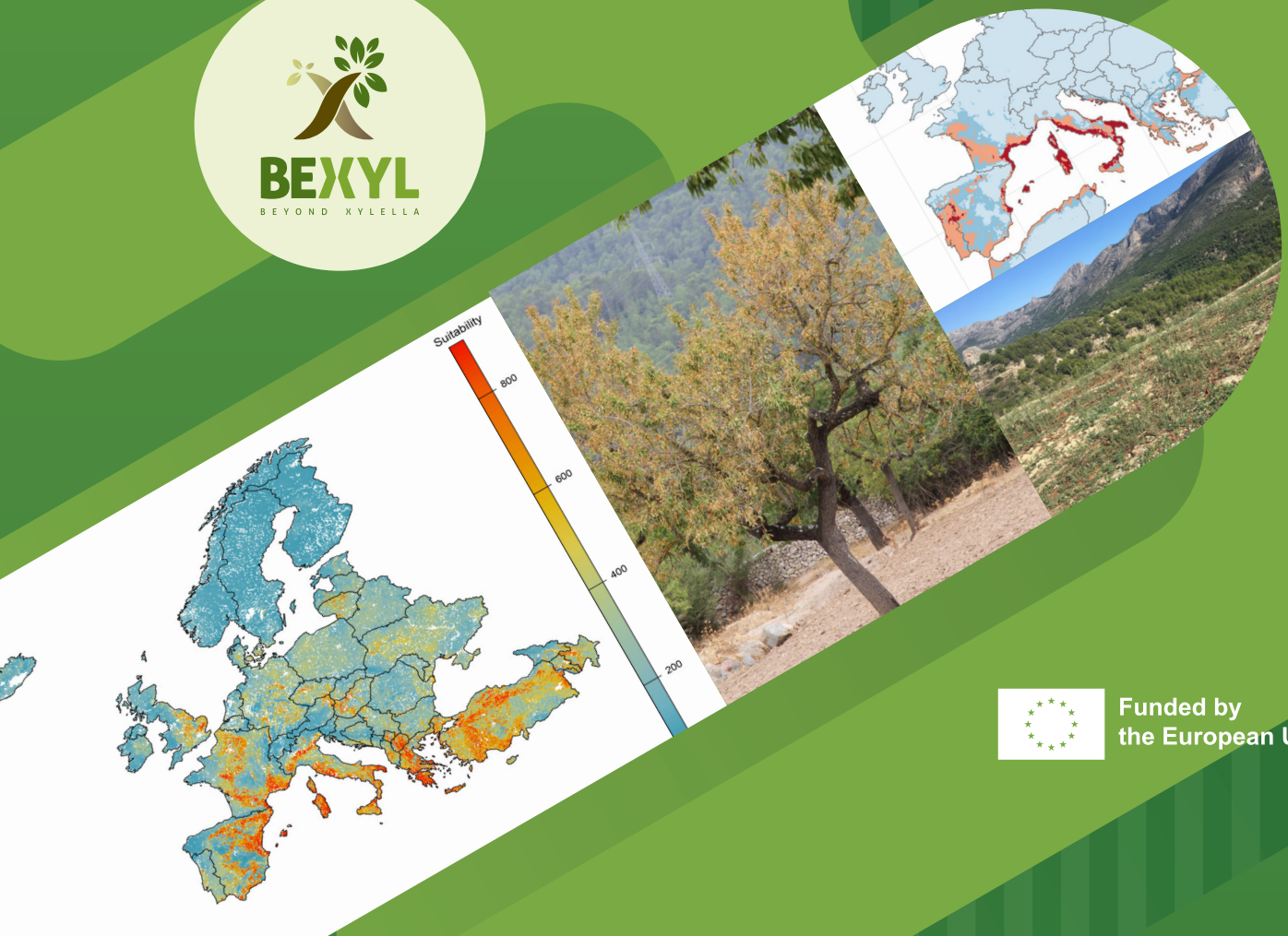
Beyond *Xylella*, Integrated Management Strategies for Mitigating *Xylella fastidiosa* impact in Europe

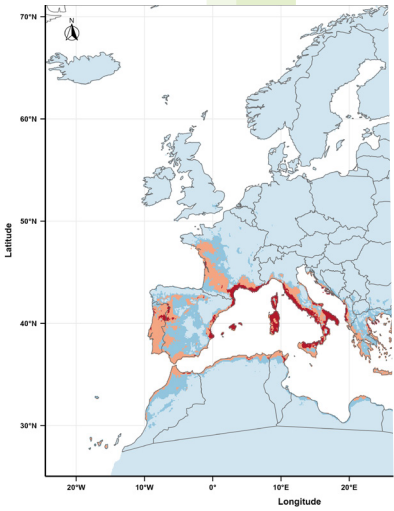
Practice abstract 15

Mapping climatic suitability for *Xylella fastidiosa* to support quantitative pest risk assessment in Europe



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Mapping climatic suitability for *Xylella fastidiosa* to support quantitative pest risk assessment in Europe



Xylella fastidiosa threatens agriculture and natural ecosystems in Europe. Identifying where climate is suitable for establishment is essential for pest risk assessment, preparedness, and surveillance.

Species distribution models (SDMs) use known occurrences and environmental conditions to estimate climatic suitability in unsurveyed areas. Ensemble approaches combine algorithms to produce more robust maps.

How did BeXyl make a difference?

BeXyl developed ensemble SDMs for ***X. fastidiosa*** and its three major subspecies: ***fastidiosa, multiplex***, and ***pauca***. The models combined georeferenced records with high-resolution climatic data. Pseudo-absence selection strategies, variable selection, and spatial block cross-validation were used to reduce bias and evaluate predictions in new geographical areas.

Main outcomes

BeXyl's modelling work contributed to the update of the EFSA quantitative pest risk assessment (QPRA) of ***X. fastidiosa***. The approach and results will appear in the forthcoming EFSA Technical Report "Ensemble species distribution modelling for ***Xylella fastidiosa*** and its three major subspecies".

The final climatic suitability maps will be made available through ***B*eXyl Deliverable 1.1,** "Maps of relative risk to ***Xylella fastidiosa*** for selected areas in the EU based on the identified major biotic and abiotic factors that drive ***X. fastidiosa*** epidemics". The maps depict spatial variation in climatic suitability, providing a spatially explicit basis for interpreting potential establishment patterns in Europe.

Impact: The species distribution maps can support risk-based preparedness and surveillance by helping plant health authorities identify areas where climate may favor *X. fastidiosa* establishment. Climatic suitability does not represent overall pest risk and should be considered with host distribution, vectors, pathways, and other epidemiological factors.

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