

Directorate of Agriculture Development and Farmers' Welfare

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Sub:- Scheme on 'Crop Health Management' 2023-24 - Working Instructions issued - reg-

Ref:- 1) G.O.(Rt)No.547/2023/AGRI ,Thiruvananthapuram, Dated 05-06-2023
2) Letter No. ADFW/5847/2023-TP2 dated /05/2023 of the Director of Agriculture to the Government of Kerala

The Department of Agriculture launched the scheme - 'Crop Health Management', with the main objective to develop technical guidance of pest and disease management and assuring chemical safety for cereals, vegetables, spices and fruits. The general approach envisaged is to leverage research results, develop a set of standards for a specific crop and deploy the defined standards. On top of the standards, a set of incentives were also developed to encourage farmers to use these defined standards for their crops.

Starting from seedlings, preparing of farm fields, planting, watering, pest management, disease management, crop husbandry, harvesting; guidelines and standards are provided to farmers on the concept, then to help them to actually carry out what needs to be performed.

The Government approved the scheme for 2023-24 vide reference (1) cited, hence the following instructions are given for the smooth implementation of the programme and compliance at all levels.

1. Establishment of new Plant Health Clinics & Crop Pharmacies (Rs 100.00 lakh)

(a) Plant Health Clinics (PHCs) are a practical way of enabling professionals to work closely with extension workers in offering farmers advice on how to manage all types of plant health problems. Extension-based PHCs, the main focus of this scheme, are to be established to serve farmers directly. They are to be established at Krishi Bhavan levels, close to where farmers approach for support. Plant health clinics are to be established as demand-led service giving advice as part of every day extension activities. They shall work most effectively as part of an overall plant health system which seeks to increase access to sources of expertise and knowledge.

(b) A total of 20 PHCs are to be established at Krishi Bhavan level during this financial year. The establishment cost of one PHC shall not exceed Rs. 5.00 lakh. The PAOs shall select the Krishi Bhavans under their jurisdiction for establishing new PHCs. The Krishi Bhavans with officers who possess PGDPHM Diploma or undergoing the course shall be given preference.

(c) **Crop-Pharmacies** are new initiatives under the PHCs to provide immediate solutions to the problems identified at the PHC level. Need based plant protection agents and nutritional materials including micro and nano nutrients on sample basis can be given to farmers at free of cost and will be administered with proper technical supervision considering the emergency situations. However, un-necessary stocking of such articles shall be avoided. The PPCs, bio-agents, nutrients and traps of different kinds etc., which are needed for demonstrations and immediate applications on a treatment basis can be procured from licensed Government agencies, licensed vendors, etc., and necessary

records as specified would be kept with the PHCs.

(d) The Crop Pharmacies shall strictly follow the direction that, the materials are to be stocked in accordance with the extent of crops cultivated, the periodicity and extent of pest attack, need for their scientific application etc., and shall be kept under safe custody and the custodian shall be the AA/AAO in charge of the Head Quarter. An undertaking shall be displayed on the premises that *'these materials are not for sale and for demonstration purpose at the farmers' fields free of cost during emergency situations'*.

(വിള ഫാർമസികളിൽ സൂക്ഷിച്ചിരിക്കുന്ന സസ്യ സംരക്ഷണ വസ്തുക്കളും സസ്യ പോഷണ വസ്തുക്കളും മറ്റു വസ്തുക്കളും വില്പനയ്ക്കുള്ളവയല്ല. അടിയന്തിര സാഹചര്യങ്ങളിൽ കർഷകരുടെ കൃഷിയിടങ്ങളിൽ വിദഗ്ധ മേൽനോട്ടത്തിൽ പ്രയോഗിക്കാൻ മാത്രം ഉള്ളവയാണ്.)

Note: *It is hereby clarified that, keeping PPCs and plant nutrients of any kind in the 'Crop Pharmacies' is not intended for manufacture, stock, and or exhibit/distribute for sale. It is for therapeutical and demonstration purpose only. Hence, any apprehension in the legality shall not be expressed.*

(e) A register containing the details of the farmer, name of the problem, therapeutical action done, quantity of the materials used etc., for the same shall be maintained.

(f) A maximum amount of Rs. 10,000/year shall be used for the purchase of PPCs, bio- agents, nutrients and traps of different kinds etc. It shall not be done as a one-time purchase, rather a phased purchase shall be effected depending upon the demand from the field. The imprest funds provided in the Krishi Bhavans can be used for the immediate purchases if any and shall be recouped from this scheme or any funds available from the LSGIs.

(g) The components that can be included while establishing a new PHC are as follows:-

Sl. No.	Name of the equipment / structure	Maximum amount which can be met from the scheme (Rs.)
i.	Desktop magnifier	15,000
ii.	Portable pH / EC meter	30,000
iii.	Insect boxes, Slide cabinet, herbarium cabinets and other related materials	55,000
iv.	Stereo microscope	75,000
v.	Lab furniture, structures and related materials	1,00,000
vi.	Diagnostic equipment, Soil testing kits and chemicals etc.	1,50,000
vii.	Traps for monitoring and demonstrations	15,000
viii.	Other miscellaneous works, equipment, consumables in connection with lab procedures, glass wares etc.	25,000
ix.	Boards, display materials, publications, registers, albums etc.	25,000
x.	Emergency PPCs, bio-agents, non-bulky	10,000

	nutrients, approved nano nutrients, micro nutrients and need based equipments for application for Crop- Pharmacies of PHCs	
	Total	5,00,000

(h) The Agricultural Officer who is establishing new PHCs at the Krishi Bhavan shall prepare the list of equipments and components with estimated cost and method of purchase for establishing a new PHC and shall be submitted to the Principal Agricultural Officer for approval and upon receiving the permission the purchase procedure shall be initiated. Since the total amount is already sanctioned by the undersigned, there is no need for forwarding it again to the Directorate for approval.

(i) It shall be noted that the amount for items 1 (g) i to ix, minor variations are allowed to the tune of maximum 20 % among the components of the PHC. However, the total amount should remain the same. If any provisions for purchasing laptops, Projectors and projector screens are not available under any of the schemes of the Department or LSGI, the same can also be purchased out of the savings as per Instruction 1 (g). For item number '1 (g) x' the amount of maximum Rs. 10,000 should be adhered to.

(j) The amount sanctioned for this component of the scheme is Rs. 100.00 lakh.

(k) An Agricultural Assistant shall be put in charge of the PHCs for the day to day management. He shall assist the Agricultural Officer for the smooth functioning of the same to deliver quick and efficient services to the farmers.

2. Support to existing PHCs (Rs. 25.00 lakh)

(a) Need based support shall be extended to existing 278 PHCs for the repair and maintenance of equipment, purchase of chemicals and other consumables, replacing display materials and boards, purchase of emergency PPCs, bio-agents, non-bulky nutrients, approved nano nutrients, micro nutrients, different types of traps for Crop-Pharmacies etc.

(b) All Principal Agricultural Officers are hereby directed to start 'Crop Pharmacies' in the established PHCs in a phased manner depending on the availability of funds. The instruction as laid out as per 1 (c) to (f) shall be followed in this regard.

(c) An amount of Rs.25 Lakh is sanctioned for providing additional support including infrastructural support and to meet critical gaps of PHCs like maintenance cost, operational cost etc. The funds will be allotted based on the proposals submitted by the Principal Agricultural Officer to the Director of Agriculture. Proper justification shall be done.

(d) It is strictly instructed that no PHCs should be kept idle and non-functional. All Project Directors (ATMA) and Principal Agricultural Officers shall conduct immediate inspections and report the defaulters to the undersigned.

3. Publishing and circulating Krishi Bhavan, Block & District level periodic digital agricultural advisories (Rs. 16.68 lakh)

(a) For the purpose of the scheme agro-advisory services are defined as the farm decisions taken in response to past, current and future weather change. It should include agronomical, pest and disease, water and input management. Advisories should be published as a result of surveillance and data analysis. These are intended to help farmers to take early steps to avoid crop loss due to infestation of pest, disease and wild animal attack. These farm advisories shall also be the source of information about the schemes and procedures of the Government and new technology which are being successfully

adopted.

(b) From the financial year 2023-24 onwards, agro-advisories should be published **only in digital form** and circulated through different social media and suitable methods at fortnightly intervals at Krishi Bhavan level and monthly intervals at Block and district level. However, this periodicity can be altered at times of emergency such as unprecedented climate change, endemics, pest and disease outbreaks etc. There shall be a minimum of one advisory/month at the District level.

(c) An amount of maximum Rs. 2500/year per PHC including the targeted 20 numbers during this year is sanctioned for the designing and circulation of digital advisories. The concerned ADAs shall finalise a design template in this regard for development of advisories and the amount shall not be used for printing purposes.

(d) An amount of Rs. 5000/year/block is admissible for designing and circulating advisories at the Block Level and Rs. 7500/ district/year can be used at the district level.

(e) The remaining amount of Rs. 58,000 is placed at the disposal of Directorate level for allocation to different districts in a need-based manner when contingencies are aroused like pest and disease infestation, endemics and natural calamities. This amount can be used for conducting MDDT field visits as and when necessary and should be linked with the MTA by ATMA.

Note: A Multi-Disciplinary Diagnostic Team (MDDT) shall be constituted with one specialist each from Entomology, Pathology & Soil Science, one representative from Krishi Vigyan Kendra, one representative from Research Station, Project Director ATMA & Deputy Director (E&T). The officers who have undergone PGDPHM course from NIPHM should also be included in the team wherever possible. MDDT proposed as a part of pest and disease surveillance can also be utilized for diagnostic services in Plant Health Clinics and development of advisories. The team will make need based field visits and recommend suitable remedial measures when pest and disease endemics are occurred.

(f) A total of Rs. 16.68 lakh is sanctioned for this component.

4. Data collection and management with the support of Kerala Digital University (Rs 10. lakh)

(a) There exists a digital intervention viz., CROPSS, Kerala (Crop Pest Surveillance System) managed by the Kerala University of Digital Sciences, Innovation & Technology. An amount of maximum Rs. 7.00 lakh shall be disbursed to it for improvements in the digital platform, server management, ensuring support etc. Necessary MOU in this regard shall be signed by the Additional Director of Agriculture (CP) with the Kerala University of Digital Sciences, Innovation & Technology for the disbursement of funds.

(b) This is an information system to effortlessly identify the symptoms and diagnose insect pest attack, diseases and nutritional deficiencies/physiological disorders in various crops. The pest/disease surveillance data is captured by field scouts/extension officers by using an integrated mobile application deployed in a smart phone device /tablets and uploaded to the centralized server for data process and analysis. Based on the field level data, the system generates pest severity reports for the extension officers and researchers and necessary advisories for the farmers on a near-real time basis. The reports are being generated location wise, panchayath wise and block wise for easy navigation and interpretation. The system generates mobile SMS alerts and sends to farmers and respective Agricultural extension officers/scientists so that they can immediately attend to those issues. The system also provides the facility to send mobile SMS and recommendations by the concerned Agricultural officers to their respective registered

farmers.

(c) The system is backed up with a high end data analytics platform for scientific data analysis and interpretation. The Web GIS enabled spatial data analytics facilitates a highly accurate and spatial enabled decision making process. There are different levels of data updating and monitoring as part of this digital interventions. The Pest Scouts, Agricultural Assistants/Assistant Agricultural Officers and Agricultural Officers are hereby strictly instructed to update and monitor the data without fail.

(d) Suitable training and capacity building programmes for various officers in the Agriculture Department , District Plant Health Managers, Pest Scouts etc., on the applications and updating of the software CROPSS are also to be carried out under this component. A total of 14 training / capacity building sessions is to be conducted by the Kerala University of Digital Sciences, Innovation & Technology and Rs.3 lakh is sanctioned for this purpose. Thus, a total of Rs.10.0 lakh is sanctioned for this scheme component.

(e) The instructions for collection of data as per farmers' plot visits and uploading them to the digital platform is given in the following instructions.

4.1 Fixed plot surveys

(a). Surveillance units (plots) are to be established in 278 Krishi Bhavans where PHCs a for the project during 2023-24 in farmer's field. Four plots each shall be selected in the Krishibhavan for paddy, banana, coconut, pepper and vegetables if the area under these crops is above 5 ha. Plot size shall be 1acre for rice & coconut, 50 cents for banana & pepper and 10 cents for vegetables. Thus total 20 plots are to be selected in each Krishibhavan and altogether 5560 plots are to be selected from 278 Krishibhavans under 152 blocks of 14 districts.

(b). These 20 plots together shall form the surveillance units in each PHCs. The Assistant Director of Agriculture at block level shall have the flexibility to decide the number of fixed plots to any desired Krishi Bhavan under the block area depending on the intensity and cropping pattern. This is to be linked with the activities of 'farm plan based development' wherever possible.

(c). It shall be ensured that the pest surveillance activities are undertaken as per a prescribed schedule and under strict monitoring and evaluation by the respective officers. Technical officers would visit the surveillance units on scheduled days. For paddy and vegetables a weekly visit, for banana a fortnightly visit and for coconut and pepper monthly visits shall be conducted.

(d). Directions shall be given to the pest scouts to conduct visit as per schedule and record observations on pest/disease incidence. Observations are to be recorded in a Register which is maintained in the Krishi Bhavan or PHC as the case may be. The field level observations and data collected are to be uploaded in the CROPSS (Crop Pest Surveillance System) web-portal developed earlier and updated through the GPS enabled hand-held devices or through mobile phones. Recommendations are to be provided by the Agricultural Officer concerned on the field observations uploaded by the pest scouts. Problems which require further clarification would be passed on to the experts of the Block Level Agricultural Knowledge Centres as per the design of the digital system.

4.2 Roving survey (Rs. 16.68 lakh)

(a). In addition to fixed plot surveys, roving survey shall also to be conducted covering all the hot spots of pests/ diseases in all the 152 blocks. An action plan and route-map shall be finalized at the block level by the ADAs.

(b). An amount of maximum Rs.500/- per month can be spend per pest scout for

roving survey to meet hire charges of vehicle based on actual expenses. The surveillance and roving survey data are to be analysed and monthly reports at district level shall 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 in the districts can also be utilized. The service of the PGDPHM officers shall be well utilised for the entire Crop Health Management scheme of the Department.

(c). An amount of Rs. 16.68 lakh is sanctioned for conducting roving survey.

4.3 Data uploading charges (Rs. 5.56 lakh)

(a). All PAOs are directed to obtain BSNL pre-paid SIM cards for the Agricultural Assistants and Pest Scouts attached to the PHCs. A suitable data package shall be activated for them to upload and management of the digital intervention as specified in the instruction 4 (a) to (d) of this circular. The details of the officials and pest scouts shall immediately forwarded to the IT Cell of the Directorate and DDA (IT) shall take necessary steps for obtaining CUG connections with appropriate annual data package for implementing the scheme.

(b). An amount of Rs. 5.56 lakh is sanctioned for the scheme component.

5. Engaging Pest Scouts, District Plant Health Managers, Technical Officers, Research Associates and Workers on contract basis. (Rs. 758.00 lakh)

(a) **Pest Scouts-** Each PHCs shall be supported by a technically qualified person having VHSE (Agri)/Diploma in Agriculture as basic educational qualification and engaged as Pest Scouts purely on contract basis and necessary rules in force shall be followed.

(b) An amount of Rs.19,280/- will be the monthly honorarium for the Pest Scouts. A total of 298 pest scouts can be engaged during 2023-24 including those required at KCPM and if necessary, they shall be assigned more than one PHCs if the situation warrants. They will be responsible for the following duties:-

i. They should attend the PHCs on regular basis and are responsible for keeping them neat, tidy and all equipments in working condition. It is once again reiterated that no PHCs shall be kept idle under any circumstances.

ii. They should prepare the specimens for clinical examinations.

iii. They should conduct the periodic scouting and surveys associated with the scheme and up load the information as per the requirements of the digital platform .

iv. They should prepare the advisories for the farmers and the approved ones are to be promptly distributed to them in the digital mode. Every Pest Scout should submit the report on distribution of advisories and number of farmers who received them in a monthly basis.

v. They shall demonstrate and apply curative measures to the needy farmers by obtaining suitable therapeutic substances from the 'Crop Pharmacies' under the supervision of the concerned Assistant Director of Agriculture/Agricultural Officer.

vi. They should assist the conduct of weekly clinic days, ward level agro-clinics, data collection for farm plan development approach, keep all the registers and such other activities as directed by the concerned Agricultural Officer.

(c). **District Plant Health Managers (DPHMs)** with educational qualification BSc (Ag.) at the rate of one per District and one person at State Level can also be engaged on contract basis with an honorarium of Rs.29,785/- per month. They will be responsible for discharging the following duties with respect to the implementation of the scheme:-

- i. They should co-ordinate the activities of all Pest Scouts in their district.
- ii. They should visit the PHCs in their district regularly and give proper guidance to the Pest Scout for the effective functioning of the PHC and also impart necessary trainings to the Pest scouts on the activities related to the operation of the PHCs.
- iii. They shall prepare the visit schedule of the Pest Scouts of their district and also ensure that the Pest Scouts are conducting field visits as per the schedule.
- iv. They shall provide technical support to the Pest Scouts if necessary.
- v. They shall attend the Monthly Technology Advisory meeting conducted at KVKs.
- vi. They should prepare the advisories at district level for the farmers and the approved ones are to be promptly distributed to them in the digital mode. Every DPHM should submit the report on distribution of advisories and number of farmers who received them in a monthly basis.
- vii. They shall collect the progress reports related to Crop Health Management scheme from the Krishi Bhavans and submit the consolidated report to the Directorate before 5th of every month.
- viii. They are also responsible for the preparation of weekly pest report for onward submission to CIPMC.

(d) **Technical Officers of PBS** with educational qualification BSc (Ag.) can be engaged on contract basis at the nine Parasite Breeding Stations (PBS) with a consolidated pay of Rs.25,000/- per month for a period of one year with the following duties and responsibilities :-

- i. Production, multiplication and field release of *Goniozus nephantidis* and *Bracon brevicornis* parasitoids against coconut leaf eating caterpillar in the affected plots.
- ii. Production and marketing of VAM which is effective for promoting plant growth, helps in mobilizing phosphorus, helps to tolerate drought, helps to prevent root diseases etc.
- iii. Production, multiplication and release of Trichocards.
- iv. They should co-ordinate all the activities of PBS.
- v. They should prepare the progress reports of PBS related to Crop Health Management scheme and submit the report to the Directorate before 5th of every month.

(e) **Research Associate of KCPM** can also be appointed on contract basis at Kerala Centre for Pest Management(KCPM) at Moncompu during 2023-24 with an honorarium of Rs. 30,000 per month. A total of two Research Associate shall be engaged at KCPM with the following duties and responsibilities:-

- i. Production of Bio-inputs, growth promoters, insect repellents, rodent repellents, pathogen repellents, Pheromone traps, bio-control agents.
- ii. Production of bio-control agents.
- iii. Maintenance of Plant Health Clinic and attending the clinical procedures.
- iv). They shall co-ordinate the activities of all Pest Scouts of KCPM.
- v). They shall give proper guidance and also impart necessary trainings to the Pest scouts on the activities related to the pest and disease management.
- vi). They shall provide technical support to the Pest Scouts if necessary.
- vii). They should prepare the progress reports of KCPM related to Crop Health Management scheme and submit the report to the Directorate before 5th of every month.
- viii). They are also responsible for the preparation of weekly pest report for onward submission to CIPMC.
- ix). Preparation and preservation of various pest and disease specimens, herbarium preservation.
- x). Display of different types of soil, seeds etc.

- xi). Conducting soil analysis for pH, Nitrogen, Phosphorus, Potassium Arsenic etc.
- xii). Conducting analysis of water samples collected by Pest Scouts from fields and water resources if necessary for pH, TSS etc.
- xiii). Documentation of all activities of KCPM.
- xiv). Maintenance of roving and fixed plots.
- xv). Documentation of AESA (Agro-Ecosystem Analysis)
- xvi). Documentation of Annual Activity reports.
- xvii). Consolidation of weekly Pest Surveillance reports.

(f). **Workers at PBS-** Besides these, workers on contract basis can be appointed at PBS at a monthly honorarium rate of Rs. 8000/-.

(g). Honorarium for contract staff (if any) of the previous financial year of 2022-23 pending if any due to any treasury restrictions, shall also be admissible under the component of the scheme 2023-24. An amount of Rs.758.00 lakh has been earmarked for the disbursement of honorarium for all the contractual appointments under this scheme. The amount shall be debited from the Head of Account 2401-00-107-78 (P).

6. Upgrading PBS to Bio-Control Sub Centres of SBCL and establishing new one at Kannur (Rs. 140.00 lakh)

6.1 Upgrading PBS to Bio-control sub centres of SBCL(Rs. 90.00 lakh)

- a. For the purpose of the scheme, 'biological control' is defined as the use of living organisms, such as predators, parasitoids, and pathogens to control pest insects, weeds, or diseases. This management typically involves some human activity like augmenting the population of natural enemies by artificial means, production and distribution of biological control agents like viruses, bacteria, fungi, parasitoids, predators etc. The activity of breeding the parasitoids at present is being carried out by the PBS.
- b. Parasite breeding stations were started in the Department with the objective of rearing and releasing natural parasites and predators of the crop pests mainly targeted at the leaf eating caterpillar of coconut. Now, a situation has arisen where the State Bio-Control Laboratory has received the CIB & RC registration for the production and sale of bio- control agents and the demand for them are high. In order to meet the rising demand and reducing the use of chemical pesticides, it is a necessity that they are to be mass produced and distributed. Hence it is proposed that the existing 9 Parasite Breeding Stations at Thiruvananthapuram, Kollam, Alappuzha, Kottayam, Ernakulam, Thrissur, Malappuram, Kozhikode and Kasaragode shall be converted to Bio-Control Sub Centres of SBCL, Mannuthy where mass production of selected bio-control agents can be produced.
- c. An amount of Rs.10.00 lakh per PBS and a total of Rs.90 Lakh has been earmarked for their upgradation to Bio-Control Sub Centres of SBCL, Mannuthy. The amount can be utilised for the creation of laboratory infrastructures, storage structures etc. and the Deputy Director of Agriculture, SBCL shall contact the concerned Principal Agricultural Officers in this regard and a detailed project report and timeline of activities shall be submitted to the undersigned before August 31st 2023 for approval.

6.2 Establishment of a new Bio- Control Laboratory (Rs. 50.00 lakh)

(a) Apart from these 9 sub centres, one new sub centre of SBCL at Kannur is also to be established during this year. Suitable place for establishing the same shall be reported by Principal Agricultural Officer, Kannur immediately to the undersigned as it was declared by the Hon:Minister for Agriculture during the Krishidarshan programme at Kannur.

(b). An amount of Rs. 50 Lakh has been earmarked for the purpose.

7. Operational Support to Kerala Centre for Pest Management (KCPM) (Rs. 5.00 lakh)

- a. KCPM is hereby directed to act as the central agency of all PHCs of the Department. Necessary steps shall be taken by the Joint Director of Agriculture, KCPM in this regard and they shall be the single nodal agency with respect to the functioning of all PHCs.
- b. KCPM shall conduct suitable training programmes for the staff working under PHCs regarding identification, diagnosis, survey methods, preparation and preservation of specimens etc.
- c. KCPM shall undertake the production of suitable crop-growth promoters, insect repellents, rodent repellents, pathogen repellents, Pheromone traps, bio-control agents and lures and can be supplied to farmers on a need-based manner. Legality if any, shall be observed in this regard.
- d. An amount of Rs.5.00 lakh has been earmarked for meeting these operational expenses for KCPM. However, KCPM shall submit an action plan for approval by the undersigned in this regard.

8. Management of wild animal attack using technology solutions. (Rs.188.05354 lakh)

(a). The main objectives behind this component are protection of the crop and deterring wild animals from entering into the crop fields. Wild animals may easily cause significant yield losses and provoke additional financial problems. Another aspect to consider is that wild animal-crop protection requires a particularly cautious approach. In other words, while utilizing the crop production, every farmer shall be made aware and take into consideration the fact that animals are living beings and need to be protected from any potential suffering to them also. Hence, managing them from causing potential loss to yield and life shall be the motto for all projects undertaken under this component. (b.) There is a CSS Scheme under RKVY for the management of wild animal attack. It is desirable that these two schemes shall not overlap with respect to the methodologies followed. The following are some of the indicative methodologies suggested:-

- i. **Wire fences;** are constructed of metal wires woven together forming a physical barrier. The fences are effective, long-lasting, and require relatively little maintenance. However, they are expensive and recommended only for the protection of high-value crops.
- ii. **Plastic fences;** polypropylene fences are generally less expensive and easier to install and repair than other types. Additionally, these fences are widely acceptable and meet various regulations. Their disadvantage includes their short lifespan (up to 10 years) and questionable effectiveness in areas with a higher possibility of wild animal crop damage.

- iii. **Electric fences**; are constructed to inflict an electric shock to animals that come in contact with the fence, thus preventing animals from crossing the fence. These fences are long-lasting and an effective crop protection measure. Costs vary depending on the specific type and size of an area. Before purchasing electric fences, it's very important to make sure they are allowed for use in a specific area, and for protection against endangered animal species. Additionally, it's recommended that electric fences are marked with a warning sign to prevent any possible human contact.
- iv. **Beehive fencing**; for instance, elephants are repelled by the sound of honey bees; this practice is beneficial as it serves as an extra source of income
- v. **Natural repellents**; using natural resources instead of mechanical or chemical protective practices. There are various ways to minimize crop loss from wild animals, including: Smoke; in some areas, farmers burn elephant dung or other materials that smolder and create heavy smoke, Fish or garlic natural emulsion; repels rabbits and deer Chili peppers; the chemical Capsaicin makes chili peppers hot; an excellent repellent against elephants, monkeys, squirrels, and some other wild animals; farmers who plant chili peppers will also benefit from an extra source of income, soybean, peas, and beans are excellent repellents against wild animals and are also an additional source of income, Egg-based repellent; homemade repellent against deer, Castor oil; is a natural repellent that keeps away burrowing animals such as moles.
- vi. **Chemical repellents** which include active substances such as Anthraquinone, Butanethiol, and Methyl Anthranilate can be used to keep wild animals away from crops.
- vii. **Biophysical barriers** - Similar to traditional fences, but made of natural easily renewable materials bamboo sticks, coconut tree bunches, or some other available shrubs; low-cost practice but also low efficiency in protecting crops against wild animals.
- viii. **Electronic repellents** - Also an effective, long-lasting, and eco-friendly method for crop protection that repels animals without harming them-Ultrasonic electronic repellent; silent to humans, high-frequency sound waves repel wild animals -Sonic electronic repellent: audible loud noise that scares animals.these technology can be effectively utilised for repelling wild animals.

(c). Any new proven technology including cropping pattern change in consultation with the Block Level Agricultural Knowledge Centre would be taken up in project mode.

(d). The concerned Assistant Director of Agriculture is directed to prepare and execute suitable projects in this regard. These projects shall be evaluated at the district level by a committee chaired by the Principal Agricultural Officer, Asst. Executive Engineer (Agri.), Deputy Director of Agriculture (H), Deputy Director of Agriculture (YP) and a scientist from KAU as members. The convenor of the meeting shall be the Technical Assistant at the District Level. They shall forward the project to the Directorate for approval by the undersigned.

(e) These projects at the State level shall be examined by a committee chaired by the Additional Director (CP) consisting of a Professor from the KAU as the external

expert, State Agricultural Engineer, JDA(PP), JDA(WM) and JDA (Farms) as members. They shall recommend the project for approval to the undersigned if the project is technically and financially feasible.

(f) An amount of Rs. 188.05354 lakh can be used for meeting the expenses in this regard.

9. Meeting the treasury queue bills of 2022-23 (35.02646 lakh)

(a). An amount of Rs. 35.02646 lakh shall be used for meeting the expenses in connection with encashment of Queue bills under treasury during 2022-23.

10. Abstract of the financial allocations under various components of the scheme

(a). The abstract of the various components of the scheme is described below:-

Sl. No.	Name of the components	Rate per unit (If any)	No. of units	Amount (Rs. in lakh)
1.	Establishment of new Plant Health Clinics (PHC) & Crop Pharmacies	Rs. 5.00 lakh	20 nos	100.00
2.	Support to existing PHCs	Project based	Need based	25.00
3.	Publishing and circulating Krishi Bhavan, block and district level periodic digital agricultural advisories			16.68
4.	Digital university for ICT support			10.00
4.1	Roving survey	Rs.500 per month per PHC	278 nos	16.68
4.2	Data uploading charges	Approximately Rs. 2000/SIM/PHC	278 nos	5.56
5.	Honorarium to Contract staff 1.Pest Scouts 2.DPHM 3. Technical Officer of PB 4. Research Associate of KCPM 5. Worker of PBS	Rs.19,280/- (PS) Rs.29785/- (DPHM) Rs.25000/- (TO) Rs.30000/- (RA) Rs. 8000/- (Worker)	PS- 298 nos DPHM-15 TO - 9 RA - 2 Workers - 9	758.00
6.	Upgrading Parasite Breeding	Rs.10 Lakh/PBS	9	90.00

	Stations to Bio-Control Sub Centres			
7.	Establishment of a new Bio Control Laboratory	Rs. 50.00 lakh	1	50.00
8.	Operational support to KCPM	Rs. 5 Lakh	1	5.00
9.	Managing wild animal attack using technology solutions	Project based	Need based	188.05354
10.	Meeting of Treasury queue bills			35.02646
	Total			1300.00

The expenditure in this regard shall be debited from the Head of Account - 2401-00-107-78 (P).

12. Monitoring and evaluation of the scheme

(a). The Deputy Director of Agriculture (E&T) shall 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 and also to monitor whether suitable control measures have been recommended by the concerned Departmental Officers for the field level observations uploaded by the Pest Scout and a detailed report to be submitted every month to this office.

(b). 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 co-ordinate all the activities at the district level for the effective implementation of the project. At the state level, the Additional Director of Agriculture (CP) will be in charge of the project.

13. Reporting

Principal Agricultural officers shall furnish monthly progress report to the undersigned before 5th of every month. Monthly progress report should contain component wise physical and financial targets and achievements, number of beneficiaries and stage of implementation of each component.

14. General instructions

(a) All rules, formalities and procedures shall be strictly followed for the implementation of the scheme. The statutory norms of financial propriety shall be adhered to.

(b) The expenditure would be met only from the provision available under the appropriate Head of Account.

(c) The fund release will be based on the actual requirement and the fund released

should not be parked in banks.

(d) Store Purchase Rules shall be strictly adhered to for all kinds of purchases.

(e) Tender/e-tender and other stipulated formalities shall be followed wherever necessary.

(f) The scheme shall be managed by the Additional Director of Agriculture (Crop Production) at the Directorate of Agriculture and the implementation of the scheme shall be completed by 31-03-2024.

ANJU K S IAS
DIRECTOR
Director of Agriculture

Encl: 1) District wise physical and financial targets.
2) Ref.1

Copy to: 1) All Additional Directors of Agriculture &SAE
2) All PAOs and PD (ATMA)
3) JDA, KCPM
4). DDA SBCL, Mannuthy
5). All Executive Engineers (Agri.)
6) Senior Finance Officer, Audit & Account Sections
7). All sections of the Directorate (IT Cell for publishing in the website)
8). TA to Director of Agriculture
9) Stock file