PROCEEDINGS OF THE DIRECTOR OF AGRICULTURE , DIRECTORATE OF AGRICULTURE DEVELOPMENT AND FARMERS' WELFARE, VIKAS BHAVAN, THIRUVANANTHAPURAM

(Present : Dr.P.K.Jayasree IAS)

Sub: Annual Plan 2018-19 – Scheme for Development of Spices – Continuous Administrative sanction modified – orders issued- reg:

Read: 1) G.O.(Rt)No.781/2017/AD dated.04.08.2017
2) Annual Plan 2018-19.
3) Order No. TP (2) 7454/2018 dated: 11-04-2018.

Order No. TP(2) 7454 /2018 **Dated:26.06.2018**

Government of Kerala, vide order read 1st above accorded Administrative sanction for the implementation of the scheme, Development of Spices 2017-18 for an amount of Rs.1000.00 lakhs.

Objectives

The main objectives of the scheme are:-

- to increase the area of spices particularly pepper, ginger, turmeric, nutmeg and clove by using high yielding and improved varieties.
- To promote the production of good quality planting materials of high yielding varieties of pepper through de-centralized nurseries
- to realise productivity improvement of pepper in Idukki district.
- to assist the farmers in technology adoption for higher production.
- to popularise location specific HYVs developed by farmers.

As per the Annual Plan 2018-19, the scheme is proposed to be continued during the current financial year with a budget allocation of Rs.1100.00 lakhs. Director of Agriculture has issued continuous Administrative Sanction vide reference 3rd cited. Now the scheme need modifications to accommodate Rs.200.00 lakhs earmarked for establishment of value addition unit for Spices. Abstract of the modified scheme is furnished below.

Sl. No	Component	No. of units/ Ha	Unit cost (Rs.)	Total amount required (Rs.in lakhs)
1.	Establishment of De-centralized Pepper nurseries	10 nos	30000/- per unit	3
2	Area Expansion of Spice Crops			
	a. Pepper	700 ha	20000/- per ha	140
	b. Ginger / Turmeric	320 ha	12500 /- per ha	40
	c. Nutmeg/ Clove	100 ha	20000/- per ha	20
	Sub – Total (a to c)			200

3	Revitalization of Pepper garden	1970 ha	10000/- per ha	197
	Sub – Total (1 to 3)			**400**
4	Integrated Pepper Development in Idukki			
a	Area expansion of pepper	1250 ha	20000/- per ha	250.00
b	Support for on farm production units of Trichoderma/VAM	15 no.s	20000/- per unit	3.00
c	Demonstration of farmer-developed varieties (unit area - 0.10 ha)	20 no.s	10000/- per unit	2.00
d	Development of planting materials using orthotropic shoots and grafts			5.00
e	Promotion of soil-less pepper nurseries.	5 no.s	60000/- per unit	3.00
f	Support to secondary and micro nutrients a. Cost of inputs b. Collection of soil samples, transportation etc.	550 ha	500/ha	 2.75 0.25
g	Support to soil ameliorants	1000 ha	5400/ha	54.00
h	Prophylactic Spraying through Agro Service centres against Quick wilt of Pepper	1655 ha	10000/ha	165.50
i	Revitalization of pepper samities	44 samithies	25000/samithy	11.00
j	Operational expenses			1.50
k	Travelling Expenses			2.00
	Total of 4 (a to k)			**500.00**
	Grand Total (1 to 4)			**900**

The main components of the scheme are

1) Establishment of De-centralized Pepper nurseries (Rs.3.00 lakhs)

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 2018-19, a total of **10 nos.** of de-centralized pepper nurseries are proposed to be implemented with an assistance **@ Rs.30000/-**per nursery with an outlay of **Rs 3.00 lakhs.**

2) Area Expansion of Spice Crops (Rs.200.00 lakhs)

a. 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 Rs. 40000/-. Financial assistance proposed is 50% of the total cost limited to Rs. 20000/- ha. During the year 2018-19, total area of **700 ha** is proposed to be brought under cultivation with improved varieties of pepper and an amount of **Rs. 140.00 lakhs** is set apart for this component.

b. Ginger / Turmeric

The main objective is to increase the area of Ginger and turmeric using high yielding and improved varieties, productivity improvement of organic ginger and turmeric and to assist farmers in technology adoption for higher production. The cultivation of ginger and turmeric with high yielding varieties adopting scientific cultural practices will be undertaken for increasing production and productivity. As these crops are shade tolerant with shallow roots suitable for intercropping, there is immense scope for area expansion.

As far as possible the scheme should be implemented in a compact area on cluster basis so as to supervise the programme effectively. In the case of Ginger and Turmeric the **assistance will be 50% cost of inputs limited to Rs.12500/- per ha.** Farmers will be provided assistance for inputs i.e. for lime, compost/ farm yard manure, wood ash, bio fertilisers and bio control agents.

It is proposed to cover **320 ha** during 2018-19 and an amount of **Rs.40.00 lakhs** is set apart for this component.

c. Nutmeg/ Clove

The climatic conditions of Kerala suit nutmeg and it is grown in homesteads as an intercrop. The area expansion programme is to promote cultivation of the locally adapted and improved varieties of nutmeg / clove. The financial assistance should be extended to farmers for area expansion of nutmeg/ clove using high quality planting materials and meeting cost of inputs for adopting INM/ IPM.

The assistance proposed is **@ Rs.20000/- per ha** for meeting the expenditure on planting material and cost of inputs for INM/ IPM etc. It is proposed to cover **100 ha** during 2018-19 and an amount of **Rs.20.00 lakhs** is set apart for this component.

3) Revitalization of Pepper garden (Rs.197.00 lakhs)

Revitalization involves gap filling with new pepper vines, replacing damaged standards, carrying out fertilizer/manure and lime application and plant protection measures with the aim of rejuvenating unproductive and neglected pepper gardens. Financial assistance of 50% of the total cost limited to **Rs.10000/ha** will be given during 2018-19 for maintenance of gardens covering an area of **1970 ha** for carrying out these activities in all districts, except Wayanad where assistance will be provided under Wayanad Package scheme. Farmers will be provided assistance for inputs i.e. for lime, farm yard manure/ compost, plant protection chemicals and bio control agents. An amount of **Rs.197.00 lakhs** is set apart for this purpose.

4) Integrated Pepper Development in Idukki (Rs.500.00 lakhs)

Pepper is one of the major spice crop of Kerala. Idukki ranks first both in terms of area and production of Pepper in Kerala covering an area of 42694 Ha. as on 2015-16. Both Central and State Governments are implementing various programmes for development of spice crops in the state which have yielded some results. However, farmers are not able to reap the benefits of high commodity price for pepper prevailing in domestic market. This is due to decline in the area and production of pepper in the state due to pest and disease occurrence, senility of vines and poor management. Incorporating new technologies in management of pepper gardens including production techniques in planting material production is the need of the hour. The present proposal for Integrated Pepper development aims at restructuring pepper development activities for augmenting production and productivity in Idukki district which can be replicated throughout the state.

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 vigor 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 cover all the 53 gramapanchayats 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. Area Expansion Programme
2. Support for onfarm production units of Trichoderma/VAM
3. Promotion of farmer varieties
4. Promotion of use of pepper grafts
5. Promotion of soil-less pepper nurseries
6. Support for secondary and micro nutrient application
7. Support for soil ameliorants application
8. Prophylactic spraying through Agro Service centres
9. Revitalization of pepper samities
10. Operational expenses
11. Travelling Expenses

a) 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 Rs. 40000/-. An amount of **Rs. 20000/-** (limited to 50% of the total cost) can be given as assistance.

During the year 2018-19, 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.

b) Support for establishment of onfarm production units of Trichoderma and VAM

i) *Trichoderma sp.* has been found to be an effective bio control agent against many fungal diseases. Various species like *T. viride* and *T.harzianum* are used as effective bio control agents against many fungal pathogens, like *Phytophthora sp.* Which causes Quick wilt disease of pepper. The method of application is by mixing with organic manures in the ratio 1:100 by weight.

Establishing small units of Trichoderma production can meet the local requirements to a very extent. The essential materials required for the unit are the following:

a. Inoculation chamber
b. Pressure cooker – 20 lit (for sterilization)
c. Mixer
d. LPG Gas connection with stove
e. Mother culture
f. Media for growing inoculums (Wheat/Sorghum)
g. Autoclave bags (polythene)
h. Plastic trays
i. Cotton, Spirit, PVC pipes, Rubber band etc.

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, thus producing 20 kg which fetches Rs.1400/- @ Rs.70/-kg.

ii) Vesicular Arbuscular Mycorrhizae (VAM)

VAM is a group of fungus seen associated with the root zone of plants. The name derives from the physical structure of this fungi. It requires a living host for association and helps in greater absorption of water, macro and micro nutrients by plants by making the nutrients available in an easily usable organic form. It has also been reported that VAM imparts resistance to plants against drought, soil borne pathogens.

Mass production of Mycorrhizae can be taken up by individual farmers/farmer groups. On-farm production makes economic and environmental benefits of VAM available to a large number of farmers covering larger area besides reduced use of chemical fertilizers.

Expenses for mass production of Mycorrhizae (VAM)

Sl. No.	Item	Quantity	Rate (Rs.)	Amount (Rs.)
1	Plastic pots of medium size	100 no.	50	5000
2	Starter inoculums	200g.	1000/200g.	1000
3	Seed material of rice/ragi/maize/sorghum	250g.		100
4	Carrier material-vermicompost	500 kg.	12/kg.	6000
5	Labour charges	10 mandays	500/manday	5000
6	Miscellaneous			2900
	Total			**20,000/-**

For both Trichoderma and VAM units, individual farmers, farmer clusters, farm clubs, Kudumbasree/janasree units can start such small ventures. The secretary/Convenor of the group will be incharge of the equipments and other assets created and the farmer himself if it is an individual venture. Agricultural officer should conduct periodic verification, give necessary technical guidance and see that the unit is running smoothly and assure that the equipments are well maintained and properly used.

It is proposed to give assistance **@Rs.20,000/ per unit** for establishing a small scale unit. **10 such units** are proposed in the district with a total financial assistance of **Rs.2.00 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.10,000/-** to establish a demonstration plot of 0.10 ha. **10 such plots** are proposed for which **Rs.1.00 lakhs** is set apart.

d) 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 sp.* and shows good virility and high yield. The method has been successful in bush pepper also.

An amount of **Rs.15.00 lakhs** as assistance is proposed for the implementation of this component for implementation through Department Farms or progressive farmer's fields. This component is proposed to be implemented on a pilot mode utilizing technical guidance from Indian Institute of Spices Research/KAU.

e) 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 Coir pith and Vermicompost in the ratio 75:25 enriched with Trichoderma is the best soil-less

nursery mixture. Nurseries can be encouraged to practice soil-less cultivation by providing financial assistance @0.60 lakhs/nursery @ 3 cuttings/bag.

It is proposed to establish **5 such nurseries** with a production capacity of 10,000 no.s of rooted pepper cuttings per nursery. Facilities like rain shelter 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 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, Magnesiun, Sulphur, Zinc, iron etc.

An assistance of **Rs.500/ha** is proposed towards expenses involved like cost of nutrients and it is proposed to cover an area of 550 ha for which **Rs. 2.75 lakhs** is set apart and an amount of **Rs 0.25 lakh** is set apart for soil sample collection, transportation analysis etc.

g) Support to soil ameliorants

It is proposed to cover **1000 ha** under this component to correct soil acidity. An assistance of **Rs.5400/ha** is proposed towards expenses involved like cost of soil ameliorant and its application costs etc. A total amount of **Rs.54.00 lakhs** is proposed for this component.

h) Prophylactic Spraying through Agro Service centres against Quick wilt of Pepper

Quick wilt, which is a fungal disease, is one of the main reasons for inflicting heavy losses in the pepper production in the traditional pepper producing areas. The fungus attacks both the root system as well as the aerial parts of the pepper plant. The attack on the root system causes complete damage of the plant within months. Most effective control against this disease is spraying with 1% Bordeaux Mixture / 0.2% Copper oxychloride and/or soil drenching with the same @3-5 litres/plant base.

To encourage farmers to take up this plant protection activity, it is proposed to give assistance for spraying @ **Rs.10000/- per hectare** including cost of fungicides and labour charge. The total area proposed to be covered is **1575 ha** and the total financial requirement is **Rs.157.50 lakhs**. The programme will be implemented on a campaign mode with the support of Agro Service centres of each area. The service of trained personnel in these centres can be effectively utilised for the purpose.

i) Revitalization of Pepper samithies

An amount of **Rs.11.00** lakhs is proposed apart for revitalisation of 44 samithies providing assistance @ Rs.0.25 lakh/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.

j) Operational Expenses

For effective implementation of the project, operational expenses for meeting fuel charges of vehicle, training expenses, review meeting ,documentation etc are to be met from the project funds. An amount of **Rs.1.50 lakhs** is proposed for the purpose.

k) Travelling Expenses

Idukki district has 8 blocks with head quarters at Thodupuzha. For implementing this scheme, extensive field visits are to be conducted for proper supervision and farmers training to be organised for extensive use of bio control agents for Integrated Pest and Disease Management (IPDM). Hence provision for meeting travel expenses of field staff, Agricultural Officers, Assistant Directors of Agriculture and supervising officers is essential for the effective implementation of the scheme. An amount of Rs.2.00 lakhs is set apart for the purpose.

Components of 'Integrated Pepper Development in Idukki'

Sl. No.	Component	No. of units/ha	Unit cost (Rs.)	Total amount required (Rs.in lakhs)
a	Area expansion of pepper	1250 ha	20000/- per ha	250.00
b	Support for onfarm production units of Trichoderma/VAM	10 no.s	20000/- per unit	2
c	Demonstration of farmer-developed varieties (unit area - 0.10 ha)	10 no.s	10000/- per unit	1
d	Development of planting materials using orthotropic shoots and grafts			15
e	Promotion of soil-less pepper nurseries.	5 no.s	3.00	3.00
f	Support to secondary and micro nutrients a. Cost of inputs b. Collection of soil samples, transportation, etc.	550 ha	500/Ha	 2.75 0.25
g	Support to soil ameliorants	1000 ha	5400/ha	54.00
h	Prophylactic Spraying through Agro Service centres against Quick wilt of Pepper	1575 ha	10000/ha	157.5
i	Revitalization of pepper samities	44 samithies	25000/ samithy	11.00
j	Operational expenses			1.50
k	Travelling Expenses			2.00
	Total			**500.00**

Financial Outlay

An amount of Rs.1100.00 lakhs is required for implementation of the continuing scheme 'Development of Spices' during 2018-19. The component wise breakup is as follows.

Sl. No	Component	No. of units/ Ha	Unit cost (Rs.)	Total amount required (Rs.in lakhs)
1.	Establishment of De-centralized Pepper nurseries	10 nos	30000/- per unit	3
2	Area Expansion of Spice Crops			
	a. Pepper	700 ha	20000/- per ha	140
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	Sub – Total (a to c)			200
3	Revitalization of Pepper garden	1970 ha	10000/- per ha	197
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4	Integrated Pepper Development in Idukki			
a	Area expansion of pepper	1250 ha	20000/- per ha	250.00
b	Support for on farm production units of Trichoderma/VAM	10 no.s	20000/- per unit	2
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d	Development of planting materials using orthotropic shoots and grafts			15
e	Promotion of soil-less pepper nurseries.	5 no.s	60000/- per unit	3.00
f	Support to secondary and micro nutrients a. Cost of inputs b. Collection of soil samples, transportation, etc.	550 ha	500/ha	 2.75 0.25
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i	Revitalization of pepper samities	44 samithies	25000/samithy	11.00
j	Operational expenses			1.50
k	Travelling Expenses			2.00
	Total of 4 (a to k)			**500.00**
	Grand Total (1 to 4)			**900**

(Rupees Eleven Crores only)

In the circumstances mentioned above, modified continuous Administrative Sanction is hereby issued for the implementation of the scheme 'Development of Spices' during 2018-19 for an amount of **Rs.900.00 lakhs (Rupees Nine Hundred Lakhs only)**, as per the above statement debiting the expenditure to the head of account 2401-00-108-59 (P) from current year's budget provision. The scheme shall be implemented abiding by the terms and conditions stipulated in the Government Order read above.

The balance provision of **Rs.200.00 lakhs** under the above head of account is proposed to be utilized for providing Assistance for Value Addition Units of Spice Crops for which separate proposal seeking Administrative Sanction shall be submitted to Government.

Monthly progress report should invariably contain component wise physical and financial targets and achievements, number of beneficiaries and the stage of implementation of each component. Since the Government is giving emphasis to women participation and gender budgeting, maximum efforts have to be made to include women beneficiaries in the scheme. The number of women beneficiaries and the amount utilised for such beneficiaries (component wise) should also be separately shown in the monthly progress report.

Sd/-
Director of Agriculture.

Deputy Director of Agriculture (Plg.)

Deputy Director of Agriculture
Directorate of Agriculture
Thiruvananthapuram

To

TD section of the directorate for issue of detailed working instructions

Copy to

TA to Director of Agriculture, CA to All Additional Directors of Agriculture of the HQ, State Agricultural Engineer, Senior Finance Officer for information

IT section of the directorate for posting on the website