

TD(1)15222/18

Directorate of Agricultural
Development & Farmers' Welfare
Vikas Bhavan
Dated : 02/05/2018
Email: adaplantprotection@gmail.com

CIRCULAR

Sub : Scheme on Crop Health Management – 2018-19 – Working Instructions for
implementation – orders issued - reg

Ref : 1) G.O.(Rt).No717/17/AD, Thiruvananthapuram dated 21.07.2017
2) Order No.TP(2)7458/2018 dated 14/04/2018

Government, as per G.O 1st cited have accorded sanction for implementation of the scheme on "Crop Health Management" during 2017-18. Vide reference 2nd cited continuous sanction is received for the scheme during 2018-19 of with a budget allocation of **Rs.1648 (Rupees One thousand Six Hundred and Forty Eight Lakhs only)** under head of account **2401-00-107-78 (Plan)**.

Efforts to improve plant health have been evolving with increased understanding of plant ecology and pest management because in spite of success in controlling the crop pests, pesticides adversely affect public health and environment. Residues of pesticides in food crops are often been reported to exceed their acceptable limits. Many new pests which were controlled by their natural enemies present in the ecosystems have assumed the status of the major pests in some regions due to decline in the population of the natural enemies caused by the indiscriminate and excessive use of pesticides. Many interventions are aimed at supporting pest control often relying solely on the application of pesticides or the use of resistant/tolerant cultivars. In the long term this has been shown to be unsustainable as a result of pest overcoming host plant resistance and building up resistance to pesticides or the improper and or excessive use of pesticides with undesirable impact on human and ecosystem. The new approach of plant health management will bring together management towards sustainable ecosystems and people's health through Good Plant Protection Practices (GPPP). The Crop Health Management scheme is an attempt to fill the gaps for evolving sound crop health management strategies and action plan.

The Scheme launched during 2013-14 will be continuing during 2018-19 also with an outlay of **Rs. 1648.00 lakhs** with the following component

Components of scheme for 2018-19

Sl. No.	Components of scheme	Amount (Rs.in Lakhs)
1	Development of pests and disease surveillance system and advisories including use of GPS for pest and disease surveillance	144.80
2	Rodent control	50.00
3	Plant Health Clinics	400
4	Input to farmers @ Rs.500/unit	11.60
5	Printing of crop health advisories and bulletins @ Rs. 10000/month/ clinic	210
6	Development of 9 Parasite Breeding Stations and new Bio control labs	60.00
7	Development of KCPM as an autonomous institution (KIPHM)	100
8	Capacity building in association with NIPHM including PG diploma in plant health management	50
9	Project based support to NIPHM trained officers	100
10	Honorarium to Field Assistants (FAs)	417.60
11	Honorarium to District Plant Health Managers (DPHM)	54
12	Management of wild animal attack in cropped areas through technology support	25
13	Operational support	25
	Total	1648

OBJECTIVES:-

- Development of pests and disease surveillance system,
- Development and use of pests and diseases diagnostic tool kit
- Rodent control measures
- Strengthening of existing Plant Health Clinics & district referral plant health clinics
- Establishment of new Plant Health Clinics in Special Agricultural Zones
- Development of 9 Parasite Breeding Stations and Establishment of two more new Bio control labs
- Strengthening of KCPM
- Capacity building in plant health management by associating with NIPHM
- Project based support to PGDPHM officers
- Management of wild animal attack in cropped areas through technology support.

PROGRAMME:-

The scheme will be implemented during 2018-19 with the following major components.

I. Development of Pests and Disease Surveillance System and Advisories including the use of GPS for pest and disease surveillance (Rs. 144.80 lakhs)

The pest surveillance activities will be implemented in all the 152 blocks, in Krishi Bhavans where plant health clinics are functioning. . The number of surveillance plots will be reduced based on cropping pattern of the selected panchayaths. In addition to the existing 202 clinics, Plant Health Clinics will be established in the newly selected 50 Krishi Bhavans in Special Agricultural Zones. List of Krishi Bhavans will be intimated later. Surveillance plots will be selected in all these 252 panchayaths (existing 202+ 50 new) @ 10 plots per panchayath based on cropping pattern covering paddy, vegetables, coconut, pepper and banana.

Activities envisaged under the component such as surveillance units, training, software development, technical materials, plant health clinics and referral laboratories, community empowerment, farmer field schools, weather database recording and compilation and plant health advisory services will be continued in existing 202 panchayaths and will be implemented in the newly selected 50 panchayaths. In addition to 202 Field Assistants (Pest Scouts) already posted on contract basis, 50 Field Assistants (Pest Scouts) are to be newly appointed in the selected 50 panchayaths for pest surveillance activities.

Technical officers should visit the surveillance units on scheduled days. For paddy and vegetables weekly visit, for banana fortnightly visits and for coconut and pepper monthly visit are to be scheduled. The field assistants (pest scouts) should conduct the visit

as per the schedule and record observations on pest/disease incidence. Observations should be noted in a register to be maintained at Krishi Bhavan level. The field level observations and data collected should be uploaded in the CPSS (Crop Pest Surveillance

System) website through the GPS enabled hand held devices supplied for the purpose. Necessary support / training for uploading the data should be provided by the PGDPHM officers working in the block area. If needed, a district level training can be arranged for the officers in consultation with IITMK.

1) Assistance to surveillance Units (Panchayat) (Rs.25.20 lakhs)

Surveillance units will be established in 252 Panchayaths selected for the project during 2018-19 in farmer's field. The number of surveillance plots will be reduced based on cropping pattern of the selected panchayaths. Two plots each should be selected in the panchayath for the crops paddy, coconut, banana, pepper and vegetables if the area under these crops is above 5 ha. Plot size is 1acre for rice & coconut, 50 cents for banana & pepper and 10 cents for vegetables. Thus total 10 plots can be selected in each panchayath and altogether 2520 plots can be selected from 252 panchayaths in 152 blocks of 14 districts. These 10 plots together will form the surveillance units in each panchayath. Farmers will be provided assistance @ Rs.1000/- per plot. It should be ensured that the pest surveillance activities are undertaken as per schedule and under strict monitoring and evaluation by the district level officers. A separate register should be maintained for the observations recorded with the hand held devices for each crop.

2) Soil testing (Rs.1.50 lakhs)

500 soil samples should be collected from the newly selected surveillance plots from 50 panchayaths@10nos/panchayath based on which advisories are to be issued to farmers. Rs. 300 can be expended for the analysis of each soil sample.

3) Net charges for data uploading using hand held devices (Rs.12.096 lakhs)

The Agricultural Officers and Agricultural Assistants in charge of Plant health Clinics will be provided hand held devices to enable data collection and providing advisories to farmers. For facilitating the uploading of data from field itself, net connection will be allowed for the devices and the net charges will be reimbursed based on actual utilization limiting to Rs.200/- per month to the Agricultural Officers and Agricultural Assistants of 252 Panchayaths where Plant Health Clinics are already established.

4) GPS enabled Hand held devices to newly selected clinics (Rs.15lakhs)

IITM-K is entrusted with the purchase and distribution of 100 numbers of Hand Held Devices for this newly selected panchayaths. The required training will be imparted to the pest scouts and Agricultural Officers of the Krishibhavans concerned regarding the use of Hand Held Devices and the role of various officers and detailed instructions in this regard will be issued by IITM-K. IITM-K will also give refresher trainings to the officers and pest scouts

who were provided with Hand Devices during the previous years. IIIM-K will give a consolidated quarterly report of observations taken.

State level monitoring of CPSS is entrusted with IT Division of the Directorate of Agriculture and the required support will be provided by IIITM-K, for enabling the IT cell to operate the CPSS. IIITM-K should see that all the devices distributed are functioning well.

5) Expenses for Rowing survey (Rs.12.12 lakhs)

In addition to fixed plot survey, rowing survey will be given emphasis covering all the hot spots of pests/ diseases in the block. An amount of Rs 500/- per month can be expended for rowing survey to meet hire charges of vehicle based on actual expenses. The surveillance and rowing survey data will be analysed and monthly reports at district level will be prepared with the help of District Plant Health Managers appointed on contract basis. For analysing the data and preparation of district level reports, the service and technical support of PGDPHM officers should also be utilized.

6) Training – Block (Rs. 30.4 lakhs)

Training at block level is conducted@ 20,000 per training. An amount of Rs.30.4 lakhs for conducting 152 numbers of trainings is earmarked for this component.

7) Training – District (Rs. 4.20 lakhs)

Training at district level is conducted@ 30,000 per training. An amount of Rs.4.20 lakhs for conducting 14 numbers of trainings is earmarked for this component.

8) Travelling expenses (Rs. 35 lakhs)

An amount of Rs. 35 lakhs is earmarked under this component.

9) Printing and publishing district level advisories (Rs. 3.5 lakhs)

For publishing district level advisories based on pest surveillance activities conducted an amount of Rs.25, 000 per district is allotted and total funds earmarked is Rs.3.5 lakhs.

10) Other miscellaneous expenses (MDDT etc.) (Rs.5.784 lakhs)

A Multi-Disciplinary District Team (MDDT) will be constituted with one specialist each from Entomology, Pathology & Soil Science, one representative from Krishi Vigyan Kendra, and one representative from Research Station, Project Director ATMA & Deputy Director (E&T). MDDT proposed as a part of pest and disease surveillance could also be utilized for diagnostic services in Plant Health Clinics and development of advisories. The team will make need based field visit and recommend suitable remedial measures. It can be utilized to meet other miscellaneous expenses including expenditure in connection with field visit, group meetings etc. An amount of Rs. 5.784 lakhs is allotted under this component.

Component wise amount earmarked for implementation of pest surveillance is shown below

Sl No	Activities	Units	Rate	Amount in lakhs	Remarks
1	Assistance to surveillance Units (Panchayat)	2520	1000/-	25.20	@10plots/ panchayat for 252 KBs
2	Soil testing	500	300/-	1.50	50 KBs newly selected (10 Nos per KB)
3	Net charges for data uploading using hand held devices	504 nos	200/- per month for 12 months	12.096	Reimbursement based on actual expenses limiting to Rs.200/- per month to AOs and AAs
4	GPS enabled Hand held devices to newly selected clinics	100 nos	15,000/- per no	15.00	To Agri. Officers and Agricultural Assistants of 50 KBs
5	Expenses for Rowing survey	202 blocks	500/- per month for 12 months	12.12	To meet hire charges of vehicles based on actual expenses
6	Training - Block	152 nos.	20000/-	30.4	1 no per block
7	Training – District	14 nos.	30000/-	4.20	1 no per district
8	Travelling expenses	14 districts		35.00	
9	Printing and publishing district level advisories	14 districts	25000/-	3.50	
10	Other miscellaneous expenses (MDDT etc.)			5.784	
	Total cost			144.80 lakhs	

A total amount of Rs. 144.80 lakhs is earmarked for implementing this component.

2) Rodent Control (Rs.50.00 lakhs)

Rodent control campaign will be continued during 2018-19 also with a budget outlay of Rs. 50.00 Lakhs for conducting 200 campaigns. It should be conducted on a campaign mode covering the whole area (say panchayaths/ municipal wards etc.). Wide publicity should be given and rodent control campaign should be arranged with the involvement of all local self-government institutions, government and non-government institutions & agencies, people's representatives, public organizations, farmers' organizations etc. of the area.

An amount of Rs. 25000/- is earmarked for each rodent control campaign, for the following activities.

Sl. No.	Items	Amount (Rs.)
1	Publicity charges	2000
2	Cost of rodenticides, baiting materials etc.	23000
	Total (for one campaign)	25000
	Total (for 200 campaigns)	50.00 lakhs

3) Establishment of Plant Health Clinics at Panchayath Level and District Referral Plant Health Clinics (Rs.400 lakhs)

In addition to the 202 Plant Health Clinics already established in 152 blocks new Plant Health Clinics will be established in 50 newly selected Krishi Bhavans in Special Agricultural Zone during 2018-19. Tentative constituency wise list of Plant Health Clinics including name of panchayath and block is to be submitted at the earliest in consultation with Peoples representatives.

For establishing new clinics, an amount of **Rs.250.00 lakhs** is set apart @ Rs.5.0 lakhs per clinic.

The guidelines issued vide Circular No. TD (1)19742/14 dated 21/1/15 should be followed for smooth functioning of Plant health Clinics. The service of Field Assistants / Pest Scouts available under the scheme can be utilized for functioning of clinics. The charge of the clinic should be assigned to one Agricultural Assistant and he/she will assist the Agricultural Officer and will be responsible for functioning of the clinic in the absence of Agricultural Officer.

A sign board should be exhibited in front of the clinic for public awareness. The technical materials, equipment and components required for establishing a plant health clinic at the Panchayath level are shown below. Minor variations in the items and costs can be adjusted

by Principal Agricultural officers to suit local requirements within the ceiling limit of Rs.5.0 lakhs / clinic.

Materials and equipment required for plant clinics at Panchayat level

Items	Amount (in Rs)
Magnifiers	15000
pH Meter, salinity, EC box	10000
Insect showcase box, Hand lens	10000
Digital camera	15000
Tablet PC	10000
LCD projector and laptop	80000
Display board	100000
Exhibits	125000
Microscope	40000
Furniture	30000
Miscellaneous	30000
Books, periodicals and journals	20000
Portable PA system	15000
Total	500000

An amount of **Rs. 144.00 lakhs** is set apart for providing additional support including infrastructure support and to meet critical gaps of existing plant health clinics and district referral clinics like maintenance cost, operational cost, charges for mobility and honorarium to Plant Health Specialist to be appointed at District Referral Clinics (4 nos.) @ 25000/- per month on contract basis . The amount will be released as per need.

Out of Rs.400 lakhs earmarked for plant health clinics, an amount of **Rs.5 lakhs** will be used for conducting a survey on existing plant health clinics through the six experts working under crop health scheme engaged as guides for PGDPHM. The support and cooperation of other Agricultural Officers of the block will be ensured by the Assistant Director of Agriculture for the proper functioning of the Plant Health Clinics in the block.

Sl. No.	Component	Rate	Amount
1	New Plant Health Clinics (50 Nos.)	5 lakhs	250 Lakhs
2	Additional support to existing 152 Plant Health Clinics and District Referral Clinics	-	144 Lakhs
3	Survey (Guides of PGDPHM) on existing Plant Health Clinics	-	5 Lakhs
4	Input kits to 200 farmers (pest surveillance units)	Rs.500	1 lakhs
TOTAL			400 Lakhs

4) Input to farmers (pest surveillance units) -Rs.11.60 lakhs

For assisting in pest surveillance activities input kits containing nets, traps etc. as per need @Rs.500/kit will be provided to farmers. Input kits will be given for the already established 2020 units and 500 units of 2018-19. Total fund requirement for the component is 12.60 lakhs. An amount of Rs.11.60 lakh is allotted for giving input kits to 2320 units from this component. Funds for providing input kits for the balance 200 units will be met from the component Plant Health Clinics.

5) Printing of Crop Health Advisories and Bulletins (Rs.210 Lakhs)

An amount of **Rs.210.00 lakhs** is set apart for providing assistance to 202 plant health clinics for printing and publishing crop health advisories/ pest bulletins @ **Rs.10000/ month/ clinic**.

Crop health management advisories should be released in Black & white once in a fortnight and in colour once in a month. It should be distributed to selected progressive farmers, farmer groups, clusters, Padasekhara Samithis, Panchayaths, Co-op-Societies, Agro Service Centres & other need based technology dissemination centres. Special attention should be given to deliver the material in good quality, both in terms of content and printing. Hard copies of the bulletins released should be submitted to the Directorate.

6) Strengthening of Parasite Breeding Stations and Setting up of New Bio control labs (Rs.60.00 lakhs)

There are nine Parasite Breeding Stations in the State engaged in the production of parasitoids of coconut leaf eating caterpillar. The activities of these nine Parasite Breeding Stations will be strengthened during 2018-19. The man power available

at present in these stations is quite inadequate to enhance the activities. The present staff pattern comprises of only one technical assistant and one or two gardener cum lab cleaner. Hence the service of a technically qualified officer with B.Sc. (Agri) and one labourer is proposed in these stations on contract basis with an honorarium of Rs.25000/- per month and Rs.8000/- per month respectively. In addition, action initiated for establishing two Bio Control Labs in Kasargod and Kollam by upgrading parasite breeding stations will also be continued. **An amount of Rs. 60.00 lakhs** is set apart for providing honorarium to contract staff (one technical officer with B.Sc.Ag.) and one labourer), for the purchase of essential items and equipment for the production of bio control agents and other infrastructure development including renovation/ construction of building for the proper functioning of the PBS.

PBS wise activities for 2018-19 is enclosed as Annexure I

7) Strengthening of KCPM as an Autonomous Institution (KIPHM) (Rs.100 lakhs)

The KCPM will be upgraded as Kerala Institute of Plant Health Management (KIPHM) for technical support as an autonomous institution and capacity building. The database on clinics as well as surveillance data and other resource materials will be developed at KIPHM. KIPHM will be strengthened through deployment as well as creation of core posts. The support of NIPHM trained officers will be ensured for the KIPHM. KIPHM will coordinate the pest surveillance activities of the state.

As a part of the initiative to upgrade the Kerala Centre for Plant Health Management (KCPM) Moncompu, Alappuzha into Kerala Institute for Plant Health Management (KIPHM), an amount of Rs. 100.00 lakhs is earmarked to continue the activities of the Centre during 2018-19. This includes pest surveillance, trainings to extension personnels, farmers and labourers, training to Project Director and Agricultural Officers at National Institutes, documentation of pest surveillance activities, printing of leaflets, pamphlets and booklets, maintenance of light traps, forwarding forecast messages to farmers, field demonstrations, providing laboratory and library facilities, contingencies, expenses for pheromone lure production, training to the officers of existing 202 and 50 new plant health clinics etc.

In addition to the above activities, new initiatives will also be implemented during this year which is given as Annexure II

8) Capacity Building in association with NIPHM, including PGDPHM (Rs.50.00 lakhs)

As part of capacity building in association with NIPHM, PGDPHM courses/training on plant health management aspects will be conducted to Agricultural Officers through SAMETI in association with NIPHM, Hyderabad. 30 Agricultural Officers will be trained on Plant Health Management course- PGDPHM Diploma. SAMETI will invite application for enrolling the officers and take necessary actions for the conduct of the course in consultation with NIPHM for the 5th batch. An amount of Rs.50 lakhs is set

aside for the purpose during this years and balance funds if any requested can be met from the funds allotted during 2017-18. SAMETI is also entrusted to conduct short duration courses on Plant Health Management to the officers not having PGDPHM with the funds already available with the SAMETI under the component Capacity building. Suitable training module for the short term course should be prepared by SAMETI in consultation with NIPHM and a copy should be submitted to this office.

9) Project Based support to PGDPHM Officers (Rs.100 lakhs)

The Aim of the project is to adopt sustainable plant health management strategies by the officers in their respective panchayaths/ blocks based on the learnings from the course PGDPHM. The Agro ecosystem Analysis based plant health management with thrust on bio intensive pest management strategies and decentralized bio pesticides and bio control agents will bring together management towards sustainable ecosystems and people's health through Good Plant Protection Practices. Those Krishibhavans or Blocks implementing this model project will become a hub of resources pertaining to ecofriendly farming. There is a huge scope for scaling up of these ecofriendly technologies to other areas in future.

Components of the Project

The components of the project are listed below.

1. Awareness campaign, Trainings and capacity building of farming community for the adoption of sustainable practices.
2. Promotion of Agro Eco System Analysis (AESAs) based Plant health management through FFS.
3. Demonstration on ecological engineering in various crops.
4. Demonstration of natural enemy friendly light traps
5. Establishment of decentralized productions units of any of the following items through SHGs/farmer groups
 - a) On farm production of Trichoderma at farm level or production of Trichoderma using low cost biofermentors and media.
 - b) Mass production of Trichoderma using low cost biofermentors and media.
 - c) On farm production of Entomo Pathogenic Nematodes
 - d) Production of Tricho cards
 - e) On farm production of Mycorrhiza (VAM)
 - f) Mass production Spiders/Reduvids/Bracons
 - g) Fruit fly management-Production of Low cost traps and lures
 - h) Production of Botanical pesticides and growth promoters by SHGs.

6. Strengthening/enhancing the facilities at Plant Health Clinics for the popularization of sustainable agri. practices.
7. Initiation of Plant Health Clinics at Krishibhavans which were not started earlier
8. Establishment of Biopharmacy for the popularization of bio intensive agri. production by Farmer society with stake holders from SHGs
9. Establishment of Ecoshop for the marketing of safe to eat products of farmers by farmer society
10. "Karmasena" / Thozhil sena/Pest surveillance groups for PHM
11. Innovation fund for new ideas on sustainable farming practice

An amount of Rs 7.8 lakhs can be included for all the activities in the above mentioned cafeteria in which an officer can select Rs 5.00 lakhs for implementation as per their local situations and convenience. Some extension components could also be added with the support of other funding sources as well as other extension activities.

10) Honorarium to Pest scouts (Rs.417.60 lakhs)

202 Pest scouts working in the Plant Health Clinics and 50 pest scouts to be posted in the newly proposed Plant Health Clinics will be paid an honorarium of Rs.13,000/month. The pest scouts should conduct fixed plot survey based on visit schedule and also rowing survey at regular intervals, in the remaining Krishi Bhavans of the block.

11) Honorarium to DPHM (Rs.54 lakhs)

District Plant Health Managers posted in the districts and headquarters will be paid an honorarium of Rs.25, 000/month. They will consolidate the progress reports of the scheme, do the documentation works and also give required technical support to the pest scouts.

12) Management of Wild Animal Attack in Cropped Areas through Technology Support (Rs. 25 lakhs)

The farmers residing in the forest bordering areas are facing serious threats from wild animals. Presently elephants cause great amount of damage to field crops. Farmers use indigenous as well as technical methods to minimise the damages. Construction of trenches and electric fences is the common practice. But these methods are less effective. Bee hive fencing is a new method adopted to prevent the entry of elephants.

Other successful local systems and practices prevalent for protection against wild animals and birds practiced in Pazhayannur (Thrissur district) and Attapady (Palakkad district) will be assisted on a project mode. **An amount of Rs.25 lakhs is earmarked for technology support against wild animals and birds.**

13) Operational Support (Rs. 25 lakhs)

It is proposed to provide assistance for meeting the expenses in connection with the effective implementation of the project including expenses of review meetings, cost of fuel, hire charges of vehicles, purchase and repair of equipment and provision to meet other contingencies etc. Out of **Rs.25 lakhs** set apart for the component, **Rs.22.40 lakhs** is ear marked for the 14 districts and **Rs.2.60 lakhs** will be set apart for the headquarters to meet the expenses of meetings, purchase of computers and accessories, printers etc. and to meet other expenses in connection with implementation of the scheme. In Krishibhavans not having Plant Health Clinics, the operational cost can also be utilized for setting up primary/mini Plant Health Clinics, with the technical support and guidance of the PGDPHM officers.

IMPLEMENTATION OF THE PROJECT

The Deputy Director of Agriculture (E& T) should take a lead role in implementation of the scheme at district level. A minimum of one plant health Clinic should be visited by DDA (E & T) per month and detailed report to be submitted to this office. Monthly review meetings should be conducted to monitor the scheme. A minimum of 10 days field visit focusing on Plant Health clinics should be assigned to DPHM for which a visit schedule is to be prepared and it should be monitored by DDA (E & T).

Principal Agricultural officer will coordinate all the activities at the district level for the effective implementation of the project. Block and panchayat level physical and financial targets should be submitted soon after the receipt of the circular.

At the state level the Additional Director (CP) will be in charge of the project. The multi institutional project will be coordinated by Chief (Agriculture), State Planning Board.

An Expert Committee headed by Dr.C.K. Peethambaran, former Director of Research, KAU will guide the whole project on Plant health management. Dr.Nalina Kumari, former Professor of Entomology of KAU, Dr. Reghunath, former Professor of Entomology of KAU and Dr.Joseph, former Professor of Plant Pathology of KAU are members of the expert committee.

REPORTING

Principal Agricultural officers should furnish monthly progress report to the Director of Agriculture on 5th of every month.

FINANCIAL OUTLAY

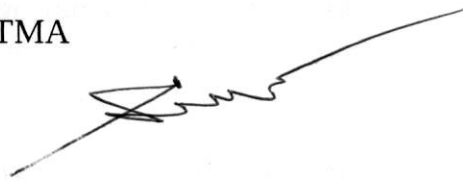
The total financial outlay of the project is **Rs.1648.00 lakhs** and the amount can be met from the provisions under the head of account **2401-00-107-78 (P) of Crop Health Management Scheme during 2018-19.**

2/5/18

Sd/-
Director of Agriculture

To

All Principal Agricultural Officers and Project Directors, ATMA
Director, SAMETI
Project Director, KCPM, Moncompu
Director General, NIPHM, Hyderabad
Director, IIITM-K
SFAC, Thiruvananthapuram


**JOINT DIRECTOR OF AGRICULTURE (PP)
DIRECTORATE OF AGRICULTURE
VIKAS BHAVAN, TRIVANDRUM**

Copy to

1. TA to Director of Agriculture
2. CA to all Additional DAs
3. All JDAs at HQ / SFO
4. Finance section
5. Planning section
6. SW Section
5. Stock file/Spare
6. IT Cell for publishing in web site

Annexture I

PBS wise activities for 2018-19

PBS, Thiruvananthapuram

The Parasite Breeding Station in Thiruvananthapuram district is functioning in lab complex at Parottukonam and is engaged in the production and release of parasitoids coconut leaf eating caterpillar for the last 43 years. In order to strengthen the activities following items are proposed for which an amount of **Rs.8.20 lakhs** is set apart.

Sl No	Item	Amount in lakhs
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3
2	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	0.20
3	Extension and renovation of existing building.	5.00
	TOTAL	8.2

PBS, Kollam

The Parasite Breeding Station in Kollam district is now functioning temporarily along with the Agmark Grading Lab since the construction work of PBS building is yet to complete. In addition to the production of parasitoids of coconut leaf eating caterpillar, the station has started production of Trichocards against stem borer and leaf roller of paddy during last year. Since the local requirement of Trichocards is increasing, it is proposed to continue the production during 2018-19 for which an amount of **Rs.7.10 lakhs** is set aside as shown below

Sl.No	Item	Amount in lakhs
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
2.	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	4.10
	TOTAL	7.1

PBS, Alappuzha

It is proposed to start the production of trichocards for the control of leaf roller and stem borer of paddy during 2017-18 for which an amount of **Rs. 3.20 lakhs** is set apart.

Sl No	Item	Amount in lakhs
1	Honorarium of Technical Officer @ Rs.25000/- per month (1x25000x12)	3.00
2	Operational support to Parasite Breeding Station	3.20
	TOTAL	3.20

PBS, Kottayam

Parasite Breeding Station , Kottayam now engaged in the production of parasitoids of coconut leaf eating caterpillar is proposed to switch on to the production of various bio control agents of local importance based on need. The station will start functioning in the new building constructed at Kozha with a mission to start production of Trichocards, pheromone traps for vegetables & mango, and production of bio control agents like Trichoderma, Verticillium and Beauveria during 2018-19. To achieve the above goals, an amount of Rs.4.05 lakhs is set apart.

Sl.No	Item	Amount in lakhs
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
3.	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	1.05
	TOTAL	4.05

PBS, Ernakulam

Parasite Breeding Station, Vyttila is at present functioning in a single temporary room at AUWM Market, Maradu. The staff strength comprises of one Agricultural Assistant and two Gardener cum lab cleaners. Laboratory facilities are there but the space availability is very less. The main requirement is a laboratory and office building for the functioning of Parasite breeding station. Proposal under RKVY for construction of lab complex at AUWM market premises to accommodate District Soil Testing Lab, State Agmark Grading Lab and Parasite breeding station has been submitted to SLSC. In addition to production of parasitoids of coconut leaf eating caterpillar, it is proposed to continue the production of pheromone traps and to start the production of Trichoderma and coir pith compost during 2018-19 for which an amount of **Rs.5.25 lakhs** is kept aside.

Sl No	ITEM	AMOUNT(IN LAKHS)
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
2	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	0.25
3	Fencing & Gate	2
	TOTAL	5.25

PBS, Thrissur

The Parasite Breeding Station at Thrissur will restart its functioning in the new constructed building in the premises of Coconut Nursery, Irinjalakuda. In addition to the production of parasitoids of coconut leaf eating caterpillar, it is proposed to start the production of Trichocardi for the control of pests of paddy during 2018-19. An amount of **Rs.9.01 lakhs** is set apart during 2018-19 for the production of parasitoids and Trichocardi during 2018-19.

Sl. No	Item	Amount required in lakhs
1	Honararium of technical officer @ Rs.25000/- per month for 12 months	3.00
2	Honorarium of labour@8000 for 12 months	0.96
3	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	3.05
4	Tress work (reconstruction of PBS Building rough details estimate not taken by the engineer)	2.00
	TOTAL	9.01

PBS, Malappuram

The Parasite Breeding Station in Malapuram district is functioning at Coconu Nursery, Parappanangadi. The main activities are production and release of parasitoids of coconu leaf eating caterpillar. Along with this, it is proposed to produce Trichoderma and pheromon traps during 2018-19 for which **Rs. 6.00 Lakhs** is set apart.

Sl.No	Item	Amount required in lakhs
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
3	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	3.00
	TOTAL	6.00

PBS, Kozhikode

Parasite Breeding Station is functioning in the newly constructed building in Veng market and an amount of **Rs. 5.30 lakhs** is set apart during 2018-19 as shown below.

Sl.No	Item	Amount in lakhs
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
2	Honorarium of labour@8000 for 12 months	0.96
3	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	2.00
	TOTAL	5.96

PBS, Kasargod

Parasite Breeding Station is functioning at State Seed Farm, Kasargod. Under Crop Health management scheme, it was proposed to develop this station as a bio control lab for the production of major bio control agents. As part of this, the station is already equipped with good building and equipment for the production of *Pseudomonas*. The station is still continuing with the production of parasitoids for the control of leaf eating caterpillar of coconut and pheromone traps for cucurbits & mango. In addition to this, it is proposed to start the production of major bio control agents like *Pseudomonas*, *Trichoderma* etc. and bio fertilizers for which an amount of **Rs.11.23lakhs** is set apart during 2018-19 as shown below.

Sl.No	Item	Amount required
1	Honorarium of technical officer @ Rs.25000/- per month for 12 months	3.00
2	Honorarium of labour@8000 for 12 months	0.96
3	Operational support to Parasite Breeding Station. (Cost of chemicals, other inputs, equipment & infrastructure etc.)	7.27
	TOTAL	11.23

ABSTRACT

SI No	Name of Parasite Breeding Station	Amount in lakhs
1	PBS , Thiruvananthapuram	8.20
2	PBS, Kollam	7.10
3	PBS,Kottayam	3.20
4	PBS, Alapuzha	4.05
5	PBS,Ernakulam	5.25
6	PBS, Thrissur	9.01
7	PBS, Malapuram	6.00
8	PBS, Kozhikode	5.96
9	PBS, Kasargod	11.23
	TOTAL	60

Annexture II

Strengthening of KCPM as an autonomous institution (KIPHM) (Rs.100 lakhs)

Capacity Building Programmes (Rs.3.5 lakhs)

There is a central Plant health clinic lab at KAU Vellyani with all the modern instruments for plant and soil health analysis. A specialized 3 day residential training programme on Plant health diagnosis and latest identification and preservation techniques of pest and diseases will be provided to Agricultural officers, Agricultural assistants, farmers, labourers etc. at KAU.

Production of bio inputs with collaboration of NBAIR, Bangalore (Rs. 5.00 lakhs)

Army worm infestation was severe in Kuttanad region during last crop season. A team of scientists from NBAIR, Bangalore (National Bureau of Agricultural Insect Resources) have visited the affected area and agreed upon for the development of NPV formulations for the control of Spodoptera sp. It is proposed to implement a project for the Development and promotion of bio inputs with technical collaboration of NBAIR, Bangalore as a step towards ecofriendly pest management strategy. The estimated cost of the project is Rs. 5.00 lakhs.

Field demonstration of pesticide and micro nutrient foliar application using Unmanned Aerial Vehicle (UAV) (Rs.1.0 lakh)

Spraying operations are becoming very costly due to exorbitant labour cost. Efficiency of spraying is also not satisfactory due to unscientific way of doing the operations. Automation using drones will enhance the efficiency level. Technologies are available for the automation of these operations using drones and ULV sprayers using less than 7 liters of spray volume per acre. Foliar application of micro nutrients is also possible with 200% efficiency than conventional application. It is proposed to conduct field level demonstration of foliar application using UAVs in rice fields for which Rs.1.0 lakh is set apart.

Development of Surveillance and Mapping System (12.5 lakhs)

For studying and archiving the incidence of invasive and exotic pests and diseases, its seasonal variation, spreading pattern, defender dynamics, host specificity etc., and to develop a network for digital accessibility, funds are provided under the scheme.

Many invasive and exotic pests are reported in Kerala recently but its spread, intensity of damage, host specificity etc. is not known. A data base in this regard is needed for development of management strategies. This project will be implemented with the support and coordination of NIPHM trained officers in each district and the data will be updated through common networks for accessibility to all.

In order to implement the activities mentioned above, a Lab Assistant will be appointed on contract basis with a honorarium of Rs.25000/- per month for close supervision and production of various bio inputs in addition to 12 pest scouts and one technical staff already sanctioned under the scheme.

It is also proposed to include provision for meeting travelling expenses since the officers have to travel extensively for conducting training to plant health clinics, attending MDDT and to national institutions like IICT, Hyderabad and NBAIR, Bangalore regarding technology transfer and the coordination of the collaborative works.

A drone based surveillance system for mapping and assessing plant health will also be implemented with a budget allocation of Rs. 10 lakhs.

Financial outlay for Plant Health management and surveillance activities during 2018-19

Kerala Centre for Pest Management Moncompu, Alappuzha

Sl.No	NAME OF COMPONENT	Amount (Rs.In lakhs)
1	Pest Surveillance Monitoring and Capacity Building in Crop Health Management	
1	Emoluments for Scouts 12 persons @ Rs.10000/month for 12 months plus motor vehicle/computer/data allowance@Rs.5000/-per month for 12 months.	21.60
2	Salary for technical staff @ Rs.25000/month for 12 months	3.00
3	POL	3.00
4	Travelling allowance for officers	3.00
5	Hiring of Taxi for official trips	2.00
6	Training to extension officers (Agricultural Officers, Agricultural Assistants) 5 nos @ Rs.20000/- min. participants 30	1.00
7	Training to farmers (KB Level – 40 no.s), 30 participants @Rs.5000/- per training	2.00
8	Training to spraying labourers 10 no.s @ Rs.5000/-	0.50
9	Documentation of surveillance activities-charts, video, photos archieving etc.	0.50
10	Production of leaflets pamphlets etc, on various aspects pest, disease, nutrient management etc.	1.00

11	SMS service to officers and farmers as advisory	1.00
12	Operational cost for surveillance activities	2.00
13	Incentive to farmers for maintenance of light traps and electricity charges @ Rs.2000/- for 12 no.s for two seasons	0.48
14	Unforeseen expenses for meeting contingencies	1.31
II	Bio input laboratory	
15	Salary to Lab assistant @Rs.25,000/- per month	1.2
16	Rent of building @ 5,000/- month for 12 months	0.60
17	Electricity charges @ Rs.8,000/- bi monthly for 6 times & Water charges	0.80
18	Cost of lure- for stem borer	5.00
19	Cost of dispensers	4.00
20	Cleaning charges for lab (12 months * 40000)	0.48
21	Cost of Lab chemicals, nitrogen gas, Nitrogen Cylinder, packing cases bottles, packing pouch, other contingencies etc.	5.00
22	Production of Trichogramma egg cards	1.50
23	Maintenance of an insect zoo for training purposes pertaining to the training conducted at the Model clinic of KCPM	0.50
24	Provision for showcasing the Centre on selected national or international trade fares and exhibitions	2.50
25	State level orientation programme of officers in charge of 252 Plant Health Clinics	2.50
26	Certificate training programmes on production of bio pesticide, bio control agents and parasitoids and predators includes honorarium, food expense for trainees and purchase of training inputs like mother culture, covers ,bottles, utensils etc.	1.50

27	Specialised residential training programme on Plant health diagnosis, latest identification and preservation techniques of pest and diseases to selected 15 Agricultural Officers at KAU Vellayani Crop Health Laboratory @Rs.30,000 per individual *15nos.	10
	RESERCH BASED PROJECT PROGRAMMES	
28	Production of bio inputs with collaboration of NBAIR Bangalore	5.00
29	Field demonstration of Use of UAVs for pesticide and micro nutrient and foliar application including chemicals	1.00
30	Development of Surveillance and mapping system for study and archiving the incidence of invasive and exotic pests and diseases its seasonal variation, spreading pattern, defender dynamics host specificity etc., inclusive a network development for digital accessibility	2.5
31	Drone based surveillance and mapping for assessing the plant health	10
32	Air-conditioning of existing jeep and new jeep parking shed	2.00
33	Contingencies and other miscellaneous and operational expenses	2.84
	GRAND TOTAL	100

Annexure III

Cafeteria of activities on Project Based support to PGDPHM Officers and the details of 4th batch (2016-18) PGDPHM Officers implementing this component during 2018-19

9) A) Awareness Campaigns, Trainings and Capacity Building for farming community for the adoption of sustainable practices

Awareness Campaigns can be organised on various ecofriendly pest management and soil health and plant health aspects so as to reduce the use of chemical pesticides and to adopt sustainable scientific management and cultural practices. To make aware the farmers about various Bio control agents and conservation of natural enemies and IPDM and INM aspects and its applications in the field, awareness campaigns and trainings can be conducted.

Awareness Campaigns, Trainings, and Capacity Building Programmes

Sl. No	Component	Phy	Fin
1	Awareness campaigns @ Rs 500/-	5	Rs 2500/-
2	Trainings @ Rs 5000/-	4	Rs 20000/-
3	Capacity Building Programme @ Rs 5000/-	4	Rs 20000/-
	TOTAL		Rs 42500/-

9) b) Promotion of AESA based Plant Health Management through FFS.

AESA (Agro Ecosystem Analysis) based plant health management is a learner-centered approach which emphasizes that adult learning can be optimized when the learner is put in control of his or her learning and that trainers should act as facilitators and not as teachers. AESA can be gainfully employed during Farmers Field School to analyse field situations with regard to pests, defenders, soil conditions, plant health, the influence of climatic factors and their interrelationship for growing a healthy crop. Such a critical analysis of the field situations at least once in a week will help in taking appropriate decision on management practices. In AESA, decisions are taken by farmers after field observation, AESA chart preparation followed by group discussion This will help in the reduction of chemical pesticides and conservation of integrity of the Agro-Ecosystem.

AESA based Plant Health Management

Sl. No	Component	Phy	Fin
1	AESA based plant health management programme through Farmers Field School @ Rs 38414/-	1	Rs 38414/-
	TOTAL		Rs 38414/-

9) c) Demonstration on Ecological Engineering in various crops.

Ecological engineering for pest management is a new paradigm which is gaining acceptance as a strategy for promoting bio-intensive pest management. It is actually the habitat manipulation so as to enhance biological control. Demonstrations of ecological engineering in Paddy, Vegetables, Banana can be conducted in farmers field so as to popularise this technology among other farmers.

Demonstrations on Ecological Engineering

Sl. No	Component	Phy	Fin (Rs)
1	Demonstration on ecological engineering in any of the crop Paddy, Vegetables, Banana @ Rs 10000/demonstration	2 demonstrations	Rs 20000 /-
	TOTAL		Rs 20000/-

9) d) Demonstration on Natural Enemy friendly Light Traps in field

NIPHM has popularised natural enemy friendly light traps for the monitoring and mass trapping of insect pest which are safe on beneficial insects. This light traps can be demonstrated in pest surveillance fixed plots so that monitoring of pests become easy which can be managed by the farmers.

Demonstrations on Natural Enemy friendly Light Traps

Sl. No	Component	Phy	Fin
1	Demonstration on natural enemy friendly light traps in pest surveillance plots of paddy, vegetables and banana. @ Rs 2000/-demonstration	6 demonstrations	Rs 12000
	TOTAL		Rs.12000

9) e) Establishment of Decentralized Productions Units of any of the following items through SHGs/farmer groups

The requirement for quality bio control agents are increasing day by day. This problem can be overcome by decentralizing the production of bio control agents and bio pesticides by setting up of units for mass production at farm level. Farmer groups can be formed or existing ones can be effectively trained for on farm production of quality bio control agents and bio pesticides for their own use.

- **On farm production of Trichoderma at farm level or production of Trichoderma using low cost biofermentors and media.**

Training can be given to farmers or farmer groups or SHGs for the on farm production of Trichoderma at farm level so as to enhance the use of biopesticides.

Onfarm Production of Trichoderma at Farm Level

Sl No	Item	Quantity	Rate	Amount
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	Absorbent cotton	1 bundle	200	200
7	Nonabsorbent cotton	1 bundle	150	150
8	PVC pipe pieces for making plugs			100
9	Rubber band			100
10	Packaging bags			1000
11	Spirit lamp/ candle	1 no	100	250
12	Miscellaneous if any			1500
	Grand Total			20000

- **Mass Production of Trichoderma using Low Cost Biofermentor and Media.**

Trichoderma can be produced in a huge quantity at panchayat level by registered farmer groups or SHGs using low cost biofermentor and media developed by NIPHM, Hyderabad. Mass production at farm level by farmer groups or SHGs will help timely availability of the required quantity of quality biopesticides at panchayat level or block level.

Expenses for the mass production of Trichoderma using low cost biofermentor & media

Sl No	Item	Quantity	Rate	Amount
1	Low cost biofermentor for the production of trichoderma by NIPHM	1	Rs 50000/-	50000
2	Cost of media	100 litres	Rs 8/litre	800
4	Plastic trays	10	70	700
5	Autoclavable bags	100 nos	4/bag	400
6	Absorbent cotton	1 bundle	200	200
7	Nonabsorbent cotton	1 bundle	150	150
8	PVC pipe pieces for making plugs			100
9	Rubber band			100
10	Packaging bags			200
11	Spirit lamp	1 no	350	350
12	Miscellaneous if any			1000
	Grand Total			54000

- **On farm production of Entomo Pathogenic Nematodes**

The Entomo pathogenic nematodes can be mass produced using *In vivo* culture methods. *In vivo* production is a simple process of culturing specific EPNs in live insect hosts which requires less capital and technical expertise. Farmers or farmer groups can produce EPNs using this technology.

Expenses for the Mass Production of EPN's using *in vivo* culture methods

Sl No	Item	Quantity	Rate	Amount
1	Mass rearing of <i>Corcyra cephalonica</i>			5000
2	Petri dishes	10 nos	Rs 100/no	1000

3	Filter papers	100 nos	LS	500
4	Convex glass	10 nos	LS	1000
5	Plastic tubs	10 nos	LS	500
6	Trays	10 nos	LS	300
7	Sponges	100 nos	LS	500
8	Packaging bags	100 nos	LS	200
9	Miscellaneous if any	LS	LS	1000
	Grand Total			10000

- **Production of Tricho Cards**

Trichogramma are egg parasitoids of lepidopteran pests. It is important for plant protection because of its wide spread natural occurrence and its success as biological control agent by mass rearing. Farmer groups and SHGs can produce trichocrads at farm level for their own use or neighbouring farms.

Expenses for the production of trichocards

Sl No	Item	Quantity	Rate	Amount
1	Mass rearing of <i>Corcyra cephalonia</i>			5000
2	Trays	10 nos	LS	500
3	Ovipositional cages	3 nos	LS	2000
4	Plastic tubs	10 nos	LS	1000
5	UV Sterilisation chamber	1 no	3500	3500
6	Cards			500
7	Plastic covers	100 nos	LS	500
8	Gum arabic		LS	500
9	Vials	100 nos	LS	500
10	Nucleus cards	50 nos	LS	500
11	Refrigerator	1 no	LS	8000
12	Miscellaneous			2500
	Grand Total			25000

- **Mass Production of Spiders/Bracons/Reduvids**

Spiders and reduvids are the predators and Bracons are the larval parasitoids which can be very effectively used for the biological control of insect pests in sustainable farming practices. Farmers and farmer groups can mass produce these predators at their farms and used for biological control of insect pests.

Expenses for the mass production of spiders/reduvids/bracons

Sl No	Item	Quantity	Rate	Amount
1	Mass rearing of <i>Corcyra cephalonica</i>			5000
2	Petri dishes	10 nos	Rs 100/ no	1000
3	Filter papers	100 nos	LS	500
4	Plastic bottles	10 nos	LS	1000
5	Plastic tubs	10 nos	LS	500
6	Trays	10 nos	LS	300
7	Vials	100 nos	LS	500
8	Miscellaneous if any	LS	LS	1200
	Grand Total			10000

The mass production of each natural enemy costs around Rs. 10,000 and altogether Rs 30000/- is earmarked under this head.

- **On Farm Production of Mycorrhiza (VAM)**

Mass production of Mycorrhiza (VAM) can be taken up by the individual farmer or farmer groups. On farm production of VAM is economically and environmentally beneficial and more area can be covered with less use of chemical fertilizers.

Expenses for the Mass Production of Mycorrhiza (VAM)

Sl No	Item	Quantity	Rate	Amount (Rs)
1	Plastic pots of medium size	100 nos	50	5000
2	Starter inoculum	200 g	1000/ 200 g	1000
3	Seed material of rice/ragi/maize/sorghum	250 g		100
4	Carrier material- vermicompost	500 kg	Rs 12/kg	6000
5	Labour charges	10 mandays	Rs 500/ manday	5000
6	Miscellaneous			2900
	Grand Total			20000

- **Fruit Fly Management- Production of Low Cost Traps and Lures**

Fruit flies are responsible for 20-40% loss of fruits and vegetables. Control by pesticides is very costly and not safe to consumers. Sex pheromones such as ME Lure can be used for mango fruit fly and Cue lure can be used for melon fruit fly for the control of fruit flies. A farmer or farmer groups/SHGs can produce lures and traps at very low cost. One bottle trap may cost around Rs 35/no. Used plastic bottles of 1 litre capacity can be used for making traps by fixing lures.

Expenses for the production of low cost traps and lures for the control of fruit flies

Sl No	Item	Quantity	Rate	Amount
1	Ethyl alcohol/ Rectified spirit	5 litres	Ls	5000
2	Cue lure	1 litre	Ls	1000
3	Methyl Euginol	1 litre	Ls	1000
4	Malathion/DDVP	500 ml	Ls	500
5	Cotton threads	Bulk	Ls	200
6	Copper wire		Ls	100
7	Beakers	10 nos	Ls	600
8	Aluminium foil	1 no	Ls	200
9	Mask and Glouse		Ls	400
10	Miscellaneous			1000
	Grand Total			10000

- **Production of Botanical Pesticides and Growth Promoters by SHGs**

Botanical pesticides have lesser risk of pest developing resistance when used in natural form and are less hazardous to non- target organisms. They are easily available and less expensive because of their natural occurrence in our habitats. Farmer groups or SHGs can be trained for the production of these botanicals and other growth promoters such as Fish Amino Acid, Panchagavya, Beejamritam, EM solution etc. so that natural products can be made available for crop production reducing the use of chemical fertilizers.

Expenses for the Production of botanical pesticides and growth promoters by SHGs

Sl. No	Component	Quantity	Amount (Rs)
1.	Production of botanical pesticides	1 no	Rs 5000/-
2.	Production of growth promoters	1 no	Rs 5000/-
	Grand Total		Rs 10000/-

9) f) Strengthening of Plant Health Clinics for the Popularization of Sustainable Agricultural Practices.

The plant health clinic is now acting as an extension tool for providing quality services through various activities at clinic level and at field level. The farmers are very much convinced about the need of plant health clinic which provides them a sustainable solution to their farming activities. The activities and outreach activities should be more strengthened to extend the plant health clinic as a total solution to our plant health system. There is an urgent need to conduct weekly plant health camp at clinic. Moreover during cropping seasons, mobile clinic can also be organized which would have more impact among farmers. The technology for preservation of diseased specimens should be upgraded. Monitoring and recording of weather parameters is very much important for forecasting pest and diseases from the clinic. The Clinic should become a technology hub for all farmers, from which various trainings on Eco friendly technologies can be organized to farmers at regular intervals. Leaflets /pamphlets on plant health series can also be printed and distributed to farmers visiting the clinic.

An amount of Rs.1.50 lakh is earmarked for strengthening or enhancing/upgrading the facilities at Plant Health Clinic already established at Krishi Bhavans. The amount can be varied since the requirement of Plant Health Clinics varies from localities.

Expenses for strengthening/enhancing the facilities at Plant Health Clinic

SI No	Items	Quantity	Rate	Amount (Rs)
1	Enhancing diagnostic facilities at PHC			
a	Leaf Colour Chart	100 nos	LS	1000
b	Digital Camera with macrolens facilities for taking photographs of small insects including beneficial insects	1	Ls	25000
	Specimen bottles and pouches, brush and specimen bag		LS	2000
c	Rapid soil testing kits	1 no	Ls	2500
d	Thermometer/Lux meter/Thermo hydrograph	1 no	LS	10000
e	Moisture meter	1 no	Ls	15000
f	Miscellaneous		Ls	2500
	Sub Total			58000

2	Culturing and Preservation of fungal pathogens and to enhance the quality of preservation of specimens (deficiency symptoms/weeds/affected plant parts etc.) at PHC			
1	Hot air oven	1 no	Ls	10000
2	Refrigerator with stabiliser	1 no	Ls	10000
3	Bunsen Burner	1 no	Ls	1000
4	Inoculation hood with uv attachment	1 no	Ls	7500
5	Glass wares and vessels	1 no	Ls	2500
6	Pressure cooker	1 no	Ls	5000
7	Laminated specimens of plant parts		Ls	3000
8	Miscellaneous			3000
	Sub Total			42000
3	Printing of leaf lets on AESA based plant health management, Ecological engineering practices, on farm production of biopesticides and bio control agents and other ecofriendly package of practices in Malayalam and distributing to farmers during their visit to PHC		Ls	25000
4	Upgrading the PHC as a training centre to farmers		Ls	25000
	Grand Total			150000

9) g Initiation of New Plant Health Clinics at Krishi Bhavans where clinics are not started.

A Plant Health Clinic is proposed at Krishi Bhavans in which officers are attending PGDPHM programme to provide information regarding sustainable agricultural practices and to apply scientific expertise to solve problems in agriculture and saving their crops from ravages of pests and diseases through timely diagnosis and remedial measure. The basic facilities such as diagnostic and providing advisories is proposed in those Clinics.

Expenses for Initiating Plant Health Clinic in Krishi bhavans

Sl. No	Items	Quantity	Amount
1	Magnifiers	1	5000
2	pH Meter, salinity, EC box	1	8000
3	Insect showcase box, Hand lens	1	5000
4	Digital camera	1	25000
5	Display board	Ls	10000
6	Exhibits	LS	10000
7	Microscope	1	20000
8	Furniture	LS	7000
9	Miscellaneous	LS	5000
10	Books, periodicals and journals	LS	5000
	Grand Total		100000

9) h) Establishment of Biopharmacy for the popularization of Bio Intensive Agri. Production by Farmer Society with stake holders from SHGs.

At Biopharmacy farmers are able to get firsthand information on various botanicals, bio control agents and new generation pesticides so as to adopt safe to use agricultural practices. An array of products ranging from tobacco decoction to pheromone traps, bio pesticides to botanicals and growth promoters and many of the new generation products will be available to farmers at reasonable rate from Bio pharmacy. The organic products such as Fish Aminoacid, Panchagavyam, EM Solution, Traps, Botanicals, Neem products, Biocontrol agents such as Pseudomonas, Trichoderma, Beauveria, Verticillium, Trichocards etc. will be available to farmers on time at cheap rate. Biofertilisers such as Azospirillum, Rhizobium, VAM, Mycorrhiza, and soil ameliorants such as Dolomite and Lime and micronutrients such as Borax, vegetable mixture, banana special, micronutrient mixtures etc. will also be available in the Biopharmacy. The Agro Bio pharmacy offers organic and safe to use substitutes to toxic chemicals.

Expenses for establishing Biopharmacy by farmer groups or SHGs

Sl. No	Component	Quantity	Amount (Rs)
1.	Establishment of Biopharmacy	LS	50000/-
	Grand Total		Rs 50000/-

9) i) Establishment of Ecoshop for the marketing of safe to eat products of farmers by farmer society

Pesticide poisoning and contamination of food products with pesticides are the common issues found nowadays. In order to get good quality safe to eat food products,

cultivation practices should be environmental friendly. The growing demand for safe to eat products will help both the consumers and producers in the locality. The products produced in panchayths will be available to consumers through the Eco shop. This will in turn help to encourage the production of safe to eat or organic products. The basic concept of sustainable agricultural practices will become sustainable only when the producers get reasonable price for their produce. The excess quantity will be traded to other areas also. Hence it is very essential that an Eco shop should be formed by the farmer cooperatives or apex body of SHGs in the panchayath where, sustainable plant health management strategies are adopted. The farmers who are cultivating organic and safe to eat products are enrolled in the Eco shop society for the procurement of products. The executive committee formed will be in charge of day to day procurement and marketing activities of the Society.

An amount of Rs 1 lakh is earmarked for establishing Ecoshop for the marketing of safe to eat products of farmers by farmer cooperatives or society.

Expenses for the establishment of Ecoshop for marketing of safe to eat products

Sl No	Item	Quantity	Amount (Rs)
1	Infrastructure facilities for the Ecoshop	Ls	20000
2	Weighing balance -manual for procurement and electronic for print bills and sale of products	Ls	25000
3	Crates, trays, baskets, cartons etc.	Ls	10000
4	Account books for accounting	Ls	5000
5	Furniture such as Table, chair, racks etc.	LS	20000
6	Operational expenses	Ls	20000
	Grand Total		100000

9) j) "Karmasena"/Thozhilsena / Pest Surveillance Groups for PHM

Karmasena/Thozhilsena or pest surveillance groups have to be strengthened in possible areas so as to strengthen the plant health system of the panchayat. An amount of Rs.50000/- is earmarked for this purpose.

9) k) Innovation Fund for new ideas on Sustainable Farming Practices

An amount of Rs.50000/- is ear marked for implementing innovative ideas based on local needs and situations based on the proposal submitted by the Agricultural Officer .

Component wise break up of fund for the Adoption of Sustainable Plant Health Management Strategies for crop production through Post Graduate Diploma in Plant Health Management (PGDPHM) Kerala Batch 2016-18

Sl. No	Component	Amount (Rs. in lakhs)
1	Awareness campaign, Trainings and capacity building of farming community for the adoption of sustainable practices.	0.425
2	Promotion of AESA based Plant health management through FFS.	0.38414
3	Demonstration on ecological engineering in various crops.	0.20
4	Demonstration of natural enemy friendly light traps	0.12
5	Establishment of decentralized production units of any of the following items through SHGs/farmer groups	
a	On farm production of Trichoderma at farm level and mass production of Trichoderma using low cost biofermentors and media.	0.20
b	Mass production of Trichoderma using low cost biofermentors and media.	0.54
c	On farm production of Entomo Pathogenic Nematodes	0.10
d	Production of Tricho cards	0.25
e	On farm production Spiders/Reduvids/Bracons	0.10
f	On farm production of Biofertiliser- VAM	0.20
g	Fruit fly management- Low cost traps and lures	0.10
h	Production of Botanical pesticides and growth promoters such as Fish amino acids, Panchagavyam etc	0.10
6	Strengthening/enhancing the facilities at Plant Health Clinics for the popularization of sustainable agri. practices.	1.50
7.	Initiation of Plant Health Clinics at Krishibhavans which were not started earlier	1.00
8.	Establishment of Biopharmacy for the popularization of bio intensive agri. production by Farmer society with stake holders from SHGs	0.50
9.	Establishment of Ecoshop for the marketing of safe to eat products of farmers by farmer society	1.00
10.	"Karmasena" / Pest surveillance groups for PHM	0.50
11.	Innovation fund for new ideas on sustainable farming practice	0.50
12.	Operational cost	0.08086
	Grand Total	7.80
	Maximum amount permissible per unit – Rs. 5.00 lakhs	
	for 18 units (18 nos x 5 lakhs)	90.00

There are 18 Agricultural Officers in the fourth batch of PGDPHM (2016-18). The above table shows the cafeteria of activities for **Rs.7.80 lakhs**. Each officer can select a set of activities of **Rs 5.00 lakhs** as per the local needs and possibility of implementation. Thus a total of **Rs.90.00 lakhs (18 nos x 5 lakhs)** is required for implementing the project for the PGDPHM officers of third batch. **The officers can utilize the savings in one component for any other component for which additional amount is required and also for increasing the number of physical units based on local requirement as the case may be without exceeding the total financial limit of Rs. 5.00 lakhs, to enable the effective implementation of the components leading to benefit of the farming community. No special sanction is required in this regard. The Principal Agricultural Officers should approve the project of each PGDPHM officer and a copy of the approved project should be forwarded to this office for information.**

Mode of Implementation

The Project on Adoption of Sustainable plant health management strategies for crop production through Post Graduate Diploma in Plant Health Management (PGDPHM) will be implemented under the leadership of AO/ADA of concerned Krishi Bhavans / Block. The officers working other than in Krishi Bhavans ie. Farms, Labs, Blocks etc can do their projects either in farms or in nearby Krishi Bhavans. The components of the project can be very well integrated with schemes of Department of Agriculture or ATMA. Farmer groups can be formed and trained for the adoption of technologies. They can be trained to produce biopesticides & bio control agents and safe to eat products and also for the marketing of their produce. Minor variations in the costs of items can be adjusted to suit local requirements without exceeding the financial ceiling limits.

OPERATIONAL GUIDELINES FOR ON FARM PRODUCTION OF BIOCONTROL AGENTS

The following operational guidelines are to be followed.

1. During the first phase of the on farm production of bio control agents preference should be given to Trichoderma production by the farmers.
2. Mother culture of Trichoderma has to be obtained from KAU / NCRMI
3. Never use cultures from any other source without permission.
4. 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.
5. Always start mass production of Trichoderma from original mother culture.
6. Random checking of the purity of bulked Trichoderma must be done once in four months to confirm the purity of the isolate.

7. If the purity of the bio control agent is in doubt, then the center should restart the production only after complete sterilization of the unit is done under the supervision of trained officers.
8. It is not advisable to formulate Trichoderma. Mass multiplied Trichoderma can be distributed to farmers in sorghum grains with or without powdering. It can also be distributed after enriching it.
9. 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.
10. Bio control agents shall be produced only under the supervision of Agricultural Officers who have been trained at NIPHM or at College of Agriculture. Once the trained Agricultural Officer is transferred from the Panchayath where a production center is functioning, then the unit must stop production until the service of a trained officer is ensured to oversee the production.
11. There must be a uniformity in the methodology of production of bio control agents in the different centres in Kerala.
12. 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.
13. The bio control agent should not be stored for more than two months.
14. Distribution of bio control agents must be limited to the panchayath where it is produced and to the neighbouring panchayaths.
15. Pseudomonas production must be limited to only those centres where mini fermenter is available.
16. Unlike in Trichoderma, identification of Pseudomonas is difficult. Hence, every new lot must be from a mother culture.
17. 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.
18. A register should be maintained at Krishi Bhavan also showing the details of farmers / farmer groups engaged in on farm production of bio control agents / bio pesticides.

The Details of 4th Batch (2016-18) PGDPHM Officers Implementing this Component During 2017-18 is as Shown Below.

Sl No	Name of Candidate	Designation & Official Address
1	MANIVARNAN.G.K	Agriculture Officer, Cherunniyoor Krishi Bhavan Thiruvananthapuram
2	MANOJ.S	Agricultural Officer, Krishi Bhavan, Kazhakuttam Thiruvananthapuram.
3	ULLAS.T.G	Agricultural Officer, Ottor Krishi Bhavan Thiruvananthapuram
4	SHAIS.S	Agricultural Officer, Krishi Bhavan, Panavoor, Nedumangad, Thiruvananthapuram
5	PRAKSH CHRISTIAN.G.A	Agricultural Officer, Kulathoor Krishi bhavan, Uchakkada P.O, Thiruvananthapuram
6	DEEPA.S	Agricultural Officer, Krishi Bhavan, Anad, Nedumangad, Thiruvananthapuram
7	SINDU.M	Agricultural Officer, Krishi Bhavan, Thalayoola, Alappuzha
8	MURUGAN.K	Agricultural officer, Kanthalloor Krishi Bhavan, Idukki
9	B.R SREELEKHA	Agricultural Officer, Krishi Bhavan, Kaladi, Ernakulam
10	SARITHA MOHAN J	Agricultural Officer, Krishi Bhavan, Kottuvally, North Paravur, Ernakulam
11	SINIA K.K	Assistant Director of Agriculture (Coconut Development), O/o Principal Agricultural Officer, Sakthan arcade, Thrissur

12	MINI THOMAS	Technical Assistant Office of Principal Agricultural Officer, Sakthan Aracade, Thrissur
13	NARENDRAN	Assistant Director of Agriculture , Anthikkadu, Thrissur
14	SANGEETHA.V	Agricultural Officer, Krishi Bhavan, Vallikkunnu P.O, Malappuram.
15	VEENA RANI.R	Assistant Director of Agriculture, Neeleswaram, Kasargod.
16	SURESH.V.V	Agricultural Officer, Krishi Bhavan, Porathisery, Kavuvannur P.O, Thrissur
17	RIAZ.R	Agricultural Officer, Krishi Bhavan, Aruvupalam P.O, Pathanamthitta
18	DICTO JOSE.M	SFAC, Thiruvananthapuram

Crop health management Scheme 2018-19 - Component wise allotments

1. Pest surveillance																			
Sl.No	District	Assistance to Surveillance units(Panchayat) @1000/ unit		Soil testing@ Rs.300/-(New KB)		Net charges for data uploading using hand held devices@2 devices/Krishi Bhavan		GPS enabled Hand held devices to newly selected clinics@Rs.15000/ device		Expenses for Rowing survey@Rs 500/pest scout/month		Training (Block Level) @ 0.20/ training		Training (District Level) @ 0.30/training		Travelling expenses/BL advisories@250 00		MDDT	Total Pest Surveillance
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin		
		Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target	Target		
1	TVM	140	1.4			28	0.672			14	0.84	11	2.2	1	0.3	2.53	1	0.25	Target
2	KLM	150	1.5			30	0.72			15	0.9	11	2.2	1	0.3	2.53	1	0.25	8.192
3	ALP	150	1.5			30	0.72			15	0.9	12	2.4	1	0.3	2.76	1	0.25	8.4
4	PTA	90	0.9			18	0.432			9	0.54	8	1.6	1	0.3	1.84	1	0.25	8.83
5	KTM	140	1.4			28	0.672			14	0.84	11	2.2	1	0.3	2.53	1	0.25	5.862
6	IDK	120	1.2			24	0.576			12	0.72	8	1.6	1	0.3	1.88	1	0.25	8.192
7	ERM	180	1.8			36	0.864			18	1.08	14	2.8	1	0.3	3.22	1	0.25	6.526
8	TCR	250	2.5			50	1.2			25	1.5	16	3.2	1	0.3	3.68	1	0.25	10.314
9	PGT	160	1.6			32	0.768			16	0.96	13	2.6	1	0.3	2.99	1	0.25	12.63
10	MLM	170	1.7			34	0.816			17	1.02	15	3	1	0.3	3.45	1	0.25	9.468
11	KKD	160	1.6			32	0.768			16	0.96	12	2.4	1	0.3	2.76	1	0.25	10.536
12	WYD	70	0.7			14	0.336			7	0.42	4	0.8	1	0.3	0.92	1	0.25	9.038
13	KNR	160	1.6			32	0.768			16	0.96	11	2.2	1	0.3	2.53	1	0.25	3.726
14	KGD	80	0.8			16	0.384			8	0.48	6	1.2	1	0.3	1.38	1	0.25	8.608
15	KCPM																	4.794	
16	SAMETHI																		
17	IIITM-K																		
18	SFAC																		
	Total	2020	20.2			404	9.696			202	12.12	152	30.4	14	4.2	35	14	3.5	
	HQ	500	5	500	1.5	100	2.4	100	15										115.116
	G.Total	2520	25.2	500	1.5	504	12.096	100	15	202	12.12	152	30.4	14	4.2	35	14	3.5	5.784
																			144.8

Crop health management Scheme 2017-18 - Component wise allotments

Ha/c 2401-00-107-78

H&C 2401-00-107-78																
Management Scheme 2017-18 - Component wise allotments																
Sl.No	District	2.Rodent Control Campaigns		3. Plant Health Clinics and referral clinics								4.Input to farmers @ 500/unit		5.Printing of crop health advisories and bulletins		6. Development of Parasite breeding stations and new biocontrol lab
		Phy	Fin	New Panchayat level clinics @ 500000/- (Tentative targets)		Additional support to existing 152 plant health clinics and district referral clinics		Survey (Guides of PGDPHM) on existing plant health clinics		Input kit to 200 farmers		Phy	Fin	Phy	Fin	
		Target	Target	Phy	Fin	Target	Target	Phy	Fin	Target	Target	Phy	Fin	Target	Target	Target
1	TVM	15	3.75									140	0.7	14	14.5	8.2
2	KLM	15	3.75									150	0.75	15	15.5	7.1
3	ALP	17	4.25									150	0.75	15	15.5	3.2
4	PTA	15	3.75									90	0.45	9	9.5	0
5	KTM	15	3.75									140	0.7	14	14.5	4.05
6	IDK	15	3.75									120	0.6	12	12.5	0
7	ERM	16	4									180	0.9	18	19	5.25
8	TCR	17	4.25									250	1.25	25	25.5	9.01
9	PGT	17	4.25									160	0.8	16	16.5	0
10	MLM	17	4.25									170	0.85	17	18	6
11	KKD	17	4.25									160	0.8	16	16.5	5.96
12	WYD	9	2.25									70	0.35	7	7.5	0
13	KNR	15	3.75									160	0.8	16	16.5	0
14	KGD	0	0									80	0.4	8	8.5	11.23
15	KCPM															
16	SAMETHI															
17	IIITM-K															
18	SFAC															
	Total	200	50									2020	10.1	202	210	60
	HQ			50	250	144	5	200	1			300	1.5			
	G.Total	200	50	50	250	144	5	200	1			2320	11.6	202	210	60

Crop health management Scheme 2018-19 - Component wise allotments

Ha/c 2401-00-107-78

Sl.No	District	7.Strengthening of KCPM as an autonomous institution (KIPHM)	8.Capacity Building in association with NIPHM, including PGDPHM	9.Project based support to NIPHM trained officers	10.Hon. To DPHM@25000	11.Honararium for Field assistants @ 0.13/month for existing 202 clinics	12.Management of wild animal attack in cropped areas through technology support	13.Operational support	Total Fin. Target (in lakhs)
		Fin	Fin	Fin	Phy	Fin	Fin	Fin	
		Target	Target	Target	Target	Target	Target	Target	
1	TVM			30	1	3	14	21.84	91.782
2	KLM				1	3	15	23.4	63.5
3	ALP			5	1	3	15	23.4	65.53
4	PTA			5	1	3	9	14.04	43.202
5	KTM				1	3	14	21.84	57.632
6	IDK			5	1	3	12	18.72	51.696
7	ERM			10	1	3	18	28.08	82.144
8	TCR			20	1	3	25	39	116.24
9	PGT				1	3	16	24.96	60.578
10	MLM			5	1	3	17	26.52	75.756
11	KKD				1	3	16	24.96	66.108
12	WYD				1	3	7	10.92	29.346
13	KNR				1	3	16	24.96	59.218
14	KGD			5	1	3	8	12.48	47.004
15	KCPM	100							100
16	SAMETHI								
17	IIITM-K								
18	SFAC			5					5
	Total	100		90	14	42	202	315.12	1014.736
	HQ		50	10	1	12		102.48	633.264
	G.Total	100	50	100	15	54	202	417.6	1648

PROFORMA FOR REPORTING MONTHLY PROGRESS REPORT OF THE SCHEME CROP HEALTH MANAGEMENT 2018-19

(Should be reported before 5th of every month)

NAME OF DISTRICT:
BUDGET ALLOCATION:

MONTH:
(Rs in lakhs)

SL. NO	SCHEME COMPONENTS	TARGET		ACHIEVEMENT					
		PHYSICAL	FINANCIAL	PHYSICAL			FINANCIAL		
				upto previous month	during the month	Total	upto previous month	during the month	Total
1	Development of pests and disease surveillance system and advisories including use of GPS for pest and disease surveillance								
1	Assistance to surveillance Units (Panchayat)								
2	Soil testing								
3	Net charges for data uploading using hand held devices								
4	Expenses for Rowing survey								
5	Training - Block								
6	Training – District								
7	Travelling expenses								
8	Printing and publishing district level advisories								
9	Other miscellaneous expenses (MDDT etc.)								
	Total Pest Surveillance								
2	Rodent control								
3	Plant Health Clinics								
	New Panchayat level clinics @ 500000/- (Tentative targets)								
	Additonal support to existing 152 plant health clinics and district referral clinics								
4	Input to farmers @ Rs.500/unit								
5	Printing of crop health advisories and bulletins @ Rs. 10000/month/ clinic								
6	Development of 9 Parasite Breeding Stations and new Biocontrol labs								
9	Project based support to NIPHM trained officers								
10	Honorarium to Field Assistants (FAs)								
11	Honorarium to District Plant Health Managers (DPHM)								
12	Management of wild animal attack in cropped areas through technology support								
13	Operational support								
	Total								

PRFORMA FOR MONTHLY REPORT ON PLANT HEALTH CLINICS
(should be report before 5th of every month)

NAME OF DISTRICT:

MONTH:

Details of the blocks and krishibhavans where Plant Health Clinics is functioning.

Sl.No	Name of block	Name of krishibhavan/Plant Health Clinic	Name and telephone number of agriculture officer and krishibhavan	Major crops grown

Plots selected for pest surveillance

Sl.No	Crop	No.of surveillance plots selected	Area in ha
1	Rice		
2	Banana		
3	Coconut		
4	Pepper		
5	Vegetables		
	TOTAL		

Impact of Pest/ Disease surveillance

[illegible]

Establishment of on-farm biocontrol agent production units

Name of block	Bioagent produced	No. of units producing the bioagent	Quantity produced

Details of new pest/disease/weed observed in field as part of surveillance:

Name of Block	new pest/disease/weed	Action taken to controlled the problem in the field

Whether new natural enemies/ parasitoides were discovered as part of field surveillance. If yes, give details of natural enemy, pest and crop :

Whether all the clinic is functional. Give details of non functioning clinics if any:

Sl No	Name of the Non functioning clinic	Reason/Remarks	Year of establishment/Year of sanction

Number of pest bulletins released from the clinic

Name of block	Number of pest bulletins released from the clinic		
	Upto previous month	During the month	Total

Number of farmers who visited the clinic

Name of block	No. of farmers who visited the clinic		
	Upto previous month	during the month	Progressive total

Major achievements of the Plant Health Clinic during the month (list out):

14. Activities of farmer groups formed as part of the scheme during the month:

15. Remarks/Problems/Additional requirements

Signature

Designation

Proforma for Progress report of Parasite Breeding Stations showing all the activities undertaken

Name of Parasite Breeding Station

Month

Year

SI No	Particulars	Name of Species					
		1			2		
		Upto previous Month	During the Month	Total	Upto previous Month	During the Month	Total
1	No of parasites multiplied						
2	No of parasites liberated						
3	Name of Crops						
4	Area covered						
5	No of farmers benefited						
6	Location of Liberation						
7	Remarks(Details of other bio control agents productivities should be included)						

Signature
Designation