

Título

Ten Challenges to Understanding and Managing the Insect-Transmitted, Xylem-Limited Bacterial Pathogen *Xylella fastidiosa*

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Palabras clave

Remote sensing
Almond
Antimicrobials
Blueberry
Citrus
Diagnosis
Epidemiology
Fastidious prokaryote
Grapevine
Leafhopper
Modeling
Olive
Research funding
Sharpshooter
Spittlebug

Fecha de publicación

2024-05

Editor

American Phytopathological Society

Citación

Phytopathology 114(5): 869-884 (2024)

Resumen

An unprecedented plant health emergency in olives has been registered over the last decade in Italy, arguably more severe than what occurred repeatedly in grapes in the United States in the last 140 years. These emergencies are

epidemics caused by a stealthy pathogen, the xylem-limited, insect-transmitted bacterium *Xylella fastidiosa*. Although these epidemics spurred research that answered many questions about the biology and management of this pathogen, many gaps in knowledge remain. For this review, we set out to represent both the U.S. and European perspectives on the most pressing challenges that need to be addressed. These are presented in 10 sections that we hope will stimulate discussion and interdisciplinary research. We reviewed intrinsic problems that arise from the fastidious growth of *X. fastidiosa*, the lack of specificity for insect transmission, and the economic and social importance of perennial mature woody plant hosts. Epidemiological models and predictions of pathogen establishment and disease expansion, vital for preparedness, are based on very limited data. Most of the current knowledge has been gathered from a few pathosystems, whereas several hundred remain to be studied, probably including those that will become the center of the next epidemic. Unfortunately, aspects of a particular pathosystem are not always transferable to others. We recommend diversification of research topics of both fundamental and applied nature addressing multiple pathosystems. Increasing preparedness through knowledge acquisition is the best strategy to anticipate and manage diseases caused by this pathogen, described as "the most dangerous plant bacterium known worldwide."

Descripción

Beyond *Xylella*, Integrated Management Strategies for Mitigating *Xylella fastidiosa* Impact in Europe (BeXyl) (Grant Agreement 101060593). Partner/Coordinador principal: Blanca B. Landa del Castillo, Investigadora Científica del Instituto de Agricultura Sostenible (IAS-CSIC).

URI

<http://hdl.handle.net/10261/362843>

ISSN

0031-949X
