1</b>	<b>1</b>		<b>1</b>	<b>1</b>	<b>4</b>

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

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	Total
Value addition	-	-	-	Nutmeg	-	-	-	-	-	1
<b>Total</b>	-	-	-	<b>1</b>	-	-	-	-	-	<b>1</b>

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

Thematic areas	Cattle	Poultry	Piggery	Rabbitry	Fisheries	TOTAL
Nutrition Management	1	-	-	-	-	1
Breeding Management	1	-	-	-	-	1
<b>TOTAL</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>

#### 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 trail covering all the Technological Options)
Integrated Nutrient Management	Cassava	Integrated nutrient management in choice variety of cassava based on soil test data for higher yield and cooking quality	5	5	1.5
Integrated Crop Management	Mango	Induction of flowering in Olour mango through paclobutrazol application combined with INM and IPM	5	5	30 trees
	Coconut+Nutmeg +banana	Performance evaluation of mixed cropping of nutmeg variety <i>Viswasree</i> grafts in coconut garden	5	5	1.5
Protected cultivation	Vegetables	Protected cultivation of vegetables using low cost rainshelter	3	3	300 m <sup>2</sup>
<b>Total</b>			<b>18</b>	<b>18</b>	<b>-</b>

#### 4.B.2. Technologies Refined under various Crops

Thematic areas	Crop	Name of the technology assessed	No. of trials	Number of farmers	Area in ha (Per trail covering all the Technological Options)
Value addition	Nutmeg	Quality analysis of nutmeg squash	4	10	-
	-	-	-	-	-
<b>Total</b>			<b>4</b>	<b>10</b>	<b>-</b>



#### 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
Nutrition management	Heifer calves	Use of human placenta extract to augment fertility in repeat breeder crossbred cows	25	25
Breeding management	Dairy	Effect of probiotic supplementation on growth performance in heifer calves	25	25
Disease management	Fisheries	Use of bucket filter and probiotic in ornamental fish culture tanks	5	5
<b>Total</b>			<b>55</b>	<b>55</b>

#### 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	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8	9	10	11	12
Coconut+Nutmeg+Banana	Irrigated upland	Coconut is the major crop in Calicut district occupying 87.6 % of total area under plantation crops and 78% of the agricultural holdings. Since most of the farmers have unutilized or underutilized interspaces in their coconut garden due to prevailing monocropping farmers are unable to get economic return from coconut holdings. Even though many intercrops are recommended farmers are not regularly	Performance evaluation of mixed cropping of nutmeg variety <i>Viswasree</i> graft in coconut garden	5	TO-1(Monocropping of coconut)  TO-2- Coconut+Banana(Njalipoovan variety)	AvgYield/ha  Net income per hectare  B/C  AvgYield/ha	11220nuts  Rs.33490  2.18  10540 nuts(coco nut)	The palms recorded an average yield of 65 nuts/year realizing a low gross income ofRs.61710 per ha.  The palms recorded an average yield of 62 nuts/palm realizing a gross income of Rs.57970 per ha.	Monocropping is not a desirable practice.	-	-



							crop in coconut garden.			
					TO-3(Coconut+Nutmeg)	(Coconut) Avg yield	10710	The coconut performed well with a gross income of Rs.58905 per ha.		
						Net income	32385			
						B/C	2.22	There was no income from nutmeg as the plants had not yet flowered.	Mixed cropping of side grafts of nutmeg variety Viswasree is not desirable.	Refinement of the technology is needed
						Nutmeg Growth)parameters( Average height	57.5cm			
						Average spread	60cm			
						Avg yield	Not started bearing			
						(Coconut)	10710nuts			
						Net income per ha.	32385			Since the growth performance of side grafts (plagiotrop) of IISR Viswasree is very poor only straight shoots(plagiotrop)grafts of the variety may be supplied to farmers for mixed cropping in coconut garden.

Cassava	Rainfed crop in upland condition	Cassava is the most important tuber crop in the district. The crop is gaining popularity as a safe calorie source for daily diet of rural and semi urban people alike. The crop comes up easily under rainfed system with average yield. However the premium price of Rs. 15/ a kilogram makes farmer, interested in going for commercial production in a scientific manner. Most of the farmers in Quilandy taluk are traditionally cultivating tapioca with local variety Ambakkadan and M.4 with good taste and cooking quality and moderate yield without following any scientific manuring recommendations. So it may be of help to test INM based on soil test data in these fields for these local varieties to get higher yield and without affecting cooking quality and taste. If proven this may make the tapioca cultivation more profitable and sustainable in these region.	: Integrated nutrient management in choice variety of cassava based on soil test data for higher yield and cooking quality.	5	<p><b>Technology Options</b> (Farmer's practice): Growing choice varieties without following scientific manuring. Using ash(200g+FYM (250g)+ fertilizer 20: 20 @ 100 g twice/plant</p> <p>Technology optionII: Growing of choice/local+ package of practice general recommendations (50:50:50 NPK/Kg/ha)</p> <p><b>Technology optionIII:</b> Growing of choice var. + INM based soil test data</p>	<p><b>Yield</b></p> <p><b>Cooking Quality</b></p> <p><b>B/C</b></p>	<b>Trial Progressing</b>	<b>Trial progressing</b>			
Mango	Rainfed	Irregular bearing in mango variety Olour	Induction of flowerin	5	Effect of hormone application on induction of	Regularity of bearing	100 % flowering in all	All the treated trees flowered in	Even though hormone	A higher dose of hormone	A higher dose

			g in Olour mango through paclobutrazol application combined with INM and IPM		flowering		treatments in first year. Flowering is delayed in all the treatments in second year due to climatic change and is still continuing in treated trees	first year, in second year; delayed flowering is noticed and is still continuing.	treatment induced flowering in all the treated trees in first year, the treatment was not so effective in second year.	than recommended may be needed for inducing regular bearing in mango under Kerala conditions .	only can induce regular bearing in mango as higher rainfall may have induced leaching of soil applied hormone.
Vegetables	Rainfed	Production of vegetables in Kerala is comparatively low during the monsoon period due to heavy rainfall and unfavourable growing conditions. Consequently a great demand exists for these vegetables during rainy season due to its limited supply.	Protected cultivation of vegetables using low cost rainshelter	3	Protected cultivation using low cost rainshelter	Yield Pest and disease incidence	Farmers harvested 25 to 30 percent additional yield compared to open field cultivation . The quality attributes of the produce were better with fewer incidences of diseases	Yield increase of 25 to 30 % compared to open field	Since the vegetables were organically produced, the farmers could easily sell out their produces at high remunerative prices	Since heavy winds are of common occurrence during monsoon season, wind breaks around the rainshelter are required to protect the structure.	--
Dairy ( Repeat breeder cow)	Semi intensive	Repeat breeding, long inter calving interval, Infertility, Poor breeding efficiency	Use of human placenta extract to augment fertility in repeat breeder crossbred cows	25 cows	Administration of human placental extract at the time of AI followed by second AI at 24 hrs interval during estrus	Conception rate	Conception rate T1-25, T2-25, T3-25	Conception rate T1-29% T2-47% T3-69%	Good technology for repeat breeder cows	-	-

Dairy (Heifer calves)	Semi intensive	Poor growth rate, Late maturity, Poor conception rate	Effect of probiotic supplementation on growth performance in heifer calves	20 calves	Probiotic supplementation along with concentrate feed	Growth rate, feed conversion efficiency	T1 growth rate: 59 kg FCR: 1.8 T2 Growth rate: 64 kg FCR: 1.64 T3 growth rate: 118 kg FCR: 1.4	T1 growth rate: 59 kg FCR: 1.8 T2 Growth rate: 64 kg FCR: 1.64 T3 growth rate: 118 kg FCR: 1.4	Feeding probiotic, control the incidence of disease like diarrhea improving growth rate in growing calves	-	-
Fisheries	Ornamental fish culture	Low survival rate of ornamental fishes. Disease out breaks. Poor water quality.	Use of bio-filters and probiotics in maintaining water quality of ornamental fish culture tanks	5	Use of bucket filter and probiotic in ornamental fish culture tanks	1. Survival 2. Disease out breaks 3. Water quality	Survival TO1:72% TO2: 85% TO3: 88% No disease out breaks Low ammonia content in TO2 and TO3	Improved survival rate and better water quality in tanks with bucket filters	bucket filter (bio filter has improved survival and water quality in culture tanks	No	

**Contd..**

Technology Assessed	Source of Technology	Production	Please give the unit (kg/ha, t/ha, lit/animal, nuts/palm, nuts/palm/year)	Net Return (Profit) in Rs. / unit	BC Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)	(Farmer's practice)	11220	Nuts/ha	33490	2.18
Technology option 2	KAU	Coconut-10540 Banana-14.4	nuts /ha t/ha	(Coconut+Banana) 259450	2.42
Technology option 3	IISR	Coconut-10710 Nutmeg-Not started yield	Nut/ha	32385	2.22

Technology option 1 (Farmer's practice): Growing choice varieties without following scientific manuring. Using ash(200g+FYM (250g)+ fertilizer 20: 20 @ 100 g twice/plant	KAU	Trail is in progress	-	-	-
Technology option 2 Growing of choice/local+ package of practice general recommendations (50:50:50 NPK/Kg/ha)	KAU	Trail is in progress			
Technology option 3 Growing of choice var. + INM based soil test data	KAU	Trail is in progress			
Technology option 1 (Farmer's practice) To induce regular bearing in mango, some of the farmers use smudging/smoking the field. But consistent results are not obtained by these treatments	-	25 kg per tree (first year)	Kg per tree	250 per tree	3.09
Technology option 2: Spraying of potassium nitrate 1% (10g/l) during November-December to induce flowering	TNAU, Coimbatore	28 kg per tree (first year)	Kg per tree	280 per tree	3.33
Technology option 3: Application (soil drenching) of paclobutrazol @ 1.5 g active ingredient per metre diameter of crop canopy. Proper nutrition and PP measures to ensure fruit set and retention of fruits with the recommended INM and IPM were followed as per the POP	Central Institute of Subtropical Horticulture, Lucknow	34 kg per tree (first year)	Kg per tree	340 per tree	3.73

Technology option 1 (Farmer's practice): Due to very high rainfall during South West monsoon, only limited number of farmers is taking up vegetable cultivation.	-	48 kg per 100 m <sup>2</sup>	kg per 100 m <sup>2</sup>	120 per 100 m <sup>2</sup>	1.20
Technology option 2: Growing of vegetables as per package of practice of KAU following proper manuring and plant protection measures.	KAU, Thrissur	64 kg per 100 m <sup>2</sup>	kg per 100 m <sup>2</sup>	260 per 100 m <sup>2</sup>	1.37
Technology option 3: Growing of vegetables during off season under self constructed bamboo framed low cost rain shelter. Production of cool season vegetables will also be tried	KAU, Thrissur	130 kg per 100 m <sup>2</sup>	kg per 100 m <sup>2</sup>	1150 per 100 m <sup>2</sup>	2.44
Technology option 1 (Farmer's practice) Oral feeding of raw egg along with gingelly oil	-	Conception rate in repeat breeder cows	-	15400	-
Technology option 2 Mineral mixture supplementation along with concentrate feed	KAU	Enhanced conception rate in repeat breeder cows following mineral supplementation	-	18500	-
Technology option 3 Administration of human placenta extract at the time of first insemination followed by second AI at 24 hrs interval during estrus	TANUVAS	Enhanced conception rate increased lactation yield, reduced inter calving interval	-	22300	
Technology option1 (Farmers practice) Feeding ground bajara along with groundnut/ coconut cake	-	Enhanced growth rate	59kg	-	-
Technology option 2 Feeding calf starter along with regular deworming	KAU	Improves growth rate feed conversion efficiency	64 kg	-	-



Technology option 3 Probiotic supplementation along with concentrate feeds	NDRI	Enhanced growth rate reduces the incidence of diarrhea, improve feed conversion efficiency	118 kg	-	-
Technology option 1 (Farmer's practice)	Farmers practice	576	576 fishes/m3 tank	932	2.17
Technology option 2	KAU	1360	1360 fishes/m3 tank	2440	2.48
Technology option 3	CIFE	1408	1408 fishes/m3 tank	2534	2.49

#### 4.C2. Details of each On Farm Trial for assessment

##### OFT-1

1 Title of Technology Assessed : Performance evaluation of mixed cropping of nutmeg variety *Viswasree* grafts in coconut garden

2 Problem Definition:

Under utilization of interspaces of coconut garden with suitable intercrops. Farmers generally follow monocropping of coconut. Since nutmeg is a crop that requires shade and has premium market, the released variety IISR Viswasree grafts were opted as a mixed crop component keeping Nalipoovan banana as the other option for assessing field performance

3 Details of technologies selected for assessment:

Technology option-I (Farmers practice)-Monocropping of coconut  
Technology option-II-Intercropping of banana (variety Njalipoovan)

Technology option-III-Mixed cropping with grafts of Nutmeg variety IISR Viswasree

4 Source of technology: KAU and IISR

5 Production system and thematic area: As a mixed crop in irrigated coconut garden. Developing suitable cropping models for the district.

6 Performance of the Technology with performance indicators:

Performance indicators	Technology option-II	Technology option-III
Growth parameters	Good crop of banana with avg bunch wt. of 9.6kg-two bunches harvested (1- plant crop+1 ratoon)+ few plants are bearing	Growth of side grafts were very poor with an average height of 57.5cm and spread of 60cm (compared to 118.75cm)

		height and 139.4cm spread of straight shoot grafts of elite nutmeg of farmer s.
Avg yield(nuts/ha)-coconut	10540	10710
AvgYield(t/ha)-Banana	14.4	Nutmeg-not started bearing
Net income/ha	(Rs.259450)	Coconut-32385
B/C	2.42	2.22

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques :Farmers expressed satisfaction and gave a score of 8/10 for intercropping of Banana(variety Njalipoovan) for TO-II
8. Final recommendation for micro level situation: Inter cropping of banana variety Njalipoovan is found to be highly rewarding for coconut cultivation especially in irrigated condition. The variety is suitable for the partially shaded condition and is tolerant to diseases and pests in general.
9. Constraints identified and feedback for research: The poor performance of side grafts of nutmeg was a major constraint. The reason for poor performance of side grafts may be explored by further research before popularizing the variety through side grafts. The possibility of tissue culture propagation techniques may be worked out to address planting material shortage.
- .10. Process of farmers participation and their reaction: Farmers were selected by field survey and discussion. They were very active and spared labour and FYM for the trial. Farmers were not satisfied with the performance of side grafts of nutmeg graft of IISR *Viswasree* and were reluctant to continue the trial with them

#### OFT2:

1. Title of Technology Assessed : Integrated nutrient management in choice variety of cassava based on soil test data for higher yield and cooking quality.

- 2 Problem Definition:

Cassava is the most important tuber crop in the district. The crop is gaining popularity as a safe calorie source for daily diet of rural and semi urban people alike. The crop comes up easily under rainfed system with average yield. However the premium price of Rs. 15/ a kilogram makes farmer, interested in going for commercial production in a scientific manner. Most of the farmers in Quilandy taluk are traditionally cultivating tapioca with local variety Ambakkadan and M.4 with good taste and cooking quality and moderate yield without following any scientific manuring recommendations. So it may be of help to test INM based on soil test data in these fields for these local varieties to get higher yield and without affecting cooking quality and taste. If proven this may make the tapioca cultivation more profitable and sustainable in these region.

- 3 Details of technologies selected for assessment:

TO1: Growing choice varieties without following scientific manuring. Using ash(200g+FYM (250g)+ fertilizer 20: 20 @ 100 g twice/plant

TO2: Growing of choice/local+ package of practice general recommendations (50:50:50 NPK/Kg/ha)

TO3: Growing of choice var. + INM based soil test data

- 4 Source of technology: KAU
- 5 Production system and thematic area: Rainfed crop in upland, Promotion of INM
- 6 Performance of the Technology with performance indicators: Trial is in progress
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques : Trial progressing successfully
- 8 Final recommendation for micro level situation: Not concluded
- 9 Constraints identified and feedback for research: Nil
- 10 Process of farmers participation and their reaction: Farmers were selected based on field survey. Farmers expressed good opinion about the trial.

### OFT3:

1. Title of Technology Assessed: Induction of flowering in Olour mango through paclobutrazol application combined with INM and IPM
- 2 Problem Definition : Irregular bearing in mango variety Olour
- 3 Details of technologies selected for assessment:
 

**TO1:** To induce regular bearing in mango, some of the farmers use smudging/smoking the field. But consistent results are not obtained by these treatments. So irregular/alternative bearing cannot be overcome by this method.

**TO2:** Spraying of potassium nitrate 1% (10g/l) during November-December to induce flowering (Source: TNAU, Coimbatore).

**TO3:** Application (soil drenching) of paclobutrazol @ 1.5 g active ingredient per metre diameter of crop canopy. Proper nutrition and PP measures to ensure fruit set and retention of fruits with the recommended INM and IPM were followed as per the POP. (Source: Central Institute of Subtropical Horticulture, Lucknow).
- 4 Source of technology: TNAU, Coimbatore & Central Institute of Subtropical Horticulture, Lucknow.
- 5 Production system and thematic area: Mango as a component of homestead cropping system promotion of fruit culture
- 6 Performance of the Technology with performance indicators: All the treated trees flowered in first year, in second year; delayed flowering is noticed and is still continuing.
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques: A higher dose of hormone than recommended may be needed for inducing regular bearing in mango under Kerala conditions.
- 8 Final recommendation for micro level situation: A higher dose only can induce regular bearing in mango as higher rainfall may have induced leaching of soil applied hormone.

- 9 Constraints identified and feedback for research: High cost of chemical is a major constraint. Shortage of labour for harvesting the crop is another constraint
- 10 Process of farmers' participation and their reaction: Olour is a highly cherished variety and fetches premium price in the market. Farmers actively participated in the trial throughout the period.

#### **OFT4**

1. Title of Technology Assessed: Protected cultivation of vegetables using low cost rain shelter
2. Problem Definition: Production of vegetables in Kerala is comparatively low during the monsoon period due to heavy rainfall and unfavourable growing conditions. Consequently a great demand exists for these vegetables during rainy season due to its limited supply.
3. Details of technologies selected for assessment:
  - TO1:** Due to very high rainfall during South West monsoon, only limited number of farmers is taking up vegetable cultivation.
  - TO2:** Growing of vegetables as per package of practice of KAU following proper manuring and plant protection measures.
  - TO3:** Growing of vegetables during off season under self constructed bamboo framed low cost rain shelter. Production of cool season vegetables will also be tried
- 4 Source of technology: KAU, Thrissur
- 5 Production system and thematic area: Coconut based cropping system with vegetables as intercrop enhancing production of vegetables
- 6 Performance of the Technology with performance indicators: Farmers harvested 25 to 30 percent additional yield compared to open field cultivation. The quality attributes of the produce were better with fewer incidences of diseases
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques Since heavy winds are of common occurrence during monsoon season, wind breaks around the rainshelter is required to protect the structure. Among the technological options, protected cultivation using low cost rainshelter was superior compared to open field.
- 8 Final recommendation for micro level situation: Protected cultivation of using low cost rainshelter will help to produce vegetables throughout the year. Quality parameters will also be superior with fewer incidences of pests and diseases.
- 9 Constraints identified and feedback for research: Since heavy winds are of common occurrence during monsoon season, damage of the rainshelter by wind is a major constraint faced. Hence a wind break around the rainshelter is required to protect the structure
- 10 Process of farmers' participation and their reaction: As the programme envisaged production of vegetables throughout the year, organically, farmers participated very actively. A harvest mela was also conducted in which large number of farmers around the area attended.

**OFT5**

- 1 Title of Technology Assessed:
  - a. Use of human placenta extract to augment fertility in repeat breeder crossbred cows.
- 2 Problem Definition:
  - a. Repeat breeding, long inter calving interval infertility, poor breeding efficiency
- 3 Details of technologies selected for assessment
  - a. Technology option 1: Oral feeding of raw egg along with gingelly oil
  - b. Technology option 2: Mineral mixture supplementation along with concentrate feed
  - c. Technology option 3: Administration of human placenta extract at the time of first insemination followed by second AI at 24 hrs interval during estrus
- 4 Source of technology: TANUVAS
- 5 Production system and thematic area:
 

Semi intensive production, breeding management, repeat breeding crossbred cows by intramuscular administration of human placenta extract at the time of first AI followed by second insemination at 24hrs interval during estrus.
- 6 Performance of the Technology with performance indicators
 

Conception:

T1: 29%

T2: 47% Mineral supplementation increased ovarian activity and improves conception

T3: 69% Administration of human placenta extract improved ovulatory response and increased conception rate
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques
 

The technologies are highly useful to improve conception rate in repeat breeder cows
- 8 Final recommendation for micro level situation
 

Recommended to adopt the technology if the milch cattle has not been conceived three or more insemination for better conception
- 9 Constraints identified and feedback for research
 

Skilled person is essential for entire treatment and conception rate was improved if the uterus is free from any microbial infection
- 10 Process of farmers participation and their reaction
 

Farmers are highly interested to adopt the technology and are good for repeat breeder cows.

**OFT6:**

1 Title of Technology Assessed: Effect of probiotic supplementation on growth performance in heifer calves

2 Problem Definition: Poor growth rate, late maturity, poor conception rate

3 Details of technologies selected for assessment:

a. Technology option 1: Feeding ground bajara along with ground nut/ coconut cake

b. Technology option2: Feeding calf starter along with regular deworming.

c. Technology option 3: Probiotic supplementation with concentrate feed

4 Source of technology: NDRI

5 Production system and thematic area:

Semi intensive system of calf rearing under homestead, feeding probiotic along with concentrate feed enhance growth performance by improving rumen microbial population, increased utilization of nutrients and absorption and reduced disease incidence like diarrhoea

6 Performance of the Technology with performance indicators

Technology option	Growth rate	FCR
T1	59 kg	1.8
T2	64 kg	1.64
T3	118 kg	1.4

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring

Techniques

Feeding probiotic to growing calves increased growth rate, controls diarrhea and overall the calf's immune system strengthened.

8 Final recommendation for micro level situation

The probiotic feeding is highly useful technology especially for growing calves

9 Constraints identified and feedback for research: NIL

10 Process of farmers participation and their reaction

Farmers are highly interested to adopt the technology for calves

**OFT7:**

1. Title of Technology Assessed : Use of bio-filters and probiotics in maintaining water quality of ornamental fish culture tanks

2 Problem Definition : Low survival rate of ornamental fishes. Disease out breaks. Poor water quality.

- 3 Details of technologies selected for assessment: Use of bucket filter and probiotic in ornamental fish culture tanks
- 4 Source of technology: KAU and CIFE
- 5 Production system and thematic area: Ornamental fish culture, water quality management
- 6 Performance of the Technology with performance indicators: Water quality management
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring  
Techniques: water quality parameters and B:C ratio
- 8 Final recommendation for micro level situation: Bucket filters ideal for improving water quality
- 9 Constraints identified and feedback for research: Nil
- 10 Process of farmers participation and their reaction: Satisfied

#### 4.D1. Results of Technologies Refined

##### Results of On Farm Trial

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology refined	Parameters of refined t	Data on the parameter	Results of refinement	Feedback from the farmer	Details of refinement done
1	2	3	4	5	6	7	8	9	10	11
Nutmeg	Inter cropping	Rapid fermentation and poor shelf life period	Quality analysis of nutmeg squash	4	One of the ingredient lac was replaced by rubia manjieshta	1.Shelf life period 2.Nutritional analysis	1.Shelf life period was extended up to 10 months 2.Quality remained in an acceptable level.	The product is found good enough to be commercialized.	1. The farmers commercialized the product. 2. Got additional income from the good quality homemade squash. 3. Minimized under utilization of nutmeg pericarp.	The ingredient of the product were nutmeg juice,sugar and manjieshta.the quality of the squash remained unchanged up to 8- 9months without any change at room temperature.On refrigeration the shelf life could be extended up 10 months. The quality analysis included estimation of vitamin.C.PH,sugar content etc.

Contd..

Technology Refined	Source of Technology for Technology Option1 / Justification for modification of assessed Technology Option 1	Production	Please give the unit (kg/ha, t/ha, lit/animal, nuts/palm, nuts/palm/year)	Net Return (Profit) in Rs. / unit	BC Ratio
12	13	14	15	16	17
Technology Option 1 (best performing Technology Option in assessment) <b>Nutmeg extract is mixed with sugar and make nutmeg syrup</b>	-	-	-	54	20:9
Technology Option 2 (Modification over Technology Option 1) <b>Nutmeg extract is mixed with sugar and lac to make nutmeg squash.</b>	ITK	Homestead		173	18:7
Technology Option 3 (Another Modification over Technology Option 1) <b>Juice of the nutmeg rind is blended with sugar and (rubia manjieshta) manchatti juice to make nutmeg squash</b>	ITK	Homestead		173	18:7

**4.D.2. Details of each On Farm Trial for refinement to be furnished in the following format separately as per the following details:**

1. Title of Technology refined :  
Quality analysis of nutmeg squash,
2. Problem Definition:  
Rapid fermentation and poor shelf life of the product.
3. Details of technologies selected for refinement:  
Juice of the nutmeg rind is blended with sugar and (*Rubia manjieshta*) manchatti juice to make nutmeg squash.
4. Source of technology-ITK
5. Production system and thematic area:



Homestead system and value addition.

6 Performance of the Technology with performance indicators:

Product possessed good quality and extended shelf life period.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques:

1.The farmers commercialized the product.

2. They got additional income from good quality homemade squash..

3.They can minimize under utilization of nutmeg pericarp.

8 Final recommendation for micro level situation:

Nutmeg squash is very good product suited for micro level situation. Since the ingredients are limited in number and the major ingredient (nutmeg rind) is easily available without any cost. Commercialization of the product can be done in both large scale and small scale. Since the production cost is very low.

9 Constraints identified and feedback for research:

1.Medicinal value and health effects-Since the nutmeg possess medicinal values, squash should also be analyzed for medicinal and therapeutic values.

2. Marketing-As this is an innovative product and not popular ,marketing is essential.

10 Process of farmers participation and their reaction

Four trials were conducted with the participation of farmers and after that they commercialized the product.

## **PART V - FRONTLINE DEMONSTRATIONS**

### **5.A. Summary of FLDs implemented during 2011-12**

Sl. No	Category	Farming Situation	Season and Year	Crop	Variety/ breed	Hybrid	Thematic area	Technology Demonstrated	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
									Proposed	Actual	SC/ST	Others	Total	
1	Vegetables	Pure crop	Summer, 2012	Bitter gourd	Preethi	-	Integrated Pest management	Demonstration of pheromone trap for control of fruit fly in bitter gourd	0.4	0.4	3	7	10	-
2	Fruit	Irrigated	Summer season 2012	Banana	Nendran	-	Promotion of fruit culture	High density planting of tissue culture nendran	0.5 ha	0.5 ha	-	5	5	--

3	Spices and condiments	Rainfed coconut based homesteads	2009 Kharif	Black pepper	IISR Sreekara		Promotion of high yielding varieties	Demonstration of HYVs of Black Pepper with high intrinsic qualities+IDM	6	6	1	9	10	-
4	Spices and condiments	House holds of semi urban areas with lack of space for conventional planting of pepper	2009 Kharif	Black pepper	Karimunda		Self sufficiency of homestead, Popularising of bush pepper technology	Bush pepper production technology in pots	200pots	200pots		20	20	-
5	Spices and condiments	Irrigated	Rabi season 2011	Black pepper	Sreekara IISR Thevam Subhakara	Girimunda Malabar Excel	Quality planting material production	Serpentine method of rapid multiplication of planting material in black pepper	50 cuttings each	50 cuttings each	-	10	10	--
6	Spices and condiments	Mixed farming	2012	Black pepper	Karimunda,, Panniyur-1, Panjami, Pournami, Arkkalamunda	-	Integrated management of diseases of spices	Integrated disease management of <i>Phytophthora</i> foot rot of black pepper	0.2	0.2	-	10	10	-
7	Poultry	Backyard poultry rearing	All	Layers	Gramasree	-	Vermi composting using poultry manure (waste management)	Demonstration of vermin composting using poultry manure	5	5	1	4	5	-
8	Poultry (Broiler)	Intensive	All	Broilers	Broiler chicks	-	Waste management (Poultry carcass disposal management)	Composting of poultry carcass	5	5	1	4	5	-
9	Cage culture of fishes	Newly introduced	Sept. to Aug.	Brackish water Fish	Perl spot	-	Fish culture	Cage culture of fishes	2m <sup>3</sup> 5 cages	2m <sup>3</sup> 6 cages	Nil	6	6	Nil
10	Cage culture of fishes	Newly introduced	Sept. to Aug.	Fresh water Fish	Tiger shark	-	Fish culture	Cage culture of fishes	2m <sup>3</sup> 5 cages	2m <sup>3</sup> 6 cages	1	5	6	Nil

### 5.A. 1. Soil fertility status of FLDs plots during 2011-12

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	Fruit: Banana	Irrigated	Summer season 2012	Banana	Nendran	-	Promotion of fruit culture	High density planting of tissue culture nendran banana	Summer season 2012	198 kg/ha	7.32 kg/ha	63.55 kg/ha	Cassava
2	Spices and condiments	Rain fed Coconut based homestead	2009	Black pepper	Sreekara		Popularisation of HYVs	Demonstration of HYVs of Black Pepper with high intrinsic qualities+IDM	2011 Rabi	0.84	12.51	9.85	Cowpea+Tubers

\* The demonstration is production of planting materials in polybags, NPK status was not assessed

### 5.B. Results of Frontline Demonstrations

#### 5.B.1. Crops

Crop	Name of the technology demonstrated	Variety	Hybrid	Farming situation	No. of Demos	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										
Vegetables	Demonstration of pheromone trap for control of fruit fly in bitter gourd	Preethi	-	Pure crop	10	0.4	90	70	80	55	31	49,925	1,60,000	1,10,075	3.2	39,600	82,500	42,900	2.08
Fruit	High density planting of tissue culture nendran banana	Nendran	--	Irrigated	5	0.5	@	@	@	@	@	@	@	@	@	@	@	@	@
Spices and condiments	Demonstration of HYVs of Black pepper+IDM	Sreekara		Rainfed Coconut based homestead	10	6	26.25	15	18.75	16.87	23	69750	226313	156563	3.24	37500	59640	22140	1.59

Spices and condiments	Bush pepper technology in pots	Karimunda		Semi urban house holds.	20	200pots	0.380Kg/pot (dry)	0.100kg/pot	0.198kg/pot(dry)	Not practiced	-	238/pot	500/pot	262/pot	2.1	-	-	-	
Spices and condiments	Serpentine method of rapid multiplication of planting material in black pepper	Sreekara, IISR Thevam, Subhakara	Girimunda, Malabar Excel	Irrigated	10	50 cuttings each	Production of 32 new cuttings from one rooted cutting in 6 months	Production of 28 new cuttings from one rooted cutting in 6 months	Production of 25 new cuttings from one rooted cutting in 6 months	Production of 30 new cuttings from one rooted cutting in 6 months	20	#	#	#	#	#	#	#	#
Spices and condiments	Integrated disease management of <i>Phytophthora</i> foot rot of black pepper	Karimunda, Panniyur-1, Panjami, Pournami, Arkkalamunda	-	Mixed farming	10	0.2	38	20	29	4.8	83	1,06,182	3,15,810	2,09,628	2.97	25,150	51,810	26,660	2.06

@ Planting completed during February 2012. Demonstration is in progress.

# Economics can be worked out only after one year.

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

\*\* BCR= GROSS RETURN/GROSS COST

H – Highest Yield, L – Lowest Yield A – Average Yield

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

### 5.B.2. Livestock and related enterprises

Type of livestock	Name of the technology demonstrated	Breed	No. of Demo	No. of Units	Yield (q/ha)			% 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															
Poultry	Demonstration of vermicomposting using poultry manure	Gramasree	5	5	-	-	-	-	-	-	-	-	-	-	Demonstration is in progress	-	-
Poultry	Composting of poultry carcass	Broiler chicks	5	5	-	-	--	-	-	-	-	-	-	-	Demonstration is 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

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

### 5.B.3. Fisheries

Type of Breed	Name of the technology demonstrated	Breed	No. of Demo	Units/ Area (m <sup>2</sup> )	Yield (q/ha)			% Increase	*Economics of demonstration Rs./unit or (Rs./m <sup>2</sup> )				*Economics of check Rs./unit or (Rs./m <sup>2</sup> )				
					Demo				Check if any	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
					H	L	A										
Brackish water fishes	FLD 1.Cage culture of pearl spot ( <i>Etroplus suratensis</i> ) in brackishwater area	Pearl spot ( <i>Etroplus suratensis</i> )	6	2m <sup>3</sup>													
Fresh water fishes	FLD 2. Cage culture of <i>Pangasius</i> in large fresh water areas	Tiger shark <i>Pangasius</i>	6	2m <sup>3</sup>													

\* 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.): Nil

5.B.4. Other enterprises: Nil

5.B.5. Farm implements and machinery: Nil

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

Sl.No.	Activity	No. of activities organised	Number of participants	Remarks
1	Field days	7	154	3nos- for HYVblack pepper+2 nos. for Bushpepper demonstration
2	Farmers Training	12	634	Spices production technology Bio control practices in pepper Bush pepper production technique
3	Media coverage	-	-	-
4	Training for extension functionaries	2	88	District level for Ag.Officers/Agri department.
5	Others (Please specify)	5	114	To farmers during planting and field application of bio agents.

**PART VI – DEMONSTRATIONS ON CROP HYBRIDS: Nil**

**PART VII. TRAINING**

**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
<b>Crop Production</b>										
Resource Conservation Technologies	3	32	24	56	7	10	17	39	34	73
Cropping Systems	3	56	42	98	4	4	8	60	46	106
Integrated Crop Management	3	28	32	60	4	2	6	32	34	66
Integrated Nutrient Management	4	48	24	72	5	2	7	53	26	79
<b>Horticulture</b>										
<b>a) Vegetable Crops</b>										
Cultivation of vegetables	3	106	81	187	-	6	6	106	87	193
<b>b) Fruits</b>										
HDP of tissue culture nendran banana	1	10	-	10	-	-	-	10	-	10
<b>c) Tuber crops</b>										
Production and Management technology	2	99	9	108	4	2	6	103	11	114
Production and Management technology	2	43	12	55	1	1	2	44	13	57
<b>d) Spices</b>										
Production and Management technology	3	146	132	278	15	7	22	161	139	300
Others (pl.specify)Mushroom	2	26	34	60	2	8	10	28	42	70
<b>e) Medicinal and Aromatic Plants</b>										
Production and management technology	1	97	32	129	2	4	6	99	36	135
<b>Soil Health and Fertility Management</b>										
Soil fertility management	1	33	-	33	-	-	-	33	-	33
<b>Livestock Production and Management</b>										
Dairy Management	4	66	40	106	14	16	30	80	56	136
Poultry Management	6	125	76	201	24	17	41	149	93	242
Goatary Management	9	116	82	198	5	14	19	121	96	217



Protected cultivation	2	31	7	38	-	-	-	31	7	38
Cultivation of vegetables	3	72	59	131	10	10	20	82	69	151
Recent advances in the production technology of vegetables	1	48	22	60	-	-	-	48	22	60
<b>b) Fruits</b>										
Recent advances in the production technology of banana	1	48	6	54	8	4	12	56	10	66
HDP of banana	1	9	1	10	-	-	-	9	-	9
Hormonal regulation of flowering in mango	1	10	-	10	-	-	-	10	-	10
<b>c) Spices</b>										
Production and Management technology	5	202	143	345	2	8	10	204	151	355
<b>Soil Health and Fertility Management</b>										
Soil fertility management	1	29	7	36	-	-	-	29	7	36
Balanced use of fertilizers	1	38	16	54	2	-	2	40	16	56
<b>Livestock Production and Management</b>										
Dairy Management	6	167	96	263	44	38	82	211	134	345
Poultry Management	6	124	107	231	32	21	53	156	128	284
Goatary Management	1	29	11	40	7	8	15	36	19	55
Breeding Management	7	197	127	324	67	65	132	264	192	456
Animal Nutrition Management	4	189	79	268	34	30	64	223	109	332
Animal Disease Management	4	142	100	242	28	24	52	170	124	294
Feed and Fodder technology	5	142	66	208	25	28	53	167	94	261
Indigenous medicine in animal treatment	5	288	124	412	81	62	143	369	186	555
<b>Home Science/Women empowerment</b>										
Designing and development for high nutrient efficiency diet	1	6	22	28	5	8	13	11	30	41
Value addition	2		56	56		6	6		62	62
<b>Plant Protection</b>										
Integrated Pest Management	2	79	35	114	2	4	6	81	39	120
Integrated Disease Management	2	82	27	109	3	3	6	85	30	115
Bio-control of pests and diseases	2	45	24	69	3	1	4	48	25	73
Others (Integrated Pest and Disease Management)	2	41	20	61	4	6	10	45	26	71



<b>TOTAL</b>	<b>76</b>	<b>2236</b>	<b>1380</b>	<b>3616</b>	<b>380</b>	<b>832</b>	<b>712</b>	<b>2460</b>	<b>1710</b>	<b>4170</b>
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### 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	3	77	39	116	8	7	15	85	46	131
Integrated farming	7	118	17	140	3	1	4	121	18	139
Production of organic inputs	1	20	-	20	-	-	-	20	-	20
Mushroom Production	1	-	20	20	-	2	2	-	22	22
Bee-keeping	1	42	4	46	2	-	2	44	4	48
Value addition	1	6	22	28	5	8	13	11	30	41
Tailoring and Stitching	1		14	14		5	5		19	19
Rural Crafts	3		39	39		8	8		47	47
Goat rearing	6	51	47	98	4	11	15	55	58	113
Quail farming	2	34	32	66	13	4	17	47	36	83
Ornamental fisheries	7	263	82	345	17	6	23	280	88	368
Composite fish culture	3	87	16	103	1	0	1	88	16	104
Basics of plant propagation	1	-	18	18	-	4	4	-	22	22
Integrated Pest Management	2	14	19	33	1	6	7	15	25	40
Integrated Disease Management	1	14	-	14	1	-	1	15	-	15
Production of bio control agents and bio pesticides	1	27	-	27	-	-	-	27	-	27
Location specific drudgery reduction	7	101	-	101	16	-	16	117	-	117
<b>TOTAL</b>	<b>48</b>	<b>954</b>	<b>369</b>	<b>1323</b>	<b>71</b>	<b>62</b>	<b>133</b>	<b>840</b>	<b>431</b>	<b>1271</b>

### 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
Mushroom Production	1	-	15	15	-	-	-	-	15	

Small scale processing	2	42		42		5	5		47	47
Backyard poultry rearing	4	79	52	131	19	14	33	98	66	164
Ornamental fisheries	8	167	139	306	16	9	25	183	148	331
Composite fish culture	6	156	89	245	12	10	22	168	99	267
Cage and pen culture of fishes	2	16	0	16	19	0	19	35	0	35
Live feed culture for ornamental fishes	1	26	2	28	2	0	2	28	2	30
<b>TOTAL</b>	<b>24</b>	<b>486</b>	<b>297</b>	<b>783</b>	<b>68</b>	<b>38</b>	<b>106</b>	<b>512</b>	<b>377</b>	<b>889</b>

#### 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
Women and Child care	1		15	15		4	4		19	19
Broiler goat rearing	4	31	-	31	3	-	3	34	-	34
Livestock feed and fodder production	4	19	27	46	3	6	9	22	33	55
Reservoir fisheries	1	10	4	14	10	0	10	20	4	24
Banned pesticides and its alternatives	2	93	108	201	5	6	11	98	114	212
<b>Total</b>	<b>12</b>	<b>153</b>	<b>154</b>	<b>307</b>	<b>21</b>	<b>16</b>	<b>37</b>	<b>174</b>	<b>170</b>	<b>344</b>

#### 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
Spices Production technology	1	24	19	43	3	2	5	27	21	48
<b>Total</b>	<b>1</b>	<b>24</b>	<b>19</b>	<b>43</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>27</b>	<b>21</b>	<b>48</b>

#### 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
<b>1</b>	<b>Crop production and management</b>										
<b>2</b>	<b>Plant Protection</b>	<b>14</b>	<b>708</b>	<b>766</b>	<b>1474</b>	<b>41</b>	<b>43</b>	<b>84</b>	<b>749</b>	<b>809</b>	<b>1558</b>
<b>3</b>	<b>Production and value addition</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>--</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

3.a.	Spices crops	3	156	128	284	9	7	16	165	135	300
<b>4</b>	<b>Post harvest technology and value addition</b>	-	-	-	-	-	-	-	-	-	-
4.a.	Processing and value addition	1	5	82	87	-	13	13	5	95	100
<b>5.</b>	<b>Livestock and fisheries</b>										
<b>6</b>	<b>Livestock production and management</b>										
6.a.	Animal Disease Management	1	-	29	29	-	4	4	-	33	33
6.b.	Goat rearing	2	-	91	91	-	24	24	-	115	115
6.c.	Fisheries Management	-	-	-	-	-	-	-	-	-	-
6.d.	Broiler goat rearing	1	-	22	22	-	1	1	-	23	23
<b>7.</b>	<b>Home Science</b>										
7.a.	Economic empowerment of women	1		20	20		5	5		25	25
7.b.	Drudgery reduction of women	7	114		114	20		20	134		134
<b>8</b>	<b>Agricultural Extension</b>										
8.a.	Ornamental fish culture	8	235	100	335	15	6	21	250	106	356
	Fresh water fish culture	1	12	28	40	0	2	2	12	30	42
	<b>Total</b>	<b>29</b>	<b>1230</b>	<b>1266</b>	<b>2496</b>	<b>85</b>	<b>105</b>	<b>190</b>	<b>1315</b>	<b>1371</b>	<b>2686</b>

#### Details of sponsoring agencies involved

1. District Panchayat
2. Kudumbasree Mission
3. Coconut Development Board
4. Directorate of Arecanut and Spices Development

#### 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	
<b>1.</b>	<b>Income generation activities</b>											
1.a.	Tailoring, stitching, embroidery, dying etc.	1		15	15		4	4		19	19	
1.b.	Nursery management	1	14	-	14	3	2	5	17	2	19	
	<b>Grand Total</b>	<b>2</b>	<b>14</b>	<b>15</b>	<b>29</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>17</b>	<b>21</b>	<b>38</b>	

### PART VIII – EXTENSION ACTIVITIES

#### 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	18	211	76	287	28	17	45	18	12	30
Kisan Mela	10	571	273	844	20	14	34	39	27	66
Kisan Ghosthi	6	523	459	982	22	19	41	34	47	81
Exhibition	14	-	-	-	-	-	-	-	-	-
Film Show	76	1017	616	1633	50	29	79	21	20	41

Method Demonstrations	42	1068	446	1514	34	22	56	8	7	15
Farmers Seminar	15	705	773	1478	145	108	253	37	23	60
Group meetings	5	49	78	127	13	9	22	6	2	8
Lectures delivered as resource persons	4	36	12	48	3	1	4	2	1	3
Newspaper coverage	4	-	-	-	-	-	-	-	-	-
Radio talks	6	1000's	-	-	-	-	-	-	-	-
Popular articles	2	-	-	-	-	-	-	-	-	-
Extension Literature	4	-	-	-	-	-	-	-	-	-
Advisory Services	1446	426	248	674	15	4	19	24	21	45
Scientific visit to farmers field	247	53	22	75	2	3	5	5	4	9
Farmers visit to KVK	7328	-	-	-	-	-	-	-	-	-
Diagnostic visits	33	30	10	40	21	16	37	11	11	22
Exposure visits	14	158	172	330	29	19	48	10	10	20
Soil health Camp	4									
Animal Health Camp	3	52	36	88	22	35	57	4	2	6
Soil test campaigns	3	82	15	97	0	0	0	14	3	17
Self Help Group Conveners meetings	1	31	19	50	1	3	4	5	2	7
Celebration of important days (specify)	1	34	8	42	0	0	0	5	3	8
Study Tours	3	49	30	79	28	16	44	4	3	7
Helpline	1249	-	-	-	-	-	-	-	-	-
E-mail	129	-	-	-	-	-	-	-	-	-
AI	271	-	-	-	-	-	-	-	-	-
Farmers' visit to Animal Clinic	1243	-	-	-	-	-	-	-	-	-
Ksheerotsavam	5	604	341	945	114	89	203	10	28	38
Vaccination	RDV 22100 (chicks)	-	-	-	-	-	-	-	-	-
	IBD 20225 (chicks)	-	-	-	-	-	-	-	-	-
	FMD 181 cows	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>-</b>	<b>6699</b>	<b>3634</b>	<b>10333</b>	<b>555</b>	<b>404</b>	<b>959</b>	<b>257</b>	<b>226</b>	<b>483</b>

## PART IX – PRODUCTION OF SEED, PLANT AND LIVESTOCK MATERIALS

### 9.A. Production of seeds by the KVKs

Crop category	Name of the crop	Variety	Hybrid	Quantity of seed (qtl)	Value (Rs)	Number of farmers to whom provided
Spices	Ginger	IISR Varada	-	5.79	28950	72
	Turmeric	IISR Prabha	-	5.18	23310	71
<b>Total</b>				<b>10.97</b>	<b>52260</b>	<b>143</b>

## 9.B. Production of planting materials by the KVKs

Crop category	Name of the crop	Variety	Hybrid	Number	Value (Rs.)	Number of farmers to whom provided
Fruits	Mango grafts	Bennet Alphonso, Kalepady, Sindhu, Benganapally, Suvarnarekha	-	1228	61400	624
	Rambutan seedlings	Elite lines	-	296	5920	273
	Mangosteen seedlings	Elite lines	-	50	6000	48
	Jack graft	Muttom varikka	-	15	1050	12
	Sapota graft	Cricket ball, Pala	-	130	7800	98
Ornamental plants	Ornamental palms	--	99	1485		59
	Misc. ornamental trees	-	-	51	765	41
	Lovi lovi seedlings	Elite lines	-	11	220	10
	Anthurium	Tropical, Can can	-	20	300	12
	Misc. ornamental palms	-	-	45	450	38
Plantation	Arecanut seedlings	Mohitnagar, South Kanara	-	1400	16800	118
	Cocoa	-	CCRP hybrids	2389	47780	143
	Cashew graft	Priyanka, Damodar	-	50	2000	36
	Dwarf arecanut	-	-	4	2000	4
Spices	Bush pepper plants	Sreekara,	Panniyur - 1	585	1764	286
	Bush pepper in pots	Sreekara,	Panniyur - 1	20	5000	18
	Garcinia graft	Elite lines	-	49	2940	41
Forest Species	Neem seedlings	-	-	100	1500	87
	Mahagony seedlings	-	-	150	1500	32
<b>Total</b>				<b>6692</b>	<b>166674</b>	<b>1980</b>

## 9.C. Production of Bio-Products

Bio Products	Name of the bio-product	Quantity Kg	Value (Rs.)	Number of farmers to whom provided
Bio Fertilizers / Bio products	Farm yard manure	3835 cft	131475	IISR Exp. Farm
	Vermicompost	1050	10500	48

Bio Agents	<i>Trichoderma</i>	273	20,475	153
	<i>Pseudomonas</i>	343	20580	182
Pheromone traps	Methyl euginol trap	38 nos	3800	38
	Cuelure	49 nos	6125	52
<b>Total</b>		<b>5588</b>	<b>192,955</b>	<b>473</b>

#### 9.D. Production of livestock materials

Particulars of Live stock	Name of the breed	Number	Value (Rs.)	Number of farmers to whom provided
<b>Dairy animals</b>				
Cows (Pregnant heifer)	Jersey and HF cross bred, Murrah	6	86651	6 farms
<b>Poultry</b>				
Layers chicks	Kalinga brown, gramasree etc.	7689	538230	2431
Goats	Malabari	6	18200	6
<b>Fisheries</b>				
Fingerlings Ornamental fishes	Live bearer fishes	3962	11886	247
<b>Total</b>		<b>11663</b>	<b>654967</b>	<b>2690</b>

### PART X – PUBLICATION, SUCCESS STORY, SWTL, TECHNOLOGY WEEK AND DROUGHT MITIGATION

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

##### (A) KVK News Letter

Date of start- January-2003, Periodicity- Half yearly, number of copies distributed: 100

##### (B) Literature developed/published

Item	Title	Authors name	Number
Research papers	Farmer participatory seed production:key to address planting material shortage of High Yielding varieties.	Prakash,K.M.,Manoj,P,S and Arumuganathan,T	1
Technical reports	Annual Report, Action Plan report. 12 th plan document, Best KVK award report for ICAR, QRT report	All SMS	-
News letters	KVK news letter	All SMS	2 nos (100 copies)
Popular articles	Harvest pepper on terrace through bush pepper.	Prakash,K.M.	1 1

	Cheruvally style-a new hope for pepper cultivation. Participatory seed production –A high yielding success. Innovations of a nutmeg farmer Innovative technologies come to the rescue of Kerala farmers- A Success story, Fishing Chimes (2011)31: 61-63 <i>Veettiloru Poshakathottam</i> (Nutrition Garden). <i>Karshakan</i> (February 2012)	Prakash,K.M.  Prakash,K.M.  Prakash,K.M. and Mathew,P.A.  Pradeep B.  Nazia Sherif and Manoj, P.S	1  1  1  1
Extension literature	i) Nutrition garden ii) Anthurium cultivation iii) Banana cultivation iv) Soil testing for higher returns v) Care of pregnant post partum cows	i) Manoj, P.S. and Nazia Sherif ii) Nazia Sherif and Manoj, P.S iii) Nazia Sherif and Manoj, P.S iv) Nazia Sherif and K M Prakash v) Dr. S Shanmugavel	1 (500 copies)
Projects	Project on Gardeners' Training Project on Protected cultivation of vegetables under ATMA programme	i) P.S. Manoj, ii) P.S.Manoj,	1
<b>TOTAL</b>	-	-	-

#### 10.B. Details of Electronic Media Produced

S. No.	Type of media (CD / VCD / DVD/ Audio-Cassette)	Title of the programme	Number
1	CD	District profile: "E – book on inventory of agriculture of Kozhikode district	1
2	VCD	KVK at a glance	2 documentaries
3	VCD	<b>Broiler goat rearing</b>	<b>50</b>
4	DVD	<b>Feminine friends of coconut</b>	<b>15</b>
5	DVD	<b>Friends of coconut</b>	<b>15</b>

#### 10.C. Success Stories / Case studies, if any

'Friends of coconut' is a training programme which is aimed at providing employment opportunities for the unemployed youth. It was done in collaboration with Coconut development Board, Cochin. The programme included 7 batches of which 6 batches has been successfully completed .The training was empowered with different skill development programme. Though the main focus is to introduce a new technique for climbing coconut trees with the help of a machine. The other aspects covered during the training programme were seed nut selection, nursery management, identification of disease and pest and their management.

Among the 6 batches 25 trainees were women. After the training six trained women out of 25, selected coconut climbing as their livelihood. A few days after training the women searched for job (coconut climbing) in the nearby areas. But the people in that area couldn't bear women climbing trees and they mocked the women. This did not affect the women. They again tried to get the job and taking it as a challenge. Later the people in that area realized that they are mistaken and now they are searching for the same women for coconut climbing. When there is a high demand people are ready to offer even vehicles to pick up them. The women can climb up to 30-50 trees per day.

During the days having heavy wind, they avoid climbing since it is a hilly area. But they have to do the job in all other sunny days. They are now a relief for the people who did not harvest coconut trees for 5-6 months due to the lack of climbers.

Before the training male climbers got Rs.200-300 per day. They could climb a maximum of 20- 30 trees per day. But after training with the help of the machine, the trained climbers are getting Rs.700 per day through coconut climbing since they can climb 70 coconut trees per day.

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

**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	Banana	Chopping of leaves half length at half maturity of bunch (Variety Njali Poovan)	Better size and appearance of fingers

**10.F. Indicate the specific training need analysis tools/methodology followed for-NIL**

- Identification of courses for farmers/farm women: ATMA meetings, discussion during farmer interactions, feedback during training, seminar field visit etc
- Rural Youth: Farmers seminar, feedback during training, seminar, field visit etc
- In-service personnel: Based on demand and FLD programmes.

**10.G. Field activities**

- i. Number of villages adopted: 6
- ii. No. of farm families selected:30
- iii. No. of survey/PRA conducted:2



### 10.H. Activities of Soil and Water Testing Laboratory

Status of establishment of Lab :

1. Year of establishment : 2005
2. List of equipments purchased with amount :

Sl. No	Name of the Equipment	Qty.	Cost (Rs.)
1	Electronic physical balance	1	6160
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
Total		15	498592

#### Details of samples analyzed so far since establishment of SWTL:

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages	Amount realized (Rs.)
Soil Samples	1754	1754	8	-
Water Samples	23	23	5	-
<b>Total</b>	<b>1777</b>	<b>1777</b>	<b>13</b>	-

#### Details of samples analyzed during the 2011-12 :

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages	Amount realized (Rs.)
Soil Samples	752	752	4	
Water Samples	16	16	-	
<b>Total</b>	<b>768</b>	<b>768</b>	<b>4</b>	

### 10.I. Technology Week celebration during 2011-12

Period of observing Technology Week: From 16.2.12 to 18.2.12

Total number of farmers visited : 1000's

Total number of agencies involved : 25

Number of demonstrations visited by the farmers within KVK campus: 5

#### Other Details

Types of Activities	No. of Activities	Number of Farmers	Related crop/livestock technology
Gosthies	-	-	
Lectures organized	3	300	Recent production technology of plantation crops and spice, animal husbandry
Exhibition	22 stalls	2000	Major research achievements in the field of agriculture and allied fields
Film show	4	1000	Spices production technology
Farm Visit	3 days	250	Production ethnology of spices
Supply of Literature (No.)	5	100s	Vermiculture, Nutrition garden, anthurium cultivation, broiler got production, soil testing
Supply of Seed (q)	10 kg	100s	Vegetable seeds
Supply of Planting materials (No.)	580	100s	Fruits, plantation crops and spices etc
Bio Product supply (Kg)	18	1215	Trichoderma and pseudomonas
Pheromone traps	31	3525	MET and Cuelure
Supply of fingerlings	264	18	Ornamental fishes
Total number of farmers visited the technology week	-	2000	-

KVK in association with The Indian Institute of Spices Research (IISR), Kozhikode organized a three day kisan mela and agricultural technology exhibition, **Krishi Jalakam 2012**, from February 16-18 in which around five hundred farmers participated. Around 25 agricultural institutes and governmental/non governmental agencies exhibited various technologies developed by them. More than two thousand people visited the stalls.

KVK also felicitated innovative farmers for their achievements in various fields of agriculture including John Joseph, a dairy farmer from Kodanchery, George Vazhapparambil, a black pepper farmer from Anakkampoyil and Prakashan Thatteri, an entrepreneur who developed a coconut/arecanut climbing machine. The innovative farmers also shared their experiences during the event. More than 20 research institutes and governmental organizations including Central Plantation Crops Research Institute (CPCRI), Kasaragod; Central Tuber Crops Research Institute (CTCRI), Trivandrum; Indian Institute of Spices Research (IISR) Kozhikode; Central Institute of Fisheries Technology (CIFT), Cochin; Directorate of Arecanut and Spices Development (DASD), Calicut; Centre for Water Resources Development and Management (CWRDM), Kunnammangalam, National Research Centre for Banana, Trichy; National Horticulture Research and Development Foundation (NHRDF); Milma Kunnammangalam, Kelappaji College of Agricultural Engineering, Thavanur; Farm Information Bureau and Vegetable and Fruit Promotion Council Kerala (VFPCCK) exhibited various technologies and machineries developed by them. High quality planting materials of various spice and other crops are also sold during the mela.

**10. J. Interventions on drought mitigation: Nil****PART XI. IMPACT****11.A. Impact of KVK activities (Not to be restricted for reporting period).**

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)
Backyard poultry rearing	587	96%	1250	3450
Goat rearing	272	72%	5250	13780
Indigenous medicine in animal treatment	555	100%	550	2100
Broiler chicken production	99	40%	3000	7500

**11.B. Cases of large scale adoption: Nil****11.C. Details of impact analysis of KVK activities carried out during the reporting period: Nil****PART XII - LINKAGES****12.A. Functional linkage with different organizations**

KVK is maintaining functional linkages with All India Radio, the State Dept. of Agriculture, Dept. of Animal Husbandry, Dept. of Fisheries, Matsyafed, Agri-Horti Society, Calicut, Gramin Banks around KVK Voluntary organizations etc. to organise various training programmes and other extension activities like animal health camps, seminars and exhibitions.

**Linkage with other organisations for information, technology etc.**

Sl. No	Name of Organization	Nature of linkage
a.	Spices Board, Cochin	Information on technology of various aspects of vanilla cultivation, development scheme, marketing etc.
b.	Central Food Technological Research Institute, Mysore	Information on technology of food preservation
c.	Tropical Botanical Garden and Research Institute, Palode	Supply of rare species of medicinal plants

d.	Kerala Forest Research Institute, Trichur	Cultivation technology of rare species of bamboo and supply of planting materials
e.	University of Calicut	Identification of ornamental and medicinal plants
f.	Agency for Non –conventional Energy and Rural Technology, Trivandrum	Technology of smokeless chula and supply of solar light for demonstration purposes
g.	Directorate of Arecanut and Spices Development, Calicut	Information and technology aspects of arecanut
h.	SERIFED, Trivandrum	Information on sericulture, supply of mulberry and silkworm seed
i.	Centre for Water Resources Development and Management, Calicut	Technology of watershed management
j.	Coconut Development Board, Cochin	Technology of value addition in coconut products and information on coconut pest management.
k.	Rubber Board, Kottayam	Technology on cultivation aspects of rubber and disease management
l.	Kerala Livestock Development Board, Trivandrum	Training of KVK staff, supply of semen
m.	M.S. Swaminathan Research Foundation, Chennai	Information on medicinal plants, organic farming and training
n.	Indian Institute of Vegetable Research, Varanasi	Information on improved varieties of vegetables
o.	MANAGE, Hyderabad	Extension technology
p.	Indian Agricultural Research Institute, New Delhi	Zero Energy Cooling Chamber technology
q.	Regional Engineering College, Calicut	Landscape technology
r.	Trainers' Training Centre, Avinashalingam, Coimbatore	Skill development in photography
s.	Central Plantation Crops Research Institute	Technology on coconut, Arecanut
t.	ATMA	Conducting training programmes and demonstrations
u.	SHM	Gardeners training programme – financial support
v.	Coconut Development Board	Friends of coconut training programme - financial support
w.	IDC Thamarasherry - NGO	Project formulation, training and monitoring: Project on establishment of micro ornamental fish culture unit for JLG clusters funded by NABARD
x.	National Bank for Agriculture and Rural Development, Trivandrum	Funding of VVV Clubs formed by KVK
y.	All India Radio, Calicut	Participating in Farm radio programs, wide publicity to KVK training programmes

### Linkage with NGOs

The local NGOs such as Central for Overall Development, Thamarassery,; Nehru Yuva Kendra, Calicut; SEED, Perambra; Integrated Development Centre, Thamarassery; National Yuvak Co-operative Society, Calicut; Socio-Economic Unit, Calicut etc. actively involved in the activities of KVK. The activities with other organisations are given below:

Sl.No	Organisation	Nature of linkage
i.	Local and Lead bank	Funding of kisan melas organised by KVK and extending loan to KVK beneficiaries
ii.	Indian Farmers Movement, Calicut	Sponsoring of KVK training programmes
iii.	Kerala Gandhi Smarak Grama Nirmana Kendra, Calicut	Sponsoring of KVK training programmes
iv.	Calicut Agri-horti Society, Calicut	Arrangement of exhibitions
ix.	Fertilizers and Chemicals Travancore, Cochin	Sponsoring trainees
x.	Nehru Yuvak Kendra, Calicut	Sponsoring trainees
xi.	Youth clubs	Sponsoring trainees, organising animal camps

### Linkages with line Departments

Sl.No	Organisation	Nature of linkage
a)	State Department of Agriculture	KVK conducts training programmes and seminars for department officials and participates in watershed development programme and inspects pepper nurseries of Department Farms. Department assists KVK in the selection of beneficiaries under FLD and OFT programmes, and in the implementation of various development schemes of KVK
b)	State Department of Animal Husbandry	Conducting training programme, animal health camps and campaign against disease outbreaks in animals, resource persons for KVK training programmes, supply of piglets and chicks of improved breeds
c)	Department of Fisheries	Conduct of training programmes, selection of KVK beneficiaries for fishery related activities, supply of fingerlings
d)	Kerala Livestock Development Board, Trivandrum	Supply of frozen semen for artificial insemination programme of the Kendra, supply of fodder seeds/ sets
e)	Farmers Training Centre, Calicut	Resource personnel from KVK for the training programmes
f)	FFDA	Financial assistance to KVK beneficiaries

g)	Kerala Forest Department	Supply of planting materials of forest plants
h)	Kerala State Poultry Development Corporation, Trivandrum	Supply of improved breeds of poultry
i)	Farm Information Bureau	Organising farmers' seminars, kisan melas etc.
j)	Department of Industries, Govt. of Kerala	Organisation of vocational training programmes for handicapped youth.
k)	Community Polytechnic, Govt. Polytechnic College, Calicut	Organization of vocational training programmes for youth.
l)	State Horticulture Mission, Kerala	Funding fro training of Gardeners

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

**12.C. Details of linkage with ATMA**

a) Is ATMA implemented in your district: **Yes**

If yes, role of KVK in preparation of SREP of the district?

KVK actively associated with ATMA programme during the preparation SREP of the district.

**Coordination activities between KVK and ATMA during 2011-12**

S. No.	Programme	Particulars	No. of programmes attended by KVK staff	No. of programmes Organized by KVK	Other remarks (if any)
01	Research projects	Project on protected cultivation of vegetables using low cost rainshelter	-	2	Implemented in 2 panchayats in 2 farmers' fields.
02	Training programmes	Vegetable cultivation	5	7	Classes taken for training programme
		Recent advances in the production technology of fruits		1	-
		Recent advances in the production technology of vegetables	-	1	-
		Recent advances in the production technology of spices		1	
03	Extension Programmes				
	a) Kisan Goshti	Organized at block level	5	-	-

**12.D. 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
1	Farmers training	Conducting training	2.25 lakhs	2.25 lakhs	Nil

**12.E. Nature of linkage with National Fisheries Development Board: Nil****12.F. Details of linkage with RKVY: Nil****12. G Kisan Mobile Advisory Services**

Month	No. of SMS sent	No. of farmers to which SMS was sent	No. of feedback / query on SMS sent
<b>April 2011</b>	-	-	-
<b>May</b>	-	-	-
<b>June</b>	-	-	-
<b>July</b>	-	-	-
<b>August</b>	-	-	-
<b>September</b>	Activated the transactional message facility according to the new regulations of TRAI	-	-
<b>October</b>	6	481	82
<b>November</b>	5	481	69
<b>December</b>	7	526	148
<b>January 2012</b>	5	632	284
<b>February</b>	3	656	84
<b>March</b>	6	678	212

**PART XIII- PERFORMANCE OF INFRASTRUCTURE IN KVK****13.A. 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	Dairy	2005	10 Animals	Cross bred	Pregnant heifer	10	60000	182376	-

2	Goatary	2008	40 Goats	Malabari	Goat kids	6	56000	67700	-
3	Layer chicks	2005	1500	Gramasree, Kalinga brown	Layer chicks	7689	169158	554730	-
4	Ornamental fish culture unit	20 10	0.064	Ornamental fishes	Guppy, platy, goldfish, gourami, angel fish	3962	960	11886	-

### 13.B. 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	
Coconut	1976	15.4.11 28.6.11 19.8.11 22.10.11 17.12.11	0.3	WCT	Coconut	1217 Nos.	2100	6694	Base crop in homestead
Arecanut	1996	2.4.11 23.5.11 12.6.11	0.3	Mohit Nagar	Ripe nuts	250 kg	1500	4500	9 <sup>th</sup> year of establishment. Due to Mahali disease yield was poor
Spices	1994- 2003		0.1	Nutmeg Viswasree	Scions for training.	-	-		Scion bank under top working or rejuvenation
Sapota	2002		1	Cricket ball	-	-	1900	-	6 <sup>th</sup> year of establishment. Scion bank Use for
Guava	2002		0.2	Allahabad Safeda	-	-	1300	-	
Medicinal plants unit	2001		0.2	Different medicinal plants	-	-	1000	-	conservation of germplasm
Black pepper	2001		0.2	Diff. HYV	-	-	2000	10000	Used for Bush pepper production



### 13.C. 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	<i>Trichoderma</i>	273 kg	4095	16380	Produced on demand basis The inputs are in stock and could be used for subsequent production.
2	<i>Pseudomonas</i>	343 kg	5145	15435	
3	<i>MET</i>	38	2546	1254	
4	<i>Cuelure</i>	49	3773	2352	

### 13.D. 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	Live bearers	Guppy molly, platy	3962	960	11886	

### 13.E. Utilization of hostel facilities

Accommodation available (No. of beds: 20)

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
April 2011	0	0	
May 2011	11	1	
June 2011	0	0	
July 2011	0	0	
August 2011	21	6	
September 2011	74	7	
October 2011	19	6	
November 2011	16	6	
December 2011	30	10	
January 2012	27	6	
February 2012	0	0	
March 2012	2	1	

### 13.F. Database management

S. No	Database target	Database created
1	District data base	E – book on inventory of agriculture of Kozhikode district completed

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

Amount sanction (Rs.)	Expenditure (Rs.)	Details of infrastructure created / micro irrigation system etc.	Activities conducted					Quantity of water harvested in '000 litres	Area irrigated / utilization pattern
			No. of Training programmes	No. of Demonstration s	No. of plant materials produced	Visit by farmers (No.)	Visit by officials (No.)		
10.00	10.00	Amt. deposited with Minor Irrigation Dept. Govt. of Kerala	-	-	-	-	-	-	

**PART XIV - FINANCIAL PERFORMANCE**

**14.A. Details of KVK Bank accounts**

Bank account	Name of the bank	Location	Branch code	Account Name	Account Number	MICR Number	IFSC Number
With Host Institute	State Bank of India	Calicut	-	-	30302810771	-	-
With KVK							

**14.B. Utilization of KVK funds during the year 2011-12 (Rs. in lakh)**

S. No.	Particulars	Sanctioned	Released	Expenditure
<b>A. Recurring Contingencies</b>				
1	<b>Pay &amp; Allowances</b>	66.40	66.40	66.2
2	<b>Traveling allowances</b>	1.50	1.50	1.50
3	<b>Contingencies</b>			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	4.02	4.02	3.98
B	POL, repair of vehicles, tractor and equipments	2.01	2.01	2.00
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)	0.72	0.72	0.71
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)	0.39	0.39	0.38
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)	1.99	1.99	1.98
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)	1.47	1.47	1.46
G	Training of extension functionaries	0.11	0.11	0.10
H	Maintenance of buildings	0.12	0.12	0.11
I	Establishment of Soil, Plant & Water Testing Laboratory	0.00	0.00	0.00

<i>J</i>	Library	0.05	0.05	0.04
<i>K</i>	Extension activities	0.37	0.37	0.36
<i>L</i>	Farmer's Field school	0.25	0.25	0.25
<b>TOTAL (A)</b>		<b>79.40</b>	<b>79.40</b>	<b>79.13</b>
<b>B. Non-Recurring Contingencies</b>				
1	<b>Works</b>			
	<b>Rainwater Harvesting with Micro Irrigation system</b>	10.00	10.00	10.00
2	<b>Equipments including SWTL &amp; Furniture</b>			
	<b>i)Power Tiller</b>	1.50	1.50	1.50
	<b>ii)EPABX system</b>	0.50	0.50	0.50
3	<b>Vehicle</b> (Four wheeler/Two wheeler, please specify)	0.00	0.00	0.00
4	<b>Library</b> (Purchase of assets like books & journals)	0.00	0.00	0.00
<b>TOTAL (B)</b>		<b>12.00</b>	<b>12.00</b>	<b>12.00</b>
<b>C. REVOLVING FUND</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>GRAND TOTAL (A+B+C)</b>		<b>91.40</b>	<b>91.40</b>	<b>91.13</b>

#### 14.C. Status of revolving fund (Rs. in lakh) for the three years

Year	Opening balance as on 1 <sup>st</sup> April	Income during the year	Expenditure during the year	Net balance in hand as on 1 <sup>st</sup> April of each year
April 2009 to March 2010	2.00	4.56	5.76	0.80
April 2010 to March 2011	0.80	9.76	9.06	1.50
April 2011 to March 2012	1.50	12.02	13.05	0.47

#### 15. Details of HRD activities attended by KVK staff during 2011-12

Name of the staff	Designation	Title of the training programme	Institute where attended	Dates
K M Prakash	SMS Agronomy	Workshop on expert system on coconut banana and rice	KVK Thrissur	10-6-2011
KM Prakash and Dr. B Pradeep	SMS Agronomy, SMS, Fisheries	Workshop on scouting and documentation of grass root innovation	KVK Thrissur	27-8-11
K M Prakash	SMS Agronomy	Training on project formulation	Central Training Institute, KAU, Thrissur	7 <sup>th</sup> to 9 <sup>th</sup> , 23 <sup>rd</sup> to 24 <sup>th</sup> February 2011

Dr.P.S.Manoj	SMS (Horticulture)	National workshop on “Dissemination of horticulture technologies through KVK personnel”	IIHR, Bangalore	18-19 January 2012
		“Train the trainer programme on Good Agriculture practices for crop production of fruits and vegetables”	Kozhikode	26-27 July 2011
		Training on “Creative writing in agriculture”	Indian Institute of Mass Communication, New Delhi	12-16 March 2012
Dr. S Shanmugavel	SMS Animal Science	Technologies and methods of fodder cultivation for augmenting livestock production	TANUVAS, Madhavaram, Chennai	22 <sup>nd</sup> and 23 <sup>rd</sup> September 2011

**16. Please include any other important and relevant information which has not been reflected above**

**FFS on Fisheries**

A farmers’ field school for three days on ornamental fish culture was organised for 26 farmers on 21.1.12, 23.1.12 and 10.2.12 respectively. Farmers from different parts of the district (Thamarasherry, Koorachundu, Chakitapara, Naduvannur, Quilandy, Nochath and Kozhikode) participated. The programme was organised at four progressive farmers filed at Nochath, Chelia (Quilandy) and Pullurampara (Thiruvampadi). Farmers were exposed to scientific ornamental fish culture systems and breeding techniques. They were also given inputs such as silpaulin sheets, fish net, fish, feed, polyethylene bags for transporting fish and aquatic plants. It was a successful programme as all the participants have expanded their units after the FFS.

**Participatory seed production in ginger and turmeric**

In order to enhance the production of quality planting materials, the farmer participatory seed production programme taken up last year continued in ginger and turmeric. Under the programme, KVK has identified 4 potential turmeric and ginger farmers in Calicut and supervised at field level for scientific seed production. Good quality seed material produced was assembled at KVK and sold to need farmers. A total of 518 kg turmeric IISR *Prabha* and 578 kg of ginger IISR *Varada* were sold to 143 farmers.

**Innovative farmer award of IARI**

Mr. K.K. Manoj a progressive fish farmer from Kozhikode, Kerala and KVK a beneficiary had received the prestigious Innovative farmer award of IARI for 2011-12 from Sri. Sompal Shastriji at PUSA Krishi Vigyan Mela 2012 on 3<sup>rd</sup> March 2012.

# SUMMARY FOR 2011-12

## I. TECHNOLOGY ASSESSMENT

### Summary of technologies assessed under various crops

Thematic areas	Crop	Name of the technology assessed	No. of trials
Integrated Nutrient Management	Cassava	Soil test based INM in choice variety of cassava	5
Integrated Crop Management	Coconut +Nutmeg + Banana	Crop intensification in coconut garden with suitable crops	5
	Mango	Induction of flowering in mango through hormone application combined with INM and IPM	5
Protected cultivation	Vegetables	Protected cultivation of vegetables using low cost rainshelter	3
<b>Total</b>			<b>18</b>

### Summary of technologies assessed under livestock

Thematic areas	Name of the livestock enterprise	Name of the technology assessed	No. of trials
Breeding Management	Dairy	Use of human placental extract to augment fertility in repeat breeder crossbred cows	25 cows
Feeding management	Dairy (Heifer calves)	Effect of probiotic supplementation on growth performance in heifer calves	20 calves
<b>Total</b>			45

### Summary of technologies assessed under various enterprises

Thematic areas	Enterprise	Name of the technology assessed	No. of trials
Ornamental fish culture: Water quality management	Ornamental fish culture	Use of bio-filters and probiotics in maintaining water quality of ornamental fish culture tanks	5
			Total

Summary of technologies assessed under home science: Nil

## II. TECHNOLOGY REFINEMENT

Summary of technologies refined under various crops: Nil

Summary of technologies assessed under refinement of various livestock : Nil

### Summary of technologies refined under various enterprises: Nil

### Summary of technologies refined under home science

Thematic areas	Enterprise	Name of the technology assessed	No. of trials
Value addition	Homestead	Quality analysis of nutmeg squash	4

## II. FRONTLINE DEMONSTRATION

### Crops

Crop	Thematic area	Name of the technology demonstrated	No. of KVKs	No. of Farmer	Area (ha)	Yield (q/ha)		% change in yield	Other parameters		*Economics of demonstration (Rs./ha)				*Economics of check (Rs./ha)			
						Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Vegetables	Pest management	Demonstration of pheromone trap for control of fruit fly in bitter gourd		10	0.4	80	55	31	Fruit fly attack-10%	Fruit fly attack-75%	49,925	1,60,000	1,10,075	3.2	39,600	82,500	42,900	2.08
<b>Fruit</b>																		
Banana	Promotion of fruit culture	High density planting of tissue culture nendran banana		5	0.50	@ Planting completed during February 2012. Demonstration is in progress.	-	-	-	-	-	-	-	-	-	-	-	-
Spices and condiments	Popularization of HYVs	Demonstration of HYVs of black pepper(IISR Sreekkara)		10	6 ha	18.75	16.87	23% increase	Foot rot incidence 5%	20%	69750	226313	156563	3.24	37500	59640	22140	1.59
Black pepper	New production technology	Bush pepper		20	200 pots	0.198 kg (dry/pot)	-	-	Number of spikes per plant 250 to 320	-	238/pot	500	262	3.1	-	-	-	-
Black pepper	Quality planting material production	Serpentine method of rapid multiplication of planting material in black pepper		10	50 cuttings each as nucleus planting material	Production of 30 new cuttings from one rooted cutting in 6 months	Production of 25 new cuttings from one rooted cutting in 6 months	20			#	#	#	#	#	#	#	#
Black pepper	Disease management	Integrated disease management of <i>Phytophthora</i> foot rot of black pepper		10	0.2	29	4.8	83	Foot rot disease incidence-32%	Foot rot disease incidence-68%	1,06,182	3,15,810	2,09,628	2.97	25,150	51,810	26,660	2.06
Total																		

# Economics can be worked out only after one year.

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

\*\* BCR= GROSS RETURN/GROSS COST

## Livestock

Category	Thematic area	Name of the technology demonstrated	No. of KVKs	No. of Farmer	No. of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.)				*Economics of check (Rs.)				
						Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR	
Poultry	Waste management	Demonstration of vermicomposting using poultry manure	-	5	5	-	-	Demonstration is in progress	-	-	-	--	-	-	-	-	-	-	-
Poultry	Carcass disposal management in poultry	Composting of poultry carcass	-	5	5	-	-	Demonstration is in progress	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>																			

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

\*\* BCR= GROSS RETURN/GROSS COST

## Fisheries

Category	Thematic area	Name of the technology demonstrated	No. of KVKs	No. of Farmer	No. of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.)				*Economics of check (Rs.)				
						Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR	
Others (pl.specify)	# Cage culture of fishes.	FLD.1.Cage culture of pearl spot ( <i>Etroplus suratensis</i> ) in brackishwater area	1	6	6	Growth		--	--	-	--	-	-	-	-	-	-	-	-
		FLD.2. Cage culture of <i>Pangasius</i> in large fresh water areas		6	6	Survival													
<b>Total</b>																			

# Under progress

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

\*\* BCR= GROSS RETURN/GROSS COST

**Other enterprises: Nil**

**Women empowerment: Nil**

**Farm implements and machinery: Nil**

**Other enterprises**

**Demonstration details on crop hybrids: Nil**

#### IV. Training Programme

**Training for 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
<b>Crop Production</b>										
Resource Conservation Technologies	3	32	24	56	7	10	17	39	34	73
Cropping Systems	3	56	42	98	4	4	8	60	46	106
Integrated Crop Management	3	28	32	60	4	2	6	32	34	66
Integrated Nutrient Management	4	48	24	72	5	2	7	53	26	79
<b>Horticulture</b>										
<b>a) Vegetable Crops</b>										
Cultivation of vegetables	3	106	81	187	-	6	6	106	87	193
<b>b) Fruits</b>										
HDP of tissue culture nendran banana	1	10	-	10	-	-	-	10	-	10
<b>c) Tuber crops</b>										
Production and Management technology	2	99	9	108	4	2	6	103	11	114
Production and Management technology	2	43	12	55	1	1	2	44	13	57
<b>d) Spices</b>										
Production and Management technology	3	146	132	278	15	7	22	161	139	300
Others (pl.specify)Mushroom	2	26	34	60	2	8	10	28	42	70



<b>e) Medicinal and Aromatic Plants</b>										
Production and management technology	1	97	32	129	2	4	6	99	36	135
<b>Soil Health and Fertility Management</b>										
Soil fertility management	1	33		33				33		33
Dairy Management	4	66	40	106	14	16	30	80	56	136
Poultry Management	6	125	76	201	24	17	41	149	93	242
Goatary Management	9	116	82	198	5	14	19	121	96	217
Animal Nutrition Management	3	64	41	105	14	13	27	78	54	132
Animal Disease Management	4	28	88	116	1	16	17	29	104	133
Feed and Fodder technology	4	76	16	92	1	2	3	77	18	95
<b>Home Science/Women empowerment</b>										
Design and development of low/minimum cost diet	1	93	2	95	-	3	3	93	5	98
Value addition	13	19	344	363		71	71	19	415	434
Women empowerment	1	-	20	20	-	5	5	-	25	25
Location specific drudgery production	1	29	-	29	7	-	7	36	-	36
<b>Plant Protection</b>										
Integrated Pest Management	3	206	63	269	15	12	27	221	75	296
Integrated Disease Management	3	199	63	262	15	12	27	214	75	289
Bio-control of pests and diseases	1	68	24	92	5	2	7	73	26	99
Others (Integrated Pest and Disease Management)	4	141	59	200	2	8	10	143	67	210
<b>Fisheries</b>										
Carp breeding and hatchery management (Induced breeding of fishes)	1	8	1	9	0	0	0	8	1	9
Breeding and culture of ornamental fishes	1	16	3	19	0	0	0	16	3	19
<b>TOTAL</b>	<b>87</b>	<b>1978</b>	<b>1344</b>	<b>3322</b>	<b>147</b>	<b>237</b>	<b>384</b>	<b>2125</b>	<b>1581</b>	<b>3706</b>

**Training for 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
<b>Crop Production</b>										
Cropping Systems	2	49	35	84	6	-	6	55	35	90
Crop Diversification	1	58	38	96	2	-	2	60	38	98
Integrated Crop Management	5	88	93	181	12	4	16	100	97	197
Soil and Water Conservation										
Integrated Nutrient Management	2	23	41	61	3	2	5	26	43	69
Others (pl.specify)Mushroom	1	-	17	17	-	-	-	-	17	17
<b>Horticulture</b>										
<b>a) Vegetable Crops</b>										
Protected cultivation	2	31	7	38	-	-	-	31	7	38
Cultivation of vegetables	3	72	59	131	10	10	20	82	69	151
Recent advances in the production technology of vegetables	1	48	22	60	-	-	-	48	22	60
<b>b) Fruits</b>										
Recent advances in the production technology of banana	1	48	6	54	8	4	12	56	10	66
HDP of banana	1	9	1	10	-	-	-	9	-	9
Hormonal regulation of flowering in mango	1	10	-	10	-	-	-	10	-	10
<b>c) Spices</b>										
Production and Management technology	5	202	143	345	2	8	10	204	151	355
<b>Soil Health and Fertility Management</b>										
Soil fertility management	1	29	7	36	-	-	-	29	7	36
Balanced use of fertilizers	1	38	16	54	2	-	2	40	16	56
<b>Livestock Production and Management</b>										
Dairy Management	6	167	96	263	44	38	82	211	134	345
Poultry Management	6	124	107	231	32	21	53	156	128	284
Goatary Management	1	29	11	40	7	8	15	36	19	55

Breeding Management	7	197	127	324	67	65	132	264	192	456
Animal Nutrition Management	4	189	79	268	34	30	64	223	109	332
Animal Disease Management	4	142	100	242	28	24	52	170	124	294
Feed and Fodder technology	5	142	66	208	25	28	53	167	94	261
Indigenous medicine in animal treatment	5	288	124	412	81	62	143	369	186	555
<b>Home Science/Women empowerment</b>										
Designing and development for high nutrient efficiency diet	1	6	22	28	5	8	13	11	30	41
Value addition	2		56	56		6	6		62	62
<b>Plant Protection</b>										
Integrated Pest Management	2	79	35	114	2	4	6	81	39	120
Integrated Disease Management	2	82	27	109	3	3	6	85	30	115
Bio-control of pests and diseases	2	45	24	69	3	1	4	48	25	73
Others (Integrated Pest and Disease Management)	2	41	20	61	4	6	10	45	26	71
<b>TOTAL</b>	<b>76</b>	<b>2236</b>	<b>1380</b>	<b>3616</b>	<b>380</b>	<b>832</b>	<b>712</b>	<b>2460</b>	<b>1710</b>	<b>4170</b>

#### 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	3	77	39	116	8	7	15	85	46	131
Integrated farming	7	118	17	140	3	1	4	121	18	139
Production of organic inputs	1	20	-	20	-	-	-	20	-	20
Mushroom Production	1	-	20	20	-	2	2	-	22	22
Bee-keeping	1	42	4	46	2	-	2	44	4	48
Value addition	1	6	22	28	5	8	13	11	30	41
Tailoring and Stitching	1		14	14		5	5		19	19
Rural Crafts	3		39	39		8	8		47	47
Goat rearing	6	51	47	98	4	11	15	55	58	113
Quail farming	2	34	32	66	13	4	17	47	36	83

Ornamental fisheries	7	263	82	345	17	6	23	280	88	368
Composite fish culture	3	87	16	103	1	0	1	88	16	104
Basics of plant propagation	1	-	18	18	-	4	4	-	22	22
Integrated Pest Management	2	14	19	33	1	6	7	15	25	40
Integrated Disease Management	1	14	-	14	1	-	1	15	-	15
Production of bio control agents and bio pesticides	1	27	-	27	-	-	-	27	-	27
Location specific drudgery reduction	7	101		101	16	-	16	117	-	117
<b>TOTAL</b>	48	954	369	1323	71	62	133	840	431	1271

#### 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
Mushroom Production	1	-	15	15	-	-	-	-	15	
Small scale processing	2	42		42		5	5		47	47
Backyard poultry rearing	4	79	52	131	19	14	33	98	66	164
Ornamental fisheries	8	167	139	306	16	9	25	183	148	331
Composite fish culture	6	156	89	245	12	10	22	168	99	267
Cage and pen culture of fishes	2	16	0	16	19	0	19	35	0	35
Live feed culture for ornamental fishes	1	26	2	28	2	0	2	28	2	30
<b>TOTAL</b>	24	486	297	783	68	38	106	512	377	889

#### 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
Women and Child care	1		15	15		4	4		19	19
Broiler goat rearing	4	31	-	31	3	-	3	34	-	34
Livestock feed and fodder production	4	19	27	46	3	6	9	22	33	55
Reservoir fisheries	1	10	4	14	10	0	10	20	4	24

Banned pesticides and its alternatives	2	93	108	201	5	6	11	98	114	212
<b>Total</b>	12	153	154	307	21	16	37	174	170	344

### 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
Spices Production technology	1	24	19	43	3	2	5	27	21	48
<b>Total</b>	1	24	19	43	3	2	5	27	21	48

### Sponsored training programmes

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
<b>1</b>	<b>Plant Protection</b>	14	708	766	974	41	43	84	741	309	1058
<b>2</b>	<b>Production and value addition</b>										
2.a.	Spices crops	3	156	128	284	9	7	16	165	135	300
<b>3</b>	<b>Post harvest technology and value addition</b>										
3.a.	Processing and value addition	1	5	82	87		13	13	5	95	100
<b>4.</b>	<b>Livestock and fisheries</b>										
<b>5</b>	<b>Livestock production and management</b>										
5.a.	Animal Disease Management	1	-	29	29	-	4	4	-	33	33
5.b.	Goat rearing	2	-	91	91	-	24	24	-	115	115
5.c.	Broiler goat rearing	1	-	22	22	-	1	1	-	23	23
<b>6.</b>	<b>Home Science</b>										
6.a.	Economic empowerment of women	1		20	20		5	5		25	25
6.b.	Drudgery reduction of women	7	114		114	20		20	134		134
<b>7</b>	<b>Agricultural Extension</b>										
8.a.	Ornamental fish culture	8	235	100	335	15	6	21	250	106	356
8.b.	Fresh water fish culture	1	12	28	40	0	2	2	12	30	42
	<b>Total</b>	29	1230	1266	2496	85	105	190	1315	1371	2686

### Details of Vocational Training Programmes carried out 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
<b>1.</b>	<b>Income generation activities</b>										
1.a.	Tailoring, stitching, embroidery, dying etc.	1		15	15		4	4		19	19
1.b.	Nursery management	1	14	-	14	3	2	5	17	2	19
	<b>Grand Total</b>	2	14	15	29	3	6	9	17	21	38

## V. Extension Programmes

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	TOTAL
Field Day	18	332	30	362
Kisan Mela	10	878	66	944
Kisan Ghosthi	6	1023	81	1104
Exhibition	14	-	-	-
Film Show	76	1712	41	1753
Method Demonstrations	42	1570	15	1585
Farmers Seminar	15	1731	60	1791
Group meetings	5	149	8	157
Lectures delivered as resource persons	4	52	3	55
Newspaper coverage	4	-	-	-
Radio talks	6	-	-	-
Popular articles	2	-	-	-
Extension Literature	4	-	-	-
Advisory Services	1446	693	45	738
Scientific visit to farmers field	247	80	9	89
Farmers visit to KVK	7328			
Diagnostic visits	33	77	22	99
Exposure visits	14	378	20	398
Soil health Camp	4	-	-	-
Animal Health Camp	3	145	6	151
Soil test campaigns	3	97	17	114
Self Help Group Conveners meetings	1	54	7	61
Celebration of important days (specify)	1	42	8	50
Study Tours	3	123	7	130
Helpline	1249	-	-	-
E-mail	129	-	-	-
AI	271	-	-	-
Farmers' visit to Animal Clinic	1243	-	-	-
Ksheerotsavam	5	1148	38	1186
Vaccination	RDV 22100 (chicks)	-	-	-
	IBD 20225 (chicks)	-	-	-
	FMD 181 cows	-	-	-
<b>Total</b>		11292	483	11775

**Details of other extension programmes**

<b>Particulars</b>	<b>Number</b>
Electronic Media “E – book on inventory of agriculture of Kozhikode district Video documentary on KVK (2 nos.) Broiler goat rearing VCD Feminine friends of coconut DVD Friends of coconut DVD	6
Extension Literature: i) Nutrition garden ii) Anthurium cultivation iii) Banana cultivation iv) Care of pregnant post partum cows v) Soil testing for higher returns	5
News Letter	2
News paper coverage	4
Technical Reports : Annual Report, Action Plan report. 12 th plan document, Best KVK award report for ICAR, QRT report	5
Radio Talks	6
Animal health Camps (Number of animals treated)	188
Popular articles: Harvest pepper on terrace through bush pepper. Cheruvally style-a new hope for pepper cultivation. Participatory seed production –A high yielding success. Innovations of a nutmeg farmer Nutrition Garden Innovative technologies come to the rescue of Kerala farmers	6
Projects: Project on Gardeners’ Training Project on Protected cultivation of vegetables under ATMA programme	2
<b>Total</b>	<b>223</b>

## VI. PRODUCTION OF SEED/PLANTING MATERIAL

### Production of seeds by the KVKs

Crop category	Name of the crop	Variety	Quantity of seed (qtl)	Value (Rs)	Number of farmers to whom provided
Spices	Ginger	IISR Varada	5.79	28950	72
	Turmeric	IISR Prabha	5.18	23310	71
<b>Total</b>			<b>10.97</b>	<b>52260</b>	<b>143</b>

### Production of planting materials by the KVKs

Crop category	Name of the crop	Variety	Number	Value (Rs.)	Number of farmers to whom provided
Fruits	Mango grafts	Bennet Alphonso, Kalepady, Sindhu, Benganapally, Suvarnarekha	1228	61400	624
	Rambutan seedlings	Elite lines	296	5920	273
	Mangosteen seedlings	Elite lines	50	6000	48
	Jack graft	Muttom varikka	15	1050	12
	Sapota graft	Cricket ball, Pala	130	7800	98
Ornamental plants	Ornamental palms	--	1485	--	59
	Misc. ornamental trees	-	51	765	41
	Lovi lovi seedlings	Elite lines	11	220	10
	Anthurium	Tropical, Can can	20	300	12
	Misc. ornamental palms	-	45	450	38
Plantation	Arecanut seedlings	Mohitnagar, South Kanara	1400	16800	118
	Cocoa	-	2389	47780	143
	Cashew graft	Priyanka, Damodar	50	2000	36
	Dwarf arecanut	-	4	2000	4
Spices	Bush pepper plants	Sreekara,	585	1764	286
	Bush pepper in pots	Sreekara,	20	5000	18
	Garcinia graft	Elite lines	49	2940	41
Forest Species	Neem seedlings	-	100	1500	87
	Mahagony seedlings	-	150	1500	32
<b>Total</b>	-	-	<b>6692</b>	<b>166674</b>	<b>1980</b>



**Production of Bio-Products**

	Name of the bio-product	Quantity Kg	Value (Rs.)	Number of farmers to whom provided
<b>Bio Products</b>				
Bio Fertilizers / Bio products	Farm yard manure	3835 cft	131475	IISR Exp. Farm
	Vermicompost	1050	10500	48
Bio Agents	<i>Trichoderma</i>	273	20475	153
	<i>Pseudomonas</i>	343	20580	182
Pheromone traps	<i>Methyl euginol trap</i>	38 nos.	3800	38
	<i>Cuelure</i>	49 nos.	6125	52
<b>Total</b>		<b>5588</b>	<b>192955</b>	<b>473</b>

**Production of livestock and related enterprise materials**

Particulars of Live stock	Name of the breed	Number	Value (Rs.)	Number of farmers to whom provided
<b>Dairy animals</b>				
Cows (Pregnant heifer)	Jersey and HF cross bred, Murrah	6	86651	6 farms
<b>Poultry</b>				
Layers chicks	Kalinga brown and gramasree	7689	538230	2431
Goats	Malabari	6	18200	6
<b>Fisheries</b>				
Fingerlings Ornamental fishes	Live bearer fishes	3962	11886	247
<b>Total</b>		<b>11663</b>	<b>654967</b>	<b>2690</b>

**VII. DETAILS OF SOIL, WATER AND PLANT ANALYSIS 2011-12**

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages	Amount realized (Rs.)
Soil Samples	752	752	4	
Water Samples	16	16	-	
<b>Total</b>	<b>768</b>	<b>768</b>	<b>4</b>	

**VIII. SCIENTIFIC ADVISORY COMMITTEE**

<b>Number of SACs conducted</b> : SAC conducted on 23.6.11
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**IX. NEWSLETTER**

Number of issues of newsletter published : 2

**X. RESEARCH PAPER PUBLISHED**

Number of research paper published : Nil

**XI. DETAILS ON RAIN WATER HARVESTING STRUCTURE AND MICRO-IRRIGATION SYSTEM- NIL**

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