

**Conclusions of the EPPO conference on
“Quality of diagnostics and new diagnostic methods”
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The conference on 'Quality of diagnostics and new diagnostic methods' was organised by the EPPO Secretariat with the Dutch Plant Protection Service. The conference was attended by more than 100 participants from 26 countries. Most participants were experts in the field of the diagnosis of plant pests, but representatives of EU organisations and private companies were also present.

From the papers presented on the conference three major developments can be distinguished.

Firstly, the increasing concern on the development of quality control systems for laboratories involved in the diagnosis of plant pests was noted. In several countries laboratories are committed to get accreditation based on the ISO standard 17025, either because the national government requires such an accreditation or because the laboratory is part of a larger laboratory that wishes to get accredited. Although only a limited number of laboratories is involved in accreditation, most of the other laboratories are in the process of developing their own quality control systems. One of the most important factor in the development of quality control systems and possible accreditation is the availability of acknowledged and validated standards for the diagnosis of plant pests.

Although EPPO has put great effort in the development of harmonised diagnostic protocols, it was noted that these protocols are not adequately validated (ringtesting, reference material and inter laboratory comparison) in order to be used in accredited quality control systems. Therefore more standards for the validation of diagnostic methods for plant pests should be developed.

In a special workshop organised during the conference it was recommended that EPPO should develop recommendations on how to apply (implement) the ISO standard 17025 for the diagnostics of plant pests, in particular with respect to adequate validation and other technical requirements of the standard. Further more it was suggested that EPPO could play a role in co-ordinating inter-laboratory testing and/or proficiency testing. It was also mentioned that a roster of international experts available to assist in the accreditation process of laboratories would be valuable, since specialists of a particular laboratory are often the only specialists within their country.

The second important development identified at the conference is the increasing complexity of the world of plant pest identification and detection. New technologies make it possible to analyse large numbers of isolates and compare them on the basis of their genetic determinants. This molecular phylogeny of, for instance, plant pathogenic fungi gives a complete different insight in the identity of specific plant pathogenic fungi and their closest

relatives. This can have great consequences for (the current) taxonomy and quarantine status of many plant pathogenic fungi as well as other plant pests.

While on one hand the identification and determination of plant pests gets more complicated the number of specialist working in this important area is decreasing all over Europe. Many universities close down their taxonomic faculties and even discard of vital phytopathological collections. This is a development of great concern that can only be addressed on a European level, since individual countries lack adequate financing to keep all expertise at an adequate level. It was suggested that EPPO could play an important role to address this problem in Europe, since they facilitate the largest network of specialists cooperating in phytopathology.

The third major development was the introduction of new technologies as rapid immunological assays, PCR and DNA-chips into the field of the detection and identification of plant pests. Although these technologies have major advantages, these technologies are not yet available for all laboratories and specific training is needed in order to handle these technologies correctly and successfully. Unfortunately these laboratories can not afford the installation of and specifically the training in these new promising technologies. This makes it also more difficult to include these technologies in international standards, although they are often the most preferred methods with respect to sensitivity, selectivity and rapid analysis. In the pioneer countries these technologies are now being implemented on the site of inspection, making the inspections at the border even more effective. An other technology that can be used for on-site diagnosis are digital images of plant pests, which can be send to specialist on different locations for determination within a very short time interval.

During the closing session of the conference the following conclusions were drawn to be considered by EPPO:

- Since the implementation of quality control systems within laboratories working on the diagnosis of plant pests is very important and sometimes even a necessity, adequate regional or international standards should be available. These standards should not only include the methods of diagnosis, but also the information on how it was validated, which reference material was used and specific performance criteria. Also standards on validation of methods and proficiency testing should be developed.
- Since the complexity of the identification and detection of plant pests increased and the number of specialist is decreasing, international attention should be mobilized to create possibilities by which countries can collaborate to safeguard the availability of sufficient experts in diagnosis of plant pest in particular and phytopathology in general. Also need to sustain important collections of micro-organisms, nematodes and insects should be addressed.
- Since international harmonisation will focus on using the best practice for the diagnosis of plant pests, besides the development of quality control systems, training in new technologies will be essential. Current results of inter laboratory comparison of methods show how difficult it is for a laboratory to perform a new method adequately. So in order to prevent that international standardisation decreases the quality of diagnoses, adequate training programmes should be developed.

These conclusions lead to the following recommendations to be considered by the Working Party on Phytosanitary Regulations and the EPPO council:

1. To make a specific interpretation of the ISO standard 17025 for the diagnosis of plant pests, so laboratories that wish to get accredited can use this. This could be one of the major tasks of the Ad Hoc Panel on Laboratory requirements.
2. To adapt the scope of the diagnostic protocol to the requirements of international / regional quality assurance standards. This means further elaboration of several Diagnostic protocols with respect to specific performance criteria, specification of critical steps in the process of diagnoses (temperature, pH, biovariation ect.), reference material and validation.
3. To either make a specific Ad Hoc panel for designing standards for validation and proficiency testing of methods for the diagnosis of plant pathogens or add these tasks to the assignment of the Ad Hoc Panel on Laboratory requirements.
4. To co-ordinate an initiative for voluntary inter-laboratory testing scheme's so laboratories can already start to evaluate their capabilities by comparing their results to that of others, with respect to the same samples and/or methodology.
5. To co-ordinate the availability of a list of technical specialist with regard to the diagnosis of plant pests that can assist in technical audits leading to accreditation to the ISO 17025 standard.
6. To assist in the lobby to the EU to raise finance to enable ring testing of the Diagnostic protocols of EPPO.
7. To prepare an official statement by the EPPO-council to express the concern with respect to the decrease of specialists and knowledge in the field of phytopathology. This decrease in knowledge could seriously jeopardise the adequate implementation of the current EU regulations with respect to quarantine plant pests. In particular the importance of well-maintained collections should be emphasised, since these collections are crucial in relation of knowledge on the biology of known and newly discovered plant pests.
8. To look for ways of organising and financing the training of specialists in countries that not yet have the means and the knowledge to perform the new state of the art methodologies that are included in the diagnostic protocols (like for instance molecular diagnostics). Current inter-laboratory testing showed how difficult it is to disseminate these technologies to other laboratories that do not yet have a large experience with PCR, DNA-isolation and other similar methodologies.

Submitted by

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