



#### Presentation of Partners P2-P3

CURE-XF Kick-off Meeting CIHEAM Bari 28-29 September, 2017

### Research Teams working on plant pathology and quarantine organisms



University of Bari - Dip. di Scienze del Suolo, della Pianta e degli Alimenti (DiSSPA), Plant Pathology section



P2: Consiglio Nazionale delle Ricerche – Istituto per la Protezione Sostenibile delle Piante



# P3: University of Bari « Aldo Moro » - Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti – Sect. Plant Pathology

> short description

> consolidated experience in **PLANT PROTECTION** in agriculture and forestry,

> Personnel cover all fields of PLANT PROTECTION INCLUDING INVASIVE PATHOGENS (viruses, pytoplasmas, bacteria and

fungi), insects, mites nematodes and weeds.

The research activity of CNR-UNIBA unit harmonizes BASIC AND APPLIED RESEARCH to understand and manage plant pest and diseases.

>Training activities are well sustained by UNIBA-DiSSPA that manages a PhD course in Plant Protection

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#### > staff number

more than 15 (full professor, senior and young researchers, phD students)





#### Joint Laboratories for plant pathology at UNIVERSITY OF BARI



#### > Main activities:

- Pathogen detection using different approaches
- Characterization of unknown/novel pathogen
- Evaluation of the host-pathogen interactions
- Evaluation of host plants susceptibility/resistance
- Sanitation of virus-infected materials using thermoterapy and in vitro meristem tip culture
- production of pathogen-free germplasm





►<u>Labs</u>





### Facilities available to conduct specific research on Xylella fastidiosa

• Laboratory authorized to manipulate the living bacterial cultures (isolation and culturing of X. fastidiosa)







### Facilities available to conduct specific research on *Xylella fastidiosa*

• Reference Laboratory for the diagnostic tests: application of validated tests and development of innovative tests



≻<u>Labs</u>









90minutes

for running HRM+ real-

#### Facilities available to conduct specific research on *Xylella fastidiosa*

• Development of rapid assays for subspecies assignment





Sample	Cluster		Percent confidence	Tm	
ST6	Cluster 1		99.3	83.80	
ST7	Cluster 1		98.9	83.80	
AlmaEm3	Cluster 1		96.5	83.80	
BB08-1	Cluster 1		99.0	83.80	
RBCF119	Cluster 1		97.8	83.80	
Dixon	Cluster 1		95.4	83.80	
Sandyi	Cluster 1		98.7	84.00	
J4	Cluster 2		94.4	84.20	
J33	Cluster 2		93.1	84.20	
CoDiRO	Cluster 2		97.9	84.20	
ST73	Cluster 2		96.3	84.00	
J2	Cluster 2		88.3	84.20	
6570	Cluster 2		96.1	84.20	
tem	Cluster 3		98.3	84.40	
WM-1	Cluster 3		98.5	84.40	
CO33	Cluster 4		92.5	85.00	



# Facilities available to conduct specific research on Xylella fastidiosa



• Use of next generation sequencing approaches to characterize the bacterial genome and to investigate the host response to infections (transcriptome analyses)





## Facilities available to conduct specific research on Xylella fastidiosa

Funded by the European Union



• Greenhouses: containment facilities for the *in-vivo* manipulation of the bacterium in planta





### Facilities available to conduct specific research on Xylella fastidiosa



CURE-XF - 734353

Funded by the European Union

• Greenhouses: performing pathogenicity tests





#### Facilities and experimental plots in the infected area



- Screenhouses, field plots and facilities for conducting applied researches
- Study of the temperature influence on the Xylella-disease development
- Host response to infections under natural inoculum pressure (evaluation of susceptible/tolerant/resistant germplasm)
- Studies of the infections upon vector-trasmission











#### http://www.campusx.it/bari/

Hostel/residence 600 BEDS, Olympic swimming pool Wifi, Shuttle, Study and meeting rooms Restaurant Hotel /residence Single, double, triple rooms Bar, restaurant Wi fi, shuttle







# H2020 (CNR coordinator, UNIBA partner)



On emerging pests threatening EU agriculture and forestry:

- Xylella fastidiosa
- CaLsol
- Hymenoscyphus fraxineus (Hf) and Phytophtora spp



A multidisciplinary research approach counteracting Xf threat with a full awareness of environmental, economic and social impacts

# AT REGIONAL LEVEL: STIPIXY, TAPAS , REDOXY, EPIZIXY

evaluation of susceptible/tolerant/resistant germplasm

strategies for the control of Xylella-induced diseases

Identification of host species in Salento

CURE-XF Kick-off Meeting CIHEAM Bari 28-29 September, 2017



### Publications: **MORE THAN 20 PAPERS**



Phytopathology • 2017 • 107:816-827 • http://dx.doi.org/10.1094/PHYTO-12-16-0420-R

Bacteriology

e-Xtra\*

#### Genome-Wide Analysis Provides Evidence on the Genetic Relatedness of the Emergent Xylella fastidiosa Genotype in Italy to Isolates from Central America

Annalisa Giampetruzzi, Maria Saponari, Giuliana Loconsole, Donato Boscia, Vito Nicola Savino, Rodrigo P. P. Almeida, Stefania Zicca, Blanca B. Landa, Carlos Chacón-Diaz, and Pasquale Saldarelli

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DOI 10.1186/s12864-016-2833-9

#### RESEARCH ARTICLE



**BMC** Genomics

Transcriptome profiling of two olive cultivars in response to infection by the CoDiRO strain of *Xylella fastidiosa* subsp. *pauca* 

Annalisa Giampetruzzi<sup>1</sup>, Massimiliano Morelli<sup>2</sup>, Maria Saponari<sup>2</sup>, Giuliana Loconsole<sup>1</sup>, Michela Chiumenti<sup>2</sup>, Donato Boscia<sup>2</sup>, Vito N. Savino<sup>1</sup>, Giovanni P. Martelli<sup>1</sup> and Pasquale Saldarelli<sup>2</sup>

Eur J Plant Pathol DOI 10.1007/s10658-016-0894-x



G. Loconsole • M. Saponari • D. Boscia • G. D'Attoma • M. Morelli · G. P. Martelli · R. P. P. Almeida

Journal of Plant Pathology (2014), 96 (1), 7-14

🕷 Edizioni ETS Pisa. 2014

#### LETTER TO THE EDITOR

#### DETECTION OF XYLELLA FASTIDIOSA IN OLIVE TREES BY MOLECULAR AND SEROLOGICAL METHODS

G. Loconsole<sup>1</sup>, O. Potere<sup>2</sup>, D. Boscia<sup>1</sup>, G. Altamura<sup>3</sup>, K. Djelouah<sup>4</sup>, T. Elbeaino<sup>4</sup>, D. Frasheri<sup>4</sup>, D. Lorusso<sup>4</sup>, F. Palmisano<sup>3</sup>, P. Pollastro<sup>3</sup>, M.R. Silletti<sup>3</sup>, N. Trisciuzzi<sup>3</sup>, F. Valentini<sup>4</sup>, V. Savino<sup>2</sup> and M. Saponari<sup>1</sup>







H2020-MSCA-RISE-2016

Dipartimento di Scienze del Suolo, della Pianta e **CURE-XF - 734353** degli Alimenti - Di.S.S.P.A.

**P**3



Consiglio Nazionale delle Ricerche P2

Istituto per la Protezione Sostenibile delle Piante,