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

Practice abstract 3

Innovative and environmentally friendly approach for controlling *Xylella fastidiosa* insect vectors using entomopathogenic fungi

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Entomopathogenic fungi for controlling *Xylella fastidiosa* vectors



BeXyl project is addressing the urgent need for sustainable alternatives to chemical insecticides to control insect vectors of *Xylella fastidiosa* (***Xf***) .

BeXyl solution is to harness **entomopathogenic fungi** (naturally occurring microorganisms) that target insect pests effectively and sustainably, and can easily be integrated into Integrated Pest Management (IPM) strategies.

These **entomopathogenic fungi** do more than just kill ***Xf***-insect vectors; they can also disrupt insect reproduction and behaviour, potentially reducing the spread of ***Xf***.

How will BeXyl make a difference?

Identifying Local Beneficial Fungi: BeXyl is exploring the **olive agroecosystem**—including olive plants, associated vegetation and cover crops, and insect communities—to discover **native strains of entomopathogenic fungi** naturally adapted to local environmental conditions.

Effective Pest Control: Selected fungal strains will be tested directly against both juvenile and adult forms of key insect vectors of ***Xf***, such ***Philaenus spumarius*** and ***Neophilenus campestris.*** Furthermore, we will evaluate the potential of these entomopathogenic fungi to colonize olive and other plants internally (as endophytes), providing indirect pest control by impacting insect survival and reproduction when feeding.

Reducing Disease Transmission: These entomopathogenic fungi will also be assessed for their ability to **modify insect feeding behaviour**; thereby, decreasing the transmission efficiency of ***Xf*** to olive trees.

By thoroughly understanding and harnessing these natural enthomopathogenic fungi, BeXyl aims to provide growers and stakeholders with practical, sustainable, and highly effective biocontrol tools (to be included in IPM programs) to protect olive crops from *Xylella fastidiosa*.

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