

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

(Present Dr.K.Vasuki. IAS)

Sub: Annual Plan 2021-22 – **Scheme on Soil and Root health management and productivity improvement** – Continuous Administrative sanction accorded – orders issued- reg:

Read: (1) G.O.(Rt) No.251/2019/AD dated.08.03.2019.
(2) Order No.ADFW/507/2020-TP2 dated 08.06.2020
(3) Order No.ADFW/507/2020-TP2 dated 18.08.2020
(4) Annual Plan 2020-21.
(5) G.O.(Rt) No.393/2020/Agri dated.22/4/2020.

Order No. ADFW/3162/2020-TP2

Dated: 23.04.2021

Government of Kerala, have accorded Administrative sanction for the implementation of the scheme '**Scheme on Soil and Root health management and productivity improvement**' during 2019-20 for components included in the Green Book vide reference 1st cited. Continuous Sanction was accorded for the scheme during the financial year 2020-21 vide reference (2) cited.

During the financial year 2021-22, there is a budget provision of Rs.3050.00 lakh for the above mentioned scheme under head of account 2401-00-800-28 (P) with the following components:

Sl. No.	Component	Amount (Rs. in lakh)
1	Soil ameliorants in selected districts	3000.00
2	Support for secondary and micro nutrients and green manure	25.00
3	Root health management	25.00
	TOTAL	3050.00

The components 'Soil ameliorants in selected districts' and 'Root Health Management' are continuing during the current year also. The details are as follows:

1. 'Soil ameliorants in selected districts' (Rs.3000.00 lakh)

Studies have shown that 90% of the soils in the State are acidic with over 50% strongly to extremely acidic. This highlights the need for regular liming practice to the soil especially in post flood scenario. It is proposed to implement the component 'Soil ameliorants in selected districts' with the following objectives.

- To correct this soil acidity (pH) and improve the soil fertility status and thereby the crop productivity.
- To improve the intake of primary, secondary and micro-nutrients by the crops by improving soil health status.
- To sustain good soil health through improved agricultural practices.

Based on the soil test data, as per general recommendation, lime @ 600 kg /ha should be applied to paddy crop. More quantity of lime as per soil test data, if required, can be applied by farmers at their own cost. Assistance @ 75% limited to Rs.5400/ha towards the cost of soil ameliorants including application charge will be provided for paddy crop.

Neutralising value (Calcium carbonate equivalent) of liming materials

Liming materials differ markedly in their ability to neutralize soil acidity. The effectiveness or efficiency of liming material is expressed as calcium carbonate equivalent or neutralising value. Pure calcium carbonate is taken as the standard with a value of 100 per cent. The neutralising value of common liming materials is given in table below. The values mentioned are for pure materials and will change depending on the material. The highest neutralising value for calcium oxide is indicative of its superiority over other liming materials in terms of efficiency to neutralize acidity.

Calcium carbonate equivalent of pure forms of liming materials

Liming materials	Neutralizing value (%)
Calcium oxide	179
Calcium hydroxide	136
Magnesium carbonate	109
Dolomite (Calcium Magnesium carbonate)	109
Calcium carbonate	100
Calcium silicate	86

(Source : Outcome of Soil Based Plant Nutrient Management Plan for Agro Eco systems of Kerala)

This component is intended to be implemented in an area of 55370.3704 Ha covering all districts of Kerala. The farmers who avail assistance from any other scheme for the same purpose will not be eligible for subsidy under this scheme.

An amount of **Rs.3000.00 lakh** is set apart for implementation of this component. The rate of assistance for purchase and application of soil ameliorants like dolomite/lime for one ha of paddy will be maximum of 75% of the total cost limited to **Rs.5400/- per hectare**.

Sl. No.	Item	Area (ha)	Subsidy per ha (Rs.)	Total Assistance (Rs in lakhs)
1	Liming materials	55370.3704	5400	2990.00
	Transportation and handling charges			10.00
				3000.00

(Rupees Thirty crore only)

2. Root health management practices (Rs.25.00 lakh)

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. There has been a shift in focus to the importance of roots for plant performance. According to 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 vigour 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.

- a) Sanction is accorded 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. Assistance @ 50% will be provided for 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 @ 75% for labour charge required for mixing of biofertilizers/ biopesticides with suitable medium (eg. Trichoderma with Farm Yard manure/ cowdung) and for soil application will also be provided. An amount of Rs.10.00 lakh is earmarked for this subcomponent.
- b) Onfarm production units of Vesicular Arbuscular Mycorrhizae (VAM) will be established in selected Krishi Bhavans. 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 and 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 in charge 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.

A total of 75 numbers of onfarm production units of VAM in the state will be established during 2021-22. This shall meet the requirement of all grama panchayats 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.15.00 lakh.**

Thus a total amount of **Rs.25.00 lakh** is set apart for the component 'Root Health management'.

Financial Outlay

An amount of **Rs.3025.00 lakh (Rupees Thirty crore and twenty five lakh only)** is required for the implementation of continuing components of the scheme 'Soil Health Management & Productivity Improvement' during 2021-22 as summarised below.

Sl. No.	Components	Amount after deducting the queue bill (Rs. in lakh)
1	Soil ameliorants in selected districts	3000.00
2	Root Health Management Practices	25.00
	Total	3025.00

(Rupees Thirty crore and twenty five lakh only)

In the circumstances mentioned above, continuous administrative sanction is hereby issued for implementation of ongoing scheme components of the scheme 'Soil and Root health management & Productivity Improvement' during 2021-22 for an amount of **Rs.3025.00 lakh (Rupees Thirty crore and twenty five lakh only)**, as per the above statement, debiting expenditure to head of account **2401-00-800-28 (Plan)** from current years' budget provision of Rs.3050.00 lakh. The scheme shall be implemented abiding by the terms and conditions stipulated in the Government Orders read above.

As per G.O read as reference (5) above, fund allocation for schemes have to be provided AEU wise. Accordingly, implementing sections at the Directorate of Agriculture will provide AEU wise fund allocation while issuing working instructions for the scheme.

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 utilized for such beneficiaries (component wise) should also be separately shown in the monthly progress report.

Sd/-

**DR. K. VASUKI IAS
DIRECTOR**

To

TF Section 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

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Deputy Director of Agriculture (I
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