



EPPO Standards

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**Workshop on the use of NGS technologies for plant pest diagnostics,
Bari (IT), 2017-11-22/23**

EPPPO in a few words

**ONE OF 9 REGIONAL PLANT PROTECTION ORGANIZATIONS RECOGNISED
UNDER THE INTERNATIONAL PLANT PROTECTION CONVENTION
CREATED IN 1951
NOW 51 MEMBER COUNTRIES**

Remit set out in the EPPPO Convention – in practice supporting member countries in particular in the areas of:

- **Plant quarantine**
- **Efficacy of plant protection products**
- **Invasive alien plants**
- **Biological control agents**

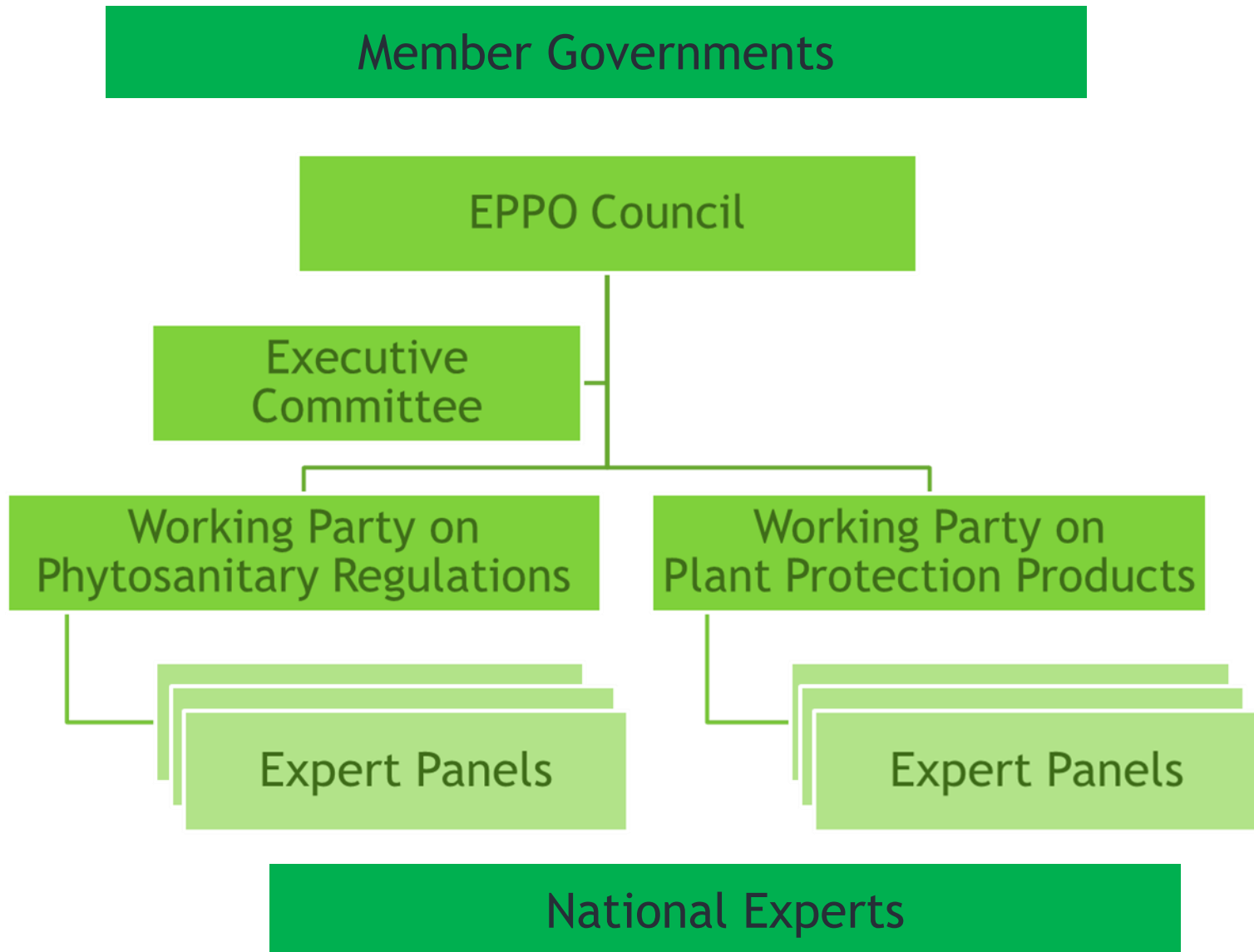
by:

- **Developing and adopting regional technical Standards**
- **Disseminating information (information services)**
- **Input to development of international standards**
- **Facilitating networking in the region through Panel meetings, conferences, workshops.**



Organisation

EPPO Secretariat



EPPO activities in plant quarantine

- **Identification of potential risks: Early warning systems to identify emerging risks**
- **Evaluation of potential risks: Pest Risk Analysis**
- **Recommendations on pests which should be regulated as quarantine pests (EPPO A1 and A2 Lists)**
- **Preparation of Standards (e.g. official control standards, diagnostic protocols, inspection procedures....)**

Provide information to EPPO members



Why do we need Standards?

NPPOs perform inspections to detect pests:

on imported consignments
(imported or exported)

for the surveillance of their
territory (in fields, nurseries
glasshouses....)



tests are needed to improve and speed-up detection and identification of pests

Standard setting in EPPO

- Long standing and active program for Standard setting in several areas, including **diagnostics**.
- Objectives: to achieve a harmonized approach to detection and identification for regulated pests.
- The work started in 1998 is conducted by the Panels on Diagnostics.
- Panels are composed of specialists from EPPO member countries.



Standard setting in EPPO

Context of EPPO Diagnostic activities
official plant pest diagnostic, i.e.
diagnostics performed by laboratories
in the framework of official controls
(inspections performed for imported
or exported commodities,
surveillance on the territory).



Active EPPO Panels

Plant Protection Products

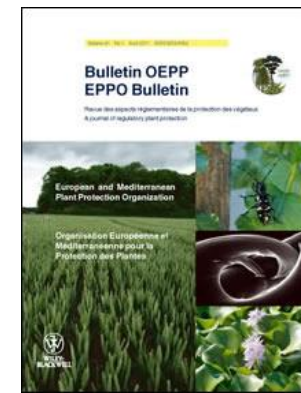
- General Standards
- Herbicides
- Insecticides and Fungicides
- Resistance
- Harmonisation of Data Requirements

Phytosanitary Regulations

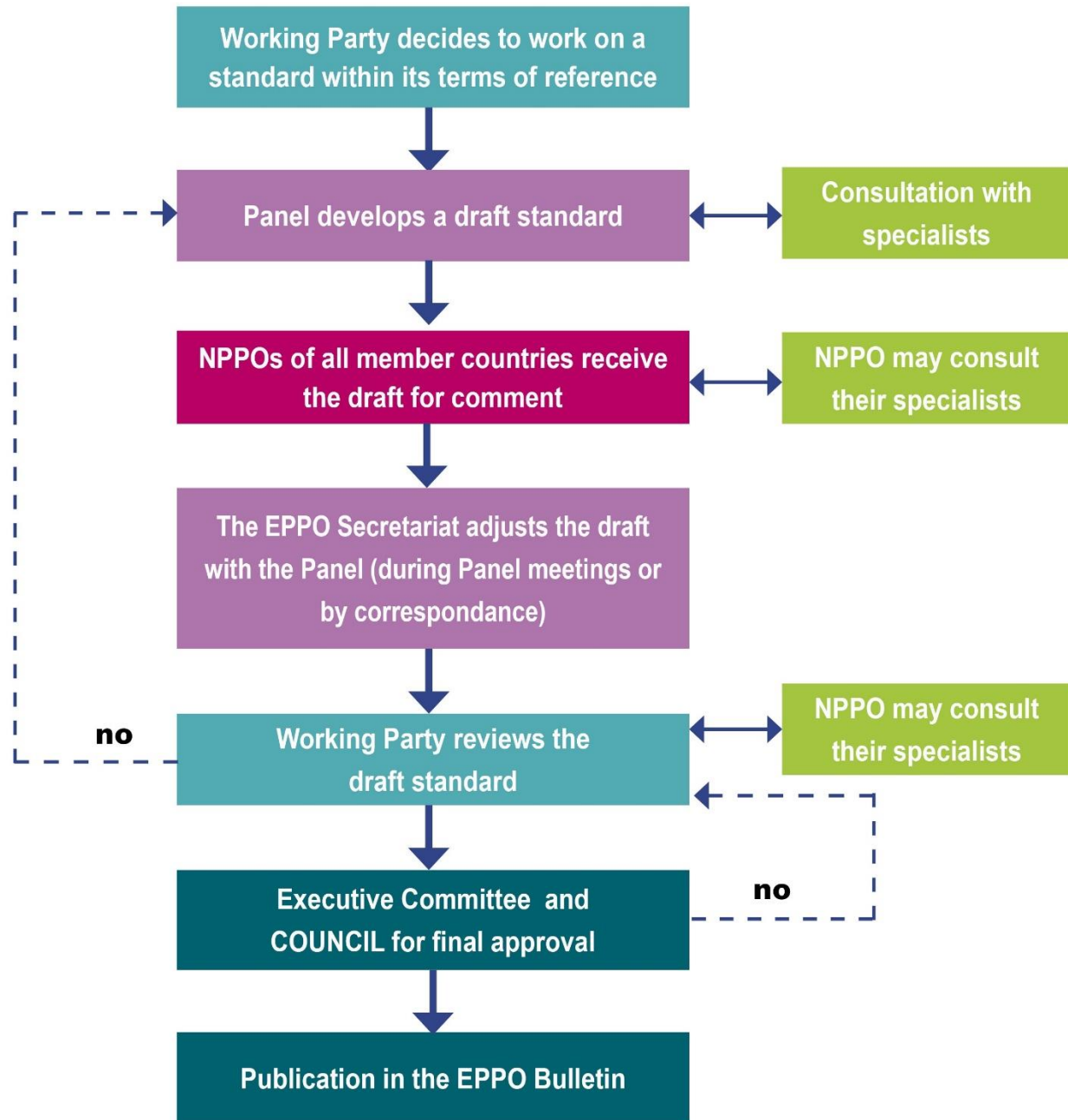
- Global Affairs
- Risks and Measures
- Forestry
- Potatoes
- Inspection Procedures
- Information
- **Diagnostics (General) +**
 - Entomology
 - Nematodes
 - Bacteria
 - Fungi
 - Virology
- Invasive Alien Plants
- Biological Control Agents

Standard setting in EPPO

- Standards are written according to a “common format and content”.
- First drafts of Standards prepared by an assigned expert author(s) or by a drafting team and reviewed by the relevant EPPO Expert groups.
- Standards are approved following an approval procedure which involves a formal written consultation of all EPPO Member countries.
- Standards are published in the EPPO Bulletin and are freely available. Also available from the EPPO Global Database <https://gd.eppo.int/>



Approval procedure



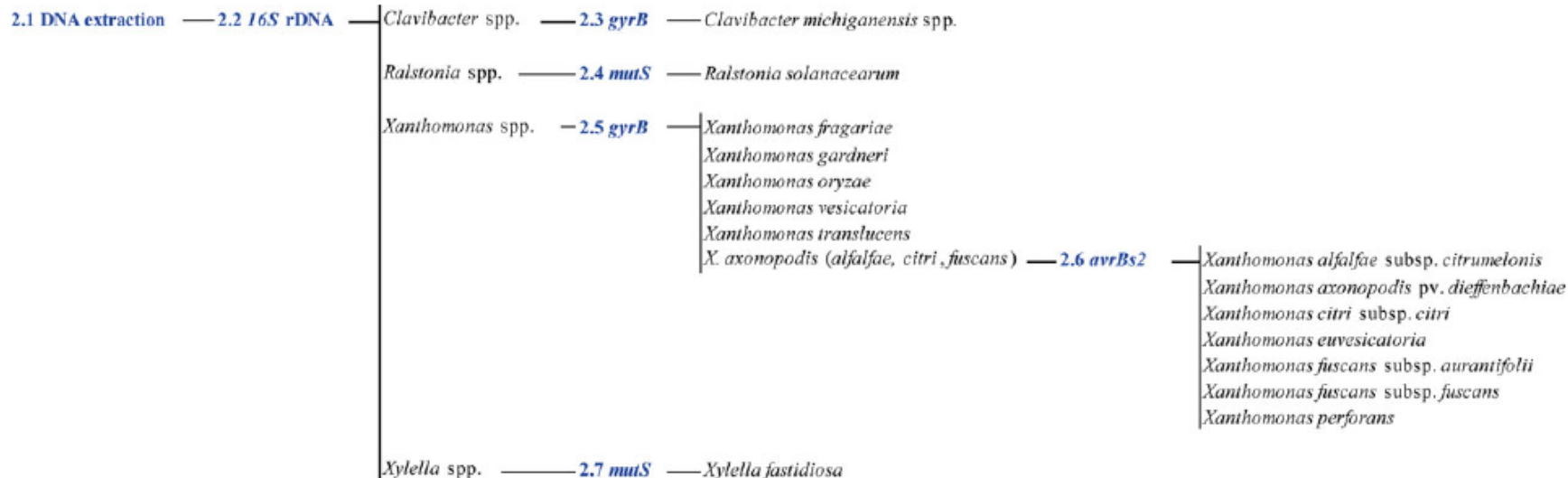
Some horizontal Standards on Diagnostics

PM7/84(1)	Basic requirements for quality management in plant pest diagnosis laboratories
PM7/98(2)	Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity
PM7/122(1)	Guidelines for the organization of interlaboratory comparisons by plant pest diagnostic laboratories
PM7/129(1)	DNA barcoding as an identification tool for a number of regulated pests

Example of a generic Standard:

PM 7/129 DNA barcoding as an identification tool for a number of regulated pests

- DNA barcoding protocols developed for the identification of a number of regulated: arthropods, bacteria, fungi and oomycetes, invasive plant species, nematodes and phytoplasmas.
- Each organism group is covered in a separate Appendix.
- Protocols describe the extraction of nucleic acids and the amplification of short standardized marker(s). When several different markers, diagnostic schemes are provided to aid the selection of appropriate protocols.



EPPO Standard on NGS

Detections based on NGS technologies may have significant implications

Need for guidelines on procedures for the use of NGS technologies for pest detection in a regulatory framework.

EPPO Council has agreed to include in the EPPO's Work programme the preparation of a Standard on NGS.



brainstorming session objectives

STANDARD OR RECOMMENDATION?

Identify the needs of laboratories to determine the main scope and content of such Standard or recommendations.

Possible section .

1. Scope
2. Sampling and sample preparation (technical guidelines and quality assurance)
3. Library preparation (technical guidelines and quality assurance)
4. Sequencing (quality assurance)
5. Bioinformatics pipeline (quality assurance)
6. Validation
7. Reporting (in particular, communication to risk managers)

brainstorming session

- For each of the 7 points, the groups should discuss:
 - To which level of technical details should the Standard go?
 - How to organise the technical parts that are needed?
- As an increasing number of laboratories operate under accreditation in the EPPO region, it is also important to discuss **how ISO 17025 accreditation of NGS results can be achieved?**
- Participants split in 7 groups
- Each group will report to the Plenary

First identify a rapporteur

What is next?

Outcomes will be further considered in the EPPPO framework and the formation of a specific expert working group to develop this Standard will be considered.

Potential members can be identified already during the workshop.

