PEST SURVEY CARD SUMMARY

efsa SUPPORTING PUBLICATIONS

APPROVED: 20 December 2022

doi:10.2903/sp.efsa.2023.EN-7808

Pest survey card on *Anisogramma anomala*

European Food Safety Authority (EFSA), Alessandra Gionni, Francesco Pecori, Alberto Santini, Ignazio Graziosi, Melanie Camilleri

Abstract

This document provides the conclusions of the pest survey card that was prepared in the context of the EFSA mandate on plant pest surveillance (M-2020-0114) at the request of the European Commission. The full pest survey card for *Anisogramma anomala* is published and available online in the EFSA Plant Pest Survey Cards Gallery at the following link and will be updated whenever new information becomes available:
https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/anisogramma-anomala

Keywords: *Corylus avellana*, eastern filbert blight, Union quarantine pest, risk-based surveillance, detection survey, delimiting survey

Requestor: European Commission

Question number: EFSA-Q-2022-00834

Correspondence: PLANTS@efsa.europa.eu

Acknowledgements: EFSA wishes to acknowledge the Institute for Sustainable Plant Protection of the Italian National Research Centre (IPSP – CNR) in the context of grant GP/EFSA/ALPHA/2021/08–Lot 2 for the preparation, Cécile Robin for the review, and ISA expert Giulia Mattion (in the context of procedure e EOI/EFSA/SCIENCE/2020/01) for the finalisation and publication of this survey card.

Suggested citation: EFSA (European Food Safety Authority), Gionni A, Santini A, Pecori F, Graziosi I and Camilleri M, 2023. Pest survey card on *Anisogramma anomala*. EFSA supporting publication 2023:EN-7808. doi:10.2903/sp.efsa.2023.EN-7808 Available online: https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/anisogramma-anomala

ISSN: 2397-8325

1. Introduction

This pest survey card was prepared in the context of the EFSA mandate on plant pest surveillance (M-2020-0114), at the request of the European Commission. Its purpose is to guide the Member States in preparing data and information for surveys for the causal agent of eastern filbert blight, *Anisogramma anomala*. The pathogen is a well-defined and distinguishable fungal species of the family *Valsaceae* and is a Union quarantine pest. *Anisogramma anomala* is currently not known to occur within the EU and is only reported in the USA and Canada. *Anisogramma anomala* is a biotrophic ascomycete known to infect only species of *Corylus* L. (filbert or hazelnut). The major host on which damage is most reported is *C. avellana*, and *C. maxima* is reported as a wild host of the pathogen. Detection and delimiting surveys of *A. anomala* in the EU should focus mainly on *C. avellana*, and *C. maxima* where present. In spring *A. anomala* infects the young vegetative tissues of *Corylus* spp., following budbreak, through ascospores. Symptoms appear 12–16 months after the initial infection as cankers and rows of elliptical stromata containing perithecia. *Anisogramma anomala* spreads naturally through ascospores dispersed by rain or air currents. Human-assisted spread is facilitated via imports of infected plants for planting and/or wood and cut branches of the host plants bearing the stromata of *A. anomala.* Climatic conditions and host availability are not to be considered as a limiting factor for the establishment of the pathogen in the EU territory, if introduced. *Anisogramma anomala* can be detected in the field through host specificity and observation of specific symptoms on the host plants. Following visual examination, sampling must be conducted if cankers are observed. Pathogen identification must be confirmed in the laboratory using the available TaqMan Real-time assay.

2. The survey preparation

Table 1 addresses the key questions that are relevant for preparing a pest survey. First, the plant pest needs to be characterised in in terms of its life cycle and biology. Then, the structure and size of the target population needs to be characterised and these analyses should be tailored to the situation in each Member State. Figure 1 gives examples of the components of a target population for *A. anomala* and is not necessarily exhaustive. Finally, the sequence of detection and identification methods required for the survey should be characterised.

Table 1: Preparation of surveys for *Anisogramma anomala*

Survey question	Section	Key information
What?	1. The pest and its biology	*Anisogramma anomala* is an obligate, biotrophic ascomycete and is the causal agent of eastern filbert blight.
Where?	2. Target population	Epidemiological units: homogeneous areas that contain at least one individual host plant for *A. anomala* (e.g. orchards, mixed deciduous stands).
		Risk areas: areas surrounding risk locations (nurseries, garden centres, new hazelnut orchards) where hosts of *A. anomala* are imported and cultivated or naturally growing and new hazelnut orchards themselves.
		Inspection units: individual host plants (*Corylus avellana* and *Coryllus maxima*) examined for *A. anomala.*

How?	3. Detection and identification	*Anisogramma anomala* can be detected in the field through host specificity and observation of symptoms and signs on the host plants (dead branches, sunken cankers, characteristic rows of stromata). Following visual examination, sampling should be conducted, if cankers are present. Identification must be confirmed in the laboratory using the available TaqMan real-time assay.
When?		The best time to detect the presence of *A. anomala* by visual examination in the field is in late summer, when canopy dieback can be observed, and cankers can be detected by the presence of dead leaves attached to dead branches. Additionally, in winter, visual examination can be conducted, when the leaves do not impede the vision of the perennial cankers with stromata and fruiting bodies on branches and twigs.

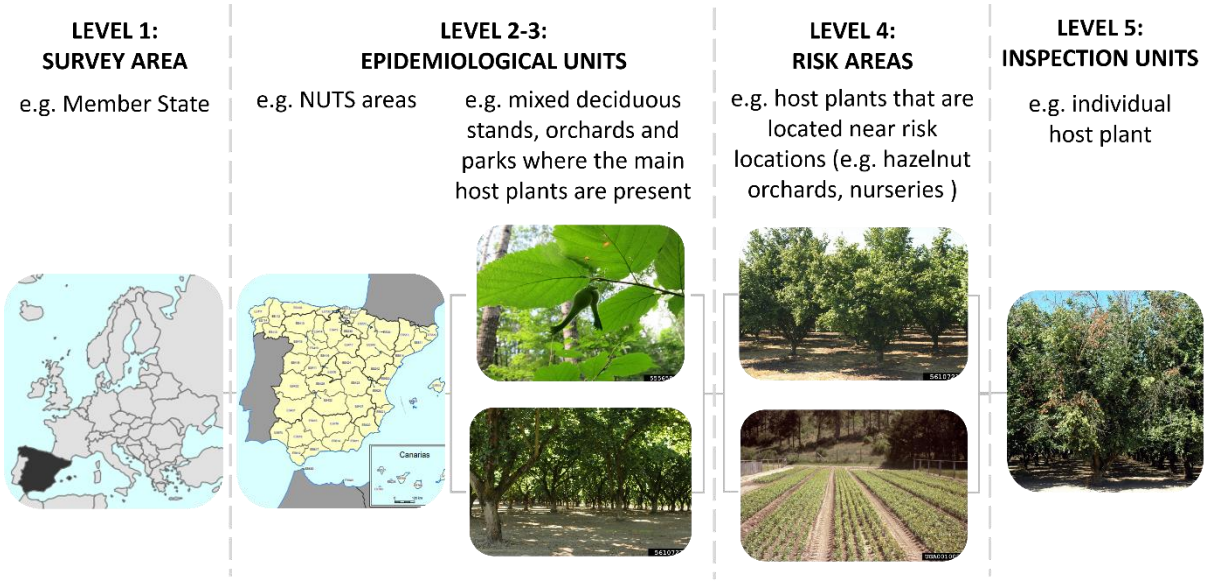

Figure 1: Example of the hierarchical structure of the target population for *Anisogramma anomala* in the EU (Sources: Eurostat, 2022 (levels 1–2); Caleb Slemmons, National Ecological Observatory Network, Bugwood.org (level 3, top); Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org (level 3, bottom and level 4, top); Thomas D. 'Tom' Landis, USDA Forest Service, Bugwood.org (level 4, bottom); Jay W. Pscheidt, 2007 (level 5))

3. From survey preparation to survey design

Figure 2 shows the next steps after the survey preparation for designing statistically sound and risk-based detection and delimiting surveys for *A. anomala*. Guidance on the selection of type of survey, related survey preparation and design, is provided in the EFSA general guidelines for pest surveys[1].

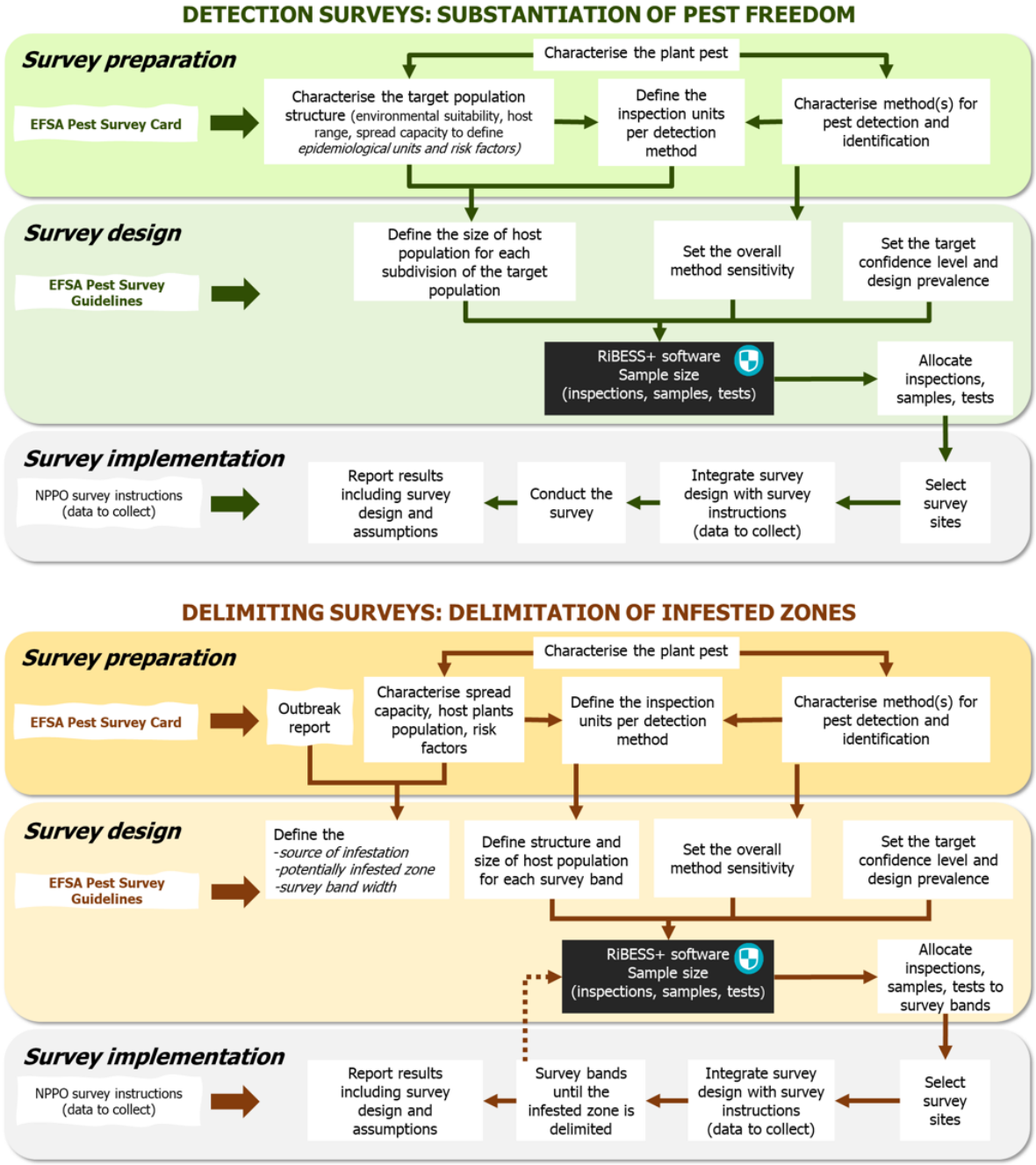

Figure 2: Steps required for the preparation, design and implementation of detection and delimiting surveys, in accordance with the methodology for statistically sound and risk-based surveillance[1]

[1] EFSA (European Food Safety Authority), Lázaro E, Parnell S, Vicent Civera A, Schans J, Schenk M, Cortiñas Abrahantes J, Zancanaro G and Vos S, 2020. General guidelines for statistically sound and risk-based surveys of plant pests. EFSA supporting publication 2020:EN-1919. 65 pp. doi:10.2903/sp.efsa.2020.EN-1919 https://efsa.onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2020.EN-1919

Relevant EFSA outputs

- General guidelines for statistically sound and risk-based surveys of plant pests: https://efsa.onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2020.EN-1919
- Pest survey card on *Anisogramma anomala*: https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/anisogramma-anomala
- Index of the EFSA Plant Pest Survey Toolkit: https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/index
- Plant pest survey cards gallery: https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/gallery
- Pest survey cards: what, when, where and how to survey? https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/video-pest-survey-card
- The statistical tool RiBESS+: https://r4eu.efsa.europa.eu/app/ribess
- The RiBESS+ manual: https://zenodo.org/record/2541541#.Ys7G5HZByUn
- The RiBESS+ video tutorial: https://youtu.be/qYHqrCiMxDY