# European Nurseries' point of view on next research priorities for control of *X. fastidiosa*

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ENA – European Nurserystock Association

# EMOTIONS AND FEELINGS

- Indifference
- Fear
- Satisfaction
- Frustration
- Misery
- Disappointment
- Greed
- Envy
- Shocked
- Grateful
- Hope
- **HOPE !!!!**

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# EUROPEAN NURSERIES (ENA COUNTRIES)

| Country | | Number of nurseries | Production area (ha) | Employees | Production value |
|---|---|---|---|---|---|
| BE | Belgium | 873 | 5.413 | 1.425 | € 346.000.000 |
| BG | Bulgaria | 63 | 515 | 800 | € 14.000.000 |
| CZ | Czech Republic | 578 | 1.500 | 900 | € 41.000.000 |
| DK | Denmark | 104 | 2.174 | 1.007 | € 74.145.000 |
| FI | Finland | 95 | 352 | 500 | € 34.000.000 |
| FR | France | 3.308 | 16.152 | 18.274 | € 1.237.841.000 |
| DE | Germany | 1.714 | 18.613 | 21.000 | € 829.000.000 |
| GR | Greece | 1.050 | 1.800 | 10.500 | € 285.000.000 |
| HU | Hungary | 1.200 | 7.800 | 2.000 | € 40.000.000 |
| IE | Ireland | 171 | 605 | 800 | € 34.650.000 |
| IT | Italy | 7.459 | 15.890 | 32.500 | € 1.265.000.000 |
| NL | Netherlands | 2.200 | 17.200 | 10.000 | € 900.000.000 |
| NO | Norway | 166 | 210 | 500 | € 24.000.000 |
| PL | Poland | 3.200 | 6.800 | 17.000 | € 260.000.000 |
| PT | Portugal | 312 | 617 | 1.150 | * € 457.000.000 |
| RS | Serbia | 481 | 1.207 | 1.066 | € 25.400.000 |
| ES | Spain | 2.369 | 10.262 | 19.123 | € 734.000.000 |
| SE | Sweden | 100 | 470 | 300 | € 87.000.000 |
| CH | Switzerland | 370 | 992 | 2.210 | € 192.796.392 |
| TR | Turkey | 600 | 5.000 | 75.000 | € 1.100.000.000 |
| UA | Ukraine | 100 | 1.600 | 1.700 | € 25.000.000 |
| UK | United Kingdom | 1.000 | 10.000 | 12.000 | € 1.350.000.000 |

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| | |
|---|---|
| # Nurseries: | **27.513** |
| Production area: | **125.172 ha** |
| # Workers | **229.755** |

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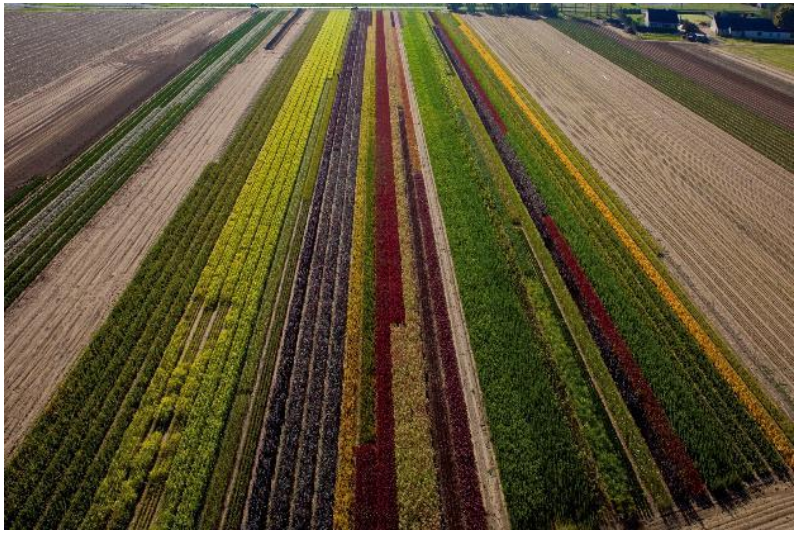

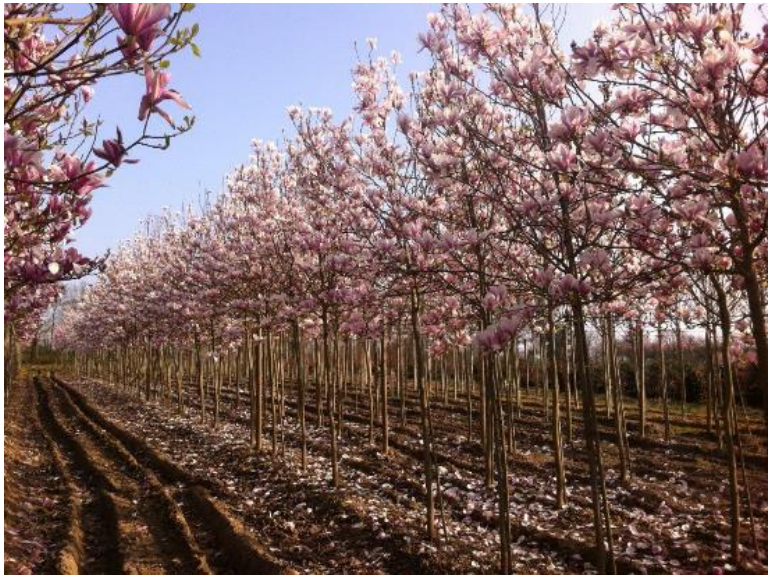

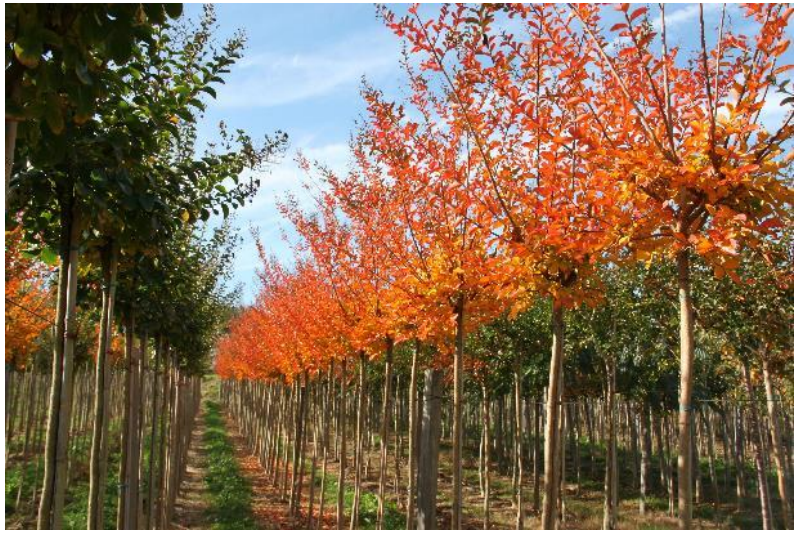

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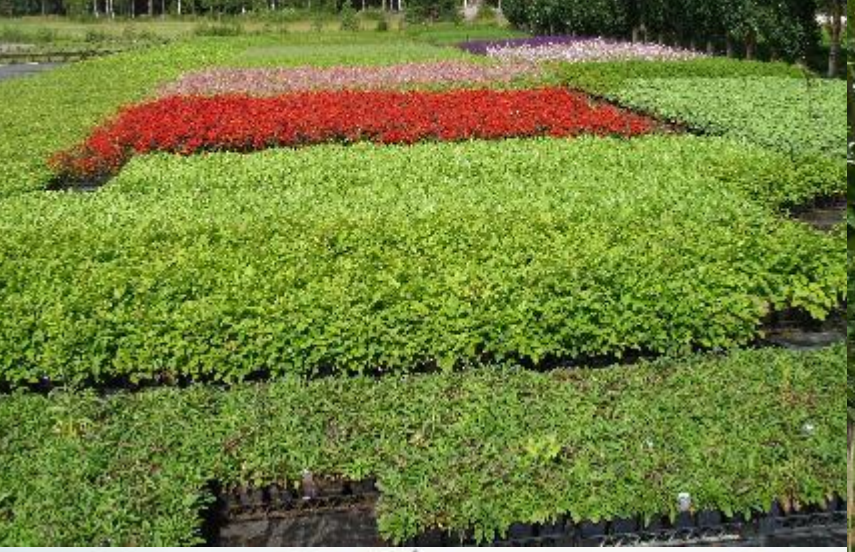

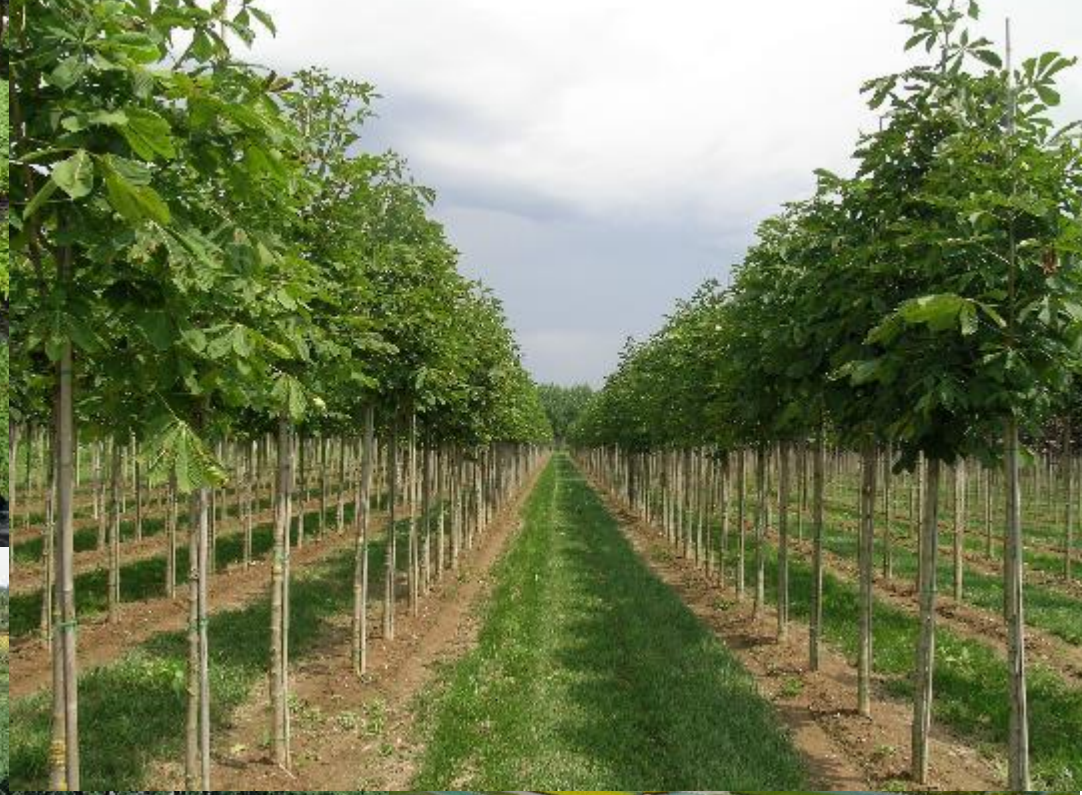

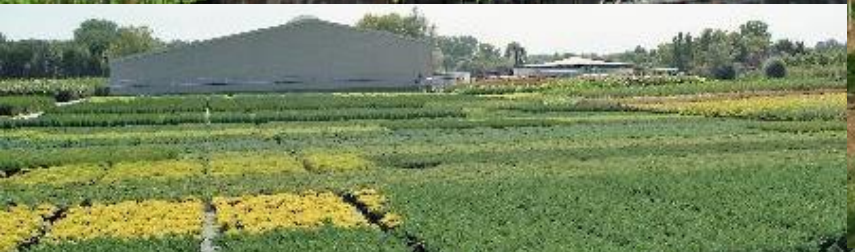

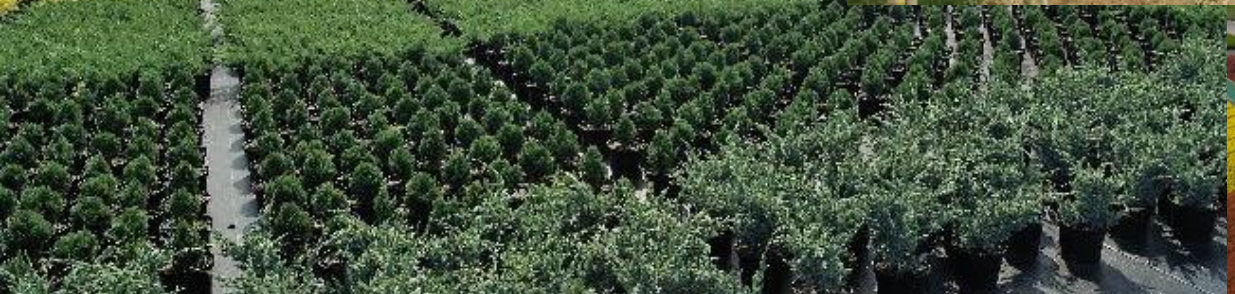

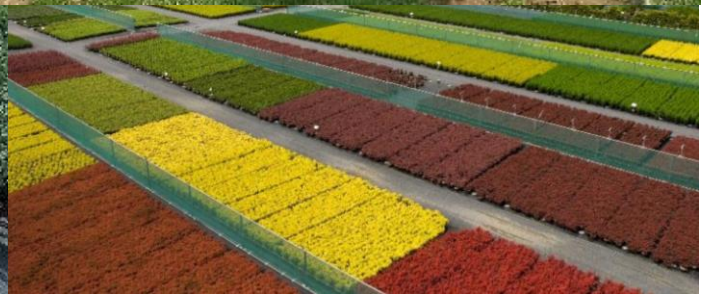

# What R&D should answer to nurseries:

- How can we **prevent** getting the disease?
- How can we **detect** the disease?
- How we can **get rid of** the disease?
- How to **ensure** we don't carry the disease?

**Palma 2017**

# OPENING SESSION

- H2020 **POnTE project**

Each progress, even a small one, is a step that takes us to a better situation and closer to the end of *Xylella* nightmare.

**Thank you very much to all POnTE PARTNERS!**

- PROMISING:

Advances in molecular studies.

Transgenic varieties.

Biological control (inoculating treatment with penetrating surfactants)

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# BIOLOGY AND PATHOGENICITY

- Understanding of the complex epidemiology, different in each environment.
- Good forensic job to understand the present situation.

- "Still at the very tip of the iceberg": research needs to address the complexity (genetic, climate, geography, species, cvs).
- To add **species**!
- Test resistance in field conditions.
- Xylella gardens network. → Recombination's risk?

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# VECTORS

- New knowledge of vectors presence and behaviour.

- To spread the studies on more plant species.
- To ensure that there are no other vector species!
- *PPP (Plant Protection Products) availability to control vectors*

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# DETECTION

- Great inventory of detection techniques.

- Guidance to choose the detection method.
- To improve the sampling techniques in the field.
- New technologies with lower detection level for asymptomatic plants.
- Latency!
  *(time bomb)*

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# ECOLOGY, EPIDEMIOLOGY AND MODELLING

- Epidemiological models, improved risk maps.
  → it will allow Risk Based surveillance (different phytosanitary scenarios)
- Climex model

- Generic models should be adapted to predict local situations.
- To adapt CLIMEX to nurseries' conditions and species.

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# RISK AND IMPACT ASSESSMENT

- PRA periodically updated with new data (much more information, new outbreaks).
- *Homo sapiens* is also an affected species.
- Street, park and wild trees were mentioned.

- To move to resistant cvs. to keep production in a 50 years term
→ START OBTENTION & BREEDING programs.
- To include environment and urban areas in the Research (not only in the inspections).
- To categorise host plant database, including varieties, to help making production decisions.

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# SURVEILLANCE

- Ornamental plants, forests, environment were also mentioned.
- EFSA toolkit takes into account more than crops, and also human assisted jumps (local and long distance dispersal)

- To adapt the surveillance technique to each combination of production and place conditions.
- To develop optimised diagnostic tools to prevent the entrance of *Xf* from 3rd countries.

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# SUSTAINABLE CONTROL MEASURES

- VSPP (voluntary certification programme).
- Promising results of the olive cultivars screening in Italy.
- Increasing resistance using NAC, microbiome and PsJN seem promising biocontrol techniques.

- Research to find an **alternative to insect-proof facilities**, i.e *Vitis* or large ornamental plants.
- **Screening + species & + cvs.**
- Studies on heat treatment of plant propagation material.

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# Thanks

- Edoardo Sciutti (ANVE) Italy
- Marco Cardoni (CIVI) Italy
- Luigi Catalano (CIVI) Italy
- Carlos Lucea (Viveros Villanueva) Spain
- Sybren Vos (EFSA) EU

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