Expert knowledge elicitation process and data support to JRC activities on priority pests by EFSA – state of the play

Sara Tramontini
Plant Health Team (ALPHA Unit)

Meeting of the Expert Group on Plant Health Legislation – 9 January 2019
Quantitative approach

- Necessary to provide
  - Indication on the potential capacity of establishment in all EU NUTS2 regions
  - Data on potential consequences
- In order to allow economic evaluations

- Activity and decision flow
- Information on pest and commodity converge into 4 variables
Information from publications and DBs:
- Taxonomy and biology of the pest
- Current distribution of the pest
- Host plants (rationale and maps) → decisional phase
- Increased number of treatments (rationale)
- Mycotoxins

Area of potential distribution (rationale and maps) → decisional phase

Summary tables with evidence from literature needed to parameters estimation via EKE: → decisional phase
- Impact (yield and quality)
- Difficulty of eradication:
  - spread rate
  - time until first detection
- Specific scenarios conditions → decisional phase
- EKE report for each parameter (rationale and curves)
- Conclusions
- References
Decisions supporting each EKE on impact

- Which hosts?
  - **Data availability** on host(s) distribution in the EU
  - **Level of damage** caused by the pest on that specific host (e.g. causing mortality of the plant vs quality losses)
  - Information on the **type of damage** of the pest on the specific host (e.g. on roots, leaves, fruits, flowers)
  - **Pest preferences**
  - **Economical/ecological importance** of the plant species in the EU (e.g. whether it is a major crop in the area of potential establishment)
  - **Grouping** of hosts by
    - Type of damage (e.g. *Spodoptera frugiperda* on maize products)
    - Similar level of susceptibility of the hosts
    - Feeding preference of the pest within the same taxonomic group (e.g. family, genus, species)
    - Environments of the production systems (e.g. row crops, greenhouse crops, orchards, forest plants, nurseries)
    - Final use of the product (e.g. forage crop, grain crop, fresh consumption, ornamentals)

- What is the area of potential distribution relevant to that impact?
- Is the general scenario enough to allow conducting the EKE on that impact?
- Is the evidence sufficient to conduct an EKE (e.g. *Anoplophora chinensis*)
Datasheets (28.xls)

- Impacts: estimated impacts are provided for the 2.5th, 25th, 50th, 75th and 97.5th percentiles and fitted to the NUTS2 suitable for pest establishment in the EU. Yield and quality losses of a single host or category of hosts are provided in the same sheet.
- Spread rate and duration until detection are provided as single distributions (at 2.5th, 25th, 50th, 75th and 97.5th percentiles) for the whole EU
- Increased use of treatments: CM indicator (0/1/2)
- Host plants
- Distribution: a map showing all the countries where the pest is present is copied from the EPPO Global Database
- Quarantine countries: a list of individual countries where the pest is specifically regulated as a quarantine species is extracted from the EPPO Global Database. However, considering that not all countries publish a complete list of quarantine plant pests, the list of countries where the pest is present is also extracted from EPPO Global Database and provided to JRC.
- (mycotoxins)
- Natura2000: a list of the Natura 2000 sites where the hosts of the pest are included in the list of “protected” or “important” species is provided together with the:
  - Number of sites where the host is a “protected” or “important” species within the area of potential establishment
  - Percentage of area of sites affected out of area of sites where host is present
  - Percentage area of sites where the host is a “protected” or “important” species within the area of potential establishment compared to the total area of all Natura 2000 sites
- Notes: any additional information that could guide JRC or any other user to help use the datasheet.
estimated impacts are provided for the 2.5\textsuperscript{th}, 25\textsuperscript{th}, 50\textsuperscript{th}, 75\textsuperscript{th} and 97.5\textsuperscript{th} percentiles and fitted to the NUTS2 suitable for pest establishment in the EU. Yield and quality losses of a single host or category of hosts are provided in the same sheet. Spread rate and duration until detection are provided (at 2.5\textsuperscript{th}, 25\textsuperscript{th}, 50\textsuperscript{th}, 75\textsuperscript{th} and 97.5\textsuperscript{th} percentiles) as single distributions for the whole EU
An adaptable approach

- Elicitation by comparison
  - Same genus (e.g. *Agrilus anxius* and *Agrilus planipennis*),
  - Same biology and hosts (e.g. fruit flies, potato pathogens)
- Collaboration among EFSA WGs and projects
  - Pest categorisations
  - *Xylella* PRA
  - Survey cards
- Integration of information relevant to risk managers
  - Effect of current management options (e.g. certified material on *Clavibacter michiganensis*)
  - Ecosystem services (e.g. *Anoplophora*, *Agrilus*)
- Ad hoc estimations
  - Damages on nurseries and ornamentals
  - Damage on ecosystem services
  - Damage caused by transient populations
  - Urban and suburban areas affected by forestry pests.
28 pests

**DONE**

### Insects
1. Agrilus anxius
2. Agrilus planipennis
3. Anoplophora chinensis
4. Anoplophora glabripennis
5. Popillia japonica
6. Spodoptera frugiperda
7. Thaumatotibia leucotreta

### Bacteria
8. Candidatus Liberibacter spp. (citrus greening)
9. Clavibacter michiganensis subsp. sepedonicus
10. Grapevine flavescence dorée
11. Ralstonia solanacearum
12. Xanthomonas citri

### Nematodes
13. Bursaphelenchus xylophilus

**ONGOING**

### Insects
18. Anastrepha ludens
19. Bactrocera dorsalis (including Bactrocera invadens)
20. Bactrocera zonata
21. Rhagoletis pomonella

### Fungi
14. Ceratocystis fagacearum
15. Phyllosticta citricarpa
16. Synchytrium endobioticum
17. Tilletia indica

### TO DO

### Bacteria
22. Xylella fastidiosa

### Insects
23. Anthonomus eugenii
24. Aromia bungii
25. Bactericera cockerelli
26. Conotrachelus nenuphar
27. Dendrolimus sibiricus
28. Thrips palmi
**Expert groups**

- Direct experience (e.g. EU outbreaks)
- Knowledge on EU cropping practices and control options
- Capacity to work in English
- Availability and willingness
- Training
- Independence of participants
- Limited possibility for WEB meetings
Experts involved

- 10 EFSA Personnel
  (PLH, AHAW, GMO, AMU, DTS, ED Office)
- > 50 experts
  - 2 Members of the Working Group
  - 10 Hearing Experts
  - 17 External Experts
    (including experts from USA and South America)
  - 9 PLH Panel Members
  - A tens of experts for Xylella only
  - At least other 5 to be invited
Deliverables

- 1 scientific report (.doc): methodology
- 28 factsheets + reports (.doc): supporting document for the expert knowledge elicitation (EKE) and JRC:
  - summary of evidence extracted from literature
  - experts' decisions and rationales
  - EKE results
- 28 datasheets (.xls): data obtained from EKE, DBs, publications, models, maps

Deadlines

- by end of March 2019/beginning of April: 28 datasheets + the scientific report to JRC and DG SANTE (in preparation to the draft delegated act for the Inter-Service consultation of May)
- by 15 May 2019: 28 draft EKE factsheets + reports to DG SANTE (before the Inter-Service consultation)
- by early June 2019: 28 final EKE factsheets + reports to DG SANTE (in support to the stakeholders consultation foreseen during the four weeks of June)
What next

- Harmonisation of results
- Identification of the main elements of uncertainty and components of reasoning
- Better structured reasoning
- Conclusions
EFSA/JRC collaboration

- Clear division of the tasks
- Full access to files and plans on EFSA document management system
- Regular exchanges via e-mail and phone calls
- JRC observers at meetings
- 1 week WG meeting at JRC premises in March 2019: finalisation and review of the datasheets
Conclusions

- Quantitative tiered approach
- *Ad hoc* new protocol
- Structured
- Repeatable
- Traceable
- Possibility to extend the exercise to new pests or to update current ones
- First occasion for PLH EFSA team to provide data in support to the work of another institution
- Learning by doing → each pest can be considered finalised only at the very end of the mandate
- The factsheet are core part of the deliverables
THANK YOU