The European and Mediterranean Plant Protection Organisation

EPPO activities on PRA - update

Event: EEC/EPPO Workshop on Regulated Pests: risk analysis and listing

Date: 2018-06-6/8

Martin Ward (Director General) - hq@eppo.int

- Update on EPPO
- Issues with Pest Risk Analysis
- EPPO review of PRA methodology

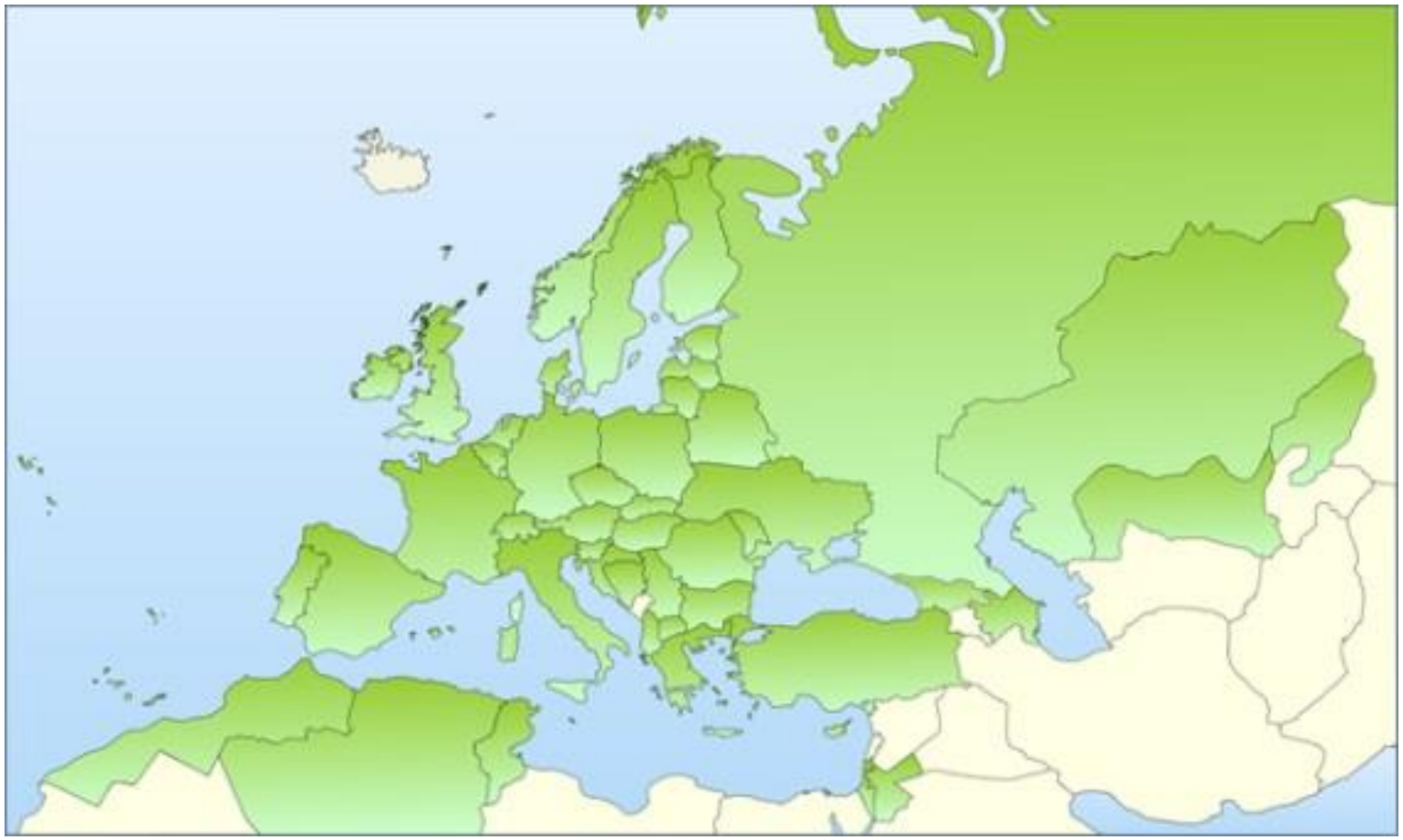
Update on EPPO

Event: EEC/EPPO Workshop on Regulated Pests: risk analysis and listing

Date: 2018-06-6/8

Martin Ward (Director General) - hq@eppo.int

1951 EPPO Convention – 15 countries
Now 51 member countries (soon 52)
Two Permanent Observers (EEC and EC)
One of 10 RPPOs recognised under IPPC



Remit

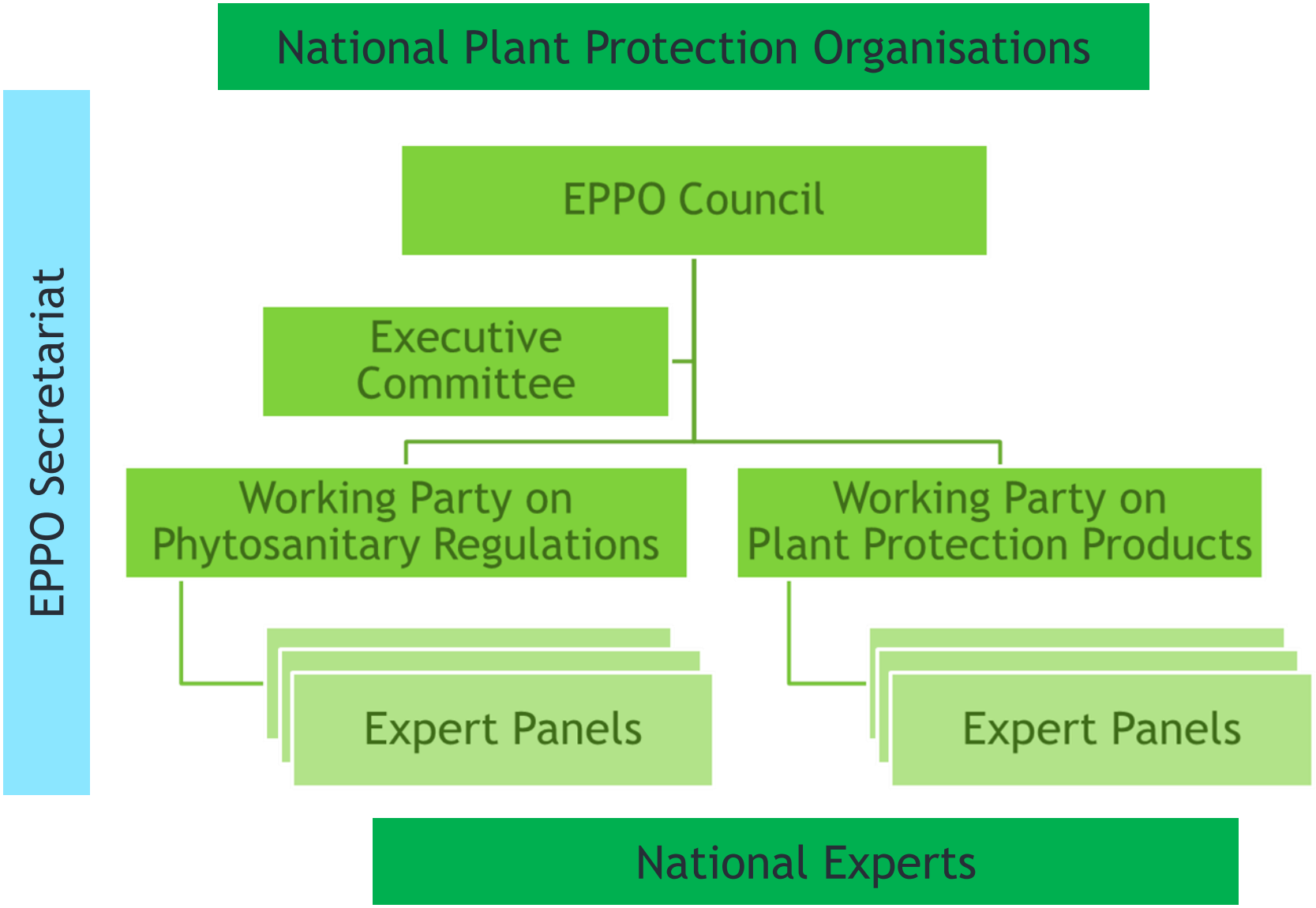
- Plant quarantine
- Plant certification and Regulated Non Quarantine Pests
- Invasive alien plants
- Biological control agents
- Efficacy of plant protection products

by:

- Drafting and adoption of regional technical standards
- Input to development of international standards
- Sharing information and expertise through networks

EPPO hosts Euphresco and the EU Minor Uses Co-ordination Facility which have their own funding and governance

Organisation



Active Panels

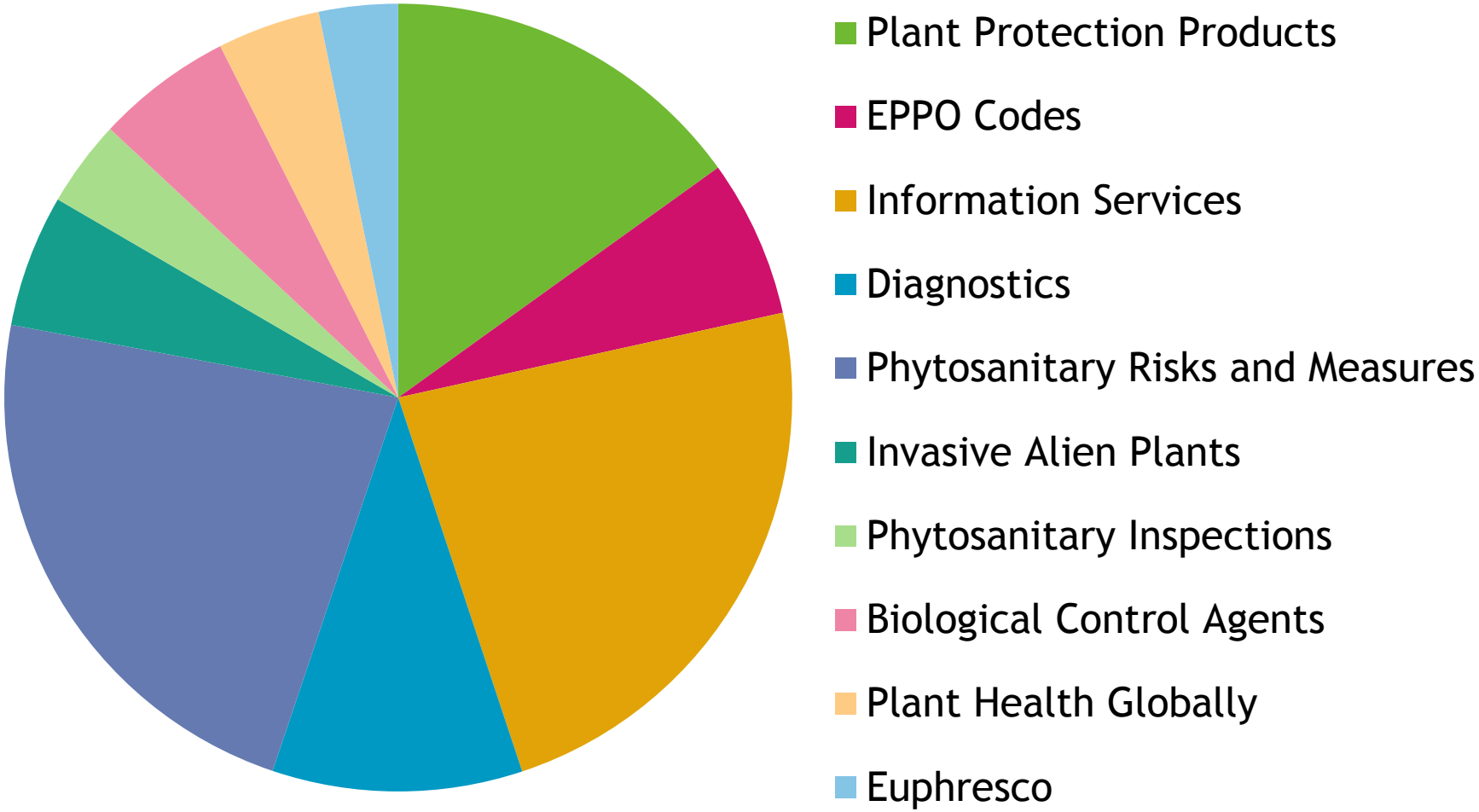
Plant Protection Products

- General Standards
- Herbicides
- Insecticides and Fungicides
- Resistance
- Harmonisation of Data Requirements

Phytosanitary Regulations

- Global Phytosanitary Affairs
- Phytosanitary Measures
- Forestry
- Potatoes
- Inspection Procedures
- Information
- Diagnostics (General) +
  - Entomology
  - Nematodes
  - Bacteria
  - Fungi
  - Virology
- Invasive Alien Plants
- Biological Control Agents

Core programme spend by activity



Risks and Measures

Achievements in 2017 included

- Listing of 9 plant pests and 4 alien invasive plants
- Pest Risk Analysis (PRA) for rose rosette virus and vectors
- Pest Risk Analysis (PRA) for *Massicus raddei*
- New PM9 Standard on zebra chip pathogen and vector
- Revision of PM9 Standard on *Bursaphelenchus xylophilus*

Plans for 2018 include

- Review of EPPO PRA process
- PRAs on
  - Bark beetles on non-coniferous wood
  - Grapevine red blotch associated virus
- New Standard on "sentinel plants"
- Platform to share information on national PRAs
- Guidance on setting buffer zones for quarantine pests

Newly recommended for regulation in 2017

- Candidatus *Phytoplasma phoenicium*
- *Bactrocera latifrons*
- *Ceratothripoides brunneus*
- *Ceratothripoides claratris*
- *Prodiplosis longifila*
- *Thekopsora minima*
- *Platynota stultana*
- *Salvinia molesta*
- *Pistia stratiotes*
- *Gymnocoronis spilanthoides*
- *Cardiospermum grandiflorum*

'*Candidatus* Phytoplasma phoenicium'

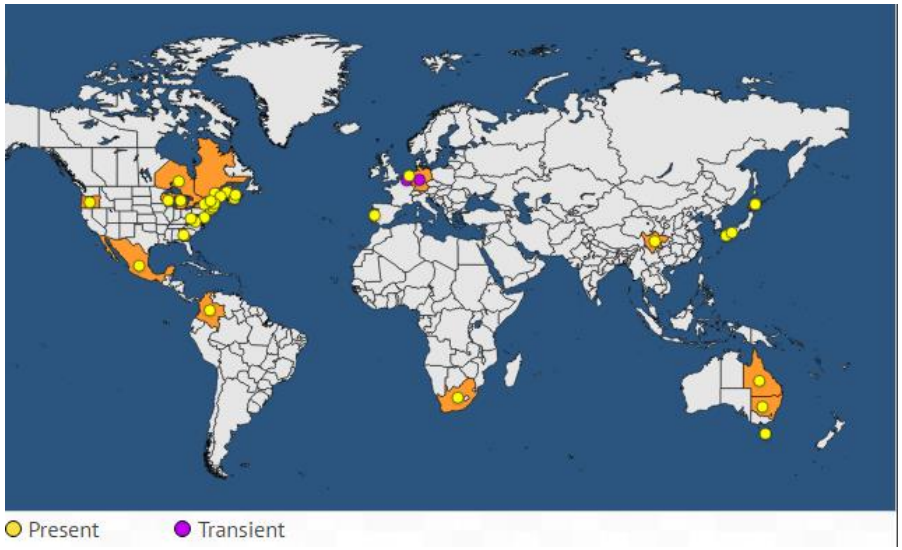
- almond witches' broom
- Transmitted by grafting and by insect vectors
- Vectors: leafhoppers or planthoppers *Asymmetrasca decedens* (Cicadellidae) + *Tachycixius* species + others?
- Vectors in Iran not known
- Only reported from Lebanon and Iran
- Host plants: Prunus species (+ weeds)

Conclusions *Phytoplasma phoenicium*

- Endangered area: where almond, peach, nectarine and apricot are cultivated and known vectors occur = Mediterranean Basin and Portugal, north to the southern part Germany and East towards the West of Russia, as well as the Near East and Central Asia
- Phytosanitary risk: high with medium uncertainty
- Entry: plants for planting (partly regulated for EU: Iran but not Lebanon) and natural spread to neighbouring countries
- Measures to reduce probability of entry:
  - Prunus plants for planting (except seed):
    - from a Pest Free Area or
    - grown under physical isolation or
    - tested in vitro plants

Thekopsora minima (Blueberry rust)

- Heteroecious rust (leaves of ericaceous plants / needles of *Tsuga* spp.)
- Main hosts :
  - *Vaccinium angustifolium*, *V. ashei*, *V. corymbosum*, *V. erythrocarpum*
  - *Other* Ericaceae (incl. *Rhododendron)*
  - Alternate host: *Tsuga* spp.
- Damage: defoliation, premature fruit drop

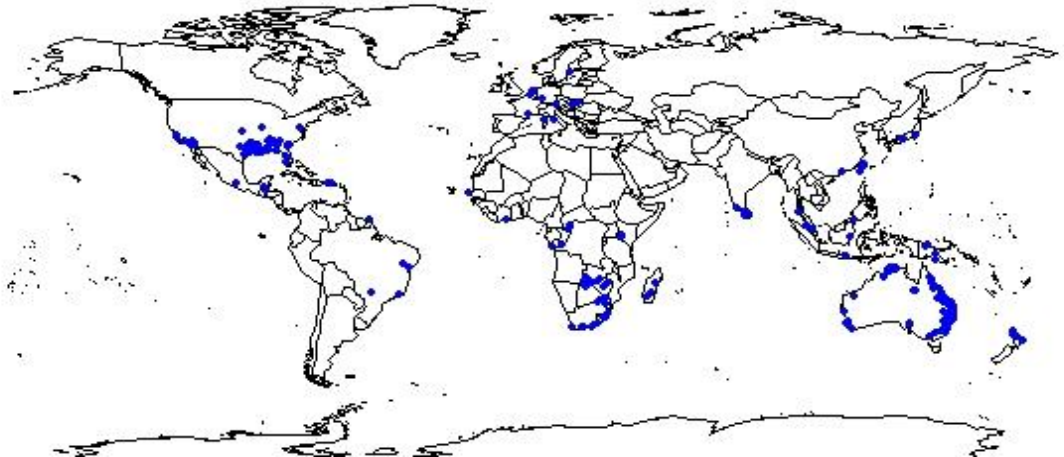


Conclusions *Thekopsora minima*

- Endangered area: where hosts are grown (outdoor and indoor), in particular evergreen *Vaccinium*. Damage higher in warm and wet conditions
- Phytosanitary risk: moderate with moderate uncertainty (very high impact if wild European *Vaccinium* spp susceptible)
- Measures to reduce probability of entry:
  - *Vaccinium* plants for planting (except seeds, tissue cultures, pollen): PFA, or Grown under complete physical isolation, or systems approach
  - Other host plants (*Tsuga*, other Ericaceae*):* no measure as low probability of entry (with moderate uncertainty)
  - No measures for fruit (but producers should be encouraged not to import bulk fruit to be repacked in place of production)

Salvinia molesta Des.

- Native: S. America,
- Introduced: Africa, Asia, North America, Australia
- EPPO: Austria, Belgium, France, Germany, Italy, Netherlands, Portugal
- Habitats threatened: Fresh water
- Pathways: Plants for planting, contaminant of plants for planting and leisure equipment
- Impacts: ecosystem service impacts and biodiversity



<u>Recommended for regulation</u>
Phytosanitary risk: High
Uncertainty: Moderate

Phytosanitary Inspections

Achievements in 2017 include

- Inspectors Workshop in December in UK - wood packing material (ISPM 15) and new detection technologies
- One new Standard adopted (inspection of *Fragaria* plants)

Plans for 2018 include

- Standards for adoption on
  - inspection of vines
  - inspection for *Phytoplasma pyri*
- Standards under development on
  - inspection of wood commodities
  - inspection of citrus fruit
- Contingency exercise workshop on a forest pest outbreak - Zlatibor, Serbia 27-29 November

Diagnostics

Achievements in 2017 include

- Standard on Reference Laboratories adopted
- Workshops on flexible scope, nematode collections, DNA barcoding, and Next Generation Sequencing (NGS)
- 2 new and 9 revised diagnostic protocols adopted
- Over 130 pests now covered by EPPO Diagnostic Protocols

Plans for 2018 include

- Prepare Standard on NGS by 2020
- Draft new section of Standard PM 7/76: communications between diagnosticians and risk managers and how to express the uncertainty around a diagnosis

Information services

Achievements in 2017 included

- Continuing "don't risk it" campaign to passengers
- "Toolkits" on specific pests for member countries to use in awareness campaigns developed for three example pests:
  - *Popillia japonica*
  - *Agrilus planipennis*
  - Citrus greening (Huanglongbing)

Plans for 2018 include

- New website - easier to update
- Increasing number of EPPO Codes to support e-Phyto
- Project to revise datasheets and link to EPPO databases
- Developing Standard on raising public awareness

How to recognize it?

Adult beetles are about 10-12 mm long with iridescent copper-coloured elytra and metallic green thorax and head. The presence of 12 tufts of white hair can be seen on their body (5 along each side of the abdomen and 2 larger ones near the bottom end). The presence of these white hair tufts is quite distinctive of *Popillia japonica*. Adults can be seen mainly during late spring and summer. Other stages of the insect (eggs, larvae and pupae) live in the soil and are therefore more difficult to see. In addition, their identification is more complex.

Please help us!

Because *Popillia japonica* can seriously damage many wild and cultivated plants, it is important to report any sightings to plant protection authorities. Early detection will allow a rapid implementation of appropriate measures against *Popillia japonica*.

If you see *Popillia japonica*:

- Check the presence of tufts of white hairs on both sides of the abdomen
- Whenever possible, take a picture of the insect, record exact location and the name of the host plants on which it was observed
- Contact us (see below)

Contact details

CAN YOU HELP US?

Popillia japonica

An insect pest threatening our lawns, wood and crops

Logo and name of authority

Prepared in collaboration with EPPO – www.eppo.int

What is *Popillia japonica*?

Popillia japonica is a beetle originating from Japan which has been inadvertently introduced into other parts of the world such as the Azores islands and the USA. These introductions most probably resulted from human-mediated activities (e.g. agricultural trade, transports). In summer 2014, *Popillia japonica* was found for the first time in continental Europe. It was discovered in several localities near Milano in Italy. *Popillia japonica* is considered to be a serious threat to cultivated and wild plants.

At present, *Popillia japonica* has not been detected in XXX. However, in the event of its introduction in XXX, its presence should be reported immediately to us.

Damage

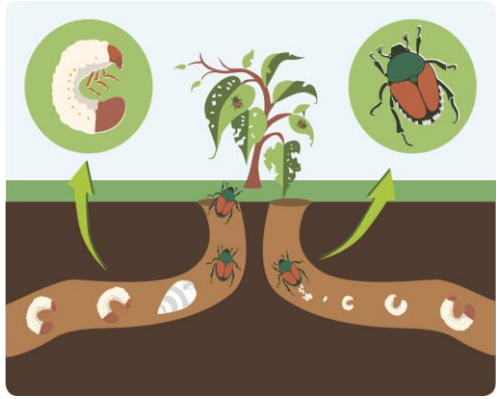
Larvae consume plant roots and are particularly damaging in lawns and meadows. Adult beetles are voracious feeders and can attack many different plant species (approximately 300 wild and cultivated plant species). Among the most vulnerable plants the following can be mentioned: apple, bramble, grasses, elm, grapevine, linden, maize, maple, rose, peach, soybean.

The adults skeletonize leaves by chewing out the tissue between the veins, thus leaving a vein skeleton. They can also feed on flowers and fruit. The adults are gregarious and many beetles group together on a single plant, so individual plants or trees may be completely defoliated.

Biology

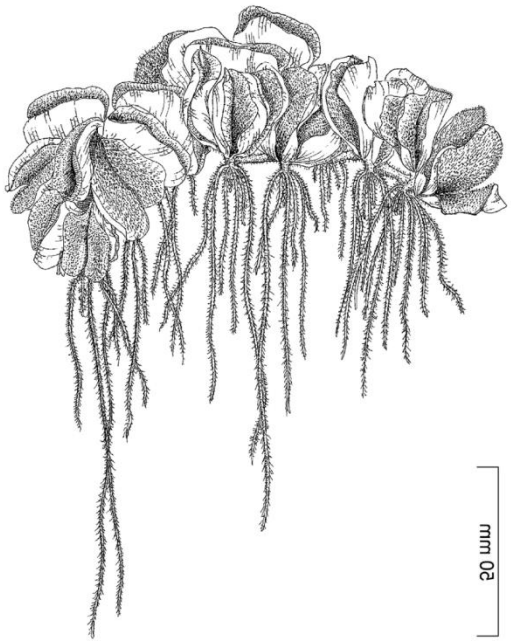
Popillia japonica (Coleoptera: Rutelidae) usually produces one generation per year but under cold climates, the life cycle can be extended to two years. Adult beetles usually emerge from the soil in May/June and mate. Females lay eggs in the soil. After hatching, larvae (white grubs) develop in the soil where they feed on roots of grasses. The insect overwinter in a larval stage in the soil. In spring, larvae resume feeding and become pupae (metamorphosis). After emergence, adult start feeding on the aerial parts of the plants and a new cycle begins again.

Life cycle



How to recognize it?

Salvinia molesta is a free-floating fern. The three growth stages (primary, secondary and tertiary), may make identification of the species difficult. The small-leafed primary stage is typical of plants invading open water. The secondary form is slightly larger with leaves slightly folded, and the tertiary stage is typical of mature stands with larger deeply folded and densely packed leaves. The species' fronds are positioned in whorls of three along a rhizome, with individual plants growing up to 30 cm.



Can you help us?

Because *Salvinia molesta* has the potential to seriously impact the habitats it invades, including native plant species, associated insects and important ecosystem services, it is important to report any sightings to plant protection authorities. Early detection will allow a rapid implementation of appropriate measures against *Salvinia molesta* .

If you see *Salvinia molesta* :

- Check the identification of the species with other aquatic native plants.
- Whenever possible, take a picture of the plant, record exact location, date and habitat where it was observed.
- Contact us.

Contact us

Your contact details

This leaflet has been prepared within the LIFE funded project LIFE15 PRE FR 001

BE AWARE!

Salvinia molesta

A threat to waterways in the EPPO region

Your institution name
Logo

Prepared in collaboration with EPPO – www.eppo.int

Two activities hosted by EPPO with their own funding and governance

Euphresco (Plant Health Research Co-ordination)

- Started as an EU supported ERA-net in 2006
- Since 2014 a self sustaining network of partners who are funders and managers of plant health research
- Annual call for transnational research projects
- 2016 - 20 projects, total budget 2.5m€
- 2017 - 8 projects, total budget 1.3m€
- Projects typically small and short (relatively)
- All EPPO countries are now Euphresco members
- Additional members within EPPO region and beyond

EU Minor Uses Co-ordination Facility

- Started work September 2015
- Funded initially by EU, FR, DE and NL
- Uses "... in a particular Member State on plants ... which are not widely grown in that Member State, or ... to meet an exceptional plant protection need"
- Includes uses on newly arrived pests for which no approved products may be available!

MinorUses
EU Minor Uses Coordination Facility

Issues with Pest Risk Analysis

Event: EEC/EPPO Workshop on Regulated Pests: risk analysis and listing

Date: 2018-06-6/8

Martin Ward (Director General) - hq@eppo.int

Issues with Pest Risk Analyses

- Can we do them early enough?
- Can we do enough of them?
- Do the analyses answer the right questions?
- Can a single process identify the right status for a pest
  - Quarantine Pest
  - Regulated Non Quarantine Pest
  - Alert List
  - Emerging pest
  - Other
- What do we mean by Pest Risk Analysis?
- What is the phytosanitary services role in pests which are "emerging" but not appropriate to regulate?

Pest Risk Analysis vs pest risk analysis

- pest risk analysis = analysis of pest risks to decide what to do about them

- Pest Risk Analysis (PRA) = defined process to justify regulation and measures in WTO context

Pest Risk Analysis (PRA)

IPPC (1951, revised 1997)

- "Contracting parties may require phytosanitary measures for quarantine pests and regulated non-quarantine pests, provided that such measures are:
  - (a) no more stringent than measures applied to the same pests, if present within the territory of the importing contracting party;

    and
  - (b) limited to what is necessary to protect plant health and/or safeguard the intended use and can be technically justified …. "

Pest Risk Analysis (PRA)

IPPC (1951, revised 1997)

- Technically justified = justified on the basis of conclusions reached by using an appropriate pest risk analysis or, where applicable, another comparable examination and evaluation of available scientific information.
- 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

Pests may be regulated as ...

- Quarantine Pest: "A pest of potential economic [including environmental] importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled"
  = for protection of an area
- 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"
  = for protection of a producer or production system
- **Pests = invertebrate pests, pathogens, invasive plants**

PRA may be started because

- a request is made to start a new import trade (depends on trade being prohibited if not assessed)
- some other pathway is identified (e.g. packing material)
- an outbreak of a pest is found in a new area
- there is other evidence of increased risk from a pest
- a dispute arises on phytosanitary measures

International Standards on Pest Risk Analysis

- ISPM No. 2 (1996 rev 2007) Framework for PRA
- ISPM No. 11 (2004 rev 2013) PRA for quarantine pests
- ISPM No. 21 (2004) PRAs for regulated non-quarantine pests

Available on www.ippc.int

EPPO Standards on PRA

Help assessors to address the elements in International Standards through a logical sequence of questions

- 1992 PM 5/1 Check-list of information for PRA
- 1992 rev 2001 PM 5/2 PRA for interceptions
- 1997 rev 2011 PM 5/3 PRA scheme
- 2012 PM 5/5 Express PRA scheme

Available on www.eppo.int

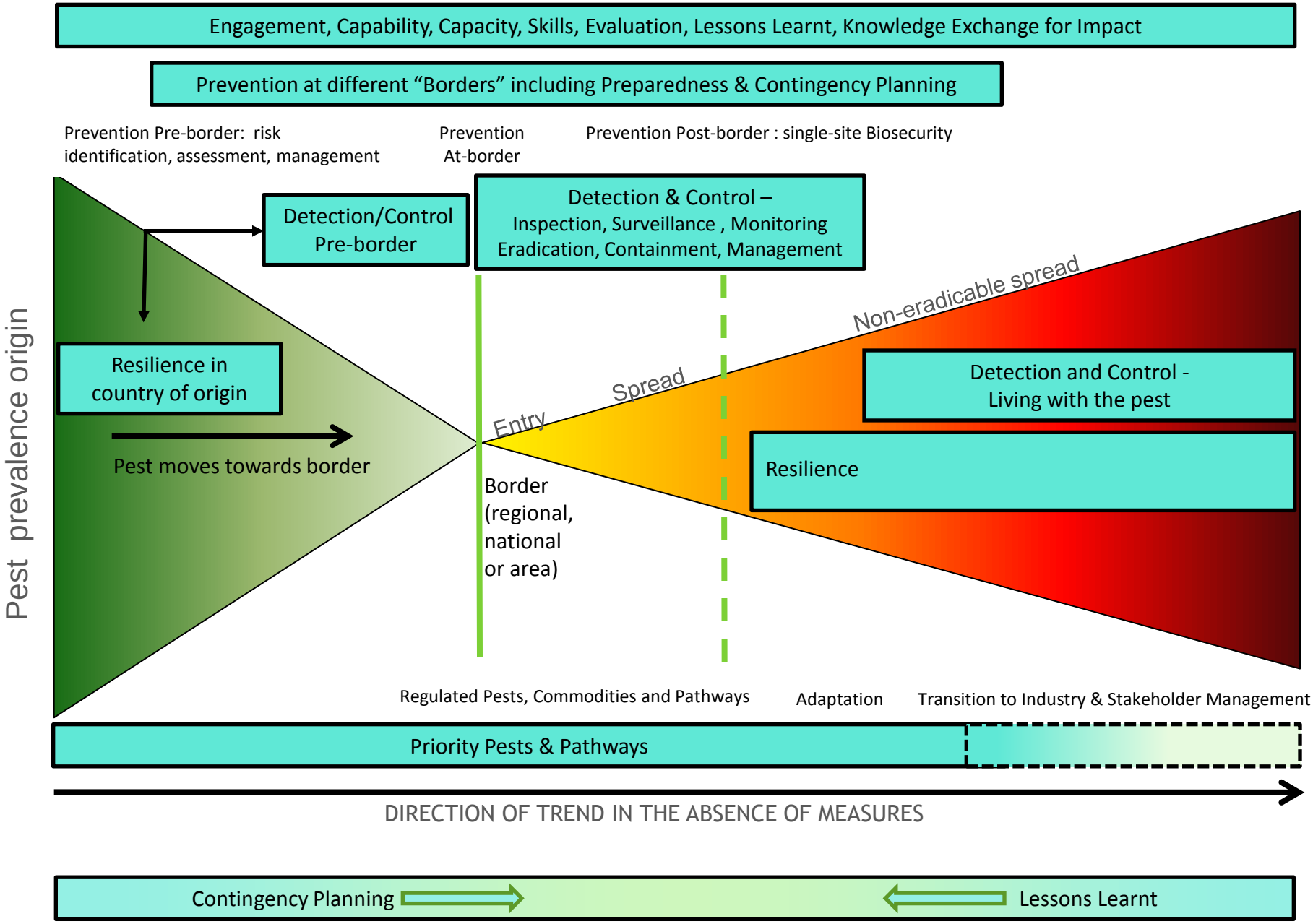
EPPO Standards on PRA

Help assessors to address the elements in International Standards through a logical sequence of questions

- 1992 PM 5/1 Check-list of information for PRA
- 1992 rev 2001 PM 5/2 PRA for interceptions
- 1997 rev 2011 PM 5/3 PRA scheme
- 2012 PM 5/5 Express PRA scheme

Available on www.eppo.int

Can we do PRAs early enough?



Source: Adapted from a diagram by Bob Griffin, USDA APHIS PERAL, by Alan McLeod and Glyn Jones, Fera, UK, with help from Defra colleagues

Can we do PRAs early enough?

- The more a pest spreads the more information is available for a PRA, but the less chance of taking successful measures
- Need to gather data "beyond the horizon"
- Global collaboration
  - Reporting of pest movements through IPPC
  - Euphresco research network
  - Sentinel plants networks
  - Experts from other regions in EPPO Expert Working Groups

Can we do enough PRAs?

… for the number of PRAs needed, globally …

If …

Number of trades (genus/category) e.g. apple fruit

= 1000

Number of potential pests on each trade

= 100

Number of exporting countries

= 200

Number of importing countries

= 200

Number of PRAs required to ensure appropriate measures are in place = 4×10^9

Can we do enough PRAs?

- Need to group pests, or countries, or trades
- Need for rapid screening approaches as well as detailed PRAs
- Need to collaborate!

Do PRAs answer the right questions?

Challenges - PRA is too complex!

- Over 100 questions in EPPO PRA scheme
- Time to draft plus a week of experts' time to review
- Costs EPPO 10-20k€ per PRA, plus the time input of national experts
- May be too long for risk managers to read
- EPPO can only do a few pests each year

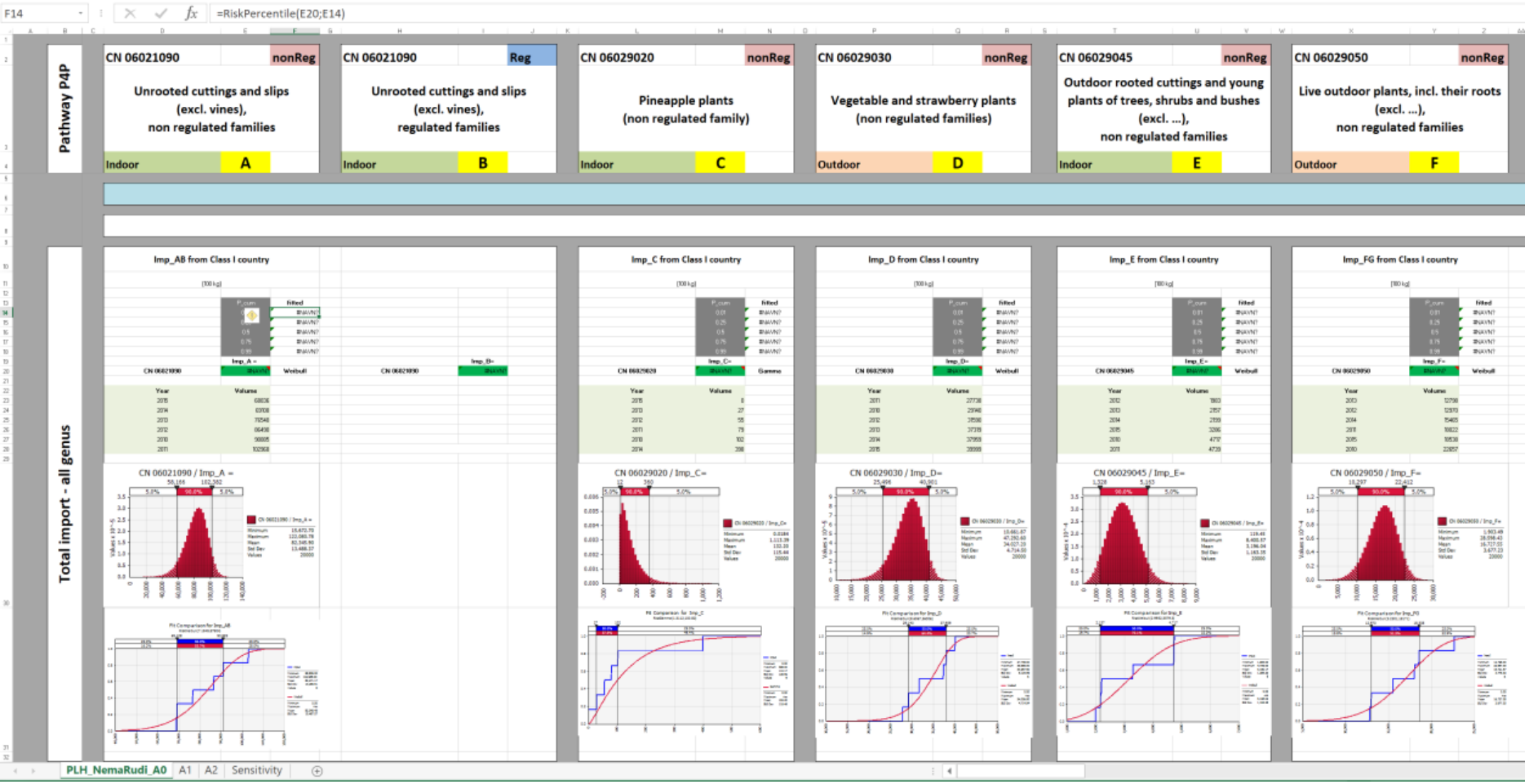
… but not complex enough for some … !

- Result is only "high, medium, low"
- Risk managers want quantitative information
  - X% probability it will arrive and cause Y M€ damage
- Struggle to define some measures which must be estimated - e.g. size of buffer zones
- Do not make full use of new techniques e.g. modelling for climate suitability, risk pathways and natural spread

Do PRAs answer the right questions?

- EFSA work on quantitative PRA
  - some examples completed, but takes more time
  - may not be enough data to support quantification
- EPPO Express PRA scheme PM 5/5
  - now generally used for PRAs carried out by EPPO
- "Indicator pests" to justify measures on commodities
- Risk register and similar approaches
  - e.g. UK Pest Risk Register now has 1000 pests, rapidly assessed on a simple but consistent basis
- Need for PRAs which are "fit for purpose"
- How much a PRA is challenged will depend on costs imposed by measures!

Quantitative approaches to PRA by EFSA
Time, money and data demanding
Use only when quantification is needed?



UK PH Risk Register
Example of *Agrilus planipennis*

Unmitigated risk

Entry	Establishment	Likelihood	Spread	Impact - economic	Impact - environmental	Impact - social	Impact	Likelihood x Impact	Value at Risk	Value at risk as an integer	UK Relative Risk Rating
5	5	5	4	5	5	4	5	25	A	5	125

Mitigations

Regulation	Surveillance	Industry Scheme	Contingency plan	Awareness	Research
EU Annex I			General plan available	UK national awareness	Targeted UK projects

Mitigated risk

Entry	Establishment	Likelihood	Spread	Impact - economic	Impact - environmental	Impact - social	Impact	Likelihoood x Impact	UK Relative Risk Rating
3	5	3	4	5	5	4	5	15	75

Regulated Non Quarantine Pests for the EU

- Pests present in an area, regulated on plants for planting (including seeds), to reduce economic impact on producer
- Two year project carried out by EPPO, funded by the EU
- Covered taxonomy, evaluation against RNQP criteria, risk management measures (RMM) and tolerance levels
- Methodology developed by Expert Working Group
- Used on 1400 pest/host combinations in Sector EWGs
  - pests listed in EU Marketing Directives
  - pests from Annex IIA2 of EU Directive 2000/29
- Experts from 16 EU and 5 non-EU countries involved
- Final report and recommendations due early next year

PM4

A1 – Is the pest already listed in a PM4 standard on the concerned host plant? [by EPPO]

Yes: Recommended for the RNQP status – based on PM4

No → Continue

TAXONOMY

B1 - Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank? [by EPPO]

No → ✗

Yes → **B2 -** Is the pest defined at the species level or lower*? [by EPPO]

No → ✗

Yes → **B4 -** Is it justified that the pest is listed at a taxonomic rank below* species level? [by SEWGs]

Yes → ✗

No → **B3 -** Can listing of the pest at a taxonomic level higher** than species be supported by scientific reasons or can species be identified within the taxonomic rank which are the (main) pests of concern *(If Yes, please list the species)* ? [by EPPO, using Q.]

No → ✗

Yes → Continue

STATUS IN EU

C1 - Is this pest already a quarantine pest for whole EU? [by EPPO]

Yes → ✗

No → **C2 -** Is this pest present in the EU? [by EPPO]

No → ✗

Yes → Continue

PATHWAYS

D1 - Are the listed plants for planting the main pathway for the pest/host/intended use combination?

(to evaluate if it is the "main" pathway, we evaluate if plants for planting is a significant pathway compared to other pathways)

[by EPPO + SEWGs]

No → ✗

Yes → Continue

ECONOMIC IMPACT

E1 - Are there documented reports of any economic impact on the host? [by EPPO, using Q.]

No → ✗

Yes → **E2** - What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures (= official measures)? [by SEWGs]

Minimal, Minor, Medium, Major, Massive

E3 - Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned? [by SEWGs, using Q.]

Yes → Continue

No → **E4** - Is there unacceptable economic impact caused to other hosts (or the same host with a different intended use) produced at the same place of production due to the transfer of the pest from the named host plant for planting ? [by SEWGs]

No → ✗

Yes → Continue

RMM

F1 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants? [by SEWGs]

No → ✗

Yes → Continue

DATA QUALITY

G1 - Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?? [by SEWGs]

Yes: Recommended for the RNQP status – based on data

No: Recommended for the RNQP status – by default

EPPO Review of PRA methodology

Event: EEC/EPPO Workshop on Regulated Pests: risk analysis and listing

Date: 2018-06-6/8

Martin Ward (Director General) - hq@eppo.int

Format

- Review of how EPPO carries out PRA, in the context of other international and national activity on PRA
- Carried out by EPPO Secretariat
- Draws on experience over the last ten years
- Consulting member countries through working party and panels
- Began at the Working Party on Phytosanitary Regulation 2017
- Conclusions at the Working Party on Phytosanitary Regulation 2018 (Bergen, 19th-22nd June)

Draft recommendations

- Clarity about how pests are prioritised for PRA
- Develop and draw on a database of PRA expertise
- Consider how stakeholders should be involved
- Measures should be approved at the same time as listing
- More standardised wording for measures
- Develop and use the platform for sharing PRAs and plans for PRAs between member countries

Questions to the Working Party

- Is commodity PRA a priority for EPPO, or should EPPO concentrate on PRAs for specific pests?
- Can pest risks be grouped for PRA?
- Should PRAs be more precise about the endangered area?
- Should EPPO be clear about which countries should regulate pests on the EPPO A2 list?
- How can better collaboration and sharing of PRAs and underlying data be achieved?

Final thoughts ...

- Pest risk analysis is not just about justifying measures, it is also about deciding what actions to take
- Methods of PRA developed to justify measures may not be right for making other decisions about pests
- When pests spread, despite measures, regulation may no longer be appropriate ...
- ... but information from the PRA process, including research findings, should also support long term control by growers

The European and Mediterranean Plant Protection Organisation

EPPO activities on PRA - update

Event: EEC/EPPO Workshop on Regulated Pests: risk analysis and listing

Date: 2018-06-6/8

Martin Ward (Director General) - hq@eppo.int