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

Practice abstract 14

Commercial-scale thermal treatments of plant propagation material against *Xylella fastidiosa*

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The movement of infected plant material is a critical pathway for the long-distance spread of ***Xylella fastidiosa***. **BeXyl** evaluated thermal treatments (**TT**) as nonchemical phytosanitary measures to reduce the risk of moving the bacterium through nursery stocks.

Tests on olive, almond, cherry, peach, fig, walnut, white mulberry and other ornamental and forest woody hosts show that **TT** performance depends on the plant species and cultivar, type and diameter and physiological status of the propagation material, and treatment temperature and exposure time.

Consequently, a single **TT schedule** is not suitable for all plants and propagation systems.

How will BeXyl make a difference?

BeXyl defined the technical requirements to transfer **hot-water treatment** (**HWT**) from trials to commercial nursery operations. Propagation material should be dormant and adequately hydrated before **HWT** and grouped into uniform batches according to species, cultivar, material type and size.

Commercial equipment must ensure complete immersion, stable water temperature and uniform circulation in the chamber. **TT** duration should be measured only after the target temperature has been reached, including within the plant tissue, which is particularly important for thick woody material. After **TT**, rooting, graft success, bud viability and subsequent plant growth should be monitored because excessive temperatures or exposure times can reduce propagation success.

In **BeXyl** trials, commercial-scale **HWT** confirmed that the approach can be integrated into nursery workflows, but showed marked differences in heat tolerance among species and cultivars. Before routine commercial use, experimental validation is needed, as well as assessment of treatment capacity, energy use and operating costs.

Impact: BeXyl will provide a technical basis for crop-specific HWT protocols and phytosanitary standards. Once validated for both bacterial inactivation and differential plant viability, HWT could support safer production and movement of planting material.

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