Concluding remarks

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Concluding remarks
RESEARCH ON CURRENT *XYLELLA* OUTBREAKS IN THE EU (SESSION 1)

The composition of the conference reflects the global challenges by *Xylella fastidiosa*

It is impressing how the research knowledge in Italy has been transferred to the other countries and the high level of international cooperation in ongoing research

There are striking advances in France and Spain in shorter time, however “one size does not fit all”

Scientists participate even by sharing their not yet published data

Impact of Xylella outbreaks is on production and landscape, but impact also on trade of plants

Concluding remarks: RESEARCH ON *XYLELLA* BIOLOGY AND GENETICS (SESSION 2)

Biological and physiological studies of the host pathogen interactions can help to better understand and put into perspective of how to control the diseases

Even closely related genotypes of Xylella can vary dramatically in host range. This poses challenges when new introductions occur

Genomic analyses can help to understand the origin and subsequent spread of the pathogen

Concluding remarks: RESEARCH ON *XYLELLA* HOST PLANTS AND RESISTANCE (SESSION 3)

In a short period of time olive breeding in Europe has identified some promising sources of resistance. Work in progress, needs to be continued and enlarged.

US research is on the verge of releasing resistant grapes varieties by classical breeding. Long work (10-20 years) to obtain resistant high quality cultivars.

The EFSA host plants database is a useful tool to collect and analyze info on host range of different strains

Screening germplasm banks in Europe is needed to identify resistance

Concluding remarks: RESEARCH ON *XYLELLA* PATHOGEN AND DISEASE CONTROL IN THE PLANT (SESSION 4)

Reducing inoculum by vector exclusion (screenhouse in nurseries) and vector control, combined with removal of diseased plants, led to a decrease of CVC in Brazil

Alternative strategies using novel approaches for Xylella bacterium control in plant at field level are still at an early stage.

Concluding remarks: RESEARCH ON *XYLELLA* VECTORS (SESSION 5)

Diversity of vectors and potential vectors is location dependent, need for data at regional/local level

Vectors control need to be integrated with other strategies

Big progress in Europe on distribution, ecology and population biology of *Phylaenus spumarius*, however little is known on other species so far

Transmission has several components: acquisition, retention, inoculation and infection. All need to be addressed.

Concluding remarks: RESEARCH ON *XYLELLA* DETECTION (SESSION 6)

A variety of groups are continuing to improve molecular detection, standardising diagnostic practices and improving their use

The EPPO diagnostic protocol has been updated and improved taking onboard the experience from research in Europe and overseas

Improvements on early detection in plants and insects and big effort is ongoing to harmonise methodology

Concluding remarks: RESEARCH ON *XYLELLA* EPIDEMIOLOGY, DISEASE DYNAMICS AND SPREAD (SESSION 7)

An intense research effort is ongoing to apply remote sensing to record Xylella infection in the landscape. Encouraging results on early detection in olive plantations, upscaling needed.

Novel incorporation of spatial dimensions in temporal analysis

Models can help to predict but also to understand the history of invasion

Concluding remarks: RESEARCH ON *XYLELLA* SURVEILLANCE AND CONTROL (SESSION 8)

- Surveillance strategies can be better targeted
- Modeling has identified the critical need for early detection if removal of plants is to be effective
- Also critical is to better understand and characterize long-distance spread
- A major challenge is to obtain buying in from growers for phytosanitary measures

Concluding remarks:
OVERALL CONCLUSIONS AND/OR RECOMMENDATIONS FOR RESEARCH

Control of Xylella is complex and need to be tailored to each case, understanding the pathosystem (pathogen, vectors, host, environment)

Amazing progresses of Xylella research in Europe in the last years but still a long way forward

Long term research needed