

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

(Present : Sunil Kumar.A.M)

Sub: Annual Plan 2018-19 – **Soil and Root Health Management & Productivity Improvement** – Continuous Administrative Sanction accorded – orders issued- reg:

Read: 1) G.O.(Rt)No. 378/2017/AD dated.04.04.2017
2) G.O.(Rt)No. 634/2017/AD dated.23.06.2017
3) Annual Plan 2018-19

Order No. TP(2)7457/2018

Dated: 11.04.2018

Government of Kerala, vide order read 1st above accorded Administrative sanction for the implementation of the scheme, Soil Health Management & Productivity Improvement 2017-18 for an amount of Rs.2210.00 lakhs for components included in the Green Book. Government vide order 2nd above accorded Administrative Sanction for an amount of Rs.415.00 lakhs for the following components.

Sl. No.	Components	Financial Targets (Rs. in lakh)
1	Demonstration on Micro nutrients and Panchayat adoption programme including Soil Health Cards in adopted panchayats excluding manpower component	25.00
2	Awareness programmes, Seminars and Workshops	10.00
3	Maintenance of soil fertility portal, printing of panchayat wise, block wise nutrient management plans reports, cards expert support to IIITMK	30.00
4	Support to secondary and micro nutrients.	250.00
5	Root Health management practices	100.00
	TOTAL	415.00

Objectives

- To create awareness among the farmers regarding importance of soil testing and the nutritional status of the soil
 - To undertake measures for correcting soil acidity
 - Issue and monitoring of Soil Health Cards
 - To undertake measures for correcting secondary and micronutrient deficiency
 - To introduce the concept of Root Health Management
- 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.2833.00 lakhs. Out of this components worth Rs.2340.00 lakhs was included in Green Book 2018-19. An amount of Rs.493.00 lakhs is set apart for Amber Book components, out of which the following components will be continued during 2018-19 abiding by the norms and conditions of the Government Order read 2nd above. An abstract of the details is furnished below.

Sl. No.	Components	Financial Targets (Rs. in lakh)
1	Awareness programmes, Seminars and Workshops	10.00
2	Support to secondary and micro nutrients.	250.00
3	Root Health management practices	100.00
	TOTAL	360.00

Details of the programme are furnished below.

1. Awareness programmes, seminars and workshops (Rs.10.00 lakhs)

Grama panchayat level campaigns in all the districts of Kerala will be organised to make the farming community aware of the importance of soil testing and to collect soil samples for preparation of health cards as the first step. During these campaigns, the service of the mobile soil testing laboratory should be made use of giving some spot results. Special classes will be taken to educate farmers on importance of soil health and benefits of soil testing by different extension methods. This again will be followed by soil testing campaign, collection of soil from farmers' fields, getting them analysed in the departmental laboratories and finally handing over the results of the analysis with the recommendation of fertilizer dosage on the basis of nutrient status of the soil and the crop which is to be grown.

During these campaigns, special attention should be given for emphasizing the need of using soil test based micro-nutrient application for correcting the micro-nutrient deficiency which is a fast spreading problem today. Farmer groups /clubs should be actively involved.

In this context Nutrient Management Seminars will be organised in the district level involving the researchers, progressive farmers, policy makers and extension officials. This seminars are planned to cover the topics such as the use of new generation fertilisers, methods of application, regional disparities in soil nutrient content, new methods of nutrient analysis, the new results in soil test programmes, soil fertility map preparations, new equipments for speedy analysis etc.

It is proposed to conduct 304 soil testing campaigns @ 2 no.s per block to cover the 1076 Krishi Bhavans in the state. An amount of Rs.3250/- is proposed for each seminar and the total amount required is Rs.9.88 lakhs. It is also

proposed to conduct one State level soil Nutrient Management Seminar for which Rs.12000/- is proposed. The budget provision proposed for the above 2 programmes comes to a total **Rs 10.00 lakhs**.

2. Support for secondary and micro nutrients (Rs.250.00 lakhs)

This programme will be implemented to promote the use and application of secondary and micro nutrients for better soil status and crop productivity. Micronutrients Viz. Zinc, Copper & Boron which are notified by the State Government and secondary nutrients Viz Calcium, Magnesium & Sulphur, can be given subsidy under the scheme. The programme will be implemented in 1400 farmer clusters of paddy/vegetable/ coconut/spices. Soil/plant analysis will be undertaken in the field of the farmers involved in these cluster groups. Assistance of Rs.500/- per ha will be provided to farmers and this programmes will be implemented in an area of 50000 ha. An amount of **Rs 250.00 lakhs** is set apart for this component. Out of this, an amount of Rs.200.00 lakhs will be utilised in Kuttanad GAP area and Thrissur Kole lands, based on soil test recommendations. Balance funds will be utilised in other districts.

3. Root health management practices

To meet the ever growing food supply needs and effectively respond to the increasing demand on limited natural resources, new strategies are required to increase yield. Recently, there has been a shift in focus to the importance of roots for plant performance. According to the Food and Agriculture Organization (FAO), top ranked stresses in agriculture include water, soil salinity and soil acidity. These factors all relate to roots and Root Health. Worldwide, more and more research is pointing to root health as the key for future crop productivity improvements. It has been estimated that 80% of all plant problems start with soil/root problems. Increased use of agronomic practices such as no-till and irrigation can increase prevalence of soil-borne diseases, which compromise Root Health. The roots of most plants are prone to attack by pathogenic fungi and nematodes, but the effects of such organisms may go unnoticed unless the attack is sufficiently severe to cause crop failure. The clear link between Root Health and increased yield has been indisputably established through latest researches.

Roots have two main functions, to anchor the plant to the soil and to provide a large surface area – increased by the presence of root hairs – to facilitate the uptake and absorption of water and nutrients. The structure and growth habits of roots have a pronounced effect on the size and vigor of the plants, adaptation to certain soils and response to cultural practices. A new strategy that has recently proven successful is protecting plants from yield-reducing diseases by enabling development of healthier, stronger root systems through seed treatment, thereby helping the plants grow to their maximum genetic potential. Stronger, healthier roots can better uptake water and nutrients,

two of the most critical resources a plant needs. This leads to better crop development at critical early stages and under a wide range of conditions. More robust root systems help produce stronger stems and foliage that better withstand environmental stress, especially in challenging climates. They protect the genetic potential of the crop and, ultimately, lead to improved yield consistency. The success of this strategy makes it more clear that maximizing yield starts and ends with a healthy root system.

Therefore it is proposed to promote cultural practices to support root development and growth like seed treatment using biofertilizers and biopesticides, application of Trichoderma, use of Vesicular Arbuscular Mycorrhiza (VAM), application of Phosphate Solubilizing Bacteria (PSB), Organic manure application, Plant Growth-Promoting Rhizobacteria (PGPR) etc. It is proposed to provide 50% assistance on the cost of inputs for the above practices. The inputs shall be purchased from approved sources like laboratories/farms under Department of Agriculture, Kerala Agricultural University, Central Government Institutions and approved private agencies so that the end users are not cheated through supply of spurious materials. Assistance is proposed as 75% of cost of inputs and the labour charge required for mixing of biofertilizers/biopesticides with suitable medium (eg. Trichoderma with Farm Yard manure/cowdung) and for soil application. **An amount of Rs.40.00 lakhs is proposed for this component.**

It is also proposed to establish onfarm production units of Vesicular Arbuscular Mycorrhizae (VAM) in selected krishibhavans. 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 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/-

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 establish 2 no.s of onfarm production units of VAM in every block (total 304 no.s) of the state. This shall meet the requirement of all gramapanchayats in that block. As the demand increase in future through increased awareness and conviction through use, more such units can be established. **Assistance @Rs.20,000/ per unit is proposed** for establishing a small scale unit. Total financial requirement is Rs.60.80 (rounded to 60.00) lakhs.

Thus a total amount of **Rs.100.00 lakhs** is set apart for the component 'Root Health management'.

Financial Outlay

Amount of **Rs.360.00 lakhs (Rupees Three Crores and Sixty lakhs only)** is required for the implementation of the following components of the scheme 'Soil Health Management & Productivity Improvement during 2018-19' as summerised below.

Sl. No.	Components	Financial Targets (Rs. in lakh)
1	Awareness programmes, Seminars and Workshops	10.00
2	Support to secondary and micro nutrients.	250.00
3	Root Health management practices	100.00
	TOTAL	360.00

(Rupees Three Crores and Sixty lakhs only)

In the circumstances mentioned above, continuous Administrative Sanction is hereby issued for the implementation of the scheme 'Soil Health Management & Productivity Improvement' during 2018-19 for an amount of **Rs.360.00 lakhs (Rupees Three Crores and Sixty lakhs only)**, as per the above statement debiting the expenditure to the head of account **2401-00-800-28 (P)** from current

year's budget provision. The scheme shall be implemented abiding by the terms and conditions stipulated in the Government Orders read above.

The proposal for remaining components worth **Rs.133.00** lakhs shall be submitted to Government seeking Administrative Sanction.

Since agriculture is a season based activity, timely implementation of the scheme has to be ensured by arranging the required inputs in time, especially for Green Book components and this should be reflected in the monthly booking of expenditure from April 2018 onwards.

Monthly progress report should invariably contain component wise physical and financial targets and achievements 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 (Plg.)
Directorate of Agriculture
Trichy, Tamil Nadu

To

TF section of the directorate for issue of detailed working instructions

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State Agricultural Engineer, Senior Finance Officer for information

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