

Annual Report 2012-13



Krishi Vigyan Kendra

Indian Institute of Spices Research

(Indian Council of Agricultural Research)

Peruvannamuzhi, Kozhikode - 673528, Kerala

ANNUAL REPORT 2012-13

(FOR THE PERIOD APRIL 2012 TO MARCH 2013)

KRISHI VIGYAN KENDRA (Kozhikode)

PART I - GENERAL INFORMATION ABOUT THE KVK

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

| KVK Address | Telephone | | E mail | Web Address |
|--|------------------|----------------------|---|-----------------------|
| | Office | Fax | | |
| Krishi Vigyan Kendra, Peruvannamuzhi (P.O), Pin-673 528 Kozhikode, Kerala | 0496- 2662372 | 0091-496- 2662372 | kvk@spices.res.in kvkcalicut@gmail.com | www.kvkcalicut.gov.in |

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

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

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

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

1.4. Year of sanction: 1992

1.5. Staff Position (as 31st March 2013)

| Sl. No. | Sanctioned post | Name of the incumbent | Designation | M /F | Discipline | Highest Quln. (for PC, SMS and Prog. Asst.) | Pay scale | Basic Pay | Date of joining KVK | Per. / Temp . | Category (SC/ST/ Others) |
|---------|--------------------------------------|-----------------------|---------------------------|------|--------------------------|---|------------------|-----------|---------------------|---------------|--------------------------|
| 1. | Programme Coordinator | Dr. T. Arumuganathan | Programme Coordinator | M | Agricultural Engineering | Ph.D. in agricultural processing | 15600-39100+8000 | 33070 | 29.04.2011 | Per. | Others |
| 2. | Subject Matter Specialist | P.S. Manoj | Subject Matter Specialist | M | Horticulture | Ph.D in Horticulture | 15600-39100+7600 | 38520 | 30.5.94 | Per. | OBC |
| 3. | Subject Matter Specialist | K.M. Prakash | Subject Matter Specialist | M | Agronomy | PG in Agrl. Science | 15600-39100+7600 | 36160 | 10.12.96 | Per. | Others |
| 4. | Subject Matter Specialist | S. Shanmugavel | Subject Matter Specialist | M | Animal Husbandry | PG in Vet. Science | 15600-39100+7600 | 38380 | 3.8.95 | Per. | SC |
| 5 | Subject Matter Specialist | A. Deepthi | Subject Matter Specialist | F | Home Science | PG in Home Science | 15600-39100+5400 | 22280 | 08/03/2010 | Per. | SC |
| 6 | Subject Matter Specialist | B. Pradeep | Subject Matter Specialist | M | Fisheries | Ph.D in Fisheries | 15600-39100+5400 | 22280 | 30/03/2010 | Per. | Others |
| 7 | Subject Matter Specialist | Aiswariya K.K. | Subject Matter Specialist | F | Plant Protection | Ph.D in Agrl. Science | 15600-39100+5400 | 22280 | 26.4.2010 | Per. | OBC |
| 8. | Programme Assistant (Lab Technician) | Vacant | - | - | - | - | 5200-20200+2800 | - | - | - | - |
| 9 | Programme Assistant (Computer) | K. Jayakumkar | Programme Assistant | M | - | P G in Computer Science | 5200-20200+2800 | 12060 | 01/02/2010 | Per. | Others |
| 10 | Farm Manager | S. Kannan | Programme Assistant | M | - | Degree in | 5200-20200+ | 12060 | 08/02/2010 | Per. | ST |

| | | | | | | | | | | | |
|----|--|----------------|--------------------------------|---|---|----------|-------------------------|-------|----------|------|--------|
| | | | | | | Forestry | 2800 | | | | |
| 11 | Accountant/ Superintendent (Assistant) | Vacant | | M | - | - | 9300- 34800+ 4200 | - | | | |
| 12 | Stenographer Gr.III | K. Faisal | Stenographer Gr.III | M | - | - | 9300- 34800+ 4200 | 16960 | 1.4.02 | Per. | OBC |
| 13 | Driver-cum- Mechanic | T.C. Prasad | Driver-cum- Mechanic | M | - | - | 5200- 20200+ 2800 | 16030 | 17.5.93 | Per. | Others |
| 14 | Driver | P. Prakash | Driver | M | - | - | 5200- 20200+ 2800 | 11400 | 27.6.02 | Per. | Others |
| 15 | Skilled Supporting staff | C.V. Ravindran | Skilled Supporting staff | M | - | - | 4440- 7440 +1400 | 10570 | 1.7.93 | Per. | SC |
| 16 | Skilled Supporting staff | C. Ravindran | Skilled Supporting staff | M | - | - | 4440- 7440 +1400 | 10100 | 10.11.94 | Per. | SC |

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

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

1.7. Infrastructural Development:

A) Buildings

| SL. No. | Name of building | Source of funding | Stage | | | | | |
|---------|--|-------------------|---------------------|--------------------|-------------------|---------------|--------------------|--|
| | | | Complete | | | Incomplete | | |
| | | | Completion Date | Plinth area (Sq.m) | Expenditure (Rs.) | Starting Date | Plinth area (Sq.m) | Status of construction |
| 1 | Administrative Building | ICAR | 4.12.98 | 552 | 46.44 | - | - | - |
| 2 | Farmers Hostel | ICAR | 4.12.98 | 466 | 39.44 | - | - | - |
| 3 | Staff Quarters | - | - | - | - | - | - | - |
| 4 | Old KVK office building (Farm office) | ICAR | 16.1.96 | 360 sq. ft. | 1.83 | - | - | - |
| 5 | Demonstration Units | | | | | - | - | - |
| 6 | 1. (Old Animal Clinic) – Bio-control lab | ICAR SHM | 16.1.96 (7.3.09) | 358.31 358.31 | 1.00 0.84 | - | - | - |
| 7 | 2.Poultry | ICAR | 20.9.03 | 43.8 | 0.84 | - | - | - |
| 8 | 3.Dairy | ICAR | 25.10.06 | 39.32 | 1.83 | - | - | - |
| 9 | 4.Vermiculture | ICAR | 3.1.08 | 9.00 | 0.11 | - | - | - |
| 10 | Rainwater harvesting system | ICAR | | | 10.00 | 2012 | | Amount deposited with Minor Irrigation Dept. |
| 11 | Nursery with shed and fencing | ICAR | 16.1.96 | 500.0 | 0.50 | - | - | - |
| 12 | Shade house-Anthurium | ICAR | 25.3.09 | 144.0 | 1.21 | - | - | - |
| 13 | Goatary | ICAR | 31.3.09 | 64.0 | 2.78 | - | - | - |
| 14 | Training shed | SHM | 25.11.08 | 90.0 | 2.69 | - | - | - |
| 15 | Temporary vehicle shelter | ICAR | 18.6.04 | 35.0 | 0.48 | - | - | - |
| 16 | Water tank | ICAR | 2.2.99 | 10,000 | 0.22 | - | - | - |
| 17 | Pond with pump, storage tank etc. | ICAR | 31.3.08 | 15X13M | 8.44 | - | - | - |
| 18. | Bore well | ICAR | 2013 | 90 m depth | 0.25 | | - | - |

B) Vehicles

| Type of vehicle | Year of purchase | Cost (Rs.) | Total kms. Run | Present status |
|---------------------|------------------|------------|----------------|----------------|
| Motor cycle Suzuki | 2009 | 49,980 | 17122 | Good |
| Mini bus DCM Toyota | 1995 | 5,22,670 | 170046 | Good |
| TATA Sumo Jeep | 2004 | 4,98,642 | 187578 | Under repair |

C) Equipments & AV aids

| Nature of the equipment | Year of purchase | Cost (Rs.) | Present Status |
|-----------------------------------|------------------|------------|------------------|
| TV | 1996 | 25800 | “ |
| VCP | 1996 | 10850 | “ |
| Mixie | 1996 | 2150 | “ |
| Juicer | 1996 | 1505 | “ |
| Kettle | 1996 | 1375 | “ |
| Sewing machine (2 nos.) | 1996 | 4800 | “ |
| 1.5 HP pump | 1997 | 8100 | “ |
| Grafting machine | 1998 | 4950 | “ |
| Public address system | 1999 | 30656 | “ |
| Water cooler | 1999 | 13000 | “ |
| Water purifier | 1999 | 2745 | “ |
| 3.5 Hand compression sprayer | 1999 | 1200 | “ |
| Computer with accessories | 2001 | 28,400 | “ |
| Computer with accessories | 2001 | 44,700 | Upgraded in 2003 |
| UPS (1 KVA) | 2002 | 17250 | Good |
| Refrigerator | 2002 | 21308 | “ |
| Digital camera | 2003 | 29500 | Not Working |
| 7.5 KVA Generator | 2003 | 56,950 | Good |
| Computer with accessories | 2003 | 61,175 | “ |
| Scanner | 2003 | 13,400 | “ |
| Slide projector | 2004 | 17,895 | “ |
| Overhead projector | 2004 | 32,095 | “ |
| Pressure cooker (22 l) | 2004 | 3,047 | “ |
| LCD Projector | 2004 | 73,210 | “ |
| Electronic physical balance | 2005 | 6160 | “ |
| Chemical balance | 2005 | 42162 | “ |
| PH meter | 2005 | 14388 | “ |
| Video camera | 2005 | 19,000 | “ |
| Oven | 2005 | 15476 | “ |
| Water distillation still | 2005 | 41340 | “ |
| Digestion and distillation system | 2005 | 1,30,802 | “ |
| Hot plate | 2005 | 4,120 | “ |
| Spectrophotometer | 2005 | 55,230 | “ |
| Shaker | 2005 | 48,038 | “ |
| Conductivity meter | 2005 | 14,960 | “ |
| Flame photometer | 2005 | 37,026 | “ |
| Refrigerator | 2005 | 16,890 | “ |
| Grinder | 2005 | 1,950 | “ |
| Photocopier | 2005 | 67,704 | “ |
| Fax machine | 2006 | 7,500 | “ |
| PABX | 2006 | 31,985 | “ |
| Digital Camera | 2007 | 10,580 | “ |
| DLP Projector | 2007 | 54,563 | “ |
| Computer | 2007 | 37,600 | “ |
| DTH System with accessories | 2007 | 4,165 | “ |
| Iron Box | 2007 | 830 | “ |
| UPS | 2008 | 27060 | “ |
| Stabilizer | 2008 | 10920 | “ |
| Laser fax | 2009 | 14378 | “ |
| Printer* | 2009 | 5386 | “ |
| Computer* | 2009 | 3770 | “ |
| Digital camera* | 2009 | 14890 | “ |
| UPS* | 2009 | 6500 | “ |
| Weed Cutter | 2010 | 34930 | “ |

| | | | |
|--------------------------|------|--------|---|
| Chaff Cutter | 2010 | 23800 | “ |
| Generator | 2010 | 100000 | “ |
| Chaff Cutter | 2010 | 23800 | “ |
| Air conditioner 2 ton | 2011 | 34000 | “ |
| Stabilizer 5 KVA | 2011 | 2900 | “ |
| Computer – 2 nos. | 2012 | 65000 | “ |
| Power Tiller | 2012 | 150000 | “ |
| PABX system | 2012 | 50000 | “ |
| Double distillation unit | 2012 | 63250 | “ |
| Electronic balance | 2012 | 6800 | “ |
| Horizontal autoclave | 2012 | 278615 | “ |
| BOD Incubator | 2012 | 62790 | “ |
| Motorized Sieve | 2012 | 44737 | “ |
| Laminar air flow | 2012 | 45070 | “ |
| Inkjet printer | 2012 | 8,900 | “ |

* Procured with State Horticulture funds.

1.8. Details SAC meeting conducted in 2012-13

| Sl.No. | Date | Number of Participants | No. of absentees | Salient Recommendations | Action taken |
|--------|---------|------------------------|------------------|---|---|
| 1. | 20.6.12 | 10 | 9 | Ensure the supply of quality planting materials of HYVs of coconut and arecanut in association with CPCRI, Kasargode and KAU, Trichur. | About 9000 areca seed nuts of HYV's like <i>Mohitnagar</i> , <i>Sree Mangala</i> were procured from CPCRI, Kasargode. Seedlings were raised in poly bags for supply to farmers during this season. Vegetable seeds, TC banana plants, fodder stumps, grafts/layers of fruit plants etc. were also procured from KAU for supply to farmers. Seed nuts of coconut were procured from HY palms of progressive farmers and seedlings have already been raised. |
| | | | | More programmes may be organised in processing of spices and apiculture. | Three programmes in processing and value addition of spices were organized in KVK during the period in which 300 farmers participated. Two programmes on apiculture were also organized in association with Horticultural Products Development Corporation, Government of Kerala. Sixty eight farmers attended the programme. |
| | | | | An OFT may be organised on use of reflective ribbons as bird repellent in crops like paddy. Technology available with KVK, Malappuram may be tried. | During 2013-14, one FLD on "Use of reflective ribbon for repelling birds from paddy field" is proposed for implementation in Thodannur panchayat |
| | | | | Possibility of demonstrating integrated disease management in black pepper using the popular variety IISR Thevam may be explored. | Already an OFT on management of <i>Phytophthora</i> foot rot of black pepper in 5 farmers' field is being undertaken by KVK. IISR Thevam is also included in this programme. |
| | | | | Farmer participatory approaches may be given more importance in the case of FLD/OFT programmes in disease/pest management. | In order to emphasize farmer participatory approach in the case of FLD/OFT programs in pest and disease management, programmes like FFS, group approach, etc. are employed by KVK on a regular basis. |
| | | | | Demonstration programmes may be organised for the crops like paddy and coconut in addition to spices. | In the case of paddy, one programme on upland cultivation and another on use of reflective ribbon for repelling birds is proposed for implementation during this year. In the case of coconut, programmes on bud rot management, stem bleeding, intercropping with spices and banana, cultivation of fodder etc. has been conducted in the last three years. IN addition, another programme on production of coconut inflorescence based handicrafts is also proposed during this year. |

| | | | | | |
|--|--|--|--|--|--|
| | | | | Tips on farming practices may be send to AIR, Calicut for broadcast in the early morning farmers'programme . | Details like availability of technological inputs, its uses, various programmes of KVK like training, seminars, pests and disease outbreaks etc. are sent to AIR for broadcasting in farmers' programmes. |
| | | | | Demonstration programmes may be organized on multi-storied cropping system in coconut and HDP in suitable fruit crops. | One demonstration programme on intercropping in coconut has been conducted during the last three years, in 5 farmers' fields. Another programme on HDP of tissue culture nendran banana was also conducted in 10 farmers' fields during last year. |
| | | | | Successful training /demonstration/ on farm testing programmes may be documented with outcome/output/impact details. | Impact analysis of 6 months long gardeners training programme and mechanized coconut climbing programme has been documented. |
| | | | | Programmes on solid waste management may be given more importance. | KVK is already giving training progrmame on vermicomposting, conventional composting and is also providing information on biogas plants. |
| | | | | More emphasis may be given for women empowerment programmes. | Women employment programmes like garment making, processing of food, mechanized coconut climbing, mushroom production, apiculture, nursery management etc. are regularly conducted by KVK. |
| | | | | Possibility of developing more value added products from ginger may be explored. | This will be taken up during the current year. |
| | | | | Efforts may be taken to patent broiler goat kid rearing technology developed by KVK. | As per patent laws, the technology cannot be patented. |
| | | | | Rain shelter cultivation of vegetables may be promoted among farmers with the assistance of other development departments. | Under ATMA programme, 2 such units have been set up with the technical support of KVK. |
| | | | | Ornamental aquatic plants nursery may be established at KVK. | Established an aquatic plant nursery with a collection of 16 plants. |

PART II - DETAILS OF DISTRICT

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

| S. No | Farming system/enterprise |
|-------|--|
| 1 | Homestead based farming system with coconut as the main crop. Intercrops cultivated are spices, fruits, vegetables and other plantation crops. Most homesteads also have other enterprises like poultry and dairy in small scales. Many farmers also practice goat rearing, pisciculture, piggery etc. |

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

| S. No | Agro-climatic Zone | Characteristics |
|---|-------------------------------------|--|
| 1 | West coast Plains & Ghats Zone (12) | |
| (Based on Planning Commission classification of the country into 15 zones.) | | |
| 1. | Northern Mid lands V | Altitude: up to 500 m above MSL-hot humid tropical Rainfall: Poorly distributed rainfall; south west monsoon with peak in July and spread over to 3-4 months. North-east monsoon relatively weak. Topography model: Valleys less extensive hills with moderate gradients and top with egg shaped hump, steep slopes. |
| (Based on NARP zoning by KAU) | | |

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

2.3 Soil type/s

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

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

| S. No | Crop | Area (ha) | Production (Tonnes) | Productivity (kg/ha) |
|-------|-----------|-----------|-----------------------|----------------------|
| 1. | Coconut | 119166 | 868 (Million nuts) | 7284 Nos./ha |
| 2. | Palmyra | 180 | NA | NA |
| 3. | Rubber | 20358 | 28275 | 1389 |
| 4. | Arecanut | 10054 | 12710 | 1264 |
| 5. | Cocoa | 680 | 369 | 542 |
| 6. | Cashew | 2068 | 704 | 340 |
| 7. | Paddy | 3277 | 4302 | 1312 |
| 8. | Pulses | 20 | 15 | 750 |
| 9. | Jack | 9169 | 23 (nos. in millions) | 2508 nos/ha |
| 10. | Mango | 7430 | 22215 | 2989 |
| 11. | Banana | 1476 | 11102 | 7522 |
| 12. | Pineapple | 192 | 957 | 4984 |

| | | | | |
|-----|-------------------|------|-------|-------|
| 13 | Papaya | 2154 | 7016 | 3257 |
| 14. | Other fruits | 642 | NA | NA |
| 15. | Tapioca | 1823 | 51171 | 28069 |
| 16 | Elephant foot yam | 191 | NA | NA |
| 17 | Colocasia | 521 | NA | NA |
| 18 | Yam | 29 | NA | NA |
| 19 | Sweet potato | 17 | 194 | 11411 |
| 20 | Other tubers | 119 | NA | NA |
| 21. | Drumstick | 1749 | 519 | 296 |
| 22. | Amaranthus | 144 | NA | NA |
| 23. | Bitter gourd | 60 | NA | NA |
| 24. | Snake gourd | 22 | NA | NA |
| 25 | Bhendi | 23 | NA | NA |
| 26. | Brinjal | 10 | NA | NA |
| 27. | Ivy gourd | 15 | NA | NA |
| 28. | Ash gourd | 51 | NA | NA |
| 29. | Pumpkin | 54 | NA | NA |
| 30 | Cucumber | 83 | NA | NA |
| 31 | Chillies green | 110 | 74 | 672 |
| 32 | Other vegetables | 166 | NA | NA |
| 33. | Pepper | 7972 | 1010 | NA |
| 34 | Betel | 10 | 580 | NA |
| 35 | Ginger | 104 | 401 | NA |
| 36 | Turmeric | 295 | 721 | NA |
| 37 | Cardamom | 220 | NA | NA |
| 38 | Tamarind | 720 | 1606 | NA |
| 39 | Vanilla | 42 | NA | NA |
| 40 | Cloves | 57 | 34 | 53 |
| 41 | Nutmeg | 415 | 121 | 291 |
| 42 | Cinnamon | 51 | NA | NA |
| 43 | Fodder | 123 | NA | NA |
| 44 | Lemon grass | 18 | NA | NA |
| 45 | Medicinal plants | 83 | NA | NA |

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

NA- Not available

2.5. Weather data

| Month | Rainfall (mm) | Temperature ° C | | Relative Humidity (%) |
|--------------|---------------|-----------------|---------|-----------------------|
| | | Maximum | Minimum | |
| April 2012 | 769.4 | 34.2 | 22.1 | 87.20 |
| May | 105.2 | 33.9 | 23.9 | 85.67 |
| June | 617 | 29.1 | 22.1 | 96.66 |
| July | 717.5 | 28.1 | 21.4 | 96.83 |
| August | 980.8 | 27.8 | 21.6 | 96.19 |
| September | 466.8 | 29 | 21.1 | 96.40 |
| October | 280.9 | 31.41 | 21.8 | 96.67 |
| November | 359 | 31.5 | 20.8 | 87.61 |
| December | 11.6 | 34.1 | 19.2 | 83.75 |
| January 2013 | 12.2 | 34.8 | 19.2 | 83.46 |
| February | 20.2 | 34.8 | 20.7 | 83.53 |
| March | 176.4 | 34.2 | 22.3 | 84.77 |

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

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

| Category | Population | Production | Productivity |
|-------------------|------------|------------|--------------|
| Cattle | | | |
| <i>Crossbred</i> | 100573 | 217ML | 13 litre |
| <i>Indigenous</i> | 62831 | 41.6ML | 4 litre |
| Buffalo | 1185 | 2.26ML | 11 litre |
| Sheep | | | |

| | | | |
|-------------------|--------|---------------|--------|
| Crossbred | | | |
| <i>Indigenous</i> | | | |
| Goats | 51824 | 1036 tons | 25 kg |
| Pigs | | | |
| <i>Crossbred</i> | 2318 | 289.7 ton | 125 kg |
| <i>Indigenous</i> | | | |
| Rabbits | 5278 | 13.2 ton | 2.5 kg |
| Poultry | | | |
| Hens | 566103 | | |
| <i>Desi</i> | 169831 | 11.88 M eggs. | 70 |
| <i>Improved</i> | 396272 | 103 M Eggs | 260 |
| Ducks | 12057 | 0.96 M eggs | 80 |
| Turkey and others | 30925 | 278 tons kg | 9 kg. |

Source: Department of Animal Husbandry, Kerala, 2003.

| Category | Area | Production | Productivity |
|---------------|-------------------|----------------|----------------|
| <i>Marine</i> | 71 Kms coast line | 92221 tones * | - |
| <i>Inland</i> | 3800 ha | 2210 tones* | - |
| Prawn | 8.428 ha | 6.321 tons | 1.0 ton/ha |
| Shrimp | 46.46 ha* | 50.37 tones** | 1 ton/ha |
| Fish | 60.28 ha** | 174.49 tones** | 2.5 tones/ha** |

* Success story of Matsyakeralam Department of Fisheries Kerala 2009

** Pan fish book – Kozhikode district 2011

2.7 District profile has been Updated for 2012-13: 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 |
|--------|-----------------|-------------------------|--|---|--|---|--|
| 1 | Koyilandy taluk | Perambra, Ulliyeri | Chakkittapara, Changaroth, Koorachundu, Koothali | Since inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango | Low yield of banana and vegetables, irregular bearing in mango, unavailability of quality planting materials | Improving fruit and vegetable production, quality planting material production, introduction of improved varieties |
| 2 | Kozhikode taluk | Koduvally Mukkom Kakkur | Thamarassery, Mukkom, Karassery, Kunnamangalam Thalakkulathur, | Since inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango, ornamental crops | Low yield of banana and vegetables, irregular bearing in mango, unavailability of quality planting materials, lack of facilities for marketing of flowers | Improving fruit and vegetable production, quality planting material production, introduction of improved varieties, floriculture |
| 3 | Vadakara taluk | Tuneri, Kunnummal | Maruthonkara, Tuuneri, Purameri, Velam, Kavilumpara, Kunnummal, Kuttiady | Since inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango | Low yield of banana and vegetables, irregular bearing in mango, unavailability of | Improving fruit and vegetable production, quality planting |

| | | | | | | | |
|---|-----------------|-------------------------|--|----------------------------|--|---|---|
| | | | | | | quality planting materials | material production, introduction of improved varieties |
| 4 | Koyilandy taluk | Perambra, Ulliyeri | Chakkittapara, Changaroth, Koorachundu, Koothali | Since the inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango | Low yield of banana and vegetables, irregular bearing in mango, unavailability of quality planting materials | Improving fruit and vegetable production, quality planting material production, introduction of improved varieties |
| 5 | Kozhikode taluk | Koduvally Mukkom Kakkur | Thamarassery, Mukkom, Karassery, Kunnamangalam Thalakkulathur, | Since the inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango, ornamental crops | Low yield of banana and vegetables, irregular bearing in mango, unavailability of quality planting materials, lack of facilities for marketing of flowers | Improving fruit and vegetable production, quality planting material production, introduction of improved varieties, floriculture |
| 6 | Vadakara taluk | Tuneri, Kunnummal | Maruthonkara, Tuuneri, Purameri, Velam, Kavilumpara, Kunnummal, Kuttiady | Since the inception of KVK | Coconut, Banana, vegetables, black pepper, arecanut, mango | Low yield of banana and vegetables, irregular bearing in mango, unavailability of quality planting materials | Improving fruit and vegetable production, quality planting material production, introduction of improved varieties |
| 7 | Quilandy | Perambra, Ulliyeri | | | Coconut, pepper, Cassava, banana | Coconut- Non utilization of interspaces with suitable crops Cassava- Lack of soil test based INM for local variety of high quality and taste for higher yield and quality Pepper- 1) lack of HYVs of high intrinsic quality. 2) Lack of sufficient field , constraint of labour, Unavailability of green pepper year round in semi urban areas. | Crop intensification in mono cropped coconut garden. Promotion of INM for crops Promotion of HYVs of spices with high intrinsic qualities Popularization of new production technologies of crops |
| 8 | Kozhikode | Perambra | Perambra | | Coconut, paddy, | Pseudostem | Integrated |

| | | | | | | | |
|----|-----------|--|--|--------------------|--|--|---|
| | | Kuttiady | Edavarad Paleri Muthukad | | vegetables, Banana | weevil in banana Root mealy bug in banana | Pest Management |
| 9 | Kozhikode | Thodannur Ulliyeri | Ayanchery Maniyur Thuiruvallur | | Paddy, Coconut, vegetables, Banana | Over dependency on chemical pesticides in paddy for pest and disease management | Use of biocontrol agents in paddy |
| 10 | Kozhikode | Permbra | Chakkittapara Koorachundu Poozhithod | | Spices, Rubber, Coconut, Areca nut, Apiculture | Severe incidence of <i>Phytophthora</i> foot rot of black pepper | Integrated Disease Management |
| 11 | Quilandy | Perambra | Thruvalloor | 5 years | Dairy goatary, poultry along with homestead cultivation | Low milk production, Late maturity, Poor conception | Milk production management |
| 12 | Vadakara | Melady | Kalpathoor | 3 years | Dairy, goatary, poultry under plantation crops | Anoestrus, delayed inter calving interval, Poor breeding efficiency | Fertility management |
| 13 | Vadakara | Melady | Meppayoor | 3 years | Dairy, goatary, poultry under plantation crops | Anoestrus, delayed inter calving interval, Poor breeding efficiency | Fertility management |
| 14 | Quilandy | Perambra | Muthuvannacha | 2 years | Dairy, goatary, poultry under homesteads | Low milk yield, low fat content | Milk yield management |
| 15 | Quilandy | Perambra | Paleri | 3 years | Dairy, goatary, poultry under plantation crops | Anoestrus, long inter calving interval, poor breeding efficiency | Breeding management |
| 16 | Kozhikode | Chelanoor Balussery Kozhikode Balussery Vadakara Thamarassery | Kadalundi Atholi Koorachundu Thamarassery Payyoli Kozhikode | 2010-13 3 years | Fisheries- Ornamental fishes. | Low survival rate of ornamental fishes. | Water quality management in ornamental fish culture tanks |
| 17 | Kozhikode | Chelanoor Balussery Kozhikode Balussery Vadakara Thamarassery | Kadalundi Chelanoor Ulliyeri Atholi Chakkittapara Maruthonkara Payyoli Thiruvalloor Koothali | 2010-13 3 years | Fisheries-Fresh and brackish water fish culture | Non utilization of large water bodies for fish culture. Non availability of fish fingerlings of fishes like pearl spot | Cage culture of fishes Seed production of pearl spot in freshwater area |
| 18 | Koyilandi | Thamarassery | Chakkittapara Thalayad Chembanoda Muhukad | 2010-2013 | Coconut Nutmeg, pepper | Unavailability of cost effective innovative products | Value addition |
| 19 | Vatakara | Balussery | Vatakara Chakkittapara Ayancheri | 2011-2013 | Coconut and arecanut | Lack of technical knowledge about improved farm equipments. | Farm mechanization and women empowerment |

2.9 Priority thrust areas

| S. No | Thrust area |
|-------|---|
| 1. | Improving fruit production - Use of micronutrients to increase yield of banana |
| 2. | Improving fruit production : Hormone application to induce flowering in mango |
| 3. | Improving vegetable production : Introducing HYVs of vegetables |
| 4. | Improving fruit production : High density planting of tissue culture nendran banana |
| 5. | Quality planting material production |
| 6. | Floriculture: Promoting cultivation of flowers |
| 7. | Improving fruit production - Use of micronutrients to increase yield of banana |
| 8. | Improving fruit production : Hormone application to induce flowering in mango |
| 9. | Improving vegetable production : Introducing HYVs of vegetables |
| 10. | Improving fruit production : High density planting of tissue culture nendran banana |
| 11. | Quality planting material production |
| 12. | Floriculture: Promoting cultivation of flowers |
| 13. | Popularization of high yielding fodder varieties |
| 14. | Popularization of HYVs of black pepper |
| 15. | Popularization of new production techniques |
| 16. | Production of quality seed material of ginger and turmeric |
| 17. | Utilization of crop residue for mushroom production |
| 18. | Integrated Pest and Disease Management of crops |
| 19. | Utilization of bio-control agents in pest and disease management |
| 20. | Breeding management in cows |
| 21. | Feeding management in chicks |
| 22. | Kid mortality inbreeding in goats |
| 23. | Non availability of quality chicks and chick mortality |
| 24. | Poultry carcass management |
| 25. | Calf management |
| 26. | Water quality management |
| 27. | Cage culture of fishes in fresh and brackish water area Seed production of pearl spot fish |
| 28. | Promotion of INM |

PART III - TECHNICAL ACHIEVEMENTS

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

| OFT | | | | FLD | | | |
|----------------|-------------|-------------------|-------------|----------------|-------------|-------------------|-------------|
| 1 | | | | 2 | | | |
| Number of OFTs | | Number of farmers | | Number of FLDs | | Number of farmers | |
| Targets | Achievement | Targets | Achievement | Targets | Achievement | Targets | Achievement |
| 1 | 1 | 5 | 5 | 3 | 3 | 25 | 25 |
| 2 | 2 | 10 | 10 | 5 | 5 | 50 | 56 |
| 3 | 3 | 15 | 15 | 2 | 2 | 20 | 20 |
| 2 | 2 | 50 | 50 | 1 | 1 | 50 | 50 |
| 1 | 1 | 5 | 7 | 2 | 2 | 20 | 21 |
| 1 | 1 | 10 | 10 | 1 | 1 | 10 | 10 |
| 10 | 10 | 95 | 97 | 14 | 14 | 175 | 182 |

| Training | | | | Extension Programmes | | | |
|-------------------|-------------|------------------------|-------------|----------------------|-------------|------------------------|-------------|
| 3 | | | | 4 | | | |
| Number of Courses | | Number of Participants | | Number of Programmes | | Number of participants | |
| Targets | Achievement | Targets | Achievement | Targets | Achievement | Targets | Achievement |
| 25 | 29 | 650 | 1160 | 100 | 174 | 400 | 506 |
| 30 | 33 | 1500 | 2161 | 100 | 115 | 2000 | 2428 |
| 24 | 27 | 600 | 775 | 65 | 137 | 975 | 1651 |
| 11 | 11 | 550 | 665 | 8 | 8 | 240 | 252 |
| 12 | 25 | 990 | 990 | 98 | 98 | 837 | 837 |
| 25 | 29 | 500 | 836 | 6 | 6 | 60 | 88 |
| 127 | 154 | 4790 | 6587 | 377 | 538 | 4512 | 5762 |

| Seed Production (Qtl.) | | Planting materials (Nos.) | |
|------------------------|-------------|---------------------------|-------------|
| 5 | | 6 | |
| Target | Achievement | Target | Achievement |
| Ginger-5 | 3.25 | 50000 | 48605 |
| Turmeric-5 | 4.38 | Areanut seedlings-9000 | 8500 |
| | | Clove-5000 | 5000 |
| | | Bush pepper-2000 | 4500 |
| | | WCT coconut seedlings-600 | 850 |
| | | Cocoa seedlings-1000 | 1000 |

| Livestock, poultry strains and fingerlings (No.) | | Bio-products (Kg) | |
|--|----------------------|-------------------------|-------------|
| 7 | | 8 | |
| Target | Achievement | Target | Achievement |
| Pregnant heifer- 10 | 5 | Earth worm-1000 nos. | 2500 nos. |
| Goat – 30 | 11 | Vermicompost- 2000 Kg | 2500kg |
| Layer chicks – 7500 | 14193 | Trichoderma-300 kg | 350 kg |
| Ornamental fishes | 2185 Nos, Rs. 10,929 | Pseudomonas-300kg | 1850 kg |
| | | MET-50 Nos. | 50 Nos. |
| | | Cuelure-50 Nos. | 107 Nos. |
| | | Cow dung-1500 cft | 2000 cft |
| | | Goat manure – 1000 cft. | 900 cft |
| | | Poultry manure | 700 cft |

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

| S. No | Thrust area | Crop/ Enterprise | Identified Problem | Interventions | | | | | | | | | | | | | |
|-------|--|-------------------------|--|--|--|------------------------------|-----------------------------|--|----------------------------|------------------------|--|---------------------------|------------------------|----|---|---|---|
| | | | | Title of OFT if any | Title of FLD if any | Number of Training (farmers) | Number of Training (Youths) | Number of Training (extension personnel) | Extension activities (No.) | Supply of seeds (Qtl.) | Supply of planting materials (No.) | Supply of livestock (No.) | Supply of bio products | | | | |
| | | | | | | | | | | | | | No. | Kg | | | |
| 1 | Improving fruit production | Mango | Irregular bearing in mango | Induction of flowering in <i>Oloor</i> mango through paclobutrazol application combined with INM and IPM | - | - | - | - | - | 1 | - | - | - | - | - | - | - |
| 2 | Improving fruit production | Banana | Low productivity of banana | | Demonstration of foliar application of "banana micronutrient mixture" in nendran banana | 2 | - | - | - | 1 | - | - | - | - | - | - | - |
| 3 | Improving vegetable production | Yard Long Bean | Low productivity of vegetables | | Demonstration of a recently released HYV of Yard Long Bean viz. Vellayani Jyothika | 2 | - | - | - | 2 | 5 kg | - | - | - | - | - | - |
| 4 | Improving fruit production | Banana | Low productivity of banana | | High density planting of tissue culture nendran banana | 2 | - | - | - | - | - | 1332 | - | - | - | - | - |
| 5 | Quality planting material production | All horticultural crops | Unavailability of quality planting materials in time | | | 4 | 9 | - | - | - | - | - | - | - | - | - | - |
| 6 | Floriculture: Promoting cultivation of flowers | All horticultural crops | Lack of knowledge about scientific cultivation practises | | | 1 | - | 1 | - | - | - | - | - | - | - | - | - |
| 1 | Popularization of HYVs of fodder | Fodder grass | High cost of concentrate feed and lack of quality green fodder | Assessment of high quality fodder Thumpur muzhi -1 | - | 1 | - | - | - | 6 | - | 8250 fodder nodes | - | - | - | - | - |
| 2 | Popularization of new production techniques | Bush pepper | Lack of space for growing black pepper in flats and township | | Popularization of pot culture of bush pepper using popular variety Karimunda + organic POP of IISR | - | 2 | 1 | - | 10 | - | 3500 | - | - | - | - | - |
| 3 | Popularization of HYVs of black pepper | Black pepper | Lack of adoption of HYVs | | Demonstration of HYVs of black pepper | 8 | 3 | 1 | - | 5 | - | 12210 nos. | - | - | - | - | - |
| 4 | Production of quality seed material of HYVs of ginger and turmeric | Ginger and Turmeric | Acute dearth of planting materials HYVs of ginger and turmeric | | Production of quality seed material of ginger and turmeric following IISR POP | 3 | 3 | - | - | 4 | 3.25 Ginger IISR Varada, 4.38 turmeric IISR Prabha | - | - | - | - | - | - |

| | | | | | | | | | | | | | | |
|---|--|--------------|---|--|--|----|----|----|---|---|---|---|---|---------------|
| 5 | Utilization of crop residues for mushroom production | Mushroom | Increasing cost and low availability of paddy straw for growing Oyster mushroom | - | Demonstration of local crop residues as medium for growing oyster mushroom | 6 | 1 | 1 | 4 | - | - | - | - | - |
| 6 | Popularization of INM of Cassava (Last years' programme) | Cassava | Lack of adoption of scientific manuring practices resulting in low yield and quality of cassava | Integrated nutrient management in choice variety of cassava for yield and quality | - | 2 | - | - | 2 | - | - | - | - | - |
| 2 | Pest and Disease Management | Paddy | Incidence of Leaf folder, stem borer, rice bug Sheath blight, sheath rot, BLB, brown leaf spot | | Demonstration on use of bio control agents in paddy | 2 | | | | | | | | 32 Pf 20Bb |
| 3 | | Banana | Root mealy bug | Management of root mealy bug in banana | | 2 | 1 | | | | | | | |
| 4 | | Banana | Pseudostem weevil attack | Management of pseudostem weevil in banana | | 2 | 1 | | | | | | | |
| 5 | | Black Pepper | Foot rot/ Quick wilt | Management of foot rot of black pepper | | 2 | | | | | | | | 10 t 20P |
| 6 | | Black Pepper | Foot rot/ Quick wilt | | Integrated Disease Management of <i>Phytophthora</i> Foot Rot of Black Pepper (continuing..) | 2 | | | | | | | | 10 T |
| 1 | Breeding management in cattle | Heifer | Anoestrus and poor conception rate | Effect of bio-stimulation of oestrus induction and conception rate in crossbred heifer | - | 11 | 64 | 14 | 4 | - | - | - | Njerinjil, Raw rice, Gingelly oil | |
| 2 | Milk yield management in dairy cattle | Milch cow | Low milk yield, low fert. %, poor breeding performance | Effect of bio-stimulation of lactation milk yield in dairy cattle | - | 12 | 4 | 22 | 4 | - | - | - | Coconut flower, Jaggery, Probiotic concentrate food | |
| 3 | Breeding management in cattle | Dairy | Anoestrus poor breeding performance, poor breeding efficiency | - | Fertility in anoestrus cows following CIDR treatment | 11 | - | 6 | 2 | - | - | - | CIDR | |

| | | | | | | | | | | | | | | |
|---|----------------|---------------------------------|--|---|---|---|---|--|----|------|--|--|---|---|
| 1 | Aquaculture | Fresh and brackish water fishes | Non utilization of large water bodies for fish culture. | | Cage culture of fishes in large water bodies | | 1 | | | | | | | |
| 2 | | Ornamental fish culture | Low survival rate of ornamental fishes. | | Popularisation of live feed for rearing ornamental fishes | | 3 | | 29 | 2185 | | | | |
| 3 | | Freshwater fish culture | Non availability of fish fingerlings of fishes like pearl spot | Seed production of pearl spot in fresh water area | | | 1 | | | | | | | |
| 1 | Value addition | Spices and fruits | Unavailability of cost effective innovative products | | Processing of nutmeg rind for candy preparation | 6 | 1 | | 3 | | | | - | - |
| 2 | Farm machinery | Arecanut | Lack of technical knowledge about improved farm equipments | Introduction of arecanut palm harvester | | 3 | 4 | | | | | | - | - |

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 | Induction of flowering in <i>Olour</i> mango through paclobutrazol application combined with INM and IPM | Central Institute of Subtropical Horticulture, Lucknow | Mango | 1 | - | - | Method demonstration - 1 |
| 2 | Foliar application of "banana micronutrient mixture" in nendran banana | IHR, Bangalore | Banana | - | 1 | 2 | Method demonstration - 1 |
| 3 | Introducing a recently released HYV of Yard Long Bean viz. Vellayani Jyothika | KAU, Thrissur | Yard Long Bean | - | 1 | 2 | Field day-1 Video documentation - 1 Documentation for ASPEE best women SHG award - 1 |
| 4 | High density planting of tissue culture nendran banana | KAU, Thrissur | Banana | - | 1 | 2 | Method demonstration - 1 |
| 5 | Precision farming | TNAU, Coimbatore | All horticultural crops | - | - | 1 | - |
| 6 | Demonstration of HYVs of black pepper | IISR | Black pepper | - | 1 | 12 | Seminar-1, Field day-1 |
| 7 | Demonstration of bush pepper production technology | IISR | Black pepper | - | 1 | 3 | Method demonstration-1, Seminar-2 |
| 8 | Demonstration of local crop residues for mushroom culture | CPCRI | Oyster mushroom | - | 1 | 8 | Field day-1, Method demonstration-2, Seminar-1 |
| 9 | Performance evaluation of fodder grass varieties | KAU/IGFRI(Dharward) | Hybrid fodder grass | 1 | - | 2 | Field day-1, Seminar-1 |
| 10 | Integrated nutrient management based on soil test data for yield and quality | KAU | Cassava | 1 | - | 2 | Field day-1, Seminar-1 |
| 11 | Seed production technology of HYVs of ginger and turmeric | IISR | Ginger and turmeric | - | 1 | 3 | Seed day-1, Popular article-1, Seminar-1, Exhibition-1 |
| 12 | Integrated Disease Management of <i>Phytophthora</i> Foot Rot of Black Pepper | IISR | Black pepper | | 1 | 2 | - |
| 13 | Demonstration on use of bio control agents in paddy | KAU | Paddy | | 1 | 2 | - |
| 14 | Management of root mealy bug in banana | KAU, NRCB | Banana | 1 | | 3 | - |

| | | | | | | | |
|----|--|---|---|---|---|----|---------------------------|
| 15 | Management of pseudo stem weevil in banana | KAU, CTCRI | Banana | 1 | | 3 | - |
| 16 | Management of foot rot of black pepper | KAU,IISR | Black pepper | 1 | | 2 | - |
| 17 | Effect of bio stimulation of oestrus induction and conception rate in crossbred heifer | ITK | Crossbred heifer | 1 | - | 11 | - |
| 18 | Effect of bio-stimulation of lactation milk yield in dairy cattle | ITK | Milch cows | 1 | - | 8 | - |
| 19 | Fertility in anoestrus cows following CIDR treatment | TANUVAS | Anoestrus cows | - | 1 | 9 | Animal health campaigns-2 |
| 20 | Cage culture of fishes | Kerala agriculture University | Freshwater and brackish water aquaculture | | 1 | 1 | - |
| 21 | Live feed culture for ornamental fishes | Central Institute for Fisheries education | Ornamental fish breeding and culture | | 1 | 4 | - |
| 22 | Pearl spot fish seed production | Kerala agriculture University | Freshwater aquaculture | 1 | | 1 | - |
| 23 | Introduction of arecanut harvester-Areca pick | KAU | Drudgery reduction And farm machinery | 5 | | 8 | - |
| 24 | Processing of nutmeg rind for candy preparation | KAU | Nutmeg | | 4 | 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 |
| Horticulture | | | | | | | | | | | | | | | |
| 5 | - | - | - | - | - | - | - | | | | | 10 | -- | - | - |
| - | - | - | - | 10 | - | - | - | 60 | 22 | - | - | 10 | - | - | - |
| - | - | - | - | 5 | 5 | - | - | 34 | 28 | 2 | 6 | 16 | 36 | 1 | 4 |
| - | - | - | - | 1 | 4 | - | - | 59 | 68 | 2 | 2 | 12 | 6 | - | - |
| - | - | - | - | - | - | - | - | 12 | 6 | - | - | - | - | - | - |
| Crop Science | | | | | | | | | | | | | | | |
| - | - | - | - | 10 | - | - | - | 135 | 26 | 2 | 1 | 22 | 12 | 0 | 0 |
| - | - | - | - | 14 | 6 | - | - | 25 | 18 | 2 | - | 44 | 32 | - | - |
| - | - | - | - | - | 8 | - | 2 | 28 | 22 | 2 | 1 | 52 | 68 | 0 | 0 |
| 4 | 1 | - | - | - | - | - | - | 24 | 13 | - | - | 12 | 10 | 0 | 0 |
| 5 | - | - | - | - | - | - | - | 160 | 132 | 4 | 4 | 25 | 32 | 0 | 0 |
| - | - | - | - | 36 | 4 | - | - | 8 | 76 | 5 | 8 | 34 | 55 | 0 | 0 |
| Plant Protection | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 20 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 5 | 3 | 2 | 0 | 12 | 3 | 2 | 1 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Animal Science | | | | | | | | | | | | | | | |
| 8 | 6 | 6 | 5 | - | - | - | - | 214 | 185 | 144 | 122 | - | - | - | - |
| 9 | 4 | 7 | 5 | - | - | - | - | 134 | 69 | 44 | 34 | | | | |
| - | - | - | - | 24 | 12 | 8 | 6 | 98 | 64 | 46 | 26 | | | | |
| Fisheries | | | | | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 9 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 8 | 2 | 0 | 0 | 69 | 18 | 1 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Home Science | | | | | | | | | | | | | | | |
| 6 | | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | 7 | - | 3 | 41 | 27 | - | 9 | - | - | - | - |

PART IV - On Farm Trial

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

| Thematic areas | Cereals | Oilseeds | Pulses | Commercial Crops | Vegetables | Fruits | Flower | Plantation crops | Tuber Crops | TOTAL |
|--------------------------------|---------|----------|--------|------------------|------------|----------|--------|------------------|-------------|----------|
| Integrated Nutrient Management | | | | | | 1 | | | | 1 |
| | | | | | | | | | 1 | 1 |
| Varietal Evaluation | | | | 1 | | | | | | 1 |
| Integrated Pest Management | | | | | | 2 | | | | 2 |
| Integrated Crop Management | | | | | | | | | | |
| Integrated Disease Management | | | | 1 | | | | | | 1 |
| Farm Machineries | | | | 1 | | | | | | 1 |
| Total | | | | 3 | | 3 | | | 1 | 7 |

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

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

| Thematic areas | Cattle | Poultry | Piggery | Rabbitry | Fisheries | TOTAL |
|---|----------|----------|----------|----------|-----------|----------|
| Breeding management in crossbred heifer | 1 | - | - | - | - | 1 |
| Milk yield management in dairy cattle | 1 | - | - | - | - | 1 |
| Freshwater fish culture | | | | | 1 | 1 |
| TOTAL | 2 | - | - | - | 1 | 3 |

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

4.B. Achievements on technologies Assessed and Refined

4.B.1. Technologies Assessed under various Crops

| Thematic areas | Crop | Name of the technology assessed | No. of trials | Number of farmers | Area in ha (Per trail covering all the Technological Options) |
|--------------------------------|--------------|---|---------------|-------------------|---|
| Integrated Nutrient Management | Mango | Induction of flowering in Olour mango through paclobutrazol application combined with INM and IPM | 1 | 5 | - |
| | Cassava | Integrated nutrient management in choice variety of cassava based on soil test data | 1 | 5 | 1.5 ha |
| Varietal Evaluation | Fodder grass | Assessment of performance of HYV fodder grass (CO3, Thumber muzhi-1, DHN-6) | 1 | 5 | 1 ha |
| Integrated Pest Management | Banana | Management of root mealy bug in banana | 1 | 5 | 0.024 ha |
| | Banana | Management of pseudostem weevil in banana | 1 | 5 | 0.032 ha |
| Integrated Crop Management | | | | | |
| Integrated Disease Management | Black pepper | Management of foot rot of black pepper | 1 | 5 | 0.027 ha |
| | | | | | |
| Farm Machineries | Arecanut | Mechanized harvesting of arecanut using arecapick | 1 | 10 | - |
| | | | | | |
| Total | | | 7 | 40 | |

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

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

| Thematic areas | Name of the livestock enterprise | Name of the technology assessed | No. of trials | No. of farmers |
|---|----------------------------------|--|---------------|----------------|
| Breeding management in crossbred heifer | Crossbred heifer | Effect of bio-stimulation of oestrus induction and conception rate in crossbred heifer | 1 | 25 |
| Milk yield management | Milch cow | Effect of bio-stimulation of lactation milk yield in dairy cattle | 1 | 25 |
| Freshwater fish culture | Fisheries | Seed production of pearl spot in fresh water area | 1 | 7 |
| Total | | | 3 | 57 |

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

4.C1.Results of Technologies Assessed

Results of On Farm Trial

| Crop/enterprise | Farming situation | Problem definition | Title of OFT | No. of trials | Technology Assessed | Parameters of assessment | Data on the parameter | Results of assessment | Feedback from the farmer | Any refinement needed | Justification for refinement |
|-----------------|-------------------|--------------------|--|---------------|--|--------------------------------|--|--|---|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Mango | Rainfed | Irregular bearing | Induction of flowering in <i>Olour</i> mango through paclobutrazol application combined with INM and IPM | 10 | Inducing flowering in <i>Olour</i> mango through paclobutrazol application combined with INM and IPM | Regularity of flowering, yield | Regularity could not be induced. Harvesting not completed. | All the treated trees flowered simultaneously during the first year and hence no inference could be made during first year. In the second year, the soil delayed flowering was noticed in all the treatments. In the third year flowering was irregular among treated trees. Harvesting has not yet started. | A higher dose than the recommended dosage of hormone is required for inducing flowering under Kerala condition due to high rainfall. The soil applied hormone is likely to leach out due to the heavy monsoon of the state unlike other states. ii) High cost of the hormone (Rs.6000 to 7000 per litre) is a constraint to adopt the | Higher dose for high rainfall area to be standardized. | The present recommended dose is not effective. |

| | | | | | | | | | | | |
|--------------|--------------------|--|---|---|---|--|--|--|--|---|---|
| | | | | | | | | | technology unless a reasonable price is guaranteed for the crop. | | |
| Cassava | Rainfed/ Upland | Low productivity cooking quality of cassava due to unscientific manuring | INM in choice variety of cassava based on soil test data for higher yield and cooking quality | 5 | TO.1 Farmers practice: Ash(200g)_FYM(250g)+ 20:20 fertilizer twice per plant TO2. Recommended POP of 50:50:50 TO.3. INM based on soil test data | TO.1: Yield, Cooking quality, B:C TO2. Yield, Cooking quality, B:C TO.3. Yield, Cooking quality, B:C | TO.1. 185 q/ha, Medium with slight bitterness, 1.74 TO.2. 192q/ha, medium with slight bitterness, 1.78 TO.3. 200q/ha, Excellent with no bitterness, 1.88 | TO.1. Low yield and bitterness on cooking TO.2. Moderate yield with slight bitterness TO.3. Maximum average yield realized with good cooking quality | Balanced application of fertilizer is good for avoiding bitterness and ensuring better yield for cassava | - | - |
| Fodder grass | Rainfed/ upland | High cost of concentrate feed and lack of quality green fodder | Assessment of performance of high quality fodder grass Thumber muzhi -1 in upland condition | 5 | TO.1. Farmers practice: Feeding of cattle with natural wild grass TO.2. Growing of CO3 TO.3. Growing of DHN-6 TO.4. Growing Thumber muzhi-1 | TO.1. Yield, harvest interval, time spent, B:C TO.2. Yield, harvest interval, time spent, B:C TO.3. Yield, harvest interval, time spent, B:C TO.4. Yield, harvest interval, time spent, B:C | TO.1. 25t/ha, 6 months, 3 hrs/day, 1.8 TO.2. 182t/ha, 6 weeks, 1 hr/day, 2.93 TO.3. 190t/ha, 6 weeks, 1 hr/day, 3 TO.4. 120t/ha, 10 weeks, 1.25 hr/day, | TO.1. Very low yield and wastage of lot of time for collecting and transporting natural grass. TO.2. Realized an average yield of 12 kg /hill saving collecting time of fodder to 1-1.5hrs/day TO.3. Realized up to 15kg/hill more fleshy and juicy TO.4. | TO.1. Not very economical as cows' average milk yield 8litrs/day TO.2. Good technology milk yield increased to 12litrs/day TO.3. Cows prefer the taste, stem is softer, milk yield is up to 13litrs/day. Rated as best variety. TO.4. The grass is more soft | - | - |

| | | | | | | | | | | | |
|------------------|---------------------------------------|---|--|----|---|-----------------------------------|--|--|---|---|---|
| | | | | | | | 2.22 | Realized only lesser yield 3kg/hill demanding more area to meet the fodder demand | hence can be fed without chopping to small size. Milk yield was slightly increased 10litrs/day, only 5 cuttings are possible in an year | | |
| Banana | Pure crop | Severe attack of root mealy bug | Management of root mealy bug in banana | 5 | Management of root mealy bug in banana | Percentage infestation, Yield | Trial in progress | - | There was reduction in infestation in the treated plots | - | - |
| Banana | Pure crop | Severe attack of pseudostem weevil | Management of pseudostem weevil in banana | 5 | Management of pseudostem weevil in banana | Percentage infestation, Yield | Trial in progress | - | Pseudostem weevil attack was negligible in the treated plots | - | - |
| Black pepper | intercrop | Incidence of foot rot disease | Management of foot rot of black pepper | 5 | Management of foot rot of black pepper | % disease incidence, yield | Trial in progress. The vines have not started yielding | % disease incidence in T2 plot 48%, in T3 43% | No much difference noticed | - | - |
| Crossbred heifer | Semi intensive under plantation crops | Anoestrism resulting in long interval, poor lactation yield | Effect of bio-stimulation of oestrus induction and conception rate in crossbred heifer | 25 | Feeding mixture of Njerinjil, Raw rice and gingelly oil early morning before sunrise for three days | Oestrus response, conception rate | Number of animals treated: 25, No. Of animals showed oestrus signs: 18, No. of animals conceived: 12 | Oestrus response: 72%, conception rate: 66.66% | Simple and highly useful technology to the rural dairy farmers. Easy to administration, not required skilled technician | - | - |
| Dairy cattle | Semi intensive under plantation crops | Poor milk yield resulting in poor breeding performance | Effect of bio stimulation of lactation milk yield in dairy cattle | 25 | 1. Feeding termite soil liquid along with concentrate feed. 2. Feeding lukewarm mixture of rice or wheat bran @0.5 kg + Jaggery @ 100 g + 200 g + Extract of ginger @ 20 ml to 30 ml for 2 to 3 weeks. | Milk yield and fat % | 1. No. of animals treated 25, milk yield increased 0.5 – 1 lit. Fat % 1 to 1.5 % 2. Milk | 1. Milk yield increased 0.5 – 1 lit. Fat % 1 to 1.5 % 2. Milk yield increased 2 to 2.5 lit. Fat % increased | Freely available materials can be used ecofriendly and efficiently milk yield increased during first trimester of lactation | - | - |

| | | | | | | | | | | | |
|-------------------------|-------------------------|--|---|---|---|---|---|--|---|---|---|
| | | | | | 3. Feeding boiled coconut flower along with Jaggery. 4. Feeding probiotic along with concentrate feed. | | yield increased 2 to 2.5 lit. Fat % increased 2-3% 3. Milk yield increased 2 – 5 lit. Fat % increased 1- 3% 4. Milk yield increased 2 – 5 lit. Fat % increased 2-3lit. Fat% increased 1- 2% | 2-3% 3. Milk yield increased 2 – 5 lit. Fat % increased 1- 3% 4. Milk yield increased 2-3lit. Fat% increased 1- 2% | and reduced digestive disorder | | |
| Freshwater fish culture | Pearl spot fish culture | Low survival of pearl spot in fresh water as seeds are procured from brackish water area | Seed production of pearl spot in fresh water area | 7 | Seed production of pearl spot in fresh water area | No of fingerlings Growth Survival | Trial under progress | - | Fishes have started breeding naturally in freshwater ponds | - | - |
| Arecanut | | Lack of arecanut palm climbers, difficulty in climbing arecanut tree | Introduction of arecanut harvester | 5 | Introduction of arecanut harvester -Areca pick | Technical feasibility and capacity | Capacity - Harvesting rate- 20 palms per hour | Areca pick is more effective in harvesting in palms having less than 15m height. | Areca pick has lesser weight than modified coconut palm climbing machine and it is easy to handle | - | - |

Contd..

| Technology Assessed | Source of Technology | Production | Please give the unit (kg/ha, t/ha, lit/animal, nuts/palm, nuts/palm/year) | Net Return (Profit) in Rs. / unit | BC Ratio |
|---|---|---------------------------------|---|-----------------------------------|----------|
| 13 | 14 | 15 | 16 | 17 | 18 |
| Technology option 1 (Farmer's practice) | Smoking /smudging the field | Harvesting has not yet started. | -- | -- | -- |
| Technology option 2 | Spraying of potassium nitrate 1% during Nov.- Dec. to induce flowering + Recommended INM and IPM as per the POP | Harvesting has not yet started. | - | - | - |
| Technology option 3 | Application (soil drenching) of paclobutrazol @ 1.5 g | Harvesting has not yet started. | - | - | - |

| | | | | | |
|--|---|------|------|-----------|------|
| | a.i. per one metre diameter of crop canopy + Recommended INM and IPM as per the POP | | | | |
| Technology option 1 (Farmer's practice): Ash(200g)_FYM(250g)+ 20:20 fertilizer twice per plant | Local practice | 18.5 | t/ha | 59200 | 1.74 |
| Technology option 2: Recommended POP of 50:50:50 | KAU | 19.2 | t/ha | 63168 | 1.78 |
| Technology option 3: INM based on soil test data | KAU | 20 | t/ha | 70000 | 1.88 |
| Technology option 1 (Farmer's practice):Feeding of cattle with natural wild grass | Local practice | 25 | t/ha | 45790/ha | 1.8 |
| Technology option 2: Growing of CO3 | TNAU | 182 | t/ha | 198550/ha | 2.94 |
| Technology option 3: Growing of DHN-6 | KAU/IGFRI Dharward | 190 | t/ha | 204330/ha | 3 |
| Technology option 4: Growing Thumber muzhi-1 | KAU | 120 | t/ha | 127475/ha | 2.22 |
| Technology option 1- Farmer's practice - No specific control measure adopted | - | - | - | - | - |
| T.O.2 : Drenching of chlorpyriphos 20 EC @ 2.5 ml/l in the basin (at bimonthly intervals) commencing from 1MAP till 7MAP | KAU | - | - | - | - |
| T.O.3: Drenching of chlorpyriphos 20 EC @ 2.5 ml/l and <i>Verticillium chlamydosporium</i> @ 20g/l during alternate months commencing from 1MAP till 9MAP in the basin | (NRCB, Trichy) | - | - | - | - |
| T.O.1: Farmer's practice- Placing bar soap pieces in the leaf axil. | - | - | - | - | - |
| T.O.2 : Application of chlorpyriphos 20 EC in the leaf axils and also drenching in the basin (Twice if needed) | KAU | - | - | - | - |
| T.O.3: Spraying Neemazal (1%) on pseudo stem and leaf axil filling at monthly intervals starting from fifth month onwards | KAU | - | - | - | - |
| T.O.4: Use of bio pesticides from tapioca plant-Injecting (5 ml into one bore hole) commercial formulation Menma and spraying Nanma (5%) on the pseudo stem and leaf axil from 6MAP to 9MAP @ two treatments per month | CTCRI | - | - | - | - |

| | | | | | |
|--|------------------------------|--------------------------------|--|-------------|-----|
| at 15 days interval | | | | | |
| T.O.1- Farmers practice-Drenching Bordeaux mixture | - | - | - | - | - |
| T.O.2: Prophylactic spray of 0.3% potassium phosphonate @ 5 litre per plant, twice a year (pre southwest monsoon and pre northeast monsoon) + <i>Pseudomonas</i> 50 g incubated in FYM (2 kg) , twice a year and <i>Trichoderma</i> 50g incubated in neem cake (0.5 kg) and FYM (1kg) twice a year (pre southwest monsoon and pre northeast monsoon) | IISR | - | - | - | - |
| T.O.3 : <i>Pseudomonas</i> drenching (2%)- 5 litre per vine twice a year (pre southwest monsoon and pre northeast monsoon) and <i>Trichoderma</i> enriched organic manure 5 kg twice a year (10 days after <i>Pseudomonas</i> application)+ foliar spray of <i>Pseudomonas</i> (2%) twice a year | KAU | - | - | - | - |
| Technology option 1 (Farmer's practice): Spraying of bull urine oronasally @ 3 ml per animal (one ml each nostril + One ml mouth) twice a week until oestrus or maximum of 8 weeks | IVRI 2010 | Semi intensive under homestead | Oestrus response: 7 animals showed oestrus on 7 th day, 5 animals showed on 5 th day, 13 animals not responded. Conception rate 58.33% | - | - |
| Technology option 2: Spraying of oestrus cow urine + cervical vaginal mucus 3:1 ratio oronasally at 3 ml per animal (1 ml each nostril + 1ml mouth) twice a week until oestrus or maximum of 8 weeks | IVRI | Semi intensive under homestead | 3 animal showed oestrus response on 5 th day and 6 animals showed on 9 th day, conception rate 44.44 | - | - |
| Technology option 3: Feeding mixture of 100 g Njerinjil (<i>Tribulus terrestrini</i>) + 100g of pachari (unboiled raw rice) and 100ml of gingelly oil early morning before sunrise for 3 days | ITK | Semi intensive under homestead | Number of animals treated: 25, No. Of animals showed oestrus signs: 18, No. of animals conceived: 12 Oestrus response 72% conception rate 66.66% | - | - |
| Technology option 1: Feeding termite soil liquid along with concentrate feed | ITK | Semi intensive under homestead | 12 lit | 10080/month | 3:7 |
| Technology option 2: Feeding lukewarm mixture | Handbook of animal husbandry | Semi intensive under homestead | 15 lit | 12600/month | 4:6 |

| | | | | | |
|---|--|--|-------------------|--|-----|
| of rice or wheat bran @ 0.5 kg + Jaggery @ 100 to 200g + extract of ginger @ 20 to 30 ml for 2 to 3 weeks | | | | | |
| Technology option 3: Feeding boiled coconut flower along with jiggery | ITK | Semi intensive under homestead | 19 lit | 15960/month | 2:5 |
| Technology option 4: Feeding probiotic along with concentrate feed | NDRI | Semi intensive under homestead | 18 lit | 15120/month | 2:5 |
| Technology option 1 (Farmer's practice) | The fingerlings for stocking in fresh water ponds are wild collections from brackish water | | | | |
| Technology option 2 | Breeding of pearl spot in confined freshwater ponds with scientific management practice | Fishes have started breeding naturally in freshwater ponds | | | |
| Technology option 3 | Collection of pear spot eggs and rearing them in aquaria | | | | |
| Technology option 1 (Farmer's practice) | Manual harvesting of arecanut by climbing | 50 kg per 100 trees | 20 trees per hour | 4000.00 | |
| Technology option 2 | Harvesting by modified coconut climbing machine | | 20 trees per hour | 3000.00 (The net return increases variably after the first harvesting) | |
| Technology option 3 | Using manually operating arecanut harvesting machine. | | 20 trees per hour | 500.00(The net return increases variably after the first harvesting) | |

4.C2. Details of each On Farm Trial for assessment to be furnished in the following format separately as per the following details

OFT-1

- 1 Title of Technology Assessed: Induction of flowering in *Olour* mango through paclobutrazol application combined with INM and IPM
- 2 Problem Definition: Irregular bearing
- 3 Details of technologies selected for assessment: Mango is grown in an area of 7430 ha in Kozhikode district. *Olour* is the most popular variety of the district having a great export potential as well as local demand. It is a choice variety of the district mainly exported to Gulf countries. But the variety is irregular in bearing and if regularity can be induced in this variety, farmers are able to realize a regular income from the crop. Hence the programme was taken up in five farmers' fields in Velam panchayat where the cultivation of *Olour* mango is more popular..
- 4 Source of technology: TO2: TNAU TO3: CISH, Lucknow
- 5 Production system and thematic area: Rainfed, Fruit production
- 6 Performance of the Technology with performance indicators: All the treated trees flowered simultaneously during the first year and hence no inference could be made during first year. In the second year, delayed flowering was noticed in all the treatments. In the third year flowering was irregular among treated trees.
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring

techniques :A higher dose than the recommended dosage of hormone is required for inducing flowering under Kerala condition due to high rainfall. The soil applied hormone is likely to leach out due to the heavy monsoon of the state unlike other states.

ii) High cost of the hormone (Rs.6000 to 7000 per litre) is a constraint to adopt the technology unless a reasonable price is guaranteed for the crop.

8 Final recommendation for micro level situation: A higher dose than the recommended dosage of hormone is required for inducing flowering under Kerala condition.

9 Constraints identified and feedback for research: High cost of the hormone (Rs.6000 to 7000 per litre) is a constraint to adopt the technology unless a reasonable price is guaranteed for the crop.
Higher dose for high rainfall area to be standardized.

10 Process of farmers' participation and their reaction: Farmers actively participated in the trial. They indicated the need of a low cost technology to induce regularity of flowering.

OFT-2

1 Title of Technology Assessed:

Effectiveness of INM in choice variety of cassava based on soil test data for yield and cooking quality

2 Problem Definition:

Most of the farmers in Quilandy taluk are growing choice variety like M-4 due to good taste and cooking quality. But the farmers are not following scientific manuring resulting in low yield and cooking quality.

3 Details of technologies selected for assessment:

a) T.O.-1 (Farmers practice): Growing choice variety M-4 following manuring pattern of Ash(200g)+FYM (200g) + fertilizer 20:20 (200g) per plant

b) T.O.-2: POP NPK @ 50:50:50 Kg/ha

c) T.O.-3: INM based on soil test data 40:25:65 NPK (Kg/ha)

4 Source of technology: KAU

5 Production system and thematic area: Rainfed upland mono-crops, popularization of INM

6 Performance of the Technology with performance indicators

| Technology options | Yield | Cooking quality | B:C |
|--------------------|-------|-------------------------------|------|
| T.O.1 | 158 | Poor with bitterness | 1.74 |
| T.O.2 | 192 | Medium with slight bitterness | 1.78 |
| T.O.3 | 200 | Good without bitterness | 1.88 |

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

| options | Technology | Scoring | Feedback |
|---------|------------|---------|--|
| 1 | | 3 | Height of plant was more with low yield. Bitterness of cooked tuber and the quality is poor. |
| 2 | | 2 | Height was on par with T.O.3 but slight bitterness and moderate cooking quality. |
| 3 | | 1 | The yield and cooking quality were best-There was no bitterness at all |

8 Final recommendation for micro level situation:

The INM with soil testing may be more suitable for getting higher yield, income and quality of cassava

9 Constraints identified and feedback for research:

The soil moisture availability was found to be very critical for yield performance. The scarcity or delay of monsoon during the growth period may adversely affect the quality and yield in spite of soil test based INM. The INM strategy may be made more specific to local choice varieties instead of general NPK recommendation for local varieties. While quality was a serious problem in all the plots due to high temperature encountered as a result of climate change in the late stages of the crop.

10 Process of farmers participation and their reaction:

Five progressive farmers practicing cassava cultivation were selected from a SHG at Naduvannur panchayat.

The farmers were very happy about the performance of the crop due to soil test based INM

OFT-3

1 Title of Technology Assessed: Assessment of performance of high quality variety of fodder grass Thumber muzhi-1 under upland condition

2 Problem Definition : The cost of concentrate feed is increasing and availability of good quality green fodder is decreasing resulting in low yield of milk

3 Details of technologies selected for assessment:

TO.1. Farmers practice: Feeding of cattle with natural wild grass

TO.2. Growing of CO3

TO.3. Growing of DHN-6

TO.4. Growing Thumber muzhi-1

- 4 Source of technology: TO.2. TNAU, TO.3. KAU/IGFRI Dharward, TO.4. KAU
 5 Production system and thematic area: Rainfed, upland, Varietal evaluation
 6 Performance of the Technology with performance indicators:

| Technology options | Yield (t/ha) | Harvest interval | Time Spent for collecting fodder | B:C |
|--------------------|--------------|------------------|----------------------------------|------|
| T.O.1 | 25 | 6 months | 3 hrs/day | 1.8 |
| T.O.2 | 182 | 6 weeks | 1 hrs/day | 2.94 |
| T.O.3 | 190 | 6 weeks | 1 hrs/day | 3 |
| TO.4 | 120 | 10 weeks | 1.25 hrs/day | 2.22 |

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

| Technology options | Scoring | Feedback |
|--------------------|---------|--|
| 1 | 4 | Due to scarcity of green fodder milk yield is very low and results in quitting of dairying during summer for want of natural grass |
| 2 | 2 | CO3 is good with an yield of 182 t/ha and prefers open condition. Hose irrigation during summer is found to be advantageous for better yield |
| 3 | 1 | DHN is found to be more vigorous with fleshy and sweeter leaves and culm. Realized good yield of 190 t/ha |
| 4 | 3 | Thumber muzhi-1; the growth performance and yield were not very promising as other fodder grass varieties. Farmers declined to adopt the variety |

- 8 Final recommendation for micro level situation: Growing of HYV fodder grass DHN-1 found to be more suitable in upland conditions followed by variety CO3. The varieties perform better in open field situations where there is irrigation facility during summer months. The performance of the variety Thumber muzhi-1 is very poor in upland situation in spite of higher protein content
- 9 Constraints identified and feedback for research: Lack of availability of planting materials of other varieties from KAU like Suguna and Supriya lead to select the available varieties for the trial.
- 10 Process of farmers' participation and their reaction: The farmers were selected from changaroth panchayat by linking with Animal Husbandry Dept. They expressed good opinion on the trial and wanted to share the fodder stem of best variety to neighbours.

OFT-4

- 1 Title of Technology Assessed :Management of root mealy bug in banana
 2 Problem Definition: Severe incidence of root mealy bug
 3 Details of technologies selected for assessment: Root mealy bug has become a threat to the cultivation of banana in several areas of Kerala. Since the infestation is on the root portion, it goes unnoticed and results in complete devastation of the crop. Considering its wide spread occurrence and damage caused to the commercial cultivation of banana, trials are to be conducted to test the efficiency of different management methods.

T.O.1: Farmer's practice - No specific control measure adopted

T.O.2 :Drenching of chlorpyrifos 20 EC @ 2.5 ml/l in the basin (at bimonthly intervals) commencing from 1MAP till 7MAP

T.O.3: Drenching of chlorpyrifos 20 EC @ 2.5 ml/l and *Verticillium chlamydosporium* @ 20g/l during alternate months commencing from 1MAP till 9MAP in the basin

- 4 Source of technology: TO2: KAU, TO3: NRCB
 5 Production system and thematic area: Pure crop, Integrated Pest Management
 6 Performance of the Technology with performance indicators
 7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques
 8 Final recommendation for micro level situation
 9 Constraints identified and feedback for research
 10 Process of farmers participation and their reaction

OFT-5

- 1 Title of Technology Assessed :Management of pseudostem weevil in banana
 2 Problem Definition: Severe incidence of root mealy bug
 3 Details of technologies selected for assessment: Pseudostem weevil is a menace in the cultivation of banana, which affects the growth of the plant and results in reduced yield. Farmers usually do not take appropriate management methods, even after the infestation is noticed. This ultimately results in increased population of the

pest, thereby resulting in toppling of the pseudo stem. Hence there is a need to compare the different methods for containing the disease.

T.O.1: Farmer's practice-Placing bar soap pieces in the leaf axil.

T.O.2 :Application of chlorpyriphos 20 EC in the leaf axils and also drenching in the basin (Twice if needed)

T.O.3: Spraying Neemazal (1%) on pseudo stem and leaf axil filling at monthly intervals starting from fifth month onwards

T.O.4: Use of bio pesticides from tapioca plant-Injecting commercial formulation Menma (5 ml into one bore hole) and spraying Nanma (5%) on the pseudo stem and leaf axil from 6MAP to 9MAP @ two treatments per month at 15 days interval

4 Source of technology: TO2: KAU, TO3: KAU,TO4: CTCRI

5 Production system and thematic area: Pure crop, Integrated Pest Management

6 Performance of the Technology with performance indicators

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

8 Final recommendation for micro level situation

9 Constraints identified and feedback for research

10 Process of farmers participation and their reaction

OFT-6

1 Title of Technology Assessed :Management of foot rot of black pepper

2 Problem Definition: Incidence of foot rot disease

3 Details of technologies selected for assessment:

T.O.1: Farmer's practice

T.O.2: Prophylactic spray of 0.3% potassium phosphonate @ 5 litre per plant, twice a year (pre southwest monsoon and pre northeast monsoon) +*Pseudomonas* 50 g incubated in FYM (2 kg) , twice a year and *Trichoderma* 50g incubated in neem cake (0.5 kg) and FYM (1kg) twice a year (pre southwest monsoon and pre northeast monsoon)(IISR)

T.O.3 : *Pseudomonas* drenching (2%)- 5 litre per vine twice a year (pre southwest monsoon and pre northeast monsoon) and *Trichoderma* enriched organic manure 5 kg twice a year (10 days after *Pseudomonas* application)+ foliar spray of *Pseudomonas* (2%) twice a year (KAU) .

4 Source of technology: TO2: IISR, TO3: KAU

5 Production system and thematic area: Intercrop, Integrated Disease Management

6 Performance of the Technology with performance indicators

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

8 Final recommendation for micro level situation

9 Constraints identified and feedback for research

10 Process of farmers participation and their reaction

OFT-7

1 Title of Technology Assessed: Effect of bio-stimulation of oestrus induction and conception rate in crossbred heifer.

2 Problem Definition: Anoestrus and low conception is major problems in dairy heifers resulting in long inter calving interval, poor breeding efficiency and huge loss to the dairy farmers.

3 Details of technologies selected for assessment:

Technology option 1 (Farmer's practice): Spraying of bull urine oronasally @ 3 ml per animal (one ml each nostril + One ml mouth) twice a week until oestrus or maximum of 8 weeks

Technology option 2: Spraying of oestrus cow urine + cervical vaginal mucus 3:1 ratio oronasally at 3 ml per animal (1 ml each nostril + 1ml mouth) twice a week until oestrus or maximum of 8 weeks

Technology option 3: Feeding mixture of 100 g Njerinjil (*Tribulus terrestrini*) + 100g of pachari (unboiled raw rice) and 100ml of gingelly oil early morning before sunrise for 3 days

4 Source of technology: ITK

5 Production system and thematic area: Dairy heifers are reared semi intensively under farm house with other live stocks like backyard poultry, goats and vegetables/coconut etc.

6 Performance of the Technology with performance indicators:

T1: Oestrus response 12/25 conception rate 58.633%

T2: Oestrus response 11/25 Conception rate 44.44%

T3: oestrus response 72% conception rate 66.66%

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques: The technology option 3 was highly useful to the dairy farmers, easy to administrate, ecofriendly, no skilled technicians are required

8 Final recommendation for micro level situation: Technology option 3 will be taken for FLD and will be popularized to more number of farmers either within the state or other states

- 9 Constraints identified and feedback for research: Collecting bull urine and vaginal discharge from oestrus animal is difficult.
- 10 Process of farmers' participation and their reaction: Farmers are actively participated and take the technology to their animals for better breeding management

OFT-8

- 1 Title of Technology Assessed: Effect of bio-stimulation of lactation milk yield in dairy cattle.
- 2 Problem Definition: Low milk yield and poor breeding in dairy cattle resulting in poor reproductive efficiency and huge loss to the dairy farmer.
- 3 Details of technologies selected for assessment:
 Technology option 1: Feeding termite soil liquid along with concentrate feed
 Technology option 2: Feeding lukewarm mixture of rice or wheat bran @ 0.5 kg + Jaggery @ 100 to 200g + extract of ginger @ 20 to 30 ml for 2 to 3 weeks
 Technology option 3: Feeding boiled coconut flower along with jaggery
 Technology option 4: Feeding probiotic along with concentrate feed
- 4 Source of technology: ITK
- 5 Production system and thematic area: Dairy cattle are reared semi-intensively along with poultry and goatary under vegetable/ plantation crops. Milk production performance was assessed by feeding with different indigenous medicines.
- 6 Performance of the Technology with performance indicators:
 T1: Milk yield increased 10-20%, Fat % 1- 1.5%
 T2: Milk yield increased 20-25%, Fat % 2- 3%
 T3: Milk yield increased 20-30%, Fat % 1- 3%
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques: All technologies assessed for lactation on milk yield was highly useful for enhancing milk yield in dairy cattle. Apart from these technologies one simple indigenous technological knowledge which is available in the homesteads itself can be efficiently used for enhancing milk yield.
- 8 Final recommendation for micro level situation: Highly useful technologies and will be taken for large number of farmers field for efficient use of technical knowledge for enhancing milk yield.
- 9 Constraints identified and feedback for research: Easy to administrate, no skilled technician is required
- 10 Process of farmers' participation and their reaction: Farmers are actively participated for gaining knowledge on ITK for adopting this technology for enhancing milk yield in dairy cattle.

OFT-9

- 1 Title of Technology Assessed : Seed production of pearl spot in fresh water area
- 2 Problem Definition: Low survival of pearl spot in freshwater ponds
- 3 Details of technologies selected for assessment: There is a great demand for pearl spot fingerlings in Kozhikode. Often these fingerlings are procured from natural brackish water bodies (wild collection) and supplied to farmers in freshwater area without properly acclimatizing them to freshwater. This results in large scale mortality and depletion of natural fish stock. Pearl spot is known to breed naturally in freshwater ponds when provided with substrates for egg attachment. The mature brood fishes need to be acclimatised to freshwater and has to be stocked in weed fish eradicated and fertilized ponds. Hard substrates such as bamboo poles or pots have to be provided in ponds for fishes to breed and attach their eggs. The technology has been developed by Kerala Agriculture University. CIBA has developed a technology recently in which the eggs attached to substrate are removed and transferred in to aquaria or containers and providing them with aeration and rearing the spawn with live feed like *Artemia nauplii*.
- 4 Source of technology: TO2: KAU, TO3: CIBA
- 5 Production system and thematic area: In freshwater ponds
- 6 Performance of the Technology with performance indicators
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques
- 8 Final recommendation for micro level situation
- 9 Constraints identified and feedback for research
- 10 Process of farmers participation and their reaction

OFT-10

- 1 Title of Technology Assessed: Introduction of arecanut harvester-Areapick
- 2 Problem Definition: Lack of arecanut palm climbers, in climbing arecanut tree.
- 3 Details of technologies selected for assessment:
 The major problem of arecanut cultivators are the unavailability of arecanut palm climbers. Through this trial introducing an innovative method of mechanized arecanut harvester. This is a farmer friendly and can be used without climbing the tree and reducing the physical strain. It can be operated manually from the ground.
 T.O.1: Manual harvesting of arecanut by climbing
 T.O.2: Harvesting by modified coconut climbing machine
 T.O.3: harvesting by manually operating arecanut harvester-Areapick:

- 4 Source of technology : KAU
- 5 Production system and thematic area: Farm relating drudgery reduction equipments.
- 6 Performance of the Technology with performance indicators
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques :Areca pick has lesser weight than modified coconut palm climbing machine and it is easy to handle arecapick is suited for the harvest in palms having less than 20m height.
- 8 Final recommendation for micro level situation
- 9 Constraints identified and feedback for research
- 10 Process of farmers participation and their reaction

4.D1. Results of Technologies Refined : Nil

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

PART V - FRONTLINE DEMONSTRATIONS

5.A. Summary of FLDs implemented during 2012-13

| Sl. No. | Category | Farming Situation | Season and Year | Crop | Variety/breed | Hybrid | Thematic area | Technology Demonstrated | Area (ha) | | No. of farmers/ demonstration | | | Reasons for shortfall in achievement |
|---------|------------|-------------------|------------------------------------|----------------|--------------------|--------|--|---|-----------|--------|-------------------------------|---------|-------|---|
| | | | | | | | | | Proposed | Actual | SC/S T | Other s | Total | |
| 1. | Cereals | | | | | | | | | | | | | |
| 1.a | Paddy | Pure crop | December -January to April-May2013 | Paddy | Uma | | Integrated pest and disease management | Demonstration on use of bio control agents in paddy | 2 | 2 | 2 | 8 | 10 | |
| 2. | Vegetables | Irrigated | Summer 2012-13 | Yard Long Bean | Vellayani Jyothika | -- | Improving vegetable production | Demonstration of a recently released HYV of YLB viz. Vellayani Jyothika | 1 ha | 1 ha | - | 10 | 10 | -- |
| 3.a | Fruit | Rainfed | October 2012 to July 2013 | Banana | Nendran | - | Improving fruit production | Foliar application of "banana micronutrient mixture" in nendran banana | 1 ha | 1 ha | - | 10 | 10 | - |
| 3.b | | Rainfed | April 2013 to February 2014 | Banana | Nendran | --s | Improving fruit production | High density planting of tissue culture nendran banana | 0.50 | 0.40 | -- | 5 | 5 | Cost of TC plants increased from Rs15 to Rs.20 per plant. Hence area was reduced to limit the expenditure within approved budget. |
| 4.a | Spices and | Rainfed/homestead | Kharif 2009 | Black pepper | Panchami | - | Varietal evaluation | Panchami +IISR POP | 6 | 10 | - | 10 | 10 | - |

| | | | | | | | | | | | | | | |
|-----|--------------|---|---------------------|--------------|---|----|--------------------------------------|--|----------------------|---------------------|----|----|----|---|
| | condiments | | | | | | | | | | | | | |
| 4.b | | Rainfed/homestead | Kharif 2012 | Black pepper | IISR Thevam | | Varietal evaluation | IISR Thevam, HYV (with field tolerance to foot rot disease)+ IISR POP | 4 | 4 | | 4 | 4 | |
| 4.c | | Flats and township | Rabi (2012) | Bush pepper | Karimunda | | Integrated crop management | Bush pepper pot culture using Karimunda + organic POP of IISR | 100 pots | 100 pots | | 20 | 20 | |
| 4.d | | Multiple cropping in coconut garden under rainfed condition | Kharif 2012 | Ginger | IISR Varada | | Production of quality seed material | IISR Varada+POP | 0.8 ha | 0.8 ha | | 20 | 20 | |
| 4.e | | Multiple cropping in coconut garden under rainfed condition | Kharif 2012 | Turmeric | IISR Prabha | | Production of quality seed material | IISR Prabha+POP | 0.8 ha | 0.8 ha | | 20 | 20 | |
| 4.f | | Intercrop | Perennial | Black Pepper | Karimunda, Panniyur-1, Arkkalamundi, Aimpiriyan | | Integrated Disease Management | Integrated Disease Management of <i>Phytophthora</i> Foot Rot of Black Pepper (continuing..) | 250 vines (0.22 ha) | 250 vines (0.22 ha) | | 10 | 10 | |
| 4.g | | Intercrop | | Nutmeg | | | Value addition | Processing of nutmeg rind for nutmeg preparation | | | 3 | 7 | 10 | |
| 5.a | Dairy | Cattle reared under homesteads along with poultry and goatary | All | Milch | Crossbred cattle | | Fertility management in dairy cattle | Fertility in anoestrus cows following CIDR treatment | 50 cows | 50 cows | 12 | 38 | 50 | Animal health campaign arranged in collaboration with dairy department and cooperative milk society |
| 6.a | Common carps | Non utilization of large water bodies for fish | Throughout the year | Food fishes | Pearl spot, Tilapia | Na | Aquaculture | Cage culture of fishes in large water bodies | 2.5m x 1m x 1m cages | | 9 | 2 | 11 | |

| | | | | | | | | | | | | | | |
|-----|-------------------|---|---------------------|-----------------|---|----|------------------------|---|------------|----------|---|----|----|---|
| | | culture | | | | | | | | | | | | |
| 7.a | Ornamental fishes | Ornamental fish breeding and culture | Throughout the year | Ornamental fish | Live bearers like guppy and egg laying varieties like gourami, carp and angel | Na | Ornamental fish | Popularisation of live feed for rearing ornamental fishes | In aquaria | | | 10 | 10 | - |
| 8.a | Oyster mushroom | Multiple cropping in coconut garden under rainfed condition | Kharif 2012 | Oyster mushroom | Florida | - | Production of mushroom | Demonstration of use of local crop residues as medium for growing oyster mushroom | 100 beds | 100 beds | 2 | 8 | 10 | - |

5.A. 1. Soil fertility status of FLDs plots during 2012-13

| Sl. No. | Category | Farming Situation | Season and Year | Crop | Variety/breed | Hybrid | Thematic area | Technology Demonstrated | Season and year | Status of soil | | | Previous crop grown |
|---------|-----------------------|-------------------|-----------------------------|----------------|--------------------|--------|---------------------------------|---|-----------------------------|----------------|------------|-------------|---------------------|
| | | | | | | | | | | N | P | K | |
| 1 | Vegetables | Irrigated | Summer 2012-13 | Yard Long Bean | Vellayani Jyothika | -- | Improving vegetable production | Demonstration of a recently released HYV of YLB viz. Vellayani Jyothika | Summer 2012-13 | 188 | 6.11 | 59.8 | Paddy |
| 2.a | Fruit | Irrigated | October 2012 to July 2013 | Banana | Nendran | - | Improving fruit production | Foliar application of "banana micronutrient mixture" in nendran banana | October 2012 to July 2013 | 186 kg/ha | 6.91 kg/ha | 68.12 kg/ha | Banana |
| 2.b | " | Rainfed | April 2013 to February 2014 | Banana | Nendran | -- | Improving fruit production | High density planting of tissue culture nendran banana | April 2013 to February 2014 | 173 | 6.41 | 65.8 | Banana |
| 3.a | Spices and condiments | Rainfed/homestead | Kharif 2009 | Black pepper | Panchami | - | Popularization of HVYs | Panchami+IISR POP | 2012 | 0.91 | 13.2 | 10.86 | Tubers |
| 3.b | " | Rainfed/homestead | Kharif 2012 | Black pepper | IISR Thevam | - | Popularization of HVYs | IISR Thevam + POP | 2012 | 0.84 | 12.62 | 9.92 | " |
| 3.c | " | Rainfed/homestead | Kharif 2012 | Ginger | IISR Varada | - | Quality seed production of HVYs | Demonstration of seed production of IISR Varada | 2012 Kharif | 0.92 | 13.4 | 10.8 | " |
| 3.d | " | Rainfed/homestead | Kharif 2012 | Turmeric | IISR Prabha | - | Quality seed production of HVYs | Demonstration of seed production of IISR Prabha | 2012 Kharif | 0.91 | 13.2 | 11.2 | " |

5.B. Results of Frontline Demonstrations

5.B.1. Crops

| Crop | Name of the technology demonstrated | Variety | Hybrid | Farming situation | No. of Demo. | Area (ha) | Yield (q/ha) | | | | % Increase | *Economics of demonstration (Rs./ha) | | | | *Economics of check (Rs./ha) | | | |
|---------|-------------------------------------|---------|--------|-------------------|--------------|-----------|--------------|-----|-----|-------|------------|--------------------------------------|--------------|------------|-------|------------------------------|--------------|------------|-------|
| | | | | | | | Demo | | | Check | | Gross Cost | Gross Return | Net Return | **BCR | Gross Cost | Gross Return | Net Return | **BCR |
| | | | | | | | H | L | A | | | | | | | | | | |
| Cereals | Paddy | Uma | - | Pure crop | 10 | 2 | 6.5 | 4.5 | 5.5 | 4 | 27.27 | 37,000 | 93,500 | 56,500 | 2.53 | 38,000 | 68,000 | 30,000 | 1.78 |

| | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|----|---------------------|----|----------|--------|--------|--------|--------|-------|----------|----------|----------|------|--------|--------|--------|------|
| Vegetables | Demonstration of a recently released HYV of YLB viz. Vellayani Jyothika | Vellayani Jyothika | -- | Irrigated | 10 | 1ha | @ | @ | @ | @ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fruit | Foliar application of "banana micronutrient mixture" in nendran banana | Nendran | -- | Irrigated | 10 | 1ha | * | * | @ | * | - | - | - | - | - | - | - | - | - |
| " | High density planting of tissue culture nendran banana | Nendran | — | Irrigated | 5 | 0.4 | + | + | @ | - | - | - | - | - | - | - | - | - | - |
| " | #High density planting of tissue culture nendran banana | Nendran | — | Irrigated | 5 | 0.5 | 493.14 | 339.86 | 416.50 | 315.00 | 32.22 | 333200 | 1041250 | 708050 | 3.13 | 300000 | 787500 | 487500 | 2.63 |
| Spices and condiments | Demonstration of HYV of Black pepper +IDM | Panchami | - | Rainfed homestead | 10 | 6ha | 9.84 | 4.2 | 6.45 | 5.4 | 19.4 | 77000 | 193500 | 116500 | 2.51 | 72500 | 151200 | 78700 | 2.08 |
| " | Demonstration of HYV of Black pepper +IDM | IISR Thevam | - | Rainfed homestead | 4 | 4ha | * | * | * | * | * | * | * | * | * | * | * | * | * |
| " | Popularization of bush pepper in pots | Karimunda | - | Flats and townships | 20 | 100 pots | * | * | * | * | * | * | * | * | * | * | * | * | * |
| " | Seed production of high yielding variety of ginger+IISR POP | IISR Varada | - | Rainfed homestead | 20 | 0.8ha | 215 | 142 | 170 | 161 | 5.6 | 217000 | 840000 | 623000 | 3.87 | 217000 | 338100 | 121100 | 1.55 |
| " | Seed production of high yielding variety of turmeric +IISR POP | IISR prabha | - | Rainfed homestead | 20 | 0.8ha | 280 | 198 | 230 | 221 | 4 | 254500 | 991500 | 737000 | 3.89 | 244500 | 853200 | 608700 | 3.5 |
| " | Black pepper | Karimunda, Kalluvally, Aimpiryan, Panniyur -1 | - | Intercrop | 10 | 0.22ha | 14.66 | 6.60 | 10.63 | 3.60 | 66.13 | 1,22,847 | 3,72,050 | 2,49,203 | 3.03 | 48000 | 126000 | 78000 | 2.62 |

| | | | | | | | | | | | | | | | | | | |
|---|---|--|--|----------------|---|--|--|--|--|--|----|-----|----|-----|----|-----|----|-----|
| “ | Processing of nutmeg rind for candy preparation | | | Inter cropping | 5 | | | | | | 98 | 120 | 22 | 1.2 | 95 | 150 | 55 | 1.6 |
|---|---|--|--|----------------|---|--|--|--|--|--|----|-----|----|-----|----|-----|----|-----|

@Demonstration in progress

Horticulture

| Data on other parameters in relation to technology demonstrated | | |
|---|--|--|
| Parameter with unit | Demo | Check |
| Pest and disease incidence | Slight yellowing and mosaic like symptoms were noticed during severe summer which subsided upon receipt of a few summer showers. | The same symptoms were noticed in control plot also. |
| - | - | - |
| - | - | - |
| Weed population | Due to closer planting, weed population was very less | Weed growth was more and hence weeding has to be carried out more frequently |

Crop Science

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

| Data on other parameters in relation to technology demonstrated (Panchami) | | |
|--|-----------------|------------------|
| Parameter with unit | Demo | Check |
| Time of harvest | Late by 45 days | Early by 45 days |
| Disease incidence | 1% | 2% |
| Pre bearing period | 3 years | 2 years |

| Data on other parameters in relation to technology demonstrated (IISR-Thevam) | | |
|---|------|-------|
| Parameter with unit | Demo | Check |
| % of establishment | 98% | 72% |
| Height of the plant after 2 years | 2.8m | 2.3m |
| Incidence of quick wilt | Nil | 3% |

| Data on other parameters in relation to technology demonstrated (Bush pepper) | | |
|---|------|-------|
| Parameter with unit | Demo | Check |
| Number of branches/plant | 4 | - |
| Number of leaves/plant | 18 | - |
| Causality | 1% | - |

| Data on other parameters in relation to technology demonstrated (Ginger) | | |
|--|----------|------------|
| Parameter with unit | Demo | Check |
| Duration | 8 months | 8.5 months |
| Incidence of stem borer | 3% | 4% |
| - | - | - |

| Data on other parameters in relation to technology demonstrated (Turmeric) | | |
|--|----------|-----------|
| Parameter with unit | Demo | Check |
| Duration | 9 months | 10 months |
| Incidence of stem borer | 1% | 2% |
| - | - | - |

Plant protection

| Data on other parameters in relation to technology demonstrated | | |
|---|------|-------|
| Parameter with unit | Demo | Check |
| % Pest attack in paddy | 18% | 54% |
| % Causality of black pepper vines | 22% | 66% |

Home Science

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

| Data on other parameters in relation to technology demonstrated | | |
|---|------|-------|
| Parameter with unit | Demo | Check |
| | | |
| | | |
| | | |

5.B.2. Livestock and related enterprises

| Type of livestock | Name of the technology demonstrated | Breed | No. of Demo | No. of Units | Yield (q/ha) | | | % Increase | *Economics of demonstration (Rs./unit) | | | | *Economics of check (Rs./unit) | | | | |
|-------------------|--|---------------|-------------|--------------|--------------|-------|--------------|------------|--|--------------|------------|--------|--------------------------------|--------------|------------|--------|-----|
| | | | | | Demo | | Check if any | | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR | |
| | | | | | H | L | | | | | | | | | | | A |
| Dairy | Fertility in anoestrus cows following CIDR treatment | Crossbred cow | 50 | 50 | 22 lit | 9 lit | 15.5 lit | 8 lit | 93.75 | 1750 | 15000 | 13250 | 8:57 | 620 | 6000 | 5380 | 9:6 |

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

** BCR= GROSS RETURN/GROSS COST

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

| Data on other parameters in relation to technology demonstrated | | |
|---|--|---|
| Parameter with unit | Demo | Check if any |
| No. of animals treated: 50 oestrus response, conception rate | Number of animals treated 50, No of animals showed oestrus response 50 (100%), AI done 50 animals, no. of animals conceived- 34, conception rate 68% | No. of animals treated 50, no of animals showed oestrus symptom-26, oestrus response – 52%, No of animals AI done -26, no of animals conceived-9, conception rate- 34.6% 0 |

5.B.3. Fisheries

| Type of Breed | Name of the technology demonstrated | Breed | No. of Demo | Units/ Area (m ²) | Yield (q/ha) | | | % Increase | *Economics of demonstration (Rs./unit) or (Rs./m ²) | | | | *Economics of check (Rs./unit) or (Rs./m ²) | | | | |
|--|--|---------------------|-------------|-------------------------------|--------------|---|--------------|------------|---|--------------|------------|--------|---|--------------|------------|--------|---|
| | | | | | Demo | | Check if any | | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR | |
| | | | | | H | L | | | | | | | | | | | A |
| Ornamental fishes | Live feed culture for ornamental fishes | Micro worms | 10 | 1 | | - | - | - | - | - | - | - | - | - | - | - | - |
| Others (pl.specify) Pearl spot, Tilapia | Cage culture of fishes in large water bodies | Pearl spot, Tilapia | 11 | 2m ² x11 | In progress | - | - | - | - | - | - | - | - | - | - | - | - |

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

** BCR= GROSS RETURN/GROSS COST

H-High L-Low, A-Average

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

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

5.B.4. Other enterprises

| Enterprise | Name of the technology demonstrated | Variety/ species | No. of Demo | Units / Area {m ² } | Yield (q/ha) | | | % Increase | *Economics of demonstration (Rs./unit) or (Rs./m ²) | | | | *Economics of check (Rs./unit) or (Rs./m ²) | | | | |
|-----------------|--|--------------------------|-------------|--------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|---|--------------|--------------|--------------|---|--------------|--------------|--------------|-----|
| | | | | | Demo | | Check if any | | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR | |
| | | | | | H | L | | | | | | | | | | | A |
| Oyster mushroom | Demonstration of local crop residues for growing oyster mushroom using coconut and arecanut leaf waste | <i>Pleurotus florida</i> | 10 | 100 beds | 1.2 Yield in kg/ 1 kg substratum | 0.45 Yield in kg/ 1 kg substratum | 1.1 Yield in kg/ 1 kg substratum | 1.2 Yield in kg/ 1 kg substratum | -8 | 370/10 beds | 1650/10 beds | 1280/10 beds | 4.45 | 430/10 beds | 1800/10 beds | 1370/10 beds | 4.2 |

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

** BCR= GROSS RETURN/GROSS COST

H-High L-Low, A-Average

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

| Data on other parameters in relation to technology demonstrated | | |
|---|---------|---------|
| Parameter with unit | Demo | Local |
| Time taken for first harvest | 28 days | 22 days |
| Average diameter of sporocarp (pileus) | 2.55 cm | 3.65 cm |
| Shelf life/ keeping quality of mushroom | 5 hrs | 3 hrs |

5.B.5. Farm implements and machinery : Nil**5.B.6. Extension and Training activities under FLD**

| Sl.No. | Activity | No. of activities organised | Number of participants | Remarks |
|--------|--------------------------------------|-----------------------------|------------------------|------------------------------|
| 1 | Field days | 11 | 210 | During harvest |
| 2 | Farmers Training | 20 | 824 | - |
| 3 | Media coverage | | | |
| 4 | Training for extension functionaries | 1 | 68 | Mushroom |
| 5 | Seminar | 3 | 105 | Spices production technology |
| 6 | Kisan goshti | 3 | 214 | Spices production technology |
| 7 | Radio talk | 1 | - | Bush pepper technology |

PART VI – DEMONSTRATIONS ON CROP HYBRIDS

Demonstration details on crop hybrids : Nil

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|--|----------------|---------------------|--------|-------|-------|--------|-------|-------------|--------|-------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Crop Production | | | | | | | | | | |
| Cropping Systems | 1 | 11 | 24 | 35 | 5 | 6 | 11 | 16 | 30 | 46 |
| Horticulture | | | | | | | | | | |
| a) Vegetable Crops | | | | | | | | | | |
| Production of low value and high volume crop | 2 | 17 | 50 | 67 | 1 | 6 | 7 | 18 | 56 | 74 |
| Protective cultivation | 1 | 8 | 1 | 9 | - | - | - | 8 | 1 | 9 |
| b) Fruits | | | | | | | | | | |
| Cultivation of Fruit | 4 | 87 | 81 | 168 | 4 | 12 | 16 | 91 | 93 | 184 |
| Plant propagation techniques | 2 | 26 | 26 | 52 | 2 | 4 | 6 | 28 | 30 | 58 |
| Manuring of banana | 1 | 6 | 7 | 13 | 2 | 2 | 4 | 8 | 9 | 17 |
| c) Plantation crops | | | | | | | | | | |
| Production and Management technology | 4 | 104 | 108 | 212 | 8 | 14 | 22 | 112 | 122 | 234 |
| d) Spices | | | | | | | | | | |
| Production and Management technology | 8 | 217 | 158 | 375 | 39 | 32 | 71 | 256 | 190 | 446 |
| Planting material production | 1 | 6 | 26 | 32 | 6 | 2 | 8 | 12 | 28 | 40 |
| Livestock Production and Management | | | | | | | | | | |
| Dairy Management | 3 | 60 | 79 | 139 | 14 | 18 | 32 | 74 | 97 | 171 |
| Poultry Management | 3 | 23 | 42 | 65 | 3 | 6 | 9 | 26 | 48 | 74 |
| Goatary Management | 3 | 12 | 1 | 13 | 12 | 35 | 47 | 24 | 36 | 60 |
| Rabbit Management | 1 | - | 8 | 8 | - | - | - | - | 8 | 8 |
| Animal Nutrition Management | 1 | 4 | 39 | 43 | 2 | 4 | 6 | 6 | 43 | 49 |
| Animal Disease Management | 1 | 32 | 50 | 82 | 2 | 2 | 4 | 34 | 52 | 86 |

| | | | | | | | | | | |
|---|-----------|------------|------------|-------------|------------|------------|------------|-------------|-------------|-------------|
| Broiler goat rearing | 4 | 81 | 11 | 92 | 7 | 4 | 11 | 88 | 15 | 103 |
| Home Science/Women empowerment | | | | | | | | | | |
| Designing and development for high nutrient efficiency diet | 2 | 51 | 14 | 65 | 2 | 2 | 4 | 53 | 16 | 69 |
| Value addition | 6 | 64 | 105 | 169 | 16 | 76 | 92 | 80 | 181 | 261 |
| Plant Protection | | | | | | | | | | |
| Integrated Pest Management | 3 | 29 | 60 | 89 | 3 | 9 | 12 | 32 | 69 | 101 |
| Integrated Disease Management | 3 | 39 | 1 | 40 | 2 | - | 2 | 41 | 1 | 42 |
| Production of Inputs at site | | | | | | | | | | |
| Mushroom production | 1 | 8 | 26 | 34 | - | 12 | 12 | 8 | 38 | 46 |
| TOTAL | 55 | 885 | 917 | 1802 | 130 | 246 | 376 | 1021 | 1163 | 2184 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|---|----------------|---------------------|------------|-------------|------------|------------|------------|-------------|-------------|-------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Crop Production | | | | | | | | | | |
| Weed Management | 1 | 19 | 20 | 39 | 3 | 8 | 11 | 22 | 28 | 50 |
| Cropping Systems | 1 | 71 | 18 | 89 | 7 | 2 | 9 | 78 | 20 | 98 |
| Horticulture | | | | | | | | | | |
| a) Vegetable Crops | | | | | | | | | | |
| Production of low value and high volume crop | 5 | 67 | 49 | 116 | 2 | 17 | 19 | 69 | 66 | 135 |
| b) Fruits | | | | | | | | | | |
| Cultivation of Fruit | 1 | 8 | 2 | 10 | - | - | - | 8 | 2 | 10 |
| c) Plantation crops | | | | | | | | | | |
| Production and Management technology | 1 | 35 | 10 | 45 | 4 | 1 | 5 | 39 | 11 | 50 |
| d) Spices | | | | | | | | | | |
| Planting material production and nursery management | 4 | 252 | 70 | 322 | 23 | 23 | 46 | 275 | 93 | 368 |
| Livestock Production and Management | | | | | | | | | | |
| Dairy Management | 7 | 203 | 155 | 358 | 86 | 75 | 161 | 289 | 230 | 519 |
| Poultry Management | 1 | 2 | 28 | 30 | - | 11 | 11 | 2 | 39 | 41 |
| Goatary Management | 1 | 18 | 7 | 25 | 6 | 3 | 9 | 24 | 10 | 34 |
| Indigenous medicine in animal treatment | 5 | 137 | 90 | 227 | 52 | 46 | 98 | 189 | 136 | 325 |
| Animal Nutrition Management | 3 | 77 | 51 | 128 | 29 | 25 | 54 | 106 | 76 | 182 |
| Animal Disease Management | 4 | 90 | 57 | 147 | 28 | 21 | 49 | 118 | 78 | 196 |
| Feed and Fodder technology | 4 | 78 | 93 | 171 | 29 | 24 | 53 | 107 | 117 | 224 |
| Plant Protection | | | | | | | | | | |
| Integrated Pest Management | 3 | 111 | 42 | 153 | 5 | 2 | 7 | 116 | 44 | 160 |
| Integrated Disease Management | 3 | 59 | 58 | 117 | 2 | 1 | 3 | 61 | 59 | 120 |
| Production of bio control agents and bio pesticides | 1 | 16 | 8 | 24 | 1 | 1 | 2 | 17 | 9 | 26 |
| Production of Inputs at site | | | | | | | | | | |
| Mushroom production | 5 | 56 | 92 | 148 | 12 | 10 | 22 | 68 | 102 | 170 |
| TOTAL | 50 | 1299 | 850 | 2149 | 289 | 270 | 559 | 1588 | 1122 | 2710 |

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 | 9 | 226 | 190 | 416 | - | - | - | 226 | 190 | 416 |
| Small scale processing | 1 | 21 | 6 | 27 | 11 | 2 | 13 | 32 | 8 | 40 |
| Tailoring and Stitching | 3 | - | 21 | 21 | - | 39 | 39 | - | 60 | 60 |
| Rural Crafts | 6 | 12 | 42 | 54 | - | 19 | 19 | 12 | 61 | 73 |
| Broiler goat | 5 | 45 | - | 45 | - | - | - | 45 | - | 45 |
| Goat rearing | 2 | 50 | - | 50 | 1 | - | 1 | 51 | - | 51 |
| Quail farming | 1 | 6 | - | 6 | 1 | - | 1 | 7 | - | 7 |
| Rabbit farming | 1 | - | 8 | 8 | - | - | - | - | 8 | 8 |
| Poultry production | 1 | 16 | 8 | 24 | 2 | - | 2 | 18 | 8 | 26 |
| Ornamental fisheries | 4 | 69 | 18 | 87 | 1 | 0 | 1 | 70 | 18 | 88 |
| Composite fish culture | 1 | 11 | 8 | 19 | 0 | 0 | 0 | 11 | 8 | 19 |
| Any other (pl.specify) Gardeners' training | 1 | 3 | 11 | 14 | - | 11 | 11 | 3 | 22 | 25 |
| IPDM in coconut | 5 | 68 | 17 | 85 | 37 | 18 | 55 | 105 | 35 | 140 |
| IPM in fruit crops | 1 | 9 | 13 | 22 | - | - | - | 9 | 13 | 22 |
| Production of bio control agents and biopesticides | 2 | 4 | 19 | 23 | - | 1 | 1 | 4 | 20 | 24 |
| Fry and fingerling rearing (Seed production) | 1 | 5 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 5 |
| Any other (pl.specify) Cage culture of fishes | 1 | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 |
| Any other (pl.specify) Farm machinery | 6 | 70 | 19 | 89 | 41 | 21 | 62 | 111 | 40 | 151 |
| TOTAL | 51 | 618 | 380 | 998 | 94 | 111 | 205 | 712 | 491 | 1203 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|--|----------------|---------------------|------------|------------|-----------|-----------|-----------|-------------|------------|-------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Integrated farming | 3 | 52 | 14 | 66 | 9 | 4 | 13 | 61 | 18 | 79 |
| Planting material production | 2 | 20 | 17 | 37 | 3 | 5 | 8 | 23 | 22 | 45 |
| Vermi-culture | 2 | 18 | 18 | 36 | 2 | 7 | 9 | 20 | 25 | 45 |
| Value addition | 1 | 3 | 37 | 40 | - | - | - | 3 | 37 | 40 |
| Dairying | 3 | 26 | 19 | 45 | 11 | 7 | 18 | 37 | 26 | 63 |
| Ornamental fisheries | 10 | 273 | 127 | 400 | 18 | 2 | 20 | 291 | 129 | 420 |
| Composite fish culture | 4 | 186 | 58 | 244 | 12 | 2 | 14 | 198 | 60 | 258 |
| Shrimp farming | 1 | 60 | 4 | 64 | 4 | 0 | 4 | 64 | 4 | 68 |
| Any other (pl.specify) Integrated fish farming | 2 | 49 | 12 | 61 | 0 | 0 | 0 | 49 | 12 | 61 |
| TOTAL | 28 | 687 | 306 | 993 | 59 | 27 | 86 | 746 | 333 | 1079 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|-----------------------|----------------|---------------------|-----------|-----------|----------|----------|----------|-------------|-----------|-----------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Dairy farm management | 1 | 7 | 14 | 21 | 2 | 4 | 6 | 9 | 18 | 27 |
| Total | 1 | 7 | 14 | 21 | 2 | 4 | 6 | 9 | 18 | 27 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|---|----------------|---------------------|------------|------------|-----------|----------|-----------|-------------|------------|------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Protected cultivation technology | 1 | 29 | 21 | 50 | - | - | - | 29 | 21 | 50 |
| Cultivation techniques of oyster and milky mushroom | 1 | 34 | 18 | 52 | 12 | 4 | 16 | 46 | 22 | 68 |
| Any other (pl.specify) New generation pesticides | 2 | 31 | 12 | 43 | - | - | - | 31 | 12 | 43 |
| Preparation and use of biopesticides and botanicals | 2 | 12 | 25 | 37 | - | 1 | 1 | 12 | 26 | 38 |
| Any other (pl.specify) Ornamental fish culture | 1 | 40 | 24 | 64 | 4 | 0 | 4 | 44 | 24 | 68 |
| Total | 7 | 146 | 100 | 246 | 16 | 5 | 21 | 162 | 105 | 267 |

7.G. Sponsored training programmes conducted

| S.No | Area of training | No. of Courses | No. of Participants | | | | | | | | |
|-----------|--|----------------|---------------------|------------|-------------|------------|-----------|------------|-------------|------------|-------------|
| | | | General | | | SC/ST | | | Grand Total | | |
| | | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 1 | Production and value addition | | | | | | | | | | |
| 1.a | Spices crops | 8 | 217 | 158 | 375 | 39 | 32 | 71 | 256 | 190 | 446 |
| 2 | Post harvest technology and value addition | | | | | | | | | | |
| 2.a | Gardeners training programme | 1 | 3 | 11 | 14 | - | 11 | 11 | 3 | 22 | 25 |
| 3 | Farm machinery | | | | | | | | | | |
| 3.a. | Farm machinery, tools and implements | 6 | 70 | 19 | 89 | 41 | 21 | 62 | 111 | 40 | 151 |
| 4. | Livestock and fisheries | | | | | | | | | | |
| 4.a | Ornamental fish culture | 11 | 313 | 151 | 464 | 22 | 2 | 24 | 335 | 153 | 488 |
| 4.b | Composite fish culture | 4 | 186 | 58 | 244 | 12 | 2 | 14 | 198 | 60 | 258 |
| 4.c | Integrated fish farming | 2 | 49 | 12 | 61 | 0 | 0 | 0 | 49 | 12 | 61 |
| 4.d | Shrimp farming | 1 | 60 | 4 | 64 | 4 | 0 | 4 | 64 | 4 | 68 |
| 5 | Others | | | | | | | | | | |
| 5.a | IPDM in banana | 1 | 11 | 6 | 17 | 2 | 1 | 3 | 13 | 7 | 20 |
| 5.b | IPDM in paddy | 1 | 35 | 15 | 50 | 1 | 1 | 2 | 36 | 16 | 52 |
| 5.c | IPDM in vegetables | 2 | 12 | 16 | 28 | - | 2 | 2 | 12 | 18 | 30 |
| 5.d | IPDM in coconut | 2 | 49 | 50 | 99 | 2 | - | 2 | 51 | 50 | 101 |
| 5.e | Production and use of biopesticides and bio control agents | 1 | 2 | 8 | 10 | - | 1 | 1 | 2 | 9 | 11 |
| 5.f | Beekeeping for increased productivity of crops | 1 | 40 | 15 | 55 | - | 2 | 2 | 40 | 17 | 57 |
| 6. | Home Science | | | | | | | | | | |
| 6.a. | Drudgery reduction of women | 1 | - | 7 | 7 | - | 13 | 13 | - | 20 | 20 |
| | Total | 42 | 1017 | 530 | 1547 | 123 | 88 | 211 | 1140 | 618 | 1758 |

Details of sponsoring agencies involved

1. State Horticulture Mission, Kerala
2. ATMA- Agriculture Department
3. ATMA- Fisheries Department
4. FFDA- Fisheries Department
5. District planning office Kozhikode

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. | Integrated crop management | 6 | 58 | 15 | 73 | 37 | 5 | 42 | 95 | 20 | 115 |
| 2. | Income generation activities | | | | | | | | | | |
| 2.a. | Rural Crafts | 10 | 14 | 193 | 207 | - | 20 | 20 | 14 | 213 | 227 |
| 2.b. | Tailoring, stitching, embroidery, dying etc. | 3 | - | 39 | 39 | - | 4 | 4 | - | 43 | 43 |
| 2.c. | Others (pl.specify) Apiculture | 2 | 54 | 15 | 69 | - | 2 | 2 | 54 | 17 | 71 |
| | Grand Total | 21 | 126 | 262 | 388 | 37 | 31 | 68 | 163 | 293 | 456 |

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

| Nature of Extension Programme | No. of Programmes | No. of Participants (General) | | | No. of Participants SC / ST | | | No. of extension personnel | | |
|---|------------------------------------|-------------------------------|-------------|-------------|-----------------------------|------------|------------|----------------------------|------------|------------|
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Field Day | 11 | 168 | 124 | 292 | 29 | 28 | 57 | 27 | 19 | 46 |
| Kisan Mela | 1 | 600 | 150 | 750 | 24 | 12 | 36 | 20 | 16 | 36 |
| Kisan Ghosthi | 12 | 569 | 230 | 799 | 18 | 33 | 51 | 28 | 34 | 62 |
| Exhibition | 9 | | | | | | | | | |
| Film Show | 47 | 456 | 273 | 729 | 30 | 21 | 51 | 14 | 12 | 26 |
| Method Demonstrations | 35 | 416 | 285 | 701 | 44 | 48 | 92 | 15 | 10 | 25 |
| Farmers Seminar | 3 | 176 | 37 | 213 | 2 | 1 | 3 | 2 | 6 | 8 |
| Workshop | | | | | | | | | | |
| Group meetings | 11 | 122 | 82 | 204 | 2 | 3 | 5 | 1 | 6 | 7 |
| Lectures delivered as resource persons | 13 | 340 | 192 | 532 | 52 | 51 | 103 | 26 | 15 | 41 |
| Newspaper coverage | 5 | | | | | | | | | |
| Radio talks | 2 | | | | | | | | | |
| TV talks | 1 | | | | | | | | | |
| Popular articles | 4 | | | | | | | | | |
| Extension Literature | 6 | | | | | | | | | |
| Advisory Services | 640 | 319 | 276 | 595 | 23 | 3 | 26 | 10 | 10 | 20 |
| Scientific visit to farmers field | 106 | 113 | 18 | 131 | 4 | - | 4 | 2 | 1 | 3 |
| Farmers visit to KVK | 8 | 1748 | 855 | 2603 | 15 | 11 | 26 | 9 | 6 | 15 |
| Diagnostic visits | 31 | 34 | 6 | 40 | 1 | | 1 | 2 | 3 | 5 |
| Exposure visits | 8 | 81 | 48 | 129 | 2 | 44 | 46 | - | - | - |
| Animal Health Camp | 5 | 251 | - | 251 | - | - | - | - | - | - |
| Self Help Group meetings | 4 | - | 65 | 65 | - | 42 | 42 | - | 6 | 6 |
| Seed day | 1 | 28 | 25 | 53 | 1 | 1 | 2 | 2 | - | 2 |
| Farmers' day | 1 | 41 | 15 | 56 | 3 | 4 | 7 | 5 | 8 | 13 |
| Any Other (Specify) | | | | | | | | | | |
| Video documentation of SHG activity | 1 | - | 13 | 13 | - | - | - | 2 | 1 | 3 |
| Seminar | 5 | 69 | 24 | 93 | 24 | 11 | 35 | 9 | 6 | 15 |
| Ksheerotsavam | 5 | 114 | 82 | 196 | 69 | 48 | 117 | 14 | 8 | 22 |
| Cattle show/calf rally | 5 | 463 | - | 463 | - | - | - | - | - | - |
| Farmers' study tour | 2 | 42 | 12 | 54 | 18 | 10 | 28 | 2 | 2 | 4 |
| Extension literature distributed | 117 | | | | | | | | | |
| Other state farmers' visited KVK | 33 | | | | | | | | | |
| Farmers visited Livestock farm under ATMA | 167 | | | | | | | | | |
| AI and natural breeding by superior buck | 329 | | | | | | | | | |
| Helpline | 1782 | | | | | | | | | |
| Emails | 224 | | | | | | | | | |
| Vaccination | RDV-27800 IBD-26800 FMD-1255 | | | | | | | | | |
| Field visit | 218 | | | | | | | | | |
| Total | - | 6150 | 2812 | 8962 | 361 | 333 | 704 | 190 | 169 | 359 |

PART IX – PRODUCTION OF SEED, PLANT AND LIVESTOCK MATERIALS**9.A. Production of seeds by the KVKs**

| Crop category | Name of the crop | Variety | Hybrid | Quantity of seed (qtl) | Value (Rs) | Number of farmers to whom provided |
|---------------|------------------|--------------|--------|------------------------|--------------|------------------------------------|
| Spices | Ginger | IISR Varada- | | 3.25 | 19500 | 65 |
| | Turmeric | IISR Prabha- | | 4.38 | 21900 | 89 |
| Total | | | | 7.63 | 41400 | 154 |

9.B. Production of planting materials by the KVKs

| Crop category | Name of the crop | Variety | Hybrid | Number | Value (Rs.) | Number of farmers to whom provided |
|----------------------|-------------------------|-----------------------------------|--------|--------------|-----------------|------------------------------------|
| Commercial | <i>Piper colubrinum</i> | - | - | 355 | 2680 | 44 |
| Vegetable seedlings | Capsicum | - | - | 4250 | 10625 | 810 |
| | Cabbage | - | - | 6000 | 13000 | 915 |
| | Cauliflower | - | - | 4107 | 10625.5 | 827 |
| Fruits | Kilo pera | - | - | 3 | 90 | 2 |
| | Mango | Bennet Alphonso, Sinduram, Priyur | - | 724 | 43440 | 325 |
| | Rambutan | - | - | 2 | 40 | 1 |
| | Mangosteen | - | - | 101 | 12120 | 48 |
| | Lovi lovi | - | - | 4 | 80 | 3 |
| | Jack | - | - | 1 | 70 | 1 |
| | Sapota graft | - | - | 107 | 1500 | 62 |
| | Langsat seedlings | - | - | 155 | 3100 | 27 |
| Ornamental plants | Ornamental palms | - | - | 232 | 3480 | 103 |
| | Misc. rooted plants | - | - | 20 | 200 | 15 |
| | Croton | - | - | 3 | 45 | 2 |
| Plantation | Arecanut seedlings | - | - | 7038 | 105570 | 1201 |
| | Cocoa seedlings | - | - | 754 | 15080 | 201 |
| | Dwarf arecanut | - | - | 1 | 500 | 1 |
| | Cashew graft | - | - | 14 | 680 | 8 |
| Spices | Bush pepper | - | - | 4027 | 120810 | 1327 |
| | Bush pepper in pots | - | - | 6 | 1500 | 4 |
| | All spice seedlings | - | - | 47 | 1880 | 31 |
| Fodder crop saplings | Fodder | CO3 | - | 20500 | 20500 | 33 |
| Forest Species | Neem | - | - | 104 | 1560 | 31 |
| | Mahagony | - | - | 53 | 530 | 12 |
| | Ashokam | - | - | 17 | 170 | 8 |
| Total | | | | 48625 | 369875.5 | 6042 |

9.C. Production of Bio-Products

| Bio Products | Name of the bio-product | Quantity Kg | Value (Rs.) | Number of farmers to whom provided |
|----------------------------------|-------------------------|-------------|---------------|------------------------------------|
| Bio Fertilizers | Vermicompost | 2500 | 2500 | 200 |
| | Cow dung | 2000 cft | 20000 | 125 |
| | Goat manure | 900 cft | 9000 | 52 |
| | Poultry manure | 700 cft | 7000 | 32 |
| Bio Agents | <i>Trichoderma</i> | 241 | 18075 | 107 |
| | <i>Pseudomonas</i> | 1729 | 103740 | 843 |
| | <i>Earth worms</i> | 2500 (nos) | 1250 | 50 |
| Others (specify) Pheromone traps | Methyl euginol trap | 33 | 3300 | 20 |
| | Cuelure trap | 94 | 11750 | 81 |
| Total | | - | 176615 | 1510 |

9.D. Production of livestock materials

| Particulars of Live stock | Name of the breed | Number | Value (Rs.) | Number of farmers to whom provided |
|---------------------------------------|---|--------------|----------------|------------------------------------|
| Dairy animals | | | | |
| Cows | Crossbred | 5 | 64600 | 5 |
| Goat | Malabari | 11 | 16896 | 6 |
| Poultry | | | | |
| Layers | Gramasree | 14193 | 11,05290 | 1405 |
| Egg (Hen, duck, quail) | - | - | 8264 | |
| Fisheries | | | | |
| Others (Pl. specify)Ornamental fishes | Guppy, platy sword tail, gold fish, carp , fighter ,gourami | 2185 | 10927 | 36 |
| Aquatic plants | Java moss, Valliseneria, baby tears | 20 | 200 | 20 |
| Live feed for ornamental fishes | Micro worms | 18 | 1850 | 18 |
| Total | | 16432 | 1208027 | 1490 |

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

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

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.)

(B) Literature developed/published

| Item | Title | Authors name | Number |
|----------------------|--|--|--------|
| Research papers | Biology, Host range, Pathogenesis and Diagnosis of white spot syndrome virus. <i>Indian Journal of Virology</i> 23(2) 161-174. | Pradeep, B., Rai,P., Mohan, S.A., Shekar, S.M., Karunasagar, I | 1 |
| | White spot syndrome virus: Genotyping, Epidemiology and Evolutionary studies. <i>Indian Journal of Virology</i> 23(2) 175-183. | Shekar, S.M., Pradeep, B., Karunasaga, I | 1 |
| News letters | Vol.5 No.1 January-June 2012 | | 1 |
| Technical bulletins | 1.Kandiannan, K., Prakash, K.M. and Arumuganathan, T 2012. Scientific Production and processing of spices. | | 1 |
| Popular articles | 1. Nattilengum vilayattay thirumadhuram (Malayalam) (Under exploited fruits). 2. <i>Vazhayuday ennam kootti kooduthal varumanam</i> (Malayalam) (High density planting in banana). 3. Vazhakalkku tonic banana special (Malayalam) (Banana special – a tonic for banana). 4. Veettiloru butter fruit (Malayalam) (A butter fruit for every household) 5. “ <i>Kunjhanmaar Vambanmaar</i> ” (Malayalam) | 1. Manoj, P.S. and Mathew.P.A. 2. Manoj, P.S. and Arumuganathan, 3. Manoj, P.S. and Arumuganathan, 4.Manoj, P.S. 5. Aiswariya.K.K. | 5 |
| Extension literature | <i>Trichoderma</i> against fungal diseases | Aiswariya.K.K., K.M.Prakash | 2500 |

| | | | |
|---|--|--|------|
| | <i>Pseudomonas</i> for protection of crops | Aiswariya.K.K., K.M.Prakash | 2500 |
| | Freshwater fish culture | B. Pradeep | 1 |
| Others (Pl. specify) Chapter in a book | Avocado. In: Kumar, D.P. (Ed.). Amrutham madhuram Ee Nava Bhalangal. (Malayalam) (Under-exploited fruits). | Manoj, P.S. | |
| Training manual | Scientific production and processing of spices | K. Kandiannan, K M Prakash and T Arumuganathan | 300 |
| TOTAL | | | |

10.B. Details of Electronic Media Produced

| S. No. | Type of media (CD / VCD / DVD/ Audio-Cassette) | Title of the programme | Number |
|--------|--|--|--------|
| 1 | DVD | 1.Broiler goat rearing: women SHG's shows the way in English, Malayalam and Hindi 2011 2.Feminine friends of coconut in Malayalam 2012 3.Friends of coconut-Training programme on mechanised palm climbing in Malayalam 2012 4.Friends of coconut on mechanised palm climbing in English 2012 5.KVK Kozhikode at a glance in Malayalam 2012 6.With farmer always-KVK activities in English and Malayalam 2012. 7.George Panakkavayal: Harvest of Hope in Malayalam 2012. | |

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).

a. Broiler goat rearing ensured livelihood security for the rural women

Pursuing timely endeavours and farmer friendly technologies through research, and answering to the very need of the farming community, Krishi Vigyan Kendra, Kozhikode has come up with a unique idea. 'Broiler Goat Rearing', fine-tuned by the KVK is a boon to the farming community especially in the areas where green fodder is in scarce.

In this new technology, goat kids reared in sheds attain a better body weight and fetch remunerative income for farmers. This method benefits landless labourers and small farmers. Broiler rearing method is unique in itself. It is done by exploiting the high reproductive efficiency of female goats through proper planning and breeding, thus maintaining the quality of the offspring. At the same time to counter the scarcity of green fodder, a scientific and low cost feeding procedure is evolved.

As far as broiler goat rearing is concerned, there is no specific breed for this purpose. The kids (both male as well as female kids) of any local breeds can be selected and reared through this method. Under this method, 15 to 30 days old kids with a higher birth weight are selected before they start eating green leaves. These kids, once identified, are kept away from their mothers and are housed separately in sheds made of bamboo or wooden poles. Proper ventilation, sunlight and cleanliness are ensured at all the times.

Initially, the kids are given small quantities of concentrated feed. And the quantity is increased gradually depending upon the intake. Additional supplements such as liver tonic mixed with fish oil are also given twice a week. Pure water is a must and should be provided in the shed round the clock. Young kids are also provided with mother's milk for one month (twice or thrice a day) for their proper growth. The goat feed will be available in the market or

farmers can also prepare their own feed mix by using locally available ingredients like de-oiled ground nut cake, horse gram, wheat or maize, rice or wheat bran, etc.

Kids bred under broiler technology gain about 25-33 kilograms in 120-140 days, whereas in traditional system of green feeding, the goats acquire only a maximum weight of 10 kilos, that too in 6 months. The expenditure towards feeding a kid under this method comes to about Rs. 1200. A net income of Rs. 5050 to 7050 (at Rs. 250 per kg on live weight basis) can be easily realized.

b. Empowering Women: Women in Kerala exploring new avenues in coconut plucking

KVK, Kozhikode has initiated a step towards empowering women through training in coconut climbing. KVK conducted an 'all women' training programme on coconut climbing for a group of 20 women (20-35 years). The training was organized as part of the 'Friends of Coconut Tree' programme being implemented by the Coconut Development Board to train unemployed youth in the art of climbing coconut trees and caring for them. KVK, Peruvannamuzhi is the first to conduct a training programme exclusively for women as part of the Friends of Coconut Tree programme of the Board.

The programme covered introduction to coconut palm, climate, soil requirements and varieties, sessions on climbing machine-main parts, working and trial, nutrient management, recycling of palm waste, intercropping and mixed cropping, etc. Besides, practical lessons on climbing coconut trees, sessions were also held on harvesting, tender and mature nut identification, Identification of pests and disease of coconut and their management, crown cleaning aspects, seed nut procurement, safe handling of seed nuts and tender nuts, coconut nursery and its management etc.

Physical exercise towards the beginning of each day's training was another highlight of the programme. According to the trainees, coconut climbing is an easy task and they felt no physical exhaustion while using the machine. During the last session of the training, a 'Coconut Olympics' was also conducted in which the trainees were able to climb the palms within 48- 50 seconds, a feat equivalent to their male counterparts.

'The training gave them a sense of confidence that they can do anything if they have the will. Moreover, they can earn a good amount by spending three to four hours a day,' According to Aneela Mathew from Peruvannamuzhi. The practicing woman climber trained at KVK opined that inspired by their success, many women have approached them for training in coconut climbing using machines. She added that by using the machine she can climb 25 to 30 trees a day and manage to earn around 400 rupees within three hours'. Reeja VG, another women trainee who had taken up this as a livelihood.

It's an ironical fact that Kerala, the land of coconut, is suffering from shortage of coconut pluckers for the past few years. As a solution for this, the Krishi Vigyan Kendra of IISR has conducted a series of training programmes in coconut climbing using machines in collaboration with Coconut Development Board. Many women has now taken up it as a profession and contributing a good share to their family income,' KVK has established a 'Coconut Climbers' Bank' in which the people trained from KVK can register their names. Anyone who needs the services of a coconut climber can contact the bank and avail the services of registered coconut climbers in their own at a reasonable rate. Thus, this scheme will be beneficial to both the customer and climber.

c. Brackish water aquaculture

Mr. Manoj, aged 45 years, depends solely on agriculture activities for his family income. He has inherited a brackish water pond of two ha. The pond is situated very near (250 m) to Korapuzha a brackish water river. The Arabian Sea is only seven km away from the pond. The Korapuzha fully charges his pond with brackish water from October to May, each year the salinity of the pond reaches up to 20 ppt during the period. He has got about 15 years of experience in shrimp farming in his pond. He could harvest good crops only during initial two years. The crops gradually failed due to wide spread occurrence of white spot disease among the shrimps and occasional floods in the nearby river. As the situations were beyond the control, he decided to abandon his pond. He contacted KVK at this juncture and the scientist at KVK, advised him to undertake pearl spot culture, seed production and breeding of giant freshwater prawn in his pond which were readily accepted by the farmer. An innovative PVC fish cage culture unit (known as NAF Fish cage unit) was designed by the farmers with the technical assistance from KVK. This cage is being used for demonstrating fish culture in large water bodies. More than 50 such units have been started in the district. He also designed an innovative fish trap for using in prawn filtration field. Mr. Manoj received the Indian Agricultural Research Institute's innovative farmers' award for year 2012. The farmer earns more than one lakh rupees annually by culturing fishes.

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

Participatory seed production in ginger and turmeric through NHRDF support

Under the programme, KVK has identified four potential turmeric and ginger farmers in Kozhikode and supervised at field level for scientific seed production. Good quality seed material produced was assembled at KVK and sold to needy farmers. A total of 518 kg turmeric IISR *Prabha* and 5678 kg of ginger IISR *Varada* were sold to 143 farmers. A seed day was also organized on 14.3.2012 in which 43 farmers participated and the seed materials were distributed to the farmers for further multiplication.

Two FLDs were taken up on ‘Quality seed production in ginger’ using variety *Varada* and in Turmeric using variety IISR *Prabha* in 20 selected farmers’ field in 2012.

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

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

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

10.G. Field activities

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

10.H. Activities of Soil and Water Testing Laboratory

Status of establishment of Lab

- 1. Year of establishment : 2004
- 2. List of equipments purchased with amount :

| Sl. No | Name of the Equipment | Qty. | Cost |
|--------------|-----------------------------------|-----------|---------------|
| 1 | Electronic physical balance | 1 | 6160 |
| 2 | Chemical balance | 1 | 42162 |
| 3 | PH meter | 1 | 14388 |
| 4 | Oven | 1 | 15476 |
| 5 | Water distillation still | 1 | 41340 |
| 6 | Digestion and distillation system | 1 | 130802 |
| 7 | Hot plate | 1 | 4120 |
| 8 | Spectrophotometer | 1 | 55230 |
| 9 | Shaker | 1 | 48038 |
| 10 | Conductivity meter | 1 | 14960 |
| 11 | Flame photometer | 1 | 37026 |
| 12 | Refrigerator | 1 | 16890 |
| 13 | Grinder | 1 | 1950 |
| 14 | Double distillation unit | 1 | 63250 |
| 15 | Electronic balance | 1 | 6800 |
| Total | | 15 | 498592 |

Details of samples analyzed so far since establishment of SWTL:

| Details | No. of Samples analyzed | No. of Farmers benefited | No. of Villages | Amount realized (Rs.) |
|---------------|-------------------------|--------------------------|-----------------|-----------------------|
| Soil Samples | 1799 | 1777 | 12 | - |
| Water Samples | 33 | 33 | 11 | - |
| Total | 1832 | 1810 | 23 | - |

Details of samples analyzed during the 2012-13:

| Details | No. of Samples analyzed | No. of Farmers benefited | No. of Villages | Amount realized (Rs.) |
|---------------|-------------------------|--------------------------|-----------------|-----------------------|
| Soil Samples | 45 | 23 | 4 | - |
| Water Samples | 13 | 13 | 6 | 300 |
| Total | 58 | 36 | 10 | 300 |

10.I. Technology Week celebration during 2012-13 Yes/No, If Yes

Period of observing Technology Week: From 13.2.2013 to 16.2.2013

Total number of farmers visited : 100

Total number of agencies involved : 3

Number of demonstrations visited by the farmers within KVK campus : 12

Other Details

| Types of Activities | No. of Activities | Number of Farmers | Related crop/livestock technology |
|---|---------------------------------|-------------------|--|
| Gosthies | 1 | 288 | Black pepper, coconut, intercrops like fodder crops, enterprises like mushroom |
| Lectures organized | 14 | 313 | Farm mechanization, spices production technology, dairy animal management, ornamental fish culture, crop intensification in homesteads, spices cultivation, medicinal plants and coconut |
| Exhibition | 1 | 700 | |
| Film show | 3 | 248 | |
| Fair | 1 | 100 | |
| Farm Visit | 2 | 222 | |
| Diagnostic Practicals | 2 | 312 | Banana field problems, coconut vegetables and pepper |
| Supply of Literature (No.) | 3 | 300 | Spices production technology |
| Supply of Seed (q) | Ginger : 3.25 Turmeric: 4.38 | 70 | Ginger (IISR Varada) and turmeric (IISR Prabha) |
| Supply of Planting materials (No.) | 1832 | 422 | |
| Bio Product supply (Kg) | 317 | 288 | Spices, coconut, banana, vegetables |
| Bio Fertilizers (q) | | | |
| Supply of fingerlings | 427 | 52 | |
| Total number of farmers visited the technology week | 812 | 250 | |

10. J. Interventions on drought mitigation (if the KVK included in this special programme): Nil

PART XI. IMPACT

11.A. Impact of KVK activities

The Kendra has conducted several programmes for the socio-economic development of the farming community. The programmes have created visible impacts in the community, improving their income, social status and many youth taking up self employment in agriculture and allied enterprises. The technologies have diffused to others who had not attended the programmes of the KVK in person. Seeing the success of the direct contactees of the Kendra, several farmers and youth adopted the technologies directly from the successful farmers. The number of the direct contactees of the Kendra is so large, that detailed impact study of all the beneficiaries is impossible. The following technologies/skills transferred by the KVK are taken for detailed impact analyses:

Profitability and productivity enhancement of demonstrating farmers

a) Vermicomposting for organic farming and additional income generation

Background

Frequent surveys and interactions with farmers in the district had shown that farm wastes were available in plenty in the farmer's fields. KVK Scientists identified vermiculture as an effective technology for conversion of these wastes into rich organic manure.

Initially vermiculture technology was transferred to farmers as a component of organic farming. Later many farmers readily accepted the technology for self employment and income generation.

The transfer of vermiculture technology was highly successful and widely adopted by the farming community in the district. It has created a visible impact on the economic upliftment of them and provided self employment opportunities to youth and farmwomen.

KVK interventions

- Organised 4 vocational trainings on vermiculture in December 2000 benefiting 61 farmers.
- Members of 46 women SHGs were trained in 2001.
- Chakkittapara Panchayat extended financial subsidy for 14 units @ Rs.5000/- per unit to 14 SHGs based on KVK proposal in 2001.
- KVK supplied initial cultures of African earthworms to the above 14 SHG units.
- KVK closely monitored the units since their inception.
- Organised 28 trainings in December 2002, benefiting 643 farmers.
- Organised 19 off campus trainings, benefiting 612 farmers in different locations (Chettikkadavu, Mavoor, Pasukkadavu, Peruvayal, Koorachundu, Ayanchery, Chembanoda, Balussery, Changaroath, Koothali, Kallanode, Perambra, Chelapram, Thamarassery and Meppayur).
- Associated with Department of Agriculture, FIB, AIR, NGOs etc. for spreading the technology.
- The importance of the technology was also highlighted during exhibitions and Kisan melas.
- KVK assisted the beneficiaries by preparing detailed project reports for them to avail bank loan and financial assistance from development departments for the establishment of vermicompost units.
- Initial cultures of African earthworm *Eudrilus eugeniae* were also supplied to the units by the KVK.
- KVK closely monitored the units to solve various problems faced by them.
- In 2004, KVK channelized a subsidy of Rs.1000/- per unit for starting 27 new units by linking the farmers with Spices Board.

- KVK intervened in the marketing of vermicompost by procuring vermicompost from local vermin units at reasonable rate and selling it to the public at KVK.
- In 2005, KVK intervened in the marketing of vermi products by procuring them from the local vermi units.

Follow-up studies

Follow-up studies were conducted mainly with the assistance of group leaders of NGO's and SHGs. KVK personnel, in addition to it, conducted several field visits and interviews with the farmers for detailed impact studies.

Following the training programme in 2000, two farmer's groups were formed and after availing bank loan from District Cooperative Bank, eleven members of the groups started small-scale production units at their homesteads. The farmers were happy due to the growing demand for worms from other groups interested in vermiculture and they were convinced with the superior qualities of farm produce after the use of compost and vermi-wash in their own fields. Presently, there are 215 vermicompost units for the production of compost in the district.

Income from compost, worm and vermi-wash

The details of quantity of compost and worms produced and gross income generated through vermicompost units by some of the farmers and SHGs are given in Table 27. Even though three materials; namely vermicompost, vermi-wash and worms were produced by the units, mainly worms contributed towards the bulk of the income. Income realized through sale of worms from different units ranged from Rs.500 to Rs.40,000 and all the units together sold 320 kg of worms valued at Rs.1,60,000/-.

The other two items produced by the farmers namely compost and wash were mainly used for their own crops except in the cases of four SHGs and a few farmers who have recently started marketing of vermicompost @ Rs.6 per kg through "Farmers own shop" opened by INFAM and through retail sales at production point or in Trade fairs. The quantity of compost produced by the units varied from 1600 to 35,000 kg, fetching Rs.3,600 to 2,10,000. The total value of compost produced by the units was worth Rs.10,47,600. The actual quantity of wash produced could not be estimated as the wash was collected randomly. However a rough estimate given by the farmers suggests that 44,850 litre of vermiwash valued at Rs.2,24,250/- was utilized for spraying and drenching of vegetable crops, ornamentals and high value spices like vanilla. The gross income generated by the units since January 2000 is Rs.14,31,850 through the production and sale of compost, worms and vermi-wash.

The technology of vermicompost production started disseminating to neighbours as well to nearby districts of Kannur and Malappuram. During 2003, KVK arranged sale of 80 kg worms to Kannur District by co-ordinating sales from beneficiaries around KVK by linking them with State Agriculture Department.

Income realized from vermicompost units

| Sl. No. | Name of farmer | Year of training | Month and Year of start | Production | | | Value (Rs.) | | |
|---------|--|------------------|-------------------------|--------------|------------|--------------------|-------------|--------|------------|
| | | | | Compost (kg) | Worms (kg) | Vermi-wash (litre) | Compost | Worms | Vermi-wash |
| 1. | Jojo Randuplackal Chavarammuzhi, Peruvannamuzhi-673528 Kozhikode district. | 2000 | August 2000 | 31,500 | 70 | 6000 | 2,04,750 | 35,000 | 30,000 |
| 2. | Joy Varghese Kumblanickal, Peruvannamuzhi, Kozhikode-673 528 | 2000 | March 2001 | 30,000 | 15 | 4500 | 1,95,000 | 7,500 | 22,500 |
| 3. | Rajan Madathinath Peruvannamuzhi (P.O), Kozhikode-673 528. | 2000 | January 2001 | 4,200 | 23 | 4000 | 27,300 | 11,500 | 20,000 |
| 4. | Scaria K.T. Kaithakkulam, Poozhithodu (P.O.), Kozhikode-673 528. | 2000 | May 2002 | 10,000 | 6 | 1500 | 65,000 | 3,000 | 7,500 |

| | | | | | | | | | |
|-----|---|------|-------------------|--------|----|------|----------|--------|--------|
| 5. | K.T. Thomas Konattu, Poozhithodu (P.O.), Kozhikode-673 528. | 2000 | January 2002 | 3,200 | 9 | 5000 | 20,800 | 4,500 | 25,000 |
| 6. | K.O. Sebastian Vadakkellunkal Peruvannamuzhi(P.O) Kozhikode-673 528. | 2000 | January 2000 | 15,000 | 35 | 5500 | 97,500 | 17,500 | 27500 |
| 7. | Abraham P.M. Pookamala House, Peruvannamuzhi(P.O) Kozhikode-673 528. | 2000 | Decembe r 2000 | 11,000 | 25 | 2000 | 71,500 | 12,500 | 10,000 |
| 8. | P.M. Jose Pookamala House, Peruvannamuzhi(P.O) Kozhikode-673 528. | 2000 | January 2001 | 10,000 | 16 | 1800 | 65,000 | 8,000 | 9,000 |
| 9. | P.C. Jose, Parambil House, Chakkittapara, Kozhikode (Dist.) | 2000 | Decembe r 2001 | 7,000 | 10 | 200 | 45,500 | 5,000 | 1,000 |
| 10. | Mathew, P.T. Paikayil House, Peruvannamuzhi (P.O) Kozhikode-673 528. | 2000 | May 2001 | 38,000 | 14 | 4300 | 2,47,000 | 7,000 | 21,500 |
| 11. | John, E.K. Elappunakal House, Peruvannamuzhi (P.O) Kozhikode-673 528. | 2001 | June 2002 | 5,000 | 6 | 200 | 32,500 | 3,000 | 1,000 |
| 12. | Mathai, V.J. Ayithamattam, Poozhithodu (P.O) Kozhikode (Dist.) | 2002 | May 2002 | 4,250 | 3 | 350 | 27,625 | 1500 | 1,750 |
| 13. | George Kumblanickal Chempanoda (P.O.) Peruvannamuzhi (via) Kozhikode (dist.) | 2001 | June 2002 | 4,700 | 6 | 200 | 30,550 | 3,000 | 1,000 |
| 14. | Nidhi SHG Chempanoda (P.O.), Chakkittapara Panchayat Chempanoda-673 528. | 2001 | May 2002 | 17,000 | 82 | 3000 | 1,10,500 | 41,000 | 15,000 |
| 15. | Surya SHG Near Theatre, Panthirikkara, Avadukka (P.O.). | 2001 | April, 2002 | 3,700 | 15 | 1500 | 24,050 | 7,500 | 7,500 |
| 16. | T.J. Abraham Thevarkottayil House, Avadukka (P.O.), Kozhikode (dist.) | 2003 | 2003 | 17,000 | 27 | 1000 | 1,10,500 | 13,500 | 5,000 |
| 17. | V.K. Mammoo, Pathirippatta Post, Kakkattil (via), Kunnummal Panchayat. | 2003 | 2003 | 4,200 | 27 | 1000 | 27,300 | 13,500 | 5,000 |
| 18. | Sakthi SHG Koratty, Menhaniam (P.O.), Perambra (via), Koothali Panchayat. | 2003 | 2004 | 10,000 | 28 | 2500 | 65,000 | 14,000 | 12,500 |

| | | | | | | | | | |
|-----|--|------|------|----------------|------------|--------------|------------------|-----------------|----------------|
| 19. | Souharda SHG Chempanoda (P.O.) Chakkittapara Panchayat. | 2003 | 2004 | 650 | 4 | 300 | 4225 | 2,000 | 1,500 |
| | Total | | | 226,400 | 421 | 44850 | 13,37,050 | 1,97,000 | 224,250 |

Gross additional income realized by the farmers= Rs.17,58,300/-

b) Ornamental fish culture

Four hundred and sixty eight small scale ornamental fish culture units have been started in the District, of which two farmers have started their own marketing outlet. The farmers have earned an additional income of Rs. 300 to 2,500 per month by fish culture. The innovative low cost technology developed in the Kendra using silpaulin sheets and culture of live bearer fishes is well accepted by farmers. Farmers from neighbouring districts are also coming to KVK for getting training on ornamental fish culture.

11.B. Cases of large scale adoption

(Please furnish detailed information for each case)

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

I. On impact of 'training of gardeners' financed by state horticulture mission, Kerala and organised by Krishi Vigyan Kendra (IISR), Peruvannamuzhi, Kozhikode during 2008-2009

The Krishi Vigyan Kendra (IISR), Peruvannamuzhi, Calicut was sanctioned an amount of Rs.13.25 lakhs by the State Horticulture Mission to conduct 'Training of Gardeners' programme for skill development of unemployed youth in Kozhikode district during the financial year 2008-09. The programme was implemented in two batches of 25 trainees each for effective supervision and transfer of garden skills.

Wide publicity was given through mass media for the training and 445 applicants responded. A committee was constituted to decide on minimum criteria and to screen the application. During its sitting on 11.2.08 in which officials from SHM, Trivandrum and Dy. Director in charge of SHM projects of Kozhikode district were present. Thus 86 candidates were selected and called for a written test for final screening and only 43 candidates responded. Based on the written test rank list was published and the first 25 candidates were informed. Training started on 22.2.08 and completed on 21.8.08.

For the second batch, 225 candidates were intimated and 68 responded and 31 were selected in the second batch which was started on 19.08.08 and completed on 18.2.09.

Training

The training of first batch was started on 22.2.08 with 25 trainees and completed on 21.8.08. Out of these only 19 trainees completed the term and the remaining left the programme. So the second batch was started with 31 trainees on 1.8.09 and all of them except one completed the training by 31.1.09.

The training classes consisted of both theory and practical sessions. Emphasis was given on learning by doing. Seed sowing, rootstock raising, nursery care, grafting and budding methods, control of pests or diseases, irrigation, weed control etc. of all horticultural crops relevant to Kozhikode district were imparted to the trainees. Lawn making of ornamental, raising of annuals, cultivation of commercial flowers, mushroom cultivation, vermicomposting and other composting procedures, preparing potting mixture, identifying fertilizers etc. were carried out. Use of various horticultural tools and implements such as secateurs, shears, pruners, hedge trimmer, sprayers, weed cutter, coconut climber etc. were explained. Fungicides and pesticides, weedicides etc. were introduced. Overall, sufficient information was imparted to equip themselves with maintenance of a garden. Nutrition garden also was emphasized. For training in the machinery/equipments, those available with the IISR Farm also were utilized. The trainees were evaluated based on grafting skills and written test.

Tours

To create awareness about gardens and nurseries the trainees were taken to various places as follows:

| S.No. | Places visited | Date(s) |
|-------|---|------------------------------|
| 1. | Malabar Botanical Garden, Olavanna, Calicut | 16.5.08, 22.12.08 |
| 2. | Kerala Agricultural University , Horticultural and Forestry Colleges, Cashew, Pineapple research stations, ATIC, etc. | 7.7.08-8.7.08, 8.1.09-9.1.09 |
| 3. | Regional Agricultural Research Station, Ambalavayal | 4.3.09 |
| 4. | Cashew Research Station, Anakkayam | 14.8.08 |
| 5. | Coconut nursery, Tikkoti | 31.7.08 |
| 6. | Indian Institute of Spices Research, Calicut | 31.7.08 |

Evaluation

The trainees were evaluated during propagation classes and skill demonstration sessions.

Final written test was conducted to assess the gain in knowledge. There has been substantial gain in knowledge as revealed from the following.

Pre-training evaluation Average score: 22.92%

Highest marks obtained: 12.75/50

Post training evaluation Average score : 66.38%

Highest marks obtained: 45.5/50

Gain of knowledge: 43.46%

Suggestions given during valedictory function

The following suggestions emerged during the meeting from Dr. V.A. Parthasarathy, Director, IISR and Mr. B. Jayakumar, Joint Director, SHM, Trivandrum.

1. A one day workshop may be organised to streamline the syllabus of the training programme because it is implemented in 14 KVKs of the State to bring out uniformity in training.
2. Emphasis should be given to self sustaining capability of the skill acquired by the trainees.
3. The certificate issued to the trainees may be recognized for various development programme such as certification of nurseries, getting subsidies, self employment programme etc.
4. NABARD and lead banks in the district may endeavour to finance the nurseries operated by the trainees.
5. Encourage the trainees to form cooperatives and register them including branding or trademarks.
6. Specific programme such as Green house cultivation etc. may be organised for one day utilizing the trainees as resource persons.
7. Trainees may be encouraged to send their feedback and problems faced by them as follow up to engage them creatively to use the skill imparted.
8. Success stories of the trainees are to be published in leading news papers.

Feed back

The trainees were asked to give their opinion on the training. The training has given them good exposure to plant propagation, gardening, lawn making etc. which has helped some of them to get self employed. Vermicomposting, bush pepper, nutrition garden, nursery propagation were very useful to them.

Impact analysis

One year after training a detailed impact analysis was conducted to study the utility of the training programme among the trained. An elaborative questionnaire was sent to all the 49 trainees and details regarding their self employment, income generated etc. were collected. A report on the same is furnished below.

Out of the 49 trainees, 111 trainees have started earning reasonable income either through undertaking new landscaping work or by maintenance of gardens at homes and public places. These trainees together and independently carried out landscaping work of 115 gardens out of which 52 were new gardens.

The knowledge gained by the trainees was also transferred to new person who have shown interest in landscaping work. The indirect beneficiaries included 302 rural youth who also carried out different garden works independently and also jointly with trainees.

In addition to gardening work, the trainees were also familiar in various nursery/plant propagation works like grafting, budding, rooting of cuttings etc. The skill they earned was utilized for production of graft/layers etc. of fruit plants and ornaments to meet our requirement.

Out of 49 trainees Mr. C. Rashid is highly enterprising and has ventured to establish home gardens in about 30 homes. In addition, he has also taken up maintenance work of home gardens in 45 places. He initially joined a local nursery and its now in the process of establishing own nursery unit with landscaping service at Theekunu, near Kakkattil, Kozhikode. His average annual income is nearly Rs.1.25 lakh.

At KVK, 4 trainees under the leadership of Mr. Santhosh Kumar, P.M, are engaged in contract production of grafts and seedlings of fruit, bush pepper, ornamentals etc. to improve their skill and proficiency and at the same earning reasonable income in the process. This will also help KVK to supply quality planting materials to the farmers and to earn marginal profits also. These 4 trainees together earned an amount of Rs.75,000/- through this nursery activity at KVK.

PART XII - LINKAGES

12.A. Functional linkage with different organizations

Establishment of linkages and collaborations

Priority was given to establish meaningful functional linkages with other organizations working in this area to achieve the goals and aims of the Centre. The major collaborative activities with the organizations are shown in Table 15.

Linkage with other organisations

| Sl. No. | Organisation | Nature of linkage |
|---------|---|---|
| i. | National Bank for Agriculture and Rural Development, Trivandrum | Funding of VVV Clubs formed by KVK |
| ii. | Local and Lead bank | Funding of kisan melas organised by KVK and extending loan to KVK beneficiaries |
| iii. | Centre for Overall Development, Thamarassery | Sponsoring of KVK training programmes |
| iv. | Indian Farmers Movement, Kozhikode | Sponsoring of KVK training programmes |
| v. | Local Administration | Sponsoring of KVK training programmes, project consultancy, funding of KVK beneficiaries' projects |
| vi. | Kerala Gandhi Smarak Grama Nirmana Kendra, Kozhikode | Sponsoring of KVK training programmes |
| vii. | All India Radio, Kozhikode | Participating in farm radio programs, wide publicity to KVK training programmes |
| viii. | Kozhikode Agri-horti Society, Kozhikode | Arrangement of exhibitions |
| ix. | Fertilizers and Chemicals Travancore, Cochin | Sponsoring trainees |
| x. | Nehru Yuvak Kendra, Kozhikode | Sponsoring trainees |
| xi. | Youth clubs | Sponsoring trainees, organising animal camps |
| xii. | Integrated Development Centre (IDC), Thamarassery, | Project formulation and technical assistance for starting micro ornamental fish culture unit NABARD |

| | | |
|-------|--|--|
| | Kozhikode | funded project for 8.4 lakh implemented by IDC, Thamarassery (NGO) |
| xiii. | ATMA and Line Departments | Training, field visits to KVK, group mobilisation, Kisan Goshties and researchable issues. |
| xiv | Indian Institute of Crop Processing Technology (IICPT), Thanjavur (Ministry of Food processing Industries) | Sponsoring trainings for SHG's involved in processing of coconut and spices. |
| xv | NHRDF, Pune | Farmers Participatory Seed Production |
| xvi | DASD, Kozhikode | Awareness programme on spices production technology to famers |
| Xvii | NHM/SHM | Gardeners training programme, Financial support |
| Xviii | Ayurveda Medical Association of India (AMAI), Kozhikode | To enhance the production of medicinal plants |

12.B. List 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.) |
|---|---------------------------|---|--------------|
| Training on Recent trends in Production Technology and Value-addition of Spices | November 2012 | National Horticultural Mission & DASD, Calicut | 2,25,000/- |
| Friends of coconut- training of Rural youth in the use of coconut climbing machine | April 2012 | Coconut Development Board, Cochin | 4,79,500/- |
| Workshop cum training on "Coconut processing & value addition for development of entrepreneurs" for farmers and entrepreneurs | June 2012 | Indian Institute of Crop Processing Technology, Thanjavur | 30,000/- |
| Popularisation of Bush pepper in Perambra Grama panchayat | April 2012 | ATMA & Dept. Of Agriculture, Government of Kerala | 25,000/- |
| Project on Production and supply of improved chicks for backyard rearing and broiler farming in Kozhikode district | April 2012 | NABARD | 9,80,000/- |
| Cottage level training on processing of Value added Products from Spices and Coconut | July 2012 | IICPT, Thanjavur | 30,000/- |
| Gardeners training programme | October 2012 | State Horticulture Mission – Kerala | 7,25,000/- |
| Documentation of ITK | November 2012 | State planning board, Trivandrum | 1,50,000/- |

12.C. Details of linkage with ATMA

a) Is ATMA implemented in your district : Yes

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

KVK actively participated in the preparation of SREP of the district right from the beginning. Scientist from KVK attended the preliminary meeting in which problems from agriculture and allied sectors were presented by block level teams. Detailed discussions were held afterwards and final elaborative SREP was prepared with the active involvement of KVK scientists.

Coordination activities between KVK and ATMA during 2011-12

| S. No. | Programme | Particulars | No. of programmes attended by KVK staff | No. of programmes Organized by KVK | Other remarks (if any) |
|--------|-----------------------------------|---|---|------------------------------------|------------------------|
| 01 | Meetings | SREP meeting | 1 | - | - |
| 02 | Training programmes | Training on recent production technology of banana and vegetables, Integrated pest and disease management | 8 | - | - |
| 03 | Extension Programmes | | | | |
| | Exhibition | ATMA exhibition | 1 | - | - |
| | Others (Pl. specify) Kisan Goshti | - | 5 | - | - |
| | Joint diagnostic visit | - | 3 | - | - |
| 04 | Publications | | | | |
| | Extension Literature | Trichoderma against fungal diseases, Pseudomonas for protection of crops | 2 | - | - |

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

| S. No. | Programme | Nature of linkage | Funds received if any Rs. | Expenditure during the reporting period in Rs. | Constraints if any |
|--------|---|---------------------|---------------------------|--|--------------------|
| 1 | Farmers training on spices production and processing technology | Conducting training | 2.25 lakhs | 2.25 lakhs | Nil |

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

| Month | No. of SMS sent | No. of farmers to which SMS was sent | No. of feedback / query on SMS sent |
|--------------|-----------------|--------------------------------------|-------------------------------------|
| April 2012 | 4 | 655 | 284 |
| May | 4 | 701 | 211 |
| June | 5 | 701 | 381 |
| July | 6 | 706 | 187 |
| August | 4 | 530 | 244 |
| September | 7 | 714 | 128 |
| October | 7 | 714 | 566 |
| November | 2 | 380 | 81 |
| December | 0 * | - | - |
| January 2013 | 2 * | 180 | 56 |
| February | 0 * | - | - |
| March | 0 * | - | - |

* Account disabled due to SMS price hike

PART XIII- PERFORMANCE OF INFRASTRUCTURE IN KVK

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

| Sl. No. | Demo Unit | Year of establishment | Area (ha) | Details of production | | | Amount (Rs.) | | Remarks |
|---------|--|-----------------------|-------------------|---------------------------------|---|----------|----------------|--------------|---------|
| | | | | Variety | Produce | Qty. | Cost of inputs | Gross income | |
| 1 | Dairy | 2005 | 10 Animal s | Cross bred | Pregna nt heifer | 10 | 60000 | 18237 6 | - |
| 2 | Goatary | 2008 | 40 Goats | Malabari | Goat kids | 6 | 56000 | 67700 | - |
| 3 | Layer chicks | 2005 | 1500 | Gramasre e, Kalinga brown | Layer chicks | 768 9 | 16915 8 | 55473 0 | - |
| 4 | Ornament al fish culture unit | 20 10 | 0.064 | Ornament al fishes | Guppy, platy, goldfis h, gouram i, angel fish | 247 | 240 | 1470 | - |

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

| Name of the crop | Date of sowing | Date of harvest | Area (ha) | Details of production | | | Amount (Rs.) | | Remarks |
|--------------------------|----------------|---|-----------|----------------------------------|-------------------------|--------------|----------------|--------------|---|
| | | | | Variety | Type of Produce | Qty. | Cost of inputs | Gross income | |
| Coconut | 1976 | 17.4.12 29.6.12 19.8.12 29.10.12 17.12.12 | 0.3 | WCT | Coconut | 1217 Nos. | 2100 | 6694 | Base crop in homestead |
| Arecanut | 1996 | 2.4.12 26.5.12 15.6.12 | 0.3 | Mohitnagar | Ripe nuts | 250 kg | 1500 | 4500 | 9 th year of establishment. Due to Mahali disease yield was poor. |
| Spices | 1994- 2003 | - | 0.1 | Nutmeg Viswasree | Scions for training. | - | - | - | Scion bank under top working or rejuvenation |
| Sapota | 2002 | - | 1 | Cricket ball | - | - | 1900 | - | 6 th year of establishment. Scion bank Use for conservation of germplasm Used for Bush pepper production |
| Guava | 2002 | - | 0.2 | Allahabad Safeda | - | - | 1300 | - | |
| Medicinal plants unit | 2001 | - | 0.2 | Different medicinal plants | - | - | 1000 | - | |
| Black pepper | 2001 | - | 0.2 | Diff. HYV | - | - | 2000 | 10000 | |

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

| Sl. No. | Name of the Product | Qty | Amount (Rs.) | | Remarks |
|---------|---------------------|-------------|----------------|-----------------|---------|
| | | | Cost of inputs | Gross income | |
| | <i>Trichoderma</i> | 241 | 4820 | 18,075 | - |
| | <i>Pseudomonas</i> | 1729 | 34580 | 1,03,740 | - |
| | Methyl euginol trap | 33 | 2310 | 3,300 | - |
| | Cuelure trap | 94 | 7520 | 11,750 | - |
| | | 2097 | 49, 230 | 1,36,865 | - |

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

| Sl. No | Name of the animal / bird / aquatics | Details of production | | | Amount (Rs.) | | Remarks |
|--------|--------------------------------------|--|-------------------|-------|----------------|--------------|---|
| | | Breed | Type of Produce | Qty. | Cost of inputs | Gross income | |
| 1 | Dairy cattle | Crossbred | Semi intensive | 10 | - | 64600 | - |
| 2 | Goatary | Malabari | Semi intensive | 30 | - | 46896 | - |
| 3 | Layer chicks | Gramasree | Intensive | 14193 | - | 1105290 | Since non availability of layer chicks not only in Calicut district but other neighbouring district farmers also approaching KVK for layer chicks |
| 4 | Quail | Japanese quail | Intensive | 100 | - | 8264 | - |
| | Fresh and brackish water food fishes | Catla, rohu, Grass carp, Tilapia, pearl spot | Fresh fish | | 4500 | | Culture progressing |
| | Ornamental fishes | Guppy, platy sword tail, gold fish, carp, fighter, gourami | Ornamental fishes | 1891 | 5000 | 7979 | - |

13.E. Utilization of hostel facilities

Accommodation available (No. of beds): 20

| Months | No. of trainees stayed | Trainee days (days stayed) | Reason for short fall (if any) |
|--------------|------------------------|----------------------------|--------------------------------|
| April 2012 | 0 | 0 | - |
| May | 20 | 3 | - |
| June | 0 | 0 | - |
| July | 29 | 2 | - |
| August | 16 | 8 | - |
| September | 47 | 11 | - |
| October | 19 | 3 | - |
| November | 24 | 7 | - |
| December | 13 | 11 | - |
| January 2013 | 20 | 6 | - |
| February | 53 | 23 | - |
| March | 10 | 15 | - |

13.F. Database management

| S.No | Database target | Database created |
|------|---|--------------------------|
| 1 | Inventory of agriculture – Kozhikode district | Updated with latest data |

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

| Amount sanction (Rs.) | Expenditure (Rs.) | Details of infrastructure created / micro irrigation system etc. | Activities conducted | | | | | Quantity of water harvested in '000 litres | Area irrigated / utilization pattern |
|-----------------------|-------------------|--|----------------------------|-----------------------|---------------------------------|------------------------|--------------------------|--|--------------------------------------|
| | | | No. of Training programmes | No. of Demonstrations | No. of plant materials produced | Visit by farmers (No.) | Visit by officials (No.) | | |
| 10. lakhs | 10.0 lakhs | Work of rainwater harvesting unit continuing | - | - | - | - | - | - | |
| | | | | | | | | | |

PART XIV - FINANCIAL PERFORMANCE

14.A. Details of KVK Bank accounts

| Bank account | Name of the bank | Location | Branch code | Account Name | Account Number | MICR Number | IFSC Number |
|---------------------|---------------------|----------|-------------|----------------------------|----------------|-------------|-------------|
| With Host Institute | State Bank of India | Calicut | 000861 | ICAR Unit, IISR, Kozhikode | 30302810771 | 673002001 | SBIN0000861 |
| With KVK | | | | | | | |

14.B. Utilization of KVK funds during the year 2012-13(Rs. in lakh)

| S. No. | Particulars | Sanctioned | Released | Expenditure |
|---------------------------------------|--|--------------|--------------|--------------|
| A. Recurring Contingencies | | | | |
| 1 | Pay & Allowances | 75.60 | 75.60 | 75.62 |
| 2 | Travelling allowances | 1.80 | 1.80 | 1.80 |
| 3 | Contingencies | | | |
| A | Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines) | 4.82 | 4.80 | 4.80 |
| B | POL, repair of vehicles, tractor and equipments | 3.68 | 3.65 | 3.64 |
| C | Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained) | 0.64 | 0.64 | 0.63 |
| D | Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training) | 0.71 | 0.71 | 0.70 |
| E | Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year) | 2.84 | 2.84 | 2.84 |
| F | On farm testing (on need based, location specific and newly generated information in the major production systems of the area) | 1.61 | 1.61 | 1.60 |
| G | Training of extension functionaries | 0.32 | 0.32 | 0.32 |
| H | Maintenance of building | 0.36 | 0.36 | 0.36 |
| I | Extension activities | 0.21 | 0.21 | 0.21 |
| J | Farmers' Field school | 0.25 | 0.25 | 0.25 |
| J | Library | 0.06 | 0.06 | 0.05 |
| TOTAL (A) | | 92.90 | 92.85 | 92.82 |
| B. Non-Recurring Contingencies | | | | |
| 1 | Works | | | |
| 2 | Equipments including SWTL & Furniture | | | |
| 3 | Vehicle (Four wheeler/Two wheeler, please specify) | | | |
| 4 | Library (Purchase of assets like books & journals) | | | |
| TOTAL (B) | | | | |
| C. REVOLVING FUND | | | | |
| GRAND TOTAL (A+B+C) | | 92.90 | 92.85 | 92.82 |

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

| Year | Opening balance as on 1 st April | Income during the year | Expenditure during the year | Net balance in hand as on 1 st April of each year |
|--------------------------|---|------------------------|-----------------------------|--|
| April 2010 to March 2011 | 0.80 | 9.76 | 9.06 | 1.50 |
| April 2011 to March 2012 | 1.50 | 12.02 | 13.05 | 0.47 |
| April 2012 to March 2013 | 0.47 | 20.79 | 13.15 | 8.11 |

15. Details of HRD activities attended by KVK staff during 2012-13

| Name of the staff | Title of the training programme | Title of the training programme | Institute where attended | Dates |
|----------------------|---------------------------------|---|---|-----------------------|
| Dr. T. Arumuganathan | Programme Coordinator | Geospatial technologies and applications | TNAU, Coimbatore | 22.8.12 to 11.09.2012 |
| | | Human Resource development for Extension Personnel | MANAGE, Hyderabad | 23.4.12 to 27.4.12 |
| Sri. K.M. Prakash | SMS(Agron.) | 1)Advances in arecanut & cocoa production technologies | CPCRI Regional Station, Vittal | 3.12.12 to 9.12.12 |
| | | 2)Documentation of agricultural innovations | Kerala State Planning Board, Thiruvananthapuram | 11.12.12 |
| Sri. Faisal. K | Stenographer Gr.III | Developing Competencies of Executive Secretaries, PAs and Office Staff for future | National Productivity Council, New Delhi | 11.6.12 to 15.6.12 |
| Sri. C.V. Ravindran | SSS(Gr.I) | Training on operation and maintenance of KAMCO Power Tiller | Kerala Agro Machinery Corporation Ltd., Athani, Ernakulam | 23.4.12 to 28.4.12 |
| Sri. C. Ravindran | SSS (Gr.I) | Training on operation and maintenance of KAMCO Power Tiller | Kerala Agro Machinery Corporation Ltd., Athani, Ernakulam | 23.4.12 to 28.4.12 |

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

- a) Our KVK was conferred with Best KVK award of ICAR for Zone VIII for the year 2011 based on the outstanding achievements in the field of agricultural extension. The award was conferred on us based on the following accomplishments. We developed role models and leader farmers as well as women SHG's who have started various successful agricultural related enterprises such as mixed farming, commercial plant nurseries for self employment, vermicompost units, pisciculture, dairying, backyard poultry, farm mechanization etc. For "on hand" experience, 14 demonstration units are maintained by KVK in various enterprises. For the benefit of farmers and researchers, we have documented 18 indigenous technologies practiced by the local farmers. In addition, seven KVK beneficiary farmers also received National and State level awards in recognition of their achievements in farming.
- b) Integrated Farming System (IFS) with Fish-Duck-Crops: The demonstration is progressing in two plots one with farmer and another at KVK.

SUMMARY FOR 2012-13

I. TECHNOLOGY ASSESSMENT

Summary of technologies assessed under various crops

| Thematic areas | Crop | Name of the technology assessed | No. of trials |
|--------------------------------|--------------|---|---------------|
| Integrated Nutrient Management | Cassava | Effectiveness of INM in choice variety of cassava based on soil test data | 1 |
| | | | |
| Varietal Evaluation | Fodder grass | Assessment of performance of high quality fodder variety Thumber muzhi-1 under upland condition | 1 |
| | | | |
| Integrated Pest Management | Banana | Management of root mealy bug in banana | 1 |
| | Banana | Management of pseudostem weevil in banana | 1 |
| Integrated Crop Management | Mango | Assessment of "Induction of flowering in Olour mango through paclobutrazol application combined with INM and IPM" | 1 |
| | | | |
| Integrated Disease Management | Black pepper | Management of foot rot of black pepper | 1 |
| | | | |
| Total | | | 6 |

Summary of technologies assessed under livestock

| Thematic areas | Name of the livestock enterprise | Name of the technology assessed | No. of trials |
|-----------------------|----------------------------------|--|---------------|
| Fertility management | Crossbred heifer | Bio-stimulation of oestrus induction and conception rate in crossbred heifer | 1 |
| Milk yield management | Dairy cattle | Bio-stimulation of lactation milk yield in dairy cattle | 1 |
| Total | | | 2 |

Summary of technologies assessed under various enterprises

| Thematic areas | Enterprise | Name of the technology assessed | No. of trials |
|-----------------|-----------------|---|---------------|
| Seed Production | Pearl spot fish | Seed production of pearl spot in fresh water area | 1 |
| | | | |
| Total | | | 1 |

Summary of technologies assessed under home science

| Thematic areas | Enterprise | Name of the technology assessed | No. of trials |
|--------------------|------------|---|---------------|
| Drudgery Reduction | Arecanut | Introduction of arecanut harvester-Areapick | 1 |
| | | | |
| Total | | | 1 |

II. TECHNOLOGY REFINEMENT

Summary of technologies refined under various crops : Nil

Summary of technologies assessed under refinement of various livestock : Nil

Summary of technologies refined under various enterprises : Nil

Summary of technologies refined under home science : Nil

| | | | | | | | | | | | | | | | | | | |
|--------------|-------------------------------|---|---|------------|------|-------|------|-------|--|--|-------|---------|---------|------|-------|-------|-------|------|
| “ | Seed production | Seed production of HYV of ginger (Varada IISR)+IISR POP | 1 | 20 | 0.8 | 170 | 161 | 5.6 | Duration: 8 months, Incidence of stem borer: 3%, | Duration: 8.5 months, Incidence of stem borer: 4%, | 21700 | 840000 | 623000 | 3.87 | 21700 | 33810 | 12110 | 1.55 |
| “ | Seed production | Seed production of HYV (IISR Prabha) | 1 | 20 | 0.8 | 230 | 221 | 4 | Duration: 9 months, Incidence of stem borer: 1%, | Duration: 10 months, Incidence of stem borer: 2%, | 25450 | 991500 | 737000 | 3.89 | 24450 | 85320 | 60870 | 3.5 |
| “ | Integrated Disease Management | Integrated Disease Management of Phytophthora foot rot of black pepper (continuing..) | | 10 | 0.22 | 10.63 | 3.60 | 66.13 | % casualty of black pepper vines 22% | % casualty of black pepper vines 66% | 12284 | 3,72,05 | 2,49,20 | 3.03 | 48000 | 12600 | 78000 | 2.62 |
| “ | Value addition | Processing of nutmeg pericarp for candy preparation | | 10 | | | | | | | 98 | 120 | 22 | 1.2 | 95 | 150 | 55 | 1.6 |
| Total | | | | 134 | | | | | | | | | | | | | | |

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

** BCR= GROSS RETURN/GROSS COST

Livestock

| Category | The thematic area | Name of the technology demonstrated | No. of KVKs | No. of Farmer | No. of units | Major parameters | | % change in major parameter | Other parameter | | *Economics of demonstration (Rs.) | | | | *Economics of check (Rs.) | | | |
|--------------|-------------------|-------------------------------------|---|---------------|--------------|------------------|-------|-----------------------------|-----------------|-------|-----------------------------------|--------------|------------|--------|---------------------------|--------------|------------|--------|
| | | | | | | Demonstration | Check | | Demonstration | Check | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR |
| Dairy | Dairy | Fertility management | Fertility in anoestrous cows following CIDR treatment | 50 | 50 | 50 | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | | | | 50 | | | | | | | | | | | | | | |

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

** BCR= GROSS RETURN/GROSS COST

Fisheries

| Category | Thematic area | Name of the technology demonstrated | No. of KVKs | No. of Farmer | No. of units | Major parameters | | % change in major parameter | Other parameter | | *Economics of demonstration (Rs.) | | | | *Economics of check (Rs.) | | | |
|-------------------|---|---|-------------|---------------|--------------|-------------------------|-------|-----------------------------|-----------------|-------|-----------------------------------|--------------|------------|--------|---------------------------|--------------|------------|--------|
| | | | | | | Demonstration | Check | | Demonstration | Check | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR |
| Ornamental fishes | Breeding and culture of ornamental fishes | Popularisation of live feed for rearing ornamental fishes | 1 | 10 | 10 | Survival and growth | | | | | 8670 | | | | | | | |
| | Aquaculture | Cage culture of fishes in large water bodies | 1 | 11 | 11 | Survival, Growth, Yield | | | | | 4898 | 9 | | | | | | |
| Total | | | | 21 | | | | | | | | | | | | | | |

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

** BCR= GROSS RETURN/GROSS COST

Other enterprises

| Category | Name of the technology demonstrated | No. of KVKs | No. of Farmer | No. of units | Major parameters | | % change in major parameter | Other parameter | | *Economics of demonstration (Rs.) or Rs./unit | | | | *Economics of check (Rs.) or Rs./unit | | | |
|-----------------|--|-------------|---------------|--------------|----------------------------------|----------------------------------|-----------------------------|--|---|---|--------------|--------------|--------|---------------------------------------|--------------|--------------|--------|
| | | | | | Demonstration | Check | | Demonstration | Check | Gross Cost | Gross Return | Net Return | ** BCR | Gross Cost | Gross Return | Net Return | ** BCR |
| Oyster mushroom | Demonstration of local crop residues for growing oyster mushroom using coconut and arecanut leaf waste | 1 | 10 | 100 | 1.1 Yield in kg/ 1 kg substratum | 1.2 Yield in kg/ 1 kg substratum | -8 | Time taken for first harvest:28 days, Average diameter of sporocarp (pileus):2.55cm, Shelf life/keeping quality of mushroom: 5 hrs | Time taken for first harvest:22 days, Average diameter of sporocarp (pileus):3.65 cm, Shelf life/keeping quality of mushroom: 3 hrs | 370/10 beds | 1650/10 beds | 1280/10 beds | 4.45 | 430/10 beds | 1800/10 beds | 1370/10 beds | 4.2 |
| Total | | | 10 | | | | | | | | | | | | | | |

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

** BCR= GROSS RETURN/GROSS COST

Women empowerment: Nil

Farm implements and machinery : Nil

Other enterprises

Demonstration details on crop hybrids : Nil

IV. Training Programme

Training for Farmers and Farm Women including sponsored training programmes (On campus)

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|---|----------------|---------------------|------------|-------------|------------|------------|------------|-------------|-------------|-------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Crop Production | | | | | | | | | | |
| Cropping Systems | 1 | 11 | 24 | 35 | 5 | 6 | 11 | 16 | 30 | 46 |
| Horticulture | | | | | | | | | | |
| a) Vegetable Crops | | | | | | | | | | |
| Production of low value and high volume crop | 2 | 17 | 50 | 67 | 1 | 6 | 7 | 18 | 56 | 74 |
| Protective cultivation | 1 | 8 | 1 | 9 | - | - | - | 8 | 1 | 9 |
| b) Fruits | | | | | | | | | | |
| Cultivation of Fruit | 4 | 87 | 81 | 168 | 4 | 12 | 16 | 91 | 93 | 184 |
| Plant propagation techniques | 2 | 26 | 26 | 52 | 2 | 4 | 6 | 28 | 30 | 58 |
| Manuring of banana | 1 | 6 | 7 | 13 | 2 | 2 | 4 | 8 | 9 | 17 |
| c) Plantation crops | | | | | | | | | | |
| Production and Management technology | 4 | 104 | 108 | 212 | 8 | 14 | 22 | 112 | 122 | 234 |
| d) Spices | | | | | | | | | | |
| Production and Management technology | 8 | 217 | 158 | 375 | 39 | 32 | 71 | 256 | 190 | 446 |
| Planting material production | 1 | 6 | 26 | 32 | 6 | 2 | 8 | 12 | 28 | 40 |
| Livestock Production and Management | | | | | | | | | | |
| Dairy Management | 3 | 60 | 79 | 139 | 14 | 18 | 32 | 74 | 97 | 171 |
| Poultry Management | 3 | 23 | 42 | 65 | 3 | 6 | 9 | 26 | 48 | 74 |
| Goatary Management | 3 | 12 | 1 | 13 | 12 | 35 | 47 | 24 | 36 | 60 |
| Rabbit Management | 1 | - | 8 | 8 | - | - | - | - | 8 | 8 |
| Animal Nutrition Management | 1 | 4 | 39 | 43 | 2 | 4 | 6 | 6 | 43 | 49 |
| Animal Disease Management | 1 | 32 | 50 | 82 | 2 | 2 | 4 | 34 | 52 | 86 |
| Broiler goat rearing | 4 | 81 | 11 | 92 | 7 | 4 | 11 | 88 | 15 | 103 |
| Home Science/Women empowerment | | | | | | | | | | |
| Designing and development for high nutrient efficiency diet | 2 | 51 | 14 | 65 | 2 | 2 | 4 | 53 | 16 | 69 |
| Value addition | 6 | 64 | 105 | 169 | 16 | 76 | 92 | 80 | 181 | 261 |
| Plant Protection | | | | | | | | | | |
| Integrated Pest Management | 3 | 29 | 60 | 89 | 3 | 9 | 12 | 32 | 69 | 101 |
| Integrated Disease Management | 3 | 39 | 1 | 40 | 2 | - | 2 | 41 | 1 | 42 |
| Production of Inputs at site | | | | | | | | | | |
| Mushroom production | 1 | 8 | 26 | 34 | - | 12 | 12 | 8 | 38 | 46 |
| TOTAL | 55 | 885 | 917 | 1802 | 130 | 246 | 376 | 1021 | 1163 | 2184 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|---|----------------|---------------------|------------|-------------|------------|------------|------------|-------------|-------------|-------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Crop Production | | | | | | | | | | |
| Weed Management | 1 | 19 | 20 | 39 | 3 | 8 | 11 | 22 | 28 | 50 |
| Cropping Systems | 1 | 71 | 18 | 89 | 7 | 2 | 9 | 78 | 20 | 98 |
| Horticulture | | | | | | | | | | |
| a) Vegetable Crops | | | | | | | | | | |
| Production of low value and high volume crop | 5 | 67 | 49 | 116 | 2 | 17 | 19 | 69 | 66 | 135 |
| b) Fruits | | | | | | | | | | |
| Cultivation of Fruit | 1 | 8 | 2 | 10 | - | - | - | 8 | 2 | 10 |
| c) Plantation crops | | | | | | | | | | |
| Production and Management technology | 1 | 35 | 10 | 45 | 4 | 1 | 5 | 39 | 11 | 50 |
| d) Spices | | | | | | | | | | |
| Planting material production and nursery management | 4 | 252 | 70 | 322 | 23 | 23 | 46 | 275 | 93 | 368 |
| Livestock Production and Management | | | | | | | | | | |
| Dairy Management | 7 | 203 | 155 | 358 | 86 | 75 | 161 | 289 | 230 | 519 |
| Poultry Management | 1 | 2 | 28 | 30 | - | 11 | 11 | 2 | 39 | 41 |
| Goatary Management | 1 | 18 | 7 | 25 | 6 | 3 | 9 | 24 | 10 | 34 |
| Indigenous medicine in animal treatment | 5 | 137 | 90 | 227 | 52 | 46 | 98 | 189 | 136 | 325 |
| Animal Nutrition Management | 3 | 77 | 51 | 128 | 29 | 25 | 54 | 106 | 76 | 182 |
| Animal Disease Management | 4 | 90 | 57 | 147 | 28 | 21 | 49 | 118 | 78 | 196 |
| Feed and Fodder technology | 4 | 78 | 93 | 171 | 29 | 24 | 53 | 107 | 117 | 224 |
| Plant Protection | | | | | | | | | | |
| Integrated Pest Management | 3 | 111 | 42 | 153 | 5 | 2 | 7 | 116 | 44 | 160 |
| Integrated Disease Management | 3 | 59 | 58 | 117 | 2 | 1 | 3 | 61 | 59 | 120 |
| Bio-control of pests and diseases | | | | | | | | | | |
| Production of bio control agents and bio pesticides | 1 | 16 | 8 | 24 | 1 | 1 | 2 | 17 | 9 | 26 |
| Production of Inputs at site | | | | | | | | | | |
| Mushroom production | 5 | 56 | 92 | 148 | 12 | 10 | 22 | 68 | 102 | 170 |
| TOTAL | 50 | 1299 | 850 | 2149 | 289 | 270 | 559 | 1588 | 1122 | 2710 |

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 | 9 | 226 | 190 | 416 | - | - | - | 226 | 190 | 416 |
| Small scale processing | 1 | 21 | 6 | 27 | 11 | 2 | 13 | 32 | 8 | 40 |
| Tailoring and Stitching | 3 | - | 21 | 21 | - | 39 | 39 | - | 60 | 60 |
| Rural Crafts | 6 | 12 | 42 | 54 | - | 19 | 19 | 12 | 61 | 73 |
| Broiler goat | 5 | 45 | - | 45 | - | - | - | 45 | - | 45 |
| Goat rearing | 2 | 50 | - | 50 | 1 | - | 1 | 51 | - | 51 |
| Quail farming | 1 | 6 | - | 6 | 1 | - | 1 | 7 | - | 7 |
| Rabbit farming | 1 | - | 8 | 8 | - | - | - | - | 8 | 8 |
| Poultry production | 1 | 16 | 8 | 24 | 2 | - | 2 | 18 | 8 | 26 |
| Ornamental fisheries | 4 | 69 | 18 | 87 | 1 | 0 | 1 | 70 | 18 | 88 |
| Composite fish culture | 1 | 11 | 8 | 19 | 0 | 0 | 0 | 11 | 8 | 19 |
| Any other (pl.specify) Gardeners' training | 1 | 3 | 11 | 14 | - | 11 | 11 | 3 | 22 | 25 |
| IPDM in coconut | 5 | 68 | 17 | 85 | 37 | 18 | 55 | 105 | 35 | 140 |
| IPM in fruit crops | 1 | 9 | 13 | 22 | - | - | - | 9 | 13 | 22 |
| Production of bio control agents and biopesticides | 2 | 4 | 19 | 23 | - | 1 | 1 | 4 | 20 | 24 |
| Fry and fingerling rearing (Seed production) | 1 | 5 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 5 |
| Any other (pl.specify) Cage culture of fishes | 1 | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 3 |
| Any other (pl.specify) Farm machinery | 6 | 70 | 19 | 89 | 41 | 21 | 62 | 111 | 40 | 151 |
| TOTAL | 51 | 618 | 380 | 998 | 94 | 111 | 205 | 712 | 491 | 1203 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|------------------------------|----------------|---------------------|------------|------------|-----------|-----------|-----------|-------------|------------|-------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Integrated farming | 3 | 52 | 14 | 66 | 9 | 4 | 13 | 61 | 18 | 79 |
| Planting material production | 2 | 20 | 17 | 37 | 3 | 5 | 8 | 23 | 22 | 45 |
| Vermi-culture | 2 | 18 | 18 | 36 | 2 | 7 | 9 | 20 | 25 | 45 |
| Value addition | 1 | 3 | 37 | 40 | - | - | - | 3 | 37 | 40 |
| Dairying | 3 | 26 | 19 | 45 | 11 | 7 | 18 | 37 | 26 | 63 |
| Ornamental fisheries | 10 | 273 | 127 | 400 | 18 | 2 | 20 | 291 | 129 | 420 |
| Composite fish culture | 4 | 186 | 58 | 244 | 12 | 2 | 14 | 198 | 60 | 258 |
| Shrimp farming | 1 | 60 | 4 | 64 | 4 | 0 | 4 | 64 | 4 | 68 |
| Integrated fish farming | 2 | 49 | 12 | 61 | 0 | 0 | 0 | 49 | 12 | 61 |
| TOTAL | 28 | 687 | 306 | 993 | 59 | 27 | 86 | 746 | 333 | 1079 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|-----------------------|----------------|---------------------|-----------|-----------|----------|----------|----------|-------------|-----------|-----------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Dairy farm management | 1 | 7 | 14 | 21 | 2 | 4 | 6 | 9 | 18 | 27 |
| Total | 1 | 7 | 14 | 21 | 2 | 4 | 6 | 9 | 18 | 27 |

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

| Area of training | No. of Courses | No. of Participants | | | | | | | | |
|---|----------------|---------------------|------------|------------|-----------|----------|-----------|-------------|------------|------------|
| | | General | | | SC/ST | | | Grand Total | | |
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Protected cultivation technology | 1 | 29 | 21 | 50 | - | - | - | 29 | 21 | 50 |
| Cultivation techniques of oyster and milky mushroom | 1 | 34 | 18 | 52 | 12 | 4 | 16 | 46 | 22 | 68 |
| Any other (pl.specify) New generation pesticides | 2 | 31 | 12 | 43 | - | - | - | 31 | 12 | 43 |
| Preparation and use of biopesticides and botanicals | 2 | 12 | 25 | 37 | - | 1 | 1 | 12 | 26 | 38 |
| Any other (pl.specify) Ornamental fish culture | 1 | 40 | 24 | 64 | 4 | 0 | 4 | 44 | 24 | 68 |
| Total | 7 | 146 | 100 | 246 | 16 | 5 | 21 | 162 | 105 | 267 |

Sponsored training programmes

| S.No | Area of training | No. of Courses | No. of Participants | | | | | | | | |
|-----------|--|----------------|---------------------|------------|-------------|------------|-----------|------------|-------------|------------|-------------|
| | | | General | | | SC/ST | | | Grand Total | | |
| | | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 1 | Production and value addition | | | | | | | | | | |
| 1.a | Spices crops | 8 | 217 | 158 | 375 | 39 | 32 | 71 | 256 | 190 | 446 |
| 2 | Post harvest technology and value addition | | | | | | | | | | |
| 2.a | Gardeners training programme | 1 | 3 | 11 | 14 | - | 11 | 11 | 3 | 22 | 25 |
| 3 | Farm machinery | | | | | | | | | | |
| 3.a | Farm machinery, tools and implements | 6 | 70 | 19 | 89 | 41 | 21 | 62 | 111 | 40 | 151 |
| 4. | Livestock and fisheries | | | | | | | | | | |
| 4.a | Ornamental fish culture | 11 | 313 | 151 | 464 | 22 | 2 | 24 | 335 | 153 | 488 |
| 4.b | Composite fish culture | 4 | 186 | 58 | 244 | 12 | 2 | 14 | 198 | 60 | 258 |
| 4.c | Integrated fish farming | 2 | 49 | 12 | 61 | 0 | 0 | 0 | 49 | 12 | 61 |
| 4.d | Shrimp farming | 1 | 60 | 4 | 64 | 4 | 0 | 4 | 64 | 4 | 68 |
| 5 | Others | | | | | | | | | | |
| 5.a | IPDM in banana | 1 | 11 | 6 | 17 | 2 | 1 | 3 | 13 | 7 | 20 |
| 5.b | IPDM in paddy | 1 | 35 | 15 | 50 | 1 | 1 | 2 | 36 | 16 | 52 |
| 5.c | IPDM in vegetables | 2 | 12 | 16 | 28 | - | 2 | 2 | 12 | 18 | 30 |
| 5.d | IPDM in coconut | 2 | 49 | 50 | 99 | 2 | - | 2 | 51 | 50 | 101 |
| 5.e | Production and use of biopesticides and bio control agents | 1 | 2 | 8 | 10 | - | 1 | 1 | 2 | 9 | 11 |
| 5.f | Beekeeping for increased productivity of crops | 1 | 40 | 15 | 55 | - | 2 | 2 | 40 | 17 | 57 |
| 6. | Home Science | | | | | | | | | | |
| 6.a | Drudgery reduction of women | 1 | - | 7 | 7 | - | 13 | 13 | - | 20 | 20 |
| | Total | 42 | 1017 | 530 | 1547 | 123 | 88 | 211 | 1140 | 618 | 1758 |

Details of sponsoring agencies involved

1. State Horticulture Mission, Kerala
2. ATMA- Agriculture Department
3. ATMA- Fisheries Department
4. FFDA- Fisheries Department
5. District planning office Kozhikode

Details of Vocational Training Programmes carried out for rural youth

| S.No. | Area of training | No. of Courses | No. of Participants | | | | | | | | |
|-----------|--|----------------|---------------------|------------|------------|-----------|-----------|-----------|-------------|------------|------------|
| | | | General | | | SC/ST | | | Grand Total | | |
| | | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 1 | Crop production and management | | | | | | | | | | |
| 1.d. | Integrated crop management | 6 | 58 | 15 | 73 | 37 | 5 | 42 | 95 | 20 | 115 |
| 2. | Income generation activities | | | | | | | | | | |
| 2.a. | Rural Crafts | 10 | 14 | 193 | 207 | - | 20 | 20 | 14 | 213 | 227 |
| 2.b. | Tailoring, stitching, embroidery, dying etc. | 3 | - | 39 | 39 | - | 4 | 4 | - | 43 | 43 |
| 2.c. | Others (pl.specify) Apiculture | 2 | 54 | 15 | 69 | - | 2 | 2 | 54 | 17 | 71 |
| | Grand Total | 21 | 126 | 262 | 388 | 37 | 31 | 68 | 163 | 293 | 456 |

V. Extension Programmes

| Activities | No. of programmes | No. of farmers | No. of Extension Personnel | Total |
|---|------------------------------------|----------------|----------------------------|-------------|
| | | TOTAL | Total | |
| Field Day | 11 | 349 | 46 | 395 |
| Kisan Mela | 1 | 822 | 8 | 830 |
| Kisan Ghosthi | 12 | 871 | 62 | 933 |
| Exhibition | 9 | 0 | 0 | 0 |
| Film Show | 47 | 780 | 26 | 806 |
| Method Demonstrations | 35 | 793 | 25 | 818 |
| Farmers Seminar | 3 | 216 | 8 | 224 |
| Group meetings | 11 | 209 | 7 | 216 |
| Lectures delivered as resource persons | 13 | 635 | 41 | 676 |
| Newspaper coverage | 5 | 0 | 0 | 0 |
| Radio talks | 2 | 0 | 0 | 0 |
| TV talks | 1 | 0 | 0 | 0 |
| Popular articles | 4 | 0 | 0 | 0 |
| Extension Literature | 6 | 0 | 0 | 0 |
| Advisory Services | 640 | 621 | 20 | 641 |
| Scientific visit to farmers field | 106 | 135 | 3 | 138 |
| Farmers visit to KVK | 8 | 2629 | 15 | 2644 |
| Diagnostic visits | 31 | 41 | 5 | 46 |
| Exposure visits | 8 | 175 | 0 | 175 |
| Animal Health Camp | 5 | 0 | 0 | 0 |
| Self Help Group meetings | 4 | 107 | 6 | 113 |
| Seed day | 1 | 55 | 2 | 57 |
| Farmers' day | 1 | 63 | 13 | 76 |
| Video documentation of SHG activity | 1 | 13 | 3 | 16 |
| Seminar | 5 | 128 | 15 | 143 |
| Ksheerotsavam | 5 | 313 | 22 | 335 |
| Cattle show/calf rally | 5 | 0 | 0 | 0 |
| Farmers' study tour | 2 | 82 | 4 | 86 |
| Extension literature distributed | 117 | | | |
| Other state farmers' visited KVK | 33 | | | |
| Farmers visited Livestock farm under ATMA | 167 | | | |
| AI and natural breeding by superior buck | 329 | | | |
| Helpline | 1782 | | | |
| Emails | 224 | | | |
| Vaccination | RDV-27800 IBD-26800 FMD-1255 | | | |
| Field visit | 218 | | | |
| Total | - | 9037 | 331 | 9368 |

Details of other extension programmes

| Particulars | Number |
|---|------------|
| Extension Literature | 4 |
| News Letter | 1 |
| News paper coverage | 5 |
| Technical Articles | 1 |
| Technical Bulletins | 2 |
| Radio Talks | 3 |
| TV Talks | 1 |
| Animal health Camps (Number of animals treated) | 251 |
| Total | 268 |

VI. PRODUCTION OF SEED/PLANTING MATERIAL

Production of seeds by the KVKs

| Crop category | Name of the crop | Name of the variety (if hybrid pl. specify) | Quantity of seed (qtl) | Value (Rs) | Number of farmers |
|---------------|------------------|---|------------------------|--------------|-------------------|
| Spices | Ginger | IISR Varada | 3.25 | 19500 | 65 |
| | Turmeric | IISR Prabha | 4.38 | 21900 | 89 |
| Total | | | 7.63 | 41400 | 154 |

Production of planting materials by the KVKs

| Crop category | Name of the crop | Name of the variety (if hybrid pl. specify) | Number | Value (Rs.) | Number of farmers |
|------------------------|---------------------|---|--------------|-----------------|-------------------|
| Commercial | Pepper colubrinum | - | 355 | 2680 | 44 |
| Vegetable seedlings | Capsicum | - | 4250 | 10625 | 810 |
| | Cabbage | - | 6000 | 13000 | 915 |
| | Cauliflower | - | 4107 | 10625.5 | 827 |
| Fruits | Kilo pera | - | 3 | 90 | 2 |
| | Mango | Bennet Alphonso, Sinduram, Priyur | 724 | 43440 | 325 |
| | Rambutan | - | 2 | 40 | 1 |
| | Mangosteen | - | 101 | 12120 | 48 |
| | Lovi lovi | - | 4 | 80 | 3 |
| | Jack | - | 1 | 70 | 1 |
| | Sapota graft | - | 107 | 1500 | 62 |
| | Langsat seedlings | - | 155 | 3100 | 27 |
| Ornamental plants | Ornamental palms | - | 232 | 3480 | 103 |
| | Misc. rooted plants | - | 20 | 200 | 15 |
| | Croton | - | 3 | 45 | 2 |
| Medicinal and Aromatic | | | | | |
| Plantation | Arecanut seedlings | - | 7038 | 105570 | 1201 |
| | Cocoa seedlings | - | 754 | 15080 | 201 |
| | Dwarf arecanut | - | 1 | 500 | 1 |
| | Cashew graft | - | 14 | 680 | 8 |
| Spices | Bush pepper | - | 4027 | 120810 | 1327 |
| | Bush pepper in pots | - | 6 | 1500 | 4 |
| | All spice seedlings | - | 47 | 1880 | 31 |
| Fodder crop saplings | Fodder | CO3 | 20500 | 20500 | 33 |
| Forest Species | Neem | - | 104 | 1560 | 31 |
| | Mahagony | - | 53 | 530 | 12 |
| | Ashokam | - | 17 | 170 | 8 |
| Total | | | 48625 | 369875.5 | 6042 |

Production of Bio-Products

| Bio Products | Name of the bio-product | Quantity Kg | Value (Rs.) | Number of farmers |
|----------------------------------|--------------------------------|------------------------|--------------------|------------------------------|
| Bio Fertilizers | Vermicompost | 2500 | 2500 | 200 |
| | Cow dung | 2000 cft | 20000 | 125 |
| | Goat manure | 900 cft | 9000 | 52 |
| | Poultry manure | 700 cft | 7000 | 32 |
| Bio Agents | <i>Trichoderma</i> | 241 | 18075 | 107 |
| | <i>Pseudomonas</i> | 1729 | 103740 | 843 |
| | <i>Earth worms</i> | 2500 (nos) | 1250 | 50 |
| Others (specify) Pheromone traps | Methyl euginol trap | 33 | 3300 | 20 |
| | Cuelure trap | 94 | 11750 | 81 |
| Total | | - | 176615 | 1510 |

Production of livestock and related enterprise materials

| Particulars of Live stock | Name of the breed | Number | Value (Rs.) | Number |
|--|--|---------------|--------------------|---------------|
| Dairy animals | | | | |
| Cows | Crossbred | 5 | 64600 | 5 |
| Goat | Malabari | 11 | 16896 | 6 |
| Poultry | | | | |
| Layers | Gramasree | 14193 | 11,05290 | 1405 |
| Egg (Hen, duck, quail) | | | 8264 | |
| Fisheries | | | | |
| Others (Pl. specify) Ornamental fishes | Guppy, platy sword tail, gold fish, carp, fighter, gourami | 2185 | 10927 | 36 |
| Aquatic plants | Java moss, Vallisneria, baby tears | 20 | 200 | 20 |
| Live feed for ornamental fishes | Micro worms | 18 | 1850 | 18 |
| Total | | 16432 | 1208027 | 1490 |

VII. DETAILS OF SOIL, WATER AND PLANT ANALYSIS 2012-13

| Samples | No. of Samples | No. of Farmers | No. of Villages | Amount realized (Rs.) |
|----------------|-----------------------|-----------------------|------------------------|------------------------------|
| Soil Samples | 45 | 23 | 4 | |
| Water Samples | 13 | 13 | 6 | 300 |
| Total | 58 | 36 | 10 | |

VIII. SCIENTIFIC ADVISORY COMMITTEE

Number of SACs conducted: 1

20th June 2012**IX. NEWSLETTER**

Number of issues of newsletter published: 1

Vol.5 No.1 January-June 2012

X. RESEARCH PAPER PUBLISHED

Number of research paper published : 2

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

| No. of Training programmes | No. of Demonstration s | No. of plant materials produced | Visit by farmers (No.) | Visit by officials (No.) |
|-----------------------------------|-------------------------------|--|-----------------------------------|-------------------------------------|
| | | | | |

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