



**PROJECT FULL TITLE:**  
**COORDINATION AND COLLABORATION BETWEEN REFERENCE COLLECTIONS OF  
PLANT PESTS AND  
DISEASES FOR EU PLANT HEALTH POLICY**

**GRANT AGREEMENT NO. 612712**



Work package: WP6. Sustainable European network of reference collections

Deliverable: DL6.1: Survey and guidance document reference criteria for network collections: Inventory of reference criteria for the establishment and maintenance of a sustainable European network of reference collections

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Separate related documents:

Annex 1: General Reference Criteria Collections .....
Annex 2.1: Inventory catalogue criteria .....
Annex 2.2: Identification methods criteria .....
Annex 2.3: Authenticity criteria .....
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## 1. Executive Summary

Eight general criteria and five specific criteria groups for seven taxonomic groups of phytosanitary organisms and invasive plants in Europe were determined to specify the Terms of References (ToRs) for the participation of service reference collections and working collections in the Q-collect network with regard to the network establishment and maintenance.

The general criteria comprise the legal requirements, the scope of relevant organisms harmful to plants (regulated, emerging and invasive plants) and the basic overall requirements concerning the quality and provision of reference material as well as metadata generation and delivery, inclusive the different rights and responsibilities connected to the two collection types of interest (Q-Collect-DL6.1 Annex 1).

In total about 65 criteria were identified for the five different specific criteria groups

1) inventory/ catalogue establishment and maintenance, 2) identification methods, 3) authenticity 4) storage and conservation and 5) preparation and access for the seven taxonomic groups a) viruses/viroids, b) phytoplasmas, c) bacteria, d) fungi/oomycetes, e) insects/mites, f) nematodes and g) invasive plants which are listed in the five inventory tables (Q-Collect-DL6.1 Annexes 2.1, 2.2., 2.3, 2.4 and 2.5).

## 2. Methods

The development of both the (ToRs) and the common, agreed reference criteria has taken into account Q-Collect-project results from WP2 ("Inventory of important phytosanitary collections"), WP3 ("Quality standards") and WP4 ("Access") as well as data, standards and experiences from existing national and preliminary trans-national inventories from participant countries and recognized organisations, such as EPPO. With regard to international compatibility of the developed reference criteria compliance with ongoing complementary European research initiatives such as MIRRI (Microbial Resource Research Infrastructure (<http://www.mirri.org/>) was sought and additionally information from ECCO (European Culture Collections' Organisation, <https://www.eccosite.org/>), from EMbaRC (European Consortium of Microbial Resources Centres, <http://www.embarc.eu/>) and from Janssens et al. (2010) was considered. The terms used to describe the reference criteria were specifically synchronized with the nomenclature established in WP3. Remote discussions by e-mail questionnaires, videoconferences as well as discussions in specific workshops were used to collect the input from the three concerned Q-Collect work-packages as well as from additionally invited Q-collect partner taxonomic experts and curators from major collections with plant health relevance. First of all the scope of application of the reference criteria with regard to the type of collections and organisms of concern had to be clarified and resulted in the conclusion that based on the current state of the art the two collection types a) service reference collection and b) working collection were of relevance for the Q-Collect network. Additionally the process of network establishment was discussed to identify different process steps, such as a call of interest for participation, a formal application and the assessment of applications. In compliance with other infrastructure networks a kind of binding Consortium Agreement ("Charta") partly formulated as Terms of References (ToRs) for the participation in the Q-collect network is proposed.

### 3. Results

#### 3.1.Q-Collect-Network Membership - Terms of Reference

In order to attract interested partners to join the Q-collect network and to assure that added sustainable value is provided to the network members, general “Terms of Reference” should be fulfilled by each potential Q-collect network member.

Additionally, specific reference criteria and conditions relevant to join the network need to be defined, taking into account the diversity of envisaged network members, which might be either service reference collections or working collections. The following paragraphs suggest certain categories of criteria for the network membership, although the scope of activity of a potential member will primarily determine whether the following requirements are applicable and therefore need to be fulfilled.

#### 3.2.General requirements

- It is presumed that members of the Q-collect network act in compliance with all applicable national, European and international legal acts and conventions.
- Members commit to participate in applicable Q-Collect networking activities and implement resulting harmonized practices, strategies and policies.

For instance, taken into account the diversity of envisaged users in and outside Europe (officially authorized diagnostic labs and NRLs, researchers from non-profit organizations, commercial activities, other collections, ...) the Q-collect network should develop guidance on procedures and costs for retrieving collection material, in compliance with the specificity of the provided material and also with regard to the sustainability of the network.

- In addition Annex 1 gives an overview of proposed general reference criteria for service reference collections and working collections for the Q-collect network establishment.

##### 3.2.1. Inventory or catalogue

One main objective of the Q-collect network will be to offer up to date and detailed information about the collections of phytosanitary and “lookalike” organisms as well as invasive plants in the European and Mediterranean Region. To provide this information each network member shall clearly indicate the own contribution to the inventory/catalogue establishment and maintenance. Annex 2.1 gives an overview of the required data fields with respect to the scope of activity of the potential network partner. Moreover, for each taxonomic group of organisms certain specific quality criteria should be fulfilled to address the following points.

##### 3.2.2. Identification methods

Annex 2.2 gives an overview of the requirements for identification methods for the different taxonomic groups with respect to the scope of activity of the potential network partner.

### 3.2.3. Authenticity

A commitment to provide high quality resources or/-services guarantees the availability of authentic material. Annex 2.3 gives an overview of the requirements with respect to the scope of activity of the potential network partner.

### 3.2.4. Storage and conservation

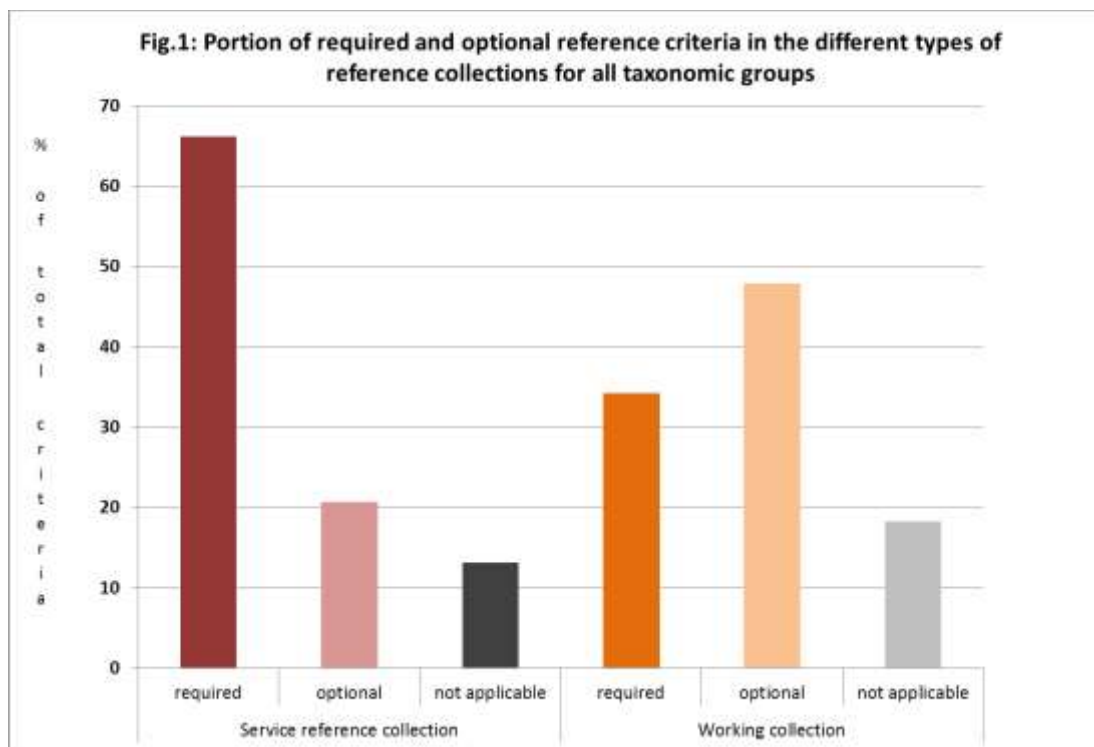
A commitment to provide high quality resources includes requirements regarding storage and conservation. Annex 2.4 gives an overview of the requirements with respect to the scope of activity of the potential network partner.

### 3.2.5. Preparation and access

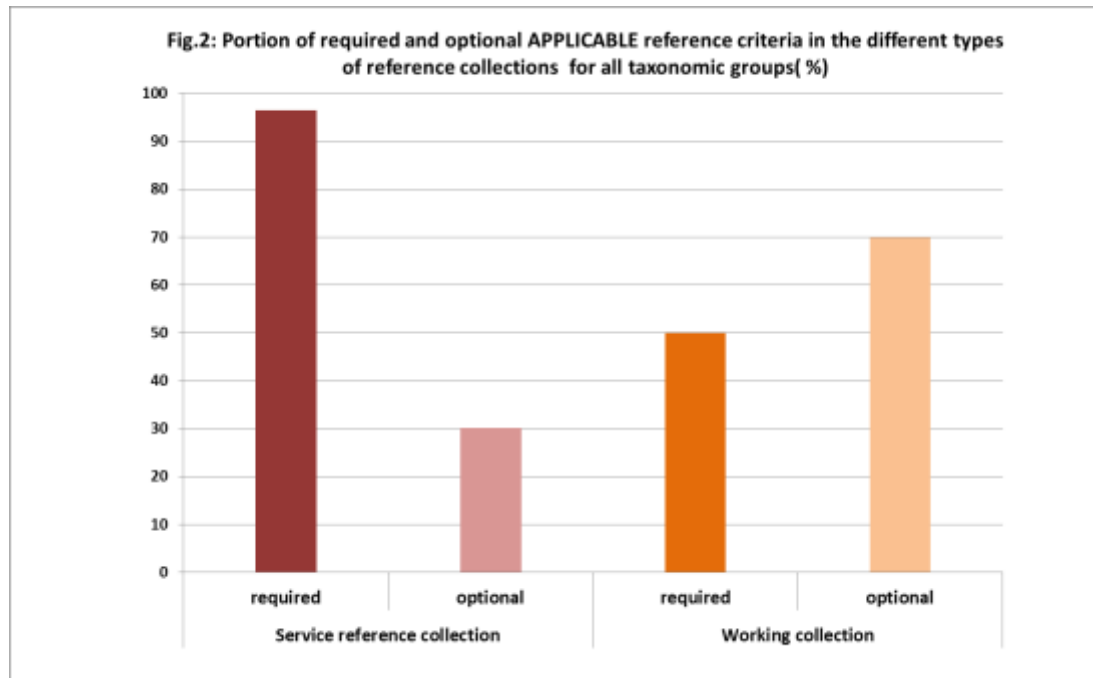
Annex 2.5 gives an overview of the requirements with respect to the scope of activity of the potential network partner. This includes among others, a commitment to implement a policy statement on bio risk assessment and biosecurity measures.

## Conclusions & Recommendations

With regard to the required accomplishment of reference criteria by a potential Q-Collect network partner the classification of the major part of the developed collection reference criteria was well corresponding (Fig.1), especially for the four taxonomic groups viruses/viroids, bacteria, fungi/oomycetes and nematodes, as only up to 13.8% of the criteria (different criteria for the different taxonomic groups) were not applicable for these groups in both collection types. For the other taxonomic groups between 18.5% and 44.6% (invasive plants) of the reference criteria were not applicable.



From the applicable reference criteria a higher portion was identified as required for service reference collections than for working collections (96.5% vs. 56%)(Fig.2).



For the taxonomic groups insects/mites and nematodes an insignificantly lower number of reference criteria than for viruses/viroids and microorganisms (41.5 vs. 48) could be classified as required criteria for service reference collections, but nearly twice as much than for invasive plants (26). For working collections the number of required reference criteria was the same for all taxonomic groups (23).

For further alignment of the developed reference criteria for collections of regulated/emerging organisms harmful to plants and invasive plants of concern for plant health it might be advisable

- to clarify which scientific classification system is/shall be used to derive the taxonomic groups for the allocation of the reference criteria
- to split/ rearrange the taxonomic groups e.g. as follows:
  - split the group viruses/viroids
  - change the group insects/mites to the different subphyla of arthropods
  - add Mollusca
  - split fungi/oomycetes and split to different phyla of fungi
- to split the different types of diagnostic resp. identification methods as the required reference criteria for reference material will be different for material which is used e.g. for morphological identification or for identification with molecular methods ( e.g. PCR).

## References

Janssens D., Arahal D.R., Bizet C., Garay E., 2010: The role of public biological resource centers in providing a basic infrastructure for microbial research. *Res Microbiol.* 2010 Jul-Aug;161(6):422-9. doi: 10.1016/j.resmic.2010.03.009. Epub 2010 Apr 28