European Xylella conference on 2019

Estimating the economic, social and environmental impacts of EU priority pests: a joint EFSA and JRC project with a focus on *Xylella fastidiosa*

2nd European conference on Xylella fastidiosa 29th– 30th Oct 2019

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How to establish EU wide priorities when resources are limited?

L 260/8 EN Official Journal of the European Union 11.10.2019

COMMISSION DELEGATED REGULATION (EU) 2019/1702

of 1 August 2019

supplementing Regulation (EU) 2016/2031 of the European Parliament and of the Council by establishing the list of priority pests

Under the new Plant Health Law (applicable from 14 December 2019), 20 quarantine pests, including ***Xylella***, have been listed as "**priority pests**"

…based on their most severe **economic, environmental and social impacts** for the Union territory

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JRC & EFSA: integrating economics & pathology

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JRC TECHNICAL REPORTS

The Impact Indicator for Priority Pests (I2P2): a tool for ranking pests according to Regulation (EU) No 2016/2031

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2019

EUR 29793 EN

European Commission

Directorate-General for Health and Food Safety (DG SANTE)

A joint methodology on Priority Pests

SCIENTIFIC REPORT

EFSA Journal

ADOPTED: 17 May 2019

doi: 10.2903/j.efsa.2019.5731

Report on the methodology applied by EFSA to provide a quantitative assessment of pest-related criteria required to rank candidate priority pests as defined by Regulation (EU) 2016/2031

European Food Safety Authority (EFSA),
Richard Baker, Gianni Gilioli, Carsten Behring, Denise Candiani, Andrey Gogin, Tomasz Kaluski, Mart Kinkar, Olaf Mosbach-Schulz, Franco Maria Neri, Riccardo Siligato, Giuseppe Stancanelli and Sara Tramontini

Abstract

In agreement with Article 6(2) of the Regulation (EU) 2016/2031 on protective measures against pests of plants, the European Commission has been tasked by the Council and European Parliament to establish a list of Union quarantine pests which qualify as priority pests. The prioritisation is based on the severity of the economic, social and environmental impact that these pests can cause in the Union territory. The Commission's Joint Research Centre (JRC) is in charge of developing a methodology based on a multi-criteria decision analysis and composite indicators. In this context, EFSA has provided technical and scientific data related to these pests, in particular: (i) the potential host range and distribution of each of these pests in the Union territory at the level of NUTS2 regions; (ii) parameters quantifying the potential consequences of these pests, e.g. crop losses in terms of yield and quality, rate of spread and time to detection. Expert knowledge elicitation methodology has been applied by EFSA in order to provide those parameters in a consistent and transparent manner.

Keywords: control, detection, host plants, potential distribution, quality loss, spread, yield loss

Requestor: European Commission
Question number: EFSA-Q-2017-00558
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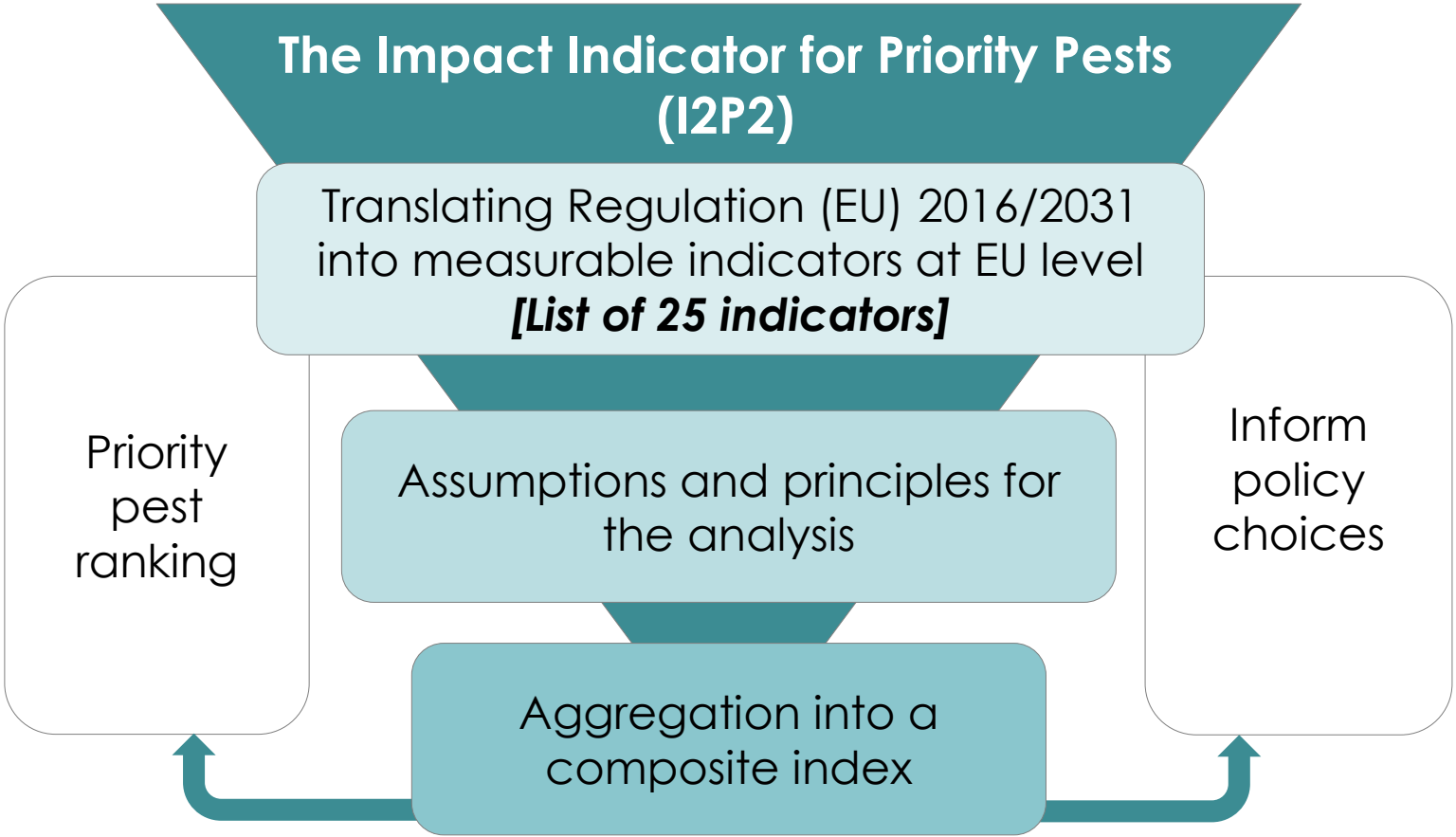
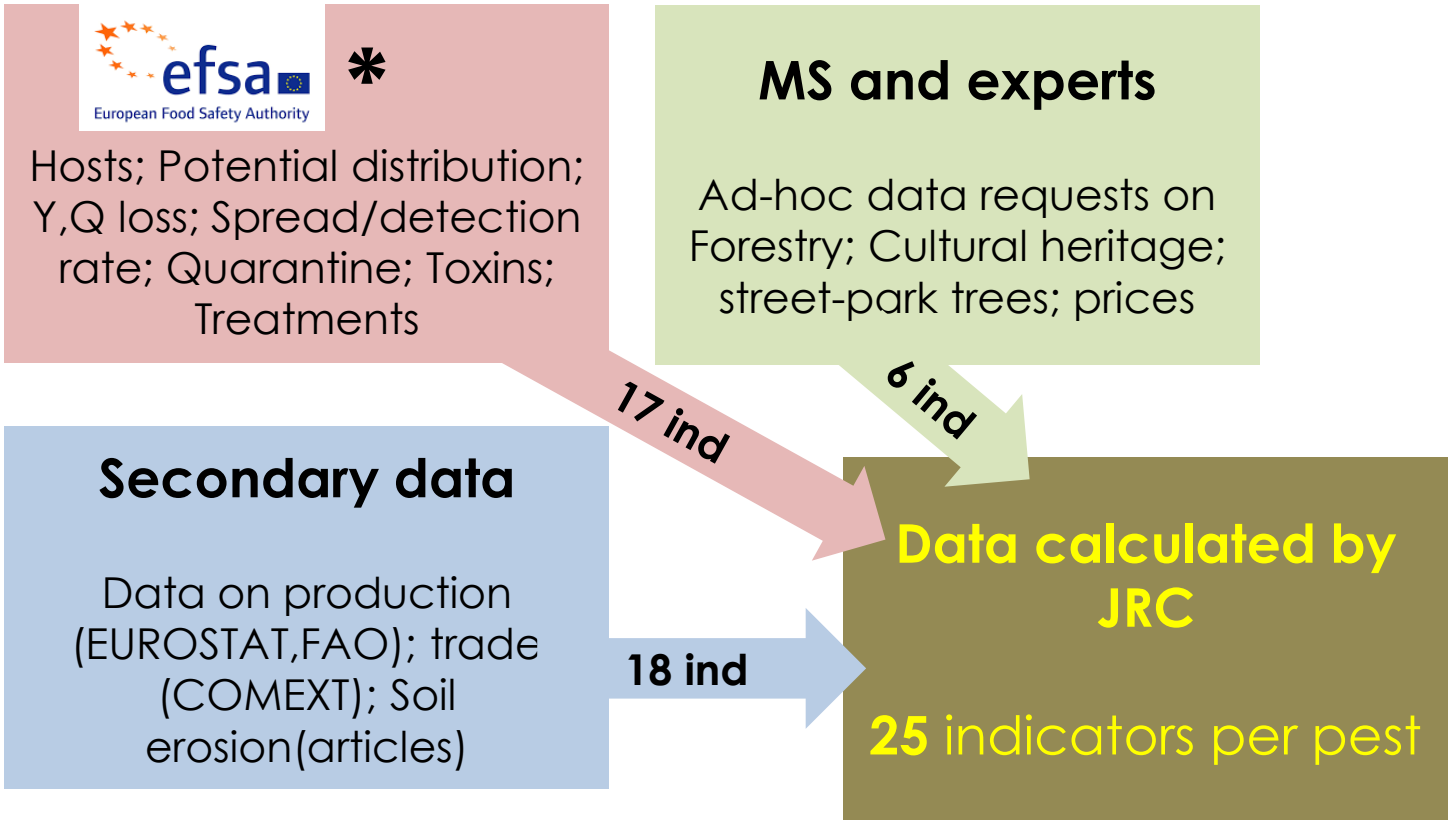
efsa
European Food Safety Authority

How to rank pests based on economic, social and environmental impacts?

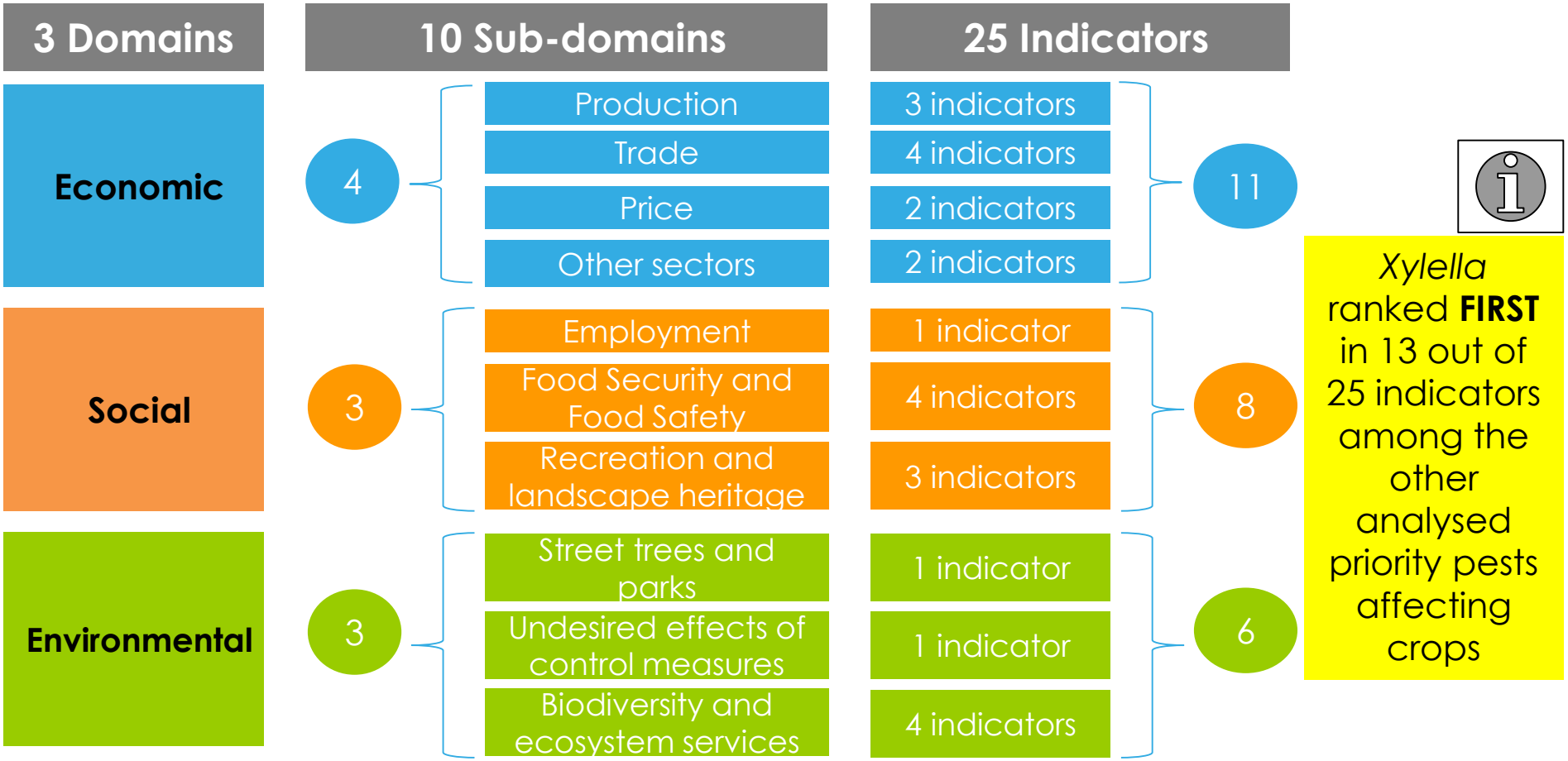
Composite indicators including multiple criteria



Different data sources for different indicators



*Max spread scenario - current environmental conditions & production practices, time frame long enough to set temporal variation

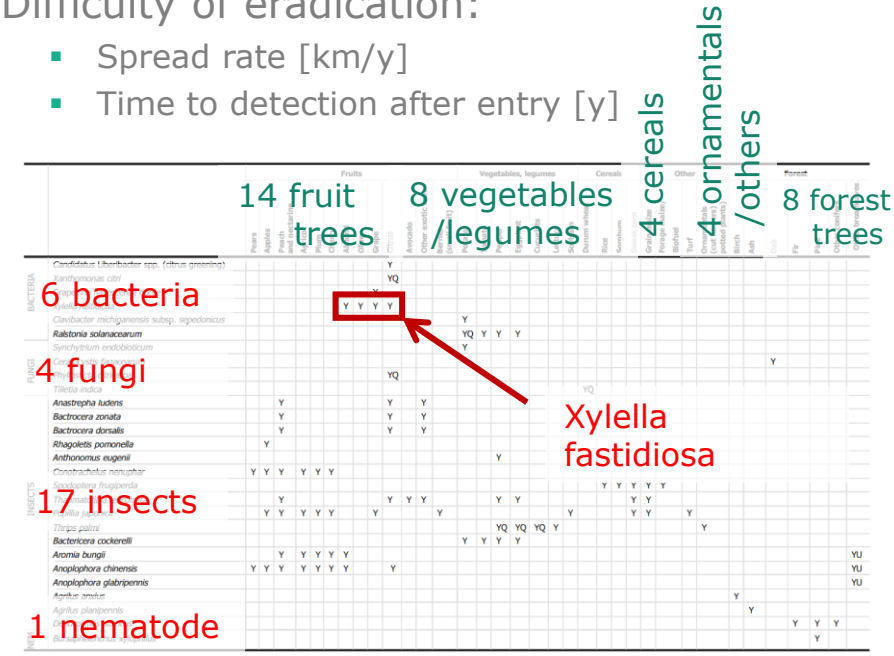

3 Domains
10 Sub-domains
25 Indicators
Economic
4
Production
Trade
Price
Other sectors
3 indicators
4 indicators
2 indicators
2 indicators
11
Social
3
Employment
Food Security and Food Safety
Recreation and landscape heritage
1 indicator
4 indicators
3 indicators
8
Environmental
3
Street trees and parks
Undesired effects of control measures
Biodiversity and ecosystem services
1 indicator
1 indicator
4 indicators
6
Xylella ranked FIRST in 13 out of 25 indicators among the other analysed priority pests affecting crops

How to compare different pests…

Preparation of "Pest Reports":

- Pathology and taxonomy
- Host plants
  - Full list (incl. EPPO, Cabi, PRAs)
  - Important hosts (grouped)
- Area of potential establishment
  - NUTS 2 level
  - Affected NATURA 2000 sites
  - Transient populations
  - Glasshouses etc.
- Additional use of PPPs /levels:
  - 0 - PPPs are not available
  - 0 - Common practice is effective
  - 1 - PPPs effective, increased use
  - 2 - Integrated strategies needed

- Yield loss:
  - Rel. reduction in marketable yield [%]
  - Rel. proportion of yield in reduced quality [%]
- Difficulty of eradication:
  - Spread rate [km/y]
  - Time to detection after entry [y]



Find more on Zenodo: https://doi.org/10.5281/zenodo.[9999999]

Scenarios

"Maximal impact" scenario ("Yield loss" scenario)

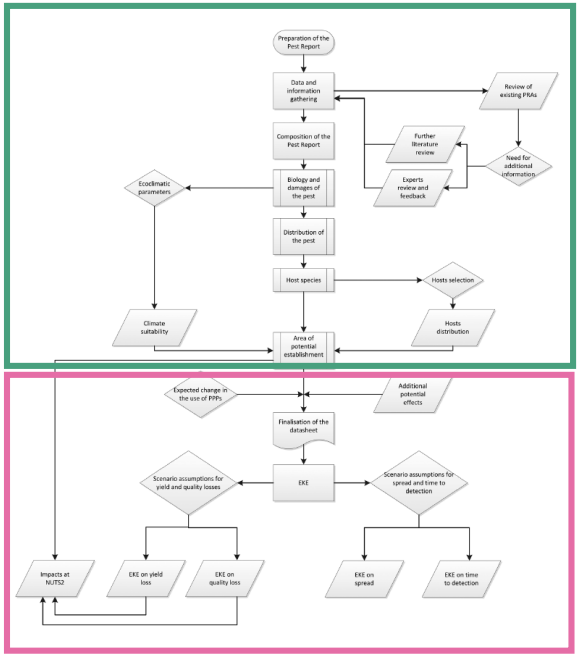
- The pest is **already present throughout the area** of potential distribution
- Its **abundance is in equilibrium** with the available resources (e.g. host plants) and environmental conditions
- Yield/quality is evaluated as **average of a production system** in a time frame taking into account temporal variation in pest population dynamics
- **Future changes in agricultural practice have not been taken into account**

"Difficulty of eradication" scenario

- The pest is **present in an isolated focus** in the area of potential establishment. A **small population has established** on suitable host(s). (Time to detection)
- The spread rate is the outcome of the contribution of **natural dispersal** together with **local human assisted spread**. **Trade in commodities is not included**
- Spread rate is measured as the **linear increase** of the area. **Long-distance spread (e.g. human assisted 'jumps') are not included in the scenario**
- **Host availability is not a limiting factor** for pest establishment

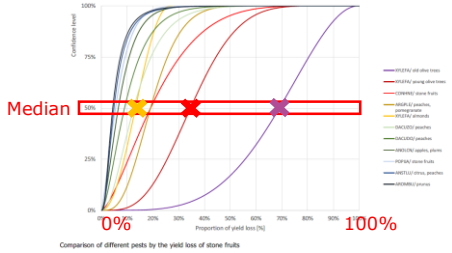
Assessment method

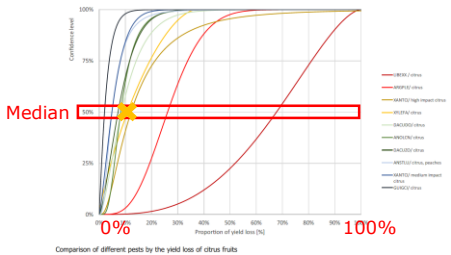
- Review and summary of PRAs & literature
  - Pathology and taxonomy
  - Host plants
  - Potential distribution
- Structured expert judgements (EKE)
  - Yield/quality loss, spread rate, duration
  - Changes in PPP use
- Expert (working) group
  - 2 Permanent external members
  - 52 external experts, EFSA staff, facilitators
- Expert Knowledge Elicitation methodology
  - Quantitative estimates & uncertainties
  - Detailed reasoning on damage, spread, detection
  - Low/high risk scenarios, median and precision

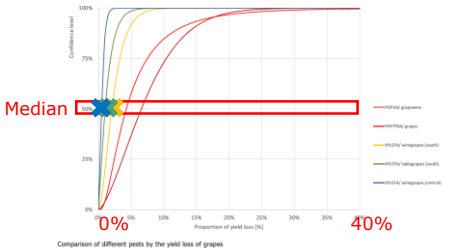


Comparisons including Xylella

Yield loss







Xylella fastidiosa

Median yield loss

Stone fruits

- Olives (≥30y): 69.1%
- Olives (<30y): 34.6%
- Almonds: 13.3%

Citrus fruits

- Citrus spp.: 10.9%

Grapes

- Wine (Southern EU): 2.1%
- Table Grapes: 1.0%
- Wine (Northern EU): 0.5%

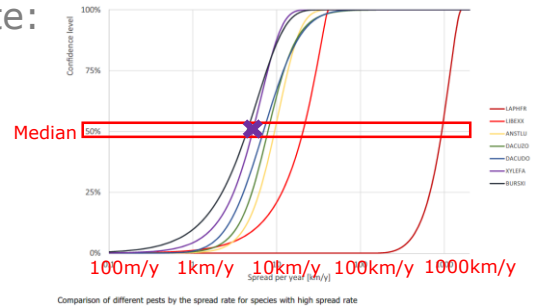
Difficulty of eradication

Spread rate

Median spread rate:

5.2 km/year

in the upper third of all pests



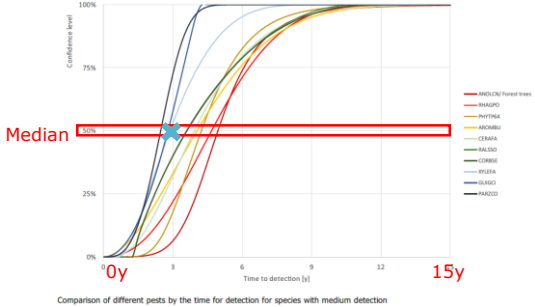
Comparison of different pests by the spread rate for species with high spread rate

Time to detection

Median time to detection:

2.9 years

in the middle third of all pests



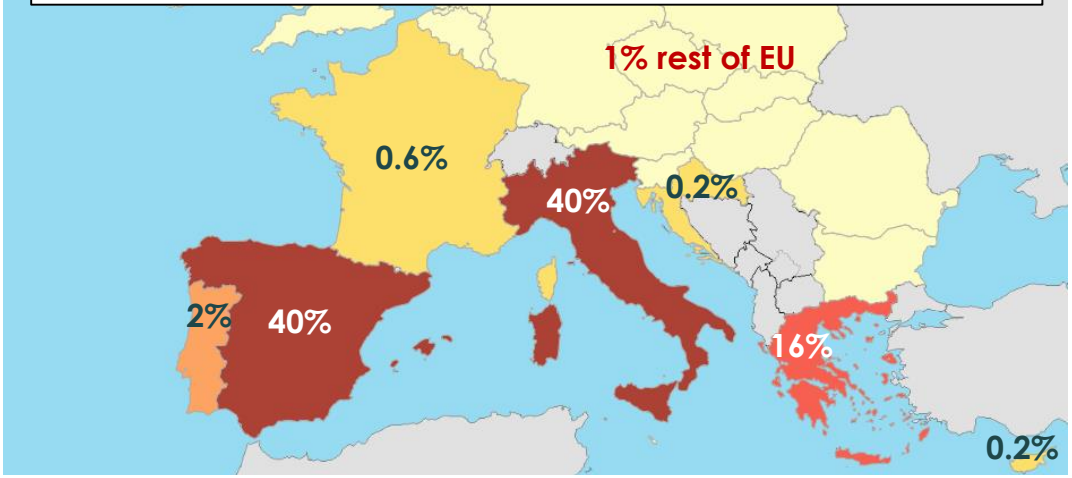
Comparison of different pests by the time for detection for species with medium detection

Read more on: efsa.europa.eu

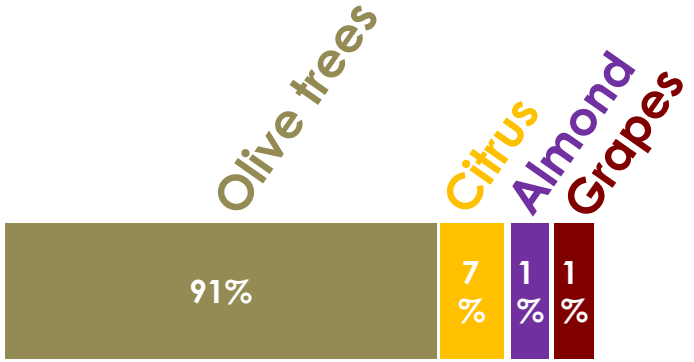
The economic cost of *Xylella fastidiosa* full spread

Potential EU loss of production: 5.5 billion EUR per year (from 4.2 to 6.9)

By country (major in Spain and Italy)



By host (mostly olives)



Potential EU export losses: 0.7 billion EUR per year

Cost of production loss

Potential EU loss of production

5.5 billion (i.e. 5.500 million) EUR per year
(4.2 - 6.9 billion EUR per year)

VS

Cost of surveillance

Total EU MS expenditure on surveillance activities

In 2016 3.7 million EUR
In 2017 3.7 million EUR
In 2018 4.5 million EUR
In 2019 4.7 million EUR*

*In process (The final report for 2019 Survey programmes will be submitted by the end of April 2020)

The social cost of *Xylella fastidiosa* full spread

Nearly 300 000 jobs involved in production are at risk - Only primary production of olive trees, citrus, almonds and grapes

70 different agricultural products that are covered by EU quality labels are susceptible to *Xf* *(e.g., citrus fruits, olives, almonds, raisins, grapes, asparagus or cherries)*

United Nations Educational, Scientific and Cultural Organization

World Heritage Convention

More than 18 different plant species susceptible to *Xf* are part of different UNESCO World Heritage sites distributed all across the EU

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The environmental cost of *Xylella fastidiosa* full spread

Potential increase of insecticide spraying to control the vector – available plant protection products might not be sufficient to control the pest (need for integrated strategies)

Over 24 habitats and 20 species are associated to hosts susceptible of infection by *Xf* – From the Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive)

European Commission

Thanks for your attention!

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