

KRISHI VIGYAN KENDRA (IDUKKI)

ANNUAL REPORT-2020

(FOR THE PERIOD FROM 01 January, 2020 TO 31 December, 2020)



ICAR – Krishi Vigyan Kendra,

Bapooji Sevak Samaj,

Pethotty P.O., Santhanpara,

Idukki (Dt.), Pin-685619, Kerala.

Phone: 04868 – 247541, 247715.

E-mail: kvk.Idukki@icar.gov.in, kvksanthanpara@gmail.com

Website URL: www.kvkidukki.org

PART I - GENERAL INFORMATION ABOUT THE KVK

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

KVK Address	Telephone		E mail	Web Address
ICAR - Krishi Vigyan Kendra, Bapooji Sevak Samaj, Pethotty P.O., Santhanpara, Idukki (Dt.), Pin-685619, Kerala.	Office 04868 – 247541, 247715.	Fax Nil	kvk.Idukki@icar.gov.in	www.kvkidukki.org

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

Address	Telephone		E mail	Web Address
	Office	Fax		
Bapooji Sevak Samaj, Kakkattu, Meenadom P.O., Pampady, Kottayam (Dt.), Pin-686 516, Kerala.	0481- 2506271 +91 9446826019	04868- 247048	bkvkchairperson@gmail.com	www.kvkidukki.org

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

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. R. Marimuthu, Senior Scientist & Head	-	8157895397	kvksanthanpara@gmail.com

1.4. Year of sanction:

1.5. Staff position as on 31 December 2020

Sl. No.	Sanctioned post	Name of the incumbent	Designation	M /F	Discipline	Highest Qualification (for PC, SMS and Prog. Asstt.)	Pay Scale	Basic pay	Date of joining KVK	Permanent /Temporary	Category (SC/ST/ OBC/ Others)
1	Head/Senior Scientist	Dr. R. Marimuthu	Senior Scientist & Head	M	Agronomy	Doctorate in Agriculture - Agronomy	37400 - 67000	50720	17-01-2019	Permanent	OBC
2	Scientist/SMS	Dr. S. Jayababu	Subject Matter Specialist	M	Animal Science	B.V. Sc. & AH	15600 - 39100	21000	19-06-1995	Permanent	Others
3	Scientist/SMS	Manju Jincy Varghese	Subject Matter Specialist	F	Soil Science	M.Sc. Agriculture (Soil Science)	15600 - 39100	21000	10-01-2011	Permanent	Others
4	Scientist/SMS	Vacant	Subject Matter Specialist	-	Vacant	-	-	-	-	-	-
5	Scientist/SMS	Sudhakar Soundarajan	Subject Matter Specialist	M	Plant Protection	M.Sc. Agricultural Entomology, MBA	15600 - 39100	21000	27-01-2011	Permanent	OBC
6	Scientist/SMS	Ashiba A	Subject Matter Specialist	F	Agronomy	M.Sc. Agronomy	15600 - 39100	21000	07-01-2019	Permanent	OBC
7	Scientist/SMS	Preethu K. Paul	Subject Matter Specialist	F	Agri. Extension	M.Sc. Agricultural Extension	15600 - 39100	21000	07-01-2019	Permanent	Others
8	Programme Assistant (Lab Tech.)	Jayisy Joseph	Programme Assistant	F	Home Science	M. Sc. Home Science (Extension for Rural Development)	9300-34800	13500	20-06-1995	Permanent	Others
9	Programme Assistant (Computer)	Biju Narayanan	Programme Assistant	M	Computer Application	M.C.A., PGDCA	9300-34800	13500	01-10-2007	Permanent	OBC
10	Programme Assistant/ Farm Manager	Rachel Skariakutty	Programme Assistant	F	Rural Craft	M.A. Sociology (P.G. Diploma in Rural Development)	9300-34800	13500	05-06-1995	Permanent	Others
11	Assistant	Shaji. K. Kakkattu	Assistant	M	-	-	9300-34800	13500	05-06-1995	Permanent	Others
12	Jr. Stenographer	Daisy Daniel	Jr. Stenographer	F	-	-	5200-20200	7100	05-06-1995	Permanent	Others
13	Driver - 1	P. Nandagopal	Driver	M	-	-	5200-20200	7200	05-06-1995	Permanent	OBC
14	Driver - 2	Vacant	Driver	-	Vacant	-	-	-	-	-	-

15	SS-1	P. Sabu	Skilled Supporting Staff-1	M	-	-	5200-20200	7000	05-06-1995	Permanent	Others
16	SS-2	K.T. Mathew	Skilled Supporting Staff-2	M	-	-	5200-20200	7000	05-06-1995	Permanent	Others

1.6. Total land with KVK (in ha): 6 ha

S. No.	Item	Area (ha)
1	Under Buildings	0.074 ha
2.	Under Demonstration Units	0.5 ha
3.	Under Crops	2.0 ha
4.	Orchard/Agro-forestry	0.0 ha
5.	Others	3.246 ha

1.7. Infrastructural Development:

A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	2002	740	47,85,208.10	-	-	-
2.	Farmers Hostel	NA	-	-	-	-	-	Master Plan & Estimate submitted. Sanction pending.
3.	Staff Quarters	NA	-	-	-	-	-	-
	1							
	2							
	3							
	4							
	5							
	6							
4.	Demonstration Units							
	1. Duck cum fish culture unit.	RF	2009	50	7,000.00	-	-	-
	2. Mushroom unit	Grama Panchayath, Santhanpara	2002	10	85,000.00	-	-	-
	3. Spawn production unit	SHM	2009	10	3,00,000.00	-	-	-
	4. Mist Chamber	SHM	2009	96	2,72,832.00	-	-	-
	5. Rain Shelter	SHM	2009	50	1,04,091.00	-	-	-
	6. Bio-Hub	State Planning Board	2014	65	1,50,000.00	-	-	-
	7. Karshaka Seva Kendram	Department of Agriculture – Vegetable Scheme	2015	100	3,58,000.00	-	-	-
	8. Pheromone Trap Production Unit	RF	2014	10	65,000.00	-	-	-
	9. Pseudomonas Production Unit	Department of Agriculture – Vegetable Scheme	2015	25	50,000.00	-	-	-
	10. Trichoderma Production Unit	Department of Agriculture – Vegetable Scheme	2015	25	50,000.00	-	-	-
	11. EPN Production Unit	Department of Agriculture – Vegetable Scheme	2015	25	70,000.00	-	-	-
	12. Low cost mass multiplication centre	Department of Agriculture	2018	25	20,000.00	-	-	-
	13. Low cost VAM production Unit	Department of Agriculture	2018	10	20,000.00	-	-	-

5	Fencing	NA	-	-	-	-	-	Urgent requirement as the area is constantly facing intuition of wild animals and other intruders
6	Rain Water harvesting system	NA	-	-	-	-	-	-
7	Threshing floor	NA	-	-	-	-	-	-
8	Farm godown	NA	-	-	-	-	-	-
9		-	-	-	-	-	-	-
10		-	-	-	-	--	-	-

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Mahindra Bolero SLE	May - 2012	5,78,380.36	135260 Km	Good condition.
Honda Aviator	March - 2009	50,000.00	13510 Km	Running condition
Motor Bike (Suzuki Shogun)	January - 1995	37,972.78	-	Irreparable, to be condemned

C) Equipment & AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
Television	1995	20,894.00	Not working
GE OHP	1996	7,100.00	Good, but not in use
ZETT Slide Projector	1996	11,556.00	Not working
Sharp Video Player	1996	10,000.00	Not working
Pentax SLR Camera	1996	13,599.15	Not working
Ahuja Amplifier SSA 160 636956	2003	7,010.00	Good Condition
Ahuja Speaker, SRX50DX	2003	1,825.00	Good Condition
Ahuja Mike SHM 1000XLR	2003	2,295.00	Good Condition (serviced)
Ahuja Mike ASMT 80 XLR	2003	1,470.00	Good Condition
Ahuja mike Stand DGV	2003	510.00	Good Condition
Ahuja Mike stand DGT	2003	295.00	Good Condition
Ahuja portable teaching wireless WA 320 AWL 321	2003	9,700.00	Good Condition
Honda generator Model EBK 2000 AC	2003	32,490.00	Good Condition
LPG Generator 5000 CLS	2011	100000.00	Good Condition
LCD Projector (EPSON_EBW8)	2010	55186.00	Good Condition
Liberty Show Juno 5 x 7 (MW) Screen	2010	5885.00	Good Condition
Kodak Knoma Camera	1995	1550.00	Obsolete
Tripod Screen 52x70 inch	1996	2029.50	In working condition
KEMI HOT PLATE with Energy Regulator	2006	5,400.00	Not working
Electronic Balance	2006	1,00,000.00	Under use but needs repair
Physical Balance	2006	8,991.00	Good
Spectrophotometer	2006	1,17,499.00	Not working
Electronic Automatic KEL PLUS model KES 12L (Nitrogen Analyzer)	2006	97,043.00	Not working
Conductivity Meter (PH Meter Utech 510)	2006	21,935.00	Not working
HOT AIR OVEN	2006	13,725.00	Not working
Water bath WDB2 350 x 400 100mm Size 12	2006	41,895.00	Not working
Flame Photometer	2006	45,000.00	Under use but needs repair
Conductivity Meter	2006	13,500.00	Not working and requires new
LG 280 Litre Fridge Model – GI 296 TM V-Guard Stabilizer	2006	250.00	Good
Mixer grinder 750 Watts	2006	4,500.00	Needs replacement
Online UPS System with Battery	2006	36,916.00	Needs replacement
Fume Cupboard KEMI	2006	2,68,192.00	Needs replacement
Laminar Flow Chamber	2000	50,000.00	Under use but needs repair
Refrigerator	2000	10,760.00	Under use but needs repair
Chemical Balance	2000	1,800.00	required new
Auto Clave	2000	19,000.00	required new
Step up Stabilizer	2008	4,595.00	Good

FACIT Typewriter (Malayalam)	1995	9,735.00	Obsolete
FACIT Typewriter (English)	1995	9429.00	Obsolete
Stencil Duplicator	1995	13,700.00	Obsolete
Ortem sewing machine	1995	2,300.00	Obsolete
Computer with Printer	2003	49,750.00	Obsolete, needs to be replaced by a Desktop computer
Photostat Machine	2003	80,000.00	Obsolete
Brush Cutter	2009	23,726.00	Good, needs servicing
Fax Machine	2009	15,000.00	Obsolete
Laptop Computer (DELL Studio 14 N)	2010	37,150.00	Good
Inkjet Printer (Epson TX 111 AIO)	2010	1,779.00	Good
DAMU Scheme			
Furniture	2020	41450.00	Good

1.8. Details of SAC meeting conducted during 2020

Date	Number of Participants	Salient Recommendations	Action taken	Remarks, if any
29.01.2021	44	<p>1. Propose an action plan on Black pepper after contacting Pepper research station at Panniyur</p> <p>2. SMS agronomy should organize more programmes on farm mechanization. Organize a farmer groups and sent them to attend training on farm machineries at Thrissur</p> <p>3. SMS Soil Science should make Sampoorna available within the KVK and Popularize the Mannu app. to farmers</p> <p>4. SMS soil science should send feedback on customized fertilizer application to the respective Research institute. Write a separate report on customized fertilizer application to KAU</p> <p>5. Ensure the participation of ICAR institutes/ SAUs of the state and follow science based approach and maintain protocols. Follow system approach without overloading activities. Focus on few important things and get the output. Prepare a write up in 10-15 pages on ODOP programme on Cardamom, what KVK will do considering its area, map of cardamom growing locations, varieties, problems, training, OFTs, FLDs, Feedback programmes, technology backstopping, value addition, industries and finally EDP.</p> <p>6. SMS Soil Science should propose an action plan emphasising topics related to natural resource management, reclamation of cardamom land, land degradation and alike. Contact soil survey department or NBSS or LUP -Prepare a soil</p>	nil	nil

		<p>map of this district</p> <p>7.SMS Soil Science should propose an FLD with PGPR + VAM+ Trichoderma + coirpith as potting mixture to ensure healthy Black pepper planting material to reduce foot rot disease incidence</p> <p>8.Propose an action plan in controlling wild boars</p> <p>9.Animal Husbandry SMS should establish an Animal Service centre with Artificial Insemination Facilities in KVK. Demonstration and spread animal science related technologies need to be enhanced and document it.</p> <p>10.Introduce north eastern variety of Pineapple in Vattavada of Idukki district</p> <p>11.Include vegetable related major issues in action plan</p> <p>12.Get financial assistance to start FPO. Rural Craft and Agrl. Extension can form a FPO on craft Bazar/rural mart with assistance from NABARD. Come out with more innovative technologies developed by farmers. Organize meetings with NABARD</p> <p>13.Complete the FLD in GAP by satisfying the principles of GAP alone (i.e., do not concentrate in variety). Thereby KVK should come out with a programme in GAP</p> <p>14. Agricultural Extension should concentrate on extension activities, Documentation, EDP works, microfinance and FPO to strengthen the KVK</p> <p>15.Conduct an impact study of IIHR Vegetable special and IISR Cardamom & Pepper Special</p> <p>16.Ensure full package in conducting AESA in strawberry cultivation</p>		

PART II - DETAILS OF DISTRICT

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

S. No	Farming system/enterprise
1	Cardamom and Pepper based farming system in the High Ranges of the District
2	Paddy belts in specific locations
3	Homestead based farming
4	Coconut, Tea and coffee plantation
5	Vegetables (Bitter gourd & Cowpea)
6	Cool season vegetables in Devikulam Block
7	Banana cropping
8	Rubber- Pineapple as inter-crop
9	Dairy cattle, Poultry production & Management
10	Mixed Fodder Production

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

S. No	Agro-climatic Zone	Characteristics
1.	Zone-XIII	High Ranges
2.	Zone-VII	Malayoram
3.	High altitude zone-Vattavada & Kanthalloor	Climate suitable for cool season vegetables and temperate fruits

S. No	Agro ecological situation	Characteristics
1.	Agro Ecological Zone-1	Major part is mono-cropped with rubber, other areas-homestead farming is practiced with tapioca, banana and vegetables, altitude up to 500M above mean sea level, humid tropics spread over the zone. South West and North East monsoon are active and moderately distributed. South West monsoon with June maximum (South of 110 N latitude)
2.	Agro Ecological Zone-2	Major cropping pattern-Pepper, Cardamom, Coffee, Areca nut, Cocoa and Rubber intercropped, altitude 500M above mean sea level, humid tropics spread over the zone. Steep slopes
3.	Agro Ecological Zone-3	High altitude zone-Vattavada & Kanthalloor. Cool season vegetables occupy major area. Potato, temperate fruits are grown in a small scale. Zone includes the only wheat-growing tract of Kerala. North-East monsoon is prominent.

2.3 Soil type/s

S. No	Soil type	Characteristics	Area in ha
1.	Manakkattu series	Clayey very deep, developed from gneissic parent material	NA
2.	Cheenikuzhy series	Fine loamy texture	NA
3.	Thommankuthu series	Clayey texture	NA
4.	Venmani series	Clayey texture	NA
5.	Marayoor series	Clay loam to clayey texture	NA
6.	Pampadumpara series	Clayey texture	NA

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

S. No	Crop	Area (ha)	Production (Metric tons)	Productivity (kg /ha)
1	Cardamom	31165	16505	530
2	Pepper	43790	18726	428

3	Banana	7535	67469	8954
4	Rice	695	1631	2347
5	Coconut	16122	63 million nuts	3907
6	Tapioca	6998	297870	42565
7	Coffee	12717	8310	653
8	Tea	40590	44991	2048

* Directorate of Economics and Statistics, Department of Agriculture and Cooperation.

2.5. Weather data

Month	Rainfall (mm)	Temperature ° C		Relative Humidity (%)
		Maximum	Minimum	
January 2020	27.90	32.06	20.72	69
February 2020	17.20	33.26	21.62	71
March 2020	490	34.89	23.00	74
April 2020	90.90	36.47	24.41	77
May 2020	104.40	36.17	25.61	80
June 2020	63.30	32.76	23.69	86
July 2020	790.00	32.17	22.75	88
August 2020	108.20	31.00	22.91	86
September 2020	108.40	31.41	22.81	85
October 2020	191.20	33.10	22.81	83
November 2020	148.30	31.10	22.23	80
December 2020	70.30	28.75	20.87	73

* IMD, Trivandrum

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

Category	Population	Production	Productivity
Cattle			
<i>Crossbred</i>	97395	164559.858 ton (Milk) & 10.276827 MT (meat)	3.26 ton (milk)
<i>Indigenous</i>	7155	4309 ton (milk)	2.89 l/day
Buffalo	5471	7779 ton (milk) & 4285.62 MT (meat)	2.7 ton
Sheep			
<i>Crossbred</i>	9	-	-
<i>Indigenous</i>	-	-	-
Goats	102432	17298 ton (Milk) & 11892.10 MT (meat)	-
Pigs			
<i>Crossbred</i>	14670	23436.5 MT (Meat)	-
<i>Indigenous</i>	-	-	-
Rabbits	9980	-	-
Poultry			
Hens	698787	758.82198 in lakh nos (Egg)	-
<i>Desi</i>	60848	398 in lakh (Egg)&5840462MT meat	-
<i>Improved</i>	130924	-	-
Ducks	20087	-	-
Turkey and others	16456	-	-

Category	Area	Production	Productivity
Fish	-	-	-
<i>Marine</i>	-	-	-
<i>Inland</i>	-	-	-
Prawn	-	-	-
Scampi	-	-	-
Shrimp	-	-	-

* Source of Data: - District Animal Husbandry Office, Thodupuzha, Idukki

2.7 District profile maintained in the KVK has been Updated for 2020: 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 operational area of the KVK (specify the years)	Major crops & enterprises	Major problem identified	Identified Thrust Areas
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1	Devikulam	Devikulam	Kannan Devan Village, Vattavada	2 years	Finger Millet	Lodging (Yield loss 16 - 19%), Shattering losses, Severe disease incidence (Yield loss 28%), Non availability of improved variety	Variety Evaluation
					Cabbage	Inadequate knowledge on soil test based nutrient management in cabbage, Indiscriminate use of chemical inputs, Ignorance on banned chemicals in Idukki district, Severe incidence of pest & disease	Integrated crop management
					Carrot	Severe damage to the roots of carrot by Root Knot Nematode causing malformation, thereby affecting both quality and quantity, Soil borne pathogen (soft rot) cause huge crop losses, Rot occurring during transportation of harvested carrots also leads to post harvest losses	Bio intensive pest management
					Passion Fruit	Less juice and soft seeds, Vine keeps flowering but less fruit set, High fruit drop, Malformed / Shriveled fruits, Low TSS and high acidity of juice	Integrated Nutrient management
					Kiwi	Lack of awareness on the scope of exotic fruits	Variety introduction
					Poultry	Non availability of quality layer chicks, low growth rate, poor laying performance and feather pecking	Scientific management of livestock and poultry
					Straw berry	Non availability of healthy planting materials, micronutrient disorders, indiscriminate use of pesticides	IPM

2	Udumbanchola	Kattappana	Vandanmedu	2 years	Cowpea	Soil acidity - 4.7, Tips of primary leaves necrotic and tissues between the veins tend to ridge, White, yellow or orange chlorotic spots or stripes on older leaves, Upper leaves near the growing point turns yellow and sometimes red, leaves short, show crinkling, little leaf and internodes become shorter.	Integrated Nutrient management, Bio intensive pest management.
					Passion fruit	Less juice and soft seeds, Vine keeps flowering but less fruit set, High fruit drop, Malformed / Shriveled fruits, Low TSS and high acidity of juice	Integrated Nutrient management
					Bitter gourd	High soil acidity (3.5-4.0), Marginal chlorosis of older leaves, Leathery and brittle upper leaves, Upward cupping of leaves, Distortion of new leaves, buds, malformed/shriveled fruits, Rosette appearance.	Bio intensive pest management
					Black Pepper	Poor quality planting material, Quick wilt incidence, Non availability of climbers, as today's youth are unwilling to take up this job, Chances of falling from the poles are very high, Causes severe physical and health problems, Wastage of produce during manual harvest, Causes health problems like itching and other skin diseases, High price fluctuation in Season, Middle man exploitation, Lack of value addition in black pepper	Crop improvement
					Tapioca	Yellowing, leaf crinkling and Deficiency symptoms, imbalanced fertilizer use, low nutrient status of soil and deficiencies of secondary micronutrients, high cyanogen content, severe mosaic disease incidence and lack of high yielding variety	Variety Evaluation and integrated nutrient management

3	Udumbanchola	Nedumkandam	Udumbanchola	6 years	Paddy	High acidity Iron toxicity leading to tiny brown spots from leaf tip to base. Stunted growth, damaged root, less grain filling, Continuous cultivation of Traditional variety, Heavy incidence of pest & disease (yield loss 17-26%)	Integrated Nutrient management, Varietal Popularization
					Banana	High soil acidity (nearly-4.4), Inward marginal yellowing of older leaf followed by marginal necrosis, Yellow stripes parallel to leaf midrib and crinkling of leaves, Unfolding of leaf is delayed, Flag leaf deformed, Distal part of the inflorescence comes out and the basal part get stuck up at the throat, growth retardation	Integrated Nutrient management
					Small cardamom	Panicles become stunted. Shedding of flowers and immature capsules thus reducing the total number of capsules formed. Infestation causes formation of corky encrustation on pods resulting in their malformed and shriveled condition	Bio intensive pest management
					Nutritional Garden	Inadequate knowledge on the benefits of nutritional garden in households, Dietary deficiencies among tribal folk	Organic farming
					Dairy Cattle	Feeding of more grains/concentrates, Cassava leaves and jack rind, Incidence of Mastitis in high yielders Mastitis-Coliform & Mycoplasma 50-60% Sub clinical-30% Milk yield reduction-30%	Fodder production and management, Scientific management of livestock and poultry

2.8 Details of Benchmark Information collected from DFI villages

2.9 Details of Benchmark Information collected from DFI villages- 2019-2020

Sl.No.	Taluk	Name of the block	Name of the village	Name of the Head of Household	Annual Gross Income (Rs.)	Annual Expenditure (Rs.)	Annual Net Income (Rs.)
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1	Udumbanchola	Nedumkandam	Udumbanchola	Paul Kuriakose	600000	420000	180000
2				Biju M Paul	523200	456000	67200
3				Ashamol C. K	42000	24000	18000
4				Suresh P Joseph	480000	300000	180000
5				Rajeshwari Ayyappan	72000	24000	48000
6				Bex V Mathew	715200	504000	211200
7				T. P Reghunatha Pillai	302400	156000	146400
8				Thankappan Mathew	711600	576000	135600
9				Baby Binu	666000	540000	126000
10				Ratheesh V.R	540000	396000	144000
11				AnuJobin	705600	396000	309600
12				Sajimonskaria	1668000	924000	744000
13				SanthaSelvam	1116000	66000	1050000
14				Mini Jiji	864000	504000	360000
15				Manimala	114000	42000	72000
16				ThulasiMurugan	126000	48000	78000
17				BeenaEldhose	600000	300000	300000
18				Thankachan P.V	711600	576000	135600
19				Sineesh James	624000	540000	84000
20				SibySkariah	534000	396000	138000
21				Shilvy Titus	576000	312000	264000
22				Sabu Francis	522000	456000	66000
23				Biju Mathew	554400	276000	278400
24				Sasidharan	692400	468000	224400
25				Shaji	1103280	720000	383280
26				SabuSkaria	1032000	828000	204000
27				Mary Thankachan	943200	750000	193200
28				Biju P. Soman	932400	744000	188400
29				Binu M Paul	1236000	900000	336000
30				V P. Rajendran	1078800	650400	428400
31				Joby K George	768000	432000	336000
32				ShaibySaji	9276000	588000	8688000
33				ValsaSasi	855600	576000	279600
34				LeelammaScaria	804000	486000	318000
35				Soman Varghese	732000	252000	480000
36				Alicekutty Manuel	720000	426000	294000
37				Benny V. D	972000	528000	444000
38				AjiMadhavan	990000	666000	324000
39				Indira Bhai	1176000	732000	444000
40				George Joseph	868320	684000	184320
41				SajeevanThankappan	885600	684000	201600
42				Vijayakumar N	1176000	1015200	160800
43				Siby	1200000	786000	414000
44				Biju Mon M	1209600	972000	237600
45				ManjuVijayakumar	930000	684000	246000
46				lalitha Ravi	1153200	798000	355200
47				Lisamma Sunil	1172400	924000	248400
48				LathaShaji	1154400	978000	176400
49				Tressy Augustine	744000	540000	204000
50				AnithaNagachan	1218000	948000	270000
51				Mathai P.V	513600	300000	213600
52				Eldhose V. M	702000	510000	192000
53				Satheeshan S.	427200	252000	175200
54				Thankachan S	687600	408000	279600
55				Mohanan P	573600	318000	255600
56				Paul T.A	781200	420000	361200
57				BibinIssac	746400	600000	146400
58				ChakoChan S.	624000	495600	128400
59				Kurian K	969600	768000	201600
60				Basil Eldhose	582000	360000	222000
61				Jameskutty Chacko	468000	224400	243600
62				Mathew M. V	840000	474000	366000
63				Joseph P. M	738000	474000	264000
64				Clitus Manual	984000	714000	270000
65				Soman P	510000	410400	99600
66				Benny V. John	462000	354000	108000

67				Jiji Thomas	624000	378000	246000
68				Reji Mathew	475200	426000	49200
69				Manoj K. J	680400	366000	314400
70				Eldhose K C	667200	420000	247200
71				P. M Antony	492000	402000	90000
72				E.K.Jananrdhanan	531600	402000	129600
73				Raju E N	624000	324000	300000
74				Manianpillai P. R	1050000	624000	426000
75				Madhavan K. E	996000	684000	312000
76				Ashokan P. G	768000	588000	180000
77				Xaviour Varghese	888000	614400	273600
78				K. V Kuttappan	932400	744000	188400
79				Sreenivasan K. N.	853200	650400	202800
80				Jose Thomas	1183200	726000	457200
81				Sojan P. L	660000	480000	180000
82				Cyriac Mani	528000	396000	132000
83				Anil kumar	300000	258000	42000
84				Saji Mathew	480000	276000	204000
85				Joseph Joseph	276000	78000	198000
86				Dasan V. R	727200	480000	247200
87				Alexkutty Manuel	270000	228000	42000
88				Clitus Immanuel	771600	588000	183600
89				Manu Gopal	672000	540000	132000
90				Johnson Abraham	606000	396000	210000
91				Jameskutty Chacko	596400	414000	182400
92				Satheeshan T. N	1692000	924000	768000
93				Johny V. S	200000	150000	50000
94				N. U Paul	864000	504000	360000
95				Parameshwaran O. K	114000	42000	72000
96				Madhu P.K	168000	72000	96000
97				Cherian Philip	660000	252000	408000
98				Shaji P. S	721200	552000	169200
99				Augustine O. J	648000	540000	108000
100				John Paul	510000	396000	114000
101				Shelvy KP	552000	288000	264000
102				Biji M	522000	456000	66000
103				Samuel varghese	650400	300000	350400
104				SasiKunumpattel	704400	468000	236400
105				Roy mathootti	1103280	732000	371280
106				SabuPothen	1104000	744000	360000
107				ShinuPaulose	924000	714000	210000
108				Krishnan K	993600	780000	213600
109				Sukumaran	1236000	900000	336000
110				JibinPathrose	1198800	710400	488400
111				Sudhakaran K	888000	432000	456000
112				ValsalaShaji	1176000	588000	588000
113				AjiPaili	891600	576000	315600
114				SahadevanChoondayil	780000	486000	294000
115				Varghese PP	732000	228000	504000
116				Raju	780000	546000	234000
117				Denny	996000	588000	408000
118				Sundaran	990000	666000	324000
119				George Thomas	1176000	732000	444000
120				Mani	928320	720000	208320
1	Devikulam	Devikulam	Vattavada	MuruganGaneshan	252000	116400	135600
2				NagarajKannan	200400	54000	146400
3				RamasamyDevaraj	180000	69600	110400
4				ThirumalChavadappan	204000	63600	140400
5				Manikandan	60000	37200	22800
6				Selvaraj	60000	36000	24000
7				Palmani	60000	38400	21600
8				Aravindh	72000	44400	27600
9				Chandran K	115200	84000	31200
10				Pandiyan	72000	52800	19200
11				S. Rajesh Kannan	72000	43200	28800
12				Thangamma	72000	46800	25200

1	IPM	Banana	Sudden Plant mortality Considerable reduction in yield	Assessment of fusarium wilt disease management in banana	-	1	0	0	0	0	0	0	0	0
2	Varietal evaluation	Yard long bean	Less yield Lack of awareness on high yielding varieties	Assessment of yard long bean varieties in Idukki district	-	0	0	0	1	0	0	0	0	0
3	Varietal evaluation	Tapioca	Lack of high yielding variety Less consumer acceptability due to high cyanogen content	Assessment of cassava varieties in high range	-	1	0	0	3	0	1688	0	1	100
4	Varietal Evaluation (2019-20)	Finger millet	Lodging (Yield loss 16 - 19%), Shattering losses, Severe disease incidence (Yield loss 28%), Non availability of improved variety & Low yield due to poor fertilizer response	Assessment of finger millet varieties in tribal belt of Idukki district	-	1	0	0	3	0.25	0	0	2	2
5	Organic farming	Composting	Lack of knowledge on disposal of cardamom stem Natural composting is time consuming	Assessment of different composting cultures in composting of agricultural wastes	-	2	0	0	3	0	0	0	3	20
6	INM (2019-20)	Passion Fruit	Less juice and soft seeds 2) Vine keeps flowering but less fruit set 3) High fruit drop 4) Malformed / Shriveled fruits 5) Low TSS and high acidity of juice	Assessment of micro-nutrient sprays for mitigating irregularities in passion fruit	-	1	0	0	5	0	0	0	2	28

7	Seed/ Plant Production (2019-20)	Black Pepper	1.Low recovery of planting material due to disease in nursery 2.Quick wilt disease	Assessment of different potting mixture to produce healthy planting material of black pepper	-	0	0	0	5	0	0	0	2	6
8	Disease management	Dairy cattle	Severe ectoparasitic infestation in dairy cattle	Assessment of EVM preparations for control of ectoparasites in dairy cattle	-	0	2	0	3	0	0	0	0	0
9	Evaluation of breeds (2019-20)	Poultry	Non availability of quality layer chicks, low growth rate, poor laying performance and feather pecking	Assessment of production performance of different breeds of poultry under homesteads in Idukki districts	-	3	5	0	3	0	0	45	0	0
10	Varietal popularization	Paddy	continuous cultivation of traditional variety Heavy incidence of pest & disease (yield loss 17-26%)	-	Demonstration of paddy variety 'Manuratna' in high range	0	0	0	2	0.35	0	0	4	226
11	Varietal introduction	Garden pea	Lack of awareness on suitable high yielding varieties, continuous cultivation of traditional varieties, shattering losses and less pod filling.	-	Demonstration of new whole pod edible dual purpose pea variety of Arka Apoorva	0	0	0	2	0	0	0	0	0
12	INM	Black pepper	Yellowing and spike shedding	-	Demonstration of IISR PGPR consortium for growth promotion in Black pepper	3	0	0	6	0	0	0	50	60

13	INM	Cabbage	Inadequate knowledge on soil test based nutrient management Indiscriminate use of chemical inputs Severe incidence of pest and disease	-	Integrated nutrient management in cabbage	1	0	0	3	0	0	0	1	15
14	INM	Tapioca	Yellowing, leaf crinkling and deficiency symptoms Imbalanced fertilizer use Low nutrient status of soil and deficiencies of secondary and micronutrients	-	Demonstration of customized fertilizer-I in Tapioca	1	0	0	7	0	2000	0	0	0
15	INM	Vegetable cowpea	1) Soil acidity- 4.7 2) Necrotic leaf tip and tissues between the veins tend to ridge 3) Chlorotic stripes on older leaves. 4) yellow and crinkling in growing tips 5) little leaf and internodes become shorter	-	Enhancing Productivity and Nitrogen Use efficiency in cowpea	1	0	0	3	0	0	0	4	27.5

1 6	INM (2019-20)	Cabbage	1) Inadequate knowledge on soil test based nutrient management in cabbage 2) Indiscriminate use of chemical inputs 3) Ignorance on banned chemicals in Idukki district 4) Severe incidence of pest & disease	-	Integrated Nutrient Management in Cabbage.	1	0	0	5	0	0	0	3	370
1 7	INM (2019-20)	Banana	1) High soil acidity (nearly-4.4) 2) Inward marginal yellowing of older leaf followed by marginal necrosis 3) Yellow stripes parallel to leaf midrib and crinkling of leaves. 4) Unfolding of leaf is delayed 5) Flag leaf deformed 6) Distal part of the inflorescence comes out and the basal part get stuck up at the throat 7) growth retardation	-	Integrated Nutrient management in Banana	2	0	0	14	0	0	0	0	250
1 8	ICM	Ginger	Lack of high yielding varieties, unavailability of good planting materials, and inadequate knowledge on soil test based nutrient management in ginger	-	GAP in ashwathy variety of ginger	0	0	0	3	0	0	0	0	0

19	IPM	Small cardamom	Indiscriminate use of PP chemical in cardamom plantation	-	Bio-intensive intervention of pest, drought management and deterring crop raiding wild elephant in small cardamom	0	0	0	5	0	0	0	7	88
20	IPM	Strawberry	Indiscriminate use of chemical inputs	-	AESA based integrated pest management in strawberry	0	0	0	4	0	0	0	4	70
21	IPDM (2019-20)	Vegetable cowpea	Indiscriminate use of chemical inputs	-	Bio-intensive pest and disease management in cowpea	0	0	0	7	0	0	0	0	47.5
22	IPDM (2019-20)	Bitter Gourd	Indiscriminate use of chemical inputs	-	Bio-intensive pest and disease management in Bitter Gourd	0	0	0	8	0	0	0	85	17
23	Crop introduction (2019-20)	Pepino	Cultivation of Pepino (Sweet Cucumber, Melon Pear) as an exotic salad vegetable	-	Cultivation of Pepino (sweet cucumbet, melon pear) as an exotic salad vegetables.	1	0	0	3	0	40	0	2	55
24	Crop introduction (2019-20)	Kiwi	Lack of awareness on the scope of exotic fruits	-	Cultivation of Kiwi Fruit which requires relatively less chilling period.	1	0	0	5	0	21	0	2	53
25	Organic Farming (2019-20)	All suitable vegetables	1) Inadequate knowledge on the benefits of nutritional garden in households 2) Dietary deficiencies among tribal folk	-	Implementation of homestead garden, easy availability of nutritional plants	4	0	0	4	0	350	0	4	20
26	Disease management	Poultry	Occurrence of ranikhet disease	-	Popularization of Ethno Veterinary Medicine (EVM) for prevention of rannikhet disease	3	0	0	2	0	0	0	0	0
27	Disease management	Dairy cattle	Anoestrus and Repeat breeding	-	Demonstration of estrus synchronization in cattle by using progesterone vaginal sponges	3	0	0	9	0	0	0	0	0

28	Disease management (2019-20)	Dairy cattle	Infertility problem	-	Demonstration on estrous synchronization in cattle	2	0	0	4	0	0	0	0	0
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PART III - TECHNICAL ACHIEVEMENTS (2020)

3.A. Target and Achievements of mandatory activities

OFT				FLD			
1				2			
OFTs (No.)		Farmers (No.)		FLDs (No.)		Farmers (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
5	5	25	25	10	10	55	55

Training				Extension Programmes			
3				4			
Courses (No.)		Participants (No.)		Programmes(No.)		Participants (No.)	
Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
175	172	3532	5931	1686	298	11359	35272

Seed Production (Q)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
0.1	0.78	12000	3970

Livestock, poultry strains and fingerlings (No.)		Bio-products (Kg)	
7		8	
Target	Achievement	Target	Achievement
1200	38	24550	27145

3.B1. Abstract of interventions undertaken

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	Assessment of fusarium wilt disease in banana	TNAU, KAU & NRCB	Banana	5	0	0	0
2	Assessment of yard long bean varieties in Idukki district	KAU & IIHR	Yard long bean	5	0	0	1
3	Assessment of cassava varieties in high range	CTCRI & KAU	Tapioca	5	0	1	3
	Assessment of finger millet varieties in tribal belt of Idukki district	TNAU & PC unit, Bengaluru	Finger millet	3	0	1	3
4	Assessment of different composting cultures in composting of agricultural wastes	IIHR, NCOF & KAU	Composting	5	0	2	3
5	Assessment of micro-nutrient sprays for mitigating irregularities in passion fruit	KAU	Passion Fruit	02	0	1	5
6	Assessment of different potting mixture to produce healthy planting material of black pepper	KAU, TNAU	Black Pepper nursery	02	0	0	5
57	Assessment of EVM preparations for control of ecto-parasites in dairy cattle	KAU, KVASU & TANUVAS	Dairy cattle	5	0	2	3
8	Assessment of production performance of different breeds of poultry under homesteads in Idukki districts	CPDO, Bangaluru & DPR, Hyderabad	Poultry	03	0	5	3
9	Demonstration of paddy variety 'Manuratna' in high range	KAU	Paddy	0	5	0	2
10	Demonstration of new whole pod edible dual purpose pea variety of Arka Apoorva	IIHR	Garden pea	0	5	0	2

11	Demonstration of IISR PGPR consortium for growth promotion in Black pepper	IISR	Black pepper	0	5	3	6
12	Integrated nutrient management in cabbage	IIHR	Cabbage	0	5	1	3
13	Demonstration of customized fertilizer-I in Tapioca	CTCRI	Tapioca	0	5	1	5
14	Enhancing Productivity and Nitrogen Use efficiency in cowpea	KAU	Vegetable cowpea	0	5	1	3
15	Integrated Nutrient Management in Cabbage.	IIHR	Cabbage	0	5	1	5
16	Integrated Nutrient management in Banana	KAU	Banana	0	5	2	14
17	GAP in ashwathy variety of ginger	KAU	Ginger	0	5	0	3
18	Bio-intensive intervention of pest, drought management and deterring crop raiding wild elephant in small cardamom	NBAIR & IISR	Small cardamom	0	5	2	5
19	AESA based integrated pest management in strawberry	NIPHM	Strawberry	0	5	3	4
20	Bio- intensive pest and disease management in cowpea	ICAR-NBAIR	Cowpea	0	5	0	7
21	Bio- intensive pest and disease management in Bitter Gourd	KAU	Bitter gourd	0	5	0	8
22	Cultivation of Pepino (sweet cucumbet, melon pear) as an exotic salad vegetables	TNAU	Pepino	0	05	1	3
23	Cultivation of Kiwi Fruit which requires relatively less chilling period.	SKUAST, J&K	KIWI	0	03	1	5
24	Implementation of homestead garden, easy availability of nutritional plants	KAU	All suitable nutritive plants	0	05	4	4
25	Popularization of Ethno Veterinary Medicine (EVM) for prevention of rannikhet disease	VVTRC-TANUVAS	Poultry	0	5	3	2
26	Demonstration of estrus synchronization in cattle by using progesterone vaginal sponges	TANUVAS	Dairy cattle	0	5	3	9
27	Demonstration on estrous synchronization in cattle	TANUVAS	Dairy Cattle	0	05	2	4

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
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5	0	0	0	0	0	0	0	0	0	0	2	2	0	0
5	0	0	0	0	0	0	0	25	0	0	0	13	0	0	0
0	0	3	0	0	0	0	0	0	0	36	16	0	0	42	17
1	4	0	0	0	0	0	0	5	214	0	0	54	18	0	0
2	0	0	0	0	0	0	0	9	12	1	0	19	2	10	7
2	0	0	0	0	0	0	0	15	0	0	0	15	1	0	0
0	5	0	0	0	0	0	0	8	7	0	0	13	8	0	0
0	0	0	3	0	0	0	0	20	25	18	15	29	15	3	2
0	0	0	0	2	3	0	0	0	0	0	0	2	3	0	0
0	0	0	0	3	2	0	0	0	0	0	0	5	1	6	5
0	0	0	0	4	1	0	0	1268	6	0	0	30	9	0	0
0	0	0	0	0	0	1	4	0	10	0	0	0	22	1	20
0	0	0	0	5	0	0	0	10	0	0	0	116	103	0	0
0	0	0	0	5	0	0	0	24	0	0	0	18	0	0	0
0	0	0	0	0	0	5	0	0	0	8	12	0	0	10	2
0	0	0	0	5	0	0	0	23	11	0	0	43	10	0	0
0	0	0	0	4	1	0	0	0	0	0	0	24	13	0	0
0	0	0	0	4	1	0	0	4	1	0	0	19	1	0	0
0	0	0	0	5	0	0	0	5	0	0	0	36	10	0	0
0	0	0	0	5	0	0	0	5	0	0	0	20	4	0	0
0	0	0	0	4	1	0	0	4	1	0	0	12	2	0	0
0	0	0	0	5	0	0	0	27	2	0	0	16	0	6	7
0	0	0	0	0	0	2	1	0	0	27	14	0	0	5	3
0	0	0	0	0	0	0	5	0	0	1	51	0	0	0	30
0	0	0	0	0	2	0	8	8	10	4	14	7	8	2	12
0	0	0	0	4	1	0	0	8	7	0	0	32	25	0	0
0	0	0	0	0	5	0	0	4	25	0	0	19	20	0	0

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

Thematic areas	Cattle	Poultry	Piggery	Rabbit	Fisheries	TOTAL
Evaluation of Breeds						
Nutrition Management						
Disease of Management	1	1				2
Value Addition						
Production and Management						
Feed and Fodder						
Small Scale income generating enterprises						
Dairy						
Others (Pl. specify)						
TOTAL	1	1				2

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

Thematic areas	Cattle	Poultry	Piggery	Rabbit	Fisheries	TOTAL
Evaluation of Breeds						
Nutrition Management						
Disease of Management						
Value Addition						
Production and Management						
Feed and Fodder						
Small Scale income generating enterprises						
Dairy						
Others (Pl. specify)						
TOTAL						

4.B. Achievements on technologies Assessed and Refined

4.B.1. Technologies Assessed under various Crops

Thematic areas	Crop	Name of the technologies	No. of trials	Number of farmers / locations	Area in ha (Per trial covering all Technological Options in a farm)
Integrated Nutrient Management	Passion Fruit	Assessment of micro-nutrient sprays for mitigating irregularities in passion fruit	02	02	1.0
Varietal Evaluation	Finger Millet	Assessment of finger millet varieties in tribal belts of Idukki district	03	03	1.0
	Yard long bean	Assessment of yard long bean varieties in Idukki district	05	05	0.2
	Tapioca	Assessment of cassava varieties in high range	05	05	1.0
Integrated Pest Management					
Integrated Crop Management					
Integrated Disease Management	Banana	Assessment of fusarium wilt disease management in banana	05	05	2.0
Small Scale Income Generation Enterprises					
Weed Management					
Resource Conservation Technology		Assessment of different decomposing cultures in composting of agricultural wastes	05	05	0.1
Farm Machineries					
Integrated Farming System					

Seed / Plant production	Black pepper	Assessment of different potting mixture to produce healthy planting material of black pepper	02	02	2 unit
Value addition					
Drudgery Reduction					
Storage Technique					
Mushroom cultivation					
Total					

4.B.2. Technologies Refined under various Crops :nil

Thematic areas	Crop	Name of the technologies	No. of trials	Number of farmers/locations	Area in ha (Per trial covering all Technological Options in a farm)
Integrated Nutrient Management					
Varietal Evaluation					
Integrated Pest Management					
Integrated Crop Management					
Integrated Disease Management					
Small Scale Income Generation Enterprises					
Weed Management					
Resource Conservation Technology					
Farm Machineries					
Integrated Farming System					
Seed / Plant production					
Value addition					
Drudgery Reduction					
Storage Technique					
Mushroom cultivation					
Total					

4.B.3. Technologies assessed under Livestock

Thematic areas	Name of the livestock	Name of the technologies	No. of trials	No. of farmers/locations
Evaluation of breeds				
Nutrition management				
Disease management	Dairy cattle	Assessment of EVM preparation for control of ecto-parasite in the dairy cattle	5	5
Value addition				
Production and management				
Feed and fodder				
Small scale income generating enterprises				
Total			5	5

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

Thematic areas	Name of the livestock	Name of the technologies	No. of trials	No. of farmers/locations
Evaluation of breeds				
Nutrition management				
Disease management				
Value addition				
Production and management				
Feed and fodder				
Small scale income generating enterprises				
Total				

4.B.5. Technologies assessed under various enterprises by KVKs

Sl.	Thematic areas	Name of the enterprise	Name of technology(s)	No. of trials	No. of locations
1	Drudgery reduction				
2	Entrepreneurship Development				
3	Health and nutrition				
4	Processing and value addition				
5	Energy conservation				
6	Small-scale income generation				
7	Storage techniques				
8	Household food security				
9	Organic farming				
10	Agroforestry management				
11	Mechanization				
12	Resource conservation technology	Agriculture waste composting	1. Waste decomposer (NCOF) 2. Arka microbial decomposer (IIHR) 3. Microbial inoculum (KAU)	5	5

13	Value Addition			
14	Others			

4.B.6. Technologies assessed under various enterprises for women empowerment: nil

	Thematic areas	Name of enterprise	Name of technology(s)	No. of trials	No. of locations
1	Drudgery Reduction				
2	Entrepreneurship Development				
3	Health and Nutrition				
4	Value Addition				
5	Women Empowerment				
6	Others(Home science)				

4.C1. Results of Technologies Assessed

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Source of technology	Yield	Unit of yield	Observations other than yield	Gross Return Rs. / unit	Net Return Rs. / unit	BC Ratio (Gross income / Gross Cost)
1	2	3	4	5	6	7	8	9	10	11	12	13
Finger millet	Irrigated	Lodging and Shattering losses	Assessment of finger millet varieties in tribal belt of Idukki district		T.O.1 (Farmers practice e- Local Variety)	-	10.83	t/ha	No. of tillers :6 Ear length: 8 cm	13833	7833	1.57
					T.O.2 – CO 15	TNAU	13.5	t/ha	No. of tillers :5 Ear length: 7 cm	14667	12333	1.84
					T.O.3 – GPU-67	UAS, Bangalore	19.5	t/ha	No. of tillers :7 Ear length: 6.9 cm	15333	23667	2.54
Passion Fruit	Irrigated	High fruit drop, Malformed/shriveled fruits	Assessment of micronutrient spray for mitigating irregularities in passion fruit	02	T.O.1 (Farmers practice- Basal application of FYM and complex fertilizers + secondary nutrients)	nil	8.0	t/ha	Fruit drop:26.5% Malformed fruit: 27.5% Average fruit weight: 0.17 kg	214555.50	135444.50	1.625
					T.O.2 – FYM @ 10 kg, N- 20g, P- 20 g and K- 15 g per plant + Boron spray	TNAU	9.9	t/ha	Fruit drop:20.5% Malformed fruit: 22.5% Average fruit weight: 0.19 kg	210555.50	214444.50	2.11
					T.O.3 – FYM @ 10 kg, N- 110g, P- 60 g and K- 110 g per plant + Micronutrient spray	IIHR	10.9	t/ha	Fruit drop:10% Malformed fruit: 12.5% Average fruit weight: 0.24 kg	200000.00	297500.00	2.48
					T.O.4 – FYM @ 10 kg, N- 110g, P- 60 g and K- 110 g per plant +	KAU	9.2	t/ha	Fruit drop:14% Malformed fruit: 17% Average fruit weight: 0.2 kg	212500.00	200000.00	1.94

					Ayar							
Black Pepper	Irrigated	Low recovery of planting material due to disease in nursery	Assessment of different potting mixture to produce healthy planting material in black pepper	02	T.O.1 (Farmers practice-	-	-	-	Percent recovery of plants:20% Percent incidence of disease:28%	9000.00	3010.00	1.5
					T.O.2 – Coir pith compost + soil + Trichoderma	KAU	-	-	Percent recovery of plants:35% Percent incidence of disease:18%	15560.00	9660.00	2.63
					T.O.3 – Arka fermented cocopeat+ Soil+ coddung	IIHR	-	-	Percent recovery of plants:20% Percent incidence of disease:25%	10000.00	4150.00	1.7
Poultry	Homestead	Non availability of quality layer chicks	Assessment of different breeds of Poultry under homestead in Idukki District.	03	T.O.1 (Farmers practice)-Rearing of non-descript breeds		450	Nos.	Age at sexual maturity-170 days Body weight-1.290 kg	3850.00	1216.00	1.46
					T.O.2 – Rearing of Bv-380 chicks	CPDO, Bengaluru	950	Nos.	Age at sexual maturity-150 days Body weight-1.410 kg	6650.00	2250.00	1.51
					T.O.3 – Rearing of Kalinga Brown	CPDO, Bengaluru	1470	Nos.	Age at sexual maturity-150 days Body weight-1.400 kg	10290.00	4623.00	1.81
					T.O.4 – Rearing of Krishi Bro	DPR, Hyderabad	1050	Nos.	Age at sexual maturity-150 days Body weight-1.450 kg	7350.00	2983.00	1.68
Tapioca	Irrigated	Lack of high yielding variety, less consumer acceptability due to high cyanogen content and high mosaic disease incidence	Assessment of cassava varieties in high range	05	T.O.1(Farmers practice)-local variety			Ongoing-vegetative stage				
					T.O.2-Sree Pavithra	CTCRI						
					T.O.3-Vellayani Hraswa	KAU						
					T.O.4-KAU Uthama	KAU						
yard long bean	Irrigated	Less yield Lack of awareness on high yielding varieties	Assessment of yard long bean varieties in Idukki district	05	T.O.1 (farmers practice)-Lola			Ongoing				
					T.O.2-Arka mangala	IIHR						
					T.O.3-Manjari	KAU						
Organic farming	Irrigated	Low recovery of planting material due to disease in nursery	Assessment of different decomposing cultures in composting of agricultural wastes	05	T.O.1 (FARMERS PRACTICE)-biomass & cow dung slurry			Ongoing-Decomposition stage				
					T.O.2-Arka microbial decomposer	IIHR						

					T.O.3- Organic waste decompose r	NCOF, UP						
					T.O.4- Compostin g inoculum s	KAU						
Banana	Irrigated	Sudden Plant mortality Considerable reduction in yield	Assessment of fusarium wilt disease management in banana	05	T.O.1 (Farmers practice)- Uprooting and cutting of infected mother plants		Ongoi ng					
					T.O.2- Drench pseudomo nas @ 4 ml/litre of water at second, forth and sixth month after planting	TNAU						
					T.O.3-Soil applicatio n of Trichoder ma + pencilium @ 10g/plant	ICAR	Ongoi ng					
Dairy cattle		Severe ecto-parasitic infestation in dairy cattle	Assessment of EVM preparations for control of ecto-parasites in dairy cattle		T.O.1 (farmers practice)- Chemical ecto- paracitide	KAU	Ongoi ng					
					T.O.2- Herbal preparatio n of crushed Garlic and neem oil	KVASU						
					T.O.3- preparatio n of Aloevera, Ocimum sanctum, acorus calamus, Piper nigrum and Curcuma longa	TANUVAS						

4. C2. Feedback on technologies assessed

Name of technology assessed	Useful characters as well as constraints of technology	Socio-economic as well as administrative constraints for its adoption
Assessment of finger millet varieties in tribal belt of Idukki district	GPU 67 gave higher yield , found less pest and disease incidence and less shattering loss	-
Assessment of micronutrient spray for mitigating irregularities in passion fruit	Micronutrient spray improved the fruit keeping quality. Less awareness on micronutrient disorders	No micronutrients developed for passionfruit, only IIHR Vegetable special used for assessment
Assessment of different potting mixture to produce healthy planting material in black pepper	Coirpith compost + trichoderma gave better result for reducing fungal attack.	nil

Assessment of different breeds of Poultry under homestead in Idukki District.	BV-380 poultry breed having good egg laying capacity with an annual egg production of 288 eggs /annum and having Omega-3 Fatty acids	-
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4.C3. Details of Successfully completed / concluded technology assessment (support with necessary summary of data and photographs)

- 1)
 1. Title of Technology Assessed: Assessment of finger millet varieties in tribal belt of Idukki district
 2. Performance of the Technology on specific indicators: GPU 67 gave higher yield, found less pest and disease incidence and less shattering loss
 3. Specific Feedback from farmers: Farmers accepted to continue cultivate the variety GPU 67 since it gave higher yield compared to local variety cultivated
 4. Specific Feedback from Extension personnel and other stakeholders: the variety will be made more available to the farmers through various line department
 5. Feedback to Research System based on results and feedback received: GPU 67 gave higher yield , found less pest and disease incidence and less shattering loss
 6. Feedback on usefulness and constraints of technology: nil
- 2)
 1. Title of Technology Assessed: Assessment of micronutrient spray for mitigating irregularities in passion fruit
 2. Performance of the Technology on specific indicators: IIHR micronutrient spray mitigated the irregularities in fruit
 3. Specific Feedback from farmers: Since IIHR micronutrient spray resulted in more reduction in nutritional disorders, farmers accepted spray the same in passion fruit cultivation
 4. Specific Feedback from Extension personnel and other stakeholders: popularize the technology through various line departments
 5. Feedback to Research System based on results and feedback received: Boron spray alone cannot mitigate the nutritional disorders in fruits. So zinc + Boron spray is recommended
 6. Feedback on usefulness and constraints of technology: nil
- 3)
 1. Title of Technology Assessed: Assessment of different potting mixture to produce healthy planting material in black pepper
 2. Performance of the Technology on specific indicators: Coirpith compost + soil +trichoderma gave better result in reduction of fungal disease
 3. Specific Feedback from farmers: the technology assessed increased the percent recovery of plants
 4. Specific Feedback from Extension personnel and other stakeholders: technology spread through various line departments
 5. Feedback to Research System based on results and feedback received: Coirpith compost + soil +trichoderma is a better medium for ply bags of pepper nursery
 6. Feedback on usefulness and constraints of technology: nil
- 4)
 1. Title of Technology Assessed: Assessment of different breeds of Poultry under homestead in Idukki District
 2. Performance of the Technology on specific indicators: BV-380 poultry breed having good egg laying capacity with an annual egg production of 288 eggs /annum and having Omega-3 Fatty acids
 3. Specific Feedback from farmers: Body weight of BV 380 was found good as compared to other breeds
 4. Specific Feedback from Extension personnel and other stakeholders: technology spread through various line departments
 5. Feedback to Research System based on results and feedback received: Kalinga brown and Krishi bro was well adopted for high ranges. But BV 380 have good egg laying potential
 6. Feedback on usefulness and constraints of technology: nil

4.D1. Results of Technologies Refined: nil

Crop/enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Refined	Source of technology	Yield	Unit of yield	Observations other than yield	Gross Return Rs. / unit	Net Return Rs. / unit	BC Ratio (Gross income/ Gross Cost)
1	2	3	4	5	6	7	8	9	10	11	12	13
					T.O.1 (Farmers)							

							and Disease management	pest and disease management in Bitter Gourd							
		Irrigated	Rabi	Pepino	nil	-	Crop introduction	Cultivation of Pepino (sweet cucumber, melon pear) as an exotic salad vegetables.	0.25	0.25	0	05	05	0	
		Irrigated	Rabi	Garden pea	nil	Arka apoorva	variety introduction	Demonstration of new whole pod edible dual purpose pea variety of Arka Apoorva	0.75	0.75	0	05	05	0	
		Irrigated	Rabi	cabbage	nil	Quisor	Integrated Nutrient Management	Integrated Nutrient Management in Cabbage.	1	1	05	0	05	0	
	Flowers														
	Ornamental														
	Fruit	Irrigated	Kharif	Banana	Nendran	nil	Integrated Nutrient management	Integrated Nutrient management in Banana	1	1	0	05	05	0	
		Irrigated	Perennial	Kiwi	nil	Bruno	Crop introduction	Cultivation of Kiwi Fruit which requires relatively less chilling period.	0.5	0.5	03	0	03	0	
		Irrigated	Kharif	Strawberry	Red charely	-	IPM	AESA based integrated pest management in strawberry	2	2	5	5	5	0	
	Spices and condiments	Irrigated	Kharif	Black pepper	Karimunda	nil	INM	Demonstration of IISR PGPR consortium for growth promotion in Black pepper	1	1	0	5	5	0	
		Irrigated	Kharif	Small cardamom	Njallani	nil	IPM	Bio-intensive intervention of pest, drought management and deterring crop raiding wild elephant in small cardamom	2	2	0	5	5	0	
		Limited irrigation	Zaid	Ginger	Ashwathy	nil	ICM	GAP in ashwathy variety of ginger	0.2	0.2	0	5	5	0	
	Commercial														
	Medicinal and aromatic														
	Fodder														
	Plantation														
	Fibre														
	Dairy	Homestead	Throughout the year	Livestock-cattle	Cross breed Jersey & HF-	Cross breed Jersey & HF-	Disease Management	Demonstration on Estrus Synchronization in Cattle	5	5	0	5	5	0	
		Intensive	Throughout the year	Livestock-			Disease Manage	Demonstration of	5	5	0	5	5	0	

Vegetables	Enhancing Productivity and Nitrogen Use efficiency in cowpea	-	Lola	Irrigated	5	1 ha	130	125	130	100	23	260000	173000	2.9	200000	111000	2.2
	Integrated Nutrient Management in Cabbage.	-	Quisor	Irrigated	5	2 ha	620	355	596	376	58	357600	238200	2.97	226080	112380	1.92
	Bio-intensive pest and disease management in cowpea	-	lola	Irrigated	5	2	167.4	131	155	112	38.39	387500	212500	2.21	300500	135500	1.82
	Bio- intensive pest and disease management in Bitter Gourd	local	-	Irrigated	5	2	82	69	85.6	67.2	27.38	367400	205400	2.26	235200	78200	1.50
	Cultivation of Pepino (sweet cucumber, melon pear) as an exotic salad vegetables.	local	-	Irrigated	5	0.25	90	80	83.8	-	-	167600	109600	2.92	-	-	-
	Demonstration of new whole pod edible dual purpose pea variety of Arka Apoorva	-	Arka apoorva	Irrigated	5	0.75	-	-	-	-	Ongoing	-	-	-	-	-	-
	Integrated Nutrient Management in Cabbage.	-	Quisor	Irrigated	5	1	-	-	-	-	Ongoing	-	-	-	-	-	-
Flowers																	
Ornamental																	
Fruit	Integrated Nutrient management in Banana	Nendran	-	Irrigated	5	1 ha	418.5	34.87	388.2	226.9	35	582300	357300	2.58	340350	125350	1.58
	Cultivation of Kiwi Fruit which requires relatively less chilling period.	Bruno	-	Irrigated	3	0.5 ha	-	-	-	-	Ongoing	-	-	-	-	-	-
	AESA based integrated pest management in strawberry	Charely	-	Irrigated	5	2	-	-	-	-	Ongoing	-	-	-	-	-	-
Spices and condiments	Demonstration of IISR PGPR consortium for growth promotion in Black pepper	Karimunda	-	Irrigated	5	1	-	-	-	-	Ongoing	-	-	-	-	-	-
	Bio-intensive intervention of pest, drought management and deterring crop raiding wild elephant in small cardamom	Njallani	-	Irrigated	5	2	-	-	-	-	Ongoing	-	-	-	-	-	-
	GAP in ashwathy variety of ginger	Ashwathy	-	Limited irrigation	5	0.2	-	-	-	-	Ongoing	-	-	-	-	-	-
Commercial																	
Fibre crops like cotton																	
Medicinal and aromatic																	
Fodder																	
Plantation																	
Fibre																	
Others (Nutritional garden)	Implementation of homestead garden, easy availability of nutritional plants	All suitable nutritive plants	-	Irrigated	5	0.2	230	215	222.5	-	-	23540	15040	2.76	-	-	-
Others (Tuber crop)	Demonstration of customized fertilizer-I in Tapioca	Sree pavithra	-	Irrigated	5	1	-	-	-	-	Ongoing	-	-	-	-	-	-

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

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

5. B6. Feedback on fisheries technologies demonstrated: nil

Name of fisheries technology demonstrated	Useful characters as well as constraints of technology	Socio-economic as well as administrative constraints for its adoption

5.B.7. Other enterprises : nil

Enterprise	Name of the technology demonstrated	Variety/species	No. of Demo	Units/Area {m ² }	Name of the parameter with unit	Yield			% Increase	*Economics of demonstration (Rs./unit) or (Rs./m ²)			*Economics of check (Rs./unit) or (Rs./m ²)			
						Demo		Check if any		Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR	
						H	L									A
Oyster mushroom																
Button mushroom																
Vermicompost																
Sericulture																
Apiculture																
Others (pl.specify)																

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

** BCR= GROSS RETURN/GROSS COST

H-High L-Low, A-Average

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

Data on other parameters in relation to technology demonstrated		
Parameter with unit	Demo	Local

5. B8. Feedback on enterprises demonstrated: nil

Name of enterprise demonstrated	Useful characters as well as constraints of technology	Socio-economic as well as administrative constraints for its adoption

5.B.9. Farm implements and machinery: nil

Name of the implement	Cost of the implement in Rs.	Name of the technology demonstrated	No. of Demo	Area covered under demo in ha	Name of the operation with unit	Labour requirement in Mandays		% save	Savings in labour (Rs./ha)	*Economics of demonstration (Rs./ha)			*Economics of check (Rs./ha)		
						Demo	Check			Gross Return	Net Return	** BCR	Gross Return	Net Return	** BCR

* 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 labour saved (viz., reduction in drudgery, time etc.) : nil

Data on other parameters in relation to technology demonstrated		
Parameter with unit	Demo	Local

5. B10. Feedback on farm implements demonstrated: nil

Protective cultivation										
Others (pl.specify)										
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl.specify)										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl.specify)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl.specify)										
Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated nutrient management	1	0	205	205	0	0	0	0	205	205
Production and use of organic inputs	1	10	231	241	0	0	0	10	231	241
Management of Problematic soils										
Micro nutrient deficiency in crops	1	5	5	10	0	0	0	5	5	10

Nutrient use efficiency										
Balanced use of fertilizers										
Soil and water testing										
Others (pl.specify)										
Livestock Production and Management										
Dairy Management	2	37	2	39	0	0	0	37	2	39
Poultry Management	1	882	178	1060	10	5	15	892	183	1075
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Animal Disease Management	1	882	178	1060	0	0	0	882	178	1060
Feed and Fodder technology	1	882	178	1060	10	5	15	892	183	1075
Production of quality animal products										
Others (pl.specify)										
Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	1	0	0	0	4	6	10	4	6	10
Design and development of low/minimum cost diet	1	0	0	0	3	12	15	3	12	15
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking	1	0	0	0	5	5	10	5	5	10
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	2	1764	356	2120	20	10	30	1784	366	2150
Women empowerment	1	1	9	10	5	5	10	6	14	20
Location specific drudgery production										
Rural Crafts	3	897	188	1085	0	0	0	897	188	1085
Women and child care										
Others (pl.specify)										
Agril. Engineering										
Farm machinery and its maintenance										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (pl.specify)										
Plant Protection										
Integrated Pest Management	1	57	22	79	3	0	3	60	22	82
Integrated Disease Management										
Bio-control of pests and diseases	1	882	178	1060	0	0	0	882	178	1060
Production of bio control agents and bio pesticides	1	882	178	1060	0	0	0	882	178	1060

Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl.specify)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl.specify)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl.specify)										
Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated nutrient management										
Production and use of organic inputs	1	5	9	14	0	0	0	5	9	14
Management of Problematic soils	1	21	5	26	0	0	0	21	5	26
Micro nutrient deficiency in crops	1	27	5	32	0	0	0	27	5	32
Nutrient use efficiency										
Balanced use of fertilizers										
Soil and water testing										
Others (pl.specify)										
Livestock Production and Management										
Dairy Management	2	10	9	19	4	14	18	14	23	37
Poultry Management	2	0	0	0	0	52	52	0	52	52
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Animal Disease Management	1	8	7	15	0	0	0	8	7	15
Feed and Fodder technology										
Production of quality animal products										
Others (Goat management)	2	2	52	54	0	8	8	2	60	62

Others (pl.specify)										
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Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom production										
Apiculture										
Others (pl.specify)										
CapacityBuilding and Group Dynamics										
Leadership development	1	2	4	6	5	3	8	7	8	15
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
Others (pl.specify)										
Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (Pl. specify)										
TOTAL	37	1782	303	2085	103	143	246	1885	457	2342

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										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production	3	15	17	32	0	0	0	15	17	32
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts	2	10	10	20	0	0	0	10	10	20
Production of quality animal products	1	8	7	15	0	0	0	8	7	15
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (pl.specify)										
TOTAL	6	33	34	67	0	0	0	33	34	67

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

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts	3	0	13	13	0	3	3	0	16	16
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (pl.specify)										
TOTAL	3	0	13	13	0	3	3	0	16	16

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

Area of training	No. of Courses	No. of Participants								
		General			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management	3	119	3	122	0	0	0	119	3	122
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs	2	80	2	82	0	0	0	80	2	82
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Management in farm animals										
Livestock feed and fodder production										
Household food security										
Any other (pl.specify)										
Total	5	199	5	204	0	0	0	199	5	204

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

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

17.G. Sponsored training programmes conducted

S.No.	Area of training	No. of Courses	No. of Participants								
			General			SC/ST			Grand Total		
			Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Crop production and management										
1.a.	Increasing production and productivity of crops	18	1709	130	1839	41	30	71	1748	157	1905
1.b.	Commercial production of vegetables	0	0	0	0	0	0	0	0	0	0
2	Production and value addition	0	0	0	0	0	0	0	0	0	0
2.a.	Fruit Plants	0	0	0	0	0	0	0	0	0	0
2.b.	Ornamental plants	0	0	0	0	0	0	0	0	0	0
2.c.	Spices crops	0	0	0	0	0	0	0	0	0	0
3.	Soil health and fertility management	6	92	18	110	1	0	1	93	18	111
4	Production of Inputs at site	0	0	0	0	0	0	0	0	0	0
5	Methods of protective cultivation	10	383	3	386	0	0	0	383	3	386
6	Others (pl.specify)	0	0	0	0	0	0	0	0	0	0
7	Post harvest technology and value addition	0	0	0	0	0	0	0	0	0	0
7.a.	Processing and value addition	0	0	0	0	0	0	0	0	0	0
7.b.	Others (Mushroom cultivation)	1	3	16	19	0	11	11	3	27	30
8	Farm machinery	0	0	0	0	0	0	0	0	0	0
8.a.	Farm machinery, tools and implements	0	0	0	0	0	0	0	0	0	0
8.b.	Others (pl.specify)	0	0	0	0	0	0	0	0	0	0
9.	Livestock and fisheries	0	0	0	0	0	0	0	0	0	0
10	Livestock production and management	0	0	0	0	0	0	0	0	0	0
10.a.	Animal Nutrition Management	0	0	0	0	0	0	0	0	0	0
10.b.	Animal Disease Management	0	0	0	0	0	0	0	0	0	0
10.c.	Fisheries Nutrition	0	0	0	0	0	0	0	0	0	0
10.d.	Fisheries Management	0	0	0	0	0	0	0	0	0	0
10.e.	Others (pl.specify)	0	0	0	0	0	0	0	0	0	0
11.	Home Science	0	0	0	0	0	0	0	0	0	0
11.a.	Household nutritional security	3	37	82	119	0	29	29	37	111	148
11.b.	Economic empowerment of women	5	12	38	50	0	19	19	12	57	69
11.c.	Drudgery reduction of women	0	0	0	0	0	0	0	0	0	0
11.d.	Others (Value addition)	1	5	19	24	0	2	2	5	21	26
12	Agricultural Extension	0	0	0	0	0	0	0	0	0	0
12.a.	CapacityBuilding and Group Dynamics	7	264	12	276	6	5	11	270	17	287
12.b.	Others (pl.specify)	0	0	0	0	0	0	0	0	0	0
	Total	51	2505	318	2823	48	96	144	2551	411	2962

Details of sponsoring agencies involved

1. Department of Agriculture
2. IFFCO
3. Coffee Board

4. DIC, Idukki

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

S.No.	Area of training	No. of Courses	No. of Participants											
			General			SC/ST			Grand Total					
			Male	Female	Total	Male	Female	Total	Male	Female	Total			
1	Crop production and management													
1.a.	Commercial floriculture													
1.b.	Commercial fruit production													
1.c.	Commercial vegetable production													
1.d.	Integrated crop management													
1.e.	Organic farming													
1.f.	Others (soil and water analysis)	1	5	5	10	0	0	0	5	5	10			
2	Post harvest technology and value addition													
2.a.	Value addition													
2.b.	Others (pl.specify)													
3.	Livestock and fisheries													
3.a.	Dairy farming													
3.b.	Composite fish culture													
3.c.	Sheep and goat rearing													
3.d.	Piggery													
3.e.	Poultry farming													
3.f.	Others (pl.specify)													
4.	Income generation activities													
4.a.	Vermi-composting													
4.b.	Production of bio-agents, bio-pesticides, bio-fertilizers etc.													
4.c.	Repair and maintenance of farm machinery and implements													
4.d.	Rural Crafts													
4.e.	Seed production													
4.f.	Sericulture													
4.g.	Mushroom cultivation	1	5	5	10	0	0	0	5	5	10			
4.h.	Nursery, grafting etc.	1	5	5	10	0	0	0	5	5	10			
4.i.	Tailoring, stitching, embroidery, dying etc.													
4.j.	Agril. para-workers, para-vet training													
4.k.	Others (pl.specify)													
5	Agricultural Extension													
5.a.	Capacity building and group dynamics													
5.b.	Others (pl.specify)													
	Grand Total	3	15	15	30	0	0	0	15	15	30			

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

S. No.	Name of Job Role	Date of Start	Date of Close	Total Participants	No. of Participants									Date of Assessment	No of Participants passed assessment
					General			SC/ST			Grand Total				
					Male	Female	Total	Male	Female	Total	Male	Female	Total		
1	Bee keeper	14.02.2020	24.03.2020	20	0	0	0	20	0	20	20	0	20	Awaiting for assessment	0
2.															

PART VIII – EXTENSION ACTIVITIES(2020)

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

Nature of Extension Programme	No. of Programmes	No. of Participants (General)			No. of Participants SC / ST			No. of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Field Day	6	77	65	142	10	25	35	4	2	6
Kisan Mela	0	0	0	0	0	0	0	0	0	0
Kisan Ghosthi	0	0	0	0	0	0	0	0	0	0
Exhibition	0	0	0	0	0	0	0	0	0	0
Film Show	28	11717	362	12079	102	61	163	158	35	193
Method Demonstrations	24	105	44	149	4	34	38	15	11	26
Farmers Seminar	0	0	0	0	0	0	0	0	0	0
Workshop	0	0	0	0	0	0	0	0	0	0
Group meetings	39	178	191	369	34	82	116	186	55	241
Lectures delivered as resource persons	5	284	30	314	0	8	8	10	0	10
Newspaper coverage	10	Mass								
Radio talks	1	Mass								
TV talks	15	Mass								
Popular articles	0	0	0	0	0	0	0	0	0	0
Extension Literature	12	Mass								
Advisory Services	26	5513	300	5813	94	39	133	85	39	124
Scientific visit to farmers field	52	206	43	249	32	36	68	18	8	26
Farmers visit to KVK	466	862	221	641	84	7	91	381	25	406
Diagnostic visits	36	214	27	241	1	1	2	0	2	2
Exposure visits	1	5	6	11	0	0	0	1	1	2

Ex-trainees Sammelan	0	0	0	0	0	0	0	0	0	0
Soil health Camp	3	1000	288	1288	10	7	17	4	2	6
Animal Health Camp	0	0	0	0	0	0	0	0	0	0
Agri mobile clinic	0	0	0	0	0	0	0	0	0	0
Soil test campaigns	2	265	50	315	0	0	0	0	0	0
Farm Science Club Conveners meet	0	0	0	0	0	0	0	0	0	0
Self Help Group Conveners meetings	1	0	10	10	0	0	0	0	2	2
Mahila Mandals Conveners meetings	0	0	0	0	0	0	0	0	0	0
Celebration of important days (specify)	4	66	10	76	0	1	1	7	10	17
Any Other (Specify)	0	0	0	0	0	0	0	0	0	0
Total	265	20492	1647	21697	371	301	672	869	192	1061

8.2 Special Extension Programmes

Nature of Extension Programme	Date(s) conducted	No. of farmers (General)			No. of farmers SC / ST			No. of extension personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Jal Shakti Abhiyan	-	-	-	-	-	-	-	-	-	-
Fertilizer Use Awareness Campaign	-	-	-	-	-	-	-	-	-	-
National Animal Disease Control Programme	-	-	-	-	-	-	-	-	-	-
Tree Plantation Campaign	-	-	-	-	-	-	-	-	-	-
Any other										
Poshan maah	08.09.2020	0	0	0	4	6	10	0	0	0
Biofortified crops for nutritional security	09.09.2020	0	0	0	3	12	15	0	0	0
Capacity development for Anganwadi workers about poshan maah	17.09.2020	2	19	21	0	0	0	0	14	14
Swacchta programme	16.12.2020-31.12.2020	118	75	193	8	0	8	8	10	18

PART IX – PRODUCTION OF SEED, PLANT AND LIVESTOCK MATERIAL (2020)

9.A. Production of seeds by the KVKs: nil

Crop category	Name of the crop	Name of the Variety	Quantity of seed (q)	Value (Rs)	Number of farmers to whom provided
Cereals (crop wise)					
Oilseeds					
Pulses					
Commercial crops					
Vegetables					
Flower crops					
Spices					
Fodder crop seeds					
Fiber crops					
Forest Species					
Others (specify)					
Total					

9.B. Production of hybrid seeds by the KVKs: Nil

Crop category	Name of crop	Name of the hybrid	Quantity of seed (q)	Value (Rs)	Number of farmers to whom provided
Total					

9.C. Production of planting material by the KVKs

Crop category	Name of the crop	Variety	Number	Value (Rs.)	Number of farmers to whom provided
Commercial	-	-	-	-	-
Vegetable seedlings	-	-	-	-	-
Fruits	Rambootan , Mangosteen, miracle fruit, Rose apple	local	103	11490	45
Ornamental plants	Rose, Hibiscus, Anthurium, crotons, Bougainvillea	local	223	12000	56
Medicinal and Aromatic					
Plantation					
Spices	Black pepper	Karimunda, panniyur 1, panniyur 5, neelimundi	7575	32130	65
	Small cardamom	Njallani, Thiruthali & Pommi	1600	194300	12
Tuber	-	-	-	-	-
Fodder crop saplings	-	-	-	-	-
Forest Species	-	-	-	-	-
Others(specify)	-	-	-	-	-
Total	-	-	9501.00	249920.00	178.00

9.D. Production of hybrid planting materials by the KVKs: Nil

Crop category	Name of crop	Name of the hybrid	Quantity of seed (q)	Value (Rs)	Number of farmers to whom provided
Total					

9.C. Production of Bio-Products

Bio Products	Name of the bio-product	Quantity (q)	Value (Rs.)	Number of farmers to whom provided
Bio Fertilizers				
	VAM	20.30	223300.00	475
	Azospirillum	4.83	72450.00	220
	Phosphobacteria	4.79	71850.00	210
	Potash Bacteria	4.84	72600.00	210
Bio-pesticide				
	Beauveria	5.77	40390.00	298
	Metarhizium	4.71	32970.00	203
	EPN	1.69	109850.00	128
	Paecilomyces	3.75	41250.00	210
	Neem soap	0.73	8760.00	20
Bio-fungicide				
	Pseudomonas	23.31	163170.00	549
	Trichoderma	16.11	112770.00	430
	<i>Bacillus subtilis</i>	1.00	12000.00	40
	<i>Bacillus Megatherium</i>	0.33	3960.00	10
Bio Agents				
	Methalobacteria-PPFM	3.81	45720.00	180
	Microbial Consortium	19.50	253500.00	320
	Effective Micro organisms	6.98	83760.00	320

	Seaweed	26.05	78150.00	260
	Humic Powder	0.83	12450.00	35
	AMC powder	0.70	10500.00	15
	Decomposer	0.90	9000.00	30
	Yellow sticky trap	31 nos.	310.00	10
	Pheromone trap	26 nos.	1300.00	15
	<i>Bacillus subtilis</i> Sub culture	17 nos.	3400.00	40
	Trichoderma Sub culture	475nos.	95000.00	300
	Methalobacteria-PPFM Sub culture	42 nos.	8400.00	30
Others (Organic manure)	vermicompost	106.85	160275.00	125
Total		257.78	1727085.00	4433

9.D. Production of livestock

Particulars of Livestock	Name of the breed	Number	Value (Rs.)	Number of farmers to whom provided
Dairy animals				
Cows				
Buffaloes				
Calves				
Others (Pl. specify)				
Poultry				
Broilers				
Layers	Krishi bro	38	7200.00	8
Duals (broiler and layer)				
Japanese Quail				
Turkey				
Emu				
Ducks				
Others (Pl. specify)				
Piggery				
Piglet				
Others (Pl. specify)				
Fisheries				
Fingerlings				
Others (Pl. specify)				
Total		38	7200.00	8

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

(A) KVK Newsletter:

Date of start: 2019-21 Periodicity: yearly Copies printed in each issue: 100

(B) Literature developed/published

Item	Number
Research papers- International	-
Research papers- National	-
Technical reports	-
Technical bulletins	-
Popular articles - English	-
Popular articles – Local language	-
Extension literature	-
Others (Pl. specify)	
Leaflet	10 no -7000 copies
Booklet	2 no – 500 copies
TOTAL	7500

10.B. Details of Electronic Media Produced

S. No.	Type of media	Title	Details
	CD / DVD	-	-
	Mobile Apps	-	-
	Social media groups with KVK as Admin	Karshaka Koottayma	WhatsApp group with 29 participants of Idukki cardamom growers started on 04.05.2017
		KVK IDK Cardamom group	WhatsApp group with 183 participants of Idukki cardamom growers started on 15.07.2019
		PKVY Group KVK Idukki	WhatsApp group with 50 participants of Idukki organic farmers started on 13.12.2019
		Naalikera Karshakar KVK Santhanpara	WhatsApp group with 43 participants of Idukki coconut growers started on 11.12.2019
		DAESI group 2020	WhatsApp group with 48 participants of Idukki Agri. Input dealers started on 10.01.2020
		KVK FLD & OFT Farmers	WhatsApp group with 25 participants of Idukki Agri. Input dealers started on 10.01.2020
		KVK-DAESI(20-21) group-I	WhatsApp group with 52 participants of Idukki Agri. Input dealers started on 15.09.2020
		KVK-DAESI(20-21) group-II	WhatsApp group with 54 participants of Idukki Agri. Input dealers started on 15.09.2020
		DAMU-ICAR, KVK, Idukki	WhatsApp group with 54 participants of Idukki Agri. Input dealers started on 27.07.2020

		NIPHM Insecticide course group	WhatsApp group with 61 participants of Idukki Agri. Input dealers started on 18.11.2020
		Vazhakrishi-ICAR, KVK, Idukki	WhatsApp group with 110 participants of Idukki Agri. Input dealers started on 28.07.2020
		Animal Husbandry -ICAR,KVK, Idukki	WhatsApp group with 25 participants of Idukki Agri. Input dealers started on 28.07.2020
	Face book account name	ICAR KVK Santhanpara, Idukki	Face book account with 1404 friends were KVK activities are updated
	Instagram account name	-	-
	You tube channel name	ICAR-Krishi Vigyan Kendra BSS, Santhanpara, Idukki	You tube channel created on 15.12.2019

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

1.Title: Assessment of different innovative technologies for deterring crop raiding wild elephants

Details of success stories:

1. Background

The forests in Idukki district are highly fragmented due to settlements and agriculture. Crop damage by wild animals in agricultural fields, adjoining the forest areas is very heavy. This is mainly due to the straying of wild animals such as Elephant (*Elephas maximus*), wild boar (*Sus scrofa*), Indian porcupine (*Hystrix indica*), gaur (*Bos gaurus*) sambar (*Cervus unicolor*), bonnet macaque (*Macaca radiata*), common langur (*Presbytis entellus*), barking deer (*Muntiacus muntjak*), mouse deer (*Tragulus mirmir*), blacknaped hare (*Lepus nigricollis*). Malabar giant squirrel (*Ratufa indica*) and pea fowl (*Pavocristatus*) were causing damage to the agricultural crops in Idukki. Among these, elephant and Monkey and wild boar causes maximum damage to agriculture crops all over Idukki. Elephants and Monkey were primarily involved in destroying crops like small cardamom, Banana, coffee, pepper and paddy. Wild boar destroyed mainly tapioca, sweet potato and Banana. The crop damage were assessed among the randomly selected Ranges. Mathikattenchola Forest Range showed highest crop damage (55%) followed by Munnar Forest Range (39%). It was found that, on an average 30% of the crop was being damaged in the Ranges surveyed. Highest damage were recorded for Small cardamom, Banana, sweet potato and tapioca. Among the animals, wild boar, elephant and gaur causes highest damage followed by sambar, chital, bonnet macaque, porcupine and barking deer.

Wild boars were a major problem in hill agriculture in Idukki District. Wild pigs raided crops and utilized the agro ecosystem for food resources and shelters. Presently, the wild pig populations were fragmented and relatively isolated all over the district. Some of these isolated populations had become overabundant and became dependent upon the agricultural crops, especially in and around the protected areas or managed forests for their food requirements. To solve the problems, KVK-Idukki had introduced innovative technology of castor based herbal extract (NIPHM) smell which is responsible for repelling the wild pigs and saved more than 90 percent crop damage of cardamom, Banana, Tapioca, Cabbage, cauliflower, Potato, carrot and Sugarcane.

2. Source of Technology:

TO-1: Placing 10 units (KrishiRakshak) per acre to keep the light units at 8 feet height for the wild elephants.

TO-2: Spray Panchagavya based Herbal Extract @ 100ml/ L of water (20-days intervals).

TO-3: Placing 10 bee boxes with colonies per acre

TO4: Placing 10 units (KrishiRakshak) per acre + Spray Panchagavya based Herbal Extract @ 100ml/ L of water + Placing 10 bee boxes

3.Intervention process

- Accessibility to the technology and availability of all basic resources

- Project formulation and onward submission to District Panchayat for grant.
- Hands-on training on the application and usage of technology
- Advisory services.
- Follow-up visits and technical support as and when required.

3. Intervention Technology

The Idukki district has 1.45 lakhs ha of small cardamom plantation damaged by elephant and monkey on average 27 percent. Hence, the suitable technology for Mathikattenchola Forest of the region is the need of the hour. To solve the problems, KVK-Idukki has initiated innovative technology of KR-LED lighting system for deterring crop raiding wild elephants in small cardamom plantation with help of Kerala forest department. Beehive fences—surrounding small cardamom fields with beehives attached to fence posts and strung together with wires—may serve as a humane and alarm communication is a key adaptation that helps eco-friendly way to protect crops from elephants and monkey

- The technology was initiated during the years 2019 with one trial
- Farmers, and farm youth were given successive trainings on the application of technology.
- Farmers were given trainings on Human Elephant Conflict and how they should respond in such circumstances.
- Timely intervention, was provided not just for farming activities, but also for allied support inventory.
- The three capacity building programmes were organized at moolalthurai Village benefiting 201 farmers. The technological products supply was initiated through demonstration programmes both at the KVK Farm and Farmers' Plots covering an area of 150 acre areas under the Front Line Demonstration Programme of KVK, Idukki.

4. Impact - Horizontal Spread

Before the intervention of KVK, about 380 crop-raiding incidents were reported in the areas of Devikulam block during the period 2017-2019. Among the four technologies experimented by the KVK, the TO4 of Placing 10 units (KrishiRakshak) per acre + Spray Panchagavya based Herbal Extract @ 100ml/ L of water + Placing 10 bee boxes yielded good results and the crop damage recorded 15 % increase in yield. The trials organized by Kerala Forest Department and ATMA-Idukki recorded 68 % increase in the yield compared to the places without LED lights and Beehive fences. Moreover, time spent by elephants during crop-raiding also decreased from an average of 302 minutes to 34 minutes in all the four areas under trial. 700 farmers have adopted the technology. The technology is horizontally expanded through Kerala Forest Development Corporation and ATMA Idukki to cover various blocks of Idukki District. Based on the demand, the KVK has planned to supply the technological products at the village level covering more area during the year 2021-2022 to meet the farmers' potential demand in the District.

The Field Day was organized at moolalthurai Village and benefitted 201 farmers and 4 extension personnel

5. Impact - Vertical spread.

Due to the intervention, crop losses has decreased drastically to 15 %. The least crop losses (5%) was reported in Pethotty where the TO4 was implemented (Placing 10 units (KrishiRakshak) per acre + Spray Panchagavya based Herbal Extract @ 100ml/ L of water + Placing 10 bee boxes).

6. Impact - Economic Gains

Economic analysis of the interventions shows that, the income of the farmers have increased with a B: C ratio of 1.71 in the case of TO4, 1.54 for TO1, 1.73 for TO3 and 2.14 for TO2. Earlier before the interventions, farmers relied on crude methods to chase away elephants which yielded no significant results.

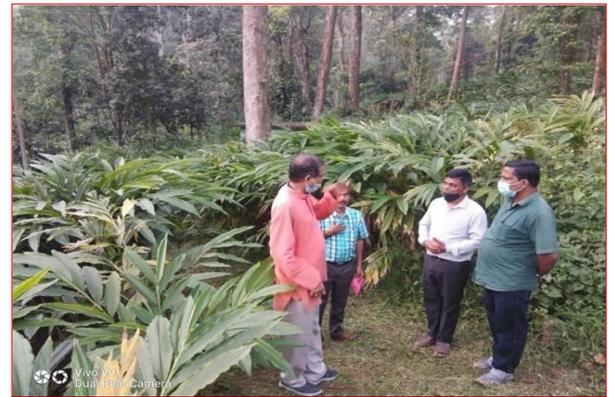
Conclusion

Spatial drivers of crop raiding are influenced by land-use patterns and anthropogenic factors, and seasonality of such events are governed by the agriculture calendar. Crop raiding has been widely documented to coincide with the harvesting pattern of major agricultural crops in Idukki and Wayanad. Furthermore, female elephants are reported to be in peak sexual activity during monsoons which could be another major driver of crop-raiding peaks in monsoon months. Seasonal patterns of crop-raiding and fatal elephant attacks on humans also exhibit a similar trend with peaks during monsoon and winter months. Hence, KVK Santhanpara recommends the intensification of mitigation measures during these two major crop raiding periods. Out of the four technologies tested, TO-4 proved to be highly beneficial in reducing the incidence and time taken for crop raiding, therefore KVK recommends the adoption of the technology among the farmers.

Steps for Scaling – up:

- Traditional crop guarding measures should be integrated with early warning systems and tested technologies
- Large Scale demonstrations will be conducted in convergence with ATMA-Idukki.
- The KVK will ensure that the majority of the growers are benefited by such programmes.
- Brochures and other literary works will be published to give the farmers a quick summary
- Feedback will be obtained and their constraints will be met on a timely basis

- Farmers will be educated to restore the forest patches in the vicinity of human settlements and to minimize the encroachment of riverine patches.



2. Title: Application of IIHR Vegetable Nutrient spray which results in mitigating nutritional irregularities in Passion fruit

Details of success stories:

1. Background

Passion fruit (*Passiflora edulis*) is an attractive, nutritious fruit crop highly appreciated for fresh consumption and industrial purposes because of its diverse uses for juice, jelly and ice cream products. It is a perennial woody fruit vine belongs to family Passifloraceae, native to tropical America (Brazil). Kerala has enjoyed a moderate harvest of purple passion fruit in the Idukki, Wayanad, and Malabar in the south. However, In Idukki district, the full potential of this fruit could not be yielded mainly due to factors such as fruits with less juice, soft seeds, less fruit set, high fruit drop, malformed / shriveled fruits, low TSS and high acidity of juice.

To rectify these recurring problems, KVK Santhanpara has undertaken an assessment, with different micronutrient sprays in order to retain the interest of the farmers and demand of the fruit.

2. Source of the technology: Farmers Practice, TNAU, 2015 and IIHR -2016

TO-1: Basal application of FYM & complex fertilizers

TO-2: FYM 10 kg, N 20 g, P 20 g and K 15 g/plant + boron spray

TO-3: 110g N, 60g P₂O₅ and 110g K₂O per vine per annum + IIHR micronutrient spray

TO-4: FYM- 10 kg, N-110g, P- 60g, K-110g per vine/annum + Ayar @ 50g/plant

3. Intervention process.

- Soil testing at the farmer's field.
- Availability of all the basic input resources
- Hands-on training on value addition of passion fruit.
- Advisory services.
- Follow-up visits and technical support as and when required.

4. Intervention Technology

- Field visits to the farmers who have successfully adopted micro nutrient sprays
- Trainings and capacity building programmes for the farmers
- Timely intervention, not just for farming activities, but also for allied support inventory.
- Corrective deliberations and fool proof measures in all the stages of crop production

5. Impact - Horizontal Spread

The data revealed that, within the micronutrient sprays, application of passion fruit with TO-3: 110g N, 60g P₂O₅ and 110g K₂O per vine per annum + IIHR micronutrient spray was found more effective when compared to other two technology options. The fruits yielded had high TSS and less acidity and was found suitable for jelly, ready to serve and squashes.

6. Impact – Vertical Spread

Spraying the fertilizer (TO-4) to the leaves obviates soil fixation of the Zinc and Boron and provided a very large area for absorption, which ultimately results in increased vegetative growth and fruit yield. Moreover, there was decreased incidence of fruit drop and shrivelled or malformed fruits.

7. Impact Economic Gains

When analyzed the profitability of passion fruit, it was observed that the culture of kauveri passion fruit is economically viable with a productivity greater than 100 q/hectare/year when treated with TO-3: 110g N, 60g P₂O₅ and 110g K₂O per vine per annum + IIHR micronutrient spray when compared to the farmers practice, TO-2 and TO -4. However, due to the sharp increase in the price of inputs and the price of a kilo of fruit in the last 05 years it is necessary to increase the productivity per hectare, as well as minimize the cost of production and cause the activity to be sustainable economically.

Conclusion:

Keeping in view the above aspects, it can be concluded that cultivation and production of passion fruit is technically feasible with the application of suitable micro nutrient sprays when compared to the traditional methods. However, the first and foremost step to be taken up is to create an awareness among the people and give wide publicity through different means, then creation of integrated efforts among all the possible stakeholders e.g. farmers, government agencies, research institutions and other agencies. Moreover development of proper market linkages between the investors / business houses and the producers would certainly boost the passion fruit production in the district.

Scaling up:

- Strategies for post harvest management will be developed.
- Proper storage facilities will be created
- New processing units will be set up
- Brochures and other literary works will be published to give the farmers a quick summary
- Feedback will be obtained and their constraints will be met on a timely basis



Title 3: Integrated Nutrient Management in Banana variety of Nendran

1. Background

Banana also known as ‘Poor man’s apple’ is the major staple food crop for people in India. It is mainly produced in tropical and sub-tropical regions of the world and recognised as the fourth most important food in terms of gross value after paddy, wheat and milk products. It is a cheap source of energy like vitamins A, C, B6 and other minerals with traces of fat. Due to its large size and rapid growth rate, it requires a relatively large amount of nutrients for high yields of quality fruits. Application of inorganic fertilizers though increases the yield substantially but could not be able to sustain the fertility status of the soil and have caused several undesirable consequences in the fragile soil eco-system, leading to gradual decline in productivity. Considering the present situation of soil quality and environmental security, it is necessary to go for an integrated nutrient management, involving various sources of organic manures, organic cakes and bio-fertilizers besides using chemical fertilizers in banana.

Banana Cultivation in Idukki district also faces problems like high soil acidity, inward marginal yellowing of older leaf followed by marginal necrosis, yellow stripes parallel to leaf midrib and crinkling of leaves, delayed unfolding of leaves, deformation of flag leaves, and growth retardation. However, studies indicate that combined application of 100% recommended dose of NPK along, IIHR Banana Special with organic manures increased the pseudo stem height and girth, minimize the days for flowering, reduce deformation and total crop duration and increased yield attributes in banana. Hence, this study was undertaken by KVK Santhanpara to find out the influence of INM on yield and other attributes of Banana. The banana cv. Nendran was used as a test crop during the period of demonstration.

2. Source of Technology : KAU, and IIHR

3. Intervention process

- Availability of all the basic input resources
- Awareness campaigns on the ill effects of chemical fertilizers
- Hands-on training on Integrated Nutrient Management
- Timely intervention on different stages of growth of Banana.
- Advisory services.
- Follow-up visits and technical support as and when required.

3. Intervention Technology

- Created a platform, where farmers could understand the various critical stages of the growth of Banana, and the need of application of nutrients in such stages
- The technology was initiated in the year 2019-20 in the field of 5 progressive farmers.
- Between 2019-20, several trainings, related field demonstrations, field visits and farm tours were organized by the KVK to make the farmers aware, and give them confidence in INM in Banana.
- Timely intervention, was provided not just for farming activities, but also for allied support inventory.

4. Impact - Horizontal Spread

KVK intervention to increase the adoption of INM reaped successful results as the area under INM has increased from 2ha to 50 ha after the demonstration. The number of farmers who expressed their willingness to adopt INM has increased in the neighboring areas also through word to word publicity.

5. Impact- Vertical spread.

The impact of INM in banana is reflected in the production and productivity during the demonstration period. During 2019-20, the highest bunch weight (15 kg), number of hands/bunch (10) and maximum yield response (38.82 t/ha) respectively were obtained with application INM along with IIHR banana special spray. Increase in yield attributes could be due to the increase in morphological traits such as plant height, girth, number of functional leaves, leaf area index, faster rate of leaf production and also higher nutrient uptake by the plants. Increased number of leaves might have increased the photosynthetic activity resulting in higher accumulation of carbohydrates. Relatively higher carbohydrates could have promoted the growth rate and in turn increased bunch weight. Higher yield response owing to application of organics ascribed to improved physical, chemical and biological properties of soil resulting in better supply of plant nutrients, which in turn led to good crop growth and yield.

6. Impact - Economic Gains

Higher net returns of Rs. 357300/- was recorded during 2019 -20 respectively with the adoption INM along with IIHR banana special spray. The benefit-cost ratio was also higher (2.58) when compared to the BC ratio obtained through conventional practices (1.58).

Conclusion

From the field investigations, it can be concluded that banana responded favorably to Integrated Nutrient Management practices of KAU and IIHR. Higher yield and better B: C ratio was obtained in fields of INM application. Moreover, incidence of recurring problems like, marginal necrosis, crinkling of leaves, deformation of flag leaves, and growth retardation also decreased drastically. Combined application of INM along with IIHR banana special spray positively influenced the yield attributes along with economics. Hence, the integrated nutrient management practice along with IIHR banana special spray has been found to be

an ideal option to improve yield besides being economically competitive and productive under the soil and climatic conditions of Idukki district.

Steps for Scaling –up:

- Large Scale demonstrations in convergence with State Department of Agriculture will be conducted
- The KVK will ensure that the majority of the growers are benefited by such programmes.
- Inputs will be supplied to the marginal, financially weak and small growers on credit basis and that too at a subsidized rate.
- Farmers will be given trainings to produce Organic manures and fertilizers in their own fields.



4. Title of the success stories: Assessment of finger millet varieties in tribal belt of Idukki district

Details of success stories:

1. Background

Millet based farming systems has been receiving increased attention in the present scenario of climate aberrations and decreased food production. They are climate-resilient and nutritionally equivalent or superior to most other cereals, making them a favourable crop to address the prevalence of malnutrition. Finger millet (*Eleusinecoracana*) is among the major crops cultivated in tribal belts of Idukki. It is consumed as a staple food and drink by the local tribal communities. However, over the years there has been rapid decline both in area and in production of the crop leading to reduced grain availability for household consumption. Some of the primary reasons are Lodging (Yield loss 16 - 19%), shattering losses, severe disease incidence (Yield loss 28%), non availability of improved variety and low yield due to poor fertilizer response and poor crop management.

In such a context, with a view to increase the productivity and production, KVK Santhanpara has undertaken an assessment of performance of finger millet varieties that can be customized for finger millet production system in Idukki district in the coming years. The study focused on crop productivity, and profitability along with nutrition awareness initiatives.

2. Source of Technology : TNAU, 2018, and PC Unit, Bengaluru, 2009

3. Intervention process

- Detailed baseline survey and focus group discussions were undertaken from June 2019 to capture information on socio-demographic and agricultural practices, nutritional status of the population and food consumption pattern
- Availability of all the basic input resources
- Hands-on training on production practices of improved varieties of Finger millet.
- Timely intervention on different stages of growth of Finger millet
- Advisory services.
- Follow-up visits and technical support as and when required.

3. Intervention Technology

- Selected men and women farmers from the villages were given training and capacitated on this aspect
- The technology was initiated in the year 2019 in 1 ha of finger millet in 3 trials
- Timely intervention was provided not just for farming activities, but also for allied support inventory.

4. Impact - Horizontal Spread

The assessment showed the technological potential to achieve improved grain yield under appropriate production management conditions. In swamiyarallakudi, near Vattavada, the predominant tribal belt of Idukki, TO- 3 showed higher production and productivity in terms of increased productive tillers/hill and fingers per ear.

5. Impact- Vertical spread.

GPU-67 (TO-3) under improved agronomic practices produced the highest grain yield of 19.5q/ha, than that of farmers' varieties and TO-2. The increased grain yield of TO-3 will provide larger quantity of nutrient-rich food to farmer households, the crop being rich in micronutrient content, especially calcium, iron and folic acid.

6. Impact - Economic Gains

Reduced seed rate and increased grain yield of GPU-67 (TO-3) translated to a 50% increase in net return of Rs. 23667.00/ha. Moreover, Benefit Cost ratio was also higher in the case of GPU-67 (2.54) when compared to local cultivar (1.57) and CO15 (1.84). Considering all the above parameters, i.e., yield, economics and increased availability, improved variety of GPU-67 with improved agronomic practice was selected as the recommended variety for promotion and scale up in 2019-20 among the tribal belts of Idukki District.

Conclusion

Overall, the significantly higher yield with improved variety and improved agronomic practice portends greater availability of the nutrient-dense crop for consumption in a context where area under finger millet cultivation has been declining. Though finger millet occupies an important position in the diet as well as farming system (e.g. fodder for cattle) of the community in the study area, cultivation of commercial crops or putting the land for other use was seen as an economical option by the household when the return from finger millet was low. This subsequently had implications for household dietary diversity and led to dependence on market for food grains. This intervention by KVK Santhanpara, demonstrates an economically viable alternative approach for farmers.

Steps for Scaling –up:

- Triple-layered bags were distributed among the farmers for safe storage of seeds.
- Large Scale demonstrations in convergence with State Department of Agriculture will be conducted
- A village-level seed bank will be established for timely availability of quality seeds and to help farmers in distress.
- Small-scale village-level millet processing mills will be installed to encourage farmers to process and consume their produce.



5. Title: Integrated nutrient Management in cabbage cultivated at vattavada cluster

1. Background

Cabbage (*Brassica oleracea* L. Capitata group) is a cool season crop which is becoming more popular because of ample marketing opportunities. However, productivity of Cabbage in Idukki district is much below the potential due to poor soil quality and inadequate nutrient management strategies for infertile soils. There is increasing concern about use of synthetic chemical fertilizers and pesticides, which may be responsible for declining yields and deterioration of the soil condition. Decreasing yields over the years also indicate that indiscriminate use of synthetic and organic fertilizers may not be able to sustain vegetable production.

Other than the above mentioned, the major problems faced by Cabbage farmers also includes Soil acidity, necrotic leaf tip and tissues between the veins tend to ridge, chlorotic stripes on older leaves, yellow and crinkling in growing tips and shorter internodes. In such a Scenario, KVK Santhanpara has decided to undertake a demonstration integrating organic manures and synthetic fertilizers which has the advantage of restoring soil fertility, sustaining productivity and increasing nutrient management.

2. Source of Technology: IIHR

3. Intervention process

- Accessibility to the technology and availability of all basic resources
- Training on INM in Cabbage.
- Awareness campaigns on crop rotation and intercropping
- Timely intervention on different stages of growth of Cabbage
- Advisory services.
- Follow-up visits and technical support as and when required.

3. Intervention Technology

- The technology was initiated during the years 2019-20 in the fields of 5 farmers
- Supply of adequate inputs and consultancy services
- Field visits to the successful farmers of neighboring areas
- Film shows on successful cases of good agricultural practices in Cabbage
- Timely intervention, was provided not just for farming activities, but also for allied support inventory.

4. Impact - Horizontal Spread

Integrated nutrient management (INM) treatments significantly affected growth characteristics and yield attributes of cabbage. INM interaction affected dry matter of the crop and head weight in cabbage. Cabbage plants treated with the INM had higher head weights of 4.3 than the check with 2.7. Root volume in cabbage was also higher in treatments when compared to the farmers practice and soil acidity has decreased.

5. Impact - Vertical spread.

For cabbage, a highest yield of 596 q/ha was obtained during the year 2019-20, when the intervention was carried out. However, better dry matter accumulation, higher yield attributes, and yield of crops in 2019 were also likely in part due to climatic effects as air temperature during 2019 was more favorable for these cool season vegetable crops.

6. Impact - Economic Gains

Net returns, and the cost: benefit ratio were affected by INM treatments. A highest net returns (Rs. 2,38,200·ha⁻¹) and cost:benefit ratio of 3 was obtained, which was significantly higher than the check with 1.98.

Conclusion

There is concern that use of inorganic fertilizers alone cannot sustain high levels of productivity and cause deterioration of the soil and environment. The use of INM to improve plant nutrition may address these issues. The technologies of KAU and IIHR when used combination with inorganic fertilizers can have a profound impact on growth, yield and soil health of Cabbage.

Steps for Scaling – up:

- Large Scale demonstrations will be conducted in convergence with ATMA-Idukki.
- The KVK will ensure that the majority of the growers are benefited by such programmes.
- Trainings for popularizing such eco- friendly, bio control methods will be organized frequently
- Brochures and other literary works will be published to give the farmers a quick summary
- Feedback will be obtained and their constraints will be met on a timely basis



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

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

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

10 F. Technology Week celebrations during 2020: Nil

Period of observing Technology Week: From _____ to _____
 Total number of farmers visited : _____
 Total number of agencies involved : _____
 Number of demonstrations visited by the farmers within KVK campus : _____

Other Details

Types of Activities	No. of Activities	Number of Farmers	Related crop/livestock technology
Gosthies			
Lectures organized			
Exhibition			
Film show			
Fair			
Farm Visit			
Diagnostic Practicals			
Supply of Literature (No.)			
Supply of Seed (q)			
Supply of Planting materials (No.)			
Bio Product supply (Kg)			

Details	No. of Samples analyzed	No. of Farmers benefited	No. of Villages
Soil Samples	491	486	20
Water Samples	0	0	0
Plant samples	0	0	0
Manure samples	0	0	0
Others (specify)	0	0	0
Total	491	486	20

11.2 Mobile Soil Testing Kit

A. Date of purchase and current status

Mobile Kits	Date of purchase	Current status
1. Two kits	21-06-2017	Working (No refilling Possible)

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

	During 2019	During 2020	Cumulative progress (Total)
Samples analyzed (No.)	308	491	799 22.90%
Farmers benefited (No.)	300	486	-
Villages covered (No.)	21	25	-

11.3 Details of soil health cards issued based on SWTL & Mobile Soil Testing Kit during 2019:

Particulars	Date (s)	Villages (No.)	Farmers (No.)	Samples analyzed (No.)	Soil health cards issued (No.)
Mobile Soil Testing Kit	01-01-20 to 31-12-20	25	486	491	491

11.4 World Soil Health Day celebration

Sl. No.	Farmers participated (No.)	Soil health cards issued (No.)	VIPs (MP/ Minister/MLA attended (No.))	Other Public Representatives participated	Officials participated (No.)	Media coverage (No.)
1	50	42	0	0	0	0

PART XII. IMPACT

12.A. Impact of KVK activities (Not restricted for reporting period).

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)
ICAR-IIHR-AMC	1150	64	295000/ha	392000/ha
ICAR-NBAIR -EPN	1350	70	305000/ha	375000/ha
NIPHM-VAM	1250	55	295000/ha	390000/ha
Microbial Consortium	1645	80	280000/ha	410000/ha
PPFM	1150	65	295000/ha	392000/ha
ICAR-IIHR-Neem Soap	210	39	165000/ha	256000/ha
ICAR-IIHR- Decomposer	350	48	280000/ha	325000/ha
Cardamom special	500	65	324100/ha	402000/ha
Pepper Special	465	45	45538/ha	122226/ha
Banana Special	225	39	570000/ha	630000/ha
Vegetable Special	200	55	335000/ha	440000/ha

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

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

IIHR Vegetable Special – A booster spray for the vegetable growers in Idukki- A case study

Abstract:

Vegetable cultivation is one of the important income earning activities of farmers of Idukki district. Between 2005 and '10, the area under vegetables decreased drastically due to reduction in productivity and one major reason was micro nutrient deficiency. IIHR Banana special is a foliar nutrition spray consisting of micronutrients essential for vegetables. The technology released by IIHR Bangalore was acquired by KVK

Idukki to make it available for the farmers of the district. Since the introduction of Vegetable Special during 2011, the vegetable production has increased, and farmers have regained their interest and confidence in Vegetable cultivation.

Key Words: *IIHR Vegetable Special, Output, Outcome, Impact*

1. Introduction

Idukki, an agricultural district of impeccable natural beauty, is known for growing all sorts of vegetables like cowpea, bitter gourd, chili, beans, cabbage, potato, cauliflower, spinach, coriander, beetroot, radish, and many other varieties. However, the problems of lower yield, fluctuating prices, and climatic vagaries always remained as hurdles before the farmers, forcing them to take a back stand in vegetable cultivation.

The recent research studies indicated that the status of micro nutrients in soil in district is considerably less than the desired level, which ultimately indicates the decreased nutrient status of the soil. Moreover, severe cases of soil acidity was also reported in places of Vattavada, Kanthalloor, Marayur, Udambanchola and Vandanmedu which are the prominent vegetable growing belts of Idukki. Thus, the yield level and quality of high yielding varieties in vegetable crops is significantly lower than their potential yield level.

To tackle this situation and to promote vegetable farming among the farmers, ICAR KVK Idukki, adopted the technology of IIHR vegetable special, during the year 2015 for amending the problems of micronutrient deficiencies, soil acidity and reduced quality in vegetable crops. In this context, a case study has been carried out and KVK took the responsibility of technical coordination, technical advice in agricultural aspects, providing the inputs, and ensuring farmers participation in the programme.

2. Situation analysis/ Problem statement

The area under vegetable crops in Idukki, increased gradually from 2011 to 2018. Adoption of high yielding cultivars and FI hybrids and suitable production technologies has largely contributed to the production and productivity. With changes in incomes and consumption patterns, demand for vegetables has been increasing every year. The major vegetable crops cultivated in the district are Cowpea, solanaceous vegetables (Brinjal, Bhendi, Tomato, Chilli), bitter gourd, cucurbits (Cucumber, Gourd, Watermelon, pumpkin), garlic, onion and leafy vegetables. The vegetable growing has been one of the main sources of income for larger number of farmers in the district.

2.1. Problems identified

Farmers in Idukki district are spending huge money on fertilizers. It is of great concern that each farmer is spending about 60-70 % of cost of production only on fertilizers. KVK has conducted a survey in the vegetable growing area in the district revealed that farmers are applying fertilizers indiscriminately. No farmer is aware of recommended dosage of fertilizers for vegetable crops. The role of micronutrients was known to very few farmers.

The yield and income levels of vegetables have started fluctuating due to problems mentioned here under :

- Imbalanced nutrition
- Lack of micronutrient application
- Lack of organic addition
- Reduction in soil fertility
- Quality reduction in vegetables.
- Increased acidity of soil

3. Plan, Implementation of activities and support by KVK.

To overcome this impending problem of farmers, KVK has acquired from IIHR, Bengaluru the successful technology called Vegetable special, a micronutrient formulation which can boost the yield in vegetable crops by 20-30%.

About the technology

IIHR Vegetable special is a micronutrient formulation, technology through foliar application, exclusive for higher yield in vegetables. It is recommended for all vegetable crops at different doses and can be mixed with any fungicide or insecticide. IIHR Vegetable special contains most of the micronutrients such as Zn, b, Fe, Cu, Mn, Mo and Cl and secondary nutrients such as Ca, Mg, S and K. It enhances fruit quality in terms of fruit appearance, fruit keeping quality and taste.

IIHR Vegetable special is a crop specific micronutrient foliar spray for higher yield and Quality. 6 kg of Vegetable special is recommended for an acre of Vegetable crops. For usage, mix thoroughly recommended dose of vegetable special along with one lemon juice and 1 shampoo sachet in 15 litres of water before spraying. A total of 3 sprays are essential, and spraying can be commenced from 25- 30 days after transplantation or 40-45 days after sowing and subsequent sprays can be given in the interval of 20 days after first spray. The recommended dosage for the major vegetable crops in Idukki are as follows:

- i. Cowpea: 30gm in 15 litres of water
- ii. Bittergourd : 15 gm in 15 litres of water
- iii. Cabbage/ Cauliflower: 75 gm in 15 litres of water
- iv. Carrot/ chillies/ potato: 45 gm in 15 litres of water

KVK has included vegetable special as one of the important critical inputs in its activities related to vegetable crops under OFT/FLD, trainings and other extension activities

Interventions Undertaken by the KVK.

The details of the KVK activities undertaken are given hereunder

Table 1. Interventions of the KVK

Activities	Number of Activities	No. of farmers covered
FLD	10	67
OFT	4	30
Trainings	195	5739
Extension activities	256	3568
Total	465	9404

Apart from the above mentioned activities, to create awareness among the farmers on vegetable special technology, KVK also organized, various in house, off campus and sponsored trainings in collaboration with various departments across the district. After obtaining the positive results of the technology, it is being rapidly disseminated to other vegetable growers existing in the district.

4. Impact

KVK decided to work on “IIHR Banana Special” promotion since this is one of the important program for supplying quality inputs for farmers in time.

4.1. Output of the programme

Farmers who have undergone trainings and those who have adopted the technology reported that they attained an increased yield of 19 – 25% in tomato, brinjal, chillies and gourd crops after using recommended quantity of vegetable special as foliar spray for 3-4 times. They have also noticed increase in quality in terms of size, weight and taste. The most relieving benefit, the farmers have experienced as a result of its adoption, is the decrease in the cost of fertilizers. As the recommended technology is rich in required micronutrients, they could reduce the cost of fertilizers by about 15 percent. The technology also proved that it gives more resistance to crop against pest and diseases. Moreover, keeping quality and shelf life of the vegetables also increased, reducing the post-harvest losses of the farmers. Fig. 1. Depicts the number of farmers benefitted by the technology between 2011 and 2018. According to the data, the number of farmers who have adopted the technology and benefitted by its application increased from less than 100 to more than 1000 between 2010 and 2018.

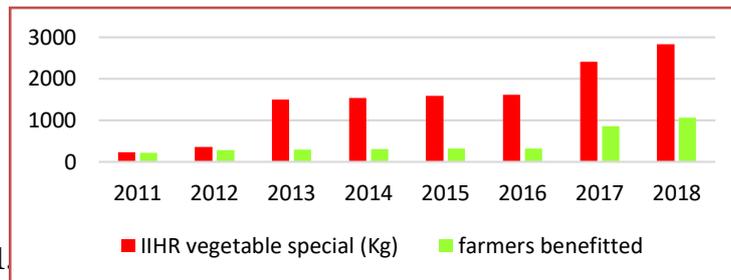


Fig. 1. IIHR vegetable special (Kg) and farmers benefitted

Table No. 2.

information on the changes in yield and income before and after the intervention. The data gives a clear picture, on how this technology has benefitted the farmers, by giving them higher yield and income.

Table No. 2. Details of change in yield and income

Parametres	Cowpea		Cabbage		Bitter gourd	
	BI	AI	BI	AI	BI	AI
Yield (Q/ha)	108.6	137.9	376	590	1.3	1.6
Yield increase (%)	-	26.97	-	56.9	-	23.07
Net Income (Rs)	79800	100200	112380	238200	35000	49140
BCR	1.59	1.64	1.92	2.97	1	1.32

4.2. Outcome of the programme

Due to the consistent interventions, and efforts, KVK has been successful in reaching a wider farmer population. The IIHR Vegetable special technology has spread over an area of 564ha in Idukki district, with more than 4000 farmers adopting this technology. They have also attained more than 20% yield increase as a result of the adoption of the technology. Consistent efforts taken by KVK in collaboration with State Department of horticulture has proved to be successful and it is expected to reach all the vegetable growing area of the district very soon.

4.3. Impact of the programme

The impact, or programme effect, refers to a change in the target population that has been brought about by the programme – that is, a change that would not have occurred if the programme had not happened. In this case, there has been a constant increase in the area and productivity of vegetables in Idukki district. Adoption of IIHR vegetable special has directly contributed to the increase in average yield by 15- 20% in

vegetable crops. The technology which was adopted by more than 4000 farmers, changed the outlook of vegetable farming of the district. Presently, the district is also witnessing an increase in demand for IIHR vegetable special not only from the local farmers but also from neighbouring districts.

5. Inference

The overall observation on the impact of IIHR Vegetable special among the vegetable growers of Idukki district revealed that, majority of the farmers who have adopted this technology obtained increased yield and improved standard of living. They also revealed that, due to regular usage of the Vegetable special, appearance of micro nutrient deficiency symptoms has also decreased.

6. Conclusion

IIHR vegetable special, released by IIHR Bangalore, has proved to be a real boon for the farmers in terms of increased yield, better soil fertility status and decreased acidity. It is indeed a cost effective technology to the farming community to enhance their production potential if used in appropriate time as recommended.

Way forward

Witnessing the extent of adoption of IIHR vegetable special among the farmers, KVK Idukki has a plan to educate the farmers of non-traditional vegetable growing regions of the district regarding the technology and motivate them to take up vegetable cultivation in line with the existing cropping pattern. With this the KVK aims to attain livelihood sustainability of the farmers and farm diversification to make them resilient to the disasters



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

PART XIII - LINKAGES

13A. Functional linkage with different organizations

Name of organization	Nature of linkage
Vegetable Development Programme	MDDT and Field Visits
ATMA	MDDT, Field Visits, Trainings, EAP and Demonstrations
Department Of Animal Husbandry	Field Visits, Trainings, Demonstrations
Department of Forestry	Tribal Development Projects, Trainings
Department of agriculture	Field Visits, Trainings, Demonstrations
VFPC	MDDT, Field Visits, Trainings
Coffee Board	Trainings, Field Visits and Demonstrations
Spices Board	Trainings, Field Visits
VOSARD Agency	Trainings
NABARD	FPO formation and related activities
Kerala state cooperative bank	Relation with Farmer club formation

MANAGE	DAESI programme
DIC	Trainings, Demonstrations
VHSC	Trainings
High range Milk Chilling Plant,Muthuvankudy	Exposure Visit
District Kudumbasree Mission	Group formation, Off campus Training and demonstrations
FAI	Workshop, Seminar and Soil Health campaign
NLC	Technology trial (Humic acid)
IFFCO	Soil Health awareness campaign
SPIC	Soil Health awareness campaign
Tribal Development Board	Training and technology sharing
Social Development Department	Training
Block and District panchayat	Training

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

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

Name of the scheme	Date/ Month of initiation	Funding agency	Amount (Rs.)
NADCP of vaccination for FMD & Brucellosis	03-01-2020	ATARI	15,000.00
Swachhta action plan	20-01-2020	ATARI	37,500.00
Biennial Fertilizer Application awareness programme	13-01-2020	ATARI & IFFCO	1,00,000.00
DAESI Programme	17.09.2020	MANAGE-ATMA-IDUKKI	1600000.00
ASCI (RKVY)	24.10.2019	ATARI	149600.00
PKVY	29.07.2019	ATARI	54000.00
DAMU	July 2020	IMD & ATARI	1,20,000.00

13C. Details of linkage with ATMA

Coordination activities between KVK and ATMA

S. No.	Programme	Particulars	No. of programmes attended by KVK staff	No. of programmes Organized by KVK	Other remarks (if any)
01	Meetings	Meetings	Monthly Technology meetings	-	Due to lack of fund
02	Research projects	Research projects	-	-	-
03	Training programmes	Low cost production of bio inputs	2	2	-
		Micro-nutrient deficiency	3	5	-
		INM	2	3	-
		ICM	5	0	-
04	Demonstrations	Soil sampling methods	2	3	-
		PPFM	4	5	-
		Hanseniaspora	2	1	-
05	Extension Programmes				
	KisanMela	-	-	-	-
	Technology Week	-	-	-	-
	Exposure visit	-	-	-	-
	Exhibition	-	-	-	-
	Soil health camps	Soil Test Campaign	2	5	-
	Animal Health Campaigns	-	-	-	-
	Others (Pl. specify)	-	-	-	-
06	Publications	-	-	-	--
	Video Films	-	-	-	-
	Books	-	-	--	-
	Extension Literature	-	-	-	--

	Pamphlets	-	-	-	
	Others (Pl. specify)	-	--	-	-
07	Other Activities (Pl. specify)	-	-		-
	Watershed approach	-	-	-	--
	Integrated Farm Development	-	-	-	-
	Agri-preneurs development	-	-	-	-
		-	-	-	-

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

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

13E. Nature of linkage with National Fisheries Development Board :- NIL

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

13F. Details of linkage with RKVY

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks
1	Bee Keeper	Skill Training	Yes, Rs. 149600.00	20000.00	-

13G. Kisan Mobile Advisory Services

Month	No of Advisories	Message type (Text/Voice)	SMS/voice calls sent (No.)						Total SMS/Voice calls sent (No.)	Farmers benefitted (No.)
			Crop	Livestock	Weather	Marketing	Awareness	Other enterprises		
January	3	Text	-	3	-	-	-	-	3	3795
February	2	Text	-	-	-	2	-	-	2	2530
March	-	-	-	-	-	-	-	-	-	
April	-	-	-	-	-	-	-	-	-	
May	1	Text	1	-	-	-	-	-	1	1155
June	3	Text	2	-	-	1	-	-	3	3385
July	2	Text	1	1	-	-	-	-	2	2310
August	3	Text	1	-	-	2	-	-	3	3795
September	1	Text	-	1	-	-	-	-	1	1265
October	-	-	-	-	-	-	-	-	-	
November	4	Text	2	-	-	2	-	-	4	5060
December	2	Text	1	-	-	1	-	-	2	2530
Total	21		8	5		8			21	25825

PART XIV- PERFORMANCE OF INFRASTRUCTURE IN KVK

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

Sl. No	Demo Unit	Year of establishment	Area (ha)	Details of production			Amount (Rs.)		Rema rks
				Variety	Produce	Qty.	Cost of inputs	Gross income	
1	VAM Unit	2019	0.01	-	VAM	2030 kg	142100.00	223300.00	-
2	Vermicompost unit	2020	0.02	-	vermicompost	10685 kg	15000.00	160275.00	-
3	Small cardamom nursery	2020	0.04	Njallani & Thiruthali	-	1600 no.	15000.00	194300.00	-
4	Bio-Hub	2016	0.08	-	Bioagents	13063 kg	1060980.00	1343510.00	-
5	Ornamental	2019	0.01	Rose,	-	223 no.	5000.00	11490.00	-

	nursery			Hibiscus, Anthurium, crotons, Bougainvillea					
6	Black pepper nursery	2019	0.01	Panniyur 1, Karimunda, Panniyur5, neelimundi	-	7575 no.	14000.00	32130.00	-
7	Spawn production unit	2019	0.01	-	Spawn	307 no.	5000.00	15350.00	-
8	Duckery unit	2020	0.05	Vigov a	eggs	88 no.	450	792.00	-

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

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
Cereals									
Pulses									
Oilseeds									
Fibers									
Spices & Plantation crops									
Floriculture									
Fruits									
Vegetables									
Others (specify)									

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

Sl. No.	Name of the Product	Qty	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
1	VAM	2030 Kg	142100.00	223300.00	-
2	Pseudomonas	2331 L	186480.00	163170.00	-
3	Trichoderma	1611 L	128880.00	112770.00	-
4	Beauveria	577 L	46160.00	40390.00	-
5	Metarhizium	471 L	37680.00	32970.00	-
6	Methalobacteria-PPFM	381 L	26670.00	45720.00	-
7	Microbial Consortium	1950 L	136500.00	253500.00	-
8	Effective Micro organisms	698 L	48860.00	83760.00	-
9	<i>Bacillus subtilis</i>	100 L	7000.00	12000.00	-
10	<i>Bacillus Megatherium</i>	33 L	2310.00	3960.00	--
11	Azospirillum	483 kg	43470.00	72450.00	-
12	Phosphobacteria	479 kg	43110.00	71850.00	-
13	Potash Bacteria	484 kg	43560.00	72600.00	-
14	EPN	169 kg	76050.00	109850.00	-
15	Paecilomyces	375 kg	33750.00	41250.00	-
16	Seaweed	2605 kg	78150.00	78150.00	-

									treatment			
1	1. Sandoz SC Colony (KDH Village - Vattavada)	346.6	19.9	496.2	1.91	Vermicompost, VAM, Organic compost, Neem cake	Vegetables – Cabbage	Quisor	Pseudomonas, Trichoderma, Azospirillum, Phospho bacteria	325	90000.00	245000.00
	2.											
2	1.											
	2.											

15.2 District Agriculture Meteorological Unit (DAMU)

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

15.3 Fertilizer awareness programme 2020 :- NIL

State	Name of KVK	Details of Activities/programme Organised	Number of Chief Guests	No. of Farmers attended program	Total participants

15.4 Seed Hub: nil

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

15.5 CFLD on Oilseeds: NIL

Sl.No.	Crop	Varieties demonstrated and check	Allocated		Implemented	
			Area (ha)	Demos (No.)	Area (ha)	Demos (No.)
	Total					

15.6 CFLDs on Pulses: NIL

Sl.No.	Crop	Varieties demonstrated and check	Allocated		Implemented	
			Area (ha)	Demos (No.)	Area (ha)	Demos (No.)
	Total					

15.7 KrishiKalyanAbhiyan:- NIL

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

15.8 Micro-Irrigation:- NIL

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

15.9 Tribal Sub-Plan (TSP) :- NIL

Farmer Training		Women Farmer Training		Rural Youths		Extension Personnel		OFT (No of Technologies)	Number of farmers involved			Participants in extension activities (No.)	Production of seed (q)	Production of Planting material (Number in lakh)	Production of Live stock strains (Number in lakh)	Production of fingerlings (Number in lakh)	Testing of Soil, water, plant, manures samples (Number)
No. of Trainings/Demos	No. of Farmers	No. of Trainings/Demos	No. of Women Farmers	No. of Trainings/Demos	No. of Youths	No. of Trainings/Demos	No. of Ext. Personnel		On-farm trials	Frontline demos	Mobile advisory to farmers						

15.10 SCSP :- NIL

Farmer Training		Women Farmer Training		Rural Youths		Extension Personnel		OFT (No of Technologies)	Number of farmers involved			Participants in extension activities (No.)	Production of seed (q)	Production of Planting material (Number in lakh)	Production of Live stock strains (Number in lakh)	Production of fingerlings (Number in lakh)	Testing of Soil, water, plant, manures samples (Number)
No. of Trainings/Demos	No. of Farmers	No. of Trainings/Demos	No. of Women Farmers	No. of Trainings/Demos	No. of Youths	No. of Trainings/Demos	No. of Ext. Personnel		On-farm trials	Frontline demos	Mobile advisory to farmers						

15.11 NARI: - NIL

Activity	Achievement	
	Number of activity	No. of farmers/beneficiaries

OFTs – Nutritional Garden (activity in no. of Unit)		
OFTs – Bio-fortified Crops (activity in no. of Unit)		
OFTs – Value addition(activity in no. of Unit/Enterprise)		
OFTs - Other Enterprises (activity in no. of Unit/Enterprise) (activity in no. of Unit/Enterprise)		
FLDs – Nutritional Garden (activity in no. of Unit)		
FLDs – Bio-fortified Crops (activity in no. of Unit)		
FLDs – Value addition(activity in no. of Unit/Enterprise)		
FLD- Other Enterprises (activity in no. of Unit/Enterprise) (activity in no. of Unit/Enterprise)		
Trainings		
Extension Activities		

15.12 KVK Portal

No. of Events added by KVKs	No. of Facilities added by KVKs	Filled Report on Package of Practices (Y/N)				Filled Profile Report (Y/N)							
		Crop	Livestock	Fisheries	Horticulture	Employees	Posts	Finance	Soil Health Cards	Appliances	Crops	Resources	Fish
217	3	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N

15.13 KSHAMTA: - NIL

Number of Adopted Villages	No. of Activities		No. of farmers benefited	
	Demo	Training	Demo	Training

15.14 DFI

S l	District	Taluks	Villages	Farmers (No.)	Average Benchmark Income (Rs/year)	Crops/enterprises	KVK Interventions	Additional Net Income generated due to KVK interventions (Rs/year)	Total income of farmer (Rs/year)
1	Idukki	Udumbanchola	Udumbanchola	120	Rs.235595	Cardamom, Fruits/Vegetables, Dairy	GAP in cardamom, Apiculture, Mushroom, Value addition, Hygienic milk production	Rs.40258	Rs.275853
2	Idukki	Devikulam	Vattavada	50	Rs.45840	Strawberry, carrot, vegetables, Passion fruit, Poultry	Value addition, GAP in carrot, nutrient management, IPDM, poultry management	Rs.29697	Rs.75537

PART XVI - FINANCIAL PERFORMANCE

16A. Details of KVK Bank accounts

Bank account	Name of the bank	Location	Branch code	Account Name	Account Number	MICR Number	IFSC Number
With Host Institute	State Bank of India	Rajakumary	70453	Bapooji Sevak samaj Krishi Vigyan Kendra	57060836995	6850002932	SBIN0010453
With KVK	State Bank of India	Rajakumary	70453	Bapooji Krishi Vigyan Kenrda (Revolving Fund)	67155078042	6850002932	SBIN0010453

16B. Utilization of KVK funds during the year Jan 2020- Dec 2020(Rs. in lakh)

S. No.	Particulars	Sanctioned	Released	Expenditure
A. Recurring Contingencies				
1	Pay & Allowances	144.90		9913222.00
2	Traveling allowances	1.25		13913.00
3	Contingencies			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	2.25		166816.00
B	POL, repair of vehicles, tractor and equipments	1.50		44500.00
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)	1.00		29025.00
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)	0.50		47561.00
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)	2.45		222830.00
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)	0.82		63840.00
G	Training of extension functionaries	0.25		12000.00
H	Extension Activities	0.25		5325.00
I	Farmers Field School	0.30		15000
J	Maintenance of buildings	0.50		49279.00
K	Establishment of Soil, Plant & Water Testing Laboratory	0.25		20060.00
L	Nutri Garden	0.25		20000.00
M	Library	0.05		1800.00
N	Video Production	0.30		0
TOTAL (A)		156.82	13084253.00	10624171.00
B. Non-Recurring Contingencies				
1	Works			
2	Equipment including SWTL & Furniture			
3	Vehicle (Four wheeler/Two wheeler, please specify)			
4	Library (Purchase of assets like books & journals)			
TOTAL (B)		0	0	0
C. REVOLVING FUND		0	0	0
GRAND TOTAL (A+B+C)		156.82	13084253.00	10624171.00

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

Year	Opening balance as on 1 st January	Income during the year	Expenditure during the year	Net balance in hand as on 31 st December of each year
January to December 2018	1341593	3033360	2084921	2290032
January to December 2019	2290032	4214026	4560964	1943094
January to December 2020	1943094	8524647	6519564	3948177

17. Details of HRD activities attended by KVK staff

Name of the staff	Designation	Title of the training programme	Institute where attended	Dates
Ashiba. A	Subject Matter Specialist (Agronomy)	Preparation of Agromet advisories	IMD,Pune	22-07-20 to 01-08-20
Ashiba. A	Subject Matter Specialist (Agronomy)	Climate resilient Agriculture: Adaptation and strategies for sustainable production	Agriculture University,Kota	11-07-20
Manju Jincy varghese	Subject Matter Specialist (Soil Science)	Digital discussion series: Gender and pandemic challenges and Opportunities	ATARI, Bengaluru	10-08-20 to 12-08-20
Ashiba. A	Subject Matter Specialist (Agronomy)	Digital discussion series: Gender and pandemic challenges and Opportunities	ATARI, Bengaluru	10-08-20 to 12-08-20
Dr .S. Jayababu	Subject Matter Specialist (Animal Husbandry)	Digital discussion series: Gender and pandemic challenges and Opportunities	ATARI, Bengaluru	10-08-20 to 12-08-20
Jayisy joseph	Programme Assistant (Home science)	Digital discussion series: Gender and pandemic challenges and Opportunities	ATARI, Bengaluru	10-08-20 to 12-08-20
Sudhakar. S	Subject Matter Specialist (Plant Protection)	Digital discussion series: Gender and pandemic challenges and Opportunities	ATARI, Bengaluru	10-08-20 to 12-08-20
Jayisy joseph	Programme Assistant (Home science)	Webinar: Export challenges n strategies for fresh and processed fruits and vegetables in COVID-19 times	National Institute of food technology Entrepreneurship and Management (NIFTEM)	08-08-20
Jayisy joseph	Programme Assistant (Home science)	Webinar: Value addition and Entrepreneurship development in Banana	NRCB	22-01-20 to 22-02-20
Jayisy joseph	Programme Assistant (Home science)	Value added products from roots and tubers	DIC-Kozhicode	22-08-20

Jayisy joseph	Programme Assistant (Home science)	National webinar on Diet and nutrition for life style diseases management durind COVID 19 pandemic	UAS,Bengaluru	25-08-20 to 27-08-20
Manju Jincy varghese	Subject Matter Specialist (Soil Science)	Webinar on challenges and Opportunities of vegetable production in warm himid tropics	KAU	11-11-20 to 13-11-20
Biju Narayanan	Programme Assistant (Computer Programmer)	Full stack web development	Electronics and ICT Academy-IIT, Roorkee	01-10-20 to 14-10-20
Manju Jincy varghese	Subject Matter Specialist (Soil Science)	Climate resilient development in Agriculture	MANAGE	07-12-20 to 11-12-20

18. **Please include any other important and relevant information which has not been reflected above (write in detail). Like details regarding FPO formation, Achievements during COVID-19 lockdown period.**

Stress Management for Small Cardamom farmers using PPFM produced and supplied by KVK-IDUKKI,Kerala
Background:

- ❖ Small cardamom (*Elettaria cardamomum* Maton) the Queen of Spices is major cultivated crops in Idukki District.
- ❖ The pre monsoon rainfall received in the district from March 1, 2020 to May 2, 2020 was 197mm with a departure of (-) 76 per cent from the normal. The actual rainfall received during the period from March 1, 2019 to May 2, 2019 was 177.1 mm.
- ❖ 10 labours needed for irrigation in small cardamom per ha. But, the government has restrictions two workers.
- ❖ Regular watering 25mm to 30mm water needed per irrigation 7 days once during summer.

Stress Management for Small Cardamom farmers using PPFM produced and supplied by KVK-IDUKKI, Kerala

- ❖ Without irrigation or PPFM not applied field the plants wither down and more than 30% plantation dried out.
- ❖ 5L of PPFM recommended per ha for 45 days to help plants to endure water stress.
- ❖ Using PPFM - Yield increase by 20%.
- ❖ 700 ha area covered out of 1.45 lakhs ha.
- ❖ 300 farmers benefited by online training of low cost mass multiplication of PPFM.
- ❖ 695 L PPFM produced and supplied to 178 farmers by KVK-Idukki.
- ❖ 1.5 acre covered by family per day.
- ❖ More than 7 WhatsApp groups around 610 farmers are followed.