

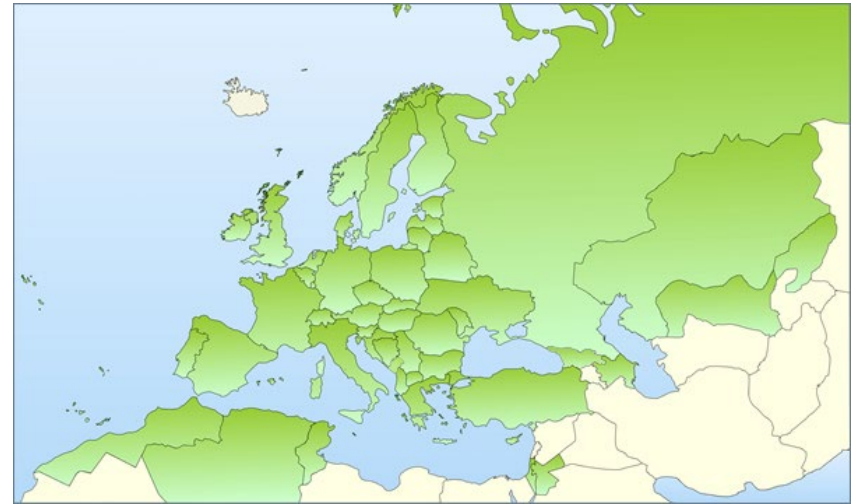
EFSA and EPPO PRA activities and how they contribute to biosecurity in Europe





European and Mediterranean Plant Protection Organization

- EPPO is an intergovernmental organization
- Created in 1951 by 15 countries
- It has now 52 member countries
- Two Permanent Observers (EEC and EC)
- International cooperation in plant protection: plant quarantine and pest control

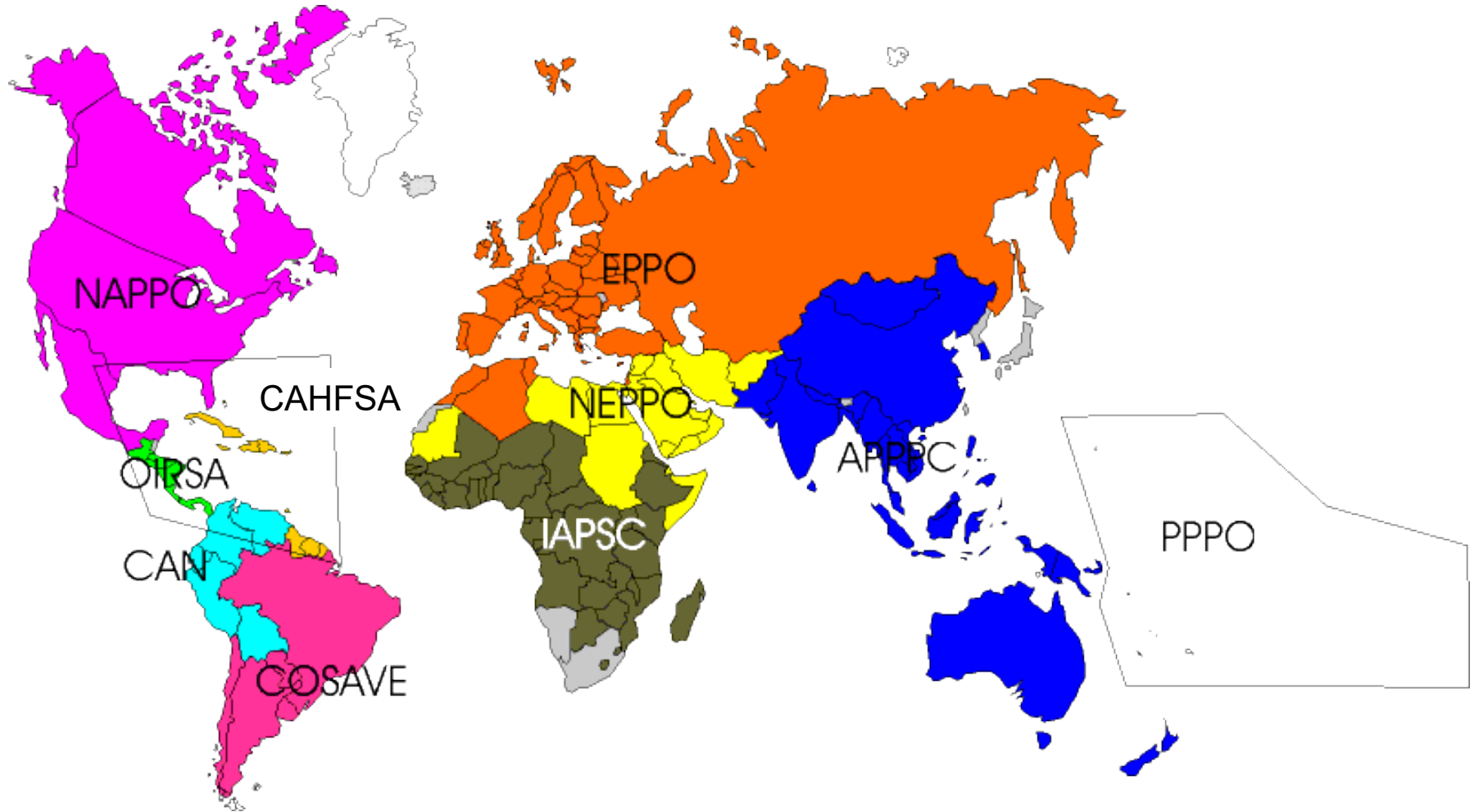


extends to the far
east of Russia

Work with National Plant Protection Organizations -
NPPOs (Plant Protection Services)



One of the 10 Regional Plant Protection Organizations





EPPO and the European Union



28 EU members are all EPPO members

EU prepares regulations

EPPO makes recommendations

e.g. regional standards



EPPO's missions

Prevent entry and spread of harmful organisms (crops, forests, natural environments)

- Early warning/horizon scanning
- Recommendations on pests which should be regulated as quarantine pests (EPPO A1 and A2 Lists)
- Prepare standards (e.g. phytosanitary measures, diagnostic protocols)

Provide information to EPPO members on pests

- Regulated pests
- Pests which may present a risk to the EPPO region



WHAT IS EFSA AND WHAT IT DOES



DOES

DOES NOT

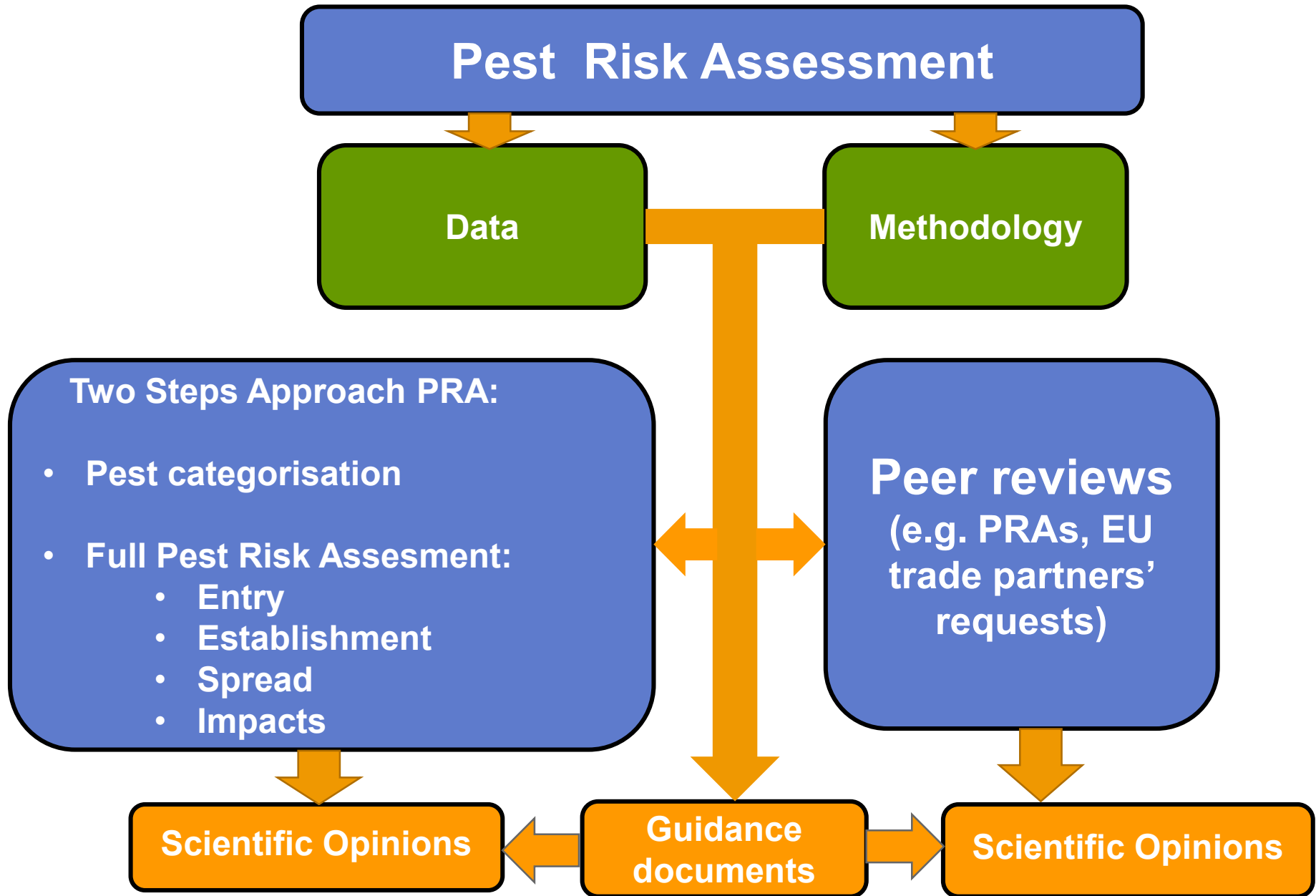
- 2006 Commission Regulation (EC) No 575/2006 establishes the EFSA **Scientific Panel on Plant Health**
- **PLH Panel (5th term 2018-2021)**: 19 members of 10 different nationalities from academia, research and national authorities and with a wide range of expertise
- PLH Panel is supported by ALPHA (PLH team), AMU, DATA and SCER

Objectives

- Provision of high-quality, independent and transparent **scientific advice to EU risk managers**
- Contribution to development of **science-based approach for phytosanitary pest risk assessment**

Pest risk analysis in EFSA and EPPO





2010

- PLH Panel Guidance on a harmonised framework for risk assessment (EFSA PLH Panel, 2010) based on International Standards

2011

- PLH Panel Guidance on the environmental risk assessment of plant pests (EFSA PLH Panel, 2011)

2012

- PLH Panel Guidance on methodology for evaluation of the effectiveness of RROs (EFSA PLH Panel, 2012)

2018

- Guidance on Uncertainty Analysis in Scientific Assessments (EFSA Scientific Committee, 2018)

Guidance on quantitative pest risk assessment (EFSA PLH Panel, 2018)

A TWO STEP APPROACH

Step 1: request from EC - ToR

Pest categorization

Scientific Opinion 1

Interactions with the Risk Manager (EC/AWG/PAFF)

END

Step 2: request from EC - ToR

Quantitative assesment

Entry Establishment Spread

Impact on: crops environment

Risk Reducing Options evaluation

Scientific Opinion 2

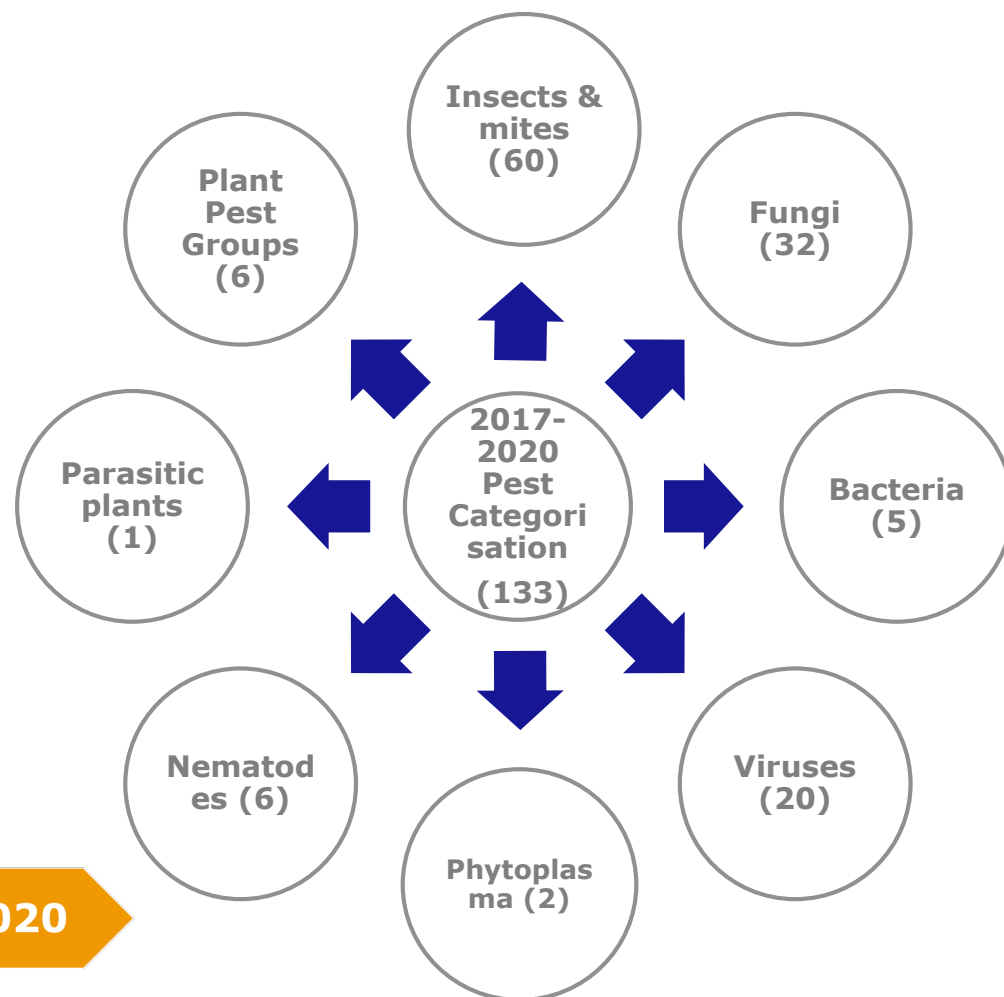
Step 1 – Pest categorisation

Evaluation of the plant health regime - Council Directive 2000/29/EC

Regulation 2016/2031 on protective measures against pests of plants adopted 26 October 2016

Secondary legislation for the listing of EU regulated pests

March 2017 – Mandate to deliver a pest categorisation for **133** regulated plant pests or groups of plant pests 133 pest categorisations to be delivered in 3 batches following legislative priorities: June 2018, end 2019 end 2020



2017
(43)

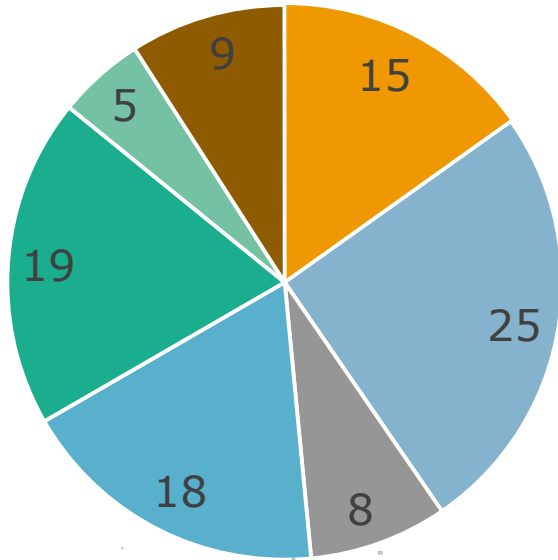
2018
(49)

2019
(8)

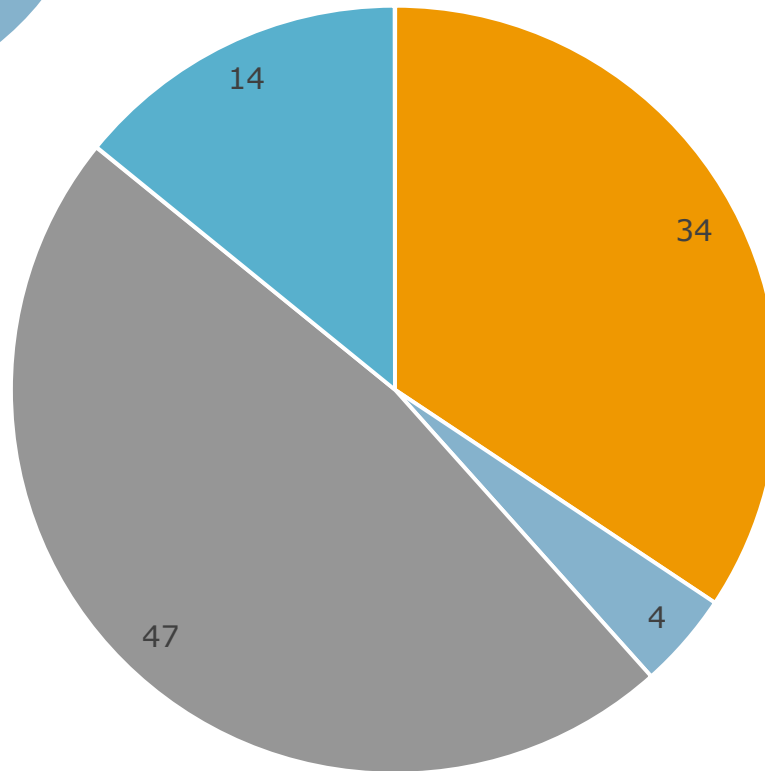
2020

100 published pest categorisations
(until now, July 2019) **103** question numbers

- Agricultural fungi
- Agricultural insects
- Bacteria
- Forest fungi
- Forest Insects



Pest categorisations - Directive 2000/29 status

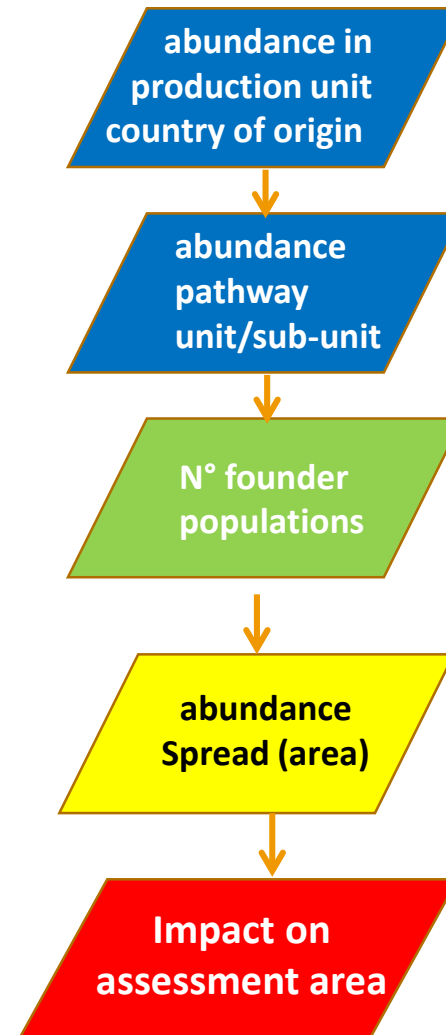


- IAI (introduction banned, not known to occur in the EU)
- IAAI (introduction banned, known to occur in the EU)
- IIAI (introduction banned on certain plants/plant products, not known to occur in the EU)
- IIB (introduction into Protected Zones banned on certain plants/plant products)
- IIA (introduction into Protected Zones not banned on certain plants/plant products)



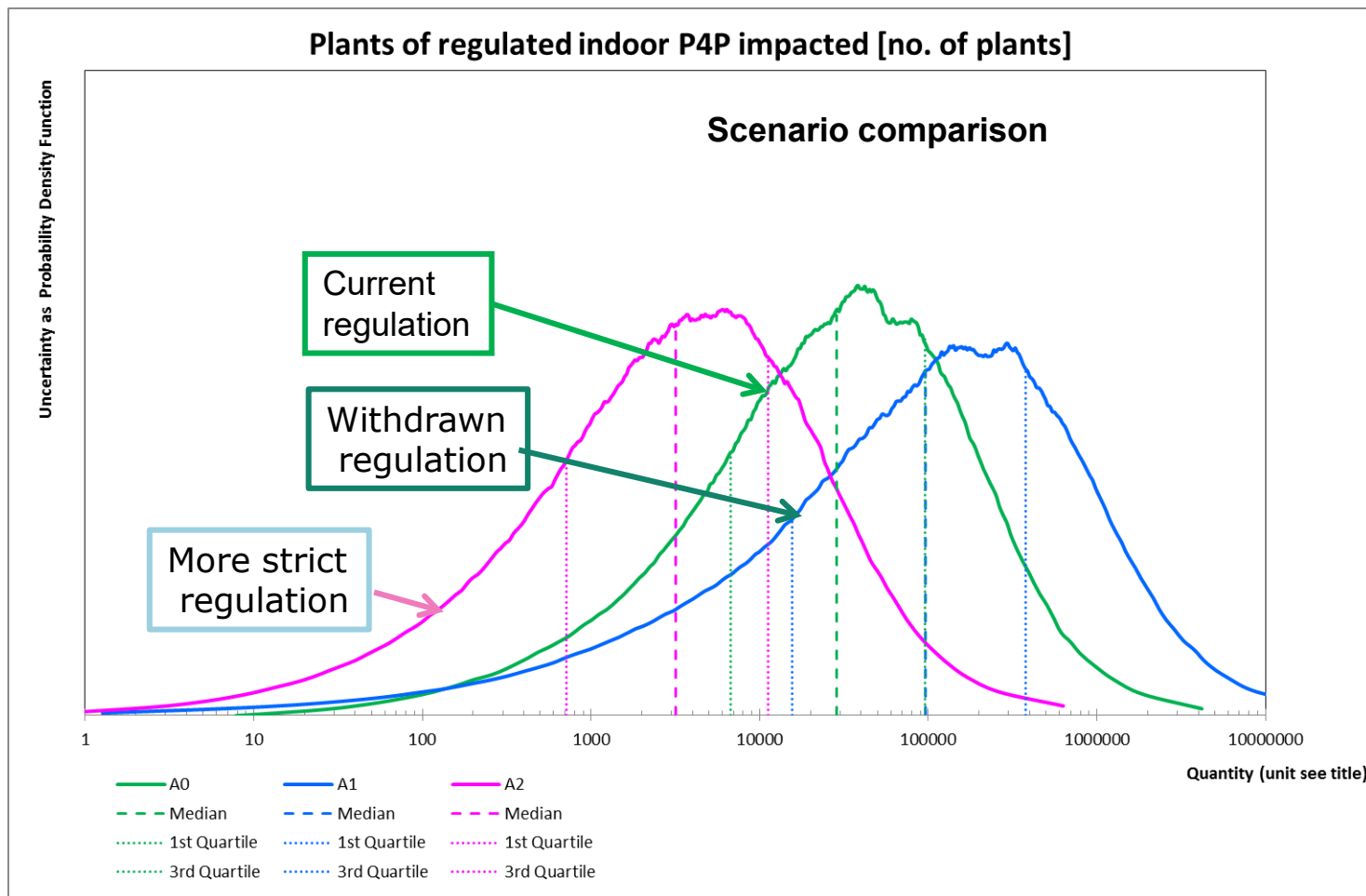
Mechanistic and population-based

- Flow of events and processes: all steps and sub-steps are connected
- Full integration of the Risk Reducing Options in the framework
- Reasoning is based on biological relevance



Step 2 – Quantitative Pest Risk Assessment (PRA)

Quantitative PRA approach allows comparison of scenarios with different intensity of risk reduction options applied – an example on indoors ornamental plants



Step 2 – Quantitative Pest risk assessment tested before issuing the Guidance

Before issuing the Guidance, the new PLH Panel quantitative pest risk assessment methodology was tested with 8 case studies. The case studies and the Guidance are available on the EFSA Journal

GUIDANCE

ADOPTED: 21 June 2018

doi: 10.2903/j.efsa.2018.5350

Guidance on quantitative pest risk assessment

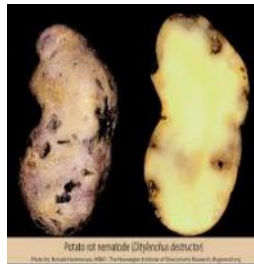
EFSA Panel on Plant Health (PLH),
Michael Jeger, Claude Bragard, David Caffier, Thierry Candresse, Elisavet Chatzivassiliou, Katharina Dehnen-Schmutz, Jean-Claude Grégoire, Josep Anton Jaques Miret, Alan MacLeod, Maria Navajas Navarro, Björn Niere, Stephen Parnell, Roel Potting, Trond Rafoss, Vittorio Rossi, Gregor Urek, Ariena Van Bruggen, Wopke Van Der Werf, Jonathan West, Stephan Winter, Andy Hart, Jan Schans, Gritta Schrader, Muriel Suffert, Virag Kertész, Svetla Kozelska, Maria Rosaria Mannino, Olaf Mosbach-Schulz, Marco Pautasso, Giuseppe Stancanelli, Sara Tramontini, Sybren Vos and Gianni Gillioi

Abstract

This Guidance describes a two-phase approach for a fit-for-purpose method for the assessment of plant pest risk in the territory of the EU. Phase one consists of pest categorisation to determine whether the pest has the characteristics of a quarantine pest or those of a regulated non-quarantine pest for the area of the EU. Phase two consists of pest risk assessment, which may be requested by the risk managers following the pest categorisation results. This Guidance provides a template for pest categorisation and describes in detail the use of modelling and expert knowledge elicitation to conduct a pest risk assessment. The Guidance provides support and a framework for assessors to provide quantitative estimates, together with associated uncertainties, regarding the entry, establishment, spread and impact of plant pests in the EU. The Guidance allows the effectiveness of risk reducing options (RROs) to be quantitatively assessed as an integral part of the assessment framework. A list of



*Flavescence dorée
phytoplasma*



*Ditylenchus
destructor*



Eotetranychus lewisi



Ceratocystis platani



*Cryphonectria
parasitica*



*Radopholus
similis*



Atropellis spp.



*Diaporthe
vaccinii*

EPPO Activities on Pest Risk Analysis

**Initiated in the 1990's first activities were
development of Standards on PRA**

PM 5/3 (5) Decision-support scheme for quarantine pests

**PM 5/5
Analysis**

Mostly used now

Express Pest Risk

Other standards on PRA

- PM 5/1 (1) Check-list of information required for PRA
- PM 5/2 (2) PRA on detection of a pest in an imported consignment
- PM 5/6 (1) EPPO prioritization process for invasive alien plants
- PM 5/7 (1) EPPO Screening process to identify the need for a commodity PRA to import plants for planting
- PM 5/8 (1) Guidelines on the phytosanitary measure 'plants grown under complete physical isolation'
- PM 5/9 Preparation of pest lists in the framework of commodity PRAs

Since 2005 a system in place for performing and reviewing PRAs

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

2019
nearly 400
pests

The addition of a pest to the EPPO lists must be supported by a PRA

PRA prepared by an individual country or another organization e.g. EFSA

PRAs performed by an EPPO Expert Working Group for PRA

PRAs reviewed by the Panel on Phytosanitary Measures, Quarantine Pest for Forestry, Measures for Potatoes or the Panel on Invasive Alien Plants for plants

Recommendation made by the EPPO Council to EPPO members to add the pests to their list of regulated pests.

For the EU PRAs reviewed in the Annexes Working Group

Selection of pests



EPPO Alert List

Purpose of the EPPO Alert List

The main purpose of the Alert List is to draw the attention of EPPO member countries to certain pests possibly presenting a risk to them and achieve early warning. It can also be used by EPPO to select candidates which may be submitted to a Pest Risk Analysis (PRA). Pests are marked with an asterisk* in the table below when a PRA is planned or under development within EPPO. The entry date corresponds to the date when the pest was added to the Alert List. [Read a short introduction to the EPPO Alert List.](#)



EPPO Alert List - last updated in 2019-07

Insects and mites

Name	Main host plants	PRA	Entry date
<i>Agrilus bilineatus</i> (Coleoptera: Buprestidae)	<i>Castanea</i> spp., <i>Quercus</i> spp.		2018-11
<i>Agrilus fleischeri</i> (Coleoptera: Buprestidae)	<i>Populus</i> spp.	*	2018-03
<i>Crisicoccus pini</i> (Hemiptera: Coccidae)	<i>Pinus</i> spp.		2019-01
<i>Dendroctonus valens</i> (Coleoptera: Scolytidae)	<i>Pinus</i> spp.		2019-05
<i>Fiorinia phantasma</i> (Hemiptera: Diaspididae)	Polyphagous		2018-10
<i>Gymnandrosoma aurantianum</i> (Lepidoptera: Tortricidae)	Citrus and other fruit crops		2017-03
<i>Myiopardalis pardalina</i> (Diptera: Tephritidae)	<i>Cucumis melo</i> and other cucurbits		2013-06
<i>Naupactus xanthographus</i> (Coleoptera: Curculionidae)	Fruit trees	*	2018-02
<i>Neodiprion abietis</i> (Hymenoptera: Diprionidae)	<i>Abies</i> , <i>Picea</i> and <i>Pseudotsuga</i>		2017-05
<i>Saperda tridentata</i> (Coleoptera: Cerambycidae) - NEW	<i>Ulmus</i> spp.		2019-06
<i>Xylosandrus compactus</i> (Coleoptera: Scolytidae)	Polyphagous (woody plants)	*	2017-02
<i>Xylosandrus crassiusculus</i> (Coleoptera: Scolytidae)	Polyphagous (woody deciduous plants)	*	2009-03
<i>Xylotrechus chinensis</i> (Coleoptera: Cerambycidae)	<i>Morus</i> spp. (mulberries)		2018-08
<i>Zaprionus indianus</i> (Diptera: Drosophilidae)	Fig (<i>Ficus carica</i>) and other fruit crops		2016-11
<i>Zaprionus tuberculatus</i> (Diptera: Drosophilidae)	Polyphagous (fruit crops)		2016-11

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

**Programme of EWGs and PRA activities in 2019-2020:
Camille will tell you more!**

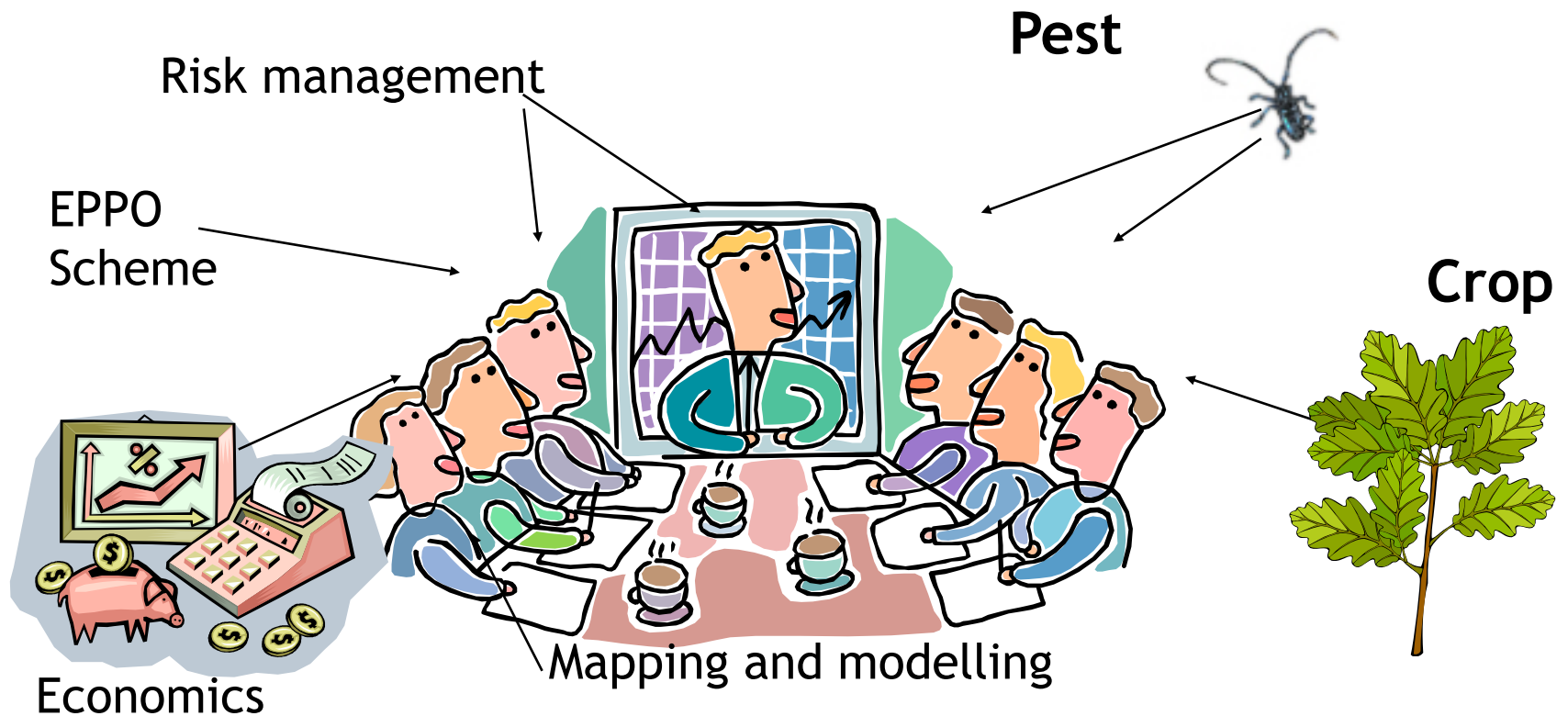
EPPO Expert Working Groups for PRA

Core members + *ad hoc* members

Objectives:

Perform risk assessment
Identify the endangered area
Identify risk management options

Since 2005 approx
5 EWG organized
per year





About institute

European and Mediterranean Plant Protection Organization

- **Name:** European and Mediterranean Plant Protection Organization
- **Acronym:** EPPO
- **Website:** <https://www.eppo.int>

183 PRA prepared or reviewed at EPPO level

<https://pra.eppo.int/>

List of PRAs published

Title	Date PRA	Date publication
Search...	Search...	Search...
DROPSA report of Vitis - fruit pathway and alert list	2016-12-31	2018-11-08
DROPSA report on Apple - fruit pathway and alert list	2016-12-30	2018-10-12
DROPSA report on Oranges and mandarins- fruit pathway and alert list	2016-12-30	2018-09-14
DROPSA report on Vaccinium- fruit pathway and alert list	2016-12-30	2018-11-28
EPPO Express PRA for Ambrosia confertiflora	2018-12-17	2018-12-17
EPPO Express PRA for Andropogon virginicus	2018-09-27	2018-10-25
EPPO Express PRA for Cortaderia jubata	2018-09-27	2018-10-25
EPPO Express PRA for Ehrharta calycina	2018-09-27	2018-10-25
EPPO Express PRA for Gymnocoronis spilanthoides	2017-09-30	2018-11-08
EPPO Express PRA for Hakea sericea	2018-09-27	2018-10-25
EPPO Express PRA for Humulus scandens	2018-09-27	2018-10-25
EPPO Express PRA for Lespedeza cuneata	2018-09-27	2018-10-25

Main difference at present EFSA is mainly evaluating pests regulated by the EU and EPPO is evaluating new pests usually not regulated in the EPPO region

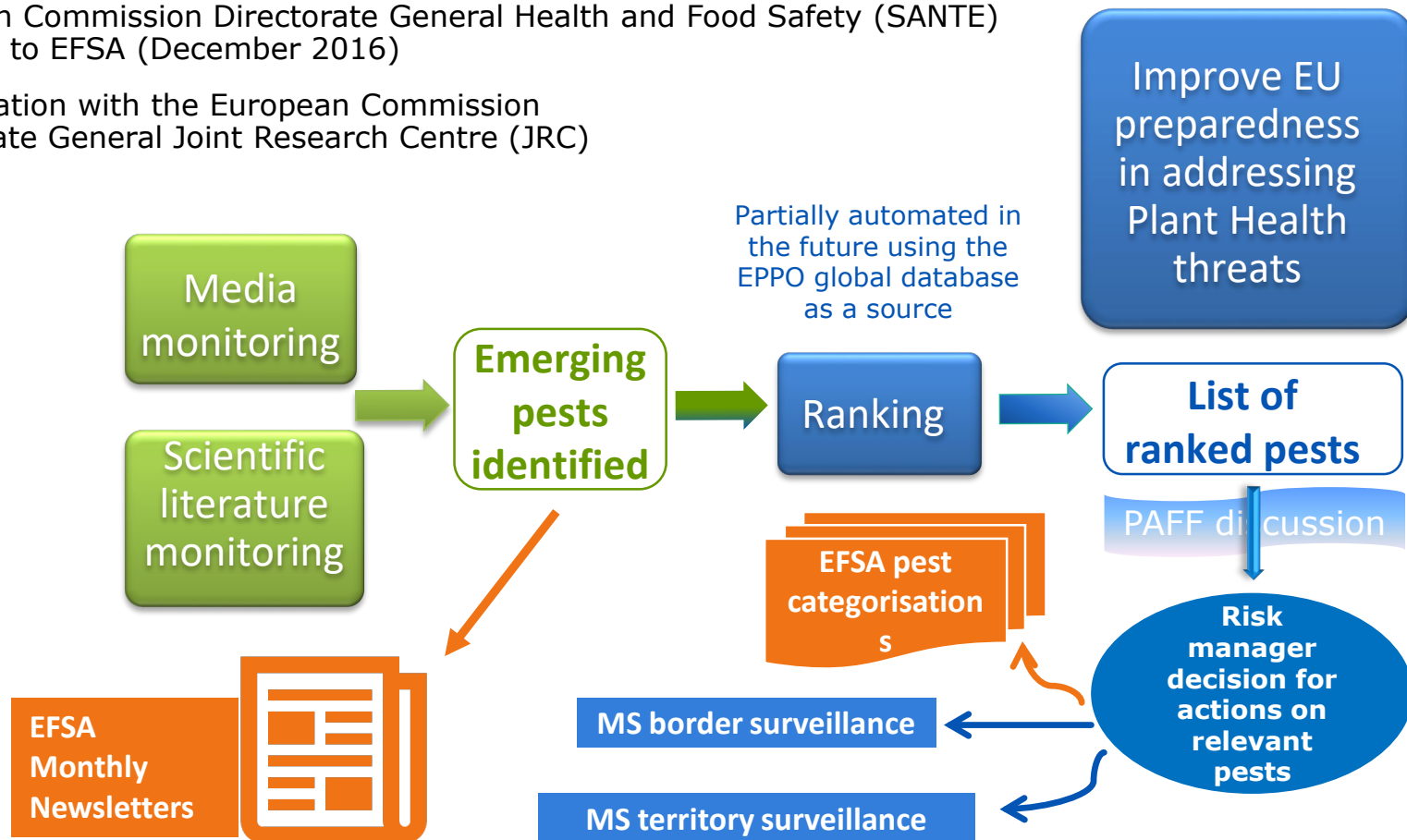
Early warning/horizon scanning Complementary activities



Horizon Scanning Project

European Commission Directorate General Health and Food Safety (SANTE)
Mandate to EFSA (December 2016)

Collaboration with the European Commission
Directorate General Joint Research Centre (JRC)



Horizon Scanning Project



MEDISYS IT platform for media and literature monitoring on more than 500 pests plus emerging ones
24 000 sources

- Top Stories
- Event Extractor
- Recent Disease
- Alert Statistics
- Communicable
- Symptoms
- Bioterrorism
- Nuclear
- Chemical
- ECDC
- EFSA
- EMCCDA
- Medical Devices
- Other
- Continents
- Official Sources
- Sources List



EFSA



- PlantHealthVirus
- PlantHealthViroids
- PlantHealthBacteria
- PlantHealthPhytoplasma
- PlantHealthFungi
- PlantHealthOomycetes
- PlantHealthParasiticPlants
- PlantHealthInsects
- PlantHealthNematodes
- PlantHealthMolluscs
- PlantHealthArachnids
- PlantHealthOther
- PlantHealthCommunications
- PlantHealthOthers
- PlantHealthCommunications

So far, 28 media and 7 pilot scientific newsletters

Monthly newsletters to the attention of EC and EU NPPOs

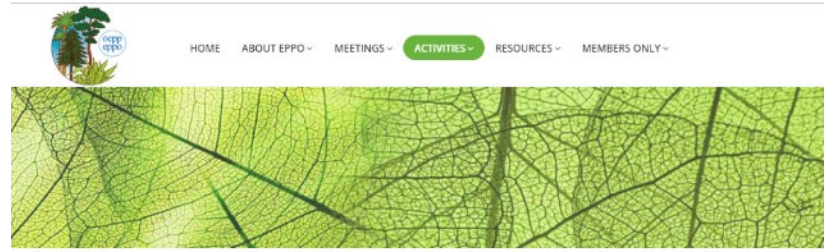
EFSA Plant Health section in MEDISYS with World map for articles distribution



EPPO early warning/horizon scanning (part of the strategy)

- Manage an early warning system (Alert List) and maintain a database (GD/PQR)
- Evaluate the risks presented by emerging pests (Pest Risk Analysis)
- Make recommendations on pests which should be regulated in the EPPO region





EPPO Alert List

Purpose of the EPPO Alert List

The main purpose of the Alert List is to draw the attention of EPPO member countries to certain pests possibly presenting a risk to them and achieve early warning. It can also be used by EPPO to select candidates which may be submitted to a Pest Risk Analysis (PRA). Pests are marked with an asterisk* in the table below when a PRA is planned or under development within EPPO. The entry date corresponds to the date when the pest was added to the Alert List. [Read a short introduction to the EPPO Alert List.](#)



EPPO Alert List – last updated in 2019-04

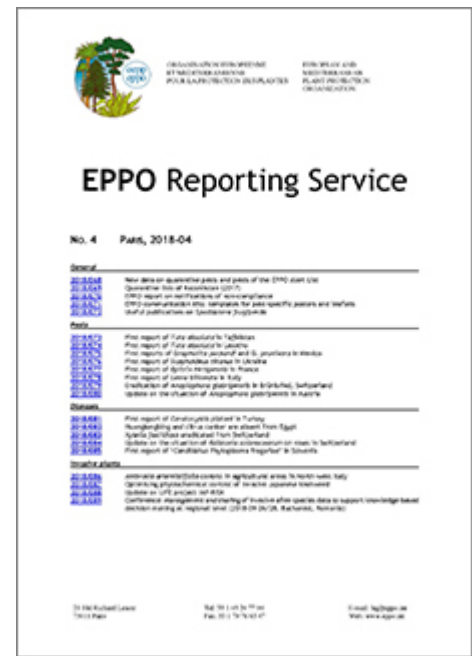
Insects and mites	Main host plants	PRA	Entry date
<i>Agrilus billineatus</i> (Coleoptera: Buprestidae)	Casimirev spp., Quercus spp.		2018-11
<i>Agrilus fleischeri</i> (Coleoptera: Buprestidae)	Populus spp.	*	2018-03
<i>Contarinia pseudotsugae</i> (Diptera: Cecidomyiidae)	<i>Pseudotsuga menziesii</i>		2016-01
<i>Crisococcus pini</i> (Hemiptera: Coccidae)	Pinus spp.		2019-01
<i>Floricola phaeosoma</i> (Hemiptera: Diaspididae)	Polythagus		2018-10

- Initiated in 1999
- Suggests possible candidates for Pest Risk Analysis
- Freely available on the EPPO website: www.eppo.int/QUARANTINE/Alert_List/alert_list.htm

EPPO Reporting Service – Pests & Diseases

Issues back to 1974 available online

Review of publications



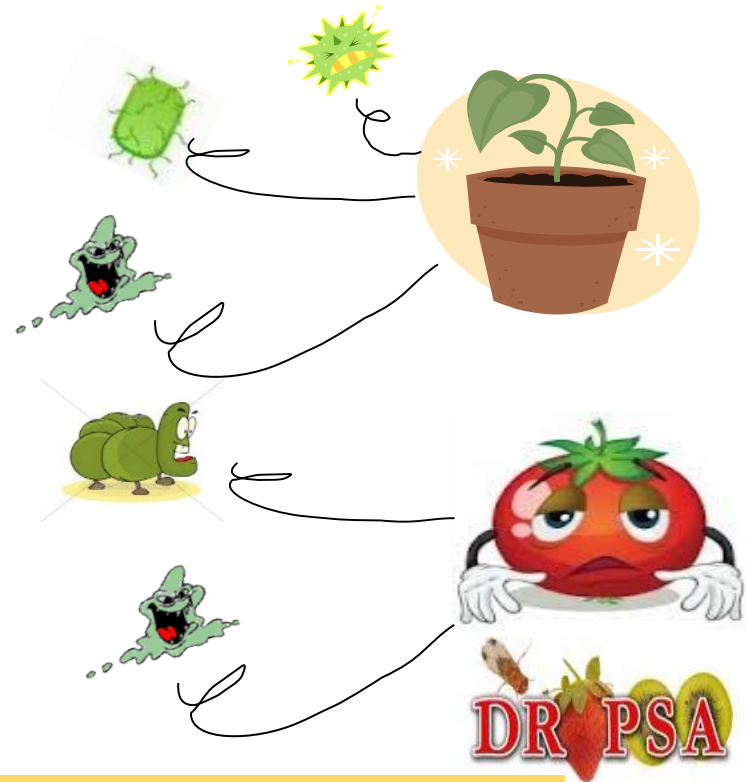
Other risk assessment activities to support biosecurity in Europe



Special projects and EPPO studies

EPPO Study on the Risks of Imports of Plants for Planting

EPPO pathway analysis on pest associated with fruits (tomato, apple, orange grapes...)



Guidance on buffer zones, enhancing consistency in phytosanitary measures recommended by EPPO
(you will learn more in Camille's talk!)

Review of EPPO's approach to Pest Risk Analysis»

All documents on

https://www.eppo.int/ACTIVITIES/plant_quarantine/pr_a_activities

High Risk Plants commodities risk assessment



WILL BE DESCRIBED IN A DEDICATED PRESENTATION

2-year mandate (2017-2019) supporting Commission Joint Research Centre

- Methodology development for ranking the **28** candidate priority pests
- Data provision on potential establishment capacity in the EU at NUTS2 level
 - potential consequences (e.g. crop losses in terms of yield and quality, needs for additional control measures, difficulty of eradication in terms of spread capacity and time required to detect a new outbreak).

Table 4: Fitted values of the uncertainty distribution on turf of sport fields

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	98%	99%
Expert elicitation	1%				4%	7%	11%								20%
Fitted distribution	0.5%	0.9%	1.4%	2.2%	3.1%	4.2%	5.1%	7.0%	9.4%	10.8%	12.7%	14.8%	17.4%	19.8%	22.7%

Fitted distribution: Weibull(1.6156,0.08833), @RISK7.5

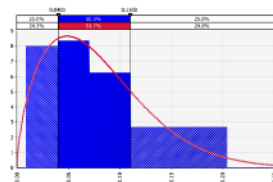
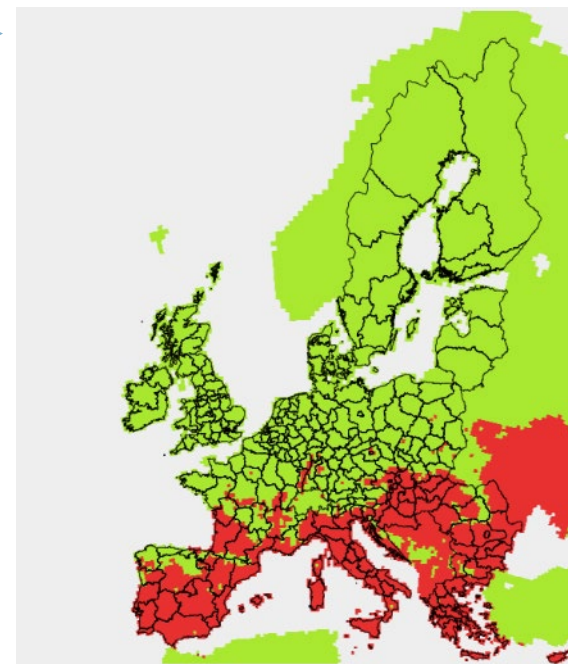


Figure 4 Comparison of judged values (histogram in blue) and fitted distribution (red line) for yield loss on turf of sport fields.

Expert Knowledge Elicitation

Impacts mapping



1 scientific report on EFSA Journal 2019;17(6):5731, 61 pp.
<https://doi.org/10.2903/j.efsa.2019.5731>
 + 28 supporting publications on Zenodo

Activities on surveillance to support biosecurity in Europe



➤ The Background

PLH regulation EU 652/2014:

Commission co-financing programme of the annual MS survey enhances the survey capacity in EU MSs

PLH regulation (EU 2016/2031):

- an extra focus on prevention and risk targeting is given with the new plant health regime
- a need for harmonized pest surveillance to inform both the EU risk management and risk assessment

➤ The European Commission Request to facilitate the MSs

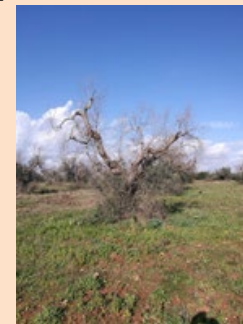
- in their [planning and execution of their survey activities](#)
- to provide [practical and concise outputs](#)
- address all pests of the survey work program 2018-2020
- Provide guidelines for surveillance for [3 pilot organisms](#)



EFSA Toolkit for pest surveys

Pest survey cards

52 pests in the work program of the MS



Survey guidelines

- General
- Specific for 3 organisms

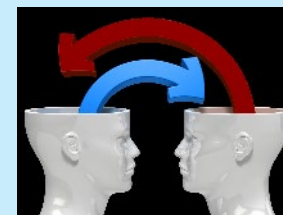
Xylella fastidiosa
Agilus planipennis
Phyllosticta citricarpa



Support to MSs

Workshops

- Statistical tools: RiBESS+
- Tailored pest survey design



Inspection Standards

Inspections performed to detect pests

on consignments (imported or exported)



for the surveillance of their territory (in fields, nurseries glasshouses....), in the framework of eradication programmes



Need for a harmonized approach for regulated pests in the EPPO region

Recently adopted Standards and standards in development

- Inspection Standard on Inspection of places of production for *Candidatus* Phytoplasma pyri
- Draft inspection Standard on wood chips
- Draft inspection Standard on citrus fruit consignments
- Draft inspection Standard on grape vine places of production



<https://gd.eppo.int/standards/PM3/>

How do EPPO & EFSA collaborate?





A closer collaboration between EFSA and EPPO was an evidence!



Both organization have

- Key roles to play in supporting effective protection of plant health in Europe
- Relying on the same pool of expertise
- Different remits and legal foundations but publicly funded work in the field of plant health.

Need to collaborate and avoid duplication

2011, agreement between the Executive Director of EFSA and the EPPO Director-General:

“Plans should be made for collaboration in order to avoid duplication of work and encourage synergies”.

Joint EFSA-EPPO Workshops

‘Data collection and information sharing in plant health’ in May 2014

Modelling in Plant Health – how can models support risk assessment of plant pests and decision making?

December 2016

Exchange of Work programme and participation in each other meeting

Data from Global Database used in EFSA assesment and feedback provided by EFSA to improve the content of Global database (e.g. geographical distribution)

EPPO EFSA ROAD MAP

**Contribute together to
safeguarding plant health**



**Thanks to all experts who
contribute with EPPO and EFSA
and for your attention**