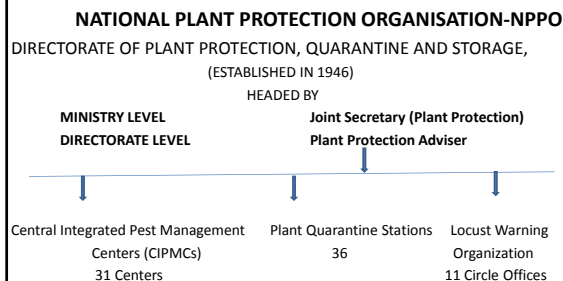


## Country Report on Pest Surveillance in India

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## Pest Surveillance in India



### OTHER AGENCIES

1. State department of Agriculture / Horticulture
2. State Agricultural Universities.
3. Indian council of Agricultural Research Institute.
4. Crop based Directorates of Department of Agriculture and Co-operation of Government of India.

### Reasons for taking the surveillance action in India

- In India the pest surveillance is being under taken for the following purposes or reasons :-
1. To monitor and forewarn the crop pests, diseases, weeds, and Bio-control agents population buildup in the agricultural crops.
  2. To monitor the locust population in the Scheduled Desert Area (SDA) of Rajasthan and Gujarat States of India.
  3. To know the occurrence of pest and provide basis for pest identification, listing of pest, pest status, pest categorization, to conduct risk analysis and to earmark the pest prone and pest free areas as a pre-requisite for phytosanitary measures and agreement for global trade.

### Benefit, result or outcome of the surveillance action:

The surveillance programme found beneficial for :-

1. Early detection of pest occurrence, outbreaks , upsurges in the country
2. For making suitable pest management strategy before the pest causes the economic loss.
3. For adopting timely pest management measures.
4. For earmarking the endemic, hot spots and pest free areas.

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### Continued

5. For making forewarning and issuing of timely advisory to farmers and State Governments.
6. For managing the pest emergencies.
7. For knowing the emerging pest problems.
8. For timely decision making.
9. For checking further spread of the pest in the other areas.
10. For adopting pro-active steps for expected pest problems.

### POLICY

- NATIONAL AGRICULTURE POLICY ANNOUNCED ON 28<sup>TH</sup> JULY, 2000

### AIMS & OBJECTIVES OF SURVEILLANCE

- Crop pests surveys are conducted to monitor the pest population on different crops in the country.
- 1. GENERAL PEST SURVEILLANCE (Crop Specific)  
2. SPECIFIC PEST SURVEILLANCE (Pest Specific)
  - i. National fruit fly surveillance programme (2006-2008)
  - ii. Mango nut and pulp weevil surveillance programme (2006-2008)

### Continued

- iii. Potato ring rot and brown rot disease surveillance programme (2007-2010)
- iv. National invasive weed surveillance programme (2007-2010)

### TYPE OF SURVEY

- A. Qualitative Survey:** For pest detection
- B. Quantitative Survey :** Defined numerically in abundance of pest population in time and space to predict population trained.
- C. Fixed Plot Survey :** Divide an acre plot into five micro plots of meter square area and marked one each in four corners (one meter away from bund) and fifth in the centre. Periodical assessment is done in these chosen micro plots. These plots are to be kept free from chemical spray till ETL is reached.

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- D. Roving survey :** It is conducted in every week in randomly fields along the prescribed route . Survey observations are recorded from west corner to diagonal walk.
- E. Forecasting :** Advance knowledge of probable pest infestation .

### THREE TIER PEST SURVEILLANCE AND ADVISORY SYSTEM IN INDIA

- National Pest Surveillance and Advisory Unit
- **Composition**
  1. Joint Secretary (Plant Protection), DAC - Chairman
  2. ADG (PP), ICAR - Member
  3. Plant Protection Advisor, Dte of PPQ & S - Member Convener
  4. Director, NCIPM (ICAR) - Member
  5. Representatives of crop specific ICAR Institutions – Invited by the Committee from season and on area basis
  6. Representatives of State Agriculture Universities – to be nominated by the Committee
  7. Selected Commissioners/ Director of Agriculture depending on the season and crop
  8. Representatives of NIC
  9. Representatives of farmers nominated by the unit

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### Functions

- Coordinating pest surveillance and providing guidance to the CIPMCs and States
- Analysis of pest surveillance data and advice on emerging pest threats
- Enabling the research Institutions for taking up special and time bound activities in special areas
- Launching campaign for creating farmer awareness on specific situations where community action is required
- Advising the neighboring States on possible pest migration.

### State Pest Surveillance and Advisory Unit

#### • Composition

- Commissioners/ Director, State Department of Agriculture  
- Chairman
- Director of Research, State Agriculture University
- Representatives of Entomology and Plant Pathology, State Agriculture University
- Representatives of ICAR Research Institute in the State
- Selected District Joint Directors depending on crop season and area
- Representatives of CIPMC of the State

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- Coordinator of KVK in the State
- Farmers representatives
- Selected NGO active in plant protection areas
- Joint Director/ Deputy Director (PP)  
- Member Convener

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### Functions

- Direct State-wide multi-district surveillance activities and manage the data
- Arranging training of personnel and extend support for district level surveillance
- Analyze reports on the pest and disease situation district wise
- Log all issued advisories and ensure that advisories and other activities are consistent with guidance given
- Confirm issuing of any State-wise advisories prepared by SAU, if needed
- Arrange special surveys or surveillance depending on the need

### District Pest Surveillance and Advisory Unit

- Composition
- Joint Director (Agriculture)
- Representatives of KVK
- Representatives of local research institute of SAU and/or ICAR
- Block Agriculture Officers depending on the season and crop
- Representatives of farmers groups
- Assistant Director/ Deputy Director (PP)  
- Member Convener

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### Functions

- Direct and coordinate local arrangements / activities on pest and disease surveillance and review results and draft appropriate advisories
- Arrange to send the data to State and National units
- Communicating the advisories to farmers through mass media and print media
- Taking up special campaigns for surveillance and pest control practices
- Involving the farmers groups, commodity groups, NGOs in surveillance and special campaigns.

### e-pest surveillance through hand held device

- The hand Held Device is an important improved field data capture system (qualitative), quantitative with Geo-referencing.
- The device has inbuilt Global Positioning System (GPS) so that geo-referenced field data could be collected.
- At the end of the pest surveillance the device would generate a data file which can be easily transferred through Internet to centralized database at NCIPM website for Analysis and transferring data into usable report.
- The surveys were carried out by ANGRAU, Hyderabad Scientists, Field staff of Dept .of Agriculture, A.P. and Staff of CIPMC Hyderabad.
- The Pilot project on Evaluation of Hand Held Device for Pest Surveillance in A.P. conducted during Rabi 2007-08 in 04 districts in 04 crops.

### Data Transmitting & Storage System

- dacnet/pdmis System : It is a system on pest observations, at district level; the system runs at state level and a subset of the data is also visible at national level (crop, crop stage, pest, extent of disease/infestation); the source, and principal user, is State departments of agriculture, and it is also used to manage pesticide availability
- <http://dacnet/iipm> System: It is a system to support entry of the results of roving survey reports, and includes the potential to report a more complete view with Agro Ecosystem Analysis (additionally numbers of pests, predators, field conditions, weather, etc) and is designed to administer CIPMC roving survey data

### AWARENES CUM SURVEILLANCE MME AGAINST PEST OF SOYBEAN AND COTTON IN MAHARASTRA

Maharashtra-2009-10; Soyabean ( *Spodoptera litura* )

Programme consists of 2 parts

1. **Awareness –Creation:** Includes co-ordinator- Maser trainer- Field staff- Elite Farmers.
2. **Pest Monitoring-** Includes co-ordinator- pest Monitors- Pest Scouts

### AWARENES CUM SURVEILLANCE PROGRAMME AGAINST PESTS OF RICE IN ODDISHA

Districts: 13

**Pest:** Swarming Caterpillar ( *Mythemina Spp* )

**Methodology:** Rapid Roving Survey

**SMS-** Farmers can dial 06476530653 number for sending SMS of pest information to concerned district or state headquarters

### VEDIO CONFERENCING AND CROP WEATHER WATCH GROUP MEETING (CWWGM)

The prevailing pest and disease situation in the country is also monitored and reviewed through video conferencing and Crop weather watch Group Meeting (CWWGM) on very Friday in DAC, New Delhi.

### e-LOCUST

**Indian Locust Warning Organisation (LWO) is using e-Locust** system for monitoring Locust activities in Indian scheduled Desert areas of Rajasthan and Gujarat States. This device supplied by FAO.

**Technical resources and infra-structure available in India for pest surveillance**

- **Tools (e.g. software, diagnostic aids, etc.)**
  1. data logger Hand Held Device for e-pest surveillance
  2. Global positioning system (GPS)
  3. Software for e-pest surveillance
  4. Complete computer system
  5. Software for dacnet/pdmis System
  6. Software for [dacnet/iipm](#) System
  7. SMS
  8. Electron microscope for pest diagnosis-2 Nos. One each at NPQS, New Delhi and another at RPQS, Chennai
  9. CABI crop pest compendium
  10. e-locust device with Ramses system

**Technical resources and infra structure available in India for pest surveillance**

- **Training materials**
  - 1. IPM kit
  - 2. Specimens of pests and their natural enemies
  - 3. Photographs of pest and their natural enemies
  - 4. Herbarium
  - 5. Survey kit/ tools

**Technical resources and infra structure available in India for pest surveillance**

- **Presentation**
  - 1. IPM exhibitions
  - 2. Farmers fairs
  - 3. Farmers group discussions

**Technical resources and infra structure available in India for pest surveillance**

- **Videos**
  - 1. Video on bio- control of crop pests and weeds
  - 2. Video on IPM on rice and cotton crops
  - 3. Video on safe and judicious use of pesticide
- **Manuals**
  - 1. IMP package for 77 crops have been developed and are available on web site [www. ppqs.gov.in](http://www.ppqs.gov.in)

**Technical resources and infra structure available in India for pest surveillance**

**Guidelines**

1. Guidelines on FFS methodology
2. Guideline for grant in aid for FFS programmes
3. Guidelines for establishment of state bio-control laboratories
4. Guidelines for locust surveillance

**Technical resources and infra structure available in India for pest surveillance**

**Standard operating Procedures (SOPs)**

1. SOP on e- pest surveillance

**Advocacy Material (posters, pamphlets etc.)**

1. Posters on seed treatment
2. Posters on crop pests and their natural enemies
3. Crop wise posters on IPM advisories

## CHALLENGES IN PEST SURVEILLANCE SYSTEM IN INDIA

1. Vast area and limited staff with the agencies involved
2. No uniform survey format of different agencies
3. No central/National data base
4. No historical data for prediction.
5. No linkage between pest surveillance / reporting agencies and weather forecast agencies
6. Un-skilled / Un-trained staff
7. Late reporting of survey data to the decision maker .
8. GIS coordinates are used only in locust survey not in crop pest surveillance programme
9. Limited pest diagnostic facilities.

## Suggestion

A Global surveillance manual showing a standard methodology of pest surveillance based on different agro eco-system may be prepared for global use.

# THANKS

