# Le attività di EFSA a supporto della sorveglianza fitosanitaria

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Plant Health team di EFSA

Martedí 4 Dicembre 2018 – Incontro di aggiornamento sulle attivitá di sorveglianza fitosanitaria

# L'EFSA E':

l'organismo di riferimento per la valutazione dei rischi da alimenti e mangimi nell'Unione europea.

La sua attività riguarda l'intera catena alimentare, dai campi alla tavola

uno dei vari organismi che hanno il compito di salvaguardare la sicurezza alimentare in Europa

# GARANTIRE LA SICUREZZA DEGLI ALIMENTI NELL'UE:

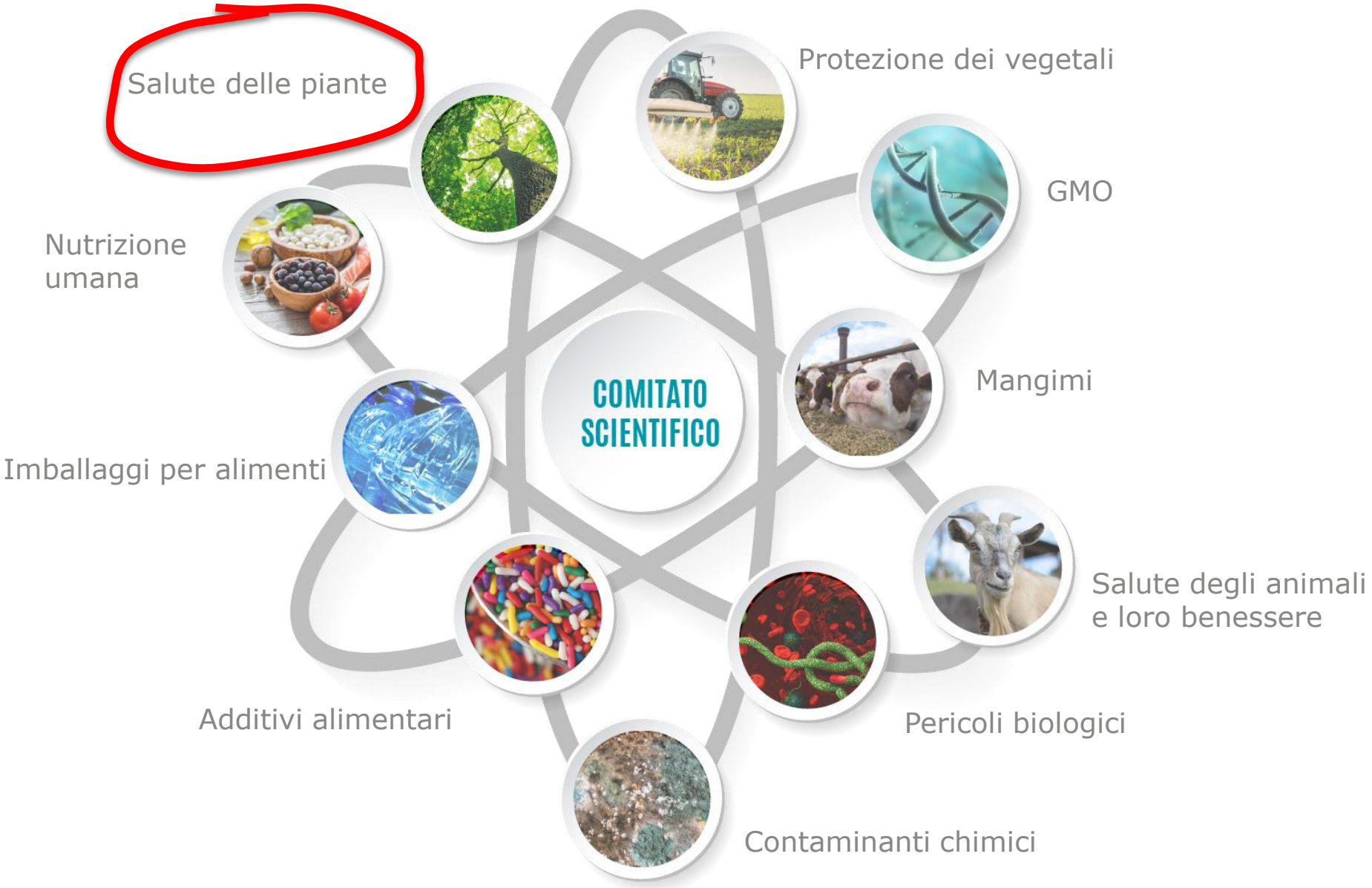
# COSA FA L'EFSA:

- fornisce assistenza e consulenza scientifica indipendente ai gestori del rischio e agli organi decisionali politici dell'UE
- comunica i rischi
- promuove la cooperazione scientifica

Invece NON

- sviluppa politiche e leggi
- adotta regolamenti
- autorizza la commercializzazione di nuovi prodotti
- fa rispettare la legislazione

# I 10 GRUPPI SCIENTIFICI:



# Towards Regulation (UE) 2016/2031

Horizon scanning

High-risk plants

Delisting

Quality pests

Pest categorisations

PRAs

Quarantine pests

Priority pests

# PRIORITY PESTS

their potential **economic**, **environmental** or **social** impact is the most severe in respect of the Union territory

- Annual surveys (with sufficiently high number of visual examinations, sampling and testing, as appropriate for each priority pest)
- National contingency plans
- Simulation exercises
- Action plans
- Communication activity to the public

# MANDATE FROM DG SANTE – for technical assistance to JRC

- **Task 1**: Methodology development, identification of indicators and alternative weights for each of the criteria
- **Task 2**: Application of the methodology to two pilot pests, which will be defined at the onset of the project based on data promptly available, while covering different types of pests

DONE

- **Task 3**: Extension of the application of the methodology to the remaining potential candidate priority pests

ONGOING

# LISTS OF 28 PESTS

## INSECTS

1. *Agrilus anxius*
2. *Agrilus planipennis*
3. *Anastrepha ludens*
4. *Anoplophora chinensis*
5. *Anoplophora glabripennis*
6. *Anthonomus eugenii*
7. *Aromia bungii*
8. *Bactericera cockerelli*
9. *Bactrocera dorsalis*
10. *Bactrocera zonata*
11. *Conotrachelus nenuphar*
12. *Dendrolimus sibiricus*
13. *Popillia japonica*
14. *Rhagoletis pomonella (Tephritidae (non-European))*
15. *Spodoptera frugiperda*
16. *Thaumatotibia leucotreta*
17. *Thrips palmi*

## BACTERIA

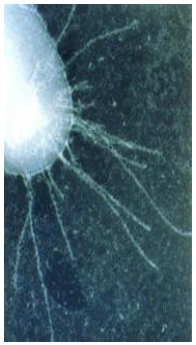
18. *Candidatus Liberibacter spp. (citrus greening)*
19. *Clavibacter michiganensis subsp. sepedonicus*
20. *Ralstonia solanacearum*
21. *Xylella fastidiosa*
22. *Xanthomonas citri*
23. *Grapevine flavescence dorée*

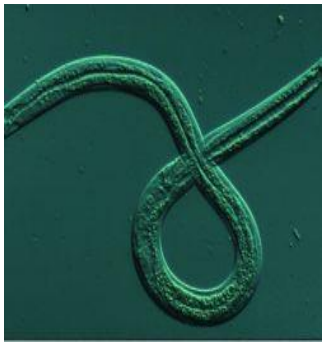
## NEMATODES

24. *Bursaphelenchus xylophilus*

## FUNGI

25. *Ceratocystis fagacearum*
26. *Phyllosticta citricarpa*
27. *Synchytrium endobioticum*
28. *Tilletia indica*





# Parameters

## Yield and quality losses

1. *What is the long term and EU average of the **proportion (in %) of yield losses** (e.g. tree decline, fruit drop, fruit not harvested), under current EU cropping practices?*

2. *What is the long term and EU average proportion (%) of harvested crop damaged by the pest that would lead to downgrading of the final product because of quality issues?*

## Difficulty of eradication

3. *What is the **spread rate** in 1 year for an isolated focus within this scenario based on average European conditions? (units: m/year)*

4. *What is the **time** between the event of pest transfer to a suitable host and its first **detection**? (unit: years)*

# Experts Knowledge Elicitation (EKE)

- The parameters are elicited by a **structured expert judgement**
- EKE method described in specific EFSA Guidance docs*
- Quartile method of the **Sheffield** protocol

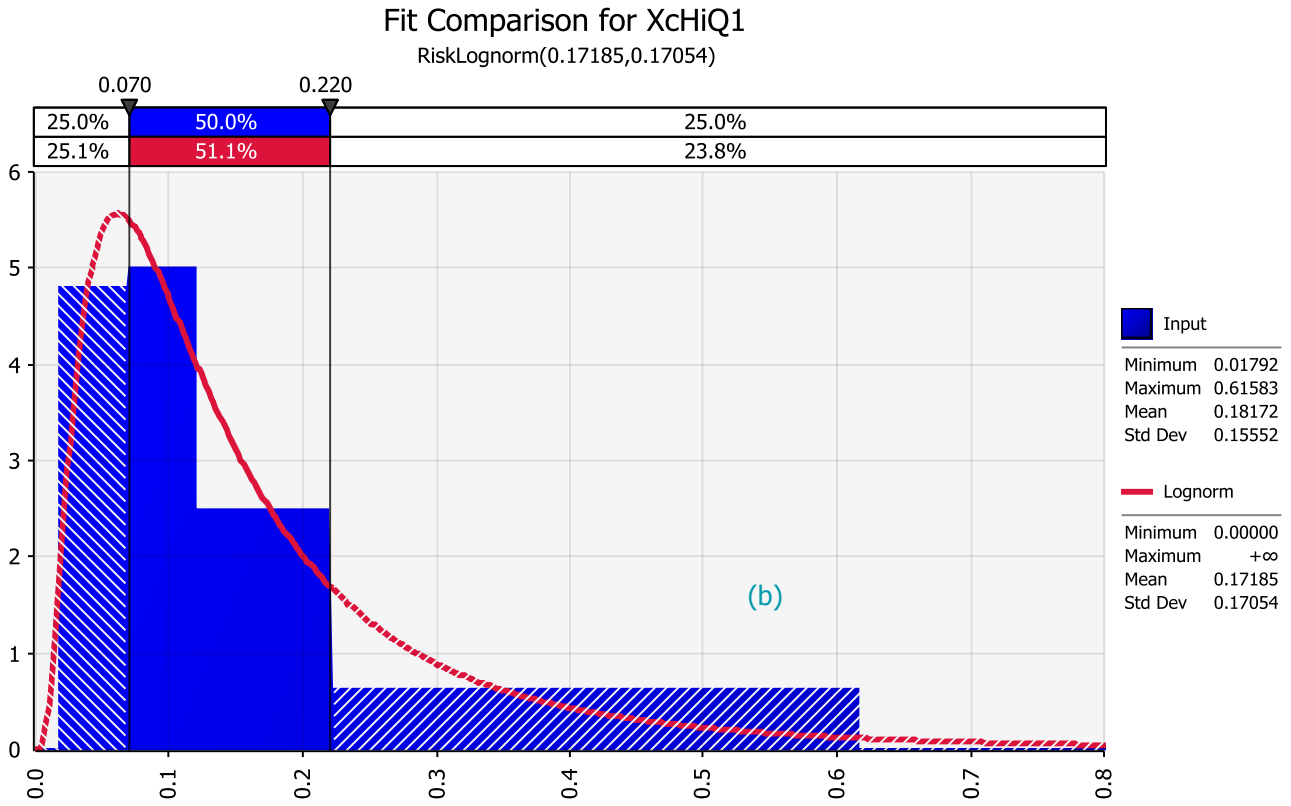
- Factsheet- general information + quantitative data (PRA, EPPO GD, JRC, EUROSTAT, literature search)
- EKE Report

*

https://www.efsa.europa.eu/it/efsajournal/pub/3734
https://www.efsa.europa.eu/en/efsajournal/pub/5123

# Example of a distribution curve

| Percentile | 1% | 2.5% | 5% | 10% | 17% | 25% | 33% | 50% | 67% | 75% | 83% | 90% | 95% | 97.5 % | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expert elicitation | 2% | | | | | 7% | | 12% | | 22% | | | | | 60% |
| Fitted distribution | 1.8 % | 2.4% | 3.1% | 4.2% | 5.5% | 7.0% | 8.5% | 12% | 17% | 21% | 27% | 35% | 48% | 62% | 84% |



# Surveillance toolkit

1. The mandate

2. Example of *Phyllosticta citricarpa*

2.1. Pest survey card

2.2. Main Challenges

# 1. The mandate on surveillance

## 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 by the end of 2019
- address all pests of the survey work program 2018-2020
- Provide guidelines for surveillance for 3 pilot organisms

# 1. The work plan

TECHNICAL REPORT

APPROVED: 19 March 2018

doi:10.2903/sp.efsa.2018.EN-1399

## Work-plan and methodology for EFSA to develop plant pest survey guidelines for EU Member States

European Food Safety Authority (EFSA),

Ramona Mihaela Ciubotaru, José Cortiñas Abrahantes, Joshua Oyedele, Stephen Parnell, Gritta Schrader, Gabriele Zancanaro, Sybren Vos

**Abstract**

The European Commission requested EFSA to facilitate the Member States in the planning and execution of their survey activities. In particular, EFSA is asked to provide scientific and technical guidelines in the context of the new plant health regime (Regulation (EU) 2016/2031), in which prevention and risk targeting are given an extra focus, and the European Commission co-financing programme of the annual Member State survey activities for pests of EU relevance (Regulation (EU) No 652/2014). In order to address this mandate EFSA is requested to deliver by the end of 2019: (i) 47 pest survey cards that contain practical information required for preparing survey design; (ii) survey guidelines for 3 different pests that will be case studies to be developed in collaboration with the EU Member States; and, (iii) support to the Member States on the underpinning statistical methods and use of the EFSA WEB-based tools RiBESS+ and SAMPELATOR to inform sampling strategy design, including sample size calculations. This technical report describes the methodological approach and the work-plan EFSA will implement to deliver the requested outputs.

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(https://www.efsa.europa.eu/en/supporting/pub/1399e)

# 1. EFSA tool kit

**EFSA Tool kit for pest surveys**

**Pest survey cards**

- 52 pests in the work program of the MS

**Survey guidelines**

3 pilot organisms

- *Xylella fastidiosa*
- *Agrilus planipennis*
- *Phyllosticta citricarpa*

**Support to MSs**

- Statistical tools: RiBESS+ & SAMPELATOR
- Tailored pest survey design

# 1. Pest survey cards

## Pest survey cards:

52 organisms over 2 years

Include the biological, geographical and regulation information relevant for the survey activity

1. The pest and its epidemiology

Taxonomy, regulatory status, Pest distribution, Life cycle, Host plants, Environmental suitability, Risk factors

2. Identification and detection methods for the pest

Visual examination (Pest, Symptoms, Traps),

Laboratory testing (Identification of methods, Diagnostic protocols)

3. Tools and requirements for survey design

# 1. Pest Survey Cards 2018

## Pilot organisms

| |
|---|
| *Agrilus planipennis* **x** |
| *Phyllosticta citricarpa* **x** |
| *Xylella fastidiosa* **x** |
| *Popillia japonica* |

## Citrus pests

| |
|---|
| *Xanthomonas citri* pv. *aurantifolii* |
| *Xanthomonas citri* pv. *citri* |
| *Candidatus Liberibacter* spp. + vectors |
| Citrus tristeza virus (non-European) |
| *Aleurocanthus* spp. |
| *Pterandrus rosa* |
| *Toxoptera citricida* |
| *Scirtothrips* spp. (*S. citri, S. aurantii, S. dorsalis*) |

## Potato pests

| |
|---|
| *Scrobipalpopsis (Tecia) solanivora* |
| *Epitrix cucumeris* |
| *Epitrix papa* |
| *Epitrix subcrinita* |
| *Epitrix tuberis* |
| *Meloidogyne fallax* |
| *Meloidogyne chitwoodi* |
| *Globodera pallida* and *G. rostochiensis* |
| *Synchytrium endobioticum* |
| *Ralstonia solanacearum* |
| *Clavibacter michiganensis* ssp. *sepedonicus* |
| *Candidatus Liberibacter solanacearum* **x** |

# 1. Pest Survey Cards 2019

## Forest pests

| |
|---|
| *Agrilus anxius* |
| *Agrilus auroguttatus* |
| *Anoplophora chinensis* |
| *Anoplophora glabripennis* |
| *Bursaphelenchus xylophilus* |
| *Dendrolimus sibiricus* |
| *Gibberella circinata* |
| *Monochamus* spp. (non European) |
| *Pissodes* spp. (non European) |
| *Polygraphus proximus* |
| *Xylosandrus crassiusculus* |
| *Geosmithia morbida* + vector *Pityophthorus juglandis* |

## Miscellaneous pests

| |
|---|
| *Dacus dorsalis* |
| *Grapevine flavescence dorée phytoplasma* |
| *Scaphoideus titanus* |
| *Thekopsora minima* |
| *Diaporthe vaccinii* |
| *Aromia bungii* |
| *Thaumatotibia leucotreta* |
| *Rhagoletis fausta* |
| *Rhagoletis pomonella* |
| Rose rosette virus + vector *Phyllocoptes fructiphilus* |
| *Pseudomonas syringae* pv. *actinidiae* |
| *Spodoptera frugiperda* |
| *Pomacea* |
| Tomato leaf curl New Delhi virus (ToLCNDV) |
| *Erwinia stewartii* |
| *Anthonomus eugenii* |

# 1. Survey guidelines: PRINCIPLES

**Target population:** Host plants - Optimal targeting - Risk based approach

**Epidemiological unit:** Homogeneous spatial units

**Detection and diagnostic method:**
Visual examination and laboratory tests

**Design prevalence:**
Acceptability of the risk (risk managers)
Freedom from disease
Detection of disease / Prevalence

**Confidence levels:**
Confidence around the estimation of the real prevalence OR of the freedom statement

# 1. Support to MSs: WORKSHOPS

**3 Workshops on surveillance**

**Participants**:

NPPOs- Inspectors- Laboratory technicians-Researchers

*-EU MS, Third countries, EPPO*

*European Commission*

**Emerald Ash Borer with Estonian Agricultural Board**

Workshop 1 EAB survey in Tallinn 23-24-25/01/2019

**Citrus Black spot with the Malta NPPO**

Workshop 1 CBS survey in Malta 08-10/10/2018

***Xylella fastidiosa* with the EFSA network on risk assessment in Plant Health**

Network Workshop 1 in March 2019 on Xf survey in Parma to be further defined

# Outline

1. The mandate and update on progress

2. Example of *Phyllosticta citricarpa*

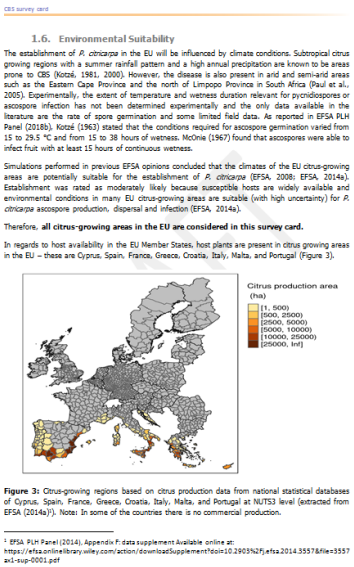
2.1. Pest survey card

2.2. Main Challenges

# Surveillance project: outputs

## Pest survey card

- Preparation
- Review
- Publication



CBS survey card

1.6. Environmental Suitability

The establishment of *P. citricarpa* in the EU will be influenced by climate conditions. Subtropical citrus growing regions with a summer rainfall pattern and a high annual precipitation are known to be areas prone to CBS (Kotzé, 1981, 2000). However, the disease is also present in arid and semi-arid areas such as the Eastern Cape Province and the north of Limpopo Province in South Africa (Paul et al., 2005). Experimentally, the extent of temperature and wetness duration relevant for pycnidiospores or ascospore infection has not been determined experimentally and the only data available in the literature are the rate of spore germination and some limited field data. As reported in EFSA PLH Panel (2018b), Kotzé (1963) stated that the conditions required for ascospore germination varied from 15 to 29.5 °C and from 15 to 38 hours of wetness. McOnie (1967) found that ascospores were able to infect fruit with at least 15 hours of continuous wetness.

Simulations performed in previous EFSA opinions concluded that the climates of the EU citrus-growing areas are potentially suitable for the establishment of *P. citricarpa* (EFSA, 2008; EFSA, 2014a). Establishment was rated as moderately likely because susceptible hosts are widely available and environmental conditions in many EU citrus-growing areas are suitable (with high uncertainty) for *P. citricarpa* ascospore production, dispersal and infection (EFSA, 2014a).

Therefore, **all citrus-growing areas in the EU are considered in this survey card.**

In regards to host availability in the EU Member States, host plants are present in citrus growing areas in the EU – these are Cyprus, Spain, France, Greece, Croatia, Italy, Malta, and Portugal (Figure 3).

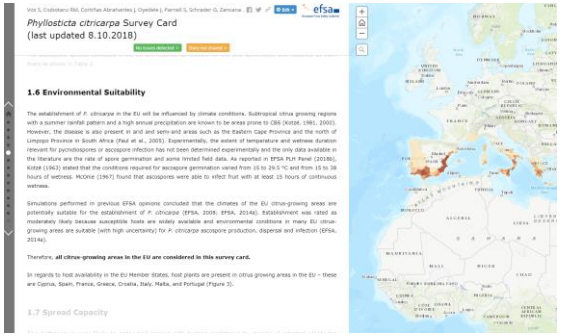
Citrus production area (ha)
[1, 500)
[500, 2500)
[2500, 5000)
[5000, 10000)
[10000, 25000)
[25000, Inf]

**Figure 3:** Citrus-growing regions based on citrus production data from national statistical databases of Cyprus, Spain, France, Greece, Croatia, Italy, Malta, and Portugal at NUTS3 level (extracted from EFSA (2014a)). Note: In some of the countries there is no commercial production.

[1] EFSA PLH Panel (2014). Appendix F: data supplement Available online at: https://efsa.onlinelibrary.wiley.com/action/downloadSupplement?doi=10.2903%2Fj.efsa.2014.3557&file=3557ax1-sup-0001.pdf

## Story Map

- Transfer
- Dissemination



# 2. Main challenges: Risk Factors

- **Risk factor:** biotic or abiotic factors increasing the probability of infestation by the pest. Relevant risk factors for surveillance:

- More than one level of risk in the survey area
- Available data for estimating the proportion of the target population affected by the risk factor

➢ E.g. 1 **Distance to pack houses**

level 1: Orchards contiguous to pack-houses that process imported fruit from third countries

level 2: Orchards contiguous to pack-houses

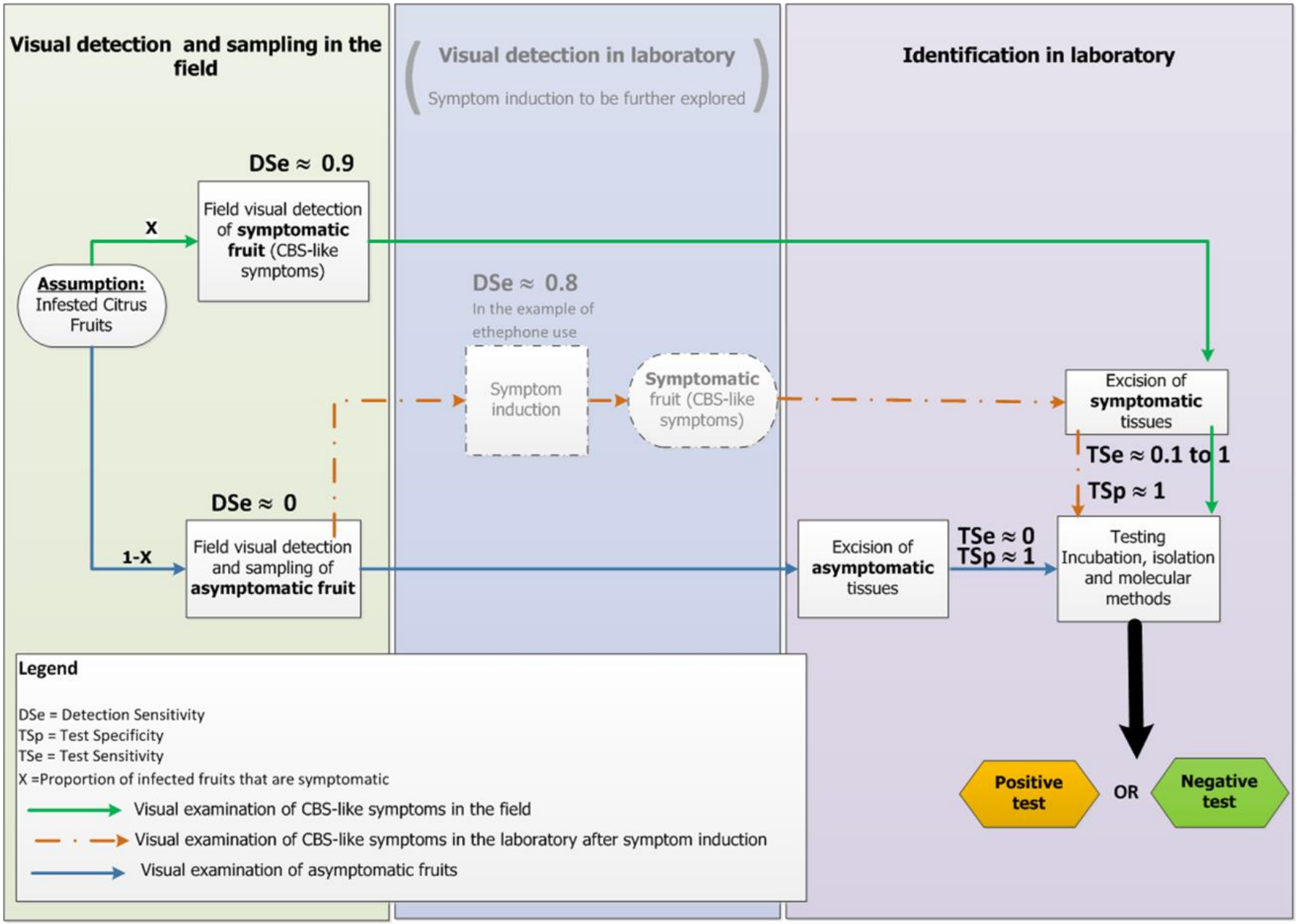
level 1: Other orchards

➢ E.g. 2 **Susceptible species**

Lemon > Sweet orange (late maturing cultivars) > Others

(Others = Sweet orange (other cultivars), Mandarin, Satsuma mandarin, Grapefruit)

# 2. Main challenges: Detection efficacy



# 2. Main challenges: Harmonisation

28 Member States

- Harmonise the entire survey process is not needed

- Harmonising the Conclusions is essential

➢ Imposed confidence level (95%) and design prevalence (1%)

# 2. Other challenges

- From pests to crops: Optimisation process of field visits for inspectors

- Data collection:
  - standardised data in structured Database

- Reporting the survey results:
  - standardised data in structured database

Not part of this mandate

# Competences for the two projects

| | |
|---|---|
| **EFSA Staff:** | PLH / AHAW / AMU |
| **EFSA PLH Panel Members** | 19 experts |
| **External experts** | 35 experts |
| **Tasking grants:** | JKI / NVWA |

THANK
YOU
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