

ABSTRACT BOOK



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Session: Advances in diagnostic technologies used in the field and in the laboratory

Assessing adoption drivers of a VOC sensor technology for pest and pathogen detection: Insights from a survey among European nurseries

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Global trade networks involving the trade of nursery stock remain a major pathway for the introduction of invasive pests and pathogens, as latent or symptomless infections continue to challenge current biosecurity measures. Extending diagnostic capacity beyond visual inspections and laboratory testing is a key objective of the Horizon EU PurPest project, which strives to develop a novel volatile organic compound (VOC) sensor technology. This sensor serves as an ‘electronic nose’ and is designed for non-invasive and accurate pest and pathogen detection. We conducted a multi-country survey among nurseries in Italy, France, Germany, and Romania, yielding 420 valid completed questionnaires. Our results reveal a strong reliance on visual inspection methods, diverse experiences with invasive species, and a general trust in the existing plant passport certification scheme. Furthermore, while nurseries broadly recognize the importance of early detection, they tend to assign primary responsibility to exporters, border control points, and national plant protection organizations. Although the potential benefits of the VOC sensor are acknowledged by the majority of respondents, there are concerns over initial investment costs, integration into existing workflows, and trust in its diagnostic performance. These findings provide an empirical foundation for understanding the adoption potential of VOC-based diagnostics at the nursery level, an actor not legally obliged to perform phytosanitary inspections, yet directly interested in ensuring the trade of pest-free plant material.

Keywords: plant health, nursery industry, technology adoption, choice experiment, EU biosecurity.