EPPO decision support scheme for Pest Risk Analysis

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EFSA colloquium

Pest risk assessment

Science in support of phytosanitary decision making in the European Community

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European and Mediterranean Plant Protection Organization

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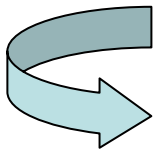
- Regional Plant Protection Organization
- Created in 1951 by 15 countries
- Now 48 member countries
- International cooperation in plant protection (plant quarantine and plant protection products)
- Bilingual (English/French)

EPPO and EU:
27 EU members are all EPPO members
EU prepares regulations
EPPO makes recommendations

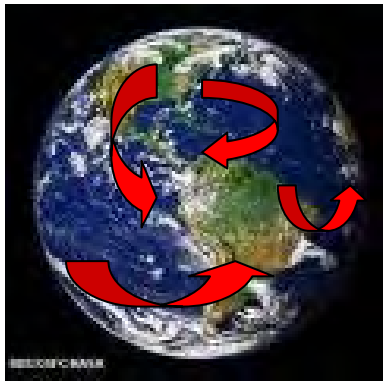
Aims of EPPO

- **To protect plants**
- **To ensure cooperation and harmonization in all areas of plant protection where Governments take official measures (regulated pests or "Quarantine")**
- **To develop a common strategy against the introduction and spread of pests (recommend phytosanitary measures)**
- **To promote the use of modern, safe and effective pest control methods**
- **To provide information services for provision and exchange of information**



Production of regional standards (recommendations to NPPOs)

International plant health context



International trade in commodities has increased

1994 Sanitary and Phytosanitary agreement (SPS)

- Sovereign right of Countries to establish Phytosanitary Measures **to protect plant life or health** but the measures should be technically justified.

International plant health context

Phytosanitary measures are established for regulated pests

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

International plant health context

"Pest risk analysis"

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

International plant health context

International Standards for Phytosanitary Measures (ISPMs) on PRA have been developed

ISPM No. 2 (1996) *Guidelines for pest risk analysis* revised in (2007) *Framework for pest risk analysis*

ISPM No.11 (2004) *Pest risk analysis for pests, including analysis of environmental risks and living modified organisms*

ISPM no. 21 (2004) *Pest risk analysis for regulated non-quarantine pests*

Available on https://www.ippc.int

EPPO Activities on Pest Risk Analysis

Initiated in the 1990's

Development of EPPO Standards for PRA

- 1992 **PM 5/1(1)** Check-list of information required for pest risk analysis (PRA)-
- 1992, revised in 2001 **PM 5/2(2)** Pest risk analysis on detection of a pest in an imported consignment –

- 1997 **PM 5/3(1)** Pest risk assessment scheme
- 2000 **PM 5/4(1)** Pest risk management scheme

both withdrawn and replaced by the **EPPO decision support scheme on quarantine pests** available at www.eppo.org/QUARANTINE/quarantine.htm

Revised on an annual basis

Why an EPPO decision making scheme for PRA where ISPM no. 11 exists ?

Added value: logic sequence of questions addressing all elements of ISPM 11

Decision support scheme strictly follow the structure of ISPM 11 and include specific elements for invasive alien plants

The first version of the decision support scheme was adopted in 2005, two revisions have been issued since.

Presentation of the EPPO decision support scheme

Initiation

Pest Risk Assessement

Section A: pest catagorization (binary decision tree) eliminate quickly the pest that do not qualify as QP

Section B: Assessment of probability of introduction spread and economic consequences

- Probability of entry

- Probability of establishment and spread

- Assessment of potential economic consequences (including environmental impacts)

Pest Risk Management

Examples of questions in Section A

Binary decision tree to eliminate quickly pests that do not qualify as potential QP

12 Does the pest occur in the PRA area?

- if yes Go to 13
- if no Go to 14

14 Does at least one host-plant species (for pests directly affecting plants) or one suitable habitat (for non parasitic plants) occur in the PRA area (outdoors, in protected cultivation or both)?

- if yes Go to 15
- if no Go to 19

19 The pest does not qualify as a QP for the PRA area and the assessment for this pest can stop (summarize the main reason for stopping the analysis)

Section B

Detailed evaluation of the pest with a rating and indication on the level of uncertainty attached to the answer.

Example of a question:

- **Probability of transfer to a suitable host or habitat**

  1.11. In the case of a commodity pathway, how widely is the commodity to be distributed throughout the PRA area?

  Note: the more scattered the destinations, the more likely it is that the pest might find suitable habitats.

  very limited, limited, moderately widely, widely, very widely

Go to 1.12

Level of uncertainty: **Low** **Medium** **High**

Section B: evaluation of the probability of entry

Main pathways should be identified (important feature of the scheme)

Probability of the pest being associated with a pathway:

Megaplatypus mutatus

?

Wood

?

?

Wood packaging

Plants for planting

Probability to be associated with the pest?

Concentration of the pest?

Volume and frequency along the pathway?

Section B: Probability of establishment and spread

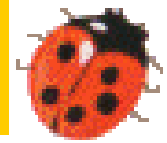
Availability of suitable hosts or habitats

Suitability of the environment:

-Climate

- Abiotic factors

- Natural enemies, competition

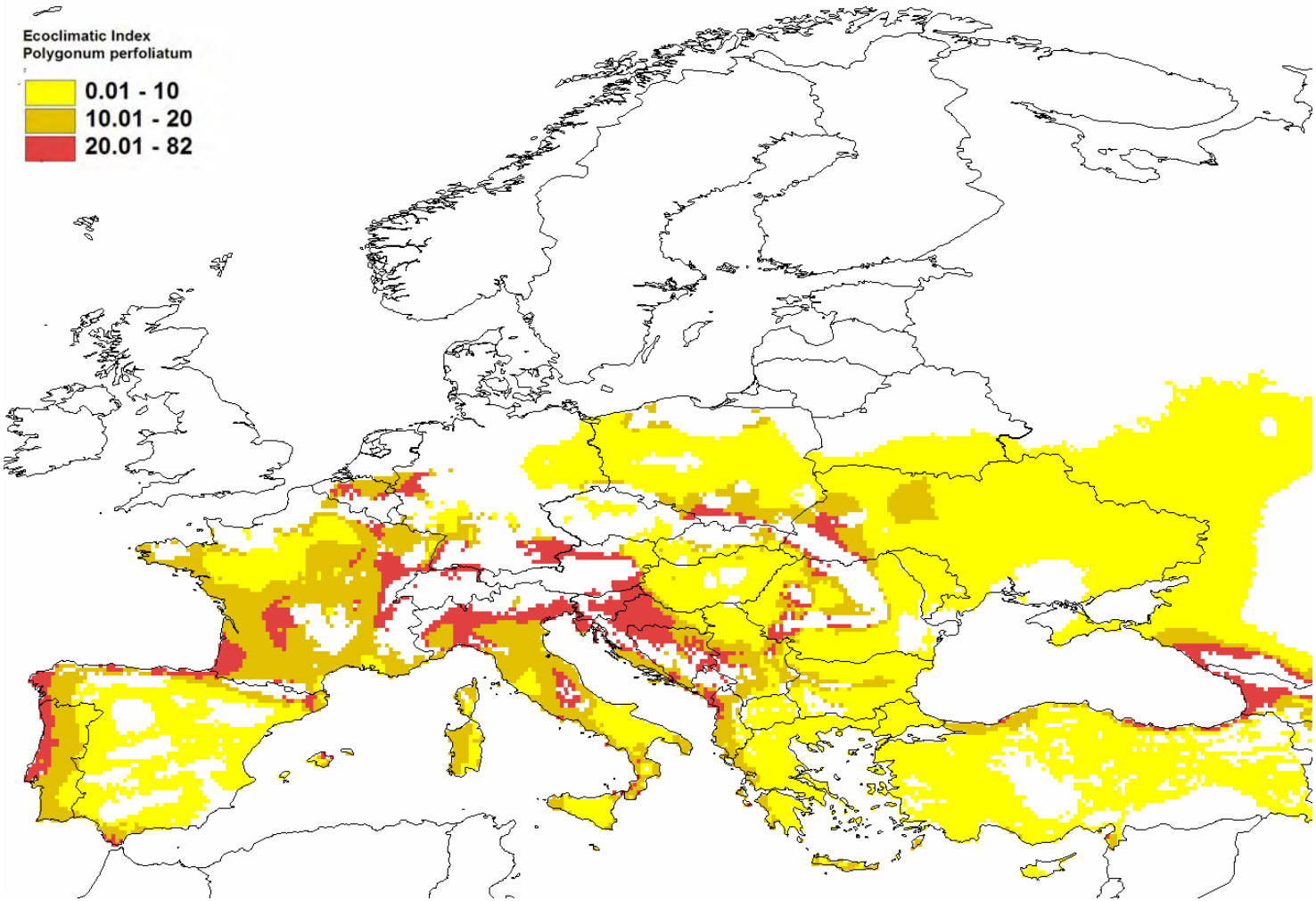


Cultural practices and control measures

Other characteristics: reproductive strategy, genetic diversity, adaptability

Probability of spread

Climatic prediction tool CLIMEX



Polygonum perfoliatum Ecoclimatic Indices for Europe, Imported to ArcGIS (Temperate Template, no cold stress, no wet stress, soil moisture minimum to 0.35, maximum temperature 36ºC, DV1=12°C).

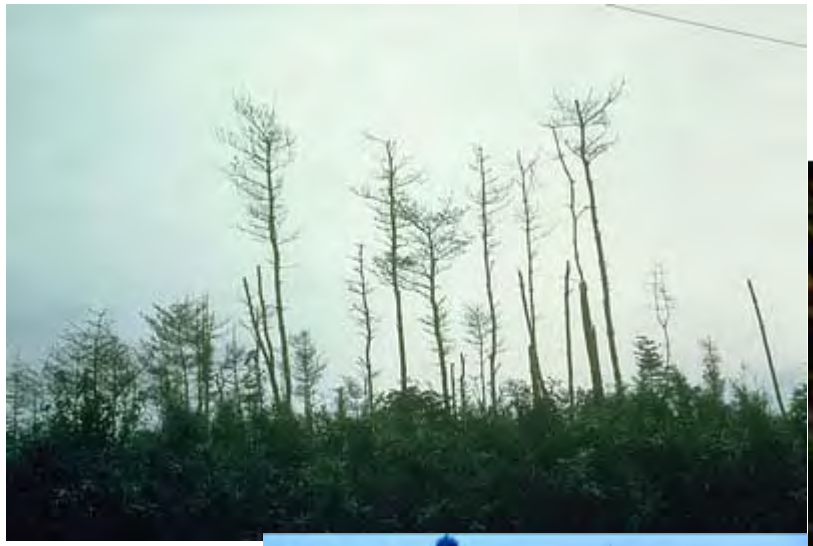
Area of potential establishment

the part of the PRA area where presence of host plants or suitable habitats and ecological factors favour the establishment and spread of the pest.

Section B Assessment of potential economic consequences

Effects on crop yields or quality

Bursaphelenchus xylophilus

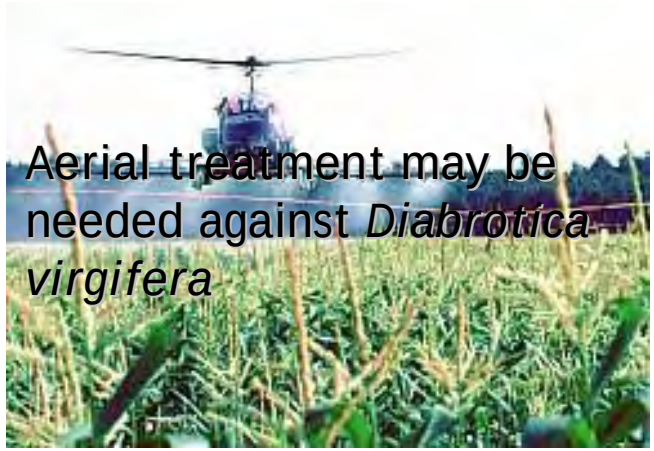


Diabrotica virgifera

Solanum eleagnifolium in a potato field

Section B: assessment of potential economic consequences

Increase in production and control costs?



Mechanical elimination of H. ranunculoides

Section B assessment of potential economic consequences

Economic consequences include environmental impacts...

C. helmsii **reduces germination rates of native species.**

The rare starfruit *Damasonium alisma*, **one of the rarest plants in UK is thought to be threatened by** *C. helmsii*.

and social impacts (such as loss of recreation value)

Endangered Area

an area where ecological factors favour the establishment of a pest whose presence in the area will result in economically important loss

Pest risk management

Explores options that can be implemented

- (i) at origin or in the exporting country,
- (ii) at the point of entry or
- (iii) within the importing country or invaded area.

First question

3.1 Is the risk identified in the Pest Risk Assessment stage for all pest/pathway combinations an acceptable risk?

Pest risk management

- Steps are followed successively for each of the major pathways likely to carry the pest (or, for a commodity-initiated analysis, for each of the pests likely to be associated with the pathway)

- Pest risk management
  - Identification of risk management options
  - Evaluation of options

Pest risk management

Pest risk management section closely linked to the risk assessment part:

3.25 Has the pest a very low capacity for natural spread?

Linked to

1.32 How likely is the pest to spread rapidly in the PRA area by natural means?

Pest Risk Management:

Evaluation of possible measures:

Options for consignments
- **Can the pest be detected by visual inspection, testing?**
- **Is removal of the pest from the consignment by treatment possible?**

.....

- **Prevention of infestation of the commodity:**
  - **specified treatment of the crop or of the consignment**
  - **specified growing conditions**

- Establishment and maintenance of pest freedom of a crop, place of production or area

- Internal measures (measures that can be taken in the importing country such as eradication containment)

- Combination of measures System Approach

Degree of uncertainty

Areas and degree of uncertainties are carefully listed in order to:

- ensure transparency

- identify needs for additional researches

What should be improved???

- *Data* on the pest (situation in its current area of distribution, the pathways of movement, the factors affecting establishment, spread and impacts …… (CABI, GISP, EPPO databases…)
- *Data* on suitable hosts or habitats in the PRA area (FAOSTATS)
- *Data* on trade to estimate the probability of entry
  - FAOSTAT
  - Eurostat
  - AIPH, Union Fleur (2005)

  Information specific to genus is rarely available e.g. for plants for planting
- Techniques and tools to assess economic and environmental risk
- Standardising and summarising risk (e.g. examples are needed for the assessor to decide on a rating)

What should be improved???

- **Determination of the endangered area**
  - Differences in assessing potential economic consequences
  - Commercial or cultivation practices resulting in different level of economic consequences
  - Lack of information about commercial and cultivation practices.

- **Systems approaches** more guidance is required (how can partially effective risk management measures be combined to reduce the risk to an acceptable level?)

- Guidance on **eradication or containment of outbreaks** (question 3.29 more guidance is required)

- **Web scheme** needed:

  to guide the assessor on how to answer questions, link to databases on pests crops trade data, evaluation tools, make the questions pest specific ……..

How to improve???

EU FP 7: call

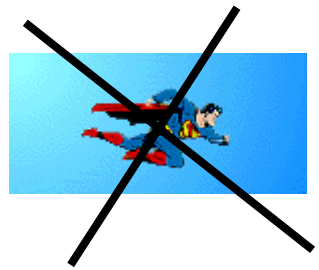
Development of more efficient risk analysis techniques for pests and pathogens of phytosanitary concern

PRATIQUE

ENHANCEMENT OF PEST RISK ANALYSIS TECHNIQUES

Because we work in a biological area there will always be uncertainties in PRA and decisions have to be made with the available information to serve our final aim:

protecting the territory of our region from new pest invasions



Performing and reviewing PRA to recommend regulation of pests

EPPO lists of regulated pests (since 1975)
A 1 list of pests not present in the EPPO region
A 2 list of pests present in the EPPO region

In 2007 : 298 pests

A request for addition to the EPPO lists should be supported by a PRA

PRA prepared by an NPPO

PRAs performed by an EPPO Expert Working Group for PRA

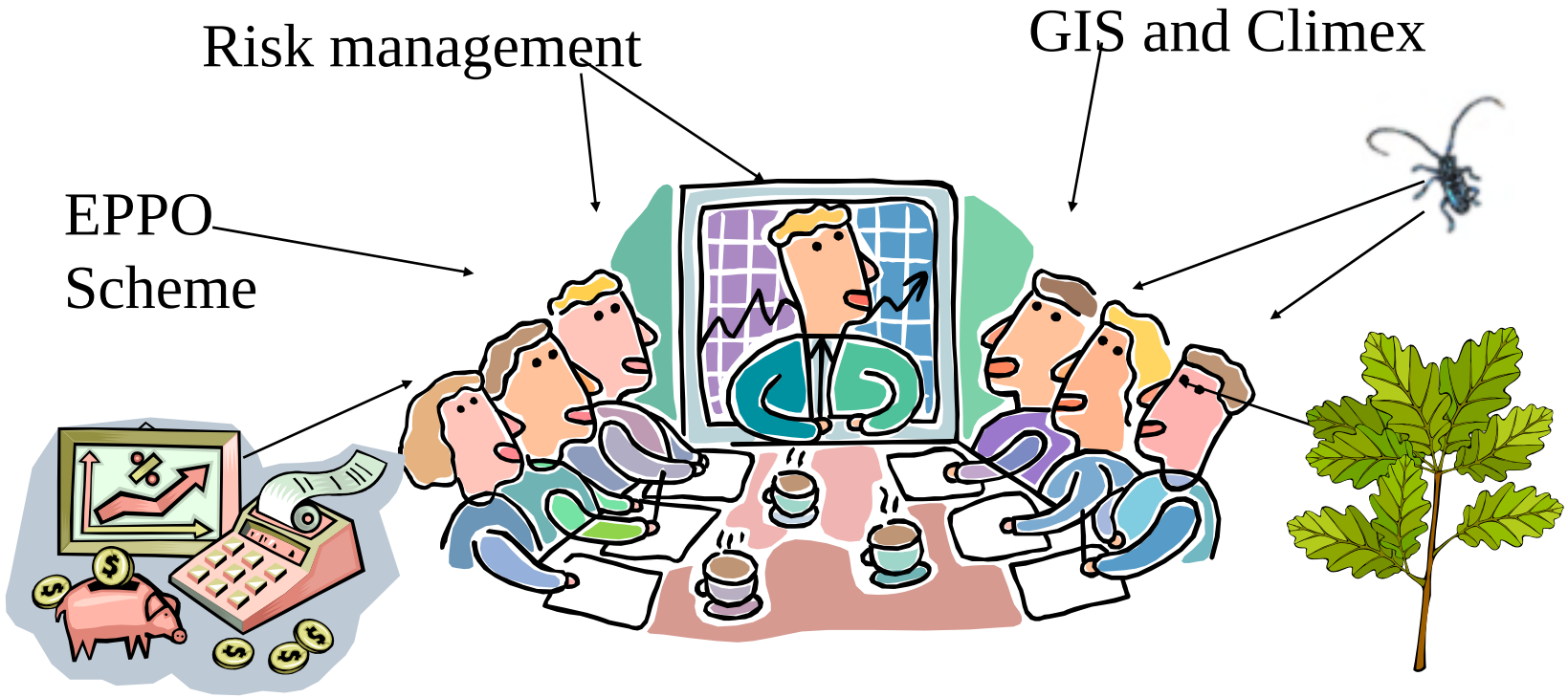
PRAs reviewed by the Panel on Phytosanitary Measures or the Panel on IAS for plants

EPPO Expert Working Groups for PRA

Core members + ad-hoc members

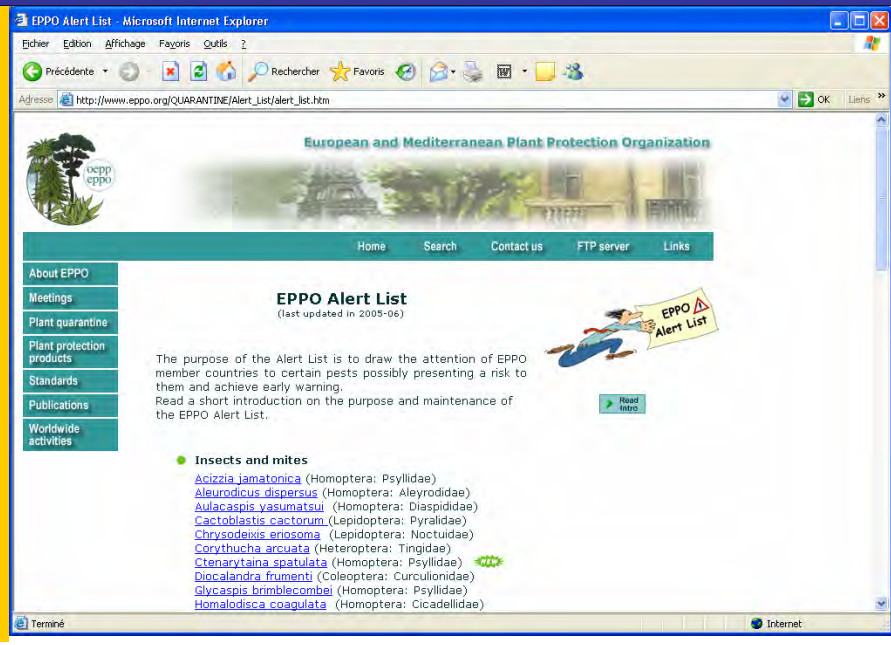
Objectives:

- **Perform risk assessment**
- **Identify the endangered area**
- **Identify risk management options**



Selection of pests

- EPPO Alert List + proposals from EPPO countries
- Prioritization by EPPO bodies where all members are represented
- For Invasive Alien Plants, a process is being developed to prioritize the species on which PRA should be conducted



Pests to be evaluated by EWG in 2007-2008: *Aulacaspis yasumatsui, Bactrocera invadens, Diocalandra frumenti, Eichhornia crassipes, Metamasius hemipterus, Raoellia indica,* and *Xanthomonas axonopodis* pv. *alli*.

Communication on PRA

PRA documents available on the EPPO website:

- Datasheets
- Reports of PRA
- Collection of all existing PRAs
- Working documents

These working-procedures provide to EPPO member countries appropriate information for the technical justification of phytosanitary measures established by for certain pests.

Training on PRA

EPPO organizes training workshops on PRA

Next workshop Cyprus 2008-11-12/14