



राष्ट्रीय वनस्पति स्वास्थ्य प्रबंधन संस्थान  
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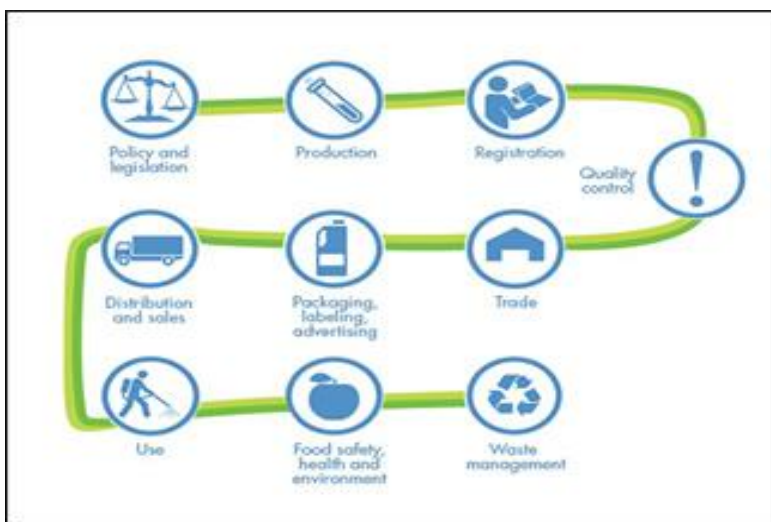
Issue: 4

OCTOBER - DECEMBER, 2023

# NEWS LETTER

TRAINING PROGRAM

SPECIAL EVENTS



TRAINING PROGRAMS



## WHAT'S INSIDE

### TOPIC/ ARTICLE

### PAGES

|                        |         |
|------------------------|---------|
| Theme Article          | 3 - 10  |
| Around the World       | 11 - 11 |
| Trainings              | 12 - 44 |
| Special Events         | 45      |
| Research & Development | 46 - 48 |
| Extension Activities   | 49      |
| Other Activities       | 50 - 51 |



Department of Agriculture & Farmers Welfare  
Ministry of Agriculture and Farmers Welfare, Government of India



## From the Director General's Desk

Reducing pesticide risks has been one of the Food and Agriculture Organisation (FAO) core strategies for achieving sustainable crop production, intensification and diversification. FAO addresses pesticide management in a holistic manner by considering all the required regulatory and technical measures in the lifecycle of pesticides to ensure their safety and efficacy with no adverse effects on health and the environment, including humans, animals, plants and ecosystems. FAO works towards achieving pesticide risk reduction through a sound lifecycle management approach, including: legislation and regulations, institutional capacity building, selection of lower-risk products, rational use of pesticides, proper pesticide related waste management, global coordination and regional cooperation

Pesticide Management is a combined approach of the Plant Production and Plant Protection with an aim to work together by all the member countries of Food and Agricultural Organization and other International Organizations to introduce sustainable and environmentally sound agricultural practices that reduce health and environmental risks associated with the use of pesticides. FAO and World Health Organization (WHO) work together on cooperation in a Joint Programme for the sound Management of Pesticides to provide unified, coordinated and consistent advice and support to their Member States and to other stakeholders.

The theme article describes Pesticide Management and Regulation of Pesticide at International Level. Understanding of Pesticide Management in a holistic manner based on International Standard is an important for the stakeholders to minimise the adverse effects on health and the environment. The International Code of Conduct (ICC) on Pesticide Management is the worldwide guidance document on pesticide management for all public and private entities engaged in, or associated with. It provides voluntary standards of conduct for all entities with the management of pesticides throughout their life-cycle, from production to disposal.

टिकाऊ फसल उत्पादन, गहनता एवं विविधीकरण प्राप्त करने हेतु पीड़कनाशी जो को कम करना खाद्य एवं कृषि संगठन (एफएओ) की मुख्य रणनीतियों में से एक है। खाद्य एवं कृषि संगठन (एफएओ) पीड़कनाशी के जीवन चक्र में सभी आवश्यक विनियामक और तकनीकी उपायों पर विचार करके समग्र तरीके से पीड़कनाशी प्रबंधन को संबोधित करता है। ताकि, उनकी सुरक्षा एवं प्रभावकारिता सुनिश्चित जा सके और मनुष्यों, जानवरों, पौधों और पारिस्थितिक तंत्र सहित स्वास्थ्य पर्यावरण पर कोई प्रतिकूल प्रभाव न पड़े। खाद्य एवं कृषि संगठन (एफएओ) एक जीवनचक्र प्रबंधन दृष्टिकोण के माध्यम से पीड़कनाशी जोखिम में कमी लाने की दिशा में काम करता है, जिसमें कानून और नियम, संस्थागत क्षमता निर्माण, कम जोखिम वाले उत्पादों का चयन, पीड़कनाशियों का तर्कसंगत उपयोग, उचित पीड़कनाशी संबंधी अपशिष्ट प्रबंधन, वैश्विक समन्वय और क्षेत्रीय सहयोग शामिल हैं।

पीड़कनाशी प्रबंधन पादप उत्पादन एवं पादप संरक्षण का एक संयुक्त दृष्टिकोण जिसका उद्देश्य खाद्य एवं कृषि संगठन और अन्य अंतर्राष्ट्रीय संगठनों के सभी सदस्यों द्वारा टिकाऊपन लाने के लिए मिलकर कार्य करना है और पर्यावरण की दृष्टि से सुदृढ़ कृषि पद्धतियाँ जो पीड़कनाशियों के उपयोग से जुड़े स्वास्थ्य एवं पर्यावरण जोखिमों को कम करती हैं। खाद्य एवं कृषि संगठन (एफएओ) और विश्व स्वास्थ्य संगठन (डब्ल्यूएचओ) अपने सदस्य राज्यों एवं अन्य हितधारकों को एकीकृत समन्वित और सुसंगत सलाह एवं समर्थन प्रदान करने के लिए पीड़कनाशियों के प्रबंधन के लिए एक संयुक्त कार्यक्रम में सहयोग पर मिलकर कार्य करते हैं।

अंतर्राष्ट्रीय स्तर पर यह विषयवस्तु (थीम) आलेख पीड़कनाशी प्रबंधन एवं पीड़कनाशियों के विनियमन का वर्णन करता है। स्वास्थ्य एवं पर्यावरण पर प्रतिकूल प्रभाव को कम करने के लिए हितधारकों हेतु अंतर्राष्ट्रीय मानक के आधार पर समग्र तरीके से पीड़कनाशी प्रबंधन को समझना महत्वपूर्ण है। पीड़कनाशी प्रबंधन पर अंतर्राष्ट्रीय आचार संहिता (आईसीसी) पीड़कनाशी प्रबंधन में शामिल या उससे जुड़ी सभी सार्वजनिक और निजी संस्थाओं के लिए विश्वव्यापी मार्गदर्शन दस्तावेज है। यह सभी संस्थाओं को पूरे जीवनचक्र में पीड़कनाशियों के प्रबंधन सहित उत्पादन से लेकर निपटान संबंधी आचरण करने हेतु स्वैच्छिक मानक प्रदान करता है।

(डॉ. सागर हनुमान सिंह, भा.डा.से.)

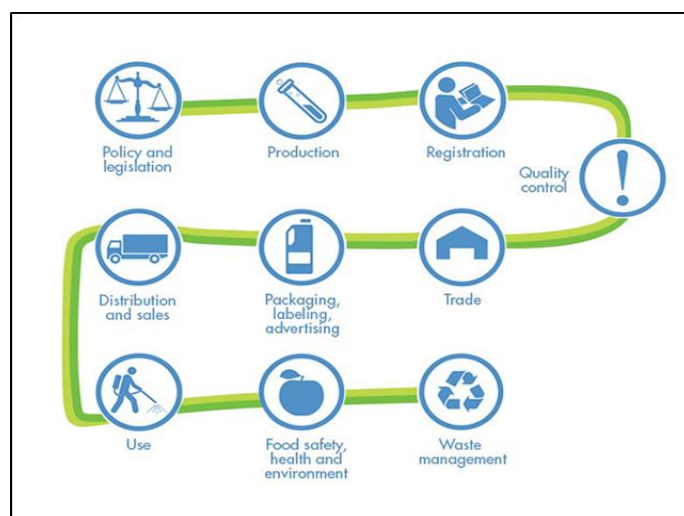
महानिदेशक

## PESTICIDE MANAGEMENT AND REGULATION OF PESTICIDE: A REVIEW

**Dr. Maisnam Jaya Devi**, Deputy Director (Chemistry) and **Nirmali Saikia**, Director (PMD)

### Introduction:

Pesticide Management is a combined approach of the Plant Production and Plant Protection with an aim to work together by all the member countries of Food and Agricultural Organization (FAO) and other International Organizations to introduce sustainable and environmentally sound agricultural practices that reduce health and environmental risks associated with the use of pesticides. In March 2007, FAO and World Health Organization (WHO) signed a Memorandum of Understanding on cooperation in a Joint Programme for the Sound Management of Pesticides to provide unified, coordinated and consistent advice and support to their Member States and to other stakeholders on sound management of pesticides. The "FAO/WHO Joint Meeting on Pesticide Management" (JMPM) is an expert ad hoc body and advises on matters pertaining to pesticide regulation, management and use, and alerts to new developments, problems or issues that otherwise merit attention from one or both Organizations. The JMPM consists of members drawn from the FAO Panel of Experts on Pesticide Management and the WHO Panel of Experts on Vector Biology and Control, which are statutory advisory bodies of the respective Organizations.



### ICC on Pesticide Management

The International Code of Conduct (ICC) on Pesticide Management provides voluntary standards of conduct for all entities engaged in or associated with the management of pesticides throughout their life-cycle, from production to disposal. The main objective of the ICC is to maximize the benefits of pesticides to effectively control pests in public health and agriculture, while protecting human and animal health and the environment from their harmful effects.

The ICC describes the shared responsibility of many sectors; addresses the need for a cooperative effort; recognizes the need for capacity-strengthening for its implementation; and describes the standards of conduct for pesticide management, complementing the legally binding instruments on chemicals management.

The ICC on Pesticide management is the worldwide guidance document on pesticide management for all public and private entities engaged in, or associated with. It focuses on

- a) Risk reduction,
- b) Protection of human health and the environmental, and
- c) Support for sustainable agricultural development by using pesticides in an effective manner and applying IPM strategies.

Particular concerns are given for countries where living and working conditions make pesticide use more risky. The Code is designed to provide standards of conduct and to serve as a point of reference in relation to sound pesticide management practices, in particular for government authorities and the pesticide industry. Following the adoption of the Rotterdam Convention in 1998 and in view of the changing international policy framework, as well as the persistence of certain pesticide management problems, particularly in developing countries, in 1999, FAO initiated the update and revision process of the Code.

The 12 Articles of the Code, plus supporting technical guidelines and a new Annex consisting of references to international policy instruments related to the Code, represent an up-to-date standard for pesticide management. This embodies a modern approach, leading to sound management of pesticides which focuses on risk reduction, protection of human and environmental health, and support for sustainable agricultural development by using pesticides in an effective manner and applying IPM strategies. In addition, the revised Code includes the life-cycle concept of pesticide management.

*Some of the salient features of the Code are given below:*

### **1. Pesticide Management and Pesticide Testing**

The Code describes the shared responsibility of many sectors of society to work together so that the benefits to be derived from the necessary and acceptable use of pesticides are achieved without significant adverse effects on human health or the environment. The Code addresses the need for a cooperative effort between governments of pesticide exporting and importing countries to promote practices that minimize potential health and environmental risks associated with pesticides, while ensuring their effective use.



Governments have the overall responsibility to regulate the availability, distribution and use of pesticides in their countries and should ensure the allocation of adequate resources for this mandate. Pesticide industry should adhere to the provisions of this Code as a standard for the manufacture, distribution and advertising of pesticides, particularly in countries lacking appropriate legislation and advisory services.

- i. Governments of pesticide exporting countries should, to the extent possible:
  - a) Provide technical assistance to other countries, especially those lacking technical expertise in the assessment of the relevant data on pesticides;
  - b) Ensure that good trading practices are followed in the export of pesticides, especially to those countries with limited or no regulatory schemes.
- ii. Pesticide industry and traders should observe the following practices in pesticide management, especially in countries without legislation or means of implementing regulations:
  - a) Supply only pesticides of adequate quality, packaged and labelled as appropriate for each specific market

- b) In close cooperation with procurers of pesticides, adhere closely to provisions of FAO guidelines on tender procedures
- c) Provide, with each package of pesticide, information and instructions in a form and language adequate to ensure effective use and reduce risks during handling
- d) Be capable of providing effective technical support, backed up by full product stewardship to field level, including advice on disposal of pesticides and used pesticide containers, if necessary;

Retain an active interest in following their products to the end-user, keeping track of major uses and the occurrence of any problems arising from the use of their products, as a basis for determining the need for changes in labelling, directions for use, packaging, formulation or product availability.

- iii. Preference should be given to pesticides that require inexpensive personal protective and application equipment and to procedures appropriate to the conditions under which the pesticides are to be handled and used.
- iv. National and international organizations, governments and pesticide industry should take coordinated action to disseminate educational materials of all types to pesticide users, farmers, farmer organizations, agricultural workers, unions and other interested parties. Similarly, users should seek and understand educational materials before applying pesticides and should follow proper procedures.
- v. Concerted efforts should be made by governments to develop and promote the use of IPM. Furthermore, lending institutions, donor agencies and governments should support the development of national IPM policies and improved IPM concepts and practices.
- vi. All stakeholders, including farmers and farmer associations, IPM researchers, extension agents, crop consultants, food industry, manufacturers of biological and chemical pesticides and application equipment, environmentalists and representatives of consumer groups should play a proactive role in the development and promotion of IPM.
- vii. Governments, with the support of relevant international and regional organizations, should encourage and promote research on, and the development of, alternatives posing fewer risks: biological control agents and techniques, non-chemical pesticides and pesticides that are, as far as possible or desirable, target-specific, that degrade into innocuous constituent parts or metabolites after use and are of low risk to humans and the environment.
- viii. Governments and the application equipment industry should develop and promote the use of pesticide application methods and equipment that pose low risks to human health and the environment and that are more efficient and cost-effective.
- ix. Governments, pesticide industry and national and international organizations should collaborate in developing and promoting resistance management strategies to prolong the useful life of valuable pesticides.
- x. Pesticide industry should ensure that each pesticide and pesticide product is adequately and effectively tested by recognized procedures and test methods so as to fully evaluate its efficacy, behaviour, fate, hazard and risk with regard to the various anticipated conditions in regions or countries of use;

## 2. Reducing health and environmental risks

*Governments should:*

- i. Implement a pesticide registration and control system.
- ii. Periodically review the pesticides marketed in their country, their acceptable uses and availability to each sector of the public, and conduct special reviews when indicated by scientific evidence.
- iii. Carry out health surveillance programmes of those who are occupationally exposed to pesticides and investigate, as well as document, poisoning cases.
- iv. Provide guidance and instructions to health workers, physicians and hospital staff on the treatment of suspected pesticide poisoning.
- v. Establish national or regional poisoning information and control centres at strategic locations to provide immediate guidance on first aid and medical treatment, accessible at all times.
- vi. Provide extension and advisory services with adequate information about practical IPM strategies and methods, as well as the range of pesticide products available for use;
- vii. Implement a programme to monitor pesticide residues in food and the environment

*Pesticide industry should:*

- i. Cooperate & provide poison-control centres and medical practitioners with information about pesticide hazards and on suitable treatment of pesticide poisoning;
- ii. Make every reasonable effort to reduce risks by making less toxic formulations available; developing application methods and equipment that minimize exposure; using returnable and refillable containers, using clear and concise labelling etc.

### **3. Regulatory and technical requirements**

*Governments should:*

- i. Introduce the necessary legislation for the regulation of pesticides.
- ii. Conduct risk evaluations and make risk management decisions based on all available data or information, as part of the registration process;
- iii. Permit pesticide application and personal protective equipment to be marketed only if they comply with established standards;
- iv. Detect and control illegal trade in pesticides;
- v. When importing food and agricultural commodities, recognize good agricultural practices in countries with which they trade.

### **4. Availability and Use**

- i. Governments should use (where appropriate) the WHO classification of pesticides by hazard as the basis for their regulatory measures and associate the hazard class with well-recognized hazard symbols. When determining the risk and degree of restriction, the type of formulation and method of application should be taken into account.

- ii. Two methods of restricting availability can be exercised by the responsible authority: not registering a product or, as a condition of registration, restricting the availability to certain groups of users in accordance with a national assessment of the hazards.

## 5. Distribution and trade

*Governments should:*

- i. Develop regulations and implement licensing procedures to ensure that, those involved in the sale of pesticides are capable of providing buyers with sound advice on risk reduction and efficient use.
- ii. Take the necessary regulatory measures to prohibit the repackaging or decanting of any pesticide into food or beverage containers.
- iii. Encourage a market-driven supply process to reduce the potential for accumulation of excessive stocks.

*Pesticide industry should:*

- i. Take all necessary steps to ensure that pesticides entering international trade conform at least to relevant FAO, WHO or equivalent specifications.
- ii. Ensure that pesticides manufactured for export are subjected to the same quality requirements and standards as those applied to comparable domestic products;
- iii. Endeavour to ensure that pesticides are traded by and purchased from reputable traders.
- iv. Ensure that persons involved in the sale of pesticides hold appropriate government licences (where such licences exist), are trained adequately so that they are capable of providing buyers with advice on risk reduction and efficient use;

The procurer (government authority, growers' association, or individual farmer) should establish purchasing procedures to prevent the oversupply of pesticides and consider including requirements relating to extended pesticide storage, distribution and disposal services in a purchasing contract.

## 6. Information Exchange

*Governments should:*

- i. Promote the establishment or strengthening of networks for information exchange on pesticides through national, international and regional organizations and public sector groups.
- ii. Facilitate the exchange of information between regulatory authorities to strengthen cooperative efforts. The information to be exchanged should include:
  - a) Actions to ban or severely restrict a pesticide in order to protect human health or the environment, and additional information upon request;
  - b) Scientific, technical, economic, regulatory and legal information concerning pesticides including toxicological, environmental and safety data;
  - c) The availability of resources and expertise associated with pesticide regulatory activities.

In addition, governments are encouraged to develop legislation and regulations that permit the provision of information to the public about pesticide risks and the regulatory process.

International organizations should provide information on specific pesticides (including guidance on methods of analysis) through the provision of criteria documents, fact sheets, training and other appropriate means.

## 7. Labelling, packaging, storage and disposal

- i. All pesticide containers should be clearly labelled in accordance with applicable guidelines, at least in line with the FAO guidelines on good labelling practice.
- ii. Industry should use labels that:
  - a) Comply with registration requirements and include recommendations.
  - b) Include appropriate symbols and pictograms whenever possible, in addition to written instructions, warnings and precautions in the appropriate language or languages.
  - c) Include, in the appropriate language or languages, a warning against the reuse of containers and instructions for the safe disposal or decontamination of used containers.
  - d) Clearly show the release date (month and year) of the lot or batch and contain relevant information on the storage stability of the product.
- iii. Pesticide industry, in cooperation with government, should ensure that:
  - a) Packaging, storage and disposal of pesticides conform to the relevant FAO, UNEP9, WHO guidelines or regulations or to other international guidelines, where applicable.
  - b) Should maintain inventory of obsolete or unusable stocks of pesticides and used containers, establish and implement an action plan for their disposal, or remediation in the case of contaminated sites, and record these activities.
- iv. Governments should take the necessary regulatory measures to prohibit the repackaging or decanting of any pesticide into food or beverage containers and rigidly enforce punitive measures that effectively deter such practices.
- v. Governments, pesticide industry, international organizations and the agricultural community should implement policies and practices to prevent the accumulation of obsolete pesticides and used containers.

## 8. Advertising

- i. Governments should control, by means of legislation, the advertising of pesticides in all media to ensure that it is not in conflict with label directions and precautions.
- ii. Pesticide industry should ensure that:
  - a) All statements used in advertising are technically justified and do not contain any statement or visual presentation which is likely to mislead the buyer, in particular with regard to the “safety”, it’s nature, composition or suitability for use, official approval etc.
  - b) Pesticides which are legally restricted to use by trained or registered operators are not publicly advertised other than those catering for such operators, unless the restricted availability is clearly and prominently shown.
  - c) No company or individual in any one country simultaneously markets different pesticide active ingredients or combinations of ingredients under a single brand name.
  - d) Advertisements do not misuse research results, quotations from technical and scientific literature or scientific jargon to make claims appear to have a scientific basis they do not possess;
  - e) Advertisements do not contain any visual representation of potentially dangerous practices, such as mixing or application without sufficient protective clothing, use near food or use by or in the vicinity of children;



- f) Technical literature provides adequate information on correct practices, including the recommended application rates, frequency of applications and pre-harvest intervals etc.
- g) Advertisements and promotional activities should not include inappropriate incentives or gifts to encourage the purchase of pesticides.

### International Agreements and Treaties on Pesticides

Governments of various countries, Environment Protection Agency (EPA), USA and other international organizations work together to develop and strengthen international standards and approaches to the sound management of pesticides. Various international agreements have been developed on different aspects of pesticides to strengthen protections across the globe like:

- a) Montreal Protocol on Substances that Deplete the Ozone Layer
- b) Basel Convention on the Trans-boundary Movement of Hazardous Wastes and their Disposal
- c) Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- d) Stockholm Convention on Persistent Organic Pollutants (POPs)

#### 1. Montreal Protocol on Substances that Deplete the Ozone Layer

Adopted on 16 September 1987, the Montreal Protocol was created in an international effort to phase out the use of certain ozone depleting substances such as chlorofluorocarbons (CFCs), halons, and methyl bromide. US-Environmental Protection Agency (US-EPA) issued rulemaking addressing critical use exemptions for **Methyl Bromide**, one of the ozone depleting substances that is used as an agricultural pesticide (soil and structural fumigant) to control a wide variety of pests.



#### 2. Basel Convention on the Trans-boundary Movement of Hazardous Wastes and their Disposal

The Basel Convention was adopted in Basel, Switzerland, on March 22, 1989 and entered into force on May 5, 1992. The Basel Convention includes hazardous wastes that are explosive, flammable, poisonous, infectious, corrosive, toxic, or eco-toxic. Annexes I-III identify the categories or waste and characteristics that the Convention covers. Annexes VIII and IX list specific wastes identified as hazardous or non-hazardous.



During its first decade, a principle focus of the Convention was to establish a control system for trans-boundary movements of hazardous waste. Then work of the Convention has focused on capacity building and technical assistance. In 1995 the “Basel Ban” was adopted. This amendment ensures bans on exports of hazardous waste from Basel Annex VII countries (members of the EU, OECD, or Liechtenstein) to all other Basel Convention parties.

#### 3. Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

PIC was adopted on September 10, 1998 by a Conference of Plenipotentiaries in Rotterdam, the Netherlands. The Convention entered into force on February 24, 2004. The Rotterdam Convention assists Parties to reduce risks from certain hazardous pesticides in international trade. The Convention, together with the Stockholm and Basel conventions and FAO’s voluntary Code of Conduct, promotes a life cycle approach and provides the necessary tools for managing pesticides.



***The objectives of the Convention are:***

- a) to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals to protect human health and the environment from potential harm
- b) to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties

The Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure.

**Stockholm Convention on Persistent Organic Pollutants**

This United Nations treaty was signed in Stockholm, Sweden, in May 2001 and entered into force in May 2004. Under the treaty, known as the Stockholm Convention or the POPs treaty, countries agree to reduce or eliminate the production, use, and/or release of compounds identified as POPs.



The convention includes the identified POPs in three groups:

**Annex A:** Intentionally produced chemicals that need to be **eliminated**

Each Party shall prohibit and/or take the legal and administrative measures necessary to eliminate their production, use, import and export

**Annex B:** Intentionally produced chemicals with restrictions.

Production and use of chemicals in Annex B should be eliminated, except for “acceptable purposes” like:

- a) DDT used only for disease vector control.
- b) Industry must cease production of new PCBs immediately;
- c) Industry must eliminate use of in-place PCB equipment by 2025;
- d) Industry must achieve the environmentally sound management of PCB wastes as soon as possible and latest by 2028

**Annex C:** Unintentionally produced chemicals

**Scope/Coverage**

In 2004, 12 POPs were listed in annexes to the convention initially and additional POPs are covered under this convention subsequently.

**References:**

- 1.
2. <https://www.who.int/publications/i/item/9789251085493>
3. <https://www.fao.org/3/I3604E/i3604e.pdf>
4. <https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol>
5. <https://www.basel.int/>
6. <https://www.pic.int/>
7. <https://www.pops.int/>

## **Around the World**

- 330 Insecticides / Pesticides are registered under section 9(3) of the Insecticides Act, 1968 and 46 Pesticides are banned for manufacture, import and use as on 01.06.2023 in India
- JOINT FAO/WHO meeting on pesticide residues was held on 19 to 28 September 2023. The Meeting evaluated 35 pesticides and estimated maximum residue levels, which it recommended for use as maximum residue limits (MRLs) by the Codex Committee on Pesticide Residues. Supervised trials median residue (STMR) and highest residue (HR) levels are estimated as a basis for estimation of the dietary exposure to residues of the pesticides reviewed.
- The 16th FAO/WHO Joint Meeting on Pesticide Management (JMPM) was held from 6 to 10 November 2023, at the World Health Organization (WHO) headquarters in Geneva. The Secretariat, panel members from both the Food and Agriculture Organization of the United Nations (FAO) and WHO, and observers gathered to discuss the new challenges shaping the future of pesticide regulation on a global scale.
- Joint FAO/WHO Meeting on Pesticide Residues 2023, Washington, D.C., USA, was held during 19 to 28 September 2023. The Meeting evaluated 35 pesticides. The Meeting estimated maximum residue levels, which it recommended for use as maximum residue limits (MRLs) by the Codex Committee on Pesticide Residues (CCPR). It also estimated supervised trials median residue (STMR) and highest residue (HR) levels as a basis for estimation of the dietary exposure to residues of the pesticides reviewed.

## Training Programs

### Plant BioSecurity Division

The Plant Biosecurity Division has organized following training programmes during the months of **October-December, 2023**.

#### CAPACITY BUILDING PROGRAMMES:

| S. No.   | Name of The Programme  | Duration | Date       |            |
|--|--|----------|------------|------------|
|  |  |          | From       | To         |
| <b>Plant Biosecurity Division (PBD)</b>            |  |          |            |            |
| 1.   | Export and Import of planting material including Tissue Culture plants- <b>Payment Programme</b>                       | 03 Days  | 03.10.2023 | 05.10.2023 |
| 2.   | Detection and Diagnosis (including Molecular Techniques) of Plant Pathogens / Quarantine Pathogens                     | 05 Days  | 09.10.2023 | 13.10.2023 |
| 3.   | Warehouseman Training Programme WDRA - <b>Payment Programme</b>  | 05 Days  | 09.10.2023 | 13.10.2023 |
| 4.   | Good Agriculture Practices, Phytosanitary Measures and Food safety- <b>for Cluster Development Programme Meghalaya</b> | 03 days  | 19.12.2023 | 21.12.2023 |
| 5.   | Pest surveillance  | 05 Days  | 11.12.2023 | 15.12.2023 |
| 6.   | Fumigation as a Phytosanitary Treatment (MBr & AIP Fumigation)- <b>Payment Programme</b>                               | 15 Days  | 28.11.2023 | 12.12.2023 |
| 7.   | Forced Hot Air Treatment- <b>Payment Programme</b>   | 05 Days  | 18.12.2023 | 22.12.2023 |
| <b>Webinar/ Workshop</b>                           |  |          |            |            |
| 8.   | Indo -Australia Webinar on Pest Free Area  | 01 Day   | 11.10.2023 | 11.10.2023 |
| 9.   | Workshop on Fumigation as a Phytosanitary Treatment: Present and Future- <b>Payment Programme</b>                      | 02 Day   | 01.11.2023 | 02.11.2023 |
| <b>International Programme</b>                     |  |          |            |            |
| 10.  | Detection and Diagnosis of Pests, Pest Risk Analysis and Phytosanitary Treatments - <b>ITEC-MEA</b>                    | 14 Days  | 07.11.2023 | 20.11.2023 |
| <b>PBD- Farmers Programme (sponsored by APEDA)</b> |  |          |            |            |
| 11.  | SPS Measures, Good Agricultural Practices and Food Safety at Jagdalpur, Chhattisgarh                                   | 1 Day    | 04.10.2023 | 04.10.2023 |
| 12.  | SPS Measures, Good Agricultural Practices and Food Safety at Raipur, Chhattisgarh                                      | 1 Day    | 06.10.2023 | 06.10.2023 |

| <b>PBD-Customized Programmes for farmers with WDRA</b> |  |         |            |            |
|--|--|---------|------------|------------|
| 13.  | Farmers awareness programme on WDRA and eNWR at APSWC, Jaggaiahpet         | 01 Day  | 14.12.2023 | 14.12.2023 |
| 14.  | Farmers awareness programme on WDRA and eNWR at Anajipuram at Rythukendram | 01 Day  | 14.12.2023 | 14.12.2023 |
| 15.  | Farmers awareness programme on WDRA and eNWR at Jammikunta                 | 01 Day  | 18.12.2023 | 18.12.2023 |
| 16.  | Farmers awareness programme on WDRA and eNWR at Madanapuram                | 01 Day  | 20.12.2023 | 20.12.2023 |
| 17.  | Farmers awareness programme on WDRA and eNWR at Tenali                     | 01 Day  | 21.12.2023 | 21.12.2023 |
| 18.  | Farmers awareness programme on WDRA and eNWR at Duggirala                  | 01 Day  | 22.12.2023 | 22.12.2023 |
| <b>Vertebrate Pest Management (VPM)</b>                |  |         |            |            |
| 19.  | Vertebrate Pest Management -Wild boar, monkeys and birds                   | 03 Days | 10.10.2023 | 12.10.2023 |
| 20.  | Rodent Pest Management in Grain Storage for FCI officials                  | 05 Days | 13.11.2023 | 17.11.2023 |
| 21.  | Training on Safe & Judicious Use of Glyphosate                             | 2 Day   | 16.11.2023 | 17.11.2023 |
| 22.  | Training on Safe & Judicious Use of Glyphosate                             | 1 Day   | 22.11.2023 | 22.11.2023 |
| 23.  | Training on Urban Pest Management for the Technicians                      | 1 Day   | 20.11.2023 | 20.11.2023 |
| 24.  | Urban Integrated Pest Management – <b>Payment programme</b>                | 15 Days | 01.12.2023 | 15.12.2023 |

#### **A. DETAILS OF TRAINING PROGRAMMES (Govt. Officials & Private sector)**

##### **PLANT BIOSECURITY DIVISION (PBD)**

- **Export and Import of planting material including Tissue Culture plants:** An exclusive programme was organized for private industry involved in propagative materials production including tissue culture plants on payment basis. The topics covered were plant biosecurity and plant quarantine, production and certification protocol for tissue culture plants, export and import procedure for propagative material, Post Entry Quarantine and 15 participants were attended the programme.



- **Detection and Diagnosis (including Molecular Techniques) of Plant Pathogens / Quarantine Pathogens:** Detection and identification of exotic pathogens is very essential to protect the crops and biodiversity from exotic pests. In order to create awareness about the detection techniques available for various plant pathogens / quarantine pathogens, the Plant Biosecurity Division organized 5 -days training from 9<sup>th</sup> -13<sup>th</sup> October, 2023. Nine officers from State Department of Agriculture, Associate Professors and Assistant Professors from State Agricultural Universities attended the training.



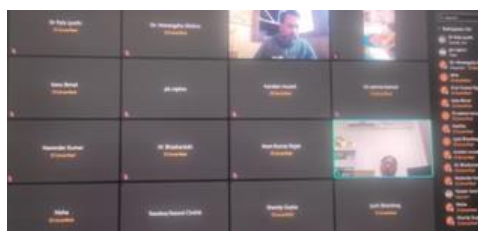
- **Warehouseman Training Programme- WDRA:** A 5-days training programme on Warehouse Management and Scientific Storage for In-charge/ Managers/ Supervisors/ representatives/ PACS of warehouses registered with WDRA was organized from 09.10.2023 to 13.10.2023 at NIPHM, Hyderabad and the programme was attended by 17 participants (Andhra Pradesh State warehousing Corporation and Telangana State warehousing Corporation technical staff).



- **Good Agriculture Practices, Phytosanitary Measures and Food safety- for Cluster Development Programme Meghalaya:** A 03 days training programme on for Cluster Development Programme, Meghalaya was organized at NIPHM (19th to 21st Dec, 2023) and during the session the CDP-IA Meghalaya officials has learnt different aspects on GAP, Export promotion, Pesticide management w.r.t. turmeric and also has exposed to different lab viz., plant Health clinic, seed testing lab, Storage pest Detection lab, Biocontrol lab etc. Total 7 participants attended the programme.



- **Pest surveillance:** Five days online training programme was organized from 11th to 15th, 2023 and during the session the participants (extension officers, state agriculture/Horticulture Dept., KVK, SAU, ICAR etc.) learnt about pest surveillance strategies such as detection, monitoring and delimiting surveys, pest forecasting, types of surveys, sampling methods to adopt at field level. The tools required for surveillance of target pests and the procedures for establishment of Pest Free Areas to gain Market Access, various lures and traps for carrying out fruit fly surveillance for monitoring as well as for area-wide control has been covered. Total 20 trainees from different states has participated all are from state Agriculture/Horticulture Dept. KVK's, SAU's, ICAR.



- **Fumigation as a Phytosanitary Treatment (MBr & AIP Fumigation):** As per NSPM 11, 12 & 22, the eligible operators shall be required to undergo the said training for the accreditation of Fumigation Agencies for undertaking Methyl bromide and Aluminium Phosphide Fumigation. Hence, NIPHM has organized this 15-Days training from 28th November to 12th December, 2023 on Methyl bromide and Aluminium Phosphide fumigation. A total 34 participants were attended the programme from different states of India.



- **Forced Hot Air Treatment:** NIPHM is the only Institute in India to offer a specialized training programme on FHAT for industry stakeholders. The training programme was organized during 18th-22nd December, 2023 at NIPHM and attended by 55 aspirants. 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.

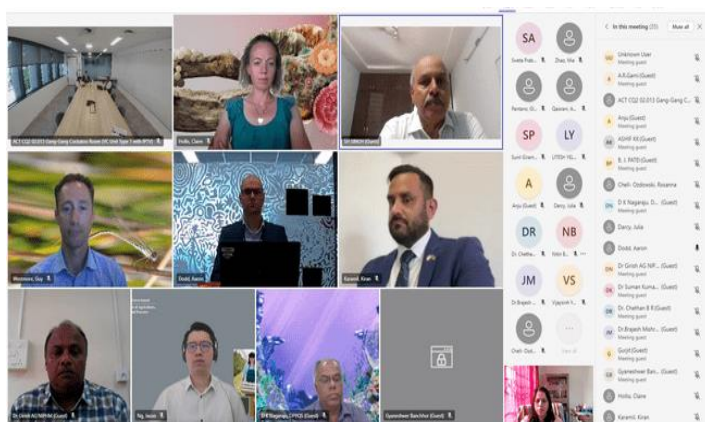


- **Indo-Australia Webinar on Pest Free Area:** International Plant Protection Convention (IPPC) describes the recognition of Pest Free Area (PFA) as one of the operational principles and the application of phytosanitary measures for the protection of plants in international trade. ISPM 4 describes the requirements for the establishment and use of pest free areas (PFAs) as a risk management option for phytosanitary certification of plants and plant products and other regulated articles exported from the PFA or to support the scientific justification for phytosanitary measures taken by an importing country for protection of an endangered PFA.



Australia has invested in the field of Pets Free Area for the effective management of Mediterranean fruit fly and Queensland Fruit Fly to provide internationally recognised fruit fly pest free areas to facilitate trade of horticultural commodities susceptible to these pests. The National Institute of Plant Health Management always step forward for capacity building on various aspects of Plant Biosecurity, Quarantine, Sanitary and Phytosanitary Issues and the threats of Invasive Alien Species etc.

Understanding the quantum of biosecurity and need of Pest Free Area, National Institute of Plant Health Management, Hyderabad in collaboration with Australian High Commission- Department of Australian Plant Health Policy has organized an Indo-Australia Webinar on Pest Free Area on 11<sup>th</sup> October, 2023 and attended by around 65 international and national officials.



- **Workshop on Fumigation as a Phytosanitary Treatment: Present and Future:** Among the Phytosanitary treatments, Fumigation is most accepted treatment. Fumigation treatment providers form an important and indispensable part for the import/export of agricultural commodities in international trade and knowledge and skill sets possessed by them can make a great difference in the success of Phytosanitary treatments. NIPHM is one of the notified Institutes under Insecticides Rules 1971 Chapter III -10, (3a) (iii) for imparting training for commercial pest control operators on fumigation using Methyl bromide and Phosphine. A two days' workshop on fumigation was organized at NIPHM from 1<sup>st</sup> - 2<sup>nd</sup> November, 2023 and total 50 PCOs joined the programme.



- **Detection and Diagnosis of Pests, Pest Risk Analysis and Phytosanitary Treatments - ITEC-MEA:** Insect pests cause great damage in field and storage and hence are considered as threat not only to biosecurity but also to the food security. Reliable detection methodologies and accurate & timely diagnosis is paramount in identification of insect pests of quarantine concern to prevent entry, establishment and spread of pests of concern. NIPHM is the training partner with the Indian Technical and Economic Cooperation (ITEC) under the Ministry of External Affairs (MEA), Govt. of India. The training program of two weeks was organized from 07.11.2023 to 20.11.2023 for the officials (24 members) from 14 countries (Nepal, Bhutan, Srilanka, Bangladesh, Mexico, Cameroon, South Sudan, Iran, Iraq, Niger, Nigeria, Ethiopia, Tunisia and Oman).

The main objective of the training program was to impart skills and creating awareness in the area of pest surveillance, detection and diagnosis of pests, different steps involved in PRA in order to prevent the spread and introduction of pests of plants and plant products across borders and also on phytosanitary measures to facilitate international trade while minimizing the risk of spreading harmful organisms.



- **SPS Measures, Good Agricultural Practices and Food Safety:** National Institute of Plant Health Management, Hyderabad, Telangana in collaboration with APEDA, New Delhi and Regional Office, APEDA, Bhopal, Madhya Pradesh organised two one day training programs entitled “SPS Measures, Good Agricultural Practices and Food Safety” at following places in State Chhattisgarh –

- Krishi Vigyan Kendra, Jagdalpur on 04<sup>th</sup> October, 2023
- Krishi Vigyan Kendra, Raipur on 06th October, 2023

NIPHM faculty explained about the Good Agricultural Practices and biological control of pests and diseases in order to reduce pesticides residue in crops and also explained about the export opportunities for agriculture and horticulture commodities from the state Chhattisgarh. Mr. Ashok Bora, Business Development Officer, APEDA, Bhopal also joined the training program in Raipur and explained the role and responsibilities of APEDA and benefits of registration with APEDA and getting registration cum membership certificate. He also explained various beneficial schemes of APEDA to support the exporters. A total of 120 participants including entrepreneurs/exporters, progressive farmers, plant protection officials and other stakeholders were attended the training programs.



**PBD- FARMERS PROGRAMMES**

➤ **Farmers’ awareness programme on WDR and eNR at Jaggaiahpet, Anajipuram, Jammikunta, Madanapuram, Tenali and Duggirala:** NIPHM in collaboration with WDR has conducted six Awareness Programmes on WDR and eNR for the farmers of Hyderabad at different locations during December, 2023. Total 300 farmers were attended and got benefited. The farmers attended the practical demonstration at WDR registered godown.



On 14.12.23 at APSWC, Jaggaiahpet



On 18.12.23 at Jammikunta



On 20.12.23 at Madanapuram



On 21.12.23 at APSWC, Tenali



On 22.12.23 at CWC, Duggirala



On 14.12.23 at Anajipuram, Rythukendram Telangana

### **VPM- OFFICERS PROGRAMMES**

- **Vertebrate Pest Management-Wild boar, monkeys and birds:** 05 days programme was organized from 09th to 12th October, 2023 and attended by 21 officers from different states. The sessions organized were; Economic importance of vertebrate pests in agriculture and horticulture, Indian Wild Life Protection Act, 1972, Biology of Wild boar and their management in Agri. crops, management of elephant in agricultural crops, management of Nilgai in agri. crops, biology of monkey and their management in agri. /horti ecosystem, predatory birds in agriculture/horticulture and integrated bird pest management in agricultural/horticultural crops.

- **Rodent Pest Management in Grain Storage for FCI officials:** National Institute of Plant Health Management organized training programme from 13.11.23 to 17.11.23. Total 05 FCI officers from attended the training. The training program covered various sessions on major rodent pest species in urban areas, Biology rodents, and major rodent borne zoonotic diseases. In addition to this management of rodents through chemical and non-chemical methods and rodent breeding profile and rodent control campaign were also taught to the trainees. The valedictory programme was attended by Dr. Alice RP Sujeetha- Director (PB).



- **Training on Safe & Judicious Use of Glyphosate:** Two programmes from 16.11.23 & 17.11.23 (Online) and 22.11.2023 (Physical mode) were organized and attended by total 50 PCOs from various states. Various aspects of Glyphosate such as Environmental fate and ecotoxic studies, Weed control efficiency, Weed index, Calculation on dose and quantities of Glyphosate, Physical and chemical properties of Glyphosate herbicide, formulations and their mode of action, Toxicity classification of Glyphosate including acute and chronic toxicity, carcinogenicity, reproductive effects and fate in the body, Do's and Don'ts of Glyphosate, application label and leaflet warnings were covered during the technical sessions. The practical classes were organised at NIPHM on 22.11.23. The programme was graced by the chief guest Dr. Sagar Hanuman Singh, IPoS -Director General, Dr. Alice R.P Sujeetha - Director (PB) and Dr. OP Sharma - Director (PHM).



- **Training on Urban Pest Management for the Technicians:** A two-days training from 20.11.23 to 21.11.23 was organized and 68 participants were attended the programme. The programme was graced by the chief guest Dr. Sagar Hanuman Singh, IPoS -Director General, Dr. Alice R.P Sujeetha - Director (PB) and other delegates from the Pest management associations. The topics covered were biology and management of mosquitos, biology and management of termites in pre and post construction treatment, biology and management of cockroaches, flies, bedbug and safe use of pesticides, code of conduct in pest management and equipment maintenance.



- **Urban Integrated Pest Management:** The programme was organized for the structural pest management professionals from 01.12.23 to 15.12.23. Total 43 participants were attended the course from various states. The topics covered were Ecology and ethology of rodents, mosquitos, termites, cockroaches, bedbug and flies etc. and their management practices. In addition to that topic such as safe and judicious use of pesticides, care, handling and maintenance of pesticide application equipment, Food safety & standards in food processing industries and urban weed management, Start-up in Pest control, etc. are also covered to give in depth sight during fifteen days training.



**FORTHCOMING PROGRAMMES OF PBD & VPM (JANUARY-MARCH, 2024)**

| Division   | Name of the programme  | No. of Days | From       | To         |
|------------|--|-------------|------------|------------|
|            | Awareness workshop on seed export trade and importance of Seed Health Testing                | 1day        | 30.01.2024 | 30.01.2024 |
| <b>PBD</b> | Awareness workshop on ISPM 15 & NSPM 9   | 2 Days      | 08.02.2024 | 09.02.2024 |
|            | Phytosanitary Inspection Training  | 30 days     | 18.01.2024 | 16.02.2024 |
|            | Fruit fly: Surveillance and Management   | 5 Days      | 05.02.2024 | 09.02.2024 |
|            | Plant Quarantine Procedures for Import and Export  | 5 Days      | 12.02.2024 | 16.02.2024 |
|            | Invasive Alien Species: Introduced and Emerging Pests  | 3 Days      | 19.02.2024 | 21.02.2024 |
|            | Fumigation as a Phytosanitary Treatment (Methyl Bromide and Aluminium Phosphide)             | 15 Days     | 26.02.2024 | 11.03.2024 |
|            | Stored Grain Pest: Detection, Identification and Management                                  | 5 Days      | 04.03.2024 | 08.03.2024 |
|            | Pest Surveillance  | 5 Days      | 11.03.2024 | 15.03.2024 |
|            | Pest Risk Analysis   | 5 Days      | 18.03.2024 | 22.03.2024 |
| <b>VPM</b> | Risk assessment and management of vertebrate pests in agriculture and horticulture ecosystem | 10 days     | 06.02.2024 | 15.02.2024 |

## Plant Health Management Division

The Plant Health Management Division has organized following training programmes during the months of **October-December, 2023**.

### CAPACITY BUILDING PROGRAMMES:

| S No                                  | Name of the programs  | No. of Days | From       | To         |
|---------------------------------------|---|-------------|------------|------------|
| <b>I. Officers programme</b>          |   |             |            |            |
| 1.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 03.10.2023 | 04.10.2023 |
| 2.                                    | Training on Biofertilizer Technology  | 10          | 04.10.2023 | 13.10.2023 |
| 3.                                    | Training of Trainers (TOT) from Assam on “On farm Production of Biocontrol Agents and Microbial Biopesticides | 04          | 09.10.2023 | 12.10.2023 |
| 4.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 10.10.2023 | 11.10.2023 |
| 5.                                    | Training of the Master Trainers for ‘Safe and Judicious use Glyphosate’ by PCOs Batch-X                       | 01          | 11.10.2023 | 11.10.2023 |
| 6.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 16.10.2023 | 17.10.2023 |
| 7.                                    | Training of the Master Trainers for ‘Safe and Judicious use Glyphosate’ by PCOs Batch-XI                      | 01          | 18.10.2023 | 18.10.2023 |
| 8.                                    | Quality control of Microbial biopesticides  | 10          | 30.10.2023 | 08.11.2023 |
| 9.                                    | Sustainable Plant Health Management Practices in FCV tobacco  | 03          | 14.11.2023 | 16.11.2023 |
| 10.                                   | Production Protocol for Entomo-pathogenic Nematodes   | 21          | 16.11.2023 | 06.12.2023 |
| 11.                                   | Production Protocol for Biofertilizers, Biopesticides, Biocontrol agents                                      | 05          | 18.12.2023 | 22.12.2023 |
| <b>II. Farmers training programme</b> |   |             |            |            |
| 1.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 12.10.2023 | 13.10.2023 |
| 2.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 19.10.2023 | 20.10.2023 |
| 3.                                    | On-farm production of bioinputs   | 1           | 14.10.2023 | 14.10.2023 |
| 4.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 26.10.2023 | 27.10.2023 |
| 5.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 30.10.2023 | 31.10.2023 |
| 6.                                    | Sustainable Management of Fall Armyworm in Maize  | 02          | 31.10.2023 | 01.11.2023 |
| 7.                                    | Mass production and application of entomopathogenic nematodes (EPN)   | 3           | 18.12.2023 | 20.12.2023 |
| <b>III. Webinars/Workshop</b>         |   |             |            |            |
|                                       | Nil   |             |            |            |



| IV. | Student training programme   |    |            |            |
|-----|--|----|------------|------------|
| 1   | Production protocol for Bio fertilizers and Bio pesticides (COH, Sirsi, Karnataka) | 10 | 11.10.2023 | 20.10.2023 |
| 2   | Scientific Exposure to PHM Practices   | 7  | 16.11.2023 | 22.11.2023 |
| 3   | Plant Health Management for Sustainable Agriculture                                | 21 | 01.12.2023 |            |

➤ **Three officer training programs on ‘Sustainable Management of Fall Armyworm in Maize’**

National institute of Plant Health Management (NIPHM), Hyderabad in collaboration with Food and Agriculture Organization (FAO) conducted three 2 days’ Officers training programs on ‘Sustainable Management of Fall Armyworm in Maize’ at NIPHM are as listed below:

| Sl. No.      | Program date             | Duration | State      | Number of Participants |
|--------------|--------------------------|----------|------------|------------------------|
| 1.           | 03.10.2023 to 04.10.2023 | 2        | Tamil Nadu | 23                     |
| 2.           | 10.10.2023 to 11.10.2023 | 2        | Karnataka  | 16                     |
| 3.           | 16.10.2023 to 17.10.2023 | 2        | DPPQ&S     | 17                     |
| <b>Total</b> |                          |          |            | <b>56</b>              |

Total 56 officers from Tamil Nadu, Karnataka and DPPQ&S have attended the programme. Elaborative discussions were held through resource persons on monitoring, surveillance and early-warning systems for management of Fall Armyworm (FAW) in maize, Eco friendly management of FAW, natural enemies of FAW, role of biopesticides and on-farm production protocols of predators and parasitoids for the management of FAW. Along with the technical sessions the participants were given exposure to biocontrol laboratories of NIPHM and also knowledge was imparted on Agroecosystem Analysis (AESA) and landscape management for control of FAW and interactive session with all the officers. This training provided resources to officers about tools to conduct pest surveillance, monitoring of FAW population in maize crop which will in-turn help farmers in prudent decision for taking pesticide application and other interventions to control the population of FAW. The officers were also shown the on-farm production technologies of natural enemies which will help them in production of biocontrol agents on their own farm and reduce the use of chemical pesticides and reduce the economic losses and their side effects on environment.



### ➤ **Training on Bio fertilizer Technology**

A training programme on Bio-fertilizer technology has been conducted by NIPHM from 04.10.2023 to 13.10.2023 (10 days). A total of 11 participants from different organizations attended. This training is helpful to the participants to establishing the commercial biofertilizer units and produce different types of biofertilizers and to scale up of the commercial production process, low cost on-farm production of biofertilizers technology which is very useful to small and marginal farmers for adopting usage of biofertilizers in organic and integrated nutrient management practices. During this programme, different aspects of theory and hands on training sessions such as living soil concept, role of biofertilizers in plant health management, protocol for isolation, purification of microbial isolates, on-farm production of bacterial biofertilizers and application methods, isolation of mycorrhizae (VAM) and testing of infectivity potential, grams staining–morphological identification of bacteria/fungi, guidelines of lab establishment, Isolation and quality control of Mycorrhizae biofertilizers, liquid based biofertilizers production, quality control of biofertilizers, production technology of carrier based biofertilizers, novel biofertilizer inoculants for sustainable agriculture were conducted.



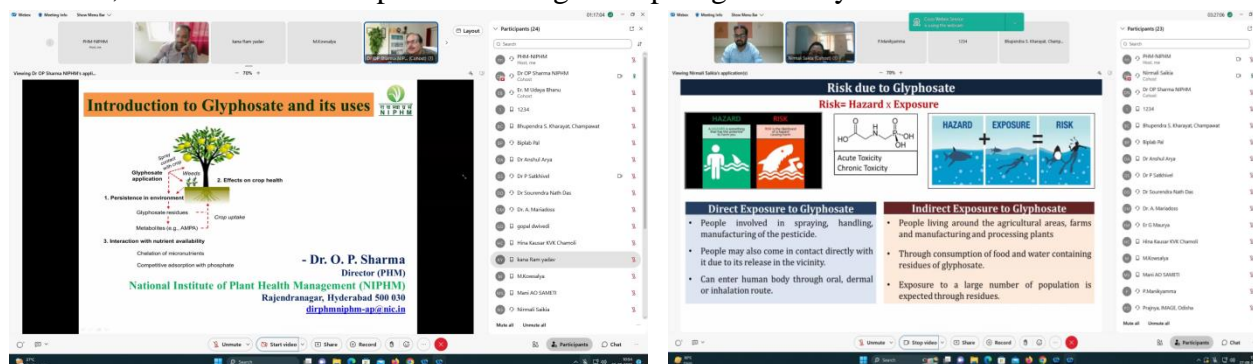
➤ **Training of Trainers (TOT) from Assam on “On farm Production of Biocontrol Agents and Microbial Biopesticides”**

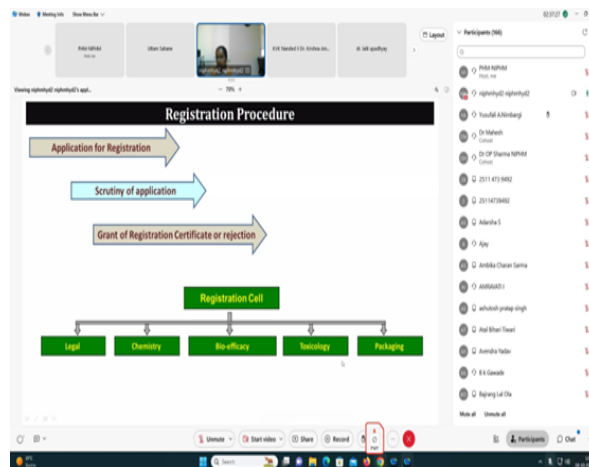
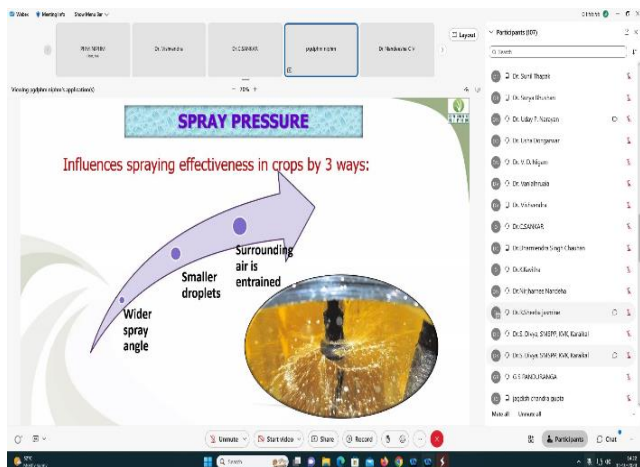
A special 4 days Training of Trainers (TOT) on “On farm Production of Biocontrol Agents and Microbial Biopesticides” under Assam Agribusiness and Rural Transformation Project (APART) of IRRI which is funded by world bank was conducted from 9<sup>th</sup> to 12<sup>th</sup> October, 2023. In this training program 18 participants from APART project of Assam have participated. Among 18 participants 10 persons are from Farmer Producer Companies (FPC), 7 are from KVKs and 1 officer from IRRI. Majority of classes and practical sessions were conducted with hands on practice on production of different biocontrol agents and microbial biopesticides. Along with these, there was a field visit to AICRP-IFS (Integrated Farming System) at PJTSAU to showcase different farming systems.





**➤ Training of the Master Trainers for ‘Safe and Judicious use Glyphosate’ by PCOs Batch-IX, X’**  
 Two training programmes on ‘*Training of the Master Trainers for ‘Safe and Judicious use Glyphosate’ by PCOs, IX, X*’ were organized at NIPHM on 11.10.2023 , 18.10.2023, (1 day each) in online mode. Total of 215 participants from DPPQ&S, SAMETIs/ KVKs & NIPHM were attended. In this training program, topics such as introduction to Glyphosate and its uses, properties of Glyphosate and its available formulations, toxicity and environmental effects of Glyphosate, doses, calculations and weed control efficiency of glyphosate, label and leaflet warnings of Glyphosate herbicide, DOs and DON’Ts, safety precautions and application techniques of Glyphosate were covered. This training programme is helpful to the participants to gain the knowledge in various aspects of Glyphosate herbicides, its formulations, toxicity and environmental effects, application techniques, safe use etc, which is further helpful in training the aspiring PCOs by the Master Trainers.





➤ **Quality control of Microbial Bio pesticides**

A training program on Quality Control of Microbial Bio Pesticides has been organized at NIPHM from 30.10.2023 to 08.11.2023 (10 days). In this program total of 11 officers from different KVKs, SAUs and state agriculture departments of different states have been participated. This training is helpful to the participants to knowledge on the establishment of quality testing laboratory guidelines, insecticide act, standard protocols for quality parameters testing of biopesticides, latest techniques for microbial identification and sample processing etc.



➤ **Sustainable Plant Health Management practices in FCV tobacco**

A special training programme on ‘Sustainable Plant Health Management Practices in FCV tobacco’ was organized from 14-16 November 2023 (3 days). In this program, a total 15 officers (Auction Superintendent/Field officers/Field Assistants) from Tobacco Board, Andhra Pradesh have participated. The training include the concepts of sustainable PHM practices in FCV tobacco such as soil nutrient management through INM, drought mitigation approaches, and natural/organic practices for FCV tobacco. This training will be helpful to the field level officers of Tobacco Board in terms of knowledge on the integrated soil nutrient management aspects like understanding of soil biota role in fertility maintenance, biofertilizer component in INM, the importance of soil testing and use of rapid soil test kit and use of different organic manures, vermicompost, and other liquid manures, drought management, etc.



➤ **Officer training program on Production Protocol for Biofertilizers, Biopesticides, Biocontrol agents**

A training programme on ‘Production Protocol for Biofertilizers, Biopesticides and Biocontrol agents’ has been organized from 16.11.2023 to 06.12.2023 (21 days). A total 13 officers from KVKs, SAUs and State Agricultural Department from different states have participated. The programme covered different aspects of production protocols for bio-inputs and their hands on practice sessions were carried out. This programme shall be helpful to the participants on knowledge of mass production of bio-inputs, application methods and quality control aspects.



### ➤ Officer training program on Production Protocol for Entomo-pathogenic Nematodes

NIPHM has organized a programme on “Production Protocol for Entomo-pathogenic Nematodes” from 18 to 22 December 2023 (5days). In this program, a total of 09 participants from private industries and ICAR- CIAM have attended. In this training programme, the participants have undergone different sessions such as introduction of the training programme, introduction to Biological Control -Principles and Concepts, On farm Mass production of host insect-*Corcyra cephalonica* and Wax moth, On-farm mass production of bio-pesticides, introduction to entomopathogenic nematodes, entomopathogenic nematodes as a tool for insect Management.



## II. Farmers training programmes

### ➤ Farmer training programs on ‘Sustainable Management of Fall Armyworm in Maize’

National institute of Plant Health Management (NIPHM), Hyderabad in collaboration with Food and Agriculture Organization (FAO) five 2 days farmers training programs on ‘Sustainable Management of Fall Armyworm in Maize’ was conducted at NIPHM. Total 188 farmers from Karnataka, Tamil Nadu and Telangana States have attended the program. Elaborative discussions were held through resource persons on Agroecological approaches for controlling FAW in maize ecosystem, Impact of FAW incidence and its management, monitoring, surveillance and early-warning systems for management of Fall Armyworm (FAW) in maize. Further, farmers were trained in On-farm production of Biocontrol agents and Microbial Biopesticides to promote AESA based PHM in conjunction with Ecological Engineering for FAW Management. The farmers were also demonstrated the on-

farm production technologies of parasitoids, predators and microbial biopesticides to familiarise them in production of biocontrol agents on their own farm to reduce the use of chemical pesticides, reduce the economic losses, their side effects on environment etc.



➤ **Training on On-farm production of bio-inputs**

An off campus training programme on On-farm production of bio-inputs has been conducted at Rythuvedhika, Bonala village, Chegunta (M), Medak district, Telangana in collaboration of Sehgal Foundation. A total of 23 women farmers from different adopted villages of foundation have participated. During this programme, the women farmers were explained and created awareness on role of bio-inputs in organic/natural farming and on-farm production of bio fertilizers, bio-pesticides and bio-control agents and their application methods. The demonstration on farm level production of bio-inputs was also conducted. The program was sponsored by Sehgal foundation – an FPO.







**మహిళలకు నేషనల్ ఫ్లాంట్ హెల్త్ మేనేజ్మెంట్ వారిచే శిక్షణ**

సవతెలంగాణ-చేగుంట

మండలంలోని బోనాల గ్రామం లైతు వేదికలో సహగల్ ఫౌండేషన్ స్వచ్ఛంద సంస్థ వారు మహిళలకు నేషనల్ ఫ్లాంట్ హెల్త్ మేనేజ్మెంట్ వారిచే శిక్షణ కార్యక్రమం నిర్వహించారు. ఈ కార్యక్రమంలో సుమారు 55 మంది మహిళలు పాల్గొన్నారు. ఈ సందర్భంగా ఏఎన్.ఓ. నేషనల్ ఫ్లాంట్ హెల్త్ మేనేజ్మెంట్ ప్రతినీటి డామోడర్ చారి మాట్లాడుతూ జీవన ఎరువులను లైతు స్థాయిలో ఏవిధంగా తయారు చేసుకోవాలో ప్రయోగాత్మకంగా వివరించారు. అలాగే పంటకు మంచిచేసే మిత్రపక్షులను ఏ విధంగా కాపాడాలి, లైతు స్థాయిలో ఎలా ఆభివృద్ధి పరుచుకోవాలి వివరించారు. ఈ కార్యక్రమంలో సహగల్ ఫౌండేషన్ ప్రతినీటి యన్ మారుతి, ఆసి స్టాంట్ ప్రోగ్రాం లీడ్, ఫీల్డ్ ఆసిస్టెంట్లు శ్రావణ్, విజయ తదితరులు పాల్గొన్నారు.



**సహగల్ ఫౌండేషన్ వారిచే మహిళా రైతులకు శిక్షణ**

మన తెలంగాణ/చేగుంట: చేగుంట మండలం బోనాల గ్రామంలో సహగల్ ఫౌండేషన్ స్వచ్ఛంద సంస్థ మరియు సేవల్ హెల్త్ ఫ్లాంట్ మేనేజ్మెంట్ (ఎన్.ఓ.ఎన్.ఎం) వారిచే 10 గ్రామాల మహిళా రైతులకు శిక్షణ కార్యక్రమం నిర్వహించారు. జివివారు రోజున బోనాల రైతు వేదికలో రామారా చారి మాట్లాడుతూ జీవన ఎరువులను లైతు స్థాయిలో ఏ విధంగా తయారు చేసుకోవాలి ప్రయోగాత్మకంగా తెలియజేశారు. పంటలకు మంచి చేసేవారి గురించి ఆడి విధంగా పంటలను ఏ విధంగా కాపాడుకోవా లివంటలను ఏ విధంగా ఆభివృద్ధి చేసుకోవాలి వివరించి తెలియజేశారు. ఈ కార్యక్రమంలో చేగుంట మండల మహిళా రైతులు, సహగల్ ఫౌండేషన్ స్వచ్ఛంద సంస్థ ప్ర తినీటి యన్ మారుతి ఆసిస్టెంట్ ప్రోగ్రాం లీడ్, ఫీల్డ్ ఆసిస్టెంట్లు శ్రావణ్, విజయ లు పాల్గొన్నారు.



➤ **Farmer training on mass production and application of entomopathogenic nematodes (EPN)**

A programme for the farmers of Kolhapur dist. Maharashtra on “Mass production and application of entomopathogenic nematodes (EPN) sponsored by State Department of Agriculture under ATMA Project was organized from 18 to 20 December 2023 (3 Days). Total 35 farmers have attended this programme and undergone different practical sessions viz introduction to entomopathogenic nematodes. wax moth rearing. Preparation of artificial diet for wax moth rearing, on farm mass production technique of EPN, on farm mass production of Bio-fertilizers, rodent management in sugarcane, rearing of corcyra larvae. Low cost on farm production of bio control agents and microbial bio pesticides. EPN formulation and storage, application methods of EPN, low-cost method for EPN mass production and farmers have shown the interest of mass produce and use of entomopathogenic nematodes against root grub in sugarcane cultivation etc, topics were also covered.



**Student training programme:**

➤ **Production Protocol for Bio fertilizers and Bio pesticides**

A physical training program on ‘Production protocol for Bio fertilizers and Bio pesticides’ was organised from 11.10.2023 to 20.10.2023 (10 days). In this training program total 15 B.Sc. (Horti.) final year students from COH, Sirsi, Karnataka, have participated. Under this training programme, various topics such as Living Soil

Concept, Bio-fertilizers overview, Bio-Pesticides: overview, Rhizosphere Engineering, Guidelines for the Establishment of Bio-fertilizer Laboratory, Guidelines for the Establishment of Bio-pesticides Laboratory, Protocol for isolation and purification of microbial isolates used in bio-fertilizer production, Protocol for isolation and purification of microbial isolates used in bio pesticide production, Gram staining- morphological identification of bacteria/ fungi, Biochemical tests for microbial identification, Novel biofertilizer inoculants for sustainable agriculture, Carrier based biofertilizer production, Quality control parameters for biofertilizers & biopesticides , PGPR-Bio inoculants, On farm production of biofertilizers & biopesticides, Scope for the development & promotion of biofertilizers & bio pesticides, On farm production of Trichoderma & Pseudomonas, Production protocol for Entomopathogenic nematodes, On farm production of Entomopathogenic fungi , On farm production of host insects & NPV, were covered. The programme was sponsored by college of horticulture, Sirsi, Karnataka under NHED IDP scheme.



### ➤ **Scientific Exposure to PHM Practices**

A training programme on ‘Scientific Exposure to PHM Practices’ was organized at NIPHM from 16.11.2023 to 22.11.2023 (07 day). Total of 07 P.G. Students from College of Agriculture, RLBCAU, Jhansi, Uttar Pradesh have attended the program. In this training program, topics such as Introduction to Biological Control of Insect Pests, Introduction to Biological Control of Plant Diseases, Ecological Engineering for Pest Management, Agro Ecosystem Analysis: Principles and Methodology, Conducting AESA in given crop& field, Role of Bio pesticides in Plant Health Management, Production technology of Bio pesticides (*Trichoderma spp.*& *Pseudomonas spp.*), Entmopathogenic microbes for pest management, Mass production of EPF and NPV, Role of Entomopathogenic nematodes for sustainable agriculture, Production and application of EPN, Role of Biofertilizers in PHM, Role of important parasitoids in insect pest management & their mass production technology, were covered and it is expected to help students in getting practical exposure to PHM practices.



➤ **Plant Health Management for Sustainable Agriculture”**

A training programme on ‘Plant Health Management for Sustainable Agriculture’ was organized at NIPHM from 01.12.2023 to 21.12.2023 (21 day). Total of 30 participants from different sub campuses of ANGRAU at Mahanandi, Vaira, Bapatla and Tirupati of Andhra Pradesh State have attended.



## Forthcoming training programmes

| S No                                   | Name of the programme   | No. of Days | From       | To         |
|--|---|-------------|------------|------------|
| <b>I. Officers training programmes</b> |   |             |            |            |
| 1.                                     | Plant Health Management In Horticultural Crops                      | 05          | 08.01.2024 | 12.01.2024 |
| 2.                                     | Locust Pest Management  | 03          | 17.01.2024 | 19.01.2024 |
| 3.                                     | Quality Control of Microbial Biopesticides                          | 10          | 31.1.2024  | 9.02.2024  |
| 4.                                     | Advances in Weed Management   | 03          | 12.02.2024 | 14.02.2024 |
| 5.                                     | On-Farm production of biocontrol agents and microbial biopesticides | 10          | 19.02.2024 | 28.02.2024 |
| 6.                                     | Production Protocol for Microbial Bio-pesticides                    | 05          | 11.03.2024 | 14.03.2024 |
| 7.                                     | Plant Health Management Strategies for Climate Change               | 03          | 18.03.2024 | 20.03.2024 |
| <b>II. Farmers training programmes</b> |   |             |            |            |
| 1.                                     | On farm production of bio control agents                            | 03          | 22.01.2024 | 24.01.2024 |
| 2.                                     | Organic farming methods for crop protection                         | 03          | 07.02.2024 | 09.02.2024 |
| 3.                                     | On farm production of bio control agents                            | 03          | 04.03.2024 | 06.03.2024 |
| <b>III. Certificate course</b>         |   |             |            |            |
| 1.                                     | Organic growers   | 30          | 01.02.2024 | 29.02.2024 |

**Pesticide Management Division**

The Pesticide Management Division has organized following training programmes during the months of **October-December, 2023.**

**CAPACITY BUILDING PROGRAMMES:**

| Sl. No. | Name of the programme  | No. of Days | From       | To         |
|---------|--|-------------|------------|------------|
| 1.      | Calibration of laboratory glassware for Pesticide Quality Testing Laboratories     | 02          | 01.12.2023 | 21.12.2023 |
| 2.      | Method validation and Measurement of Uncertainty in Pesticide Formulation Analysis | 05          | 09.10.2023 | 13.10.2023 |
| 3.      | Inspection, Sampling & Prosecution Procedures under Insecticide Act,1968           | 04          | 31.10.2023 | 03.11.2023 |
| 4.      | Training on Handling/Operation of GC-MS/MS and LC/MS/MS for chemical analysis      | 05          | 06.11.2023 | 10.11.2023 |
| 5.      | Method Validation and Measurement of uncertainty in Pesticide Residue Analysis     | 05          | 20.11.2023 | 24.11.2023 |
| 6.      | Pesticide Residue Analysis (PRA)   | 21          | 01.12.2023 | 21.12.2023 |
| 7.      | Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025: 2017 | 05          | 04.12.2023 | 08.12.2023 |

➤ **Calibration of laboratory glassware for Pesticide Quality Testing Laboratories:**

Two days training programme on “**Calibration of Laboratory Glassware for Pesticide Quality Testing Laboratories**” was conducted from 3<sup>rd</sup> to 4<sup>th</sup> August 2023. A total of 4 participants from State Agriculture Department of Chhattisgarh were participated. The trainees were trained on various laboratory glassware calibrations such as volumetric flask, pipette, burette etc. This will be benefited to minimize the errors in generation of test reports.



➤ **Method validation and Measurement of Uncertainty in Pesticide Formulation Analysis:**

The division has conducted 5 days training programme on “**Method validation and Measurement of Uncertainty in Pesticide Formulation from 9<sup>th</sup> to 13<sup>th</sup> October 2023**”. A total of **10 officials/Analyst** were participated from State Agriculture Department of Tamil Nadu and University of Agriculture Science, Raichur, Karnataka. During the programme, participants were trained on method verification and estimation of Measurement Uncertainty of pesticide formulation sample.



➤ **Inspection, Sampling & Prosecution Procedures under Insecticide Act, 1968:**

Four days training programme on “**Inspection, Sampling & Prosecution Procedures under Insecticide Act, 1968**” was conducted from 31.10.2023 to 03.11.2023. A total of 42 participants from State Agriculture Department of Andhra Pradesh, Gujarat, Maharashtra, Meghalaya, Odisha, Punjab, Tamil Nadu and Uttar Pradesh were participated. The training imparts knowledge on Insecticide Registration and licensing Procedure, Inspection and sampling of pesticide formulation and Prosecution Procedure under Insecticide Act 1968.



➤ **Training on Handling/Operation of GC-MS/MS and LC/MS/MS for chemical analysis:**

The division has conducted 5 days training programme on “**Training on Handling/Operation of GC-MS/MS and LC/MS/MS for chemical analysis from 6<sup>th</sup> to 10<sup>th</sup> November 2023**”. A total of **4 students** were participated. The programmes is designed for students and private laboratories on payment basis. Basic operation and hands-on training on method development of GC-MS/MS and LC-MS/MS for chemical analysis were the main objective of the training.

➤ **Method Validation and Measurement of uncertainty in Pesticide Residue Analysis:**

Five days training programme on “**Method Validation and Measurement Uncertainty in Pesticide Residue Analysis**” was conducted from 20.11.2023 to 24.11.2023. A total of 10 participants from State Agriculture Department of Andhra Pradesh, Food Corporation of India, and Private Laboratory, Tamil Nadu were participated. The trainees were given hands-on training on method validation process and Measurement of Uncertainty in pesticide residue analysis.



➤ **Pesticide Residue Analysis (PRA):**

A 21 day's training programme on “**Pesticide Residue Analysis**” was conducted from 01.12.2023 to 21.12.2023. A total of 15 participants from State Agriculture Department of Andhra Pradesh, Karnataka, Telangana and Uttar Pradesh were participated. A total of 4 students from Tamil Nadu Agriculture University, Tamil Nadu, one participant from Forest College and Research Institute, Telangana, one Research fellow and one CPGS-Agril Sc. Umiam, Meghalaya were also participated on payment basis. The division has imparted hands on training on basic pesticide residue analysis by GC-MS/MS and LC-MS/MS. They were also trained on basic requirements for pesticide residue analysis including sampling procedures, troubleshooting of equipment and challenges of pesticide residue analysis.



➤ **Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025: 2017**

The division has conducted 5 days training programme on “**Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025 2017** from 4<sup>th</sup> to 8<sup>th</sup> December 2023. A total of **29 participants** were participated from Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Madhya Pradesh and ICAR NEH region Meghalaya including three research fellows from ICAR – NMRI, Hyderabad. The participants were trained on basic requirements for the competence of a testing laboratory as per ISO/IEC 17025 2017 and Internal Audit conduction with case studies.



### Forthcoming Training Programmes:

| Sl. No. | Title of the Programme   | Duration | From       | To         | Eligibility Criteria   |
|---------|--|----------|------------|------------|--|
| 1.      | Pesticide Formulation Analysis (PFA)   | 60       | 22.01.2024 | 21.03.2024 | Analysts working at SPTLs/RPTLs/CIL  |
| 2.      | Documentation procedures for NABL accreditation for PTLs and PRLS                  | 4        | 13.02.2024 | 16.02.2024 | Analysts / Scientists working in Govt. labs / Universities with knowledge of ISO 17025 |
| 4.      | Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025: 2017 | 5        | 11.03.2024 | 15.03.2024 | Analysts working in Government Laboratories  |



## Plant Health Engineering Division

The Plant Health Engineering Division has organized following training programmes during the months of **October-December, 2023**.

### CAPACITY BUILDING PROGRAMMES:

| S No | Category | Name of the programme  | No. of Days | From       | To         |
|------|----------|--|-------------|------------|------------|
| 1.   | Officers | <b>Remote Sensing and GIS applications in Plant Health Management</b>    | 03          | 14.11.2023 | 16.11.2023 |
| 2.   | Students | <b>Micro Irrigation, watershed management and precision farming</b>      | 10          | 20.11.2023 | 29.11.2023 |
| 3.   | Farmers  | <b>Pesticide Application Techniques and Safety Measures (off campus)</b> | 01          | 11.10.2023 | 11.10.2023 |
| 4.   | Farmers  | <b>Pesticide Application Techniques and Safety Measures (off campus)</b> | 01          | 11.10.2023 | 11.10.2023 |

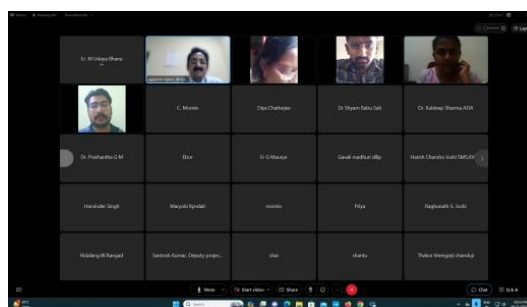
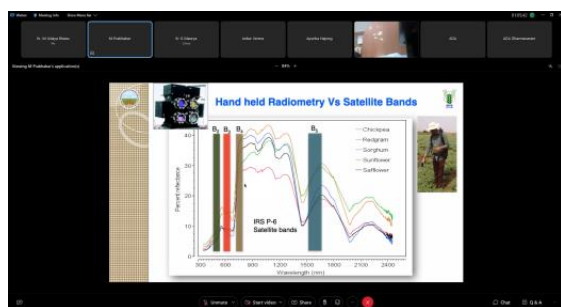
### Drone Remote Pilot Certification

| S No. | Name of Training Program/ Webinar             | From (dd-mm-yyyy) | To (dd-mm-yyyy) | Duration (in days) | Scheduled (Y/N) | On/Off Campus | Total Trainees | Male | Female | State wise                     |
|-------|---|-------------------|-----------------|--------------------|-----------------|---------------|----------------|------|--------|--------------------------------|
| 1     | Agricultural Drone Remote Pilot Certification | 03-10-2023        | 09-10-2023      | 7 days             | Y               | On campus     | 3              | 3    | 0      | Chattisgarh - 02, Telangana-16 |
| 2     | Agricultural Drone Remote Pilot Certification | 09-10-2023        | 12-10-2023      | 4 days             | Y               | On campus     | 4              | 4    | 0      |                                |
| 3     | Agricultural Drone Remote Pilot Certification | 16-10-2023        | 19-10-2023      | 4 days             | Y               | On campus     | 7              | 7    | 0      |                                |
| 4     | Agricultural Drone Remote Pilot Certification | 06-10-2023        | 06-10-2023      | 1 day              | Y               | On-line       | 4              | 4    | 0      |                                |
| 5     | Agricultural Drone Remote Pilot Certification | 01.11.2023        | 30.11.2023      | 7                  | Y               | On campus     | 61             | 7    | 54     | Karnataka - 39, AP - 22        |
| 6     | Remote Pilot Certificate                      | 27.11.2023        | 03.12.2023      | 10                 | Y               | On campus     | 10             | 1    | 9      | Karnataka                      |

|   |   |            |            |   |   |           |   |   |   |           |
|---|---|------------|------------|---|---|-----------|---|---|---|-----------|
| 7 | Remote Pilot Certificate                      | 11.12.2023 | 15.12.2023 | 5 | Y | On campus | 6 | 4 | 2 | Karnataka |
| 8 | Agricultural Drone Remote Pilot Certification | 15.12.2023 | 21.12.2023 | 7 | Y | On campus | 7 | 7 | 0 | Telangana |
| 9 | Agricultural Drone Remote Pilot Certification | 26.12.2023 | 02.01.2024 | 6 | Y | On campus | 6 | 6 | 0 | Telangana |

➤ **Remote Sensing and GIS applications in Plant Health Management**

A 3 day virtual training program on “Remote Sensing and GIS applications in Plant Health Management” was organized from 14<sup>th</sup> to 16<sup>th</sup> November 2023. Forty-two participants from different states participated. The participants were enriched with basic principles of remote sensing, basic concepts of GIS, applications of RS & GIS in agriculture, different open source and commercial software available, RS & GIS applications in disease/ pest management, Artificial Intelligence for crop production through Plantix, Geo informatics and GPS applications.



➤ **Micro Irrigation, watershed management and precision farming**

Training programme on “Micro irrigation, watershed management and Precision farming” conducted for the Agricultural Engineering students from Kellapaji College of Agricultural Engineering and Technology, Tavanur, Kerala. A total of 49 students attended the 10 days training programme from 20<sup>th</sup> to 29<sup>th</sup> November 2023. The program emphasized on Micro irrigation systems, Concepts of Remote sensing, GIS, Basics of GPS and its applications, Ground water management, Waste water management, Drones in Agriculture, IoT in agriculture, Geo informatics and sensor based technology in precision farming, Advances in planning water harvesting intervention and irrigation management and also visited ICRISAT and CRIDA institute as part of training.



➤ **Pesticide Application Techniques and Safety Measures:**

An off-campus farmers training was organized on “Pesticide Application techniques and safety measures” at Udaraspally village, Shabad, Telangana state. Program started with welcoming NIPHM faculty. Total 33 farmers (Male-33) are mobilized from nearby village Ahmed Nagar attended the training program. In this training program, farmers were first explained about NIPHM and its activities. The program emphasized on adverse impact of pesticides, principles of spraying, application techniques and selection of sprayer, nozzles and its selection criteria, safety measures while handling pesticides



➤ **Pesticide application Techniques and Safety Measures**

An off-campus farmers training was organized on “Pesticide Application techniques and safety measures” at Golluriguda village, Shabad, Telangana state. Program started with welcoming NIPHM faculty. Total 18 farmers are mobilized from nearby village Ahmed Nagar attended the training program. In this training program, farmers were first explained about NIPHM and its activities. The program emphasized on adverse impact of pesticides, principles of spraying, application techniques and selection of sprayer, nozzles and its selection criteria, safety measures while handling pesticides.



**Agricultural Drone Remote Pilot Certification:**

NIPHM started conducting agricultural chemical spraying training through drones. 10 batches of training were conducted for associated companies conducted during October to December 2023. In addition to general aviation topics like International civil aviation organization, RPAS with in ICAO frame work, Classification of drones, Drone operation zones, ATC procedure and radio telephony and flight radio telephony, etc., Agricultural Standard Operating procedures during chemical spraying, Crop specific SOPs, Nozzles and their functionality, Dos and Don'ts in chemical spraying, safety, care and maintenance of drones and agri sparing system etc. also were dealt in detail. Lab assembly of drones and simulation experiments of drones were also conducted.



### Other Significant Activities of the Divisions

- **MOOCs in Plant Biosecurity:** Total 40 participants completed the course in 10<sup>th</sup> batch.
- **Rodent and Household Pest Management MOOCs Certificate Course:** Total 47 participants completed the course in 8<sup>th</sup> Batch.
- **KERALA PGDPHM:** Students are engaged in their project work.
- **Farmer Advisory Cell Activities:**  
Under farmers advisory cell, faculty are interacted farmers about their queries related to plant protection, bioinputs usage etc. 65 farmers approached NIPHM through telephonic communication.
- **NIPHM Instructional farm**  
During this quarter 2023-24, *Rabi* season, cucurbits, sorghum, paddy, chickpea, wheat and sesamum were planted. Timely irrigation and weeding was done. Insect pest data collected and IPM measures were taken. Fields were monitored regularly and data on pests and natural enemies recorded.
- **Polyhouse (Protected cultivation)**  
During this quarter, the following activities are performed under protected cultivation. Onion, cabbage and cauliflower crops are under polyhouse cultivation. Irrigation, weeding and need based pest and disease management practices are done.

## Special Events

### World Soil Day:

The World Soil Day (WSD) event was observed in National Institute of Plant Health Management (NIPHM), Hyderabad on 5th Dec. 2023. During the event, Dr Sagar Hanuman Singh, Director General NIPHM stated that soil has always been respected in Indian culture and considered as a matter for life supporting resource. He requested all the participants to contribute in soil conservation and prevent its pollution in day to day life. The event was attended by around 80 participants including Senior Officers, faculty, staff, trainees and students of the institute.



## Research & Development

- Commercial scaling up of irradiation protocol as phytosanitary measure for major cut flowers -funded by BARC-Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE), GOI.
- Survey and field evaluation of sterile insect technique for the management of Oriental fruit fly, *Bactrocera dorsalis* (Diptera:Tephritidae) infesting economically important fruit crops-funded by BARC-Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE), GOI.
- Development of eco-friendly and integrated stored grain pest management techniques for food grain storage in FCI godowns (multi-locations) - Funded by FCI.
- Hot Water Immersion Treatment (HWIT) of Chillies at Commercial scale -Funded by APEDA.
- Evaluation of Animal Out repellent against the wild boar & rodents:
- In-house study on Feeding preference and development of stored pests in different millets and screening of plant powders for management:

### AICRP on Biological Control of Crop Pests (ICAR-AICRP-BC)-NIPHM, Hyderabad (Volunteer Centre)

- **Evaluation of NIPHM white media for the production of *Nomuraearileyi* (*Metarhiziumrileyi*) NIPHM MRF-1 strain for management of Maize Fall Army worm (*Spodopterafrugiperda*)**  
This project aimed for the production of *Metarhiziumrileyi* two media viz. NIPHM White media and broken rice were used. To standardize the production technology, the media under test were made into six treatments (Broken rice (without yeast extract), Broken rice (with yeast extract), 1% NIPHM white media, 2% NIPHM white media, 3% NIPHM white media, 4% NIPHM white media)and for each treatment two replications were maintained.
- **Project progress during this quarter:** Preparation of SMAY media and Performed sub culturing of *Metarhizium rileyi* (EPF) on SMAY media. The work on bioassay is completed. Studies of *Metarhizium rileyi* in pot cultures are in progress

### Pesticide Formulation and Residue Analytical Centre (PFRAC):

The Pesticide Formulation and Residue Analytical Centre (PFRAC), Pesticide Management Division, is an accredited laboratory in accordance to ISO/IEC 17025:2017. During the period the laboratory has collected **273 samples** (Fruits, vegetables, cereals, pulses, milk and water) from Medchal/Malkajigiri farm gate and Alwal market under Central Sector Scheme “Monitoring of Pesticide Residues at National Level (MPRNL). The samples were analyzed for pesticide residues by LC-MS/MS and GC-MS/MS.

A total of **191 samples** (fruit and vegetables) were received from ANGRAU and samples were analyzed under MPRNL scheme. The Laboratory also received **100 water samples** extracts from CSIR-NEERI for pesticide residues analysis by LC-MS/MS under MPRNL scheme.

A total of **98 botanical/bio-pesticides samples** were received from Haryana, Telangana, Gujarat Kerala, Karnataka, Maharashtra, Bihar, and Andhra Pradesh. The samples were analyzed by GC-MS/MS and LC-MS/MS and reports were generated.

A total of three pesticides formulation samples were received from National Seed Corporation (Raichur and Secunderabad) for quality test of pesticide product. All the samples were analyzed and reports were generated. One PT-PRA and one PT-PFA samples (External Sample) were received and analyzed as a part of quality assurance of analysis and compliance of ISO/IEC 17025 2017.



### Proficiency Testing Center (PTC):

- **Proficiency testing programme on Pesticide Residues Analysis (PT-PRA)**

PTC, PMD has organized PT PRA program on Capsicum and Rice in the month of August 2023. Trail and homogeneity studies were conducted. A total of 125 PT items were prepared and dispatched on 21<sup>st</sup> August 2023 to 33 Govt. laboratories and 7 private laboratories. Interim reports of Capsicum and Rice Powder (PTC/PR/01 & 02/23-24) were sent to the participated laboratories. Prepared analytical graphs and z score graphs of Capsicum (PTC/PR/01/23-24) and Rice (PTC/PR/02/23-24) for final reports.

PTC initiated trails for PT-PRA January 2024 programme on Grapes (**PTC/PR/04/2023-24**) and Tomato (**PTC/PR/05/2023-24**). Trails studies are under process and invitation letters were sent to 75 private laboratories regarding the PT-PRA January, 2024 programme.



### Sample Preparation for Trial study of Grapes



**Sample Preparation for Trial study of Tomato**

### **PT PRA Programme for Central Pollution Control Board (CPCB):**

PTC, PMD in collaboration with CPCB has Organized AQC Exercise (Water, PTC/CPCB/W/23-24) in the month of May 2023 and the samples were dispatched on 26<sup>th</sup> May 2023. A total of 110 laboratories were participated. Final reports of PT-Water (Aldrin, Alpha Endosulfan, Alpha HCH, Beta Endosulfan, Beta HCH, Chlorpyrifos, Gamma HCH, Malathion, o,p' DDT, p,p' DDT and Parathion Methyl) were sent.

### **Proficiency testing programme on Pesticide Formulation Analysis (PT-PFA)**

PT-PFA programme on ethion Technical for analysis of active ingredient (PTC/PF/04/23-24), emamectin benzoate SG for active ingredient (PTC/PF/05/23-24), chlorpyrifos + cypermethrin EC for active ingredient and emulsion stability (PTC/PF/06/23-24) was initiated in the month of November 2023. Under homogeneity study, samples of chlorpyrifos + cypermethrin EC (10 nos.) for active ingredient and emulsion stability, emamectin benzoate SG (10 nos.) for active ingredient and ethion Tech., (10 nos.) for active ingredient were analyzed. Sample of ethion Tech., emamectin benzoate SG and chlorpyrifos + cypermethrin EC were dispatched after homogeneity study.

### **Lab Activities**

- Maintaining/Rearing of stored grain insect cultures viz. *Tribolium*, Rice weevil, Khapra, Pulse beetle, Cigarette beetle, saw toothed grain beetle and rice moth.
- Fruit fly lure preparation (ME & CUE) and sale
- Urban pest insect box preparation
- Maintenance of vermicompost unit and sale
- Disease specimen- Herbarium collection
- Maintenance of vermicompost unit at NIPHM and Staff Quarters



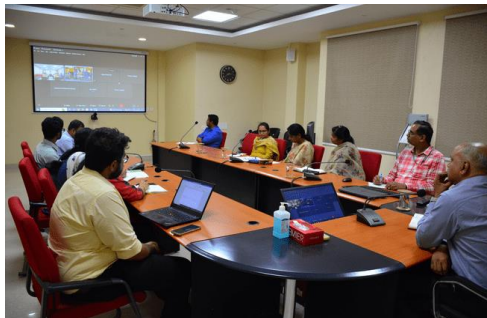
**Extension Activities / Village Adoptions**

As part of the development of model IPM village by NIPHM, the 40 farmers from in and around Peddashapur village, Shamshabad(M), Rangareddy visited NIPHM laboratories and seen the activities done by PHM division.



Other Activities

- Officers are involved in organizing “Certificate Course for Insecticide dealers/distributors.
- AD (RPM) given guest lecture on Prophylactic and Curative treatment at IGMRI on 09.11.23.
- A hybrid mode (physical/virtual) meeting for collaboration between CDP-NHB and NIPHM for capacity building has been organized on 16.10.2023 under the chairmanship of Director General, NIPHM, Dr. S.H Singh, IPoS.



The Joint Director of NHB., Director, PMD., DDH of Andhra Pradesh state Dept., ADH & HO of Telangana state Dept., Consultant, PMU, New Delhi., IA member from Mahabubnagar and other dignitaries from NHB, State Agriculture and Horticulture Departments., State Implementing Agencies and NIPHM officers, Hyderabad has participated in this session and had a brief discussion on different aspects.

- **Eradication of invasive golden apple snail:** Central and State Government officers raided a foreign snail breeding farm in the premises of a private school in Uyyuru mandal, Krishna Dt. on 25.10.23. It is reported that the seed eggs of the invasive golden apple snails are being brought here from Thailand and are being raised in the breeding center in Uyyuru. As per the information communicated by the Director General, NIPHM to PPA and the State Govt, AP officers, the area was inspected and raided.
- In this regard, Deputy Director, DPPQ&S, inspected the breeding centre and questioned the manager of the concerned centre and destroyed the snails and their eggs by spraying the chemicals followed by taking the phytosanitary measures to prevent the breeding of the eggs. The destruction was carried out in the presence of State Govt. officers, DPPQ&S and NIPHM officers. The destruction was carried out as per the DIP Act 1914. The farm owner revealed that he was unaware of the ban on import of golden apple snail. Officers of the Agriculture Department said that due to this invasive snail, the paddy crop will be on threat of severe damage. Based on the timely action further establishment and spread was avoided.



Raid in invasive snail breeding farm in Uyyuru Mandal by Central and State Govt. Officers

## నిషేధిత విదేశీ నత్తల పెంపక కేంద్రంపై దాడులు

గండిగుంట(ఉయ్యూరు గ్రామీణం), న్యూస్ టుడే: ఉయ్యూరు మండలం గండిగుంట లోని ఓ ప్రైవేటు పాఠశాల ప్రాంగణ సమీపంలోని నిషేధిత విదేశీ నత్తల పెంపక కేంద్రంపై కేంద్ర, రాష్ట్ర ఉన్నతాధికారులు ఋదవారం సాయంత్రం దాడి చేశారు. ఇక్కడ డాయ్ లాండ్ నుంచి నిషేధిత గోల్డెన్ ఆపిల్ సె స్నెల్స్(నత్త) విత్తన గుడ్లను తెప్పించి వాటిని పెంపక కేంద్రంలో పెంచుతున్నారనే సమాచారంపై కేంద్రంలోని సంబంధిత శాఖ డిప్యూటీ డైరెక్టరు గోస్వామి నేతృత్వంలో రాష్ట్ర వివిధ శాఖల సమన్వయంతో కేంద్రాన్ని పరిశీలించి అక్కడ పెంచుతున్న అంశాన్ని గమనించి సంబంధిత కేంద్రం నిర్వాహకుడిని ప్రశ్నించారు. పశుసంవర్ధక శాఖాధికారి గోపిచంద్, ఉయ్యూరు వీటిని పెంచడం నిషేధితమని తమకు తెలియదని, పట్టణ పోలీసులు ఉన్నారు.



గండిగుంటలో నత్తల పెంపకం కేంద్రాన్ని పరిశీలిస్తున్న అధికారులు

వాటిని డాయ్ లాండ్ నుంచి తెప్పించి పెంచుతున్నట్లు ఆయన తెలిపారు. నత్తల పెంపక కేంద్రాన్ని పూర్తిస్థాయిలో పరిశీలించిన ఆయా అధికారులు నత్తల్ని, వాటి గుడ్లను తగులపెట్టి నాశనం చేశారు. మందుల్ని పిచికారీ చేసి గుడ్ల పెంపకం జరగకుండా చర్యలు తీసుకున్నారు. ఈ నత్తల కారణంగా వరి పంటకు తీవ్రనష్టమని వ్యవసాయశాఖ అధికారులు చెప్పారు. ఈ దాడిలో వ్యవసాయశాఖ జిల్లా సంయుక్త సంచాలకులు విజయభారతి, సహాయ సంచాలకులు(గన్నవరం) సునీల్, ఉయ్యూరు తహసీల్దారు మస్తాన్, పశుసంవర్ధక శాఖాధికారి గోపిచంద్, ఉయ్యూరు పట్టణ పోలీసులు ఉన్నారు.

Eenadu Telugu News about Invasive Golden Apple Snail, Krishna Dt

- Er. Govind Kumar Maurya delivered a talk on "Pesticide application techniques" was delivered for the DD Kisan programme at Krishi Bhavan, New Delhi.
- Er. Govind Kumar Maurya, ASO (PHE) attended webinar on "Studying the effect of Sewage Water Irrigation Frequency on Growth, Yield and Heavy Metals Accumulation of Tomato and Okra".

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### National Institute of Plant Health Management (NIPHM)

Department of Agriculture & Farmers Welfare,  
Ministry of Agriculture & Farmers Welfare, Government of India  
Rajendranagar, Hyderabad – 500 030, Telangana, India  
Tele Fax. +91 40 24015346, niphm@nic.in