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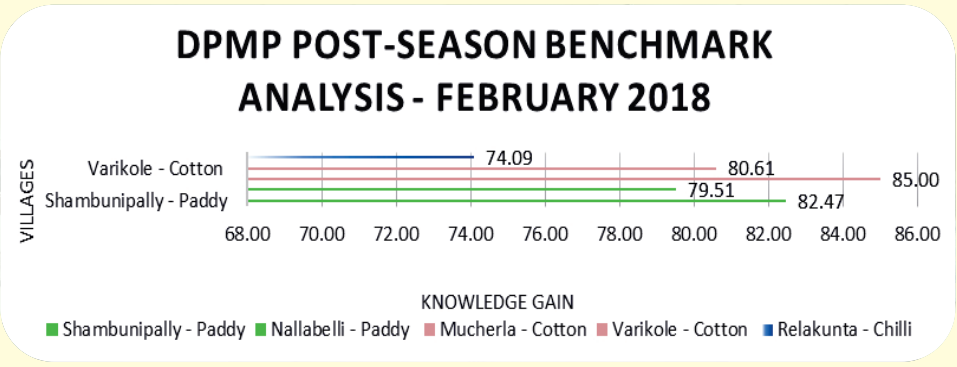
Theme Article



Special Event

WHAT'S INSIDE

Department of Agriculture, Cooperation & Farmers Welfare
Ministry of Agriculture and Farmers Welfare, Govt. of India

From the Director General's Desk

In India farming is a way of living to about 54% of the population. Farming became challenging to farmers due to several problems related to production and marketing. The pest and disease incidence are an important problem which is to be addressed properly. The District Pest Management Plan (DPMP) was an effort carried by National Institute of Plant Health Management (NIPHM) and National Institute of Agricultural Extension Management (MANAGE) on a pilot scale at Warangal rural and Warangal Urban districts in Telangana state. The District Pest Management Plan was implemented for 3 years during 2016-19 in three important crops of the district: paddy, cotton, and chilli.

Under DPMP an action plan was prepared involving multiple stakeholders from the MANAGE, NIPHM, Agricultural university research stations, State department of Agriculture, ICAR Krishi Vigyan Kendra's to provide the technical support to the farmers. Technical advisories based on prevailing pest problems were provided on weekly basis. Extension activities in the form of technical meetings, farmers training programs, seminars, campaigns, radio programs and demonstrations were conducted to improve knowledge levels of the farmers.

The model suggested the importance of comprehensive district pest management plan for effective pest and disease management by the farmers. At the end of the program implementation, the impact evaluation study revealed the effectiveness of DPMP in terms of better knowledge of crop management and change in attitude about the IPM practices among the stakeholders. The DPMP program yielded the desired results as a greater number of farmers was leaning towards adopting IPM practices to achieve sustainability of agriculture. The findings of this study will serve for formulating future policies on the pest and disease management in India

महानिदेशक के संदेश

भारत में लगभग 54% आबादी का जीवन यापन कृषि पर निर्भर है । उत्पादन एवं व्यापार से जुड़ी कई समस्याओं के कारण खेती करना किसानों के लिए चुनौतीपूर्ण हो गया है । पीड़क एवं रोग एक महत्वपूर्ण समस्या हैं, जिसे उचित तरीके से समाधान किया जाना चाहिए । राष्ट्रीय वनस्पति स्वास्थ्य प्रबंधन (एनआईपीएचएम) एवं राष्ट्रीय कृषि विस्तार प्रबंध संस्थान (मैनेज) द्वारा तेलंगाना राज्य के वरंगल ग्रामीण एवं वरंगल शहरी जिलों में व्यापक स्तर पर जिला पीड़क प्रबंधन योजना (डीपीएमपी) का क्रियान्वयन किया गया था । वर्ष 2016-19 के दौरान जिले की तीन महत्वपूर्ण फसलें : धान, कपास और मिर्च में 3 वर्षों के लिए जिला पीड़क प्रबंधन योजना लागू की गई थी।

डीपीएमपी के तहत् जिला पीड़क प्रबंधन योजना (डीपीएमपी) के तहत किसानों को तकनीकी सहायता प्रदान करने के लिए मैनेज, एनआईपीएचएम, कृषि विश्वविद्यालय अनुसंधान केंद्रों, राज्य कृषि विभाग, आईसीएआर कृषि विज्ञान केंद्र के कई हितधारकों को शामिल करते हुए एक कार्य योजना तैयार की गई थी । वर्तमान पीड़क समस्याओं के लिए साप्ताहिक तौर तकनीकी परामर्श आधारित सेवा प्रदान किया गया । किसानों के ज्ञान स्तर में सुधार करने के लिए विस्तार गतिविधियों के तौर पर तकनीकी बैठकों, किसान प्रशिक्षण कार्यक्रमों, संगोष्ठियों, अभियानों, रेडियो कार्यक्रम एवं प्रदर्शन आयोजित की गई ।

इस मॉडल में किसानों को प्रभावी पीड़क एवं रोग प्रबंधन के लिए व्यापक जिला पीड़क प्रबंधन योजना के महत्व के बारे में बतलाया गया है । कार्यक्रम के अंत में, प्रभावी मूल्यांकन अध्ययन से फसल प्रबंधन के बेहतर ज्ञान के संदर्भ में डीपीएमपी की प्रभावशीलता और हितधारकों में आईपीएम पद्धतियों के प्रति उनके दृष्टिकोण में हुए बदलाव के बारे में उल्लेख किया गया है । डीपीएमपी कार्यक्रम ने अपेक्षित परिणाम प्राप्त किये गए । क्योंकि, सतत् कृषि को हासिल करने के लिए किसानों का आईपीएम अभ्यासों को अपनाने के प्रति उनका झुकाव था । इस अध्ययन के परिणाम से भारत में पीड़क एवं रोग प्रबंधन पर भावी नीतियां बनाने में मदद मिलेगा ।

(Dr. P Chandra Shekara)
Director General

District Level Pest Management Plan (DPMP) Pilot Project- Warangal District

Sree Latha. E, Assistant Director-PHM and Narsi Reddy. M, ASO-Ento-PHM

INTRODUCTION TO DPMP

District Pest Management Plan is a holistic approach to prepare a pest management plan for a district and it includes various components like soil health management, varietal selection, nutrition management, agronomic practices, ecological engineering, and influence of prevailing community on pests and diseases. This plan involves National Institute of Plant Health Management (NIPHM), National Institute of Agricultural Extension Management (MANAGE), state agriculture department, state horticulture department, Agriculture research stations, ATMA, KVK's, agriculture and horticulture Universities.

District Pest Management Plan (DPMP) was brought up as a pilot project in Erstwhile Warangal district (Consisting of Warangal urban & Warangal rural districts) located in the central Telangana zone of Telangana state. Average rainfall of the districts is around 750mm. Important crops grown in these districts include Paddy, Maize, Chilli, Cotton, Red gram, Turmeric and Groundnut. Soil types of these districts vary from light texture to medium black soils. Farmers are used to grow commercial crops i.e., Cotton, turmeric, Chilli by incurring huge investment for crop production. Major portion of the investment is towards plant nutrition and plant protection. Indiscriminate usage of fertilizers and pesticides is seen and at times, this trend is resulted in crop losses and un-remunerative prices.

DPMP significantly requires extension interventions, where its objective is to identify extension gaps in pest management practices adopted by farmers to propose standardized process of planning and operationalization. Focusing extension activities to fill the gaps, 5 villages from Warangal (Urban) & Warangal (Rural) districts were selected for intensive actions.

OBJECTIVES OF DPMP

1. Assisting policy makers with the data collected from farmers for making farmer benefit policies.
2. Sensitization of Extension Functionaries, Media and NGOs, Farmers.
3. Sensitization of Input Dealers, Agri Business Companies
4. Involvement of various departments
5. Collection of data of existing practices from farmers
6. Evaluation of collected data and interpretation of specific problems pertaining to each Mandal in the district.
7. Preparation of specific crop plan in consultation with university scientists
8. Advice the extension activities to be taken up to educate the farmers.
9. Involvement of information technology (IT) in developing applications to help agriculture officers and horticulture officers in solving the crop related issues in an easy and quick way.

ASSISTANCE TO FARMERS UNDER DPMP

1. Making farmers to understand the good agricultural practices which they are not following.
2. Educate the farmers regarding the recommendations to be followed.
3. Providing demonstrations, trainings, group meetings and mass media publicity
4. Farmers will get more interaction with scientific community. It's a two-way communication, they can

share the problems through WhatsApp, or the application developed by IT and can get recommendations to overcome the problems.

5. Continuous adoption of important IPM packages.
6. Overall productivity increase with low-cost technologies

BENEFITS of DPMP

1. **Mass sensitization of stake holders on Pest Management:** Stake holders such as farmers, agricultural officers, horticultural officers, and subject matter specialists (SMS's) are brought under single platform to exchange knowledge, views, issues and remedies for better management of pests.
2. **Institutional arrangement for Pest Management:** To manage the periodic pest arrival and attacks institutes such as RARS, KVK, DATTC, Agripreneurs, NGO's and ABC's will involve and extend technical support in time.
3. **Strengthening of Extension system for Pest Management:** Introduction of DPMP by the involvement of ICT technologies, institutes, DAESI and ACABC will connect many farmers and officer's creating constant exchange of Pest management information periodically between each other. There will be reduced efforts of human resource and cost factors with effective usage of these methods.
4. **Prevention of crop loss due to Pests:** Through the implementation of DPMP, pest arrival and attack on various crops will be taken care by managing with time-to-time information exchange between farmers and officer's, to reduce the crop loss that leads to less productivity.
5. **Improved productivity among extension system:** By creating horizontal integration of all the stake holders in the extension activities through DPMP, extension system will see optimization of Human Resource & its efforts and promotes efficient extension system in districts across India. Time involved and cost of extension activities reduces to reach wide public.
6. **Reduced time for reporting, monitoring and evaluation**: The process of extension, reporting, monitoring, and evaluation is time consuming process. By the implementation of DPMP reporting becomes easy as there are needs no traditional way of doing. Monitoring and evaluation processes will be reduced by the involvement of latest technologies in tracking and observing the work done.
7. **Improved data archiving system:** The involvement of technologies is useful to save data so that stakeholders can easily archive the data transmitted between them. The data once shared, can be archived at any period of time.
8. **Targeted information dissemination to farmers and input dealers:** In time transformation of related information to the selected group is the biggest advantage of DPMP in real time, which will bring in the effectiveness of the purposed it is carried out.
9. **Increased best practices adoption among farmers:** By the implementation of the DPMP, a strong connection between the stakeholders is developed where in it leads to drop out of outdated and untraditional methods of farming and pest management activities and lets farmers and other stakeholders to know more and adopt in real time about the recent developments in the agricultural practices and pest management activities happening worldwide.

STAGES OF IMPLEMENTATION DURING 2016-17

1. Orientation of District Level Officials on DPMP
2. Preparation of Data Collection Formats and vetting by RARS Scientists.
3. Pre-data collection orientation to Agriculture Officers
4. Collection of filled formats.
5. Data Analysis, Identification of Extension gaps, Preparation of DPMP
6. **Major Gaps identified from the collected data:** Farmers were not having appropriate knowledge in soil testing and soil analysis, pre sowing operations and seed treatments, border crops, trap crops, refuge crops and inter crops. Farmers are using fertilizers and pesticides indiscriminately. Due to lack of knowledge of Economic Threshold levels (ETLS) and beneficial insects like parasitoids and predators which help in natural pest management IPM practices were not adopted. Major dependence on pesticides ignoring the other pest management strategies like cultural methods, biological etc. leading to pest resurgence and resistance.
7. **Circulation of DPMP and finalization:** Crop specific DPMP reports were circulated between the RARS and KVK Scientists, JDA, JDH, ATMA and Nodal Agencies such as MANAGE & NIPHM for the evaluation and correction in the DPMP.
8. DPMP printed and circulated among officials and farmers.
9. Networking of Agriculture / Horticulture Officers through WhatsApp, email, downloading of application and monitoring.
10. Sensitization workshop for extension stakeholders on ICT mobile tools. The meetings were organized monthly in Office of Joint Director (Agriculture)
11. Orientation of Paddy and Cotton farmers on DPMP
12. ICT based Concurrent monitoring by MANAGE and Kisan Gate – Structured messages to target groups through Mobile, SMS. Helpline support by RARS Scientists.
13. Orientation & Workshop on Technical Support to Chilli Farmers of DPMP
14. Orientation and Demonstration to DPMP Cotton Farmers on Pink Bollworm Management
14. Orientation and Demonstration to Maize Farmers on Shoot Borer Management by NIPHM
15. Selection of Warangal (Urban) and Warangal (Rural) for DPMP implementation due to bifurcation of Warangal district.

STAGES OF IMPLEMENTATION DURING 2017-18

PRE-BENCHMARK ANALYSIS was conducted to know the knowledge levels of the farmers on the three selected crops Paddy, Cotton and Chilli in the adopted villages. Based on the gaps following activities were done.

1. **Advisories as Weekly messages:** Weekly agro advisories are sent to farmers through bulk SMS and through social media like WhatsApp. The messages were disseminated on every Monday and the same is also forwarded to All India Radio for announcement through "Polam Kaburlu" program.
2. **All India Radio (AIR) and DPMP:** Warangal Division of All India Radio (AIR) obliged to provide a

slot for DPMP. "Krishi Vaani" – All India Radio (AIR) –. A live phone call program was organized by All India Radio for DPMP in Warangal AIR Station to broadcast Integrated Crop Management and Integrated Nutrient Management issues.

Materials (Books & Pamphlets): As a part of DPMP, three books were released each from paddy, cotton, and chilli crops. These books were inaugurated by Collectors of Warangal Urban and Warangal Rural districts. These books contain information on crop production and crop protection. These books also contain colorful images of insect pests, diseases, and natural enemies of the three crops. These books are distributed to all the Agricultural extensionaries working in both the district for their reference as well as to distribute the photocopies to the farmers of the particular crops.

Books released by NIPHM.

Pamphlets were distributed to all the village farmers at the time of meetings, field visits and distribution of the *Trichoderma, Pseudomonas* and other biofertilizers.

1. **Distribution of materials:** As a part of District Pest Management Plan, bio-fertilizers and bio-pesticides were distributed in the adopted villages to the selected farmers to encourage the use of bio agents.
2. **Field Demonstrations:** As a part of District Pest Management Plan, to encourage the farmers towards the IPM practices and towards the organic farming, five farmers from each of the adopted villages were taken as demonstration fields and shown to the farmers. All the IPM practices and NIPHM technologies are practiced in their farms of 1 acre each and make them understand the output and importance of these technologies. Demonstrations were also done on Seed treatment & seedling treatment with bio pesticides like *Trichoderma, Pseudomonas* and bio fungicides like *Azospirillum* and PSB. Farmers were also encouraged to spray *Pseudomonas* in paddy fields to control paddy blast. Distribution of and demonstration of *Trichogrammatid* Cards in paddy was also done to encourage the biological control practices. Uses and formation of Alley ways was demonstrated in the fields and discussed in all the meetings to decrease the damage caused by BPH.

For cotton farmers, demonstrations were done on use of *Trichoderma* and *Pseudomonas* used as soil

application to control the wilt diseases . Use of yellow sticky traps and pheromone traps was also explained and demonstrated. Maize seed was also distributed to the farmers to grow at as border crops to prevent sap sucking insects. Farmers were encouraged to use Neem seed oil along with the insecticides. Demonstration of Rolling stem applicator for the control of sap sucking insects was also carried out in both the adopted cotton villages. For chilli farmers, demonstrations were done on use of *Trichoderma* and *Pseudomonas* as soil application to control the wilt. Use of yellow sticky traps and pheromone traps was also demonstrated and explained. Maize seed and marigold seed was also distributed to the farmers to grow at as border crops to prevent sap sucking insects. Farmers were encouraged to use Neem seed oil along with the insecticides.

Orientation meeting held in Warangal Urban Collector Office to the officers of Warangal on 23-06-2017

Officers at Orientation meeting held in Warangal Urban Collector, Office on 23-06-2017

6. **NICE application:** This application was used to send SMS to very large group of farmers, through this application One pager, PDF documents, Video clippings and Video URLs were sent to large groups. This application was also used to raise queries by the farmers or field extension officers and get solutions from university scientists. For using this application, mobile numbers of 1.5 Lakhs farmers were collected, 70 e-tablets were distributed to the extension functionaries as well as officers of MANAGE and NIPHM. The grouping of farmer's crop wise was done to disseminate messages.

I. **Collection of Farmers Data:** The Tablet user as Field Agents uploaded his territory farmer's details to create a database in the NICE APP. The created database was used to send the structured messages. The farmer's information was used by the field agent to contact farmers regularly and to reach them.

II. **Regional Weather Information:** The source of the weather information was automatically generated by the NICE app using India Meteorological Department. It was informed to farmers for necessary preparations.

III. **Feedback/Query System:** The field agent using the App through tablet took feedback/queries from the farmers and sent it to the content approving agents or creators to answer the queries.

IV. **Bypass Delivery:** The content creator sent the messages to farmers without waiting for the approval of Content Approver in any Emergency cases.

V. **Content Search:** Any Tablet user can search in the given tab within the application to find the crop based or specific content in the NICE Cloud base.

VI. **Photo and Video uploads**: The field agents uploaded the pictures and videos taken from the Tablet on spot/Farm to Advisory Managers for verification and for delivering the suggestions.

VII. **Calls:** Field agents used the Tablet to make calls by using their SIM cards.

VIII. **Monitoring and Evaluation:** Field agents/subordinates' performance was evaluated based on

weekly reports.

IX. **Tablet use for crop Loss Survey:** Crop Loss information of the area and farmer was reported on real-time basis.

X. **Schemes & Programmes:** All Central & State Government schemes and Programmes details were informed to the farmers.

STAGES OF IMPLEMENTATION IN 2018-19

POSTERS: Colorful posters of important issues in three crops were made of size – 18"X23" on *Trichoderma, Pseudomonas*, Ecological engineering, Pink bollworm management, BPH management, Viral disease management in Chilli, sucking pest management in Cotton, pasted at the time of jeep campaign at Gramapanchayath buildings, Bus stands, Agri Input Dealers, and other strategic locations. Nine different posters of total 9000 numbers were printed and pasted.

JEEP CAMPAIGN

Jeep Campaign started on 27th july 2018, Covered 226 villages in 26 Mandals of Warangal Rural and Uraban Districts, Fifteen minutes audio developed has been played which explains in detail the contents present in the posters , received much public response

Field Demonstrations

PADDY

As a part of District Pest Management Plan, to encourage the farmers towards the IPM practices and towards the organic farming, five farmers from each of the adopted villages are taken as demonstration fields and shown to the farmers. All the IPM practices and NIPHM technologies are practiced in their farms of 1 acre each and make them understand the output and importance of these technologies. Demonstrations were also done on Seed treatment & seedling treatment with bio pesticides like *Trichoderma, Pseudomonas,* and bio fungicides like *Azospirillum* and PSB. Farmers were also encouraged to spray *Pseudomonas* in paddy fields to control paddy blast. Distribution of and demonstration of *Trichogrammatid* Cards in paddy was also done to encourage the biological control practices. Uses and formation of Alley ways was demonstrated in the fields and discussed in all the meetings to decrease the damage caused by BPH.

Demonstration - Paddy

Enrichment of organic manure with biofertilizers Azospirillum and PSB in Nallabelli village

Enrichment of organic manure with *Trichoderma* in Shambhunipally village

Seed treatment in Nallabelli and Shambhunipally villages

COTTON

For cotton farmers, demonstrations were done on use of *Trichoderma* and *Pseudomonas* as soil application to control the wilt. Use of yellow sticky traps and pheromone traps was also demonstrated and explained. Maize seed was also distributed to the farmers to grow at as border crops to prevent sap sucking insects. Farmers were encouraged to use Neem seed oil along with the insecticides. Demonstration of Rolling stem applicator for the control of sap sucking insects was also carried out in both the adopted cotton villages.

Demonstration - Cotton

Enrichment of organic manure with *Trichoderma* and *Pseudomonas* for multiplication in Mucherla and Varikole village

Red gram raised as border crop in Varikole village

Demonstration of yellow sticky traps in Varikole village

Demonstration of pheromone traps in Varikole and Mucherla villages

CHILLI

For chilli farmers, demonstrations were done on use of *Trichoderma* and *Pseudomonas* as soil application to control the wilt. Use of yellow sticky traps and pheromone traps was also demonstrated and explained. Maize seed and marigold seed was also distributed to the farmers to grow at as border crops to prevent sap sucking insects. Farmers were encouraged to use Neem seed oil along with the insecticides.

Demonstration - Chilli

Demonstration of yellow sticky traps at Relakunta village

Maize field around the field of chilli crop to protect from sap sucking insects

Training Programmes were conducted for Officers, Framers and Stakeholders in the year 2018-19.

ANALYSIS AND IMPACT

The same questions given in the pre benchmark analysis were given to the same farmers after the completion of the season to know the improvement levels in the knowledge of the farmers. The questions are categorized into eight groups. The groups are Soil Management and Pre-cropping practices, awareness on micronutrients

usage, awareness on fertilizer usage, awareness on pesticides usage, pest management in paddy, disease management in paddy, awareness in new technologies in paddy and post-harvest practices.

A. Shambhunipally Village:

The major paddy varieties grown in this village are BPT, RNR 15048, MTU-1010 and Bathukamma. The knowledge of farmers of this village on soil management and pre cropping practices in preseason analysis was 45.71 percent and increased to 56.19 percent after the season. Then, it is recorded that on the awareness on micronutrients use in the preseason was 55 per cent which increased to 70 by the post season. The knowledge on the use of fertilizers was 63.33 per cent which increased to 80 per cent. Awareness on the pesticide's usage was 40 per cent and increased to 76 per cent by the end of the season. While looking into pest management in paddy it is observed that the knowledge level increased from 58.89 to 90 per cent. It is also observed that the knowledge levels on the disease management increased from 44.44 to 62.22 per cent. Whereas awareness on new technologies on paddy like use of pheromone traps, use of egg parasitoids., increased from 23.33 to 83.33 per cent. Further, it is noticed that the knowledge on post-harvest practices remained at the same level i.e., 43.33 per cent. Itis noticed that the knowledge on the use of *Trichogrammatid* was very less in the preseason which shows that farmer's knowledge on the biological control was the least when compared to the other methods. In this analysis it is also observed that the farmers of this village are having a good knowledge on the fertilizer usage and this parameter recorded the highest per cent before the season (preseason) while great improvement was observed in farmer's knowledge of pest management of paddy.

B. Nallabelli Village:

The major paddy varieties grown in this village are KNM-118, MTU-1010, RNR and Bathukamma. The knowledge of farmers of this village on soil management and pre cropping practices in preseason analysis was 48.10 percent and increased to 65.71 percent after the season. Then, it is recorded that on the awareness on micronutrients use in the preseason was 41.67 percent which increased to 69.17 by the post season. The knowledge on the use of fertilizers was 76.67 percent which increased to 78.33 per cent. Awareness on the pesticide's usage was 42 percent and increased to 52.67 percent by the end of the season. While looking into pest management in paddy it is observed that the knowledge level increased from 62.22 to 70 per cent. It is also observed that the knowledge levels on the disease management increased from 47.78 to 53.33 per cent. Whereas awareness on new technologies on paddy like use of pheromone traps, use of egg parasitoids *etc*., increased from 31.67 to 76.67 per cent. Further, it is noticed that the knowledge on post-harvest practices remained at the same level i.e., 43.33 per cent. Itis noticed that the knowledge on the use of *Trichogrammatid* was very less in the preseason which shows that farmer's knowledge on the biological control was the least when compared to the other methods. In this analysis it is also observed that the farmers of this village are having a good knowledge on the fertilizer usage and this parameter recorded the highest per cent before and after the season.

C. Mucherla Village:

The major cotton varieties grown in this village are Rasi 569, Moneymaker and Raja. The knowledge

of farmers of this village on soil management and pre cropping practices in preseason analysis was 75.56 per cent and increased to 86.67 per cent after the season. Then, it is recorded that on the awareness on micronutrients use in the preseason was 43.33 per cent which increased to 88.89 by the post season. The knowledge on the use of bio fertilizer usage was 63.33 per cent which increased to 86.67 per cent. Awareness on the pesticide's usage was very less in this village i.e., 11.11 per cent and increased to 33.33 per cent by the end of the season. While looking into pest management in cotton, it is observed that the knowledge level increased from 62.22 to 77.22 per cent. It is also observed that the knowledge levels on the disease management increased from 50 to 55 per cent. Awareness on new technologies in cotton increased from 48.33 to 88.33 per cent. In this analysis it is also observed that the farmers of this village are having a good knowledge on soil management and pre cropping practices recorded the highest per cent before the season (preseason) while great improvement was observed in farmer's knowledge on micronutrient usage.

D. Varikole Village:

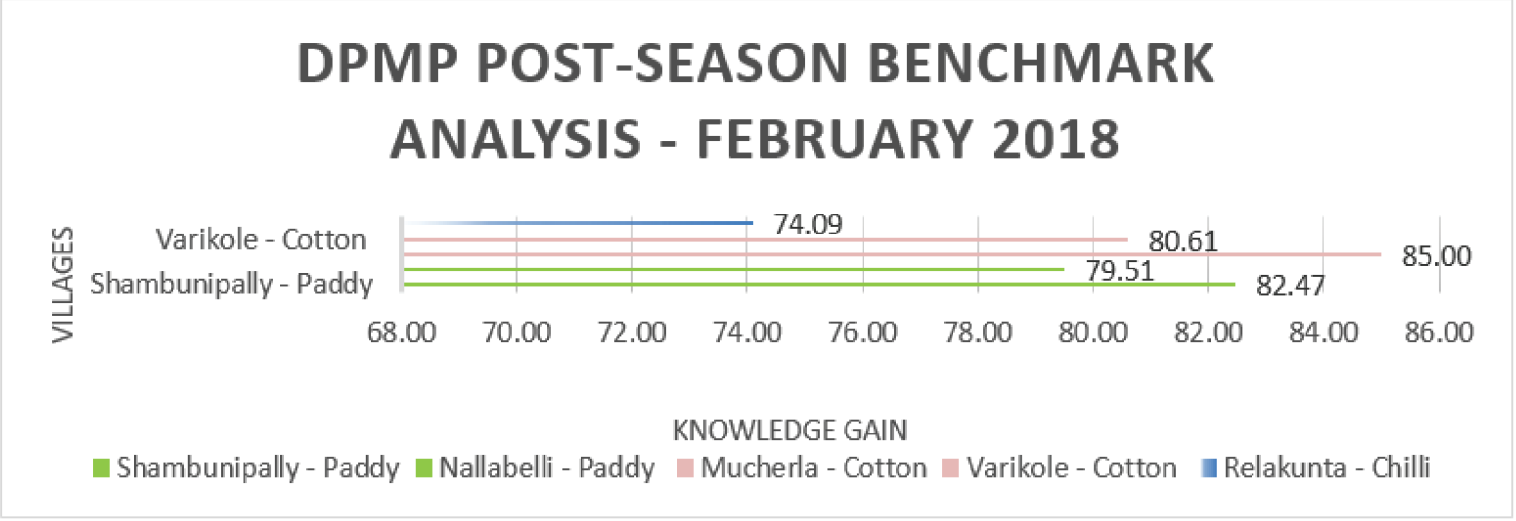
The major cotton varieties grown in this village are Rasi 569, Ambuja and Raja. The knowledge of farmers of this village on soil management and pre cropping practices in preseason analysis was 58.89 per cent and increased to 85.56 per cent after the season. Then, it is recorded that on the awareness on micronutrients use in the preseason was 44.44 per cent which increased to 82.22 by the post season. The knowledge on the use of bio fertilizer usage was 63.33 per cent which increased to 86.67 per cent. Awareness on the pesticide's usage was very less in this village i.e., 21.11 per cent and increased to 25.56 per cent by the end of the season. While looking into pest management in cotton, it is observed that the knowledge level increased from 56.67 to 72.78 per cent. It is also observed that the knowledge levels on the disease management increased from 35.83 to 57.50 per cent. Awareness on new technologies in cotton increased from 65 to 73.33 per cent. In this analysis it is observed that the farmers of this village showed great improvement in farmer's knowledge on micronutrient usage.

E. Relakunta Village:

The major chilli varieties grown in this village are Roshni, NS-170.

The knowledge of farmers of this village on soil management and pre cropping practices in preseason analysis was 44.62 per cent and increased to 56.88 per cent after the season. Then, it is recorded that on the awareness on micronutrients use in the preseason was 45.44 per cent which increased to 80.22 by the post season. The knowledge on the use of bio fertilizer usage was 50.23 per cent which increased to 86.67 per cent. Awareness on the pesticide's usage was very less in this village i.e., 20.12 per cent and increased to 25.56 per cent by the end of the season. While looking into pest management in cotton, it is observed that the knowledge level increased from 54.63 to 72.78 per cent. It is also observed that the knowledge levels on the disease management increased from 35.83 to 57.50 per cent. Awareness on new technologies in chilli increased from 48.83 to 74.09 per cent. In this analysis it is observed that the farmers of this village showed great improvement in farmer's knowledge on micronutrient usage and also bio-input usage for the crop.

Post benchmark analysis



POST EVALUATION AND CONCLUSION

Post evaluation survey data was collected from the farmers and officers at adopted villages of Warangal Rural and Urban districts and the data was given to MANAGE for the analysis, final report was submitted with the analyzed data. The report from MANAGE findings indicated that most of the DPMP Project Implemented Village farmer's shows high-level favorable attitude toward Integrated Pest Management (IPM) practices whereas, DPMP Project non-Implemented Village farmers shows a low-level favorable attitude towards Integrated Pest Management (IPM) practices. Repeated orientations, workshops and demonstrations on the usage of physical, cultural and bio-control measures of controlling pest and disease in paddy crop made them to show the increased level of practicing such ecofriendly measures and also made them to show the increased level of usage of micronutrients, best irrigation practices in paddy. Farmers have perceived that this has resulted in the betterment in the quality and quantity of the paddy yield in DPMP implemented village and on the usage of physical, cultural and biocontrol measures of controlling pest and disease in cotton crop made them to show the increased level of IPM practices, increased level of usage of micronutrients and best irrigation practices in cotton and on the usage of physical, cultural and biocontrol measures of controlling pest and disease in chilli crop made them to show the increased level of practicing such ecofriendly measures and also made them to show the increased level of usage of micronutrients, best irrigation practices in chilli.

The Bio production units were established by many farmers from the adopted villages and apart from producing the bio inputs for their fields these farmers have also distributed the bio inputs for the farmers of other villages successfully thus showcasing the use of bio agents for the sustainable production.

The DPMP pilot project had delivered very good results in terms of the insecticide and pesticide usage behavior of farmers. The study result encourages to suggest a similar model of pest and disease management program in many districts which are vulnerable to biotic stress factors.

Around the World

Integrated pest management or integrated pest control of plant diseases, weeds, and insect pests in agricultural production is a universally accepted concept. Integrated pest management is a wider approach that integrates all available practices for the sustainable management of pest problems. It aims to suppress pest populations below the economic injury level (EIL) by implementing control measures at economic threshold level (ETL). It is becoming very important for the management of invasive species.

Cotton growers in the Cañete valley, Peru first adopted combined pest management practices instead of only pesticides to save the cotton crop. The concept of "integrated management" was born in the United States of America (USA) in 1959 and Food and Agriculture Organization (FAO) put the concept of IPM in operation in 1968. The UN's Food and Agriculture Organization defines IPM as "the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms."

USA, Europe, Australia, Asia, Latin America, and Africa slowly shifted from exclusive pesticides to IPM for sustainable agricultural pest management. Government legislation of IPM first started in USA and Europe. The government, non-governmental organizations, scientists, researchers, farmers, advisory agencies, and marketing agencies involved in IPM innovation systems to reduce pesticide use.

The Farmer Field School (FFS) extension methodology in the developing countries started teaching IPM and it became popular from1989. The FFS model of extension has spread from Asia to Latin America, Africa, and Eastern Europe. In the developed countries the periodic evaluation of IPM programs and in developing countries revision of IPM curriculum of FFS based on new pest problems are giving good results

Special Events

- The "International Women's Day" was celebrated on 08-03-2021 by all the officers and staff of NIPHM with much enthusiasm. As part of the programme, several competitions were held and winners were honoured with mementos.
- 8th March, 2021 - lecture was organized on the theme "*Choose To Challenge"* in connection with "International Women's Day" delivered by Guest Speaker Dr. V Anitha, Dean PGS, PJTSAU, Hyderabad. The officers, faculty, staff and trainees of NIPHM have attended the lecture.







- Dr. P Chandra Shekara has joined as Director General I/c at NIPHM on 01.01.2021.
- NIPHM has celebrated the New Year eve on the 1st January, 2021. Dr. P Chandra Shekara, Director General I/c has interacted with the Officers and Staff and discussions were held on the new initiatives and progress of ongoing activities of NIPHM.




- The 72nd Republic Day has been celebrated at NIPHM on 26-01-2021. Dr. P Chandra Shekara Director General I/c, NIPHM has hoisted the National Flag and acknowledged the work done by our great leaders who made efforts for constitution of India.



Plant Health Management Division

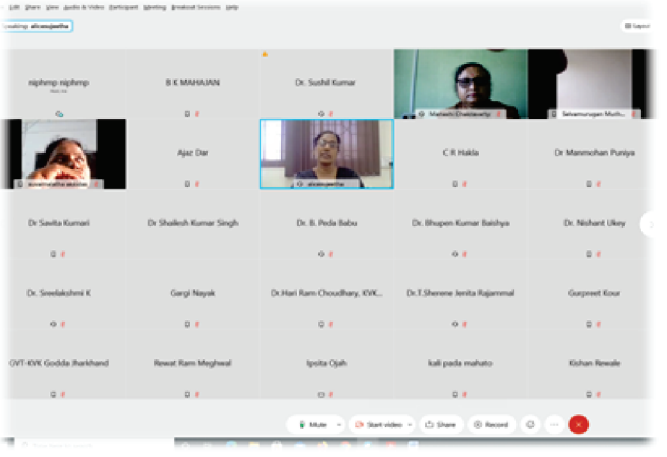
S. No	On-line mode	Name of the programme	No. of Participants State-wise/ Country wise	Qualification	Profession/ Occupation
Officers training					
1.	Yes	Production Protocol for Biofertilizers (04.1.2021 to 08.01.2021)	**57**(AP-2,Assam-6, TS-2, Bihar-2, KA-3 TN-5, MS-8,Odisha-5 J&K-7,Raj-5,Jha-5, KR-2,Megh-2,MP-3)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
2.	Yes	**Production Protocol for Predators and Parasitoids** (18.01.2021 to 22.0 1.2021)	**8** (J & K-01, Mani-01, MS-01, Raja-01, UP-01	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
3.	Yes	Integrated soil Nutrient & Rhizosphere Management (01.02.2021 to 05.02.2021)	**25**(AP-14, Bihar-1 Maharasht ra-2 KA-3, HP-1,Odisha-1, MP-2, Kerala-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
4.	Yes	Advances in Weed Managemnt (03.02.021 to 05.02.2021)	24(AP-11,TS-1 KA-3,Odisha-1,M P-2, Kerala-1, CG-1,TN-1, UP-1, Punjab-1, WB-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
5.	Yes	AESA and Ecological Engineering for Pest Management (15.02.2021 to 19.02.2021)	17(AP-1,Har-2,MH-3,J&K-7,Kerala-2)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
6.	Yes	Training for Tobacco Board senior grading officers (17.02.2021 to 19.02.2021)	22(Senior Grding officers/Auction superindents)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
7.	Yes	Quality control of Microbial Biopesticdes (22.02.2021 to 26.02.2021)	10 (AP-2, TS-2,KA-2, J&K-1, MH-2, Bihar-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
8.	Yes	Production Protocol for EPN (22.02.2021 to 26.02.2021)	6(KA-3,Guj-1,Kerala-1,Orissa-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
9.	Yes	Field Diagnosis and Management of Plant Parasitic nematodes (01.03 .2021 to 05.03.2021)	14(A.P -1. R-2.MP-1,B-2, MS-2,J&K-1,TN-1,UP-2,Uttarakhand -1,Krla-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
10.	Yes	On-farm production of Bio -control agents and Microbial Biopesticide s (Tobacco board) 03.03.2021 to 05.03.2021	15 Field level officers from Tobacco Board, AP	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
11.	Yes	On-farm production of Bio -control agents and Microbial Biopesticid es (Tobacco board) (08.03.2021 to 10.03.2021)	16 Field level officers from Tobacco Board,AP	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
12.	Yes	On-Farm production of biocontrol agents and microbial Biopestici des (15.03.2021 to 19.03.2021)	62 (K-6, TN-10 MS-15 Raj-6,AP-2, Meg-6, HP-3, Guj-3, Har- 2, Uttarakhand -2	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers

1.	Yes	PHM In Protected cultivation (15.03.2021 to 19.03.2021)	15(AP-2, R-2, MP-1,B-2, K-2, MS-2, J&K-1,TN-1,UP-1,Guj-1,)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril.Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
2.	Yes	Quarantine nematodes of economic importance (22.03.2021 to 26.03.2021)	9(UP-2,TN-1,AP-1, B-2,MP-1,J&K-1,MS-1)	M.Sc.(Ag)/ B.Sc.(Ag)	Agril. Officers/ Assist. Dir. of Agri./Asst.Professors/ field officers
3.	No	Production protocol for Microbial Biopesticides and Biocontrol agents (22.03.2021 to 26.03.2021)	3(TS)	M.Sc.(Ag)/ B.Sc.(Ag)	Asst.Professors
Farmers training programme					
4.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (08.01.2021 forenoon)	**25** (Progressive farmers of Nalgonda district)	SSC/field experience	Farmers
5.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (8.01.2021 afternoon)	**40** (CEO of 8 FPO group, Ramannapet village, Bhongir district)	SSC/ field experience	Farmers
6.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (28.01.2021)	**25** (Warangal district)	SSC/ field experience	Farmers
7.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (29.01.2021)	**25** (Warangal district)	SSC/ field experience	Farmers
8.	Yes	Bio-agents usage in Horticultural crops at adopted village (01.02.2021)	15 (at adopted village)	SSC/field experience	Farmers
9.	Unscheduled	On-farm production bio fertilizers & bio pesticides **to sericulture farmers** (05.02.2021)	40(on campus)	SSC/field experience	Farmers
10.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides(05.02.2021)	28(off campus)	SSC/ field experience	Farmers
11.	Unscheduled	On-farm production of bio fertilizers & bio pesticides to **sericulture farmers** (12.02.2021)	40(on campus)	SSC/ field experience	Farmers
12.	Yes	Role and use of Bioagents (11.02.2021)	30 (off campus under TN - IAMP)	SSC/ field experience	Farmers
13.	Yes	Role and use of Bioagents (11.02.2021)	30 (off campus under TN - IAMP)	SSC/ field experience	Farmers
14.	Yes	Role and use of Bioagents (12.02.2021)	30 (off campus under TN - IAMP)	SSC/ field experience	Farmers
15.	Yes	Role and use of Bioagents (12.02.2021)	30 (off campus under TN - IAMP)	SSC/ field experience	Farmers
16.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides(12.02.2021)	55(off campus)	SSC/ field experience	Farmers

1.	Unsched uled	On-farm production of bio fertilizers & bio pesticides to **sericulture farmers** (19.02.2021)	40 (on campus)	SSC/ field experience	Farmers
2.	Yes	On-farm production of bio fertilizers & bio pesticides(25.02.2021)	30(off campus)	SSC/ field experience	Farmers
3.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (26.02.2021)	30(off campus)	SSC/ field experience	Farmers
4.	Yes	Bio-agents usage in Horticultural crops at adopted village (01.02.2021)	15 (at adopted village)	SSC/field experience	Farmers
5.	Unsched uled	On-farm production bio fertilizers & bio pesticides **to sericulture farmers** (05.02.2021)	40(on campus)	SSC/field experience	Farmers
6.	Yes	On-farm production of bio fertilizers & bio pesticides(25.02.2021)	30(off campus)	SSC/ field experience	Farmers
7.	Yes	On-farm production of bio control agents, bio fertilizers & bio pesticides (26.02.2021)	30(off campus)	SSC/ field experience	Farmers

1. Production Protocol for Biofertilizers

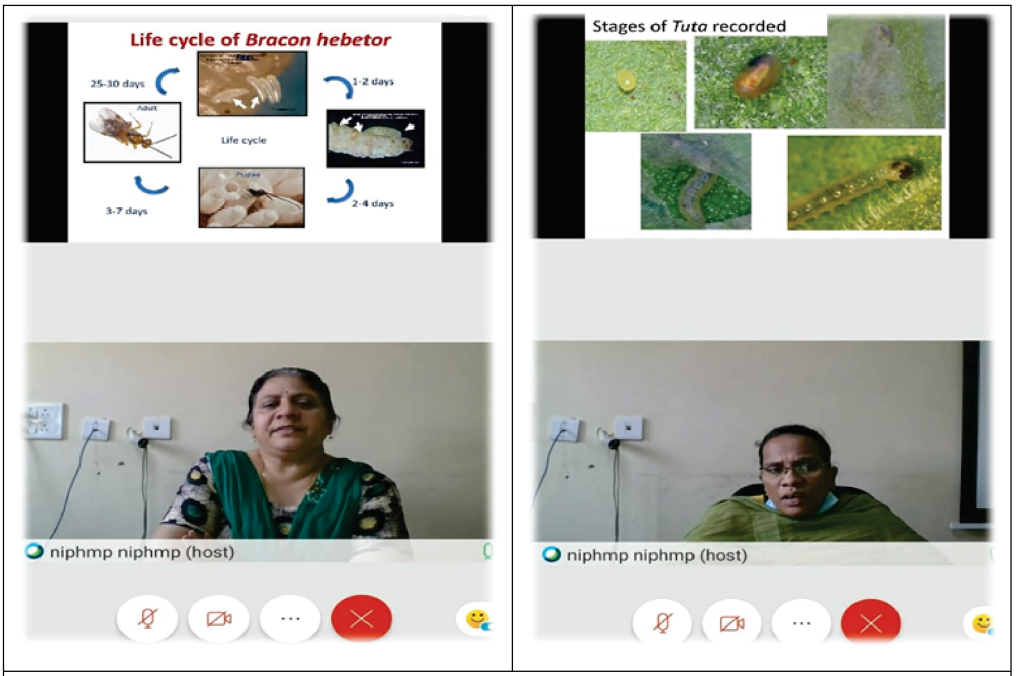
As scheduled in the NIPHM training calendar 2020-21, an online training programme on 'Production Protocol for Biofertilizers' was organized at NIPHM from 04.01.2021 to 08.01.2021 (5 days). In this programme total 57 officers/scientists from different states & organizations have participated as mentioned below. The participants underwent various aspects of the Production Protocol for Biofertilizers such Role of Biofertilizers in Plant Health Management, Protocol for establishment of Biofertilizer production unit as per FCO 1985, Isolation & purification of microbial isolates used in biofertilizer production, mycorrhizae biofertilizers for sustainable Agriculture(Guest speaker : Dr.Lakshmipathi, Senior Scientist, Agricultural Research Station, Amaravathi, Guntur, ANGRAU, AP.)Isolation & identification of Mycorrhiza, Characterization of microbial isolates used in biofertilizer production. Protocol for production of carrier based biofertilizers (Guest speaker: Dr. S. Triveni, Assoc. Professor & Univ. Head, Dept. of Agril.Microbiology & Bioenergy, PJTSAU, Rajendranagar, Hyderabad) & liquid based biofertilizers, role of microbes in abiotic stress management (Guest speaker: Dr.Bandeppa, Scientist , ICAR-IIRR, Rajendranagar, Hyderabad), Quality Control of Biofertilizers and low-cost On-farm production of biofertilizers, Rhizoshere engineering etc. During the online sessions, shown the technology videos of on-farm production of biagents to participants . All participants submitted their assignments on given topics.



2. Production protocol for Predators and Parasitoids

The Online training program on "Production protocol for Predators and Parasitoids" conducted from 18th-22nd January 2021 at NIPHM. A total of **08** participants have registered the program and 05 participants have (**Jammu & Kashmir-01, Manipur-01, Maharashtra-01, Rajasthan-01, Uttar Pradesh-01 : Men-05; Women-03)** attended this program.

The training program was started with the introduction and inaugural address by Assistant director PHM, theory classes on the topics Principles and concepts of biological control, Biological control of crop pests by Parasitoids, Mass production techniques of important egg and egg-larval parasitoids, and Mass production techniques of larval parasitoids was taken by AD-PHM. Ecological engineering for pest management was taken by Dr. Narsi Reddy ASO-ENTO, and the classes on Mass production of important laboratory host, Mass production techniques of important insect predators and mass production of coccinellid predators was taken by Dr. Shailaja ASO-ENTO. The programme has successfully completed after the participants presented on successful biocontrol case studies at their place and taking feedback from the participants.



Classes taken by the Staff

3.Quality control of Microbial biopesticides

As scheduled in NIPHM training calendar 2020-21, online training programme on Quality control of Microbial Biopesticides was organized from 22.02.2021 to 26.02.2021. In this programme total 10 participants were attended (AP-2, TS-2,KA-2, J&K-1, MH-2, Bihar-1)). The participants underwent various aspects of the Insecticide Act, 1968 -Registered biopesticides under Insecticide Act, 1968. Explained about Preparation and Maintenance of pure cultures of fungus and bacteria and parameters to be tested for Quality control of bio pesticides such as NPV, T. viridae, Pseudomonas spp, Physico Chemical Parameters (pH, Moisture content), quality control parameters for Entomopathogenic fungi, Grams staining technique, and POB count for NPV. The participants also underwent classes the establishment of Microbial biopesticide Laboratory, requirements to get Accreditation as per ISO-17025

4.AESA and Ecological engineering in pest management

Conducted 5 days one line training programme on AESA and Ecological engineering in pest management from15.02.2021 to 19.02.2021. 17 participants attended this programme (AP-1,Har-2,MH-3,J&K-7,Kerala-2. During this programme, the participants underwent theory classes on 1. Principles and concepts of Integrated Pest Management, Introduction to Biological Control – Principles and Concepts, Principles Ecological Engineering for pest management, Agro ecosystem analysis(AESA) Concepts, AESA in different crops, On farm mass production of important insect predators, On farm mass production and conservation of important parasitoids, On-farm production of bacterial Biofertilizers and application methods, Trap Crops, Intercropping and Companion Planting in Pest management

5.On-farm production of Bio-control agents and Microbial Biopesticides

As approved by the competent authority, three online training programmes for tobacco board officers were conducted as mentioned below details. In this programme total of 31 officials from different Auction Plot forms of the Tobacco Board, the Andhra Pradesh region has participated through virtual mode The Online training program on On-farm production of Bio-control agents and Microbial Biopesticides 03.03.2021 to 05.03.2021 and 08.03.2021 to 10.03.2021.

The participants underwent various aspects of Plant Health Management techniques in Tobacco crop such as Ecological Engineering concept in Tobacco for pest management, Integrated Nutrient Management in Tobacco, On-farm Production of Bio fertilizers& bio pesticides and application in Tobacco, Integrated Disease Management in Tobacco, On-farm Production of predators and parasitoids, Integrated Weed Management in Tobacco, Steps involved in residue analysis in Tobacco leaves. During first training programme for Senior Grading officers, the scientist from Central Tobacco Research Institute, Rajamundry, AP and Karnataa invited as resource persons to deliver the given lectures (Dr.S.Kasturi Krishna, Head i/c, Division of Crop Production & CTRI RS, Jeelugumilli, AP.(discussed about Integrated Nutrient Management), Dr. S. Ramakrishnan, Head(discussed about integrated disease management in Tobacco and nematode management), CTRI RS, Hunsur, Dr.V. Gopal Rao Naidu, Principal Scientist, CTRI RS, Jeelugumilli, A.P(discussed about weed management in tobacco, especially focused on control of *Orobanche* weed)).

6.Training programme on "On- Farm Production of Bio-control Agents and Microbial Bio-pesticides

As scheduled in the NIPHM training calendar 2020-21, a training programme on 'On-Farm Production of Bio-control Agents and Microbial Bio-pesticides' was conducted from 15th to 19th March 2021. In this programme total of 62 officers/scientists from different states are attended.

In this training program there were a total of 11 lectures such as Introduction to Biological Control of Insect Pests – Principles and Concepts, Ecological engineering for pest management, On-farm production of biofertilizers and application methods, Role of Entomopathogens in plant health management, On farm production of host insects and Parasitoids\, Use of entomopathogenic nematodes (EPN), a premising bio-control agent for the management of insect pests, On farm mass production of important insect predators, On farm production of *Trichoderma* and *Pseudomonas* On-farm production of entomopathogenic nematodes, On farm production of Entomopathogenic Fungus, Mass production of host insects (*Spodoptera*)

Skill training for Rural Youth on VERMICOMPOST PRODUCER: QP-1203 (15-02-2021 to 17-03-2021)

NIPHM is Recognised by the Agriculture Skill Sector Council of India (ASCI) for organizing of skill training program under National Skill Development Mission (NSDM). During the current year (2020-21) NIPHM is conducted skill development training programmes on Vermicompost (AGR-01203) in collaboration with the Agricultural Skill Council of India (ASCI) at NIPHM from 15.02.2021 to 17.03.2021 under the RKVY scheme (DAC &FW) with a budget of @Rs. 2,25,000. Total 21 youths from AP-2, TS-17, KA-1, and Maharastra-1 were trained for consecutive 30 days (200 hrs) (classroom teaching and practical training). As per the SOP, the trainees have taken the COVID-19 test. They have been in quarantine for a week. The trainees were learned about various vermicompost production techniques (Pit method, tank method, cement ring method, silpaulin method, etc), vermiwash production, etc. They are also taken to NIRD &PR, commercial vermicompost units and field visits to Amdhapur. The trainees are being made into 4 groups and they have constructed the low cust shed and installed the various method of vermicompost bed by taking all the safety measures. The Assessment was conducted by the ASCI team on 17.03.2021. All the students have passed the examination.



Farmers training

1. Training cum demonstration on the use of biopesticides in Tobacco growers

On 11.03.2021 & 12.03.2021 the following team of NIPHM visited Mysore Region, Tobacco Board, Karnataka for the demonstration of application methods of Bio pesticides (*Trichoderma* & *Pseudomonas*) in

Tobacco crop. visited different Auction Plot Forms of Tobacco board for demonstration of NIPHM bio products such as *Pseudomonas fluorescens* & *Trichoderma harzianum* as desired by tobacco growers during nursery bed preparation and other initial stages for controlling the soil born diseases like damping off and black shank, which are major problems in tobacco crop. Tobacco growers are spending more amount towards chemicals for control these diseases and unknowingly deteriorate the soil health & quality.

The topics mainly covered in this off campus programme are mentioned below;

The application of *Trichoderma* & *Pseudomonas, Biofertilizers* in Tobacco: To emphasized mainly at the time of Nursery bed preparation, seedlings transferring to the pore trays, main field application with enrichment of *Trichoderma* & *Pseudomonas* in organic amendments like FYM/coco pit/ vermicompost.

Day 1: 11.03.2021.

Visited Auction Plot Form Chilkunda and Kamalapura, Mysore, Karnataka Shri Mr. Manjunath, RM, Mysore, Tobacco Board & other Auction Superintendents facilitated the all the material for demonstration of the biopesticides. Here a total of 35 farmers gathered & the usage of *Trichoderma* and *Pseudomonas* explained.

Day 2: 12.03.2021.

Session I: 9.30 to 1.00 pm

Visited Auction Plot Form Hunsur & H.D.Kote, Mysore, Karnataka, Shri Mr. Manjunath, RM, Mysore other Auction Superintendents facilitated the all the material for demonstration of the biopesticides. Here a total of 65 farmers gathered & the usage of *Trichoderma* and *Pseudomonas* explained.


TN-IAM project

As MoU of NIPHM with state agricultural Department of Tamil Nadu, to provide technical assistance to all beneficiary farmers in 20 IPM villages under the Lower Palar Sub basin for establishment of cost effective sustainable Bio-control Agents' production units in Kancheepuram District, Tamil Nadu, the NIPHM faculty visited 4 cluster villages and given demonstration on on-farm production of Bio fertilizers & Bio pesticides (*Trichoderma* & *Pseudomonas*). The local state agricultural department personnel cooperated to facilitate the training cum demonstration. They arranged the active farmers groups from the each and clusters and arranged all the low cost inputs for demonstration.

As approved by competent authority, the following team of NIPHM visited four cluster villages of Kancheepuram and Chengalpattu districts of Tamil Nadu and organized off campus training cum demonstration on Role & use of bio inputs in Sustainable Agriculture' during 11.02.2021 & 12.02.2021.

On 11.02.2021, forenoon organized training cum demonstration at Puthagaram village morning session, Walaja block, Kancheepuram district. A total of 30 farmers are attended the programme. In this meeting, the state Agricultural department Addl. Director of Agriculture, Joint Director of Agriculture and A.O's and AAO's are joined and inaugurated the programme and interacted with farmers.

Same day, afternoon organized training cum demonstration at Veliampakkam village Kattangulathur block, Chengalpattu district. A total of 25 farmers are attended the programme. In this meeting, the state Agricultural department, deputy collector, Joint Director of Agriculture and A.O's and AAO's are joined and inaugurated the programme and interacted with farmers.

On 12.02.2021, forenoon organized training cum demonstration at Pachampakkam tharga village, Pavanjur block, Chengalpattu district. A total of 30 farmers are attended the programme. In this meeting, the state Agricultural department, Joint Director of Agriculture and A.O's and AAO's are joined and inaugurated the programme and interacted with farmers.

Same day, afternoon organized training cum demonstration at Thathalur village, Thirukazhugundram block, Chengalpattu district. A total of 30 farmers are attended the programme. In this meeting, the state Agricultural department, Joint Director of Agriculture and A.O's and AAO's are joined and inaugurated the programme and interacted with farmers.

During training programme farmers interacted with faculty and state department personnel and discussed their crop disease symptoms of major crops and biological management. The progressive farmers of each cluster are provided mother cultures of Bio-fertilizers, Bio-pesticides and NIPHM media.

The local state agricultural department team arranged all facilities for training programme and organized well and followed COVID-19 norms.


Puthagaram village morning session, Walaja block, Kancheepuram district


Puthagaram village morning session, Walaja block, Kancheepuram district

Pachampakkam tharga village, Pavanjur block, Chengalpattu district

Thathalur village, Thirukazhugundram block, Chengalpattu district

Plant Bio-Security Division

Name of The Programme	Duration	Date	
		From	To
Plant Biosecurity Division (PBD)			
Introduction to Plant Biosecurity and Plant Quarantine	5 Days	04.01.2021 to 08.01.2021	
Phytosanitary Inspection Training for Phytosanitary Service Agency and Phytosanitary Service Provider for Inspection of Plants/ Plant Products and other Regulated Articles in Export	30 Days	18.01.2021 to 16.02.2021	
Pest Risk Analysis	5 Days	18.01.2021 to 22.01.2021	
Collaborative programme with PAMETI, Punjab on "WTO and Agri Exports"	3 Days	27.01.2021 to 29.01.2021	
Collaborative programme with Odisha Agriculture Department on "Introduction to Plant Biosecurity and National Procedures for Imports and Exports"	2 Days	28.01.2021 to 29.01.2021	
Quarantine pests: Detection and Identification	3 Days	01.02.2021 to 03.02.20 21	
Awareness training on “Plant Quarantine Regulations and ISPM 15” for customs officials	2 Days	15.02.2021 to 16.02.2021	
Plant Quarantine Procedures for Import and Export	5 Days	08.02.2021 to 12.02.2021	
Fruit fly: Surveillance and Management	5 Days	22.02.2021 to 26.02.2021	
Phytosanitary Inspection Training for Phytosanitary Service Agency and Phytosanitary Service Provider for Inspection of Plants/ Plant Products and other Regulated Articles in Export	30 Days	01.03.2021 to 30.03.2021	
Forced Hot Air Treatment	5 Days	15.03.2021 to 19.03.2021	
Vertebrate Pest Management (VPM)			
Non-Insect Pest Management – Mites, crabs, snails, slugs and avian	3 Days	27.01.2021 to 29.01.2021	
Vertebrate Pest Management	3 Days	03.02.2021 to 05.02.2021	
Risk Assessment and management of vertebrate pests in agriculture and horticulture ecosystem	10 Days	10.02.2021 to 19.02.2021	
Vertebrate Pest Management at Kongu Vellalar College, Erode, TN (For students)	1 Day	13.02.2021	
Vertebrate Pest Management at Vidya Arts and Science College, Krishinagiri, Tamil Nadu (For students)	1 Day	19.02.2021	
Rodent Pest Management	5 Days	01.03.2021 to 05.03.2021	

PBD Farmers Programmes		
Awareness programme on stored grain pest detection, identification and management to the farmers o f Atchutapuram, Visakhapatnam, Andhra Pradesh	1 Day	20.01.2021
Awareness programme on protected cultivation in polyhouses: Nematodes, insects, diseases management and mass production of Biopesticides at Chenvelli	1 Day	05.02.2021
VPM Farmers Program mes		
Farmer training on Vermicomposting (PHM Division) at Chinnarevally (V), Balnagar (M), Mahabunagar	1 Day	11.01.2021
Farmers training on Rodent Pest Management to Jammikunta farmers at KVK, Jammikunta, Karimnagar Dist, Telangana	1 Day	21.01.2021
Farmers training on Rodent Pest Management at KVK, Madanapuram, Telangana	1 Day	12.02.2021
Farmers programme on Rodent Pest Management at KVK, Gaddipally Mandal, Suryapet, Telangana	1 Day	05.03.2021

1. *DETAILS OF TRAINING PROGRAMMES*

1. **Introduction to Plant Biosecurity & Plant Quarantine**: A training programme on Introduction to Plant Biosecurity & Plant Quarantine was conducted from **4th- 8th January, 2021 (5 Days)** wherein **47 officials** from different parts of the country were participated. The participants of the programme attended the session on plant biosecurity challenges, SPS agreement, international conventions, National regulations, SOPs on export and import, procedure for export and import of agriculture commodities, seeds, plants, grains, fruits, GMOs, germplasm and bio-control agents.

2. **Plant Quarantine Procedures for Import and Export:** A five days programme on Plant Quarantine Procedures for Import and Export was organized during **08th – 12th February, 2021** and attended by **45 officials** of different departments**,** 3-days Collaborative programme with PAMETI, Punjab on **"WTO and Agri Exports"** from **27th-29th January, 2021** and attended by **54 officials** and 2-days Collaborative programme with Odisha Agriculture Department on **"Introduction to Plant Biosecurity and National Procedures for Imports and Exports" from 28th-29th January, 2021** and attended by **20 officials** of Odisha State**.** All the officers from different departments got well versed with national procedures and regulations for import and export of agricultural commodities as per the requirement of the country and obligation towards IPPC and other organizations involved in global trade.

3. **Pest Risk Analysis:** A 5-Days online programme on Pest Risk Analysis was organized from **18th-22nd January, 2021**. Total **27 officers** were attended the programme and got acquainted with the various steps and procedure to analysis the risk associated with plant, plant products and regulated articles. The participants have learnt the significance of International conventions & National regulations, SPS obligations for regulating trade based on pest risk analysis, concept of risk and risk analysis, PRA process for assessing the

likelihood of pests being associated with the pathway, transport, its direct and indirect impact in the event of pest establishment, spread and the risk management options to minimize such event to happen.

4. **Quarantine pests: Detection and Identification**: Three days online programme from **1st to 3rd February, 2021** was organized on **Quarantine pests: Detection and Identification.** Total **20 officials** got benefited with the programme and got well acquainted with various techniques and modern diagnostic tools to detect and diagnose the pests at field and in laboratory conditions. The programme was organized with the objective to impart knowledge on detection of quarantine pests which is of outmost concern in trade and to safeguard biosecurity.

5. **Awareness training on "Plant Quarantine Regulations and ISPM 15" for customs officials:** Two Days Collaborative programme with National Academy of Customs, Indirect Taxes & Narcotics, Hyderabad was organized through virtual platform from 15th to 16th February, 2021 and about 19 nominated customs officials were attended.

Phytosanitary Inspection Training for Phytosanitary Service Agency and Phytosanitary Service Provider for Inspection of Plants/ Plant Products and other Regulated Articles in Export: As per the requirement of NSPM -23 the 2nd and 3rd batch of Phytosanitary Service Provider (PSSP) was organized during **18th January - 16th February, 2021 and 1st - 30th March, 2021.** Thirty three and twenty six eligible candidates were trained in 2nd and 3rd batch respectively and have successfully completed their one month (30 Days) training programme at NIPHM.

Glimpses of 2nd batch of Phytosanitary Inspection Training programme

Glimpses of 3rd batch of Phytosanitary Inspection Training programme

7. Fruit fly Surveillance and Management: A five days' training programme on Fruit fly was conducted from **22nd - 26th February, 2020.** The programme was attended by **40 officers.** During the training period, the participants got well conversant with identification & detection of fruit fly species, lure preparation and other different aspects of fruit fly surveillance and management. Beside lectures trainees were also given hands-on experience for identification, taxonomy, exotic fruit flies and their pathway of entry and spread and fruit fly surveillance.

8. Forced Hot Air Treatment: A 5 Days programme on **Forced Hot Air Treatment** was conducted from **15th-19th March, 2021** at NIPHM. **Twenty Seven** aspirants have attended the programme at NIPHM. The participants learnt the critical requirements for establishing FHAT facilities, calibration of sensors, placement of sensor, identification of coolest point, safety precautions, conducting the treatments, use of appropriate

mark and record keeping in accordance with ISPM – 15 and NSPM – 9.

9. Non-Insect Pest Management – Mites, crabs, snails, slugs and avian: A three days programme on non-insect pest management to practice different measure to manage at various levels was organized at NIPHM from **27th – 29th January, 2021 and around 46 officials were attended.**

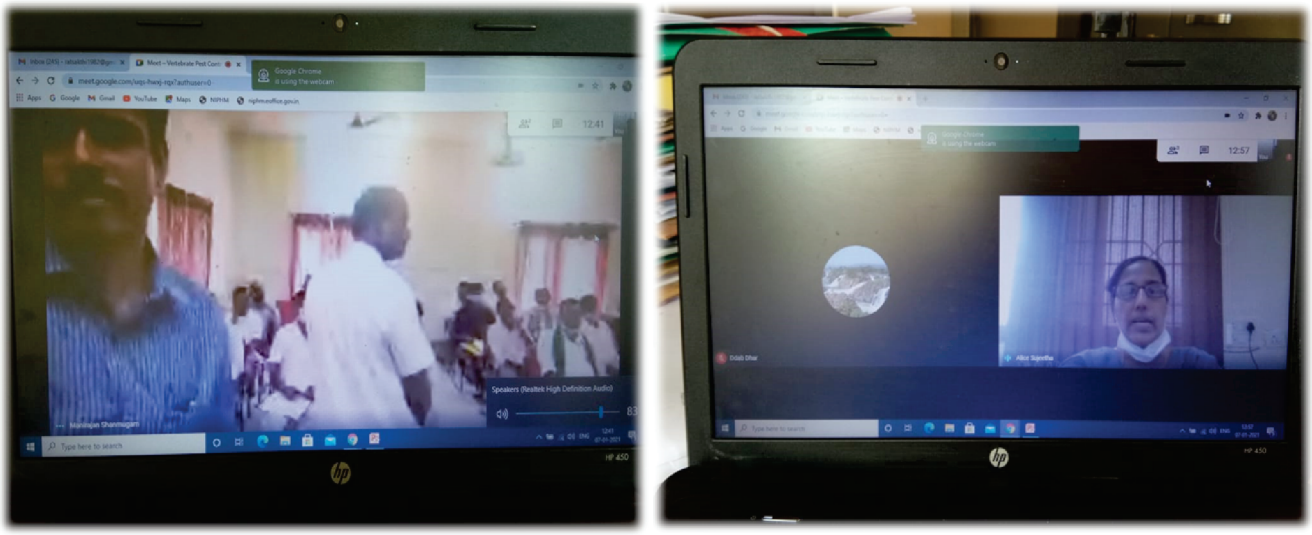
10. Vertebrate Pest Management - wild boar, monkey and birds : A five days programme on vertebrate pest management to discuss different measure to manage at various levels was organized by NIPHM from **3rd – 5th February, 2021**. The programme was attended by total of **46 officers** from different states and departments. Risk Assessment and management of vertebrate Pests in agriculture and horticulture ecosystem. Two programmes on **Vertebrate Pest Management at Kongu Vellalar College, Erode** and **Vidya Arts and Science College, Krishinagiri, Tamil Nadu** were also conducted for students and a **total of 31 & 93 participants** were attended the said programmes respectively.

11. Rodent Pest Management: Twenty eight officers have attended 5 days training programme on rodent organized from **1st- 5th March, 2021**.The participants were trained on various aspects like biology, ethology and integrated rodent management principles. The participants acquired skills in safe and judicious preparation and application of poison baits. Participants were exposed to crop fields and carried out exercises on diagnosis of rodent pest species, measurement of their infestation and crop damage. Participants were also involved in preparing action plans for organizing mass rodent control campaigns for endemic districts of their jurisdictions.

2. *FARMERS TRAININGS:* During 4th quarter total 6 training programmes were conducted to the farmers of Andhra Pradesh and Telangana.

- Awareness programme on stored grain pest detection, identification and management to the farmers of Atchutapuram, Visakhapatnam, Andhra Pradesh on 20.01.2021 and attended by 55 farmers.
- Awareness programme on protected cultivation in polyhouses: Nematode, insects, diseases management, mass production of Biopesticides at Chenvelli, Telangana on 05.02.2021 and attended by 20 farmers.
- Farmer training on Vermicomposting at Chinnarevally (V), Balnagar (M), Mahabunagar, Telangana on 11.01.2021 and attended by 25 farmers.
- Farmers training on Rodent Pest Management at KVK, Jammikunta, Karimnagar Dist, Telangana on 21.01.2021 and attended by 26 farmers.
- Farmers training on Rodent Pest Management at KVK, Madanapuram, Telangana on 12.02.2021 and attended by 47 farmers.
- One day farmer programme on Rodent Pest Management was conducted at KVK, Gaddipally Mandal, Suryapet, Telangana on 05.03.2021 and around 92 farmers were attended the training programme.

Awareness programme on Stored Grain Pest Identification and Management Atchutapuram, Visakhapatnam, Andhra Pradesh



Farmers training on VPM Chinnarevally (V), Balnagar (M), Mahabunagar, Telangana

Farmer training programme on Vermicomposting

నమస్తే తెలంగాణ

నాణ్యమైన ఎరువులు విక్రయించాలి

- నకిలీ విత్తనాలు మార్కెట్‌కు రానివ్వద్దు
- శిక్షణతో నైపుణ్యాన్ని పెంపొందించుకోవద్దు
- భారతీయ మొక్కల పరిరక్షణ సంస్థ అసిస్టెంట్ డైరెక్టర్ మరియదాస్

జమ్మికుంట, జనవరి 21: రైతులకు నాణ్యమైన ఎరువులు, విత్తనాలను మాత్రమే విక్రయించాలని భారతీయ మొక్కల పరిరక్షణ సంస్థ అసిస్టెంట్ డైరెక్టర్ మరియదాస్ ఫర్టిలైజర్స్, పెస్టిసైడ్స్ డీలర్లకు పిలుపునిచ్చారు. పట్టణంలోని కృషి విజ్ఞాన కేంద్రంలో ఎన్‌ఐపీహెచ్‌ఎం ఆధ్వర్యంలో జమ్మికుంట, కరీంనగర్ మండలాలకు చెందిన ఫర్టిలైజర్స్ అండ్ పెస్టిసైడ్స్ డీలర్లకు 12రోజుల శిక్షణను ఏర్పాటు చేశారు. గురువారం ప్రారంభ కార్యక్రమానికి ముఖ్య అతిథిగా అధికారి మరియదాస్ హాజరయ్యారు. ఈ సందర్భంగా ఆయన మాట్లాడారు. ఆరోగ్యకర సమాజ నిర్మాణంలో అన్ని వర్గాలు భాగస్వాములు కావాలని కోరారు. నకిలీ విత్తనాలు మార్కెట్‌కు రానివ్వకూడదని చెప్పారు. జమ్మికుంట కేవీకే సేవలు రంగానికి పండుబంధించిన పలుపోలు, మాదనలి వ్యవసాయంలో ప్రముఖ పాత్ర పోషిస్తున్నదని తెలిపారు. డీలర్ల కోసం 12రోజుల శిక్షణ ఏర్పాటు చేయడాన్ని అభినందించారు. శిక్షణతో నైపుణ్యతను పెంపొందించుకోవచ్చన్నారు. డీలర్లు శిక్షణను సద్వినియోగం చేసుకోవాలని సూచించారు. ప్రతి ఒక్కరూ పర్మిట్ కోర్సును పూర్తి చేయాలని చెప్పారు. విత్తనాలు, ఎరువుల క్రయ, విక్రయాలు నిబంధనల ప్రకారం పాటించాలని అధ్యక్షతన సూచించారు. కేవీకే కార్యక్రమాలన్నీ వాతావరణ కాలుష్య రహితంగా జరుగుతుంటాయని కేవీకే ప్రధాన కార్యదర్శి విజయగోపాలరెడ్డి పేర్కొన్నారు. ఇక్కడ కేవీకే హెడ్ అండ్ సీనియర్ శాస్త్రవేత్త వెంకటేశ్వర్‌రావు, శాస్త్రవేత్తలు శ్రీనివాస్‌రెడ్డి, విజయ్, ప్రశాంతి, ప్రభాకర్, 40మంది డీలర్లు తదితరులు పాల్గొన్నారు.

సమావేశంలో మాట్లాడుతున్న అధికారి మరియదాస్

ate : 22/01/2021 EditionName : Karimnagar PageNo : Page 03

Farmer training programme organized at KVK, Jammikunta, Telangana

శాస్త్రీయ పద్ధతులు పాటించాలి

అవగాహన కల్పిస్తున్న అధికారులు

గంభీరావుపేట : పంట పొలాల్లో రైతులు శాస్త్రీయ పద్ధతులు పాటించి ఎలుకలను నివారించాలని జాతీయ మొక్కల ఆరోగ్య సంరక్షణ సంస్థ అసిస్టెంట్ డైరెక్టర్ డాక్టర్ మరియదాస్ అన్నారు. శుక్రవారం మండల కేంద్రంలోని గడ్డిపల్లి కృషి విజ్ఞాన కేంద్రంలో ఎన్ఐపీహెచ్ఎం ఆధ్వర్యంలో అగ్రి ఇన్‌పుట్ డెన్సిసైడ్ డీలర్లు రైతులకు పంట పొలాల్లో ఎలుకల నివారణపై శిక్షణ నిర్వహించి మాట్లాడారు. కార్యక్రమంలో ఇన్‌చార్జ్ ప్రోగ్రాం కోఆర్డినేటర్ బి.లవకుమార్, శాస్త్రవేత్తలు డి.నరేష్, ఎన్.సుగంధి, టి.మాధురి, ఎ.కిరణ్, సిబ్బంది పాల్గొన్నారు.

సాక్షి Sat, 06 March 2021 https://epaper.sakshi.com

Farmers programme on Rodent Pest Management at KVK, Gaddipally Mandal, Telangana

ఈనాడు epaper.eenadu.net

శాస్త్రీయ పద్ధతులను పాటించాలి

మదనాపురం : పంట పొలాల్లో రైతులు తగిన శాస్త్రీయ పద్ధతులు పాటిస్తే ఎలుకలు, అడవి పందుల బెడదను అరికట్టవచ్చునని జాతీయ మొక్కల ఆరోగ్య సంరక్షణ సంస్థ సహాయ డైరెక్టర్ డా.మరియదాస్ అన్నారు. శుక్రవారం మండల కేంద్రంలోని కృషి విజ్ఞాన కేంద్రంలో ఎన్ఐపీహెచ్ఎం ఆధ్వర్యంలో అగ్రి ఇన్‌పుట్ డీలర్లు, రైతులకు పంట పొలాల్లో ఎలుకలు, అడవి పందుల నిర్మూలనపై శిక్షణ కార్యక్రమం నిర్వహించారు. పంటలను నష్టపరిచే అడవిపందులు, పక్షుల సమగ్ర సస్య యాజమాన్య పద్ధతులను వివరించి, నివారణకు రసాయన మందులు, శాస్త్రీయ పద్ధతులను ప్రత్యక్షంగా రైతులకు చూపించి అవగాహన కల్పించారు. ఈ కార్యక్రమంలో కేవీకే సమన్వయకర్త డా. సయ్యద్ ఆలీ, కేవీకే సస్యరక్షణ శాస్త్రవేత్త రాజేందర్‌రెడ్డి, రైతులు, తదితరులు పాల్గొన్నారు.

కేవీకేలో మాట్లాడుతున్న సహాయ డైరెక్టర్ డా.మరియదాస్

Date : 13/02/2021 EditionName : TELANGANA(WANAPARTHY) PageNo :

Farmers programme on Rodents management at KVK, Madanapuram

Farmers training programme at Chenvelli, Rangareddy Dist, Telangana

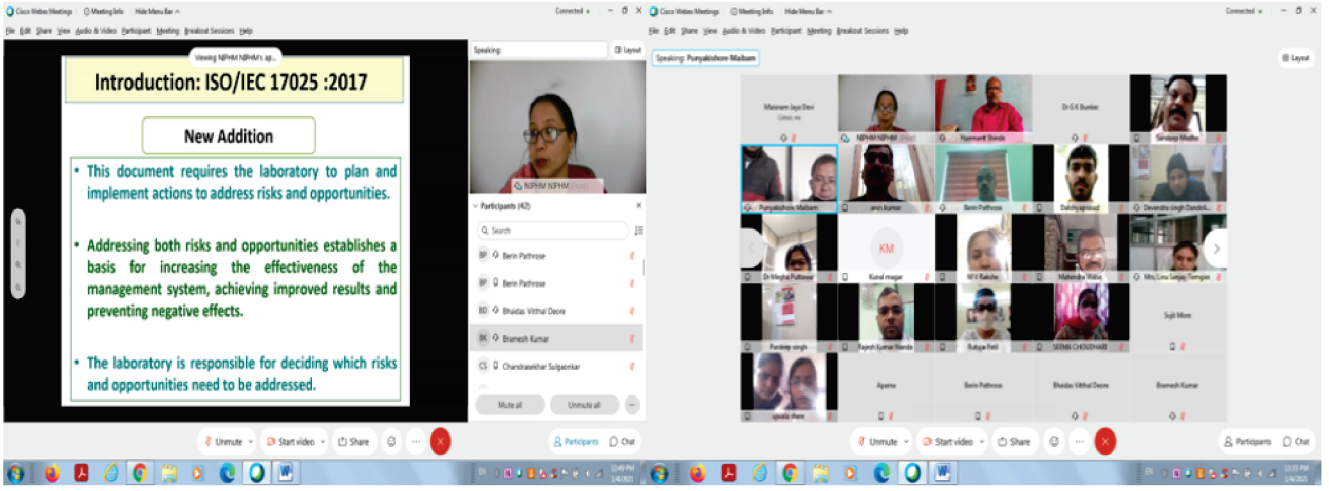
3. OTHER PROGRAMMES/VISITS:

- **Visit to Vishwa Agro Tech Nizamabad**: PBD faculty visited Vishwa Agro Tech., Nizamabad, Telangana to demonstrate the on farm production of bio-fertilizers, bio-pesticides and enrichment of Farm Yard Manure with *Trichoderma.* Around twenty three farmers from Thirumanpalli in Nizamabad District were interacted on various aspects and issues faced in their fields.

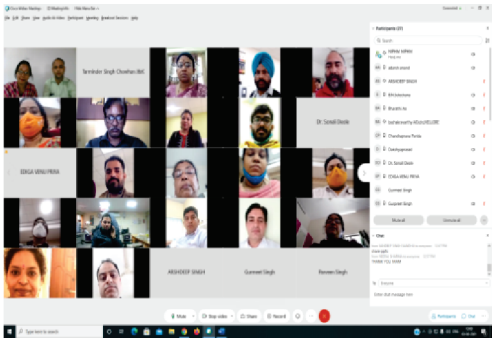
Farmers trained at Vishwa Agro Tech

Vishwa Agro Tech. Managing team discussion and demonstration on farm production of bio-fertilizers, bio-pesticides and enrichment of Farm Yard Manure with Trichoderma

Pesticide Management Division Training:



PMD conducted five days virtual training program on **"Laboratory Quality Management System and Internal Audit as per the ISO 17025:2017" from 4th to 8th Jan, 2021"** through the platform of Cisco Webex during the period**.** A total of 45 trainees were participated from different state and trained on general requirements for the competence of testing and calibration laboratories as per the new standard guidelines ISO/IEC 17025:2017. Participants were from Maharashtra, Haryana, Manipur, Orissa, Uttar Pradesh, Karnataka, Kerala, Andhra Pradesh, Tripura, Gujarat, Rajasthan and West Bengal.

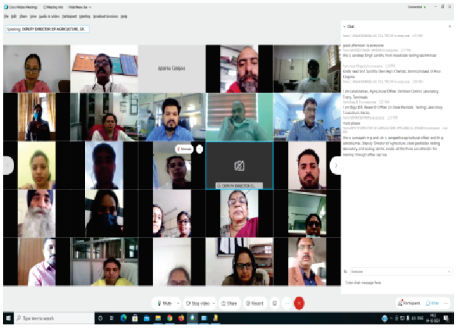


Two days virtual training program on "**Importance of Method Validation in Quality Assurance with respect to Pesticide Residue**" was conducted from 19th & 20th January 2021. A total of 13 participants were attended from Maharashtra, J & Kashmir, Uttar Pradesh, Orissa, Haryana, Kerala and Shimla. They were trained on method validation procedure for pesticide residues analysis

Training on **"Pesticide Formulation Analysis" conducted** from **19th January to 19th March 2021 for** 60 days**.** A total of 13 participants were attended from Maharashtra, Jharkhand, Haryana, Karnataka, Shimla, Tamil Nadu and Telangana. Trainees were trained on various methods/technique such as chromatographic and volumetric analysis method for quality testing of pesticide and pesticide formulation as per BIS method. During the training participants were also trained the equipment maintenance and troubleshooting. They were

also trained on maintenance of technical records and management documents as per the ISO/IEC 17025:2017.

One day training program on **"Importance of participation in PT/ ILC for Quality Assurance in Testing"** was conducted on 28-01-2021. A total of **31** participants were attended the program from Punjab, Maharashtra, Madhya Pradesh, Himachal Pradesh, Telangana, Haryana, Uttrakhand, Tamil Nadu, J & Kashmir and Uttar Pradesh.



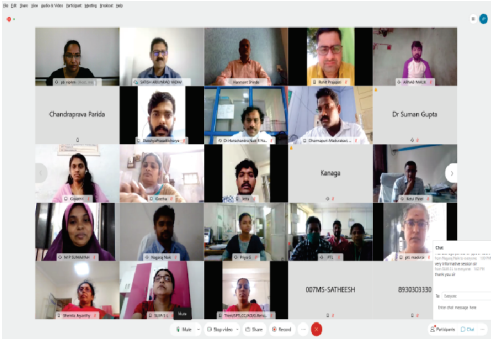
During the month of February, three virtual training programs were conducted through CISCO WEBEX. Two days training program on **"Documentation Procedure for NABL accreditation"** was conducted from 9th to 10th Feb, 2021. A total of 64 trainees were participated from Maharashtra, Kerala, Jammu & K, Tamil Nadu, Punjab, UP, Telangana, Orissa, Karnataka, Himachal Pradesh and Gujarat. During the program, the division has trained the participant the procedure to prepare documents for NABL accreditation.

Two days training on "**Importance of Calibration of Equipment in Quality control of Insecticides**" was conducted from **11th & 12th** Feb 2021. A total of 18 participants were attended from different state viz. Jammu & Kashmir, Pondicherry, Telangana, Kerala, Chhattisgarh, Orissa, West Bengal and Bihar

Awareness training Programme to farmers on **"Safe use of pesticides, handling and disposal"** was conducted on 12.02.2021 at Kesamudram, Mahabubabad District, Telangana during the month. A total of 55 farmers were participated and trained about the safe use of pesticide and disposal of pesticide to prevent environment and health hazard.

Two day training program on **"Inspection and sampling under Insecticide Act, 1968" was conducted from 16.02.2021 to 17.02.2021**. A total of **18** participants were attended from different state viz. Punjab, Jammu & Kashmir, Kerala, Bihar and Karnataka.

One day awareness training program on **"Safe use of pesticides, handling and disposal"** was conducted on 25.02.2021 at Ponugodu village, Chanduru Mandal, Nalgonda District, Telangana. **Thirty five** farmers were attended the awareness program.



Training on "**Role of PT/ ILC in maintaining accreditation as per ISO/IEC 17025:2017"** was conducted on 02-03-2021. A total of 11 participants were participated from Kerala, Karnataka, Uttar Pradesh, Jammu and Kashmir, Haryana and Punjab. The training is basically to trained them on participation and conduction of inter laboratory comparison program and participation of Proficiency program.

Five days training program on **"Laboratory Quality System Management and Internal Audit as per the ISO/IEC 17025:2017"** was conducted from **15th to 19th March, 2021".** A total of 18 trainees were participated. They were trained on laboratory quality management system as per the document ISO/**IEC 17025:2017** and process of Accreditation procedure also**.**

Testing Activities:

Proficiency Testing Centre, NIPHM had initiated 3 Proficiency Testing Programs in Pesticide Formulations Analysis (PFA) for the pesticides *viz*. Chlorpyrifos EC, Ethion Technical & Carbendazim WP in the month of November, 2020 for 84 Pesticide Testing laboratories (CIL, RPTLs, SPTLs and Private Laboratories). The sample was also sent to one international participant (Jordan Insecticides and Agro Treatment Manufacturing Co., Jordan). The participants results were statistically evaluated and final report were sent to participants in the month of March. Proficiency Testing Programs in water samples was conducted for 23 Pesticide Residue Analysis (PRA) laboratories in November, 2020. Final reports were sent to the participants after statistical evaluation during the period.

During the period, a total of **629** samples viz. fruit, vegetables, cereals, pulses, spices and water were collected from Hyderabad and analyzed under the scheme **"Monitoring of Pesticide Residues at National Level"**. A total of 60 vegetable samples (Ridge gourd and Green chilli) collected from Hyderabad under *How Safe are Your Veggies* were analyzed during the period. Water sample (40 nos.) and leafy vegetables (90 nos.) collected from nearby Hyderabad were analyzed for heavy metals contaminants. About 270 bio-product samples received from Insecticides Inspector were also analyzed during the period. During the month of September, one pesticide formulation sample for quality test received from Andhra Pradesh was also analyzed.

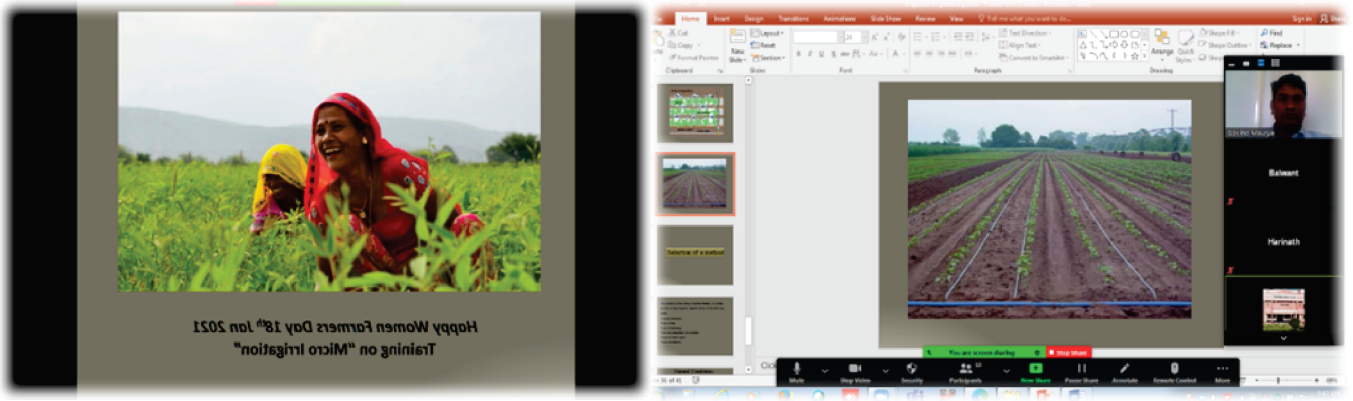
NABL Accreditation:

"**Pesticide Formulation and Residue Analytical Centre**" of PMD is accredited as per the ISO/IEC 17025:2005. To continue the accreditation service of laboratory, transition audit from PFRAC ISO/IEC 17025:2005 to ISO/IEC 17025:2017 was conducted on **27.01.2021 by NABL.**

Plant Health Engineering Division

1. Micro Irrigation

Advanced irrigation technology such as micro irrigation viz. drips and sprinkler irrigation increases overall irrigation efficiency. Hence a training programme on Micro Irrigation was organized by the division. Total 10 (Male-09, Female-01) participants from Uttar Pradesh states of district Chandauli have undergone this training. This training emphasized on Efficient water management, Micro Irrigation and fertigation, Maintenance & Cleaning & Rain water Harvesting structures. This training was organized for 01 days from 18th January 2021.



Glimpses of training programme

2. Pesticide Application techniques and safety Measures for Telangana state

PHE division conducted an online farmer training programme on "Pesticide Application Techniques and Safety Measures" on 26th Feb 2021 for Uppununthala village of Kalvakurthy district, Mahaboobnagar farmers with the association with Village Sarpanch. Forty-three (43) farmers participated in this training programme. Er. M. Udaya Bhanu (Scientific Officer) has organized this training programme.

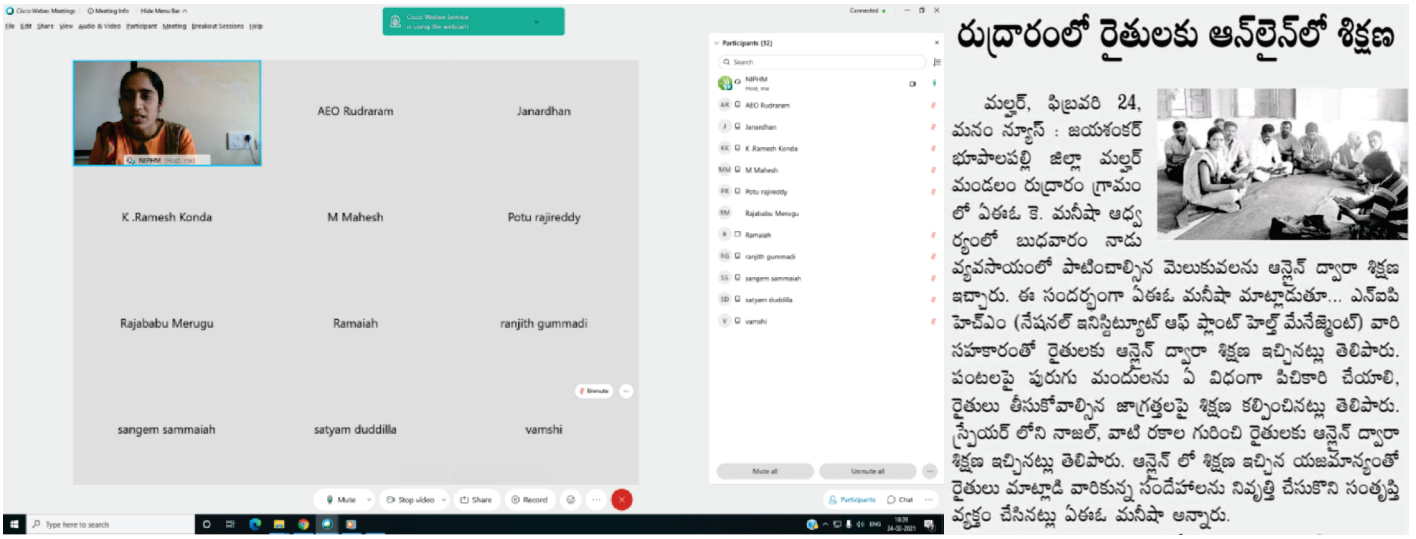
During the training official interacted with farmers to know about the cropping pattern, types of sprayers used, methodology adopted before, while and after spraying, precautions taken while handling pesticides, reuse of pesticide containers.

The objective of the training is to provide the skills to farmers in the area of Plant Protection techniques. Selection of right plant protection equipment for our Indian agriculture is a big challenge in near future. This training helps the farmers to use right techniques and right sprayers.

3. Pesticide Application and Post-Harvest for Telangana State

PHE division conducted an online farmer training programme on "Pesticide Application and Post-Harvest Management" at Rudraram village Jayashankar Bhupalpally district with AEO, Rudraram on 24th February 2021. Nineteen farmers attended the training programme. Er. Sk Haneefa Begum (Assistant Scientific Officer) with the help of Ms.Manisha, AEO, organized this training programme and mobilized actively participated farmers from Rudraram village of Jayashankar Bhupalpally district, Telangana State. Faculty interacted with farmers to know about the cropping pattern, types of plant protection equipment's used, types of storage and structures used. Machinery used for harvesting and winnowing. The farmers were having a basic idea of cleaning and grading.

The objective of the training was to provide the skills to farmers in the area of Plant Protection and grain storage techniques. Right plant Protection equipment and safe storage of produces for our Indian Agriculture is a big challenge in near future. This training helps the farmers to use right techniques and right sprayers.

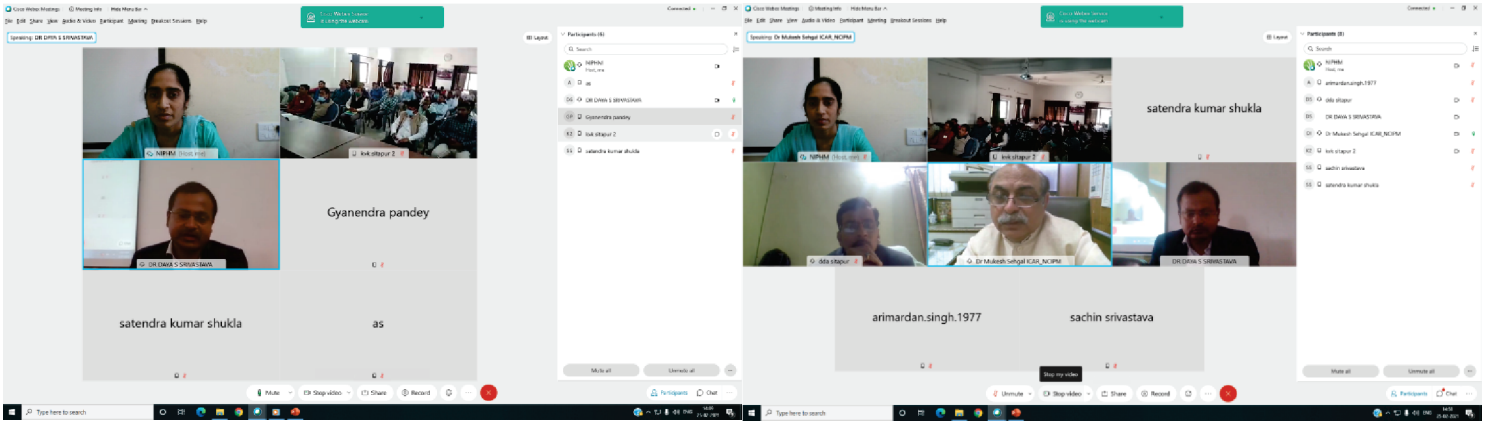


Glimpses of training programme and Paper clip from Nava Telangana

4. Pesticide Application Techniques for *Uttar Pradesh*

PHE division conducted an online farmer training programme on "Pesticide Application" with KVK-2, Sitapur, Uttapradesh on 25th February 2021. Thirty-six farmers attended the training programme. Er. Sk Haneefa Begum (Assistant Scientific Officer) with the help of Dr. Daya S Srivastava, Scientist(PP), has organized this training programme. Dr. Mukesh Seghal, Principal Scientist, ICAR, NCIPM,Pusa , Shri Arvind Mohan Mishra, DDA, sitapur and Dr. Anand Singh, Sr. Scientist & Head, KVK-2, Sitapur, UP has also joined the online training.

In this different spraying techniques high volume, low volume and ultra-low volume, classification of sprayers, selection of sprayer based on crops and type of pesticide use was explained in detail. The farmers were also briefed about the types of nozzles and the importance in selecting a nozzle. They were also explained how to calibrate a nozzle to know its wear and tear. The importance of safety precautions while handling chemicals was explained. The Dos and Don'ts while handling chemicals is explained.

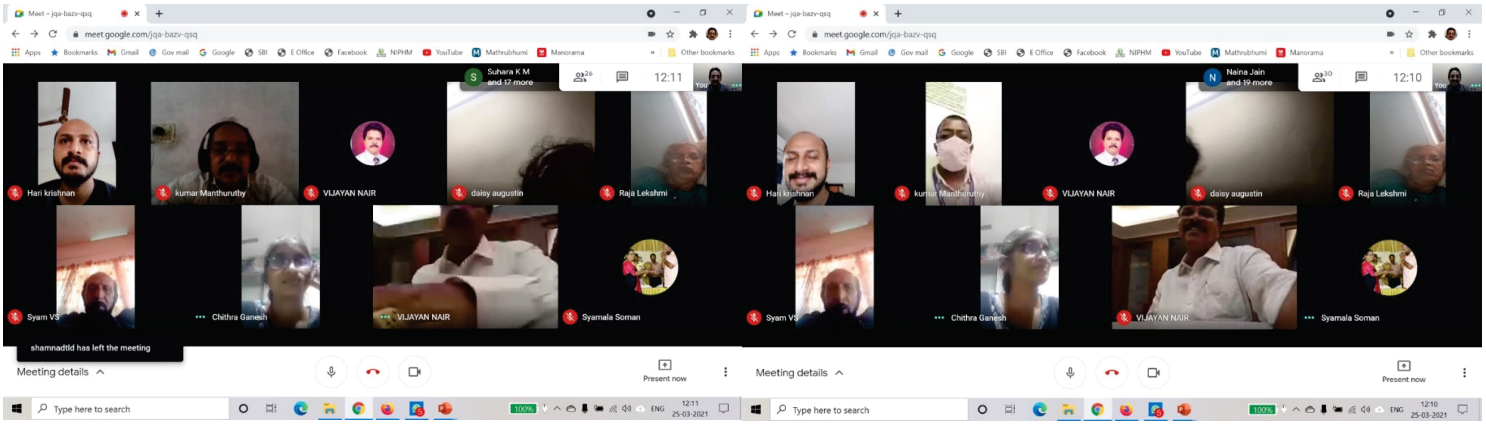


Glimpses of training programme

5. Pesticide Application Techniques and Safety Measures for Kerala State

PHE division conducted an online farmer training programme on "Pesticide Application Techniques" in collaboration with Krishi Vigyan Kendra, Thiruvananthapuram, Kerala on 25th March 2021. Thirty farmers attended the training programme. Dr. Vidhu Kampurath (Joint Director) with the help of Ms. Chitra, Subject matter Specialist from KVK, organized this training programme and mobilized farmers from Kerala State. Faculty interacted with farmers to know about the cropping pattern, types of plant protection equipment's used.

The session started with a brief introduction about the institute NIPHM. In the session, effects of over usage or wrong usage of pesticides were also discussed. The farmers were explained about the good spraying practices. When to spray, how to spray, and direction of spray were explained in detail. The importance of temperature and wind in spraying was also explained. The various spraying techniques like high volume, low volume and ultra-low volume, classification of sprayers, selection of sprayer based on crops and type of pesticide use were explained in detail. Emphasis was given to nozzles and their type. They were also explained how to calibrate a nozzle to know its wear and tear. The importance of safety precautions while handling chemicals was explained. The Dos and Don'ts while handling chemicals is explained.



6. Pesticide Application Techniques and Safety Measures for Chhattisgarh State

PHE division conducted an online farmer training programme on "Pesticide Application Techniques and Safety Measures" on 27th March 2021 for different village of Durg district, Bameteria block, Chhattisgarh farmers with the association of Mr. Jitendra Thakur, Senior Extension Officer. Fifteen (15) farmers participated the training programme. Er. Govind Kr Maurya (Asstt. Scientific Officer) has organized this training programme.

During training official interacted with farmers to know about the cropping pattern, types of sprayers used, methodology adopted before, while and after spraying, precautions taken while handling pesticides, reuse of pesticide containers. The farmers were having an idea on organic farming and guided them on different training programmes. As these farmers are slightly educated, they have an awareness of pesticide poisonous on persons handling it.

The objective of the training is to provide the skills to farmers in the area of Plant Protection techniques. Selection of right plant protection equipment for our Indian agriculture is a big challenge in near future. This training helps the farmers to use right techniques and right sprayers.

Village Adoption Highlights:

Research/Project work:

1. As a part of "Spray Man Project" Ms. B. Madhavi, JRF visited to Amdhapur village and interacted with farmers. In this, Different types of spraying techniques such as High Volume Spraying Technique (350-500 lit/ha), Low volume spraying Technique (50-150 lit/ha), Ultra Low Volume spraying Technique (<5 lit/ha) are briefly explained, safety precautions that should be taken while spraying such as necessity of wearing safety dress, head mask, cap, mask, apron, shoes, gloves were explained. Precautions that should be taken while mixing of pesticides in tank and precautions after spraying (cleaning hands, safety dress) were also explained. Adverse effects that cause if safety dress was not worn were explained. Effects and causes of excessive use of pesticides that leads to cancer, skin itching, etc. were explained and suggested the importance of organic farming. Right time and correct spray direction that should be maintained according to wind direction have explained.

As NIPHM issued safety dresses to some farmers of Amdhapur village. Collected the data regarding status of safety dress and observed whether farmer is using safety dress or not and following safety precautions or not.

- We have planned many times to visit Amdhapur village but it was not possible because of COVID-19 pandemic. Although on weekly basis visited to farmers field.
- Farmers said that as safety dress is made up of cotton it is getting torn out when they are using in rose fields and suggested it should be made with polythene.

2. Rural load carrier sprayer

Feasibility study has conducted for rural load carrier sprayer and calculated discharge rate from all nozzles at minimum pressure (when all the nozzles were opened) in which PGDPHM students were involved and done with ten trails. The following observations were observed. Discharge is measured in ml/min. Swath width and overlapping in swath width from different nozzles were also found.

World Water Day Celebrations

A. **Painting/ Poster competition:**

The staff of NIPHM has enthusiastically participated in Painting/ poster competition. 15 participants have participated. The Evaluation was done by the committee. The main criteria considered for evaluating are based on the original ideas. The winners for this program are:

1st prize – Dr. Pyla Jyothi, AD

2nd prize – Mr. Syed Viquar Ahmed, MTS

3rd prize – Ms. Shaik Gousiya Afroz, SRF

A. **Photography contest:**

The staff of NIPHM has participated in Photography contest. 5 participants have participated. The Evaluation was done by the committee. The main criteria considered for evaluating are based on the realistic photo and water saving . The winners for this program are:

1st prize – Mr. Shivaraj, Photographer

2nd prize – Mr. Syed Viquar Ahmed, MTS

B. **Quiz competition:**

The staff of NIPHM has enthusiastically participated in quiz competition. 18 participants have participated. Google form was used for the quiz and the link for accessing the form has given at the opening time of the contest. Winners was decided based on the maximum correct entries and for second prize tie has come, submission time of the google form will be taken as the criteria to decide the winner.

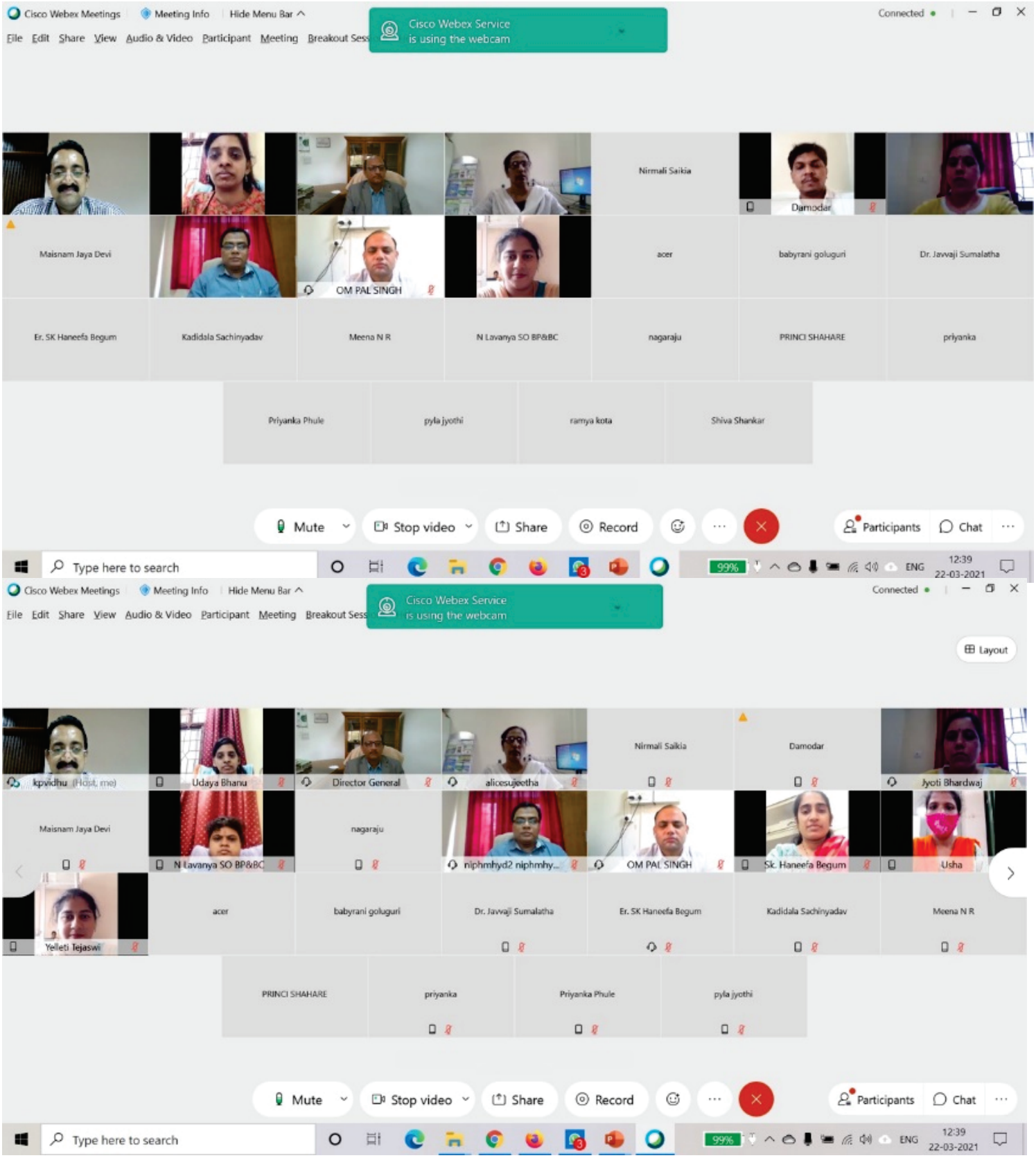
1st prize – Mr. B Madhu, MTS
2nd prize – Ms. Tejaswi yelleti, SRF
3rd prize – Mr. Syed Viquar Ahmed, MTS

D. **One minute talk:**

As suggested by DG, one minute talk on "How I conserve water" is conducted during the online program. In this, 6 participants have participated. The evaluation was done by the committee and the winners are:

1st prize – Mr. Syed Viquar Ahmed, MTS
2nd prize – Dr. Om Pal Singh, ASO
3rd prize – Ms. Priyanka Phule, SRF

The closing ceremony of world water day was organized through online. All the staff of NIPHM attended the meeting through online. The occasion was celebrated in the presence of, **Dr. P. Chandra Shekara**, DG, NIPHM. The activities conducted during the world water day was briefed by Dr. Vidhu KP, JD(PHE). The activities conducted was appreciated by DG, NIPHM. And this event, DG, NIPHM elaborated the importance of water and how to conserve the water, and also instructed if water budgeting is implemented to Institute it will reduce the water wastage.



Faculties' training/workshop/Seminar/meeting/Visit-

1. JD(PHE) has attended as subject Expert in Scientific Advisory Committee Meeting in SAC at KVK Mahaboobnagar

2. Er. Govind Kr Maurya, ASO-PHE attended Webinar on "Soil and Water contamination and its remediation" conducted by GBPAU, Pantnagar, Uttarakhand.
3. Er. Govind Kr Maurya, ASO-PHE attended National Webinar on Agriculture Research through knowledge Discovery on 23rd Feb 2020 Conducted by EBSCO with coordination with PJTSAU
4. Er. Govind Kr Maurya, ASO-PHE attended National Webinar on Storing Water: A New Integrated Approach for Resilient Development on 24th Feb 2020 conducted by IWMI.
5. Er. Govind Kr Maurya, ASO-PHE attended Online International Conference on Soil and Water Resource Management (ICSWRM 2021) on 26-27 February, 2021 conducted by MPAUT, Rajasthan
6. Er. Govind Kr Maurya, ASO-PHE attended Expert Lecture on 'Engineered Bioremediation of Polluted site' organized by Deptt of SWCE, College of Technology, GBPAUT, PANTNAGAR

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