

PEST SURVEY CARD SUMMARY

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Pest survey card on *Pseudocercospora angolensis*

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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 *Pseudocercospora angolensis* 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/pseudocercospora-angolensis>

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Keywords: *Cercospora angolensis*, *Phaeoramularia angolensis*, Pseudocercospora leaf and fruit spot, plant pest, pest detection, risk-based surveillance, Union quarantine pest

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Figure 1: © Eurostat, 2018 (levels 1–2), © Plant Health Service of Generalitat Valenciana (GVA) (level 4, up), © Antonio Vicent, IVIA (levels 3, 4 bottom, 5).

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 *Pseudocercospora angolensis* surveys. These are required to design statistically sound and risk-based pest surveys, in line with current international standards. The fungus *P. angolensis* is a clearly defined taxonomic entity affecting *Citrus* species. *Pseudocercospora angolensis* is a Union quarantine pest not known to occur in the EU. The import of host plants is prohibited from third countries while special requirements are in place for the import of host fruit, which is the main pathway for the entry of this pest into the EU. *Pseudocercospora angolensis* produces conidia on lesions in plant tissues that can be disseminated by wind and/or rain, but dispersal distances are not known. Mild temperatures and prolonged periods of wetness are necessary for infection. Lesions on the leaves and fruit appear two to three weeks after infection. All commercial citrus species are susceptible to the fungus. Due to the wide availability of host species and climatic suitability, all citrus-growing areas in the EU are considered potentially suitable for the establishment of the pest. Long-distance spread is likely to occur through the movement of infected plant material. To increase the likelihood of detecting the pest, visual examination of symptoms should preferably be conducted in autumn before the harvest period. Symptoms caused by *P. angolensis* are non-specific; therefore, visual examination should be followed by molecular tests to identify the pest. Three main approaches for identifying *P. angolensis* in the laboratory are presented. Based on the analyses of the information on the pest–host plant system, the various units that are needed to design a survey should be defined and tailored to the situation in each Member State.

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 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 *P. angolensis* and is not necessarily exhaustive. Finally, the detection process needs to be characterised in terms of the sequence of detection and identification methods required for the survey.

Table 1: Preparation of surveys for *Pseudocercospora angolensis*

Survey question	Section	Key information
What?	1. The pest and its biology	The fungus <i>Pseudocercospora angolensis</i> produces asexual spores (conidia) on lesions in citrus leaves and fruit which can be dispersed by wind and/or rain. Mild temperatures and prolonged periods of wetness are necessary for infection. Lesions on leaves and fruit appear two to three weeks after infection.
Where?	2. Target population	All commercial citrus species and cultivars are susceptible to <i>P. angolensis</i> . Epidemiological unit: an individual homogeneous area that contains at least one individual host plant (e.g. orchard, hectare, NUTS area).

		<p>Risk areas: areas with citrus plants near risk locations (e.g. nurseries, garden centres, packing houses, outdoor fruit-drying facilities, fresh fruit markets and neglected orchards).</p> <p>Inspection unit: an individual citrus plant.</p>
How?	3. Detection and identification	<p>Recommended method: visual examination of symptoms on citrus leaves and fruit followed by sampling and laboratory testing. Three main approaches are available for the identification of <i>P. angolensis</i> on symptomatic leaves and fruit: (i) incubation of lesions followed by molecular tests; (ii) isolation and culturing followed by molecular tests; and (iii) molecular tests applied directly on the lesions.</p>
When?		<p>Visual examination should preferably be conducted in autumn before the harvest period.</p>

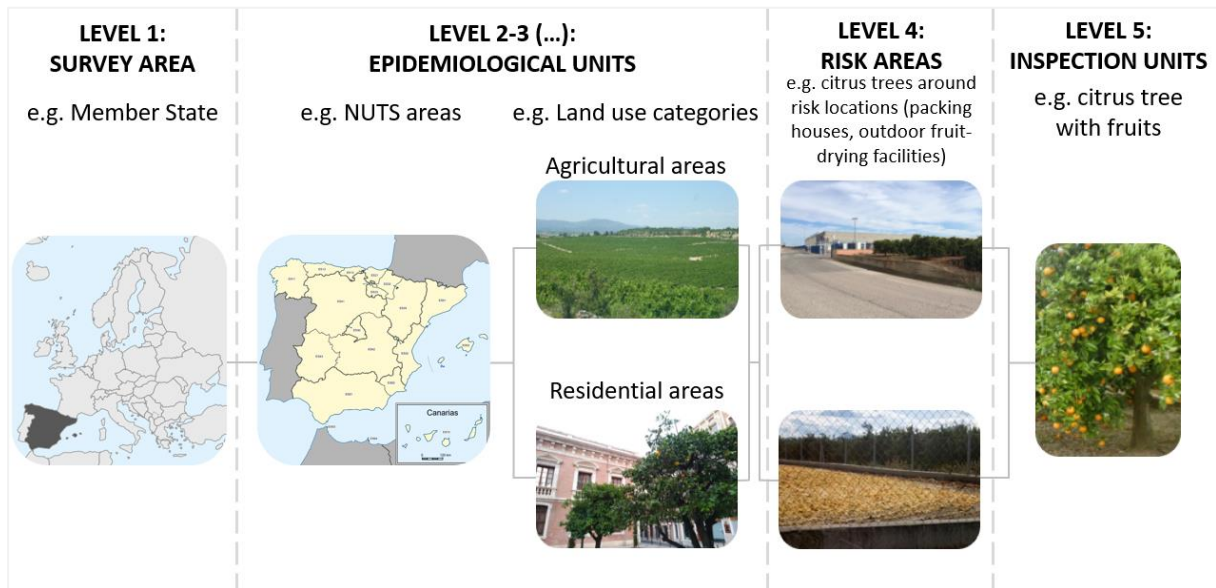


Figure 1: Example of hierarchical structure of the target population for *Pseudocercospora angolensis* in the EU (Sources: Eurostat, 2018 (levels 1–2); Plant Health Service of Generalitat Valenciana (GVA) (level 4, up); Antonio Vicent, IVIA (levels 3, 4 bottom, 5))

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 of *Pseudocercospora angolensis*. Guidance on the selection of type of survey, related survey preparation and design, is provided in the EFSA general guidelines for pest surveys¹.

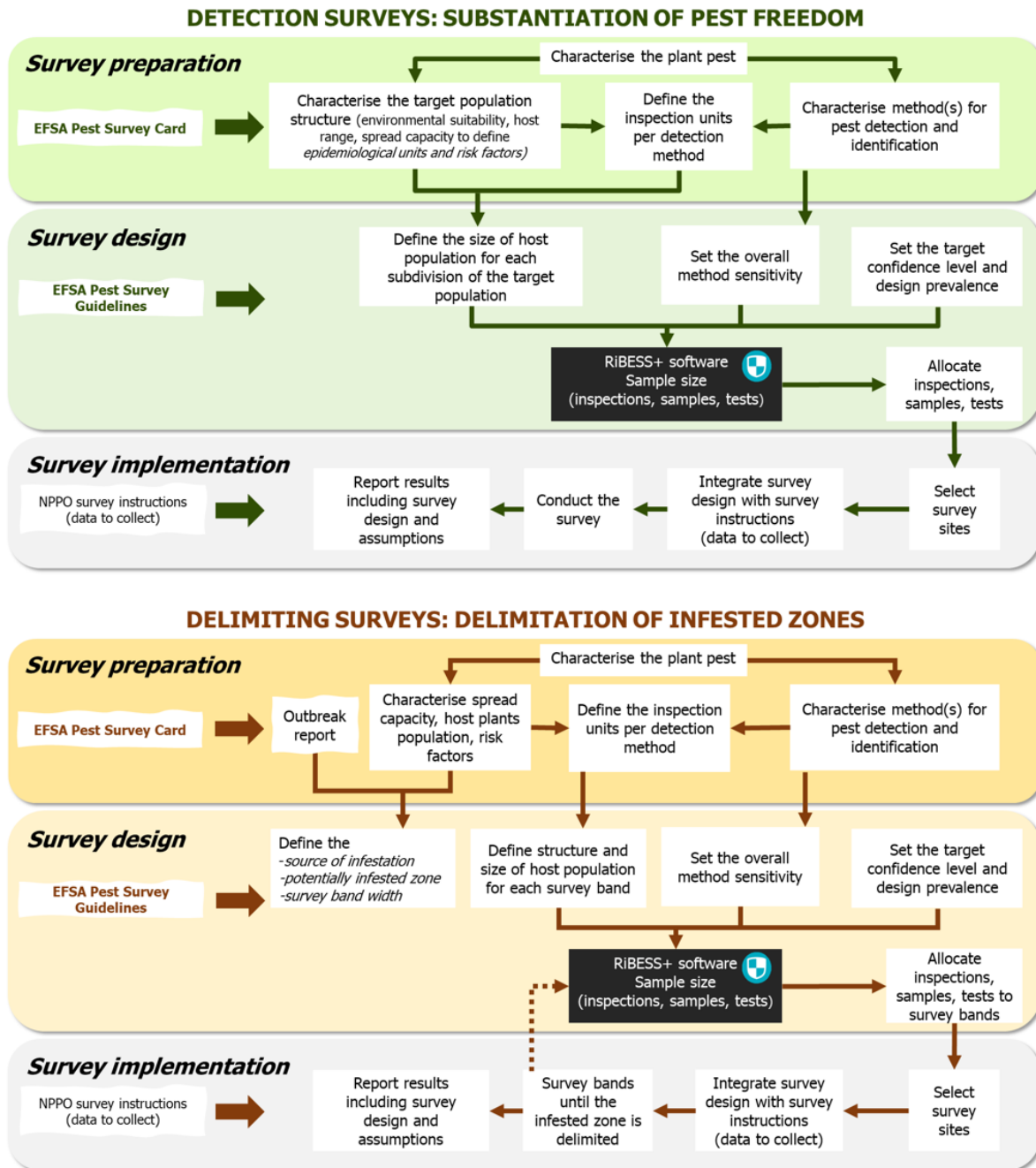


Figure 2: Steps required for the preparation, design and implementation of detection and delimiting surveys, in accordance with the methodology for statistically sound and risk-based surveillance¹

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 *Pseudocercospora angolensis*: <https://efsa.europa.eu/plants/planthealth/monitoring/surveillance/pseudocercospora-angolensis>
- 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://www.youtube.com/watch?v=kHAnmRDex8>
- The statistical tools RiBESS+: <https://r4eu.efsa.europa.eu/app/ribess>
- The RiBESS+ manual: <https://zenodo.org/record/2541541#.YZ9OYdDMKUI>
- The RiBESS+ video tutorial: <https://youtu.be/qYHqrCiMxDY>