WP 2: Inventory of relevant phytosanitary collections

Results of the survey on collections and main gaps identified

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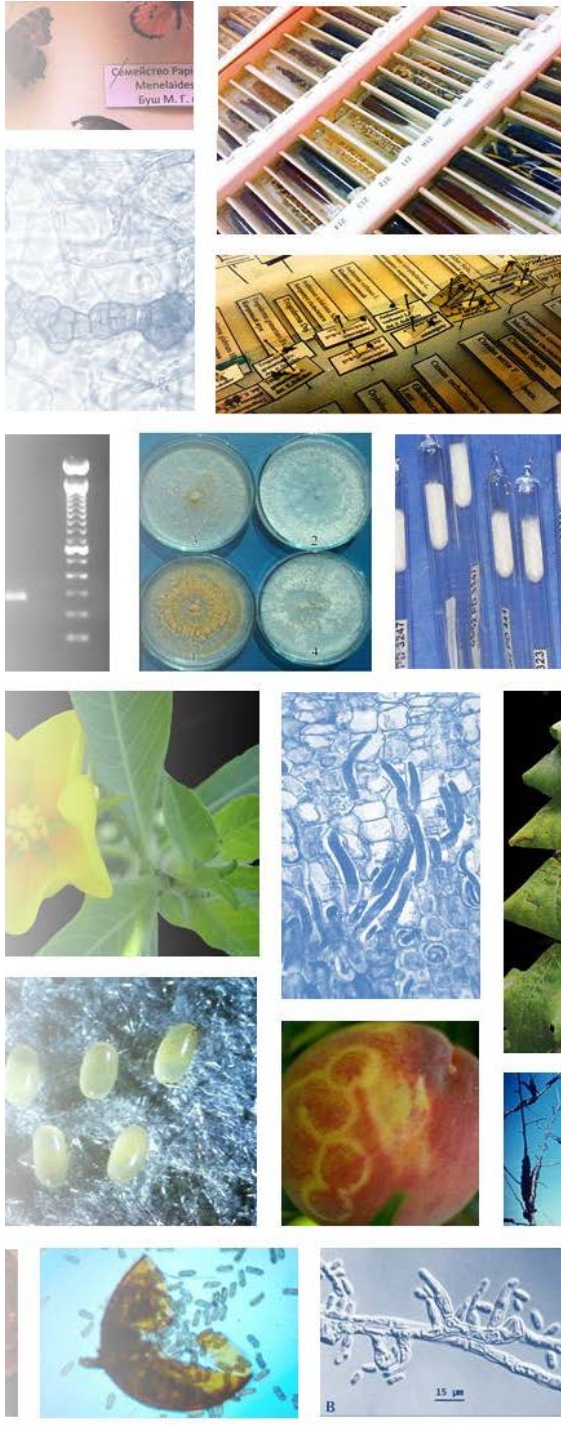
Q-collect Workshop
Roma, IT, 2015-09-08/09



Q-Collect WP2 Inventory

Objectives

2.1. To make an inventory of existing relevant phytosanitary collections.

2.2. To describe the main phytosanitary relevant collections and their characteristics.

2.3. To identify gaps within the content of phytosanitary important collections.

2.4. To define strategies to fill the gaps previously identified.

Establishment of the list of collections to be contacted during the survey

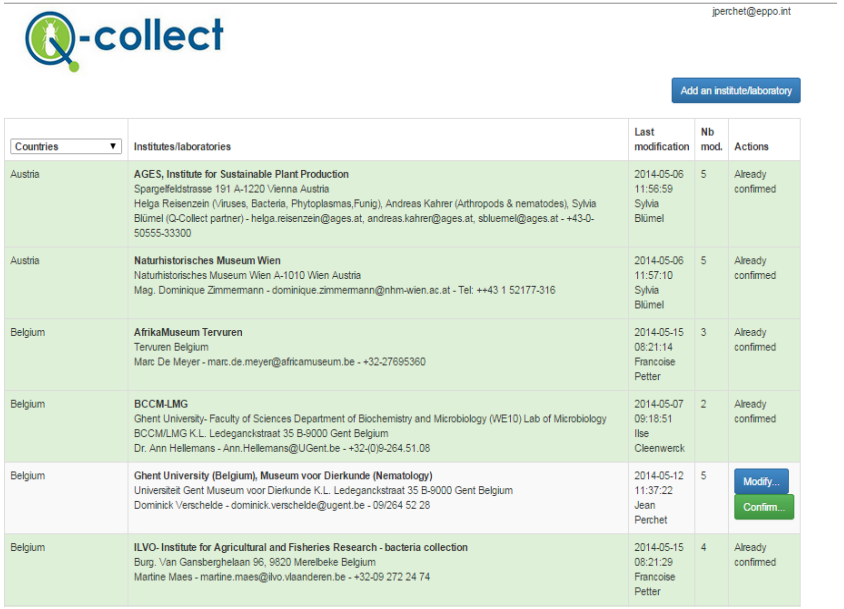
We compiled the lists of collections of quarantine organisms already available (EPPO, INRA, DLO)

An on-line interactive list was provided to all partners for updates and additions.

The list was available for the survey by 2014/05/12

154 laboratories and institutions were listed. All disciplines are represented

The list is available in Deliverable 2.1



Establishment of the questionnaire

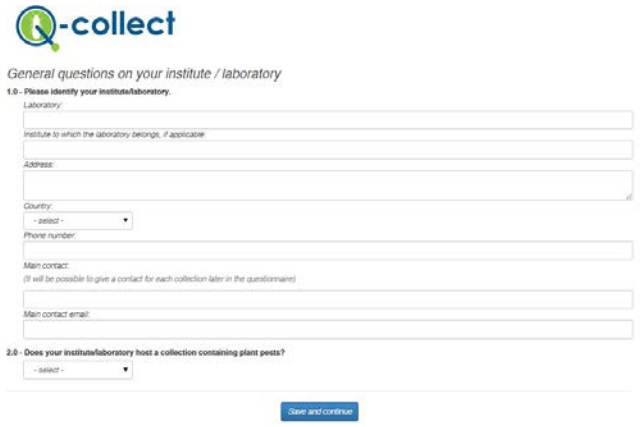
A first version of the questionnaire was tested in Montpellier.

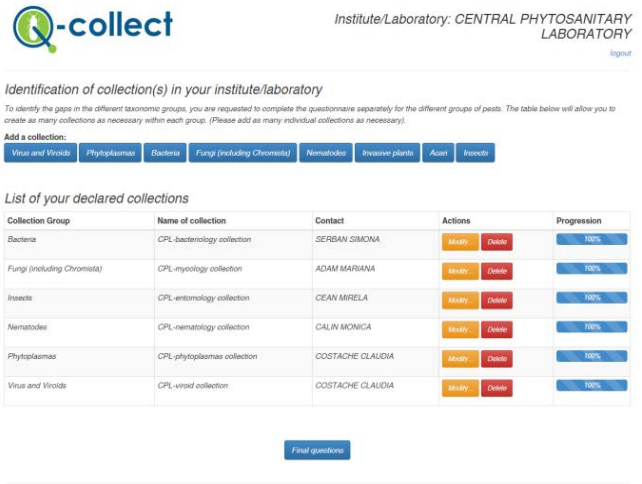
The survey start by 2014/05/15.

At the first Q-collect Workshop (Kleinmachnow, 2014-11-27/28) participants commented that some important collections seemed to be missing from the answers received.

The questionnaire was consequently reopened and the deadline to complete it was the end of January 2015.

Results reanalysed and sent to Qcollect partners for comments 2015-03-03





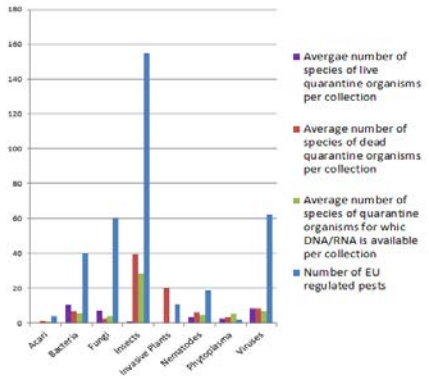
Identification of bias and gaps

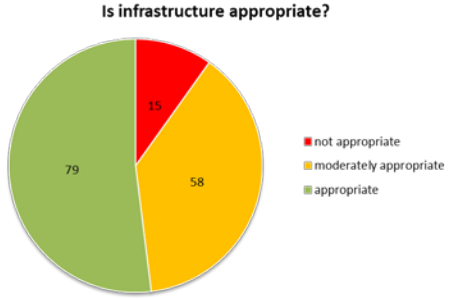
A meeting was organized in Paris on 2015-03-24/25 gathering Qcollect Work package leaders and representatives of European collections of each discipline.

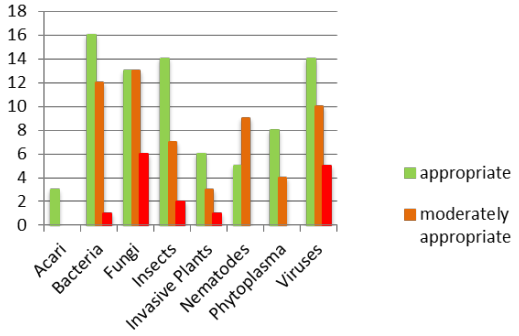
Bias and gaps were discussed.

A draft version of the deliverable 2.3 was sent to WP leaders for corrections by 2015-05-29.

Deliverable 2.3 available on web portal by 2015-09-02.







Results of the survey and main gaps identified

General information on the institutes / laboratories

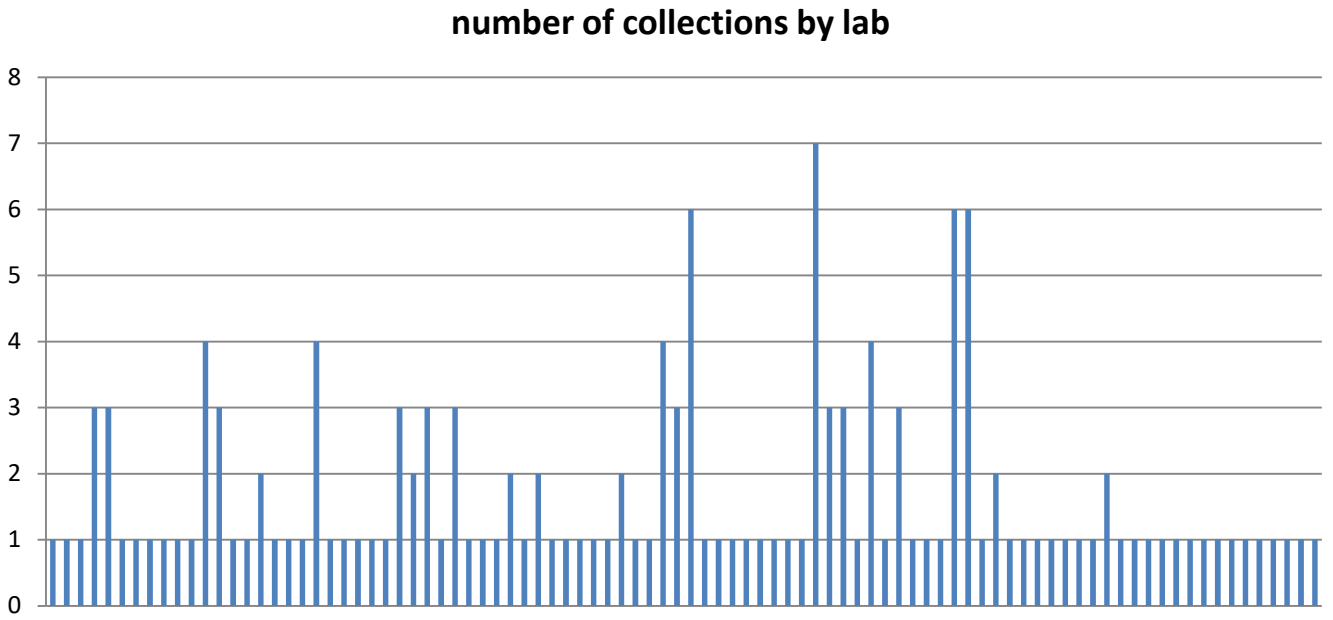
Questionnaire comprised 36 questions and 220 fields.
About 1 hour needed to complete the form.

Laboratories/institutes having finalized the questionnaire	**93**
Collections reported (multiple collections per laboratory possible)	152

Findings

The rate of answers is satisfactory as 93 completed the questionnaire.
It was valuable to reopen the questionnaire as 42 more laboratories/institutes finalized it.

General information on the institutes / laboratories

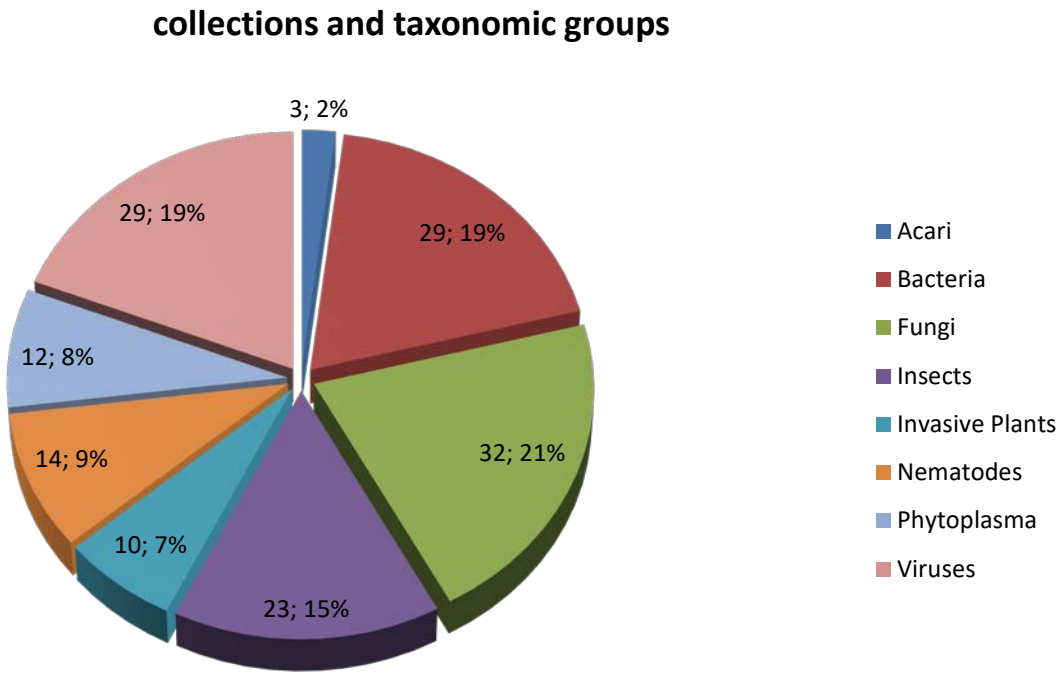


Findings

Most lab or institute host only one collection (only 25 laboratories host more than 2).

A lot of dispersed collections means accessibility of the material is more difficult.

General information on the institutes / laboratories



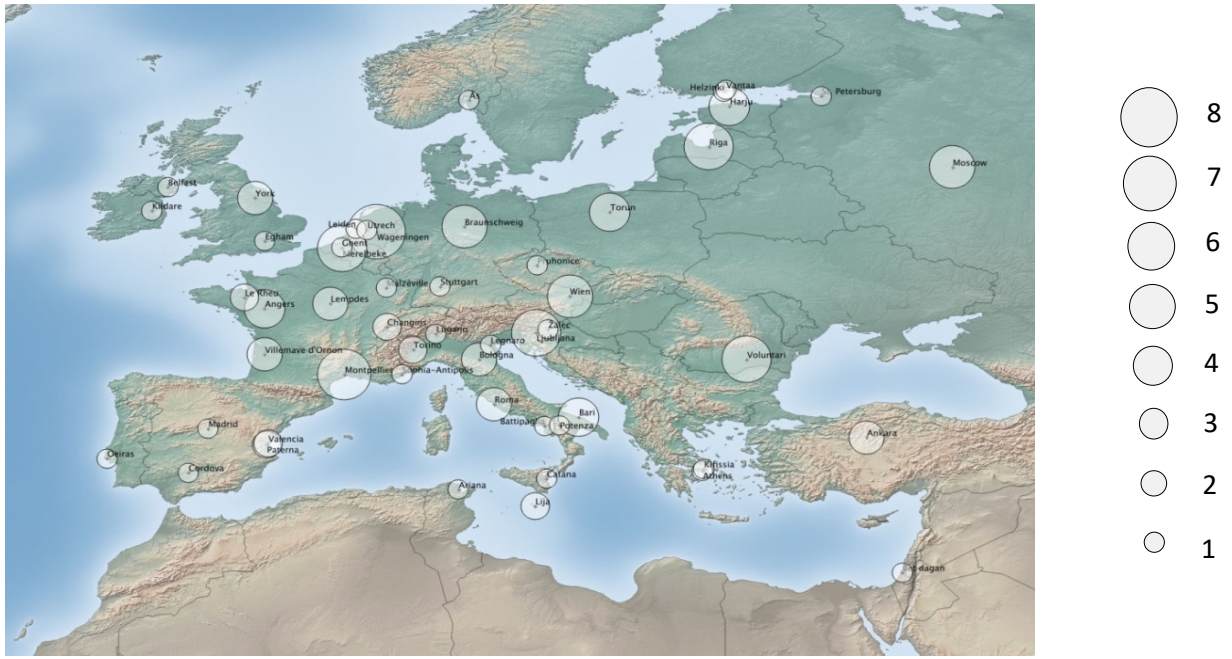
Findings

All taxonomic groups are represented.

(The number of collections for acari is limited but it is usually the case that insect collections also include acari and answers have not been provided separately)

General information on the institutes / laboratories

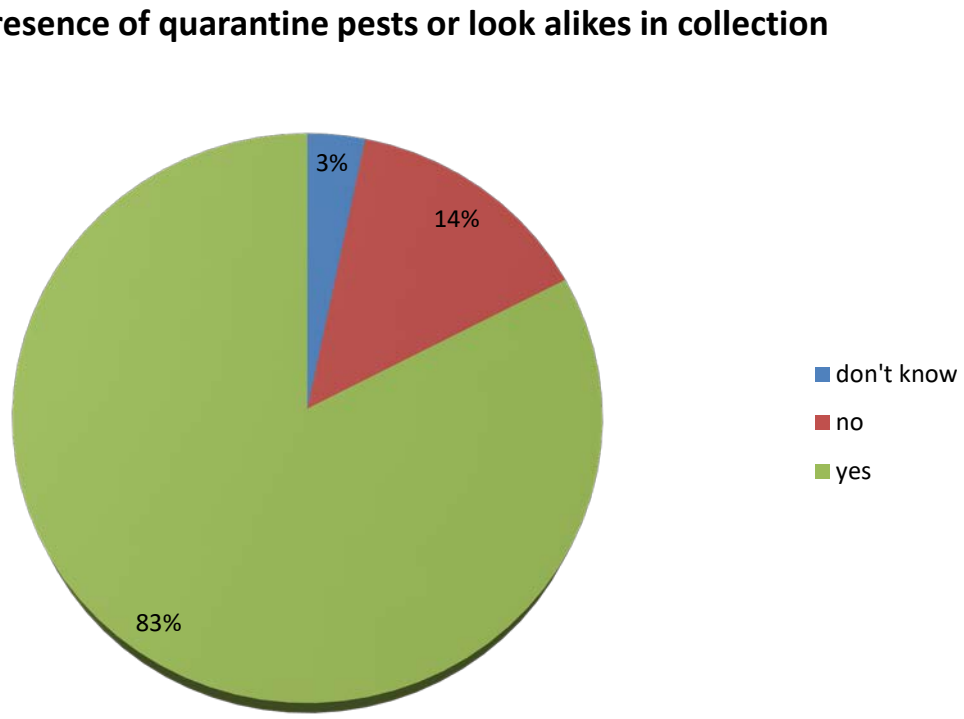
Number and location of collections that took part in the survey
(the size of the spots is linked with the number of collections in the locality).



Findings

For all disciplines most plant health collections known to the experts of Q-collect are represented. A few number of important collections are missing especially for viruses. National and international general collections are missing especially for insects and plants. However these collections are difficult to mobilized in a plant health context.

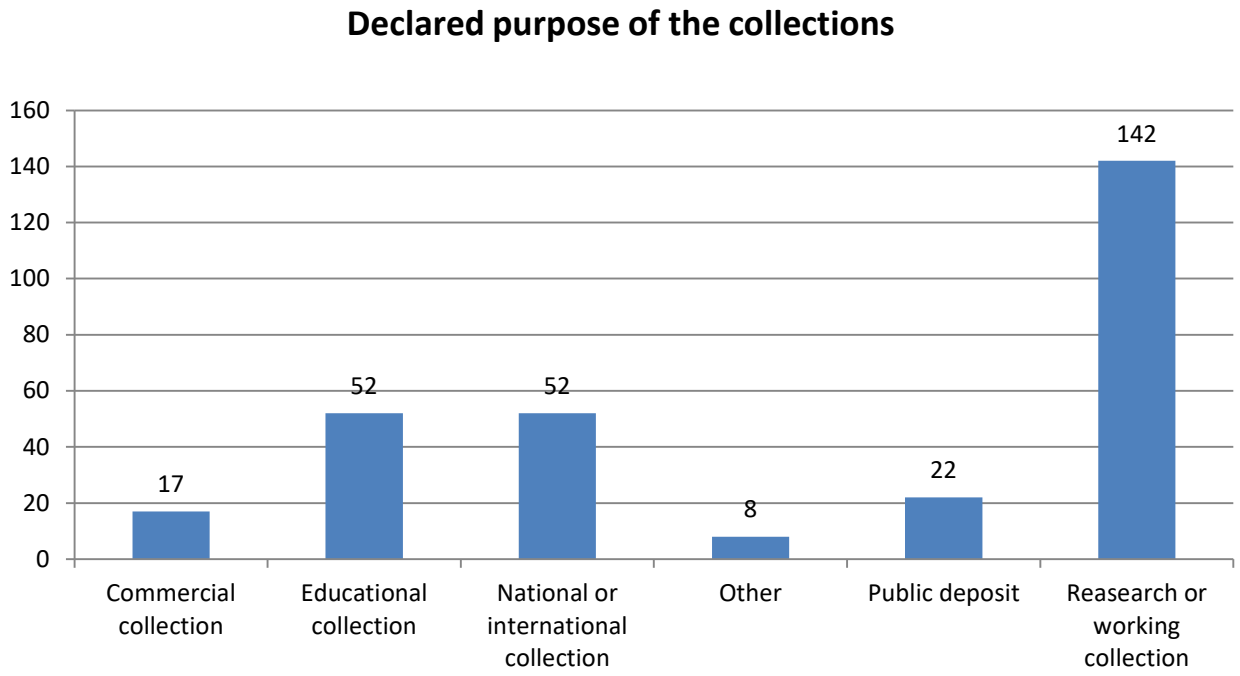
General information on the institutes / laboratories



Findings

Most collections which answered the questionnaire host quarantine pests or their look-alikes.

Information on the collection(s)



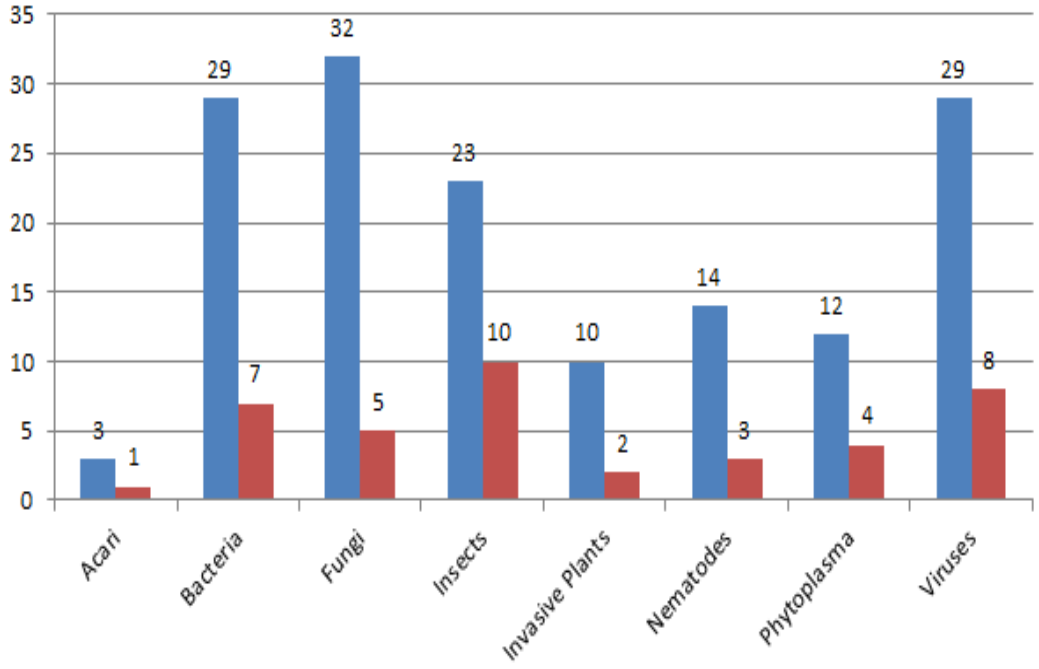
Findings

Most collections are research or working collections.

There are very few collections dedicated to the conservation and the provision of services (commercial / public deposit / national or international status).

Differences are important by discipline: for arthropods, nematodes and plants: a few number of collections are organized to provide services punctually; for bactery, fungi, viruses, phytoplasmas: some important and international collections are well organized to provide services.

Collection that have no catalogue (paper, database, online or website).



No catalogue
Acari : 33%
Bacteria : 24%
Fungi : 16%
Insects : 44%
Invasive plants : 20%
Nematodes : 21%
Phytoplasma : 33%
Viruses : 28%

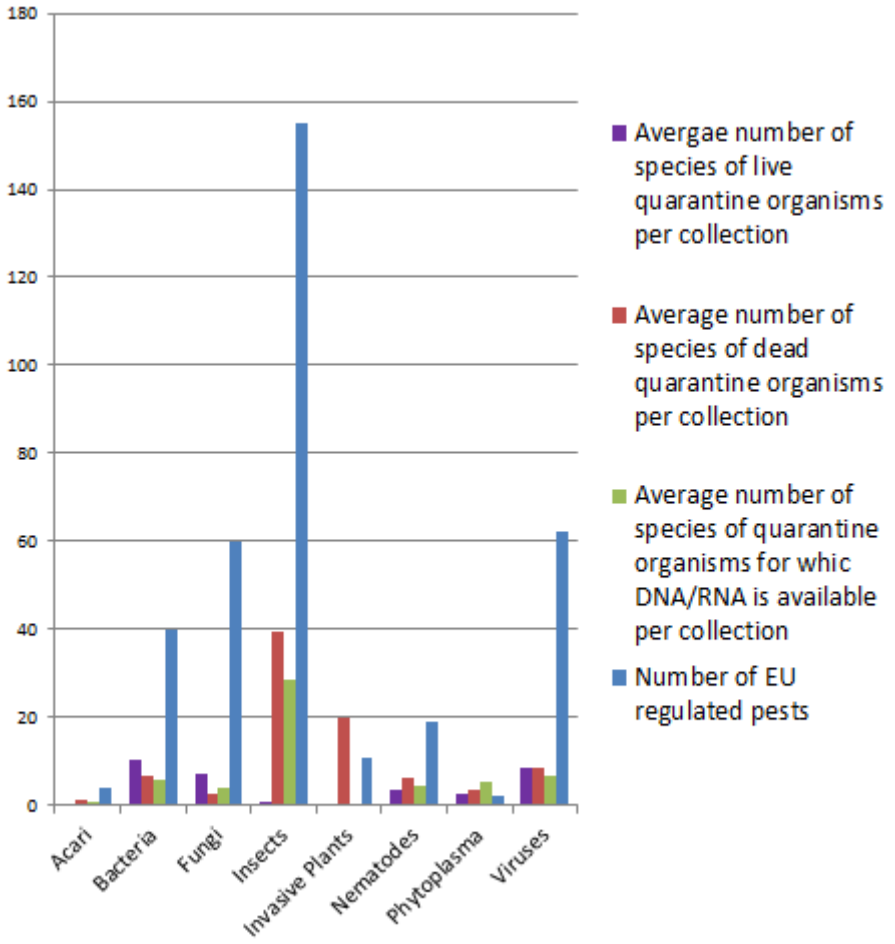
Collections with a website address
Acari: 1 (Qbank)
Bacteria: 5
Fungi: 7
Insects: 1 (Q bank)
Invasive plants: 1
Nematodes: 1
Phytoplasma: 0
Viruses: 1
Total: 15

Findings

The percentage of collections that have neither a catalogue nor a list of their holdings is high (up to 44% for insects).
Number of catalogues on line and collections with a website address is low. This is an important gap to ensure an easy access to biological material.

Information on the collection(s)

Numbers of specimens in the collections



Findings

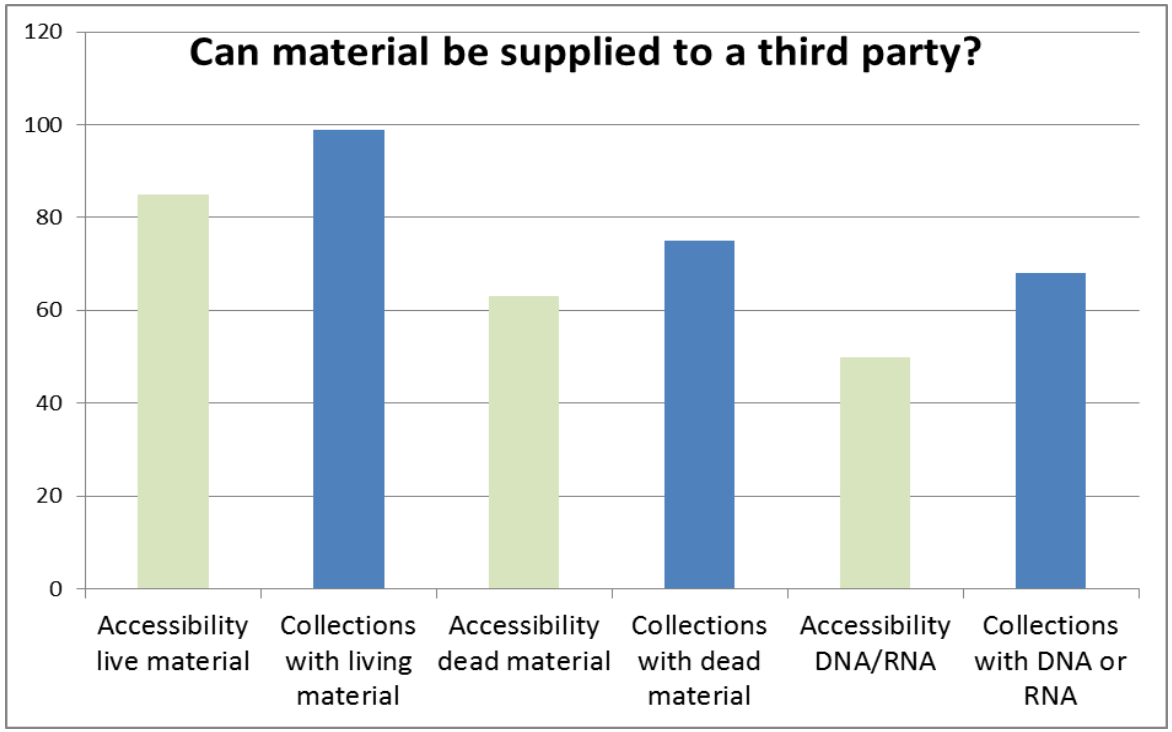
It is not possible to know how many specimens/species are represented (many collections do not have a catalog, and give approximate or no numbers).

The average number of quarantine species represented in each collection is low (less than 10 for most discipline).

The number of specimens is difficult to interpret but some species are probably represented by a very low number of specimens.

Information on the collection(s)

Accessibility of material

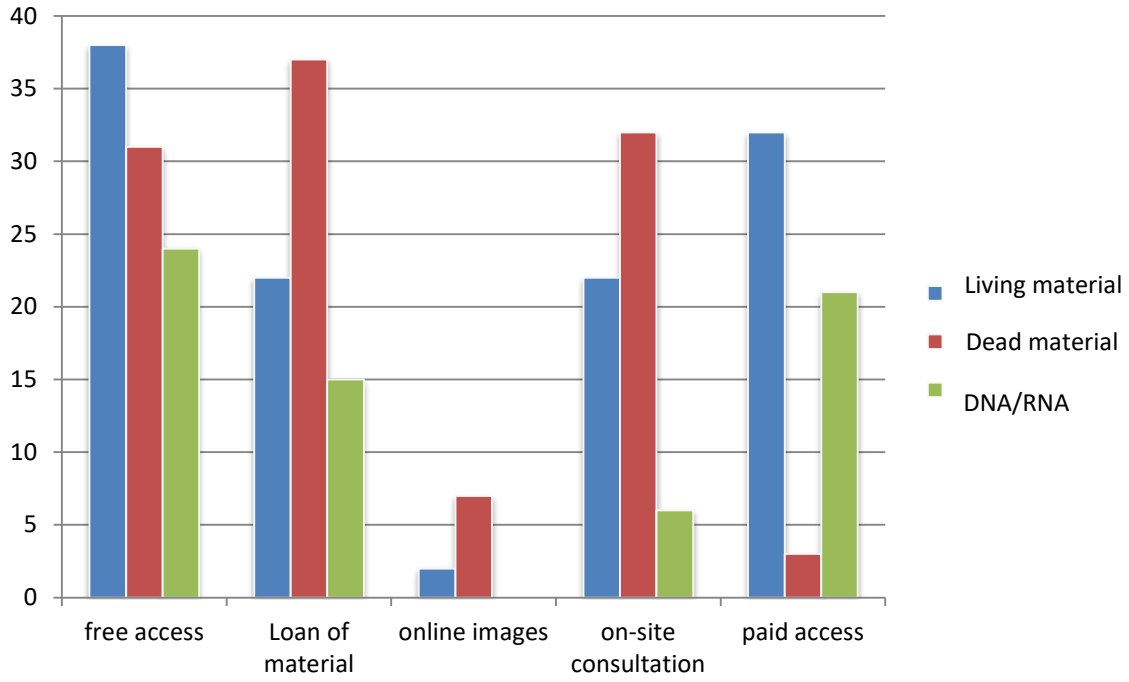


Findings

A large proportion of collections give access to their material.

Information on the collection(s)

Accessibility of material



Findings

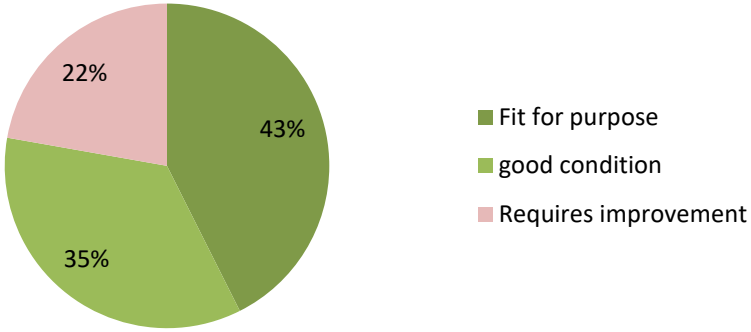
Free and loan access are the most frequent.

Low level of paid access, except for culture collections of live micro-organisms.

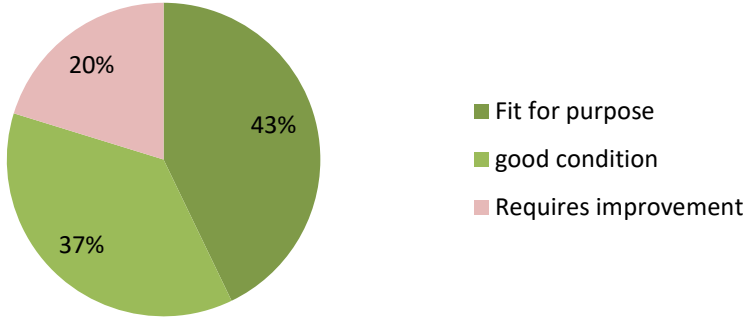
Information on the collection(s)

Conservation status

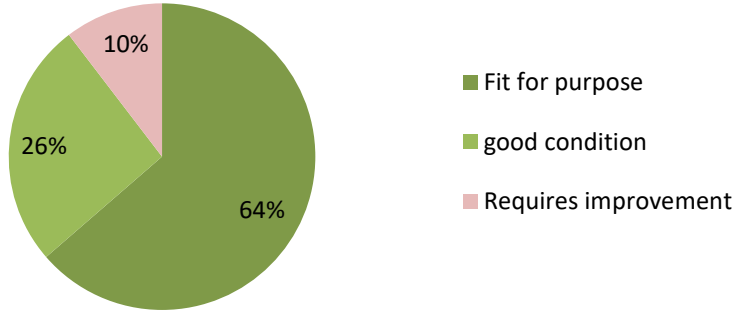
conservation status live material



conservation status dead material



conservation status DNA RNA

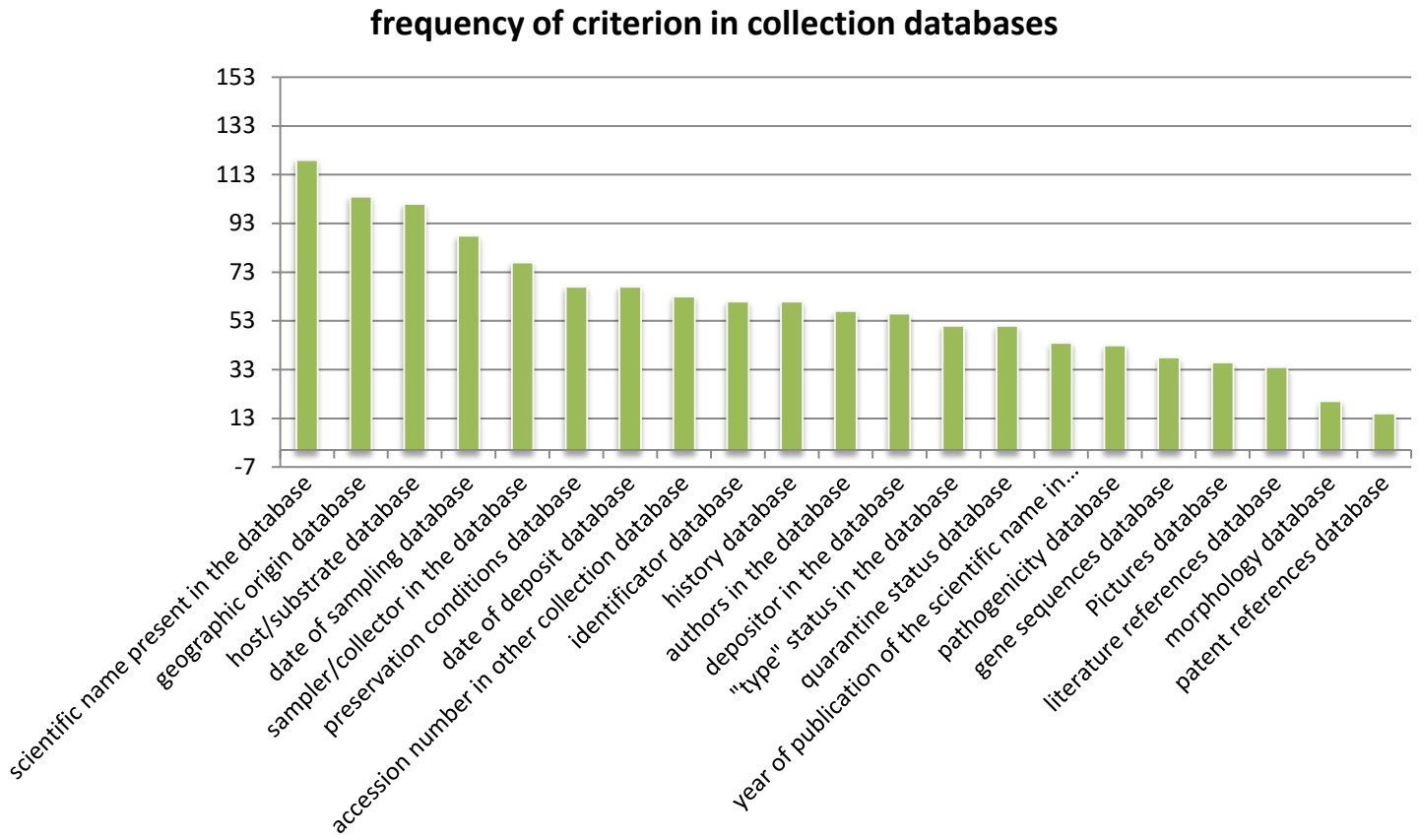


About 30% of the material only is in good condition
About 50% is fit for purpose
About 20% requires improvement

Live and dead material are more critical, DNA is in better condition (but collections of DNA are newer)

Information on the collection(s)

Information recorded on the collection specimens



The top five basic information recorded on specimens are scientific name, geographical origin, host/substrate, date of sampling and collector name.

Information recorded on the collection specimens

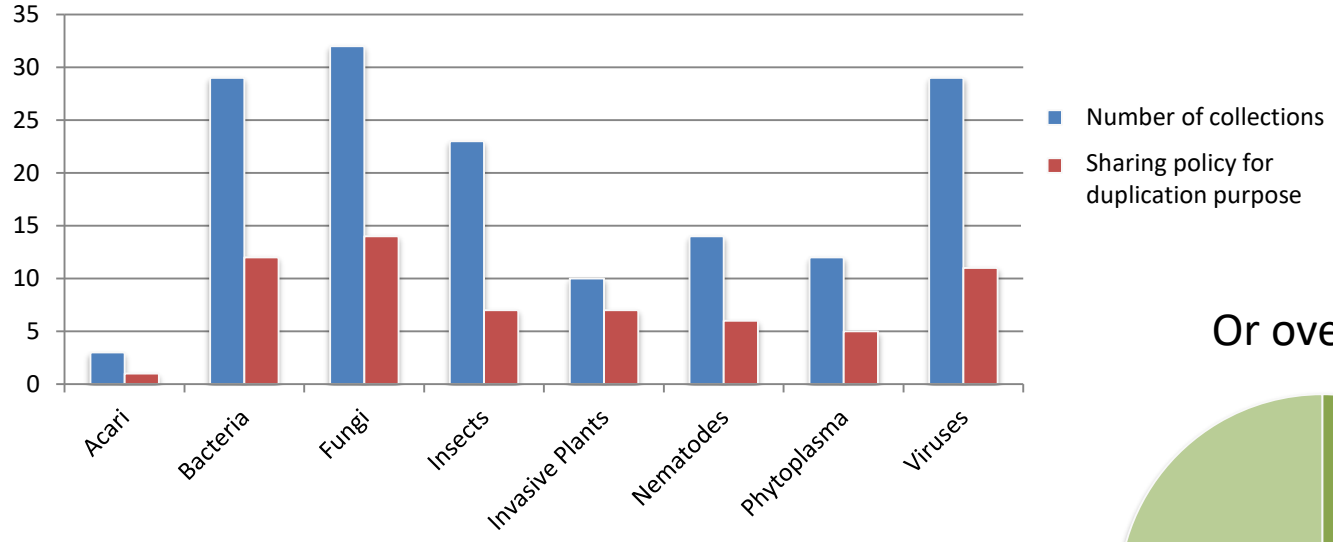
Findings

The basic information is not required by a substantial percentage of collections (20% for the scientific name up to 50% for the collector name)
These data are usually not available online
These data are not required for a deposit

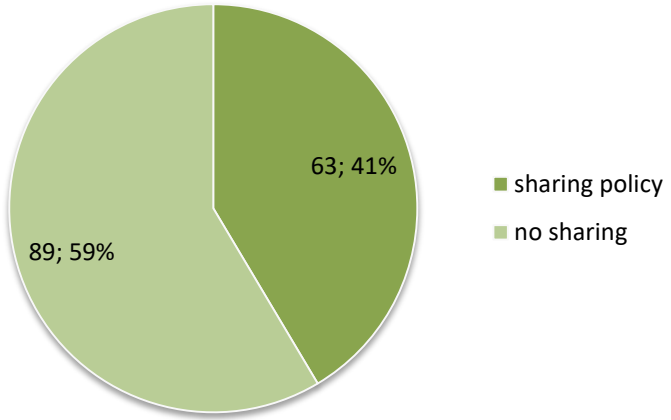
This is identified as an important gap and the level of information associated to collections should be improved.

Sharing of material

Policy of sharing material with other collections for duplication purposes



Or overall:

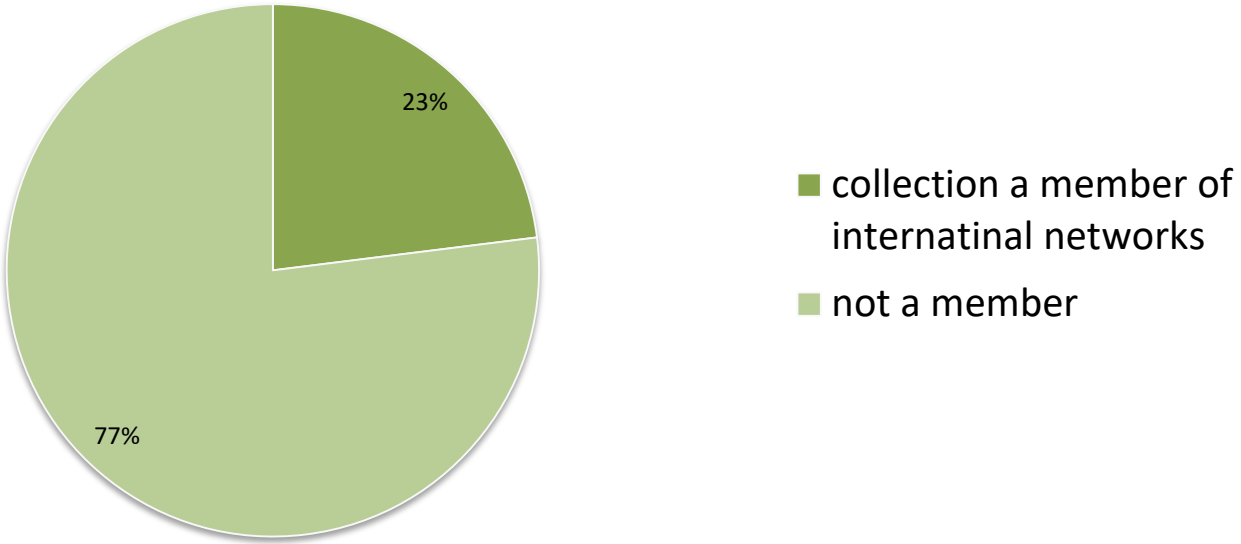


Findings

Almost 2/3 of collections (up to 70% for insects) do not share material for duplication.

It can be considered a gap especially for collections of live cultures.

Collections members of networks (national or international)



Findings

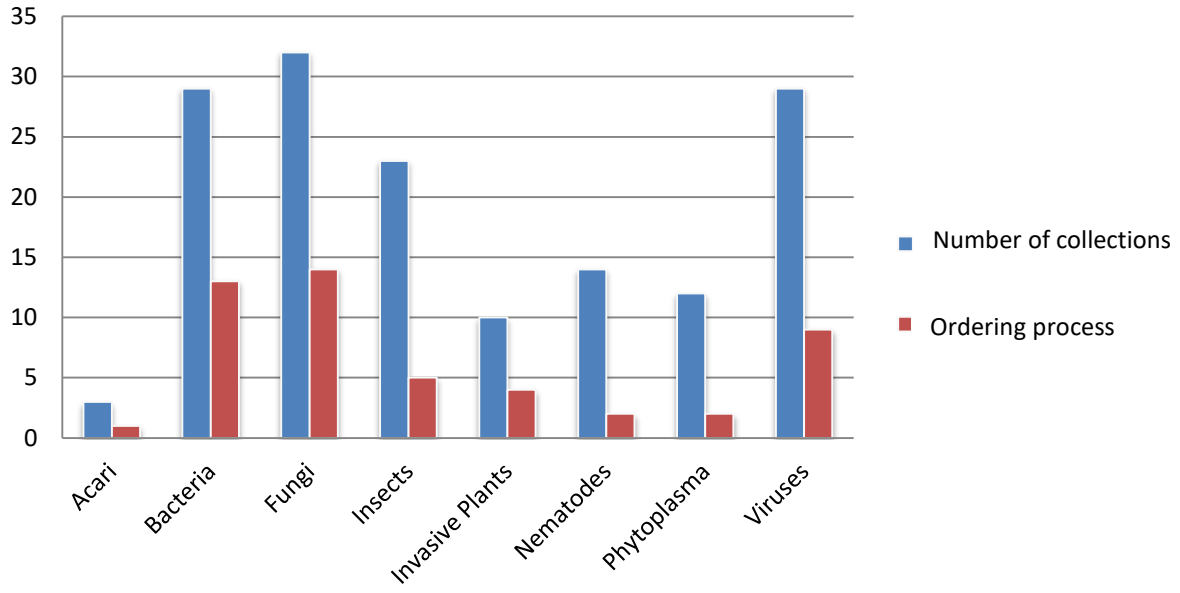
77% of collections are not part of a national/international network.

Most collections are isolated not organized in network and not duplicated.

This is a gap for improvement of conservation.

General questions on the collections

Institutes/ laboratories with an ordering process:



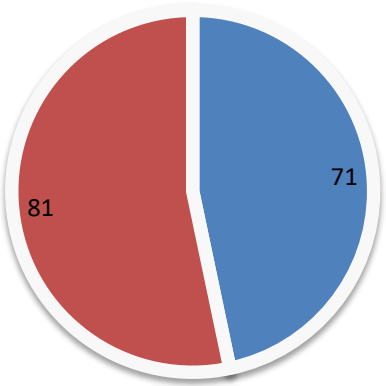
Findings

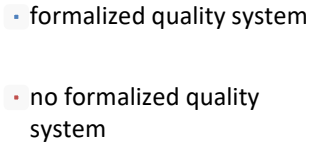
Most of collections are working collections and have no procedure for ordering.

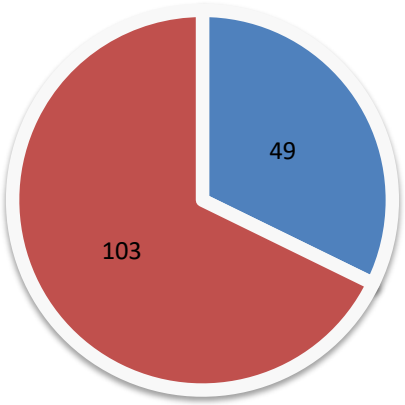
The proportion of collections that declared having an MTA available is similar. When collections are organized to share material, they are mostly aware of quarantine and intellectual property risks, and have a MTA in place.

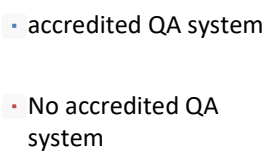
Questions on Quality

Collections with a formalized quality system for maintenance and management of the collection:









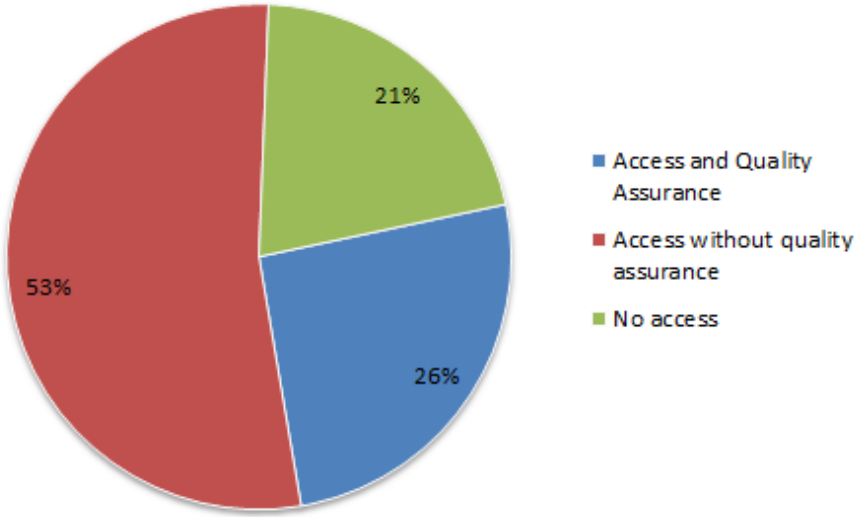
Findings

Less than 50% of collections have a formalized quality system, less than 1/3 have accredited procedures.

The absence of quality assurance systems in collection is a major gap in particular for those who share material.

Information on the collection(s)

Access and quality assurance



Findings

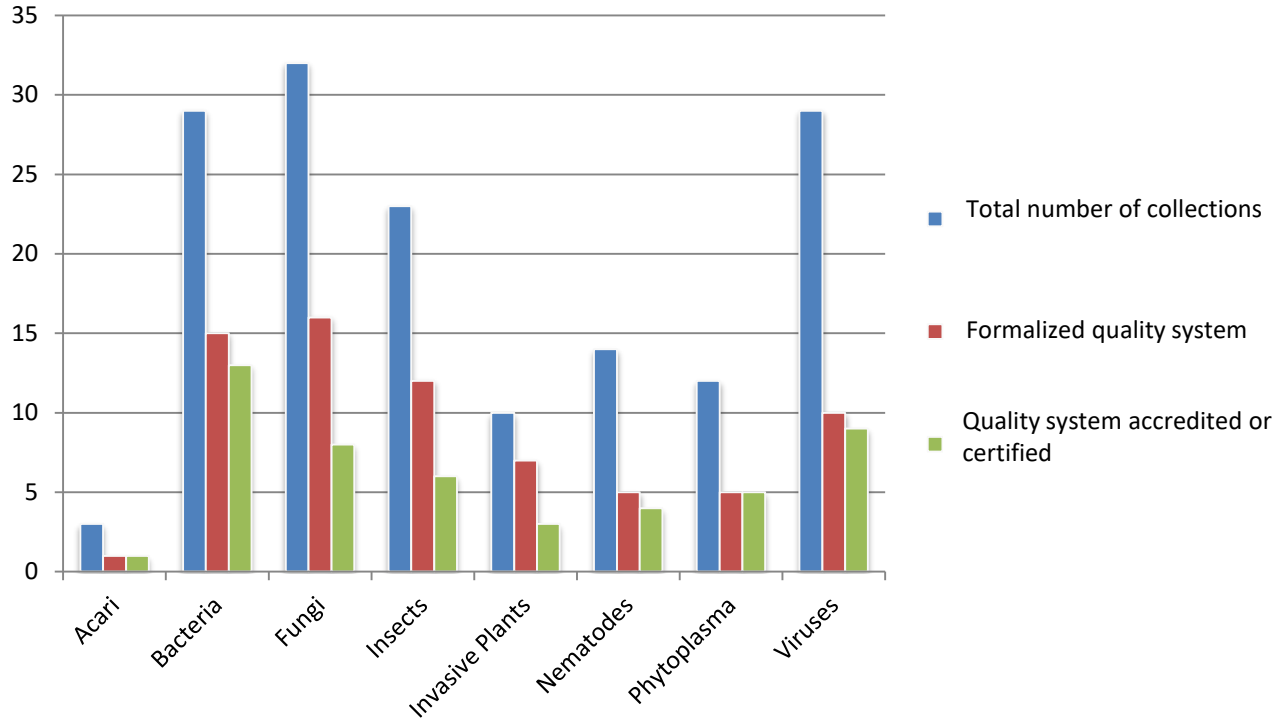
More than half of the collections sharing material has no quality assurance system.

In such cases exchange of material is assumed to be based on trust, there is no formalized process, which excludes in principle the use of such material in a formalized framework (such as use in the framework of official diagnostics performed under accreditation).

This is an important gap.

Questions on Quality

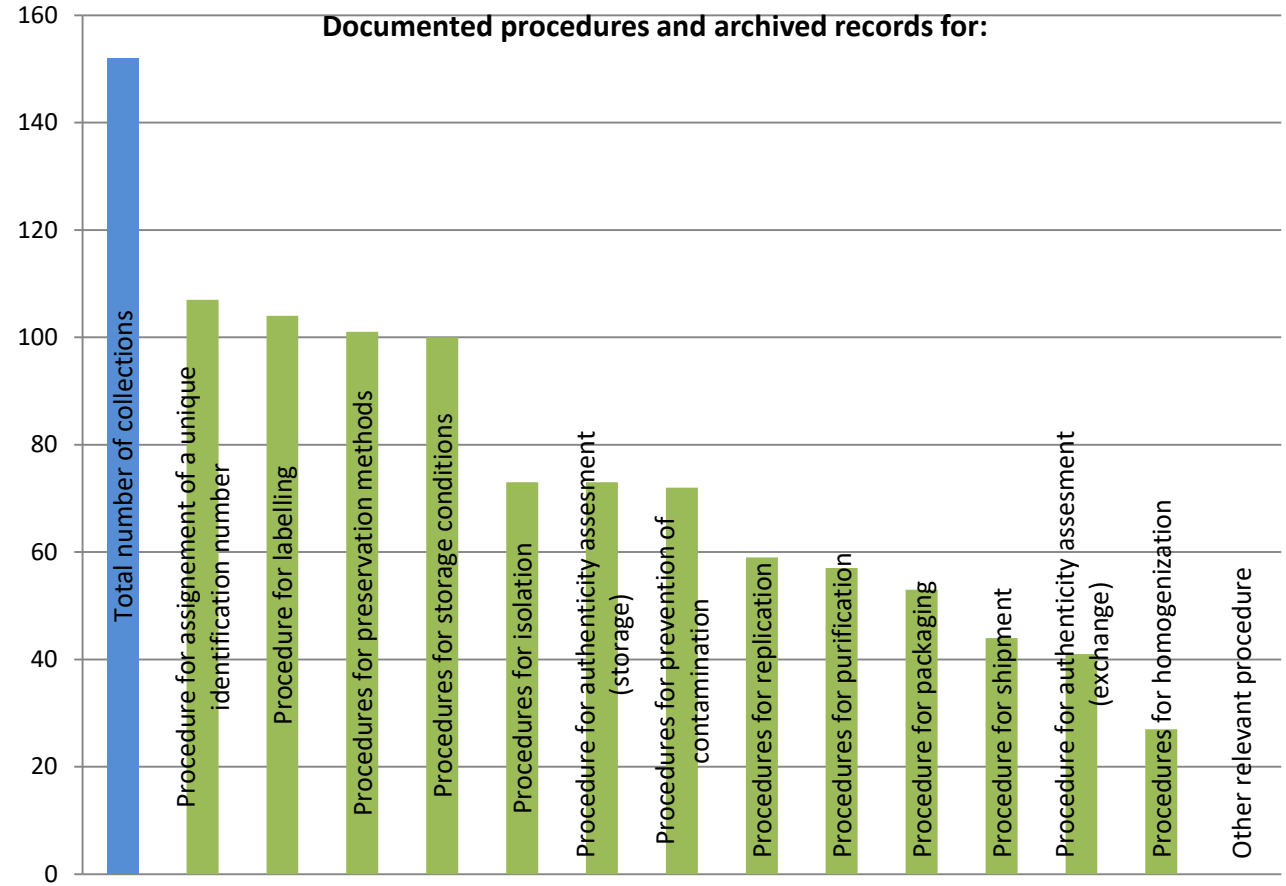
Quality systems by taxonomic groups



Findings

There are significant differences in the rate of accreditation between taxonomic groups 28% for insects up to 44,8% for bacteria.

Documented procedures and records

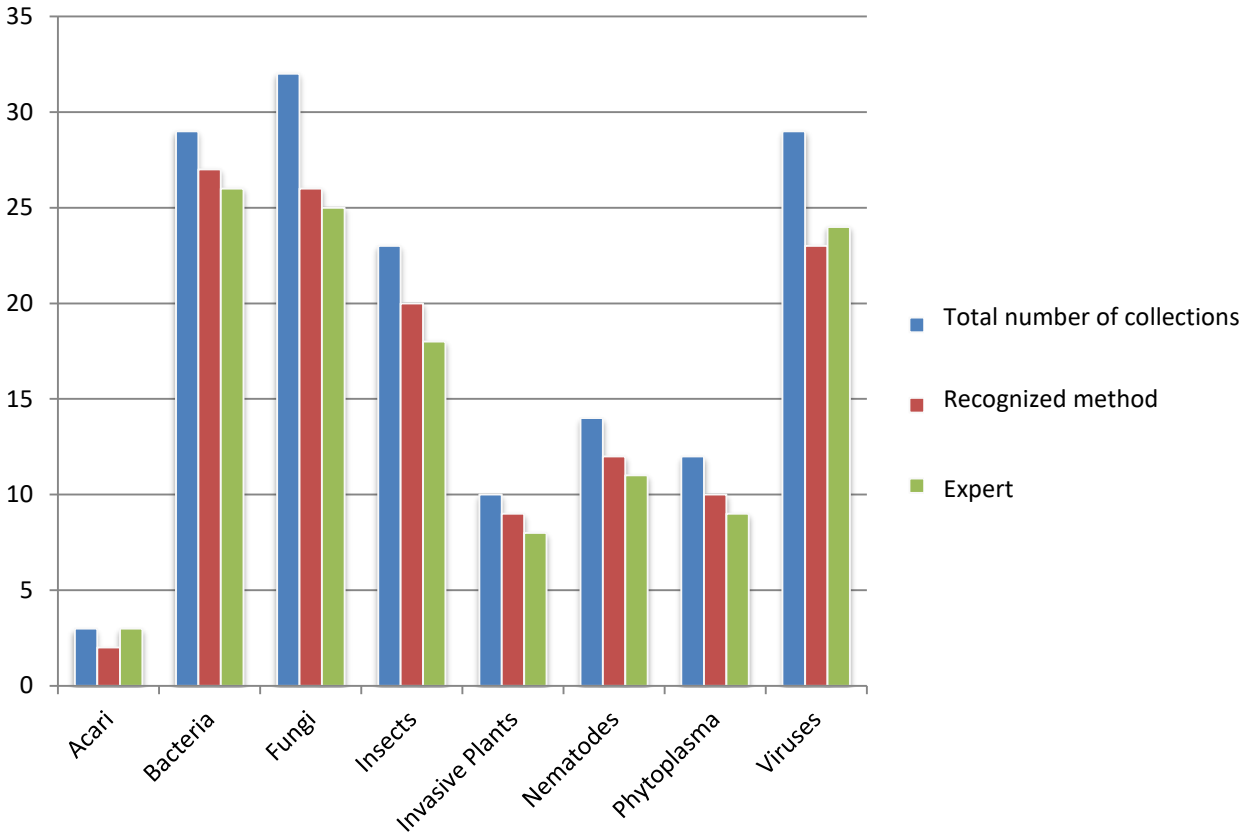


Findings

Nearly 30% of the collections have no documented standard procedure for numbering, labelling of samples, preservation and storage.

This is a gap and should be improved.

Identification/characterization performed with a recognized method or by an expert

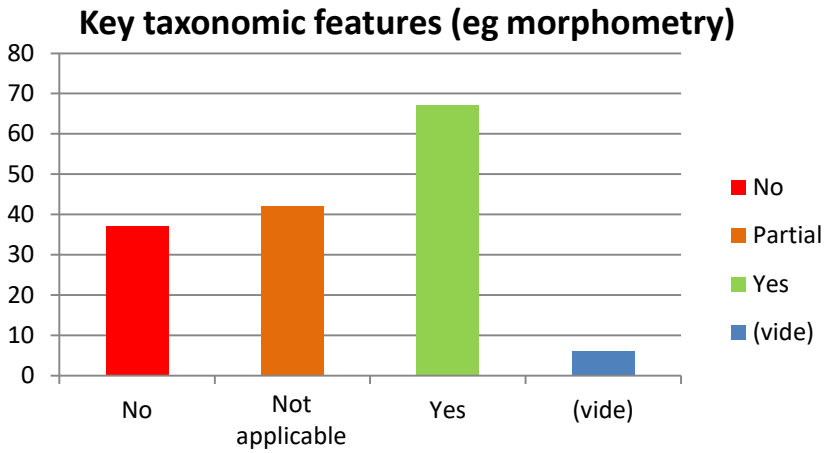


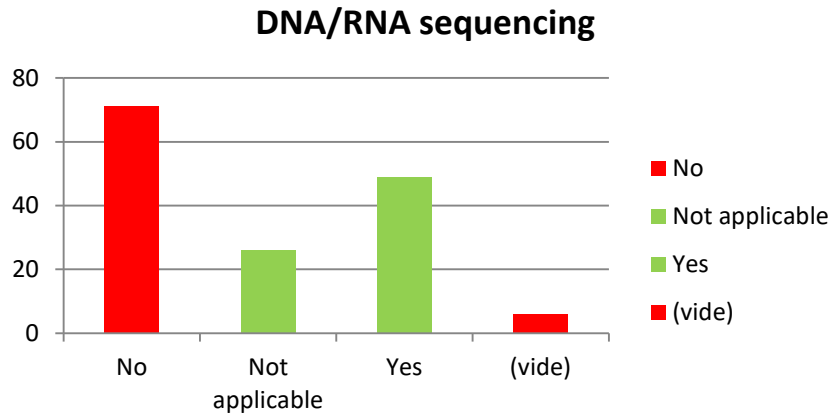
Findings

Most collections have at least a procedure for identification, or a definition of expert qualifications. Less than 1% declared having neither.

Experts are defined by their experience, training, higher degrees, accreditation, reputation.

Assessment of homogeneity



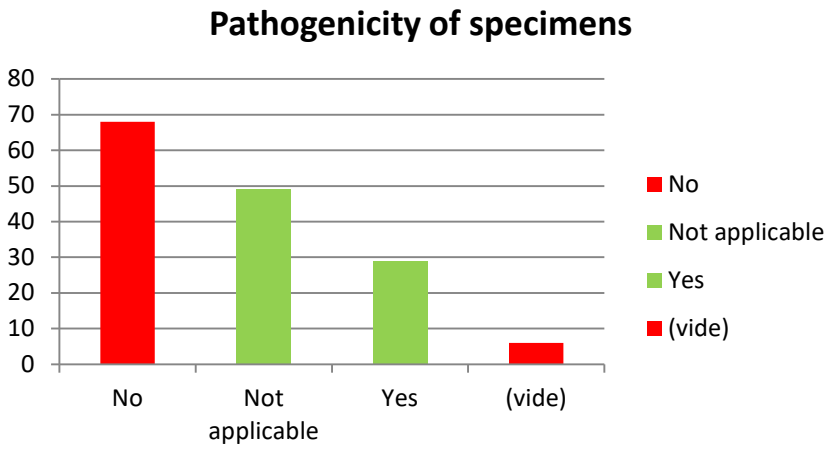


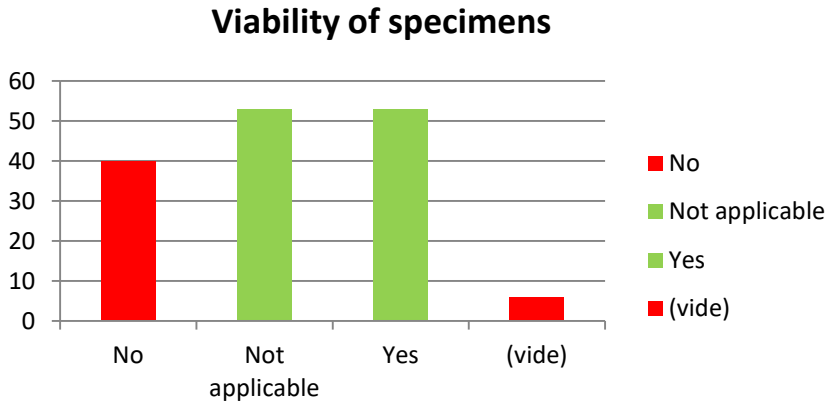
Findings

There is a gap for 17% of collections that do not assess homogeneity.

All disciplines are concerned.

Identification and authentication of material





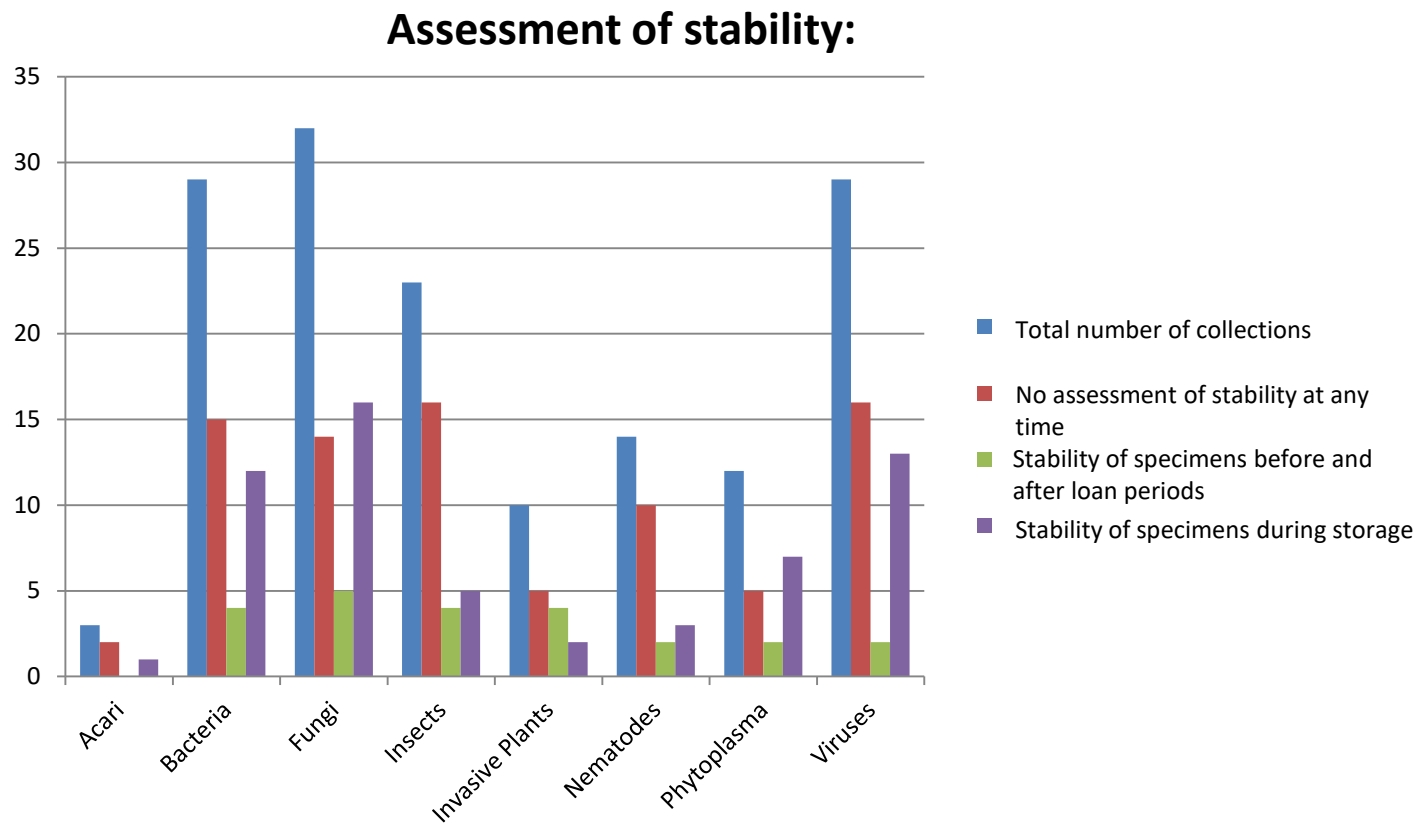
Findings

Assessment of pathogenicity is relevant mainly for viruses, bacteria, phytoplasmas, fungi, nematodes, (not for arthropods and plants).

When relevant only 30% of collections assess pathogenicity and 57% viability.

This is an identified gap but Q-collect experts believe that assessing the pathogenicity is not systematically performed because of technical problems and feasibility.

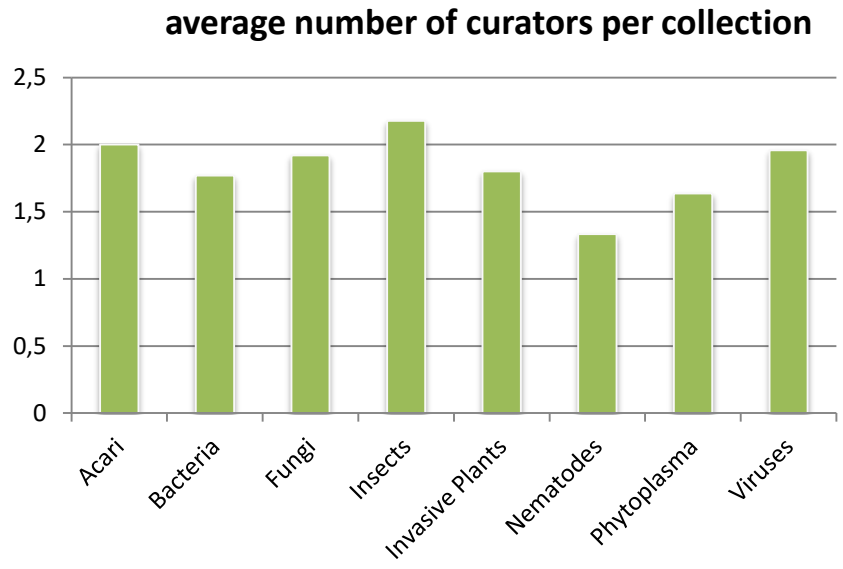
Identification and authentication of material

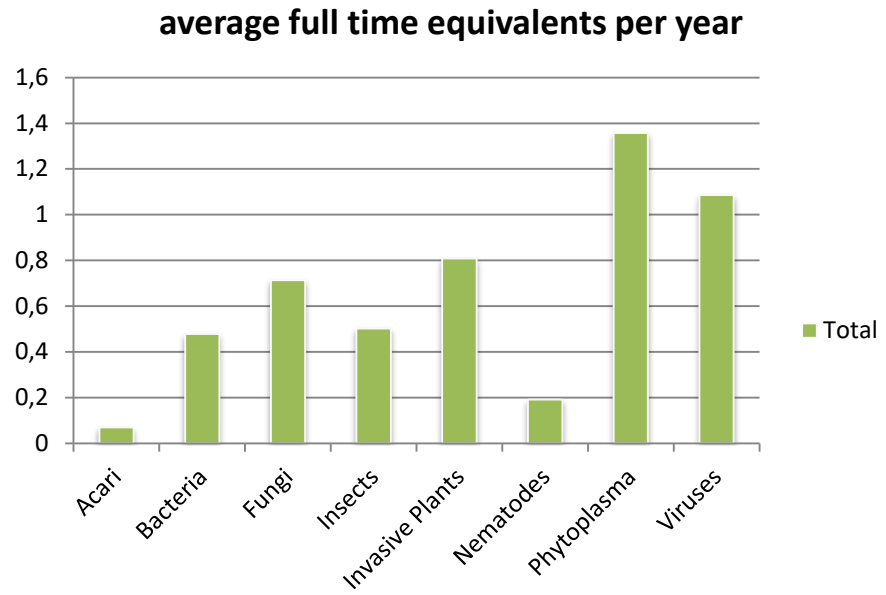


Findings

Less than 50% of collections assess the stability of material during storage, very few of them during loan.

Maintenance of the collections: curators

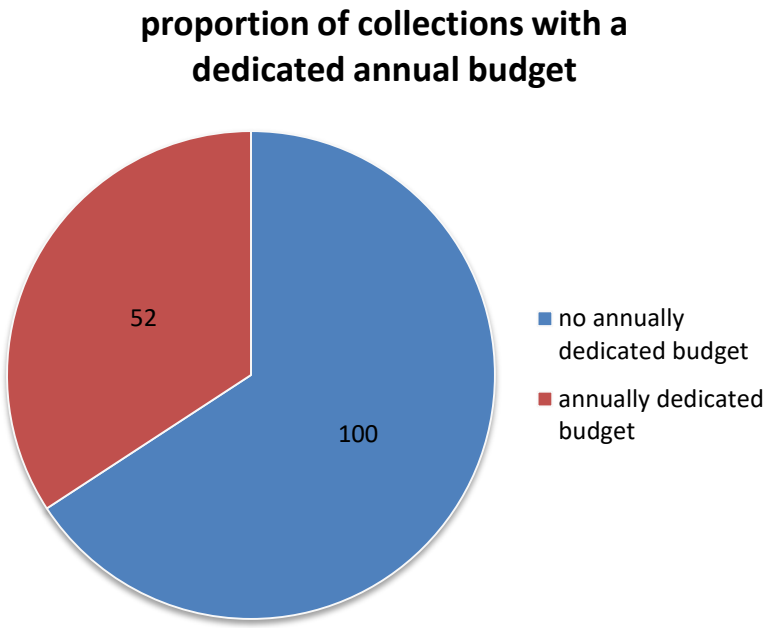




Findings:

Most collections have a limited number of curators (i.e. 1 per collection), and the general average full time equivalent per collection and per year does not greatly exceed 1. Collections in taxonomic groups where live cultures are more frequent (bacteria, viruses and viroids, phytoplasma and fungi) tend to have more full-time equivalents.

Maintenance of the collections: budget

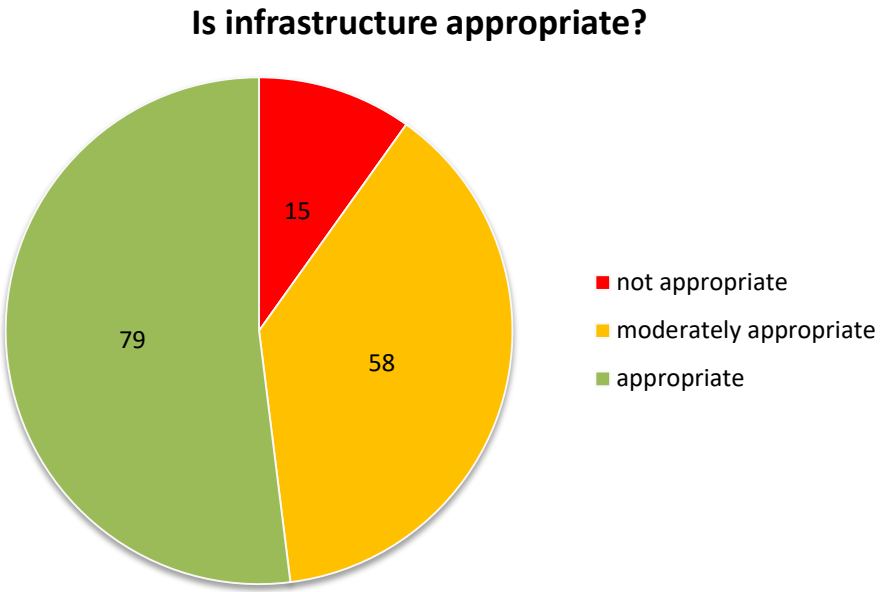


Findings

2/3rd of collections do not have an annual dedicated budget, possibly meaning that they function on fund allocated for other activities such as research or diagnostics.

This is a structural weakness that questions the long term future of the collections.

Maintenance of the collections: infrastructures



Findings

About 10% of collections signaling inappropriate facilities. This is a relatively minor gap, compared with other issues put to light in this survey.

Q-collect questionnaires: bias and gaps

Conclusion : main gaps identified

Structuration and network:

A few international collections (especially for microorganisms) are well organized to provide services but :

- most collections are small (one by institute, one curator, dispersed…).
- most collections are working collections that are not organized to share material or to provide services.
- most collections are isolated, 77% are not part of a national/international network.
- there is no common policy towards collection management throughout the region.

Inventory of species and specimens preserved:

Depending on the discipline a high percentage of collections have neither a catalogue nor a list of their holdings. Consequently it is not possible to know how many specimens/species are represented, and available. This is an important gaps to ensure an easy access to material.

The level of information associated to specimens is too low, these data are usually not available online and not required for a deposit.

Q-collect questionnaires: bias and gaps

Conclusion : main gaps identified

Quality

Less than half of collections have a formalized quality system, less than 1/3 have accredited procedures. For instance 30% of the collections have no documented standard procedure for numbering, labelling of samples, preservation and storage.
Consequently more than half of the collections share material without quality assurance system.

The absence of quality assurance systems in collection is a major gap in particular for those who share material (this excludes the use of such material in a formalized framework).

Characterisation

When relevant about 30% of collections assess pathogenicity and 57% of viability.
This is an identified gap but Q-collect experts believe that assessing the pathogenicity is not systematically performed because of technical problems and feasibility

Q-collect questionnaires: bias and gaps

Conclusion : main gaps identified

Sustainability

Few collections share material for duplication to ensure preservation following accidental loss.
Most collection have only one curator.
2/3rd of collections do not have an annual dedicated budget.

The conservation status is a gap for 20% of the collections but only 10% of collections signaling inappropriate facilities/infrastructures.

Less than 50% of collections assess the stability of material during storage, very few of them during loan. Improvement should contribute to enhance conservation and sustainability.

Thanks for your attention

Q-collect