

PLANT BIOSECURITY DIVISION

Objectives & Goals of Training Programmes

1. Biosecurity and Incursion Management (BIM)

➡ Aim:

- ✓ To create a pool of experts to identify and address the Plant biosecurity threats of concern to India and South Asian Region

➡ Course Outline:

- ✓ Basic concepts of Plant biosecurity
- ✓ International and National regulations pertaining to plant biosecurity
- ✓ Pest Risk Analysis - Process
- ✓ Pre-border, border and post-border biosecurity continuum strategies
- ✓ Import Regulations & Phytosanitary certification
- ✓ Pest Surveillance concept and methodologies
- ✓ Pest Incursion Management of introduced pests
- ✓ Evaluation of eradication / containment programmes

➡ Skills that will be acquired:

- ✓ Identify imminent biosecurity threats
- ✓ Carry out Pest Risk Analysis
- ✓ Knowledge on International and national regulations / obligations to prevent entry, establishment and spread of pests
- ✓ Identification of Appropriate phytosanitary measures to promote safe trade
- ✓ Tools to be employed in pest surveillance
- ✓ Plan and execute detection, delimiting and monitoring surveys
- ✓ Plan and execute emergency action plans to eradicate / contain pest incursion
- ✓ Identification of appropriate mitigation measures in the event of pest incursion

➡ Duration:

- ✓ 21 days

➡ Utility of the training programme:

The participants will be able to

- ✓ Identify the Biosecurity threats
- ✓ Carry out PRA to identify various pathways of entry, establishment and spread potential of plant pests
- ✓ Implement import regulations and phytosanitary certification to promote safe trade
- ✓ Identify appropriate types of pest survey based on need
- ✓ Realize the importance of cooperation among South Asian countries in safeguarding the biosecurity of the region
- ✓ Implement strategies involved in Biosecurity Continuum

➡ Methodology

- a) Theory : 40%
- b) Exercises : 40%
- c) Lab Practicals : 10%
- d) Field Visits: 10%

2. Quarantine Pests Detection and Identification

➡ Aim:

- ✓ To create pool of experts in detection and diagnosis of pests of quarantine significance by employing appropriate methods

➡ Course Outline:

- ✓ Role of international and national regulations in plant biosecurity
- ✓ Pest Risk Analysis as a tool to identify pests of concern
- ✓ Pre-border, border and post-border biosecurity continuum strategies
- ✓ Inspection and sampling techniques
- ✓ Detection and diagnosis of quarantine pests
- ✓ Appropriate mitigation measures
- ✓ Pest Monitoring tools

➡ Skills that will be acquired

- ✓ Knowledge on International and national regulations / obligations to prevent entry, establishment and spread of pests
- ✓ Basic understanding of PRA as a tool to identify pests of concern
- ✓ Detection and Diagnosis of quarantine pests by employing
- ✓ Seed-health testing protocols
- ✓ Molecular diagnosis
- ✓ Specific tests - microscopic, washing, sieving, agar plate, etc.
 - Identification of insect pests, nematodes, pathogens & weed seeds
 - Appropriate mitigation measures in the event of pest interception
 - Tools for monitoring exotic pests

➡ Duration

- ✓ 21 days

➡ Utility of the training programme

The participants will be able to

- ✓ Identify the quarantine pests of concern
- ✓ Employ various detection and diagnostic protocols to identify quarantine pests
- ✓ Analyse various mitigation options in the event of pest interception
- ✓ Employ monitoring tools to prevent establishment and spread

➡ Methodology

- a) Theory : 40%
- b) Exercises : 10%

- c) Lab Practicals : 40%
- d) Field Visits: 10%

3. Phytosanitary Treatments (MBr and AIP fumigation)

➡ Aim:

- ✓ To promote expertise among phytosanitary service providers for treatment of internationally traded agricultural commodities to facilitate safe trade

➡ Course Outline:

- ✓ International and national regulations/ requirements pertaining to phytosanitary treatments
- ✓ Various phytosanitary treatments available
- ✓ Role of NPPO in promoting safe trade
- ✓ Accreditation procedures for MBr as per NSPM-11 & for Aluminium phosphide fumigation as per NSPM-22
- ✓ Restricted fumigants, its properties, principles of fumigation, safety issues in fumigation etc.
- ✓ Fumigation procedure (MBr & AIP)
- ✓ Do's and Don'ts during fumigation
- ✓ Personnel safety

➡ Skills that will be acquired

- ✓ Appropriate procedures to be followed during fumigation of commodities by using restricted fumigants
- ✓ Selection of appropriate fumigant based on commodity / target pest
- ✓ Calculation of volume and dosage
- ✓ Use of various fumigation equipment such as vapourizer, Personal Protective Equipment (PPE), Gas Monitoring equipment, Leak detector, etc.
- ✓ Do's and Don'ts during fumigation
- ✓ Environmental / health hazards related to fumigants
- ✓ Safety measures during fumigation

➡ Duration

- ✓ 15 days

➡ Utility of the training programme

- ✓ The participants will be able to
- ✓ Follow requirements as specified in relevant ISPM's and NSPM's to promote safe trade
- ✓ Use fumigants judiciously
- ✓ Follow procedures as laid down in NSPM's / ISPM's
- ✓ Take appropriate safety precautions
- ✓ Take up fumigation activities based on sound scientific knowledge
- ✓ Keep up proper record of fumigation activities

➡ Methodology

- a) Theory : 30%
- b) Exercises : 10%
- c) Lab Practicals : 40%
- d) Field Visits: 20%

4. International Training programme on Regional Plant Health Systems Analysis

➡ Aim:

- ✓ To create a pool of experts to analyse Plant Health Systems and safeguard native agricultural biosecurity and build SPS capacity to gain market access

➡ Course Outline:

- ✓ International and national regulations or policies in place with relevance to IPM, Pest Surveillance, Pest Identification, Seed certification, Plant Quarantine, Pesticide usage etc.
- ✓ AESA based plant protection measures to enhance production
- ✓ On-farm production of biocontrol agents
- ✓ Judicious use of pesticides
- ✓ Ecological engineering for pest management
- ✓ Rodent pest control
- ✓ Basic concepts of plant biosecurity
- ✓ PRA as a tool to identify threats to the region
- ✓ Looming pest threats of concern
- ✓ Phytosanitary measures to prevent pest entry through trade
- ✓ Import Regulations and Phytosanitary certification
- ✓ Biosecurity continuum at pre-border, border and post-border
- ✓ Pest surveillance
- ✓ Pest incursion management
- ✓ Systems Approach to gain market access

➡ Skills that will be acquired

- ✓ Understand plant health systems in place and identify the gaps
- ✓ Identify strategies to strengthen plant health system of a country
- ✓ Promote sustainable production of agriculture
- ✓ Promote usage of low-cost, on-farm production of biocontrol agents to minimize usage of pesticides
- ✓ Ecological engineering for pest management
- ✓ Analyse the plant quarantine system in place and identify the gaps
- ✓ Strengthen pest surveillance and plan surveys based on need
- ✓ identify looming pest threats to the region and identify preventive measures by carrying out PRA
- ✓ Systems Approach to reduce pest risks and gain market access

➡ Duration

- ✓ 15 days

➤ **Utility of the training programme**

- ✓ The participants will be able to
- ✓ Analyse the present plant health systems in place and identify the gaps
- ✓ Identify strategies to strengthen plant health system of a country
- ✓ Promote sustainable agricultural production practices
- ✓ Promote low-cost, on-farm techniques among stakeholders to minimize input cost
- ✓ Demonstrate AESA based approach and ecological engineering for pest management strategies - to equip farmers to take informed decisions
- ✓ Identify imminent pests of concern through traded commodities / natural pathways and take preventive measures
- ✓ Plan and carry out pest surveys and document pest surveillance data
- ✓ Implement plant quarantine regulations

➤ **Methodology**

- a) Theory : 60%
- b) Exercises : 5%
- c) Lab Practicals : 10%
- d) Field Visits: 25%

5. Pest Surveillance

- **Aim:** To impart skills of pest surveillance, to manage pests, incursion as well as promote international trade

➤ **Course Outline:**

- ✓ Role of Pest Surveillance in plant biosecurity
- ✓ Various ISPMs relevant to Pest Surveillance
- ✓ Types of Pest surveillance/ survey
- ✓ Role of pest surveillance in
 - PRA
 - Market access
 - Pest Incursion management
- ✓ Pest Surveillance tools

➤ **Skills that will be acquired**

- ✓ Organize target oriented pest surveillance to promote export
- ✓ Selection of appropriate pest survey type based on need i.e. detection/ delimiting/ monitoring surveys
- ✓ Organize surveillance programmes for Establishment, Declaration and maintenance of Pest Free Areas (PFA) and Areas of Low Pest Prevalence (ALPP)
- ✓ Appropriate use of pest surveillance tools

➤ **Duration**

- ✓ 8 days

➤ **Utility of the training programme**

The participants will be able to

- ✓ Select appropriate type of pest surveillance
- ✓ Adopt procedures for detection survey / delimiting survey / monitoring survey
- ✓ Plan and execute pest scouting methodologies
- ✓ Plan and prepare budget outlays for pest surveillance programmes
- ✓ Monitor for exotic pest incursion
- ✓ Establish PFA's and ALPP's

➤ **Methodology**

- a) Theory : 50%
- b) Exercises : 5%
- c) Lab Practicals : 15%
- d) Field Visits: 30%

6. Stored Grain Pest Management for FCI & CWC

- **Aim:** To build capacity of warehouse personnel in scientific grain storage and management of stored grain pests

- **Course Outline:** Importance of stored grain pest management for sustainable use

- ✓ Market access issues w.r.t. to stored grain pests
- ✓ Major stored grain pests of import / export concern
- ✓ Proper storage procedures
- ✓ Problems in grain storage
- ✓ Appropriate mitigation / management measures to promote safe trade
- ✓ Systems approach concept
- ✓ Safe use of AIP fumigant

- **Skills that will be acquired**

- ✓ Identification of stored grain insect pests
- ✓ Appropriate management options
- ✓ AIP fumigation procedures
- ✓ Appropriate storage requirements

- **Duration**

- ✓ 6 days

- **Utility of the training programme**

The participants will be able to

- ✓ Adopt appropriate measures in storage of grains to minimize damage due to pests
- ✓ Identify important stored grain pests

- ✓ Adopt AIP fumigation procedures scientifically
- ✓ Identify appropriate mitigation measures
- ✓ Monitor stored grain insect pests by employing various detection techniques
- ✓ Adopt systems approach to mitigate pests to promote export

➤ **Methodology**

- a) Theory : 40%
- b) Exercises : 5%
- c) Lab Practicals : 15%
- d) Practicals: 40%

7. Stored Grain Pests : Detection and Identification

➤ **Aim:** To build capacity in general and advanced detection methods of stored grain pests

➤ **Course Outline:**

- ✓ Major stored grain pests of import / export concern
- ✓ Market access issues w.r.t. to stored grain pests
- ✓ General and Advanced detection and diagnostics employed in stored grain identification
- ✓ Identification of important stored grain insect pests
- ✓ Stored grain insect biology

➤ **Skills that will be acquired**

- ✓ General and advanced detection methods
- ✓ Identification of stored grain insect pests of concern in import and phytosanitary certification
- ✓ Employ appropriate techniques for accurate diagnosis

➤ **Duration**

- ✓ 6 days

➤ **Utility of the training programme**

The participants will be able to

- ✓ Identify appropriate techniques for detection and diagnosis of stored grain insect pests
- ✓ Identify important stored grain pests

➤ **Methodology**

- a) Theory : 40%
- b) Exercises : 5%
- c) Lab Practicals : 40%
- d) Field Visits: 15%

8. Pest Risk Analysis

➡ Aim:

To create a pool of experts in Pest Risk Analysis (PRA) to identify potential pests of concern to protect native biodiversity due globalization of trade and to enhance market access

➡ Course Outline:

- ✓ Basic concepts of Plant biosecurity
- ✓ International and National regulations pertaining to plant biosecurity
- ✓ ISPM's w.r.t. Pest Risk Analysis
- ✓ PRA process
- ✓ Types of PRA
- ✓ Role of PRA in plant biosecurity continuum *i.e.* pre-border, border and post-border
- ✓ Identification of quarantine pest of concern

➡ Skills that will be acquired

- ✓ Carry out Pest Risk Analysis
- ✓ Identify appropriate phytosanitary measures
- ✓ Develop regulated pest list and list of prohibited commodities based on the risk posed by pests
- ✓ Evaluate eradication / management options for the recently introduced pests
- ✓ Facilitate trade while protecting agricultural biosecurity

➡ Duration

- ✓ 6 days

➡ Utility of the training programme

The participant will be able to

- ✓ Carry out Pest Risk Analysis for commodities moving in international trade
- ✓ Identify and suggest appropriate mitigation measure
- ✓ Prepare regulated pest list
- ✓ Carry out Export PRA to promote export
- ✓ Carry out PRA for recently introduced pests to evaluate eradication / management options

➡ Methodology

- a) Theory : 40%
- b) Exercises : 60%

9. PQ National Regulations & Procedures

➡ Aim:

- ✓ To create awareness among public sector officials on National Regulations and Standards to promote safe trade

➤ **Course Outline:**

- ✓ International and National regulations pertaining to plant biosecurity
- ✓ Import Regulations and procedures
- ✓ Phytosanitary certification Procedure
- ✓ Online PQIS system
- ✓ Understand procedures involved in Import / export of Biocontrol agents, germplasm material, growing media, GMO etc.

➤ **Skills that will be acquired**

- ✓ Understand import regulations to prevent entry and establishment of exotic pests
- ✓ Understand export procedures to promote safe trade
- ✓ Carry out online procedures of import / export activities
- ✓ Adopt procedures involved in import / export of Biocontrol agents, germplasm materials, growing media, GMO etc.

➤ **Duration**

- ✓ 6 days

➤ **Utility of the training programme**

The participants will be able to

- ✓ Implement import regulations to prevent entry and establishment of exotic pests
- ✓ Carry out phytosanitary certification in efficient manner to promote safe trade
- ✓ Carry out online procedures of import / export activities
- ✓ Advise stakeholders to adopt procedures involved in import / export of Biocontrol agents, germplasm materials, growing media, GMO etc

➤ **Methodology**

- a) Theory : 40%
- b) Exercises : 55%
- c) Institutional Visits: 5%

10. Orientation for PEQ Inspection Authorities

➤ **Aim:**

- ✓ To enhance capacity of PEQ Inspection Authorities to prevent entry and establishment of quarantine pests of concern associated with planting material

➤ **Course Outline:**

- ✓ Basic concepts of Plant biosecurity
- ✓ International and National regulations pertaining to plant biosecurity
- ✓ Pest Risk Analysis - Process
- ✓ Pre-border, border and post-border biosecurity continuum strategies
- ✓ Salient features of Import Regulation

- ✓ Procedure for certification of Post entry quarantine facility
- ✓ Procedure for Inspection, sampling, testing and final clearance of plants grown in PEQ facilities
- ✓ Role and responsibilities of Inspection Authorities
- ✓ Appropriate mitigation measure in the event of pest interception
- ✓ Record keeping and report of non-compliance

➡ Skills that will be acquired

- ✓ Identify quarantine pest of concern associated through imported planting material
- ✓ Inspect and certify PEQ facility
- ✓ Inspect and Segregate doubtful material for further observation and confirmation of pest identification
- ✓ Employ appropriate detection and diagnostic protocols for accurate identification of the pest
- ✓ Advise appropriate plant protection measures to mitigate the pest
- ✓ Document the PEQ activities for auditing
- ✓ Report non-compliance

➡ Duration

- ✓ 6 days

➡ Utility of the training programme

- ✓ The participants will be able to
- ✓ Adopt procedures specified in the SOP for uniformity
- ✓ Advise appropriate PEQ facility design and type to importer for facility certification
- ✓ Inspect and certify PEQ facility
- ✓ Inspect and issue final clearance of commodities grown under PEQ facility
- ✓ Take appropriate mitigation measures in the event of quarantine pest interception
- ✓ Document PEQ activities

➡ Methodology

- a) Theory : 40%
- b) Exercises : 50%
- c) Institutional Visits: 10%

11. Orientation for Phytosanitary Certificate issuing authorities

➡ Aim:

- ✓ Build capacity of Phytosanitary Certificate Issuing Authorities to promote safe trade

➡ Course Outline:

- ✓ Role of WTO-SPS and IPPC in safe trade promotion
- ✓ Role of NPPO in implementing requirements under IPPC obligations
- ✓ Role and Responsibilities of PSC issuing authorities

- ✓ Harmonization of phytosanitary certification procedures
- ✓ Requirements for establishing relevant labs for testing and certifying freedom for quarantine pests of concern to importing country
- ✓ Inspection and sampling protocols
- ✓ Online PQIS system
- ✓ Online sources to obtain Importing country requirement's
- ✓ Documentation of phytosanitary certification activities
- ✓ Agencies involved in Phytosanitary Certification activities

➡ **Skills that will be acquired**

- ✓ Adopt appropriate inspection, sampling and testing protocols to promote safe trade
- ✓ Carry out phytosanitary certification in scientific way / as per the requirement of SOP for Phytosanitary Certificate Issuing Authorities/ ISPM-6
- ✓ Online PQIS system
- ✓ Obtain importing country's requirement
- ✓ Promote safe trade by employing appropriate phytosanitary measures

➡ **Duration**

- ✓ 6 days

➡ **Utility of the training programme**

The participants will be able to

- ✓ Carry out phytosanitary certification in harmonized manner
- ✓ Implement procedures involved in phytosanitary certification as per SOP
- ✓ Carry out inspection, sampling, and testing in a scientific manner to promote safe trade
- ✓ Identify appropriate phytosanitary measure to mitigate pests
- ✓ Aid NPPO in fulfilling the obligations under WTO-SPS and IPPC to promote export and to avoid non-compliance

➡ **Methodology**

- a) Theory : 40%
- b) Exercise : 40%
- c) Lab Practical : 10%
- d) Institutional Visits: 10%

12. PQ Procedures for Imports & Exports

➡ **Aim:**

- ✓ To create awareness among entrepreneurs on National Regulations and Standards to promote safe trade

➡ **Course Outline:**

- ✓ International and National regulations pertaining to plant biosecurity
- ✓ Import Regulations and procedures
- ✓ Phytosanitary certification Procedure

- ✓ Role of various agencies involved in safe trade of agricultural materials
- ✓ Online PQIS system
- ✓ Procedures involved in Import / export of Biocontrol agents, germplasm material, growing media, GMO etc.

➤ **Skills that will be acquired**

- ✓ Understand import regulations to prevent entry and establishment of exotic pests
- ✓ Understand export procedures to promote safe trade
- ✓ Carry out online procedures of import / export activities
- ✓ Adopt procedures involved in import / export of Biocontrol agents, germplasm materials, growing media, GMO etc.

➤ **Duration**

- ✓ 5 days

➤ **Utility of the training programme**

The participants will be able to

- ✓ Follow/ adopt import regulations to prevent entry and establishment of exotic pests
- ✓ Follow / adopt export procedures to promote safe trade
- ✓ Carry out online procedures of import / export activities
- ✓ Adopt procedures involved in import / export of Biocontrol agents, germplasm materials, growing media, GMO etc.

➤ **Methodology**

- a) Theory : 40%
- b) Exercise : 55%
- c) Institutional Visits: 5%

13. Phytosanitary Treatments (FHAT)

➤ **Aim:**

- ✓ To create a pool of phytosanitary service providers for treatment of wooden pallets in line with National and International Standards

➤ **Course Outline:**

- ✓ International and National regulations pertaining to treatment of wood packaging materials
- ✓ Importance of ISPM-15 implementation to avoid non-compliances w.r.t. wood packaging materials
- ✓ Establishment of FHAT facility as per NSPM -9
- ✓ Accreditation procedures
- ✓ FHAT procedures for treatment and certification
- ✓ Agencies involved in phytosanitary certification
- ✓ Documentation of FHAT

➤ **Skills that will be acquired**

- ✓ Establish FHAT facility for accreditation

- ✓ Follow FHAT treatment procedure as per NSPM-9 & ISMP-15 to promote safe trade
- ✓ Skills to get accredited from NPPO

➡ **Duration**

- ✓ 5 days

➡ **Utility of the training programme**

The participants will be able to

- ✓ Establishment FHAT facility as per NPSM-9
- ✓ Obtain accreditation for the firm and or the personnel from NPPO for carrying out FHAT of wood packaging materials moving in international trade
- ✓ Carry out FHAT treatment as per NSPM-9 and ISPM-15
- ✓ Document the FHAT activities for auditing

➡ **Methodology**

- a) Theory : 30%
- b) Exercise : 30%
- c) Practicals: 40%

14. International Training programme on Pest Risk Analysis

➡ **Aim:**

- ✓ To create a pool of experts in Pest Risk Analysis (PRA) in South Asia / developing countries identify potential pests of concern to protect native biodiversity due globalization of trade and enhance market access

➡ **Course Outline:**

- ✓ Basic concepts of Plant biosecurity
- ✓ International and National regulations pertaining to plant biosecurity
- ✓ ISPM's w.r.t. Pest Risk Analysis
- ✓ PRA process
- ✓ Types of PRA
- ✓ Role of PRA in plant biosecurity continuum i.e. pre-border, border and post-border
- ✓ Identification of quarantine pest of concern

➡ **Skills that will be acquired**

- ✓ Carry out Pest Risk Analysis
- ✓ Identify appropriate phytosanitary measures
- ✓ Develop regulated pest list and list of prohibited commodities based on the risk posed by pests
- ✓ Evaluate eradication / management options for the recently introduced pests
- ✓ Facilitate trade while protecting native agricultural biosecurity

➡ **Duration**

- ✓ 5 days

➡ **Utility of the training programme**

The participant will be able to

- ✓ Carry out Pest Risk Analysis for commodities moving in international trade
- ✓ Identify and suggest appropriate mitigation measure
- ✓ Prepare regulated pest list
- ✓ Carry out Export PRA to promote export
- ✓ Carry out PRA for recently introduced pests to evaluate eradication / management options

➡ **Methodology**

- a) Theory : 40%
- b) Exercise : 60%