



Feedback from stakeholders on *Xylella* research: achievements and needs from a nursery perspective



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European
Commission





European nurseries (ENA countries)

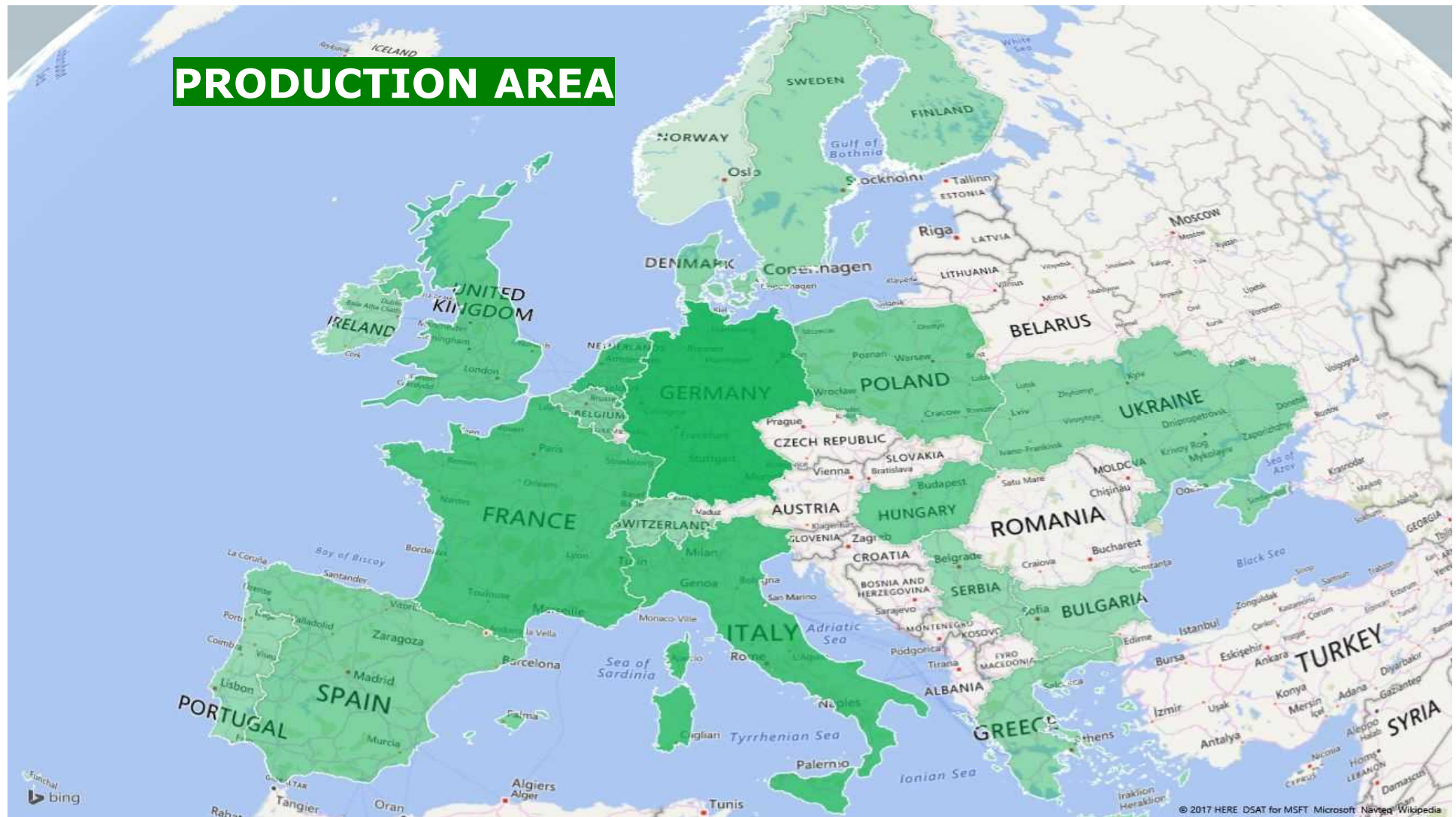
Country	# Nurseries	Production area (ha)	# workers	Production value (€)	
Italy	7.459	15.890	32.500	1.265.000.000 €	2015
France	3.611	15.471	19.289	1.214.848.000 €	2015
United Kingdom	1.150	10.000	10.000	1.090.000.000 €	2014
Germany	1.800	23.900	21.000	829.000.000 €	2015

# Nurseries:	26.255
Production area:	119.353 ha
# Workers	140.368
# Production value:	7.022.875.057 €

Hungary	1.200	7.800	2.000	40.000.000 €	2015
Finland	100	400	510	35.000.000 €	2016
Ireland	180	650	1.250	27.250.000 €	2015
Norway	166	210	500	23.687.751 €	2014
Serbia	376	1.000	1.000	20.000.000 €	2016
Bulgaria	60	500	800	12.000.000 €	2016



PRODUCTION AREA





Classification of nurseries

■ Propagation nurseries

seedlings, cuttings, grafting, budding,... for use in planting out as fruit tree nurseries, olive nurseries, citrus nurseries, grape vine nurseries, forestry nurseries and ornamental plant propagation material

XFactors Project: **Certification** of plant propagation material
lead Naktuinbouw / UNIBA, EPPO, CIVI-ITALIA

■ Plants for planting & Finished plants nurseries

- for planting at the final situation (garden, landscape, ...)
- sold to a nursery that will grow it on as a larger plant

“One man's finished plant might be another man's 'Young Plant’”

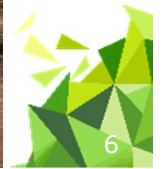




European Conference on Xylella fastidiosa 2017: finding answers to a global problem



European





**30% host plants
10 €/m²
= 3.600.000.000 €**

European





European nurseries



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EU nursery stock international trade:

	IMPORT EXTRA-EU 2016
NETHERLANDS	11.243.852 €
GERMANY	6.747.798 €
ITALY	6.671.902 €
SPAIN	5.495.777 €
BULGARIA	2.391.012 €
FRANCE	2.205.719 €
POLAND	2.064.531 €
Total EU-28	44.042.466 €

2017. Data from Eurostat





EU nursery stock international trade:

	EXPORT EXTRA-EU 2016
NETHERLANDS	144.484.853 €
ITALY	88.803.712 €
GERMANY	63.668.980 €
LITHUANIA	42.870.783 €
SPAIN	36.942.672 €
DENMARK	22.429.674 €
POLAND	19.899.255 €
Total EU-28	480.207.709 €

2017. Data from Eurostat





THREATS to the EU nursery industry (ENA SWOT analysis)

- Globalisation: introduction of non-European pests and diseases.
- Strict rules may block production and commercialisation (i.e. phytosanitary, Water shortage)
 - *Xylella fastidiosa* EC Decision
 - Nursery + infection = dead nursery
 - Nursery in a DZ= commercially dead nursery
 - Nursery in a region with *Xf* = commercially endangered N.
 - Nursery in a country with *Xf* = blocked exports
 - Nurseries: afraid of being sued by a customer/neighbour
 - **Xylella free Nursery = OPORTUNITY !**





Feedback from nurseries perspective: RESEARCH ON CURRENT *XYLELLA* OUTBREAKS IN THE EU (SESSION 1)

- Key research achievements so far
 - Complexity!
 - A few resistant varieties (olive) discovered and proved
 - Several and independent introductions
- Key research needs
 - **Made to measure solutions** on nursery management
 - Tools for **fast detection** on field
 - **Susceptibility of** spp., and susceptibility of **cvs.** of most affected spp.
 - To know for how long Xf is among us
(*may EU control measures be improved?*)





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* BIOLOGY AND GENETICS (SESSION 2)

- Key research achievements so far
 - Calcium effect on host-pathogen interaction
 - **Genome analysis**

- Key research needs
 - Soil or Growing Media pH, composition & Mineral nutrition as management tools to prevent Xf
 - Tracing Xf origin/provenance.





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* HOST PLANTS AND RESISTANCE (SESSION 3)

- Key research achievements so far
 - some promising cvs of *Vitis*, *Olea europaea*
 - EFSA database on the host plants of *Xylella*

- Key research needs
 - Xf resistant cvs. **breeding programs** for all host plants
 - Should tolerant cvs:
 - be avoided?
 - restricted to contaminated regions?
 - **Continuous** update of EFSA **database**





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* PATHOGEN AND DISEASE CONTROL IN THE PLANT (SESSION 4)

- Key research achievements so far
 - Some hope on:
 - N-acetylcysteine (NAC)
 - GMO's
 - Antimicrobial **peptides**
- Key research needs
 - **Authorisation** of these techniques / products
 - Use of these **products in nurseries'** management
 - **Thermotherapy !!!**





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* VECTORS (SESSION 5)

- Key research achievements so far
 - Vectors presence, quantification, host preference, cycle in some regions/countries
 - 1 predator found





Feedback from nurseries perspective: RESEARCH ON XYLELLA VECTORS (SESSION 5)

- Key research needs
 - Vectors studies in most EU regions / hosts (including nurseries)
 - Weed control strategies to minimize vectors
 - Biological control / Plant Protection Products & application strategies
 - Insect-proof facilities - **affordable** structures & technology
 - **Screen sizes/types?** (*Wall only? Height?*)
 - Vectors' control outside the nursery (100 m, other owner)
 - Vector control in nursery stock trade? (plant material leaving/arriving nurseries, BIP)





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* DETECTION (SESSION 6)

- Key research achievements so far
 - Many tests for detection and identification
 - Highly advanced laboratories
- Key research needs
 - **EASY QUICK FIELD TEST
(including sample preparation)**
 - Determination of optimal sample size
(plants for sale)
 - Dispersion of Xf in the plant: indications for
sampling asymptomatic nursery stock





Feedback from nurseries perspective: RESEARCH ON *XYLELLA* EPIDEMIOLOGY, DISEASE DYNAMICS AND SPREAD (SESSION 7)

- Key research achievements so far
 - *(on olive trees only, regular plantations)*

- Key research needs
 - Use of remote sensing on nurseries (micro-plots)???
 - Maps of risk according to climatic data for large nursery regions



Feedback from nurseries perspective: **CONCLUSIONS AND/OR RECOMMENDATIONS FOR RESEARCH**

- **Amazing improvement** on all techniques development in 2 years (limited € compared to US)
- Good basis for reaching important goals in short term
- EU: + **funding** for research
- **Applied research: addressed to nurseries** (all types, all host plants, prediction of possible host plants)
- **Quick on-field detection methods**

