

The Review of Best Practices for Phytosanitary Pest Surveillance in

Sri Lanka



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SCPPPC/NPPO - Sri Lanka

Outline of the Presentation

1. Introduction
2. Implementation Structure of Phytosanitary activities in Sri Lanka
3. Recent Pest Outbreaks & Control Measures
4. Current activities relating to Surveillance
5. Best practices for pest surveillance
6. Constraints & Future Strategies

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1. Introduction

Agriculture work force	32.7%
GDP by Agriculture	11.9%
Agriculture sector	
* Food production Sector	
* Plantation sector	
* Export Agriculture sector	
Average Rice yield	3.7mt/ha

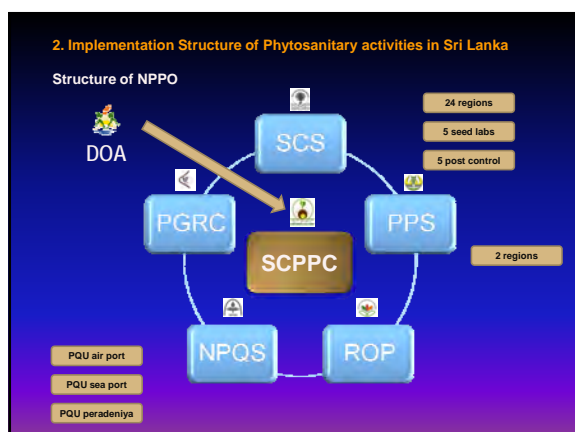
Land use map of Sri Lanka

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Introduction Cont...

- Sri Lanka – Total land Area 6,570,134 ha.
- Cultivated Land Area in the country & forest cover comprise 39% & 24%
- Mountains rises to elevations of 2500m
- Variation in Altitude create 3 Thermal Zones
 - Hot Low Country
 - Warm Mid Country
 - Cool Up Country

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The NPPO in Sri Lanka

Vision

NPPO works to facilitate the international movement of pest free plants and plant products for the development of national agriculture and related industries by preventing the introduction of dangerous alien pests into Sri Lanka.

Mission

NPPO has international commitments as recognized by agreements signed by Sri Lanka. Its staff works to find out effective measures and standards in controlling pests of quarantine concern.

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Objectives

1. Prevention of introduction, establishment and spread of dangerous alien pests within the country
2. Involvement in domestic pest control programmes
3. Development of treatment technologies to eradicate pests of quarantine importance.
4. Promotion of export of healthy plants and plant products

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Functions

1. Planning, Implementing & Monitoring of National level Work Programme to maintain the quality of seed, planting materials & plant products of govt. farms, farmers and private sector organizations.
2. Fulfill the quarantine and phytosanitary requirements of imported and exported plants, planting materials, plant products to comply with international trade.
3. Management of environmentally suitable and economically viable pest control programme utilizing IPM programmes.

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NPQS

1. Quarantine Operations Division
2. Plant Pathology Division
3. Entomology and Nematology Division
4. Weed Science Division
5. Treatment Technology Division
6. Administration Division
7. Maintenance and Labour Management Division

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Imports permits issued during - 2010

Permit type	Number
Vegetable seeds	907
Fresh fruits	566
Plant and Planting materials	725
Plant Products	260
Seed Potato	30
Animal feed	9
Cut flowers for religious purposes	11
Products for human consumption	40
Biological agents	0
Total	2548

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Imports permits issued during - 2011

Permit Type	No
Vegetable Seeds (VGS)	979
Plant/Planting Materials (PIP)	618
Plant Products (PPR)	263
Seed Potato (SP)	33
Animal Feed (MEAL)	135
Cut Flowers (CFL)	20
Fresh Fruits (LIF)	686
Human Consumption (HC)	54
Biological Agents (BA)	02
Total	2790

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Plant Protection Service

- Implementation of Plant Protection Act
- Control distribution of pests within the country.

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Activities of Plant Protection Service

1. Integrated Pest Management Programme

- Paddy
- Vegetables

integrated pest and vector management programme

2. Invasive weed control programme

3. Bio control of Invasive Aquatic weed control programme

4. Fumigation of seed / Food stores.

5. Pilot scale testing of Pesticides

6. General pest control activities.

- Termite control
- Wasp control on request
- Rat control
- Yellow spotted locust control
- Pest & Disease control in BO trees

3. Recent Pest Outbreaks & Control Measures

Fruit crops

For Food Crops

Rice - Brown Plant Hopper
(*Nilaparvata lugens*)

Golden Cyst Nematode
(*Globodera pallida*)



For Plantation Crops

Tea - Net Blister blight
(*Exobasidium reticulatum*)

Coffee - Coffee rust
(*Haemelia vastatrix*)

Coconut - (*Promecotheca cumingi*)
- Kerala wilt

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For Fruit crops

Papaya - Mealy Bug
(*Paracoccus marginatus*)

Banana - Bunchy Top Virus
(BBTV)



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Bio Diversity

Weeds

Parthenium (*Parthenium hysterophorus*)

Giant Mimosa (*Mimosa pigra*)

Water Fern (*salvinia molesta*)



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Bio Diversity Cont....

Alligator (Wal Mukunuwenna)
(*Alternanthera philoxeroides*)

Pistia (diya gova)
Pistia stratiotes

(Water hyacinth)
Eichhornia crassipes

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Some Quarantine Pest of Economic Importance in Sri Lanka

- Heamillia vastatrix*- Coffee rust disease in 1879
- Exobasidium vexans*- Tea blister blight in 1948
- Promecotheca cumingi*- Coconut caterpillar in 1978
- Globodera rostochiensis*- golden cyst nematode in Potato 1989
- Liriyomyza hudobrensis* – Leaf miner in Vegetables 1999
- Parthenium hysterophorus*- Congress weed 2000
- Salvenia* – Weed in Water bodies
- Eichhornia crassipes* – Weed in Water bodies

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Outbreak of major pest and diseases

Coconut mite (*Aceria guerreonis*)
- 50,000ha affected over several district,
- reduce yields by 15%-20%
- No successful control yet

Papaya Mealy bug - *Paracoccus marginatus*

Weligama wilt on Coconut - Phytoplasma

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New Alien Invasive Species

Papaya mealy bug

Reported in 2008 – Western region

Identified as – *Paracoccus marginatus*

Recommended package of control methods

Parasitoids (Bio control) – *Acerophagus papayae*

All ready released in effected area

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Papaya Mealy bug – *Paracoccus marginatus*



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Coconut Leaf rot disease (Weligama Wilt)



Report in 2002 – CLR, 2007- CLW

Casual organisms – CLR - *Ceratocystis paradoxa*
 - *Colletotricum gloeosporioides*
 - *Fusarium spp*
 CLW – *Phytoplasma*

Control methods were taken by CRI to eradicate the decease

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Control of Salvenia

Salvenia molusta

Cytobagous salvenia

Control methods –

1. Releasment of biological control agents into water bodies
2. Through Awareness programme

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Control of Water hyacinth

methods used

1. Release of biological control agents into water bodies
2. Awareness programmes

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4. Current activities relating to Surveillance

Island wide

- Research stations

HORDI
 FCRDI
 RRDI
 Extension
 SPMDC

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Current activities relating to Surveillance

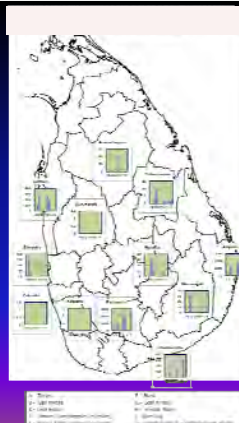
■ National Plant Quarantine Service (NPQS)

1. Pest Survey
2. Development of precise pest detection methods - in 3 districts
3. Quarantine significant weed identification and management methods

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■ Plant Protection Service

Pest surveillance programme
On Rice cultivation in 2010



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Current activities relating to Surveillance Cont....

■ Plant Protection Service (PPS)

1. Control of invasive weeds in agricultural habitats

- Awareness Programmes
- Introduction of biological agents to control aquatic weeds in infested tanks

2. Pilot scale testing of weedicides

- Conducting trials

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Current activities relating to Surveillance Cont....

3. Pest outbreaks and control

- Awareness programmes for farmers and officers

4. IPM programme

- Rice IPM
- Training on integrated field Rat management
- Integrated field rat management demonstration
- IPM on leafy vegetables
- Vegetable IPM

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5. Best practices for pest surveillance

Methodology

- Preparedness & communication
 - Toll free hot line
 - Cyber extension system
 - Extension Network and pp officers
- Surveillance and Detection
 - PP officers/ S CS offices/ Research network
- Response & containment
 - PP Service

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Case Study

- In year 2000 *Parthenium hysterophorus* entered the country and spread into epidemic proportions in northern & southern area of the country.

- conducting several control measures like enforcing of regulations under PP act , conducting strong media campaign and using herbicide like Glyphoset.

- We were able to control the weed about 60-70% . But still having problem at another part specially Vavuniya area of the country since during the war situation we were unable to reach those areas.

- Now we are in a position to implement the control activities.

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Strategies

- Identification & Confirmation – Systematic Botanist
- Survey conducted by PPS to determine the present distribution, Identify potential areas for further establishment
- Awareness programmes on likely effects on
 - Economic aspects
 - Agricultural damage
 - Health hazards

Cont.. Strategies

- Media programmes
- Erection of bill boards
- Legislative actions- Implementations of the enactments of the Plant Protection Act, Gazette notification as prohibited weed
- Appointment of Authorized officers
- Preventive measures to further spread- Change of agronomic practices – growing in fallow land
- Chemical and Mechanical control
- Cooperation with other NPPO s on control measures- Indian Council for Agricultural Research Policy to get a suitable bio control agent

Strategies

- Mass rearing and introduction of bio agent
- Evaluation of control measures

Extent of losses – Floating

- A most detailed assessment of losses – Salvenia
(Using 1987 as the base year – Doeleman, 1989)
 - Paddy losses
 - Fishing losses
 - Power generation
 - Transport
 - Washing and Bathing
 - Health hazards
- } 24.7 – 56.7 million rupees

6. Constraints & Future Strategies

- Absence of national data base on pest
- Insufficient number of trained officers
- Lack of coordination among stakeholder organizations
- Lack of documented procedures
- Lack of resources

Future Strategies

- Preparing a Regulated pest list
- Revisions to the PP Act
- Developing links with other relevant ministries
- Capacity building programme with the help of donor agencies on pest surveillance
- Developing and improving existing information sharing mechanism

