

TS(2) 14924/16

Directorate of Agricultural Development  
& Farmers' Welfare

Vikas Bhavan

Dated : 13/4/16

**CIRCULAR**

Sub: Scheme on Development of Spices – 2016-17 – Working instruction for implementation - orders issued .

Ref : Circular No. TP(2) 10507/16 dated 01/04/2016 of Director of Agriculture

As per the order referred above, sanction has been accorded for implementation of the scheme “**Development of Spices** “ during 2016-17 for a total amount of **1000.00 lakhs** under the head of account **2401-00-108-59** Plan.

Spice crops account for a predominant position in the agricultural economy of the state. Kerala holds a supreme position in the production of pepper. Tellicherry Garbled Extra Bold (TGEB) pepper, Cochin ginger (low fibre content), Alleppey Finger Turmeric (AFT), Alleppey Green Extra Bold (AGEB) Cardamom were internationally accepted varieties from Kerala. On the production side low yield, damage to standards, crop loss due to pests and diseases, post harvest losses and fluctuating prices are causing declining area and production of spices in the State. Revival of production of spices is essential to improve the livelihood of people as well as to improve foreign exchange earnings. Apart from foreign exchange earnings, organic spices as well as value added spices are assuming significance. Hence this scheme launched during 2012-13 is being continued during 2016-17 also .

**Objectives**

The main objectives of the scheme are:-

- To increase the area of spices particularly pepper, by using high yielding and improved varieties.
- Productivity improvement of pepper in Idukki district .
- Assist the farmers in technology adoption for higher production.
- Popularisation of location specific HYV ,s developed by farmers.

The main components of the scheme are

**I) PEPPER REHABILITATION PROGRAMME**

The components are

1. Production of good quality planting materials of high yielding varieties of pepper through decentralised nurseries
2. Revitalization of existing pepper garden
3. Area expansion – Establishment of new garden

**a. Establishment of Decentralized nurseries**

One of the major problems faced by the pepper farmers is the non availability of good quality rooted pepper cuttings. Improved varieties play a significant role in augmenting the yields in any production programme. Effect of inputs applied and good practices followed can be fully realized only with the adoption of improved varieties. To achieve this , good quality planting material has to be made available to pepper farmers. Small scale nurseries with production capacity of 0.5 lakh cuttings per nursery per year can be operated through SHGs , Women Groups, Unemployed youths etc. with technical support from Department of Agriculture, Kerala Agricultural University and Research institutions, Central Government institutions, KVKs etc.

During 2016-17 , a total of 50 nurseries are proposed to be implemented with an outlay of **Rs 15.00 lakhs** as shown below.

Sl.No	District	No. of nurseries	Targetted production of pepper cuttings (Lakh Nos.)	Assistance proposed @ ₹30000/nursery (Amount in lakhs)
1	Thiruvananthapuram	2	1.0	0.60
2	Kollam	2	1.0	0.60
3	Pathanamthitta	2	1.0	0.60
4	Kottayam	2	1.0	0.60
5	Idukki	14	7.0	4.2
6	Palakkad	2	1.0	0.60
7	Malappuram	3	1.5	0.90

8	Kozhikode	2	1.0	0.60
9	Wayanad	15	7.5	4.5
10	Kannur	3	1.5	0.9
11	Kasaragod	3	1.5	0.9
	<b>Total</b>	<b>50</b>	<b>25.0</b>	<b>15.0</b>

**b. Revitalization of Pepper garden ( 2nd Year Assistance)**

During 2015-16 , new pepper garden is established in an area of 3000 ha. 2nd year assistance @7500/ha will be given during 2016-17 for maintenance of these gardens. Farmers will be provided assistance for inputs ie for lime, farm yard manure/ compost, plant protection chemicals and bio control agents . An amount of **Rs.225. 00 lakhs** is set apart for giving 2nd year assistance

Sl. No	District	Area in ha	Assistance proposed@ 7500/ha (₹ lakhs)
1	Kollam	50	3.75
2	Kottayam	50	3.75
3	Idukki	1500	112.5
4	Palakkad	75	5.625
5	Malappuram	100	7.5
6	Kozhikode	75	5.625
7	Wayanad	1000	75.0
8	Kannur	75	5.625
9	Kasargod	75	5.625
	<b>Total</b>	<b>3000</b>	<b>225</b>

**c. Establishing new garden ( Area expansion)**

Establishment of new pepper garden with high yielding varieties of pepper can be undertaken for improving the productivity of pepper. The estimated cost for the establishment of one ha of pepper garden is ₹ 40000/- . An amount of ₹ 20000/- ( limited to 50% of the total cost) can be given as subsidy. During the year 2016-17 total area of 1300 ha is proposed to be brought under cultivation with improved varieties of pepper as shown below.

Sl.no.	District	Area proposed ( Ha)	Assistance proposed@ Rs. 20000/ha (Rs. lakhs)
1	Kollam	50	10.00
2	Kottayam	75	15.00
3	Palakkad	75	15.00
4	Malappuram	75	15.00
5	Kozhikode	75	15.00
6	Wayanad	800	160.00
7	Kannur	75	15.00
8	Kasaragod	75	15.00
	<b>Total</b>	<b>1300</b>	<b>260.00</b>

An amount of **Rs. 260.00 lakhs** is set apart for this purpose. The planting materials required for new planting can be utilised from the Departmental farms, Kerala Agricultural University , Central Government Institutions and other approved nurseries.

The rooted pepper cuttings produced in Department farms during 2015-16 will be supplied to selected districts based on availability. The Principal Agricultural Officers concerned should make necessary arrangements for lifting and distribution of pepper cuttings to krishibhavans immediately. Farm section of the Directorate will issue the distribution allocation of pepper cuttings of departmental farms. If the cuttings from farms are not sufficient , cuttings from approved decentralised nurseries can be arranged at district level. The cost of cuttings from department farms / decentralised nurseries can be adjusted from the scheme provision and the balance amount to be paid to beneficiaries through e payment.

## **2. Integrated Pepper Development in Idukki**

The scheme "Integrated Pepper Development in Idukki" will be continued during 2016-17 with the following objectives.

### **Objectives**

1. To increase production and productivity of pepper.
2. To increase and popularize high yielding planting materials with latest technology.
3. To ensure local availability of quality planting materials by promoting local nurseries.

4. To utilize latest technology in the production of planting materials with high vigour and yield potential.
5. To rejuvenate pepper plantations through proper crop health management.
6. To create model plots adopting latest technology so that farmers get first hand awareness of technology which will enhance the rate of adoption.

### **Project Area**

The activities are proposed to be implemented in Idukki district.

### **Approach**

Cluster approach is proposed in implementing the scheme which will increase efficiency of agricultural practices, instill confidence in the members of the group, ensure adoption of technology and reduce the management cost of gardens as a whole.

### **Components of the programme**

1. Development of planting materials using orthotropic shoots and grafts
2. Support for onfarm production units of Trichoderma/VAM
3. Demonstration of farmer developed varieties
4. Promotion of soil-less pepper nurseries
5. Support to soil ameliorants
6. Support to secondary and micro nutrients
7. Revitalization of pepper samities
8. Area wise Integrated Pest management (IPM) for crop health management
9. Area Expansion Programme

#### **a. Development of planting materials using orthotropic shoots and grafts**

Quality Planting materials form the basis of any crop production improvement programme. In Pepper, primary climbing shoots, basal runners and fruit bearing laterals are used as for this purpose. Laterals are used in Bush Pepper production as their tendency is more towards lateral growth. All the three strike roots at nodes when kept in contact with a suitable medium. Rapid multiplication methods of use of bamboo splits, trench method and serpentine methods are followed for production of planting materials in large numbers. Another method recently developed is in allowing orthotropic shoots to spread over a cylindrical metallic chicken wire mesh upto 3m height. The vines will strike roots at every node. Laterals and basal runners are also produced. All these are

cut in suitable lengths and planted in portable tray in soil-less medium, They can be cut into suitable length and used as planting materials.

Another method of planting material production is through grafting with *Piper colubrinum* as rootstock. This has been developed since 2 decades. February and March has been found to be the best period for graft production. Grafted plants are found to be resistant to soil-borne pathogens like Phytophthora, shows good virility and high yield. The method has been successful in bush pepper also.

*An amount of Rs.5.00 lakhs as assistance is set apart for the implementation of this component for implementation through Farms/ farmer fields. Technical support will be sought from IISR if required.*

**b. Support for establishment of onfarm production units of Trichoderma./VAM**

Trichoderma has been found to be an effective bio control agent against many fungal diseases. Establishing small units of Trichoderma production by pepper samithies for their own use can meet the local requirements to a very extent. The essential materials required for the unit are the following:

<b>Onfarm Production of Trichoderma at Farm Level</b>				
<b>SI No</b>	<b>Item</b>	<b>Quantity</b>	<b>Rate</b>	<b>Amount</b>
1	Pressure cooker (10 litres capacity)/Autoclave(mini)	1	7000	7000
2	Incubation chamber for inoculation	1	3000	3000
3	Stove	1	4000	4000
4	Plastic trays	10	70	700
5	Autoclavable bags	500 nos	4/bag	2000
6	Absorbant cotton	1 bundle	200	200
7	Non absorbant cotton	1 bundle	150	150
8	PVC pipe pieces for making plugs			100
9	Rubberband			100
10	Packaging bags			1000
11	Spirit lamp/ candle	1 no	100	250
12	Miscellaneous if any			1500
	<b>Grand Total</b>			<b>20000</b>

1 test tube of mother culture can be used for inoculating the medium which will develop fully as a green mass within a week. This can be powdered, packed and distributed for large scale multiplication in suitable substratum like cowdung. Depending on the nature of medium used, only Rs.5-20 is required as cost of medium for preparing 1 kg. of Trichoderma 100 % culture. This can be mixed with talc @50g. culture in 1 kg.talc, for producing 20 kg of Trichoderma.

On farm production unit should be implemented through Pepper Samithies. The secretary/Convenor of the samithi will be incharge of the equipments and other assets created. Agricultural officer should conduct periodic verification, give necessary technical guidance and see that the unit is running smoothly.

The following operational guidelines are to be followed .

1. Mother culture of Trichoderma has to be obtained from KAU / NIPHM /NCRMI
2. Never use cultures from any other source without permission.
3. Before using a culture the genetic purity of the culture should be studied.Steps are being taken at Directorate to sign MOU with NCRMI for the supply of cultures and for quality analysis of bio control agents produced by farmers at regular intervals.
4. Always start mass production of Trichoderma from original mother culture.
5. Random checking of the purity of bulked Trichoderma must be done once in four months to confirm the purity of the isolate.
6. If the purity of the biocontrol agent is in doubt, then the centre should restart the production only after complete sterilization of the unit is done under the supervision of trained officers.
7. Mass multiplied Trichoderma can be distributed to farmers in sorghum grains with or with out powdering. It can also be distributed after enriching it.
8. Never "sell" bio control agents after printing MRP on the packet. Instead print " For distribution among the farmers". As far as possible never distribute using printed packets. A bit notice giving the details such as date of production,source of the mother culture used, method of application ,etc. can be kept inside the packet.
9. Bio control agents shall be produced only under the supervision of Agricultural officers who have been trained in onfarm production. Once the trained Agricultural officer is transferred from the Panchayath where a production centre is functioning , then the unit must stop production until the service of a trained officer is ensured to oversee the production.

10. Safety precautions to be followed at the production centre should be strictly adhered to. A chart should be prepared and exhibited in all the centre.
11. The bio control agent produced should not be stored for more than two months.
12. All the production centres should keep a register showing all the details related to production of bio control agents such as name of bio control agent , source of culture, date of production, quantity produced etc.
13. A register should be maintained at Krishi bhavan also showing the details of pepper samithies engaged in on farm production of bio control agents.

*It is proposed to give assistance @Rs.20,000/ per unit for establishing a small scale unit. 25 such units are proposed in the district with a total financial assistance of Rs.5.00 lakhs.*

**c. Demonstration of farmer developed varieties**

There are around 75 no, of pepper varieties in cultivation now. This include both indigenous/local varieties like Aimpiriyan, Kottanandan, Vellamunda and high yielding varieties like Panniyoor series developed in research stations. There are farmer developed varieties also like Aswathy, Suvarna and Pepper Thekken which have special qualities like resistance to particular disease, specific morphological characters (like more number of berries/spike) which gives higher yield etc. Such varieties can be made popular among cultivators through establishing their Demonstration plots. Farmers can visit these plots and get a first hand information on the superior qualities of the variety concerned. This will also be a encouragement and recognition to the farmer who developed it.

*It is proposed to give assistance @Rs.25,000/- to establish a demonstration plot of 0.40 Ha. 20 such plots are proposed for which Rs.5.00 lakhs is set apart.*

**d. Promotion of soil-less pepper nurseries.**

Soil less media have the basic advantage of avoiding soil pathogens like Phytophthora which is the most common and debilitating one affecting pepper vines. Use of soil less media thus avoids the use of copper based chemical fungicides and thus encourages organic farming. Research done at IISR, Kozhikode have found out that Coirpith and Vermicompost in the ratio 75:25 enriched with Trichoderma is the best soil-less nursery mixture.

Facilities like rainshelter can be established in such nurseries to ensure round the year



production for which assistance from other plan schemes can be extended. An amount of **Rs.3.00 lakhs** is set apart for establishing such nurseries in farms/ farmers field.

**e. Support to soil ameliorants**

It is proposed to cover 1000 ha under this component to correct soil acidity.

*An assistance of Rs.3000/ha is proposed towards expenses involved like cost of soil ameliorant and its application costs etc. A total amount of Rs.30.00 lakhs is proposed for this component.*

**f. Support to secondary and micro-nutrients**

Secondary and micronutrients play an important role in crop yield and quality particularly if the soil is deficient in Calcium, Magnesium, Sulphur, Zinc, iron etc.

*An assistance of Rs.500/ha is proposed towards expenses involved like cost of nutrients and an amount of Rs 0.25 lakhs is set apart for soil sample collection, transportation analysis etc.*

**g. Revitalisation of Pepper samithies**

An amount of **Rs 25.00 lakhs** is set apart for revitalisation of 100 samithies providing assistance @ 0.25 lakhs/samithy. The assistance is proposed to be utilised for carrying out basic functions like registration, maintenance of records, for meeting expenses in organising meetings, arranging inputs, setting up of bio pharmacy etc. Expenditure for activities related to organic farming can also be met from this provision.

**h. Area wise Integrated Pest management (IPM) for crop health management**

It is proposed to provide assistance @ Rs.10000/Ha for carrying out IPM activities like use of biocontrol agents, bio pesticides, traps etc for pest management, resorting to chemical methods only in extreme conditions. Spraying can be carried out through agro service centres / Pepper samithies.

*Total area of 1740 ha is proposed to be covered and an amount of Rs.174.00 lakhs. is set apart for this component.*

**9. Area Expansion of Pepper**

Establishment of new pepper garden with high yielding varieties of pepper can be undertaken

for improving the productivity of pepper. The estimated cost for the establishment of one ha of pepper garden is ₹ 40000/- . An amount of ₹ 20000/- ( limited to 50% of the total cost) can be given as subsidy. During the year 2016-17 total area of 1250 ha is proposed to be brought under cultivation in Idukki with improved varieties of pepper

*An amount of Rs. 250.00 lakhs is set apart for this purpose.*

#### Abstract of Integrated Pepper Development in Idukki

Sl. No.	Component	No. of units	Unit cost (Rs.)	Total amount required (Rs.in lakhs)
	<b>Integrated Pepper Development in Idukki</b>			
a	Development of planting materials using orthotropic shoots and grafts	1	5	5.00
b	Support for onfarm production units of Trichoderma/VAM	25	0.2	5.00
c	Demonstration of farmer developed varieties	20	0.25	5.00
d	Promotion of soil-less pepper nurseries.	1	3.00	3.00
e	Support to soil ameliorants	1000	0.03/Ha	30.00
f	Support to secondary and micro nutrients			
	a. Cost of inputs	550	0.005/Ha	2.75
	b. Collection of soil samples, transportation, etc.			0.25
g	Revitalization of pepper samities	100 no.s	0.25	25.00
h	Area wise Integrated Pest management (IPM) for crop health management	1740 Ha	0.10	174.00
i	Area expansion of pepper	1250	0.2	250.00
	<b>Total</b>			<b>500.00</b>

An expert committee with the following persons is constituted for overseeing and guiding the implementation of Integrated Pepper Development in Idukki District and also to ensure quality.

1. Dr.J.Thomas, Director (Rtd) of ICRI, Spices Board

2. Dr. P.J. Joseph, Former Professor of Plant Pathology, Kerala Agricultural University
3. Experts from KVK, Idukki and ICRI, Idukki

### **Mode of implementation**

The scheme will be implemented through the Krishibhavans of the selected districts. Wide publicity should be given through mass media. At block level, Assistant Director of Agriculture will co-ordinate and supervise the programme. At the district level, the Deputy Director of Agriculture (H) will be the nodal officer and at the state level, Additional Director of Agriculture (CP) will monitor the programme.

All the assistance to the farmers should be credited to the bank account of the concerned beneficiaries through e-payment.

Principal Agricultural Officers are hereby directed to keep utmost vigil in implementing the scheme and achieve the targets in full. Any wilful lapse on the part of any officers in implementing the scheme will be viewed seriously and disciplinary action will be initiated against the officers who are responsible for the lapses and action will be taken to recover the losses.

The monthly progress report in the prescribed proforma should reach this office on or before 5th of every succeeding month in the name cover of Additional Director of Agriculture (CP).

### **Abstract of Scheme Components**

Sl.No	Component	Physical Target	Assistance proposed per unit(in Rs.)	Total assistance (₹ lakhs)
<b>1</b>	<b>PEPPER REHABILITATION PROGRAMME</b>			
a	Establishment of decentralized pepper nurseries	50 nos	30,000/-	15.00
b	Revitalization of pepper garden (2nd year assistance)	3000 ha	7,500/-	225.00
c	Establishing new garden (Area expansion)	1300 ha	20,000/-	260.00
	<b>Sub Total</b>			<b>500.00</b>

2	<b>Integrated Pepper Development in Idukki</b>			
a	Development of planting materials using orthotropic shoots and grafts	1	5	5.00
b	Support for onfarm production units of Trichoderma/VAM	25	0.2	5.00
c	Demonstration of farmer developed varieties	20	0.25	5.00
d	Promotion of soil-less pepper nurseries.	1	3.00	3.00
e	Support to soil ameliorants	1000	0.03/Ha	30.00
f	Support to secondary and micro nutrients			
	a. Cost of inputs	550	0.005/Ha	2.75
	b. Collection of soil samples, transportation, etc.			0.25
g	Revitalization of pepper samities	100 no.s	0.25	25.00
h	Area wise Integrated Pest management (IPM) for crop health management	1740 Ha	0.10	174.00
i	Area expansion of pepper	1250	0.2	250.00
	<b>Total</b>			<b>500.00</b>
	<b>G.Total</b>			<b>1000.00</b>

### Financial Outlay

The amount of **Rs.1000.00 lakhs** required for the implementation of the components of this programme can be met from budget provision for the Development of Spices under the head of account **2401-00-108-59 Plan .**

**Timeline for implementation**

Period	Financial (Rs.in lakhs)	Progress (%)	Physical(Ha)	Progress(%)
April-June	25.00	2.5		
April-September	200.00	20		
April-December	600.00	60		
April-March	1000.00	100		

Sd/-

Director of Agriculture

To

All Principal Agricultural Officers

Copy to

1. CA to Director of Agriculture
2. CA to all Additional Directors of Agriculture
3. All Joint Directors of Agriculture at HQ / Senior Finance Officer
4. Planning section for allotment of funds
5. Finance section
6. TH section for distribution allocation of pepper cuttings of Departmental farms
7. IT Cell for publishing in web site

  
**MINI. K. RAJAN**  
Plant Protection Officer  
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