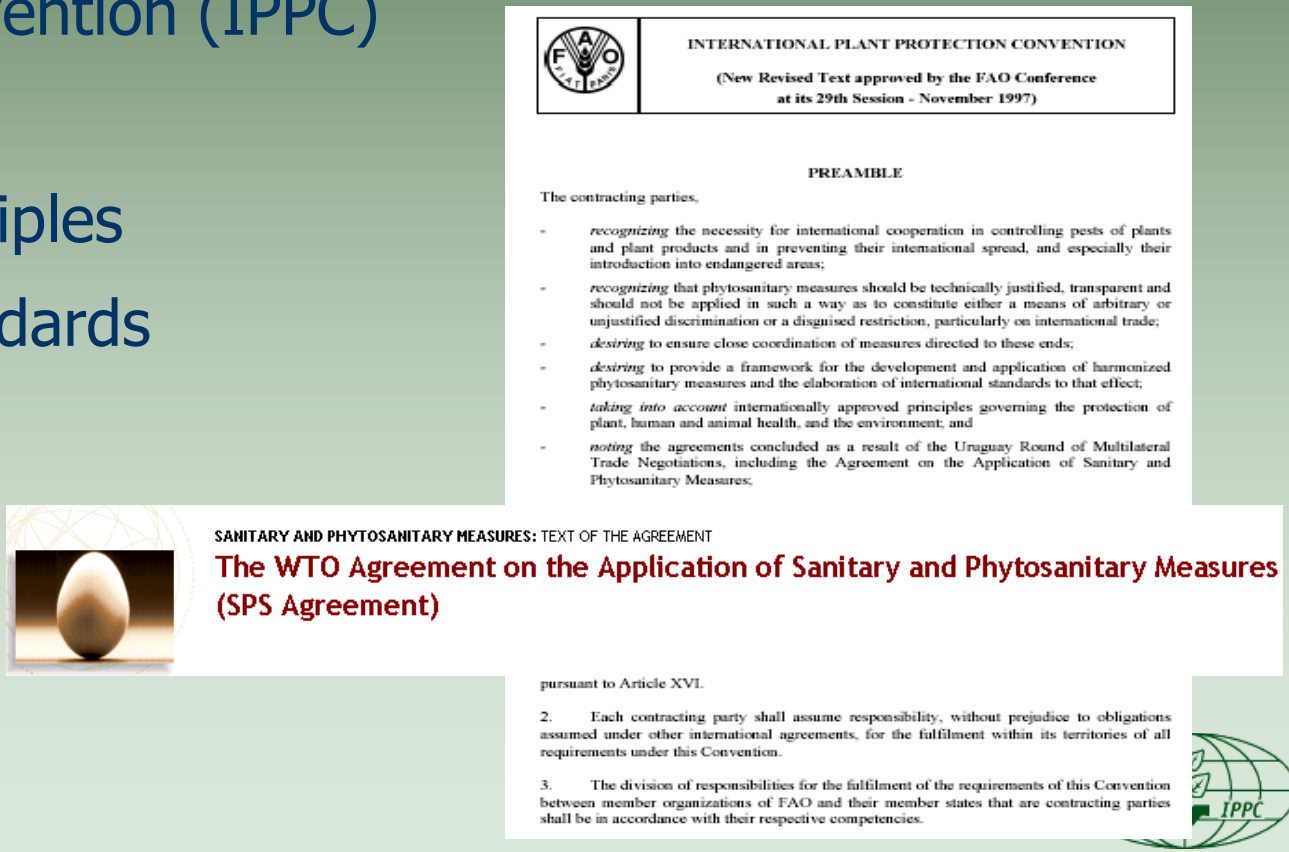
The International Plant Protection Convention (IPPC)

Pest Risk Analysis (PRA) Training

Outline

- The Convention (IPPC)
- Scope
- Key Principles
- PRA Standards



INTERNATIONAL PLANT PROTECTION CONVENTION

(New Revised Text approved by the FAO Conference at its 29th Session - November 1997)

PREAMBLE

The contracting parties,

- *recognizing* the necessity for international cooperation in controlling pests of plants and plant products and in preventing their international spread, and especially their introduction into endangered areas;
- *recognizing* that phytosanitary measures should be technically justified, transparent and should not be applied in such a way as to constitute either a means of arbitrary or unjustified discrimination or a disguised restriction, particularly on international trade;
- *desiring* to ensure close coordination of measures directed to these ends;
- *desiring* to provide a framework for the development and application of harmonized phytosanitary measures and the elaboration of international standards to that effect;
- *taking into account* internationally approved principles governing the protection of plant, human and animal health, and the environment; and
- *noting* the agreements concluded as a result of the Uruguay Round of Multilateral Trade Negotiations, including the Agreement on the Application of Sanitary and Phytosanitary Measures;

SANITARY AND PHYTOSANITARY MEASURES: TEXT OF THE AGREEMENT

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)

pursuant to Article XVI.

2. Each contracting party shall assume responsibility, without prejudice to obligations assumed under other international agreements, for the fulfilment within its territories of all requirements under this Convention.

3. The division of responsibilities for the fulfilment of the requirements of this Convention between member organizations of FAO and their member states that are contracting parties shall be in accordance with their respective competencies.

IPPC

What is the IPPC?

- Multilateral treaty for international cooperation in plant protection
  - Nearly 160 countries
  - From Albania to Zambia
- A standard setting organization

Aim of the IPPC

- Prevent introduction & spread of pests
- Promote fair & safe trade
- Protect plant life

Scope of the IPPC

- IPPC covers wide range of plants & protects them from a wide range of pests
  - plants: cultivated plants and wild flora
  - plant pests: invertebrates, diseases and weeds
  - harm: includes direct & indirect effects

Scope of the IPPC

- Extends to items capable of harbouring or spreading pests, such as:
  - storage places
  - conveyances
- Includes intentional introductions of organisms, such as:
  - biological control organisms
  - research, industrial or other organisms

Key principles

- Countries have the right to use phytosanitary measures
- Measures should be:
  - only applied when necessary
  - technically justified
  - no more restrictive than necessary to address risk
  - non-discriminatory
  - transparent

Obligations

- National Plant Protection Organization (NPPO)
- Regulate imports
- Publish phytosanitary requirements
- Conduct surveillance, treatments and certify exports
- Share information on pests and regulations
- Notify trading partners of non-compliance

International Plant Protection Convention

Plant protection & safe trade

All types of plants

All types of pests

Other pathways

IPPC

Transparent

Justified

Consistent with level of risk

World Trade Organization (WTO)

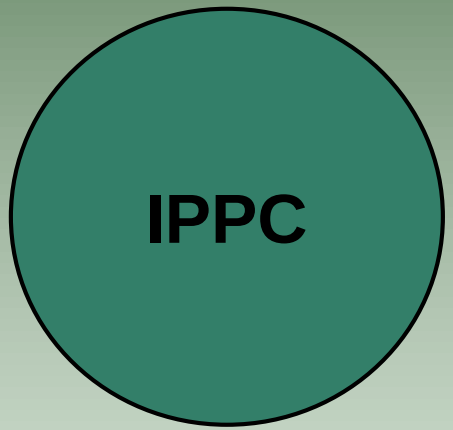
- Responsible for establishing rules of trade between nations
- IPPC is the recognized international standard setting body for plant health under the WTO-SPS

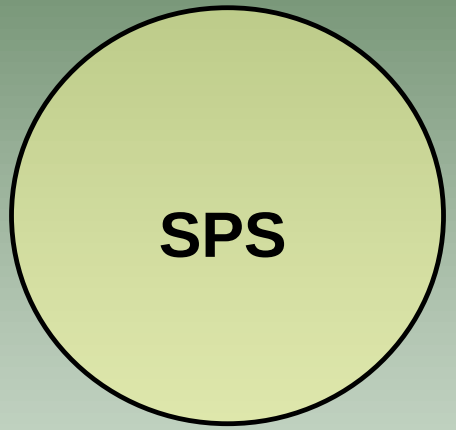
WTO - SPS Agreement

Phytosanitary measures should be:

- consistent with international standards
- justified by scientific principles and evidence
- harmonized to the extent possible
- transparent / notified / non-discriminatory
- only as restrictive as necessary to meet the appropriate level of protection

International regulatory framework





The IPPC makes provision for trade in a plant protection agreement...

…the SPS makes complementary provisions for plant protection in a trade agreement

Other international agreements

- Convention on Biological Diversity (CBD)
  - Protecting biodiversity
  - Invasive alien species
  - Cartagena Protocol on Biosafety
    - Genetically modified organisms

International regulatory framework

IPPC

Plant protection

SPS

Trade

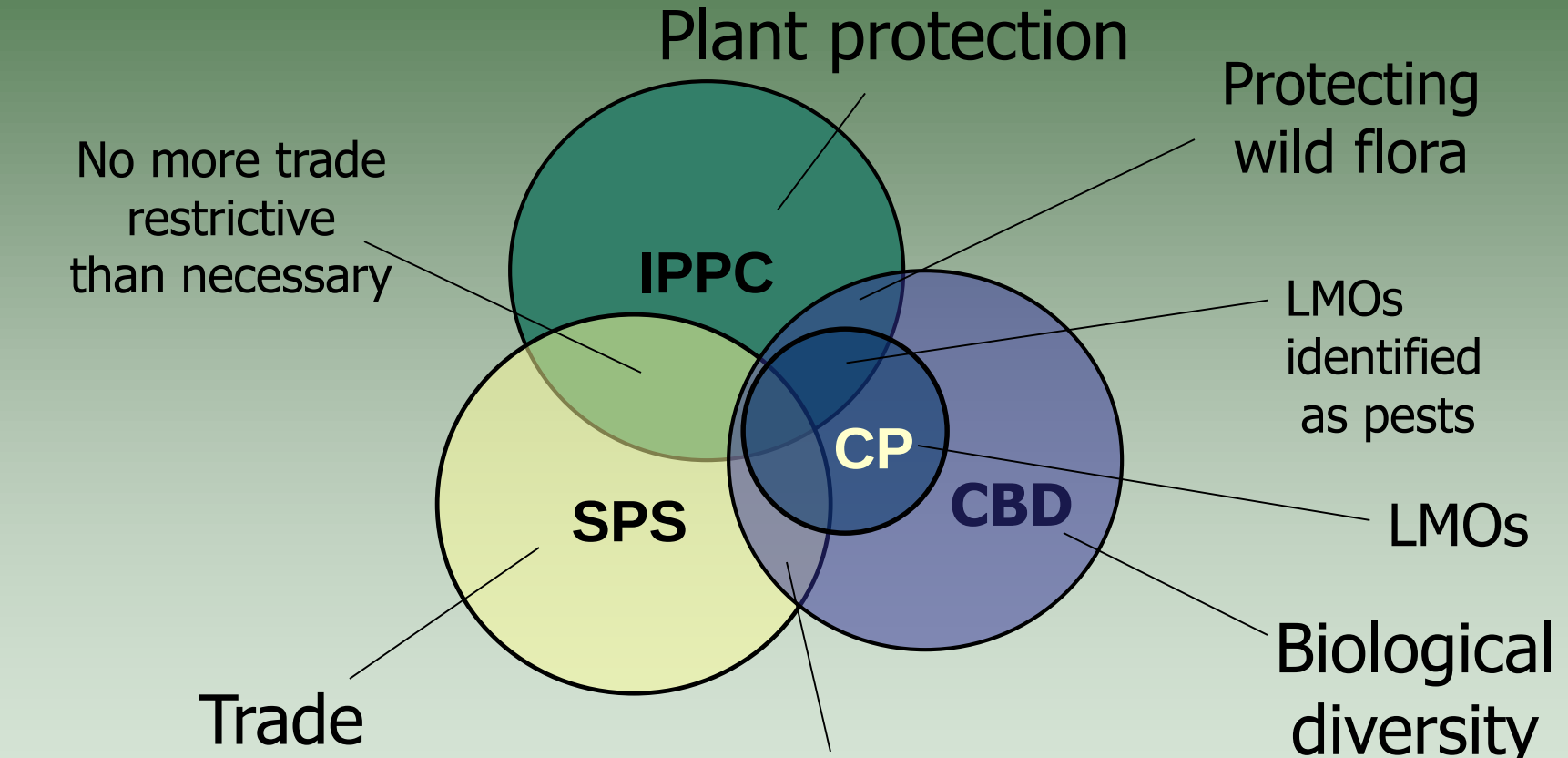
Protecting biological diversity

CBD

Cartagena Protocol

LMOs

International regulatory framework



PRA

- Key to adhering to IPPC principles is application of pest risk analysis as a decision-making process

- Impacts on all aspects of phytosanitary programs: import, domestic programs, exports
- Guidance provided in ISPMs

Overview of Pest Risk Analysis (PRA)

Outline

- Who does PRA?
- What is PRA?
- Where is PRA done?
- When is PRA done?
- Why is PRA done?

- How can PRA be done?

But first ….

What is Risk?

- Combination of likelihood and impact
  - How likely an event is to happen, and how much of an effect it would have.

Crossing the road

A

B

C

D

- 1. The likelihood of being hit crossing from A to B
- Impact on health of being hit by fast car

- 2. The likelihood of being hit crossing from C to D
- Impact on health of being hit by a slower car

What is Risk?

- Combination of likelihood and impact
  - How likely an event is to happen, and how much of an effect it would have.

- So…
  - If an event cannot occur it cannot have an impact and there is no risk.
  - If an event is likely to occur but it will have no impact then there is no risk.

Risk matrix

Impact

Very high					
High					
Medium					
Low					
Very low					
	Very low	low	medium	high	Very high

Likelihood

Who does PRA?

- Nations (NPPOs)
- Regional Plant Protection Organisations (RPPOs)
- Trading Blocs (EU, ECOWAS,SAARC…)

People

What is PRA?

- The process of evaluating biological or other scientific and economic evidence to determine whether a **pest** should be regulated and the strength of any **phytosanitary measures** to be taken against it - *Glossary of phytosanitary terms, ISPM No. 5*

What is PRA?

- Science-based process that provides rationale for implementing phytosanitary measures for a specified area

- Systematic approach to decide if a pest should be managed using legislation

What is a plant pest?

- Plant pest
  - Any species, strain or biotype of plant, animal or pathogenic agent injurious to **plants** or **plant products** - *Glossary of phytosanitary terms, ISPM No. 5*
- organism harmful to plants including bacteria, fungi, insects, mites, other plants, nematodes and viruses.
- IPPC recognizes direct and indirect plant pests

Direct and indirect pests

Direct pests: consume or cause diseases to plants


Colorado beetle


Phytophthora ramorum


Pine wood nematode

Indirect pests: indirectly injurious to plants, e.g. through competition, or by harming those species which are beneficial to plants, such as earthworms or pollinators


Japanese knotweed


New Zealand Flatworm


Southern hive beetle
Aethina tumida

IPPC pests of plants

- IPPC recognizes two categories of regulated plant pests
  - Quarantine pest
  - Regulated non-quarantine pest

Quarantine Pest

- a **pest** of potential economic importance to the **area endangered** thereby and not yet present there, or present but not widely distributed and being **officially controlled**

- For the endangered area the pest
  - Is not present there and has potential economic importance, or
  - Is present but not widely distributed and is officially controlled

Regulated Non-Quarantine Pest

- A **non-quarantine pest** whose presence in **plants for planting** affects the **intended use** of those **plants** with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party
  - Presence in plants for planting has an unacceptable impact so is regulated
  - But not regulated as a quarantine pest since usually the pest is widely distributed

EPPO list (an organism has to make it into a list before a PRA is initiated)

A1- Quarantine pests

A2-Regulated (present in EU)

- Bacteria/Phytoplasmas
- Fungi
- Parasitic plants
- Insects and mites
- Virus and viroids
- Invasive plants

Fungi	Datasheets
Alternaria mali	ds
Anisogramma anomala	ds
Apiosporina morbosa	ds
Atropellis pinicola	ds
Atropellis piniphila	ds
Ceratocystis fagacearum (and its putative vectors *Arrhenodes minutus*, *Pseudopityophthorus minutissimus* and *P. pruinosus*)	ds
Chrysomyxa arctostaphyli	ds
Cronartium coleosporioides	ds
Cronartium comandrae	ds
Cronartium comptoniae	ds
Cronartium fusiforme	ds
Cronartium himalayense	ds
Cronartium quercuum	ds
Davidiella populorum	ds
Endocronartium harknessii	ds
Gymnosporangium clavipes	ds
Gymnosporangium globosum	ds
Gymnosporangium juniperi-virginianae	ds
Gymnosporangium yamadae	ds
Melampsora farlowii	ds
Mycosphaerella gibsonii	ds
Mycosphaerella laricis-leptolepidis	ds
Ophiognomonia (Sirococcus) clavigignenti-juglandacearum	ds
Ophiostoma wageneri	ds
Phellinus weirii	ds
Phyllosticta citricarpa	ds
Phyllosticta solitaria	ds
Phymatotrichopsis omnivora	ds
Pseudocercospora angolensis	ds
Puccinia hemerocallidis	ds
Puccinia pittieriana	ds
Septoria lycopersici var. *malagutii*	ds
Stagonosporopsis andigena	ds
Stegophora ulmea	ds
Thecaphora solani	ds
Tilletia indica	ds

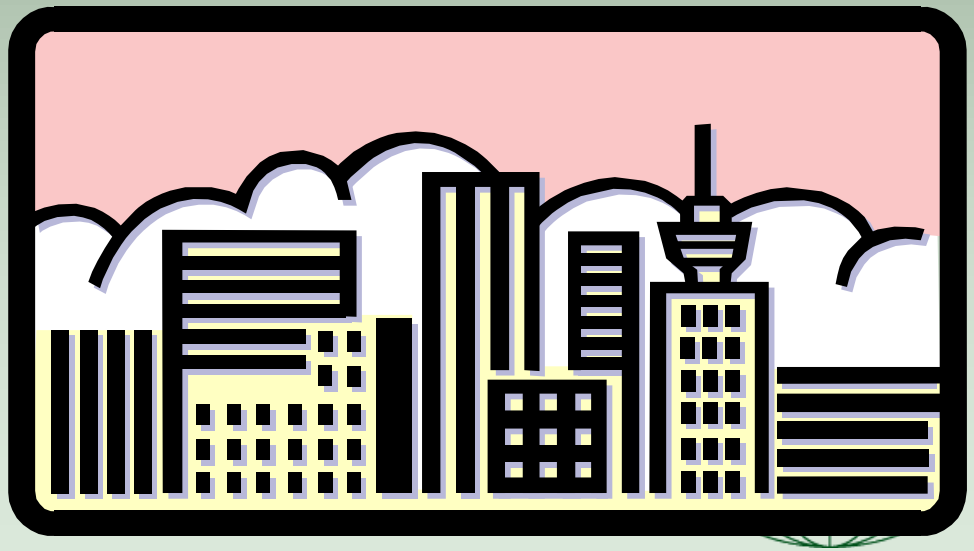
A1

Fungi	Datasheets
Botryosphaeria laricina	ds
Ceratocystis platani	ds
Ciborinia camelliae	ds
Cronartium kamtschaticum	ds
Cryphonectria parasitica	ds
Diaporthe vaccinii	ds
Fusarium circinatum	ds
Fusarium foetens	-
Fusarium oxysporum f.sp. *albedinis*	ds
Geosmithia morbida and its vector (*Pityophthorus juglandis*)	(ds)
Glomerella gossypii	ds
Gymnosporangium asiaticum	ds
Heterobasidion irregulare	(ds)
Lecanosticta acicola	ds
Melampsora medusae	ds
Monilinia fructicola	ds
Phialophora cinerescens	ds
Phytophthora fragariae	ds
Phytophthora kernoviae	(ds)
Phytophthora lateralis	ds
Phytophthora ramorum	(ds)
Phytophthora rubi	ds
Plenodomus tracheiphilus	ds
Puccinia horiana	ds
Stagonosporopsis chrysanthemi	ds
Stenocarpella macrospora	ds
Stenocarpella maydis	ds
Synchytrium endobioticum	ds
Verticillium albo-atrum (hop-infecting strains)	ds
Verticillium dahliae (hop-infecting strains)	ds

A2

Where is PRA done?

- Office based
- Information needed
- Library



Why is PRA done?

- To evaluate and manage risk from specific pests and internationally traded commodities
  - Identify and assess risks to agricultural and horticultural crops, forestry and the environment from plant pests
  - To create lists of regulated pests
  - To produce lists of prohibited plants and plant products
  - To assist in identifying appropriate management options

Why is PRA done?

- Answers following questions:
  - Is the organism a pest?
  - What is the likelihood of the entry and establishment?
  - Might the pest have an unacceptable impact? (economic, environmental, social)
  - If so, what can be done to avoid / inhibit unacceptable impacts?

When is PRA done? (Initiation)

3 Ps to initiation

- Pest
- Pathway
- Policy

Pest-initiated PRA

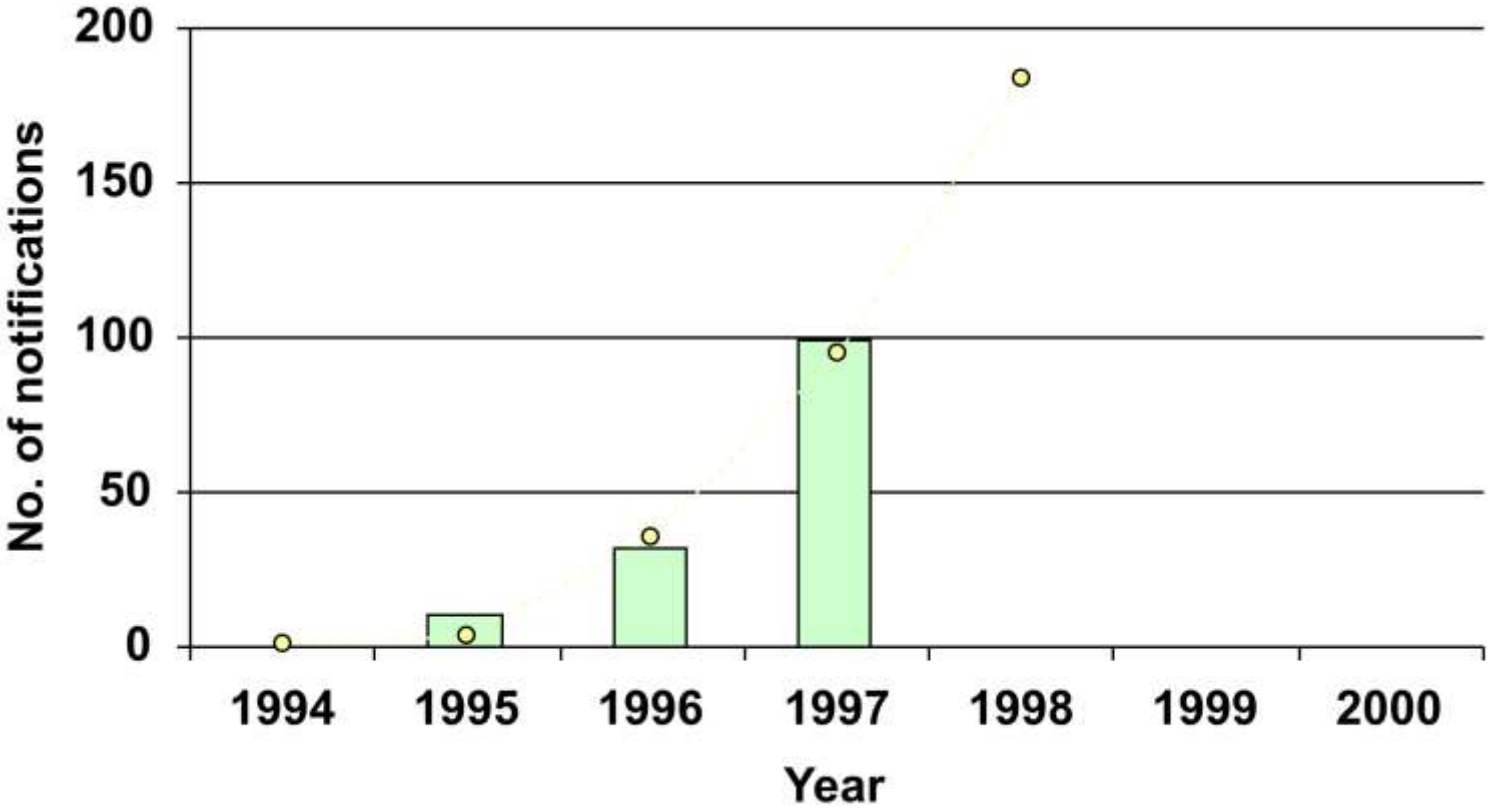
- Following detection of pest in consignments
- Outbreaks inside or outside of the PRA area
- Request for pest to be imported for research
- Overseas pest spread
- Identification of an organism not previously known to be a pest
- Identification of a pest that may require phytosanitary measures

Pest-initiated PRA

Thrips palmi (Thysanoptera)

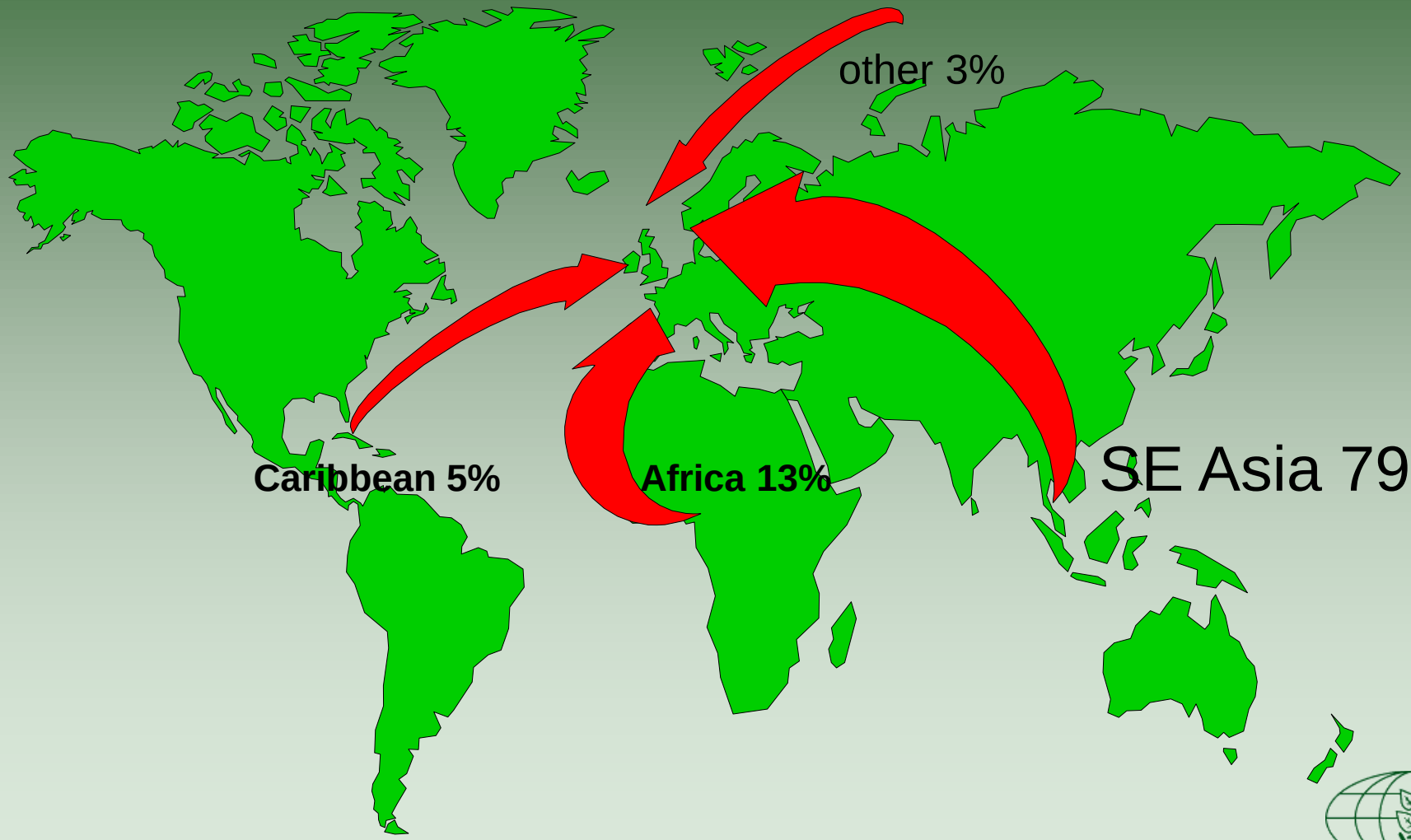
- Uses a pest as the basis for the PRA
- All possible pathways need to be considered

Pest-initiated PRA



Data source: EU FVO Office, Notifications of non compliance

Pest-initiated PRA



Pest-initiated PRA

- Consult with Thai Ministry of Agriculture
- Require production site inspections - certified free from *T. palmi*, or
- Appropriate treatment (fumigation) of orchids
- Trade continues
- Measures in place since February 1998
- Continued monitoring shows effectiveness

Pathway-initiated PRA

- Commonly new trade pathways
- Identification of a pathway that presents a potential pest risk

Pathway-initiated PRA

- Uses a pathway as the basis for the PRA
- Additional PRAs are necessary for any pests that are identified as potential quarantine pests

Pathway-initiated PRA

- Initiation via new trade request
- Information gathering
  - Books & journals
  - Abstracting journals
  - On line literature searches
  - Electronic sources
  - CABI Crop Protection Compendium
  - World Wide Web

Pathway-initiated PRA

- ***Graphognathus (Naupactus) leucoloma*** was identified as potentially serious invertebrate
  - from S. America to USA, S. Afr., Aus. & NZ
  - highly polyphagous (350+ hosts)
  - parthenogenic
  - larvae are root feeders
  - low densities causes yield loss
  - much of Europe suitable for establishment

Pathway-initiated PRA

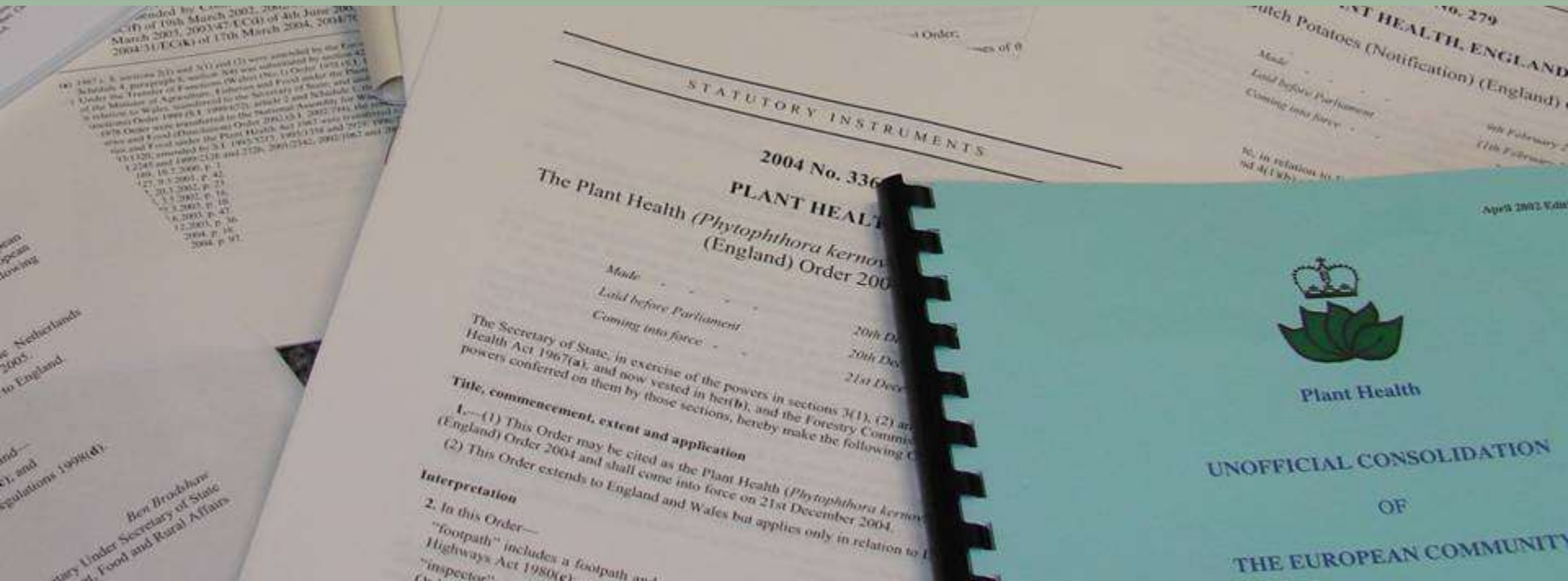
- Conditions included
  - use of certified seed
  - free from *Naupactus leucoloma*
  - free from *Synchytrium endobioticum*
  - free from *Ralstonia solanacearum*
  - free from *Globodera pallida* & *G. rostochiensis*

Imports

  - > 4,500 tonnes imported
  - No quarantine pests and diseases detected.

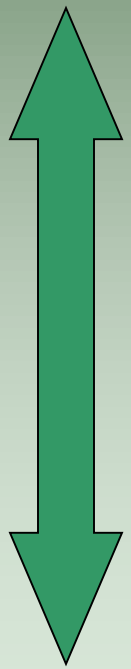
Policy-initiated PRA

- Review or revision of existing phytosanitary policies and priorities



How is PRA done?

1. Initiation (3 Ps)
2. Pest risk assessment
3. Pest risk management



Risk communication

Pest risk assessment

- Three step process
  - Categorization of individual pests
  - Assessment of the probability of introduction and spread
  - Assessment of the potential economic consequences of the introduction and spread

Pest risk management

- Defined as:
  - the evaluation and selection of options to reduce the risk of **introduction** and **spread** of a **pest**. [ISPM No. 11]
- To achieve an appropriate level of protection, governments must balance measures to counter assessed risk, against obligations to minimise negative trade effects
- PRA aims to ensure the decisions will be well-informed, transparent and neutral

Pest risk communication

- Not a discrete stage of PRA
- Continuous throughout PRA
- Purpose is to reconcile the views of scientists, stakeholders, politicians, etc in order to
  - Achieve a common understanding of the pest risks
  - Develop credible pest risk management options

Documentation

- Supports the IPPC key principle of transparency
- Also, the main elements to document are outlined in ISPM No. 11:
  - Purpose of the PRA
  - Pest, pest list, pathways, PRA area, endangered area
  - Sources of information
  - Categorized pest list
  - Conclusion of risk assessment
  - Risk management options identified
  - Options selected

Plant Passport

- **Plant passport**
- You need a plant passport if you transport certain plants and plant-based products within the EU. These plants and plant based products are listed in the register of products requiring a plant passport, kept bij the the Netherlands Food and Consumer Product Safety Authority (*NVWA*). A plant passport guarantees that the product is free from dangerous organisms included on the quarantine organisms list. The plant passport is issued by one of the following inspection services:
- Flower Bulb Inspection Service (*BKD*)
- Quality Control Bureau Fruit and Vegetables (*KCB*)
- Netherlands Inspection Service for Horticulture (*Naktuinbouw*)
- Dutch General Inspection Service for Agricultural Seed and Seed Potatoes (*NAK*) (Dutch)

The legal requirements (5)

- **Commission Directive 2000/29/EC (former 77/93/EC) Article 10 and 11:** issuing plant passports for plants, plant products and other objects indicated in the Annex V A of this Directive

Implementation of EC directives

- Transposition of directives into National legislation;
- Information campaign;
- Establishment of special software for registration of operators;
- Training of staff of SPPS;
- Training of operators.

Information campaign

- Information distributed through:
  - Radio
  - Media;
  - Distribution of leaflets;
  - Personal letters (based on import, export and national surveillance control system);
  - Seminars.

Establishment of special software for registration of operators

- Specialist of SPPS along with IT specialist have created a software database intended for registration of operators as well as for printing plant passports;
- Purchased necessary equipment for using software and issuing plant passports for all 10 regions;
- Database is created in such a way that it is available at any time for every inspector of SPPS.

Training of staff of SPPS

- All inspectors were trained on:
  - Legal aspects of registration;
  - Legal aspects of plant passporting system;
  - Using software for registration and issuing plant passports;

Better Training for **Safer Food**

First step towards the implementation of plant passporting system – Plant Health register!

- **Who must be registered at Plant Health register**:
  - Growers, importers and wholesalers of plants and plant products which needs plant passports
  - Growers, importers and wholesalers of host plants of Fireblight as well as potato and citrus growers (Lithuanian experience: host plants of Fireblight and potatoes must have plant passports or labels for the final consumer as well));
  - Wholesalers, who buys and sales plants or plant products, which already have plant passports or needs it after mixing or separation of batches (Replacement plant passports)

Who is not necessary to be registered at phytosanitary register

- Growers and producers who grow and produce plants or plant products for their own use.
- Growers and producers who grow and produce plants or plant products and sell it on local market (except grower of propagation material of Fireblight host plants and potatoes) and for which it is not the main activity;

Registration procedure (1)

- Inspector:
  - provides the operators with the application form;
  - helps operators to make a scheme of place of production;
  - checks operator's declaration
  - performs an inspection at the place of production;
  - writes his conclusions

Then

- Two hard copies
- Entered in a unique database
- Yearly controls and lab tests
- Violations need to be fixed in a given time :
  - Warning
  - Penalty
  - Cancellation