



## Report of the meeting of the Technical Panel on Diagnostic Protocols, 2-6 June 2008, Braunschweig, Germany.

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### 1. Introduction

The technical panel on diagnostic protocols (TPDP) was welcomed to the Julius Kühn Institute by the president, Professor Georg F. Backhaus. He explained that the Institute had been created in January 2008 from a restructuring of four institutes (previously 7 research organizations), including the former Federal Biological Research Centre for Agriculture and Forestry (BBA) in Braunschweig. The TPDP visited the new headquarters of the Julius Kühn Institute in Quedlinburg and toured the glasshouses. The panel also heard about the work of the German Collection of Microorganisms and Cell Cultures from Stephan Winter, the head of the Plant Virus Department. He also explained his work on viruses transmitted by *Bemisia tabaci* and on *Potato spindle tuber viroid*.

Johannes de Gruyter was elected as chair. The TPDP agreed to the Agenda (Annex 1) with some modifications to the order.

### 2. Report of the last meeting

The steward summarised the report of the last meeting. He noted that the *Criteria for prioritization of diagnostic protocols* (Annex 4 of the 2007 report) had been modified slightly and agreed to by the Standards Committee (SC) in November 2007. It was noted that criteria that apply to all standards were approved by the Commission on Phytosanitary Measures (CPM) in April 2008. He commented that participation at the meeting by authors of DPs had been beneficial. He noted that the work programme had not been completed, but this had largely been due to the uncertainty about DP development after the member consultation process for the *Thrips palmi* DP.

The Secretariat informed the TPDP that there was a joint work programme with the Secretariat of the Convention on Biological Diversity (CBD). The Secretariat mentioned the Global Taxonomy Initiative (<http://www.cbd.int/gti/>) (GTI), which has been set up under the CBD to address the lack of taxonomic information and expertise available in many parts of the world and to support the overall aims of the CBD (global conservation and management of biodiversity). The TPDP requested the Secretariat to provide further information on the work of the GTI for their next meeting.

### 3. Update on meetings of the Standards Committee (SC) and Commission on Phytosanitary Measures (CPM)

The steward updated the TPDP on the outcomes of the SC meeting in November 2007 as they affected the work of the panel. The SC had agreed that when a member of a technical panel was due to leave they should, whenever possible, notify the Secretariat one year in advance so there could be a period of overlap of one meeting for the replacement panel member. The SC had also agreed to technical panel members having a role in selecting the replacement member(s). Following recommendation from the TPDP, the SC had added *Striga* spp. to the standard setting work programme.

The steward informed the TPDP of the outcome of the CPM meeting in April 2008. The formal objection to the *T. palmi* DP had been a major issue, and both the special process of standard setting and the *T. palmi* protocol were discussed at the CPM. The CPM had agreed, exceptionally, to a reduction in the member consultation period for the revised *T. palmi* DP if it were available in late June 2008. However, the lead author had informed the TPDP that additional time would be required to address the additional comments that had been submitted following the CPM.

### 4. Report of the work of the EPPO diagnostic panel

Françoise Petter, assistant director of EPPO, informed the TPDP of EPPO's work on development of DPs. EPPO was formed in 1951 with 15 countries and now has 50 member countries. There is an EPPO diagnostics panel comprising experts in the different disciplines. Authors are selected to draft protocols and

the drafts are reviewed by the panel and sent for country consultation. In addition, EPPO has specialist panels, including bacteriology and nematology, which support the work of the EPPO diagnostics panel.

Ms Petter explained that the programme of DP development started in 1998 and 84 EPPO protocols have now been adopted, including 3 general standards. EPPO has a programme on quality assurance and accreditation and an EPPO panel dealing with quality assurance issues is working on the requirements for validation of methods. Future standards may be developed on ring testing and proficiency testing and production of reference material, although work on the latter topic may be done by the European Union.

Part of the reason for development of an EPPO general standard on the requirements for diagnostic laboratories had been due to the differences in requirements that had been set by accreditation bodies across Europe. EPPO has been in contact with the European co-operation for Accreditation body (EA), which reviewed the EPPO standard and considers that it could form the basis of a document to be used by accreditation bodies as a basis for accreditation of plant quarantine laboratories.

Ms Petter also informed the panel of the European database of diagnostic expertise that had been initiated after a conference in 2004 and which is now accessible to all ([http://www.eppo.org/DATABASES/diagnostics/diag\\_quest.htm](http://www.eppo.org/DATABASES/diagnostics/diag_quest.htm)). She noted that, although entries are checked for consistency, the experts on the database were self-nominated.

## **5. Procedures adopted at CPM-3**

### **5.1 Hierarchy of terms**

The Secretariat informed the TPDP of the hierarchy of terms noted by the CPM-3, and highlighted the fact that DPs were subjects and may therefore be added to the standard setting work programme by the SC. In addition, contracting parties may submit suggestions for DPs through the Secretariat's call for topics. The TPDP noted that the list of subjects would be presented to the CPM each year and that the CPM adopts and may adjust the work programme.

### **5.2 General considerations for standard setting and standard setting procedure**

The Secretariat explained the main changes to the standard setting procedure as they applied to the work of the TPDP. These included the change of the 'fast track' to the 'special process'. Under the special process, comments may be submitted during member consultation and formal objections only apply when drafts are submitted for adoption by the CPM. The TPDP was informed that, while a draft in the special process may be presented to the SC at any time, members had requested the Secretariat to follow a predictable schedule for member consultation. The Secretariat informed the TPDP that the dates for the additional round of member consultation would likely extend from early October to January.

### **5.3 Standard setting work programme**

The TPDP considered the list of subjects in the standard setting work programme and noted that priorities had been recommended at their first meeting. The TPDP recommended that all DPs are now moved to 'normal' priority because the categorization applied earlier was no longer appropriate. The panel recommended that high priority is used only when there is an urgent need for a DP to be developed.

### **5.4 Terms of Reference and Rules of Procedure of Technical Panels**

The TPDP noted that the CPM had adopted the Terms of Reference and Rules of Procedure for Technical Panels. The Secretariat informed the members of the TPDP that their terms had been confirmed for 5 years from April 2008 to March 2013 (Annex 3).

## **6. Diagnostic protocol for *Thrips palmi***

### **6.1 Finalization of the *T. palmi* protocol for member consultation**

Dom Collins, the lead author of the *T. palmi* DP, was welcomed to the meeting to discuss the draft DP before the second round of member consultation. The panel considered the remaining comments from Japan and the technical comments provided by Australia following discussion at CPM-3. The lead author had already had direct communication with experts in Australia and Japan regarding some of the technical comments and some had been resolved. Responses to all the technical points were agreed during the meeting and amendments will be made to the draft DP. In many cases the proposals were accepted. In some cases there were technical reasons why proposals could not be accepted, but a compromise solution was found to cover

all concerns. Some issues related to horizontal points and these were also discussed and resolved during the meeting.

The TPDP's response to the technical comments will be submitted to Australia prior to the second round of member consultation. A number of actions will be undertaken prior to the draft being sent to the SC for approval for member consultation:

- Lead author will amend the text based on the discussion at the TPDP meeting, in consultation with the experts from Australia and Japan and the discipline lead.
- Photographs will be included showing diagnostic features (some new photographs will be required).
- The draft will be circulated by M. Malipatil to Asian thrips experts in Malaysia, Thailand and India.
- The draft will be circulated to the TPDP for final comments and approval. M Malipatil will act as referee for the protocol to ensure it meets the requirements of ISPM No. 27.

The main issues (technical and horizontal) discussed on the *T. palmi* DP included:

#### 6.1.1 Scope of the DP

The TPDP consulted ISPM No. 27, which clearly indicates that DPs are “*intended to be used by laboratories performing pest diagnosis as part of phytosanitary measures*” and “*Each protocol contains the methods and guidance necessary for the regulated pest(s) to be detected and positively identified by an expert (i.e. an entomologist, mycologist, virologist, bacteriologist, nematologist, weed-scientist, molecular biologist) or competent staff that are specifically trained..*” The TPDP was clear that DPs are not intended to be training documents. The panel did not consider it was necessary to indicate how to differentiate the genus *Thrips* from all other insects, because although an expert may not have diagnosed *T. palmi*, they would normally be able to identify this genus.

#### 6.1.2 Photographs

The TPDP accepted that photographs showing diagnostic features would be useful. Because *T. palmi* can cause damage to a number of hosts, the panel did not consider photographs of symptoms would be representative and therefore decided not to include them. In general, however, the TPDP agreed that photographs of symptoms should be included in DPs where they are helpful for diagnosis of the pest.

#### 6.1.3 Inclusion of molecular methods in DPs

The TPDP noted that there had been some concern about the extent to which molecular methods had been tested and therefore the global relevance of the methods; possible problems had been reported for one method. The TPDP therefore discussed whether to remove the molecular methods from the draft *T. palmi* DP, but considered that they could provide useful additional information for diagnosis in certain cases, such as where immature stages were found, provided the advantages and limitations of the methods were indicated. They noted that keys to morphological characteristics could also be considered to have limitations because they often only related to pests normally present in a particular region. Provided the specificity of the method was clearly indicated in the DP, diagnosticians could use these tests to provide further information on their diagnosis.

#### 6.1.4 Common formatting – for example using tables to compare similar species

The TPDP discussed whether it would be possible to use a common format for groups of pests, for example for insects. There was a proposal to include tables of diagnostic features of *T. palmi* compared with other similar species. The TPDP concluded that for some pests a table format would be useful, whereas for others, keys to separate related species would be more appropriate. In the case of *T. palmi*, proposals for two tables were accepted, whereas a third table was not thought to be helpful because it would make the guidance more complicated and could cause confusion.

#### 6.1.5 Weighting of morphological characters

The TPDP considered that DPs should clearly state which morphological characters are essential for the diagnosis. A suggestion to weight different characters was not considered appropriate because such weighting would depend on the species present in a region that could be confused with *T. palmi*. Adoption of such a weighting system would make a global standard difficult to agree and would be more appropriate for a regional or national protocol.

### 6.1.6 Contact points for further information

There was a proposal to include the names of experts from around the world in this section. The TPDP noted that ISPM No. 27 requires this section to include experts in the pest who could be consulted about the protocol. These experts should therefore be familiar with the content of the protocol and should agree to have their name included. Until now, the names of the authors of the protocol had been included because they were familiar with the protocol. The TPDP modified the Instructions to Authors to make it clear that the discipline lead should be involved in agreeing the experts to be included in this section. The TPDP noted that the names of experts for further information could be proposed during member consultation.

### 6.1.7 Consultation with experts from Asia

The TPDP noted that the draft *T. palmi* DP referred to keys for thrips species from different regions and clearly stated the diagnostic features that differentiated the pest from similar species. The draft had not, however, been formally circulated to experts in parts of Asia prior to member consultation. The TPDP therefore agreed that the TPDP referee for this DP would send it to experts in Malaysia, Thailand and India for their consideration. The TPDP amended the Instructions to Authors in the light of this discussion (Section 7.1.3 of this report).

## **6.2 Determination of horizontal issues arising from Australia's, Japan's and EU's comments and needing to be taken into account in DP production**

The TPDP discussed the comment from Australia, Japan and the EU relating to horizontal issues on DP production. Several changes were made to the Working Procedures (Section 7.3 of this report) as a result of the discussion. The TPDP agreed:

- the scope of DPs should be as broad as possible to cover different circumstances of use
- a common format was not possible (Section 6.1.4 of this report)
- the target audience was already defined in ISPM No. 27 (Section 6.1.1 of this report)
- the review of the draft by experts outside the editorial team should be as thorough as possible prior to submission of the draft to the TPDP (Section 7.1.3 of this report)
- to include a statement at the beginning of the protocol to indicate when it was drafted. No new methods would be added after consultation unless they have an impact on the accuracy or implementation of the methods included in the draft
- a cover note would accompany the draft DPs when they go for member consultation to indicate the experts/countries that had reviewed the draft and any issues that had arisen and been resolved
- the draft would be reviewed (refereed) by a member of the TPDP using a checklist to ensure it met the requirements of ISPM No. 27.

In response to the EC's comment on the scope of genus-specific DPs, the TPDP noted that NPPOs should send a specification for topics (and subjects) for standards when they respond to the biennial call for topics and priorities for standards. The TPDP would consider the specifications when assessing priorities for new DPs. For existing subjects on the standard setting work programme, the panel noted the difficulties in deciding the scope of genus-specific protocols and considered that there should be guidance to authors. They recommended that DPs should cover diagnosis of the genus and, if appropriate, diagnosis of species that are regulated by NPPOs. In particular, the DP should be relevant to species that may be associated with trade issues. The discipline lead and authors should agree the scope of the protocol and this should be considered and agreed by the TPDP.

## **7. Changes to TP procedures following CPM decisions**

### **7.1 Instructions to Authors**

The Secretariat introduced a summary document containing extracts from the reports of previous meetings where decisions had been made on the format or content of draft DPs. The TPDP reviewed the document and, together with the changes resulting from the discussion on the *T. palmi* DP (Section 6 of this report), adjusted the Instructions to Authors (Annex 4).

Minor amendments were made to clarify the following:

- common names widely used in the scientific literature should be given
- the advantages and limitations of all methods should be provided
- appendices or annexes should not be included
- the reasons for using a combination of methods should be given

- specificity and sensitivity data should normally be quantitative, but may be qualitative if no quantitative data is available
- the number of references included in a DP should be kept to a minimum.

In addition the following major issues were discussed and resolved:

#### 7.1.1 Minimum requirements for a diagnosis

The TPDP noted that the minimum requirements for a diagnosis currently included in drafts often provide a very high level of certainty in the diagnosis and are often the methods that would be used, for example, for a first finding of a pest in a country or laboratory. The TPDP noted that ISPM No. 27 requires DPs to provide the minimum requirements for a diagnosis and this should apply to cases where less certainty is required, such as surveillance for an organism that occurs in a country. Drafts currently do not provide guidance on the minimum requirements under these circumstances. The TPDP therefore made the text clearer, indicating that the minimum requirements for a positive diagnosis for cases such as routine surveillance of a pest widely established in a country should be given.

#### 7.1.2 Pest data sheets

The text was clarified to indicate that data sheets that are publicly available and considered to provide useful background information should be included.

#### 7.1.3 Wide consultation with experts prior to submission to the TPDP

Previously the TPDP had recommended that authors of DPs circulate draft protocols as widely as possible to make sure that they are globally acceptable prior to submission for review by the TPDP. The Instructions to Authors was changed to make this review a requirement. The panel also indicated that authors should provide information on the main issues arising from this consultation and the names of the experts that had been consulted. The TPDP will check that drafts have been reviewed by experts and the list of experts/countries consulted will be included in a cover note accompanying each draft DP when it is sent for member consultation.

#### 7.1.4 Guidance for sampling and inspection

The TPDP strengthened the wording in the Instructions to Authors to make it clear that DPs should not contain instructions for inspectors or sampling protocols. DPs should, however, include information of relevance to the diagnosis of the pest including relevant symptoms.

#### 7.1.5 Inclusion of photographs

The TPDP clarified the wording regarding photographs. Where photographs are essential they should be included and additional photographs may be made available on the IPP.

#### 7.1.6 Flow diagrams

The TPDP noted that in many cases the flow diagrams included in the current draft DPs could cause confusion because they did not reflect the wording in the text. Often flow diagrams could be interpreted as directing NPPOs (decision schemes) rather than indicating the combinations of methods that can be used for diagnosis of a pest.

The TPDP considered it could be difficult to express the minimum requirement for diagnosis in flow diagrams. They discussed whether the level of confidence in the diagnosis could be expressed in the flow diagram in broad percentages or using descriptive terms, such as 'suspect positive', 'presumptive diagnosis', 'detected', 'diagnosed' and 'confirmed'. The TPDP agreed that percentages could not be justified unless data were available to support a numerical claim and the panel decided that using terms like 'suspect', 'confirmed' etc. could be used by lawyers to challenge decisions and could affect decision making by an NPPO. The TPDP agreed there needed for consistency in the use of terms in the flow diagrams. Due to the difficulties, the panel finally agreed that flow diagrams should only be included when they provided useful guidance and did not cause confusion.

#### 7.1.7 The use of brand names

The TPDP re-iterated the decision from 2007 that the names of particular brands of reagents and equipment should not be given unless they are considered as technically necessary and directly affect the result of the diagnosis. The TPDP agreed that specific reagents and equipment should not be quoted if alternatives are

available which would not affect the quoted sensitivity, specificity and/or reliability of the method. The TPDP therefore agreed that each draft protocol should be carefully checked to ensure that brand names are only included when the brand is considered to affect the level of specificity, sensitivity and/or reproducibility quoted in the diagnostic protocol.

The panel considered amendments that had been made to the draft *T. palmi* protocol in response to the 2007 member consultation. The amendments included the phrase “for instance” where brand names were mentioned. The panel considered that in some cases this amendment was inappropriate and that in some cases the brands should be quoted because they could affect the sensitivity/specificity or reliability of the method. The panel therefore agreed that a paragraph would be added to DPs when brand names are used.

There was an email discussion after the meeting on the final wording to be included in the paragraph (below). This includes a direct quotation from footnote 1 in ISPM No. 27 and also a brief sentence explaining the reason for including brand names in the protocol. The agreed text reads (italicized text quoted from ISPM No. 27):

“In this diagnostic protocol, methods (including reference to brand names) are described as published as these defined the original level of specificity, sensitivity and/or reproducibility achieved. *Use of names of chemicals or equipment in these diagnostic protocols implies no approval of them to the exclusion of others that may also be suitable. Laboratory procedures presented in the protocols may be adjusted to the standards of individual laboratories, provided that they are adequately validated.*”

## **7.2 Checklist for discipline leads**

Members of the TPDP who had acted as referees for some of the draft DPs had used a checklist to evaluate them prior to the meeting. The TPDP agreed that a checklist was useful to ensure the requirements of ISPM No. 27 had been met, but the current version needed to be revised to include spaces for comments by the discipline lead, referee and TPDP. This would be used to help track drafts and could be useful for the cover note to accompany draft DPs when they are sent for member consultation.

## **7.3 Working Procedures**

The TPDP adjusted the Working Procedures (Annex 5) based on CPM decisions, their experience with the development of DPs, the member consultation in 2007 of the *T. palmi* draft and recommendations in documents discussed during the meeting.

The TPDP considered the EC’s recommendation that suitable experts should be nominated as authors for DPs, but considered this was an issue for NPPOs. Experts have a role in the development of DPs at three stages: nomination of authors; technical review of drafts by experts prior to submission to the TPDP; and at member consultation. It is important that relevant experts are involved at all the stages.

The TPDP considered that member comments should be dealt with by the discipline lead, who is considered the steward of the DP, and copied to the TPDP for their awareness. For technical comments, the discipline lead should consult with the editorial team as required. For more substantial comments of a horizontal nature, the TPDP is responsible for deciding the response. Either the discipline lead or the TPDP steward should be responsible for coordinating this process.

For the annual review of DPs, the TPDP will recommend to the SC when a protocol needs to be revised and request adding the revision to the standard setting work programme. The panel noted, however, that this would be a cumbersome process if a small update was required, such as a change in reagent (e.g. antibody) or contact information. In such cases, perhaps a simpler solution could be found.

## **8. Update on the development of diagnostic protocols (DP)**

Discipline leads gave an update on the development of DPs within their discipline (Annex 6). There had been a call for authors for the new subjects with a closing date of 15<sup>th</sup> September 2007. New editorial teams were approved. Once the revised Instructions to Authors are complete, discipline leads will write to the nominees to ask them to participate and inform unsuccessful nominees that they have not been selected.

The panel agreed on TPDP referees for drafts that were nearing completion (Annex 6).

## **9. Scrutiny of draft protocols**

The TPDP reviewed the draft DPs that had been submitted for the meeting (reported in the individual sections below). Three draft DPs were considered to be nearly ready for member consultation (*Trogoderma granarium*, Plum pox virus (not seen at the meeting) and *Guignardia citricarpa*). Discipline leads will work with authors to produce a final text for submission to the SC.

### **9.1 *Trogoderma granarium***

The TPDP considered the draft DP, which had been refereed by a member of the TPDP. The lead author had responded to the referees comments. The TPDP noted that the draft had been circulated widely prior to submission to the panel. The panel concluded that the referee would do a final check on the author's comments and then the DP would be submitted to the Secretariat for approval by the SC for member consultation.

### **9.2 *Anastrepha* spp.**

The discipline lead reminded the TPDP that this protocol had been considered at the last meeting and they had agreed that molecular methods should not be included because there was not enough confidence in the certainty of diagnosis with these methods. The TPDP recommended some formatting changes and agreed a TPDP referee. The panel noted that keys for species of *Anastrepha* only covered species of economic significance and species commonly found in the neotropics. The TPDP agreed that the draft should be circulated more widely before being resubmitted for the next meeting.

### **9.3 *Bursaphelenchus xylophilus***

The TPDP met with Thomas Schroeder, the lead author of the *B. xylophilus* (pine wood nematode) DP and discussed the draft protocol and the comments that the panel had made at their last meeting. In particular, the TPDP agreed that a pictorial key should be included to aid diagnosis of the genus. Ms Petter informed the panel that EPPPO is developing a pictorial glossary for nematodes, which may be useful for this DP.

At their previous meeting, the TPDP had required the instructions on inspection and sampling of trees and wood to be removed from the draft. The author indicated that taking samples from the correct parts of trees is essential for an accurate diagnosis and for verifying that the pest is present (or absent). He pointed out that *B. xylophilus* can be detected throughout a tree if it dies as a result of infestation by the organism. However, if the tree dies as a result of another factor and infestation by *B. xylophilus* occurs only at a late stage, the nematode can only be found close to the site of infestation. The panel considered that the information in the protocol was valuable, but suggested relevant parts of the existing draft should form part of an inspection manual, rather than the DP. A solution may be that EPPPO publishes a document containing the information on how to sample for *B. xylophilus* and this could be referred to in the DP. Information on factors that would affect the diagnosis, such location of the organism and the reasons, and descriptions of symptoms should be included. Sample sizes should only be given if they affect the level of confidence in the result, for example if they affect the sensitivity of the test method(s).

In discussing the minimum requirements for diagnosis, the author confirmed that the pest can be diagnosed by an expert with confidence using morphological methods alone, provided male and female adults are obtained. Males of 3 species have the same morphology. If individuals of only one sex are obtained, molecular methods are usually used to confirm diagnosis. For larvae, it is not possible to diagnose using morphological characteristics; these can be reared to produce adults. Molecular methods are not used alone; they are used when some morphological analysis has been done and there is a suspicion that the pest is present. Mixed infestations can occur, but specimens are usually analysed individually.

A TPDP referee was agreed and the discipline lead will work with Mr Schroeder to produce a revised draft.

### **9.4 *Xanthomonas axonopodis* pv. *citri***

The TPDP considered the text and recommended that the minimum requirements for diagnosis of the pest are clarified. The TPDP also recommended reordering of the text of the detection section to cover symptoms, preparation of samples (with symptoms and symptomless) and detection methods. The TPDP noted that there were differences between the flow diagram and the text and recommended that a flow diagram was not included. The specificity of methods should be included if known and any differences between antibodies

(e.g. specificity, reliability) should be mentioned. The discipline lead will work with the lead author to produce a revised draft for the next meeting.

### **9.5 *Xanthomonas fragariae***

The TPDP considered this draft and recommended the flow diagram should be removed. They noted that this pest is difficult to isolate and several methods are required for a positive diagnosis to be made with confidence. They noted that for bacteria a pathogenicity test using a pure culture of the organism is often required for positive confirmation of the pest, but also noted that in cases of surveillance of an organism or eradication, NPPOs may wish to take action based on a simpler testing programme, which may not provide the same level of confidence in the diagnosis.

The TPDP made specific recommendations including: reduction in the pest information section; changing from SOP format; removal of details of methods when manufacturer's instructions can be followed; inclusion of details of the scope and results of the ring tests; inclusion of acknowledgements, removal of appendices. A TPDP referee was agreed and the discipline lead will work with the lead author to produce a revised draft for the next meeting.

### **9.6 *Erwinia amylovora***

The TPDP considered that further work was required on the formatting and order of the sections. It was not discussed in detail and the discipline lead will work with the lead author to revise the draft before it is resubmitted.

### **9.7 *Tilletia indica***

The discipline lead introduced the draft DP. The panel queried whether a molecular method was required or whether morphological characteristics were sufficient for diagnosis, but agreed that these methods may be useful in certain cases such as when a small number of spores are found. The TPDP noted that molecular methods are used in practice for diagnosis by a number of NPPOs. The TPDP also noted that there was no reference to detection of the pest in flour. Other changes proposed by the TPDP included to reword the section that refers to samples sizes; to recommend resampling in cases where the numbers of spores found are small; deletion of the flow diagram; to provide information on the scope and results of the ring test; and to check for consistency of terminology.

The TPDP agreed a referee for the DP and noted that it should be sent to the International Seed Testing Association for comments. The discipline lead will check whether the draft has been circulated to a wide group of experts.

### **9.8 *Guignardia citricarpa***

The TPDP discussed the draft DP. They noted that in most cases morphological characteristics can be used for identification of the pest. In some cases, such as where no pycnidia are formed, molecular methods can be used for diagnosis. They noted the limitations of one of the molecular methods for isolates from pomello fruit and noted that these limitations are stated in the text.

The TPDP recommended that the author reviews the flow diagram to ensure it is consistent with the text, particularly to ensure that a recommendation to use molecular methods in cases where fruit has been incubated for pycnidium formation is used in practice. They recommended a number of other minor modifications.

The TPDP noted that the draft was primarily concerned with diagnosis of the pest in fruit. They recommended that the title of the DP is changed to '*Guignardia citricarpa* in fruit' and the scope of the text is changed accordingly. The authors need to circulate the draft to a wide group of experts prior to submission to the Secretariat.

A TPDP referee was agreed and the discipline lead will work with the lead author to produce a revised draft for submission to the SC for member consultation.

### **9.9 *Phytophthora ramorum***



This protocol was not discussed in detail, but the discipline lead will work with the lead author to make changes based on the decisions made during the meeting.

#### **9.10 Plum pox virus**

The discipline lead commented that the DP was nearly complete but it had not been possible to produce a revised version for the TPDP meeting. The TPDP agreed that the draft should be circulated to the panel and the TPDP referee and then should be submitted to the SC for member consultation.

### **10. QA issues related to DPs**

#### **10.1 Combination of methods**

The TPDP steward presented the paper on combination of methods. There was insufficient time to consider the document, so it will be discussed at the next meeting. It is anticipated that it will eventually form an appendix to the Instructions to Authors.

#### **10.2 Use of the terms sensitivity/specificity/reliability, validation of methods, ring testing**

The discipline lead for quality assurance introduced a paper on terms used in quality assurance and in ISPM No. 27. The panel noted that many organizations had definitions for these terms and EPPO is in the process of agreeing terms for use in EPPO standards. The TPDP did not wish to produce definitions that were in conflict with those of other international organizations, but agreed that any definitions to be used in DP production should be suitable for phytosanitary uses.

The TPDP agreed working definitions for sensitivity and specificity.

- **Specificity:** Characteristics of a test as concerns its performance with regard to cross-reactions with non-target (false positives) or lack of reaction with target (e.g. subgroups or individuals of the pest) (false negatives).
- **Sensitivity:** Smallest detectable amount of the target (target may include live organisms, antibodies, nucleic acids).

The TPDP noted that these definitions would normally refer to ‘analytical specificity’ and ‘analytical sensitivity’ and additional terms ‘diagnostic specificity’ and ‘diagnostic sensitivity’ are also defined by other groups for quality assurance and method validation.

The TPDP also discussed the term reproducibility and noted that the OIE definition referred to reproducibility in different laboratories. For phytosanitary purposes, data from different laboratories may not be available at present and the working definition below was agreed.

- **Reproducibility:** Ability of a test method to provide consistent results when applied to aliquots of the same sample tested in different conditions.

The TPDP agreed that there was insufficient time at the meeting to discuss the concepts thoroughly and proposed that a full day should be spent on quality assurance at their next meeting. The panel agreed that it would be useful to invite an expert from NAPPO to explain the use of the terms in North America.

Panel members agreed to send comments on the document to the discipline lead, who will produce a revised version for the next meeting. He will also circulate the revised document to relevant experts around the world prior to the next meeting in order to ensure that it has been reviewed from a global viewpoint.

### **11. Priorities for new protocols**

The TPDP had been asked by the SC to consider the subjects for DPs proposed in the call for topics and priorities in 2007 (*Anguina* spp., *Contrachelus nenupha*, and *Phoma exigua* var. *foveata*). Due to the extraordinary workload at this meeting associated with the *T. palmi* DP and the need to make progress with the additional drafts, the TPDP decided to defer the discussion on priorities until the next meeting. The TPDP noted that regional standards were available for these pests.

### **12. Work plan for 2008-2009**

The TPDP agreed a work programme (Annex 7).

## Recommendations for the SC:

1. *Adjust* the priorities for the subjects for DPs to ‘normal’ priority
2. *Agree* to member consultation of the revised *Thrips palmi* diagnostic protocol
3. *Note* the amended Instructions to Authors
4. *Agree* to the Working Procedures
5. *Note* progress with development of DPs
6. *Note* the new call for authors for *Striga* spp and Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques.
7. *Approve* DPs for member consultation in the 2<sup>nd</sup> consultation period of 2008
8. *Note* that the scope of *Guignardia citricarpa* DP is to be limited to diagnosis on fruit and *amend* the standard setting work programme
9. *Agree* the work programme of the TPDP (Annex 7 of this report) and *note* that the TPDP will hold a one day session on QA at their next meeting

## Technical Panel on Diagnostic Protocols, Braunschweig, 2-6 June 2008

### Agenda

1. **Welcome**
2. **Local arrangements (Host)**
3. **Background to TPDP, roles and outcomes from the meeting (IPPC Secretariat)**
4. **Selection of Chairperson**
5. **Reports**
  - 5.1 Last meeting (Steward) [2008-TPDP-05]
  - 5.2 Update on meetings of the CPM and SC (Steward) [2008-TPDP-06Rev01, -07, -19]
  - 5.3 Report on the work of EPPO diagnostic panel (F. Petter, Organizer)
6. **Procedures adopted at CPM-3 (Secretariat)**
  - Hierarchy of terms
  - General considerations for standard setting
  - Standard setting procedure (Annex I of the Rules of Procedure of CPM)
  - Procedure and criteria for identifying topics for inclusion in the IPPC standard setting work programme
  - Terms of Reference and Rules of Procedure of Technical Panels
7. **Diagnostic protocol for *Thrips palmi* [2008-TPDP-09, -10, -13, -14, -33; for info: -07, -08, -12]**
  - 7.1 Finalization of protocol for member consultation (based on process decided by CPM-3) (A.L. Terra)
  - 7.2 Determination of horizontal issues arising from Australia's, Japan's and EU comments (and from previous TPDP meetings) needing to be taken into account in other draft protocols and reported to SC
8. **Proposed changes to TP procedures (to ensure consistency with CPM-3 decisions, address horizontal issues identified in 7 and incorporate as necessary)**
  - 8.1 Instructions for authors [2008-TPDP-21, -22, -30]
  - 8.2 Checklist for diagnostic protocol leads [2008-TPDP-17]
  - 8.3 Working procedure [2008-TPDP-29]
  - 8.4 Criteria for prioritization of protocols [2008-TPDP-29]
  - 8.5 DP development [~~withdrawn, superseded by procedures adopted by CPM-3~~]
  - 8.6 Australia's comments on the process [2008-TPDP-11]
9. **Update on the development of diagnostic protocols (DP)**
  - 9.1 General overview with reports on individual DPs by discipline leads [2008-TPDP-15Rev01]
  - 9.2 Review of experts associated with the work programme
    - Composition of the technical panel, new terms and possible members needed based on SC decision on overlap (Secretariat) [2008-TPDP-20]
    - Referees for protocols expected to be completed in 2008-2009
    - Update of authors and editorial board information, including approval of new nominations [2008-TPDP-18]

**10. Scrutiny of other draft protocols**

- 10.1 *Trogoderma granarium* [2008-TPDP-16Rev01]
- 10.2 *Anastrepha* spp. [2008-TPDP-23]
- 10.3 *Bursaphelenchus xylophilus*
- 10.4 *Xanthomonas axonopodis* pv. *citri* [2008-TPDP-25]
- 10.5 *Xanthomonas fragariae* [2008-TPDP-26]
- 10.6 *Erwinia amylovora* [2008-TPDP-27]
- 10.7 *Tilletia indica* [2008-TPDP-28, -28bis]
- 10.8 *Guignardia citricarpa* [2008-TPDP-31]
- 10.9 *Phytophthora ramorum* [2008-TPDP-32]

**11. QA issues related to DPs (M Maliptil)**

- 11.1 Combination of methods (J Unger) [2008-TPDP-34]
- 11.2 Use of the terms sensitivity/specificity/reliability, validation of methods, ring testing (M. Maliptil) [2008-TPDP-24]
- 11.3 Accreditation of laboratories (no action needed - on hold until more DPs are agreed)
- 11.4 General discussion on possible guidance for national reference laboratories (J. Unger)

**12. Priorities for new protocols**

**13. Work plan for 2008-2009**

**14. Date and location of next meeting**

## LIST OF DOCUMENTS

DOC. NUMBER	AGENDA ITEM	TITLE	DATE POSTED / DISTRIBUTED
01Rev06	-	Agenda	17-06-08
02Rev05	-	List of Documents	17-06-08
03Rev04	-	Participants list for the TPDP meeting, Braunschweig, Germany	17-06-08
04	-	General information for the meeting of the IPPC Technical Panel on Diagnostic Protocols, Braunschweig, Germany	30-04-08
05	5.1	Report of the meeting of the Technical Panel on Diagnostic Protocols, 24-28 September 2007, Buenos Aires, Argentina	18-04-08
06Rev01	5.2	Extract from the draft CPM report	13-05-08
07	5.2, 7	Adoption of international standards - under the fast track process (CPM 2008/26)	16-04-08 (by email) posted 18-04
08	7	For information (superseded by 2008-TPDP-10) Concerns relating to the draft diagnostic protocol on <i>Thrips palmi</i> – proposal from Australia (CPM 2008/INF/7)	16-04-08 (by email) posted 18-04
09	7	Concerns Relating to the Draft Diagnostic Protocol for <i>Thrips Palmi</i> Written statement by the EC and its Member States (6-7 March 2008) (CPM 2008/INF/14)	16-04-08 (by email) posted 18-04
10	7	Australia's comments on <i>T. palmi</i> after CPM-3 (including proposals for tables 1 to 3)	07-05-08
11	8.6	Australia's proposal in relation to the process of DP development	07-05-08
12	7	For information - Japan_Submission of comments and formal objection.txt	16-04-08 (by email) posted 18-04
13	7	For information - Template for comments - Draft ISPMs for country consultation, 2007 (Japan comments on T palmi)	16-04-08 (by email) posted 18-04
14	7	For information - Japan_formal_objection_T.palmi_figures_Japan	16-04-08 (by email) posted 18-04
15Rev01	9.1	Table of experts for Diagnostic Protocols and progress of protocol development	20-05-08
16Rev01	10.1	<i>Trogoderma granarium</i> (draft protocol)	13-05-08
17	8.2	Checklist for diagnostic protocol leads	07-05-08
18	9.2	Summary of selection of authors for diagnostic protocols by TPDP	06-05-08
19	5.2	Extracts from the Report of the Standards Committee (November 2007)	18-04-08
20	9.2	Membership of the TPDP	07-05-08
21	8.1	Instructions for authors of diagnostic protocols	07-05-08
22	8.1	EPPO- Guidelines for information to be included in a diagnostic protocol for PCR testing	07-05-08
23	10.2	<i>Anastrepha</i> spp (draft protocol)	13-05-08
24	11.2	Discussion paper: Quality assurance issues associated with DPs for regulated pests	13-05-08
25Rev1	10.4	<i>Xanthomonas axonopodis</i> pv. <i>citri</i> (draft protocol)	in meeting, revised with author response to referee
26	10.5	<i>Xanthomonas fragariae</i> (draft protocol)	13-05-08
27Rev1	10.6	<i>Erwinia amylovora</i> (draft protocol)	In meeting, with referee comments
28	10.7	<i>Tilletia indica</i> (draft protocol)	14-05-08
28bis	10.7	<i>Tilletia indica</i> (additional images for draft protocol)	14-05-08
29	8.3, 8.4	TPDP working procedures	20-05-08

DOC. NUMBER	AGENDA ITEM	TITLE	DATE POSTED / DISTRIBUTED
30	8.1	Content and format of DPs: horizontal issues discussed and TPDP decisions extracted from past reports	20-05-08
31	10.8	<i>Guignardia citricarpa</i> (draft protocol)	20-05-08
32	10.9	Draft Protocol <i>Phytophthora ramorum</i>	in meeting
33	7	Draft Protocol <i>Thrips palmi</i>	in meeting
34	11.1	Combination of methods in DPs discussion paper	in meeting

**Membership of Technical Panel on Diagnostic Protocols (TPDP)****Steward: Jens Unger (Germany)**

	<b>Country</b>	<b>Discipline</b>	<b>Name</b>	<b>E-mail</b>	<b>Term begins</b>	<b>Term ends</b>
1.	Australia	Quality assurance	Mr Mallik Malipatil	<a href="mailto:mallik.malipatil@dpi.vic.gov.au">mallik.malipatil@dpi.vic.gov.au</a>	April 2008	2013
2.	China	Botany	Ms Liping Yin	<a href="mailto:yinlp@shciq.gov.cn">yinlp@shciq.gov.cn</a> ; <a href="mailto:yinliping@yahoo.com">yinliping@yahoo.com</a>	April 2008	2013
3.	Germany	Steward	Mr Jens-Georg Unger	<a href="mailto:j.g.unger@bba.de">j.g.unger@bba.de</a>	April 2008	2013
4.	Malaysia	Bacteriology	Mr Keng-Yeang Lum	<a href="mailto:ky.lum@cabi.org">ky.lum@cabi.org</a> ; <a href="mailto:lumky2@yahoo.com">lumky2@yahoo.com</a>	April 2008	2013
5.	Netherlands	Mycology	Mr Johannes de Gruyter	<a href="mailto:j.de.gruyter@minlnv.nl">j.de.gruyter@minlnv.nl</a>	April 2008	2013
6.	New Zealand	Virology	Mr Gerard Clover	<a href="mailto:gerard.clover@maf.govt.nz">gerard.clover@maf.govt.nz</a>	April 2008	2013
7.	South Africa	Nematology	Ms Esther van den Berg	<a href="mailto:vdberge@arc.agric.za">vdberge@arc.agric.za</a>	April 2008	2013
8.	Uruguay	Entomology	Ms Ana Lía Terra	<a href="mailto:alterra@adinet.com.uy">alterra@adinet.com.uy</a>	April 2008	2013

## DIAGNOSTIC PROTOCOLS FOR REGULATED PESTS INSTRUCTIONS TO AUTHORS

*[Status: Approved by the TPDP (October 2006), Annex 1, noted by the Standards Committee, May 2007,  
Revised by TPDP June 2008]*

These instructions are based on International Standard for Phytosanitary Measures (ISPM) No. 27 (*Diagnostic protocols for regulated pests*) and are compiled to provide more specific explanatory guidance for authors of diagnostic protocols (DPs). Authors are encouraged to study ISPM No. 27 to ensure that the DP is consistent with the standard.

### 1. General considerations

#### 1.1 Minimum requirements for reliable diagnosis of regulated pests

Under the heading titled ISPM No. 27 states:

*Diagnostic protocols may be used in different circumstances that may require methods with different characteristics. Examples of such circumstances grouped according to an increased need for high sensitivity, specificity and reliability are:*

- *routine diagnosis of a pest widely established in a country*
- *general surveillance for pest status*
- *testing of material for compliance with certification schemes*
- *surveillance for latent infection by pests*
- *surveillance as part of an official control or eradication programme*
- *pest diagnostic associated with phytosanitary certification*
- *routine diagnosis for pests found in imported consignments*
- *detection of a pest in an area where it is not known to occur*
- *cases where a pest is identified by a laboratory for the first time*
- *detection of a pest in a consignment originating in a country where the pest is declared to be absent.*

The ISPM also states:

*Diagnostic protocols provide the minimum requirements for reliable diagnosis of regulated pests. This may be achieved by a single method or a combination of methods. Diagnostic protocols also provide additional methods to cover the full range of circumstances for which a diagnostic protocol may be used. The level of sensitivity, specificity and reproducibility of each method is indicated where possible. NPPOs may use these criteria to determine the method or combination of methods that are appropriate for the relevant circumstances.*

This means that the minimum requirement usually is applicable to one of the first indents (e.g. routine surveillance). Authors should provide information for the National Plant Protection Organization (NPPO) to make decisions on the methodology required for the relevant circumstances.

If necessary, DPs may describe more than one method to take into account the varying capabilities of laboratories and the situations for which the methods are applied. Such situations include diagnosis of different developmental stages of pests, which require different methodologies, as well as the degree of certainty required by the NPPO. For some purposes a single method may be sufficient, for others a combination of methods may be necessary. This applies both to the minimum requirements for a diagnosis and where additional requirements are necessary (such as where a high degree of certainty in the diagnosis is required). In cases where morphological methods can be reliably used but appropriate molecular methods have been developed, the latter should be presented as alternative or supplementary methods.

#### 1.2 Other general considerations

DPs are published as annexes to ISPM No. 27 (*Diagnostic protocols for regulated pests*). They describe procedures and methods for the detection and identification of pests that are regulated by Contracting Parties of the International Plant Protection Convention (IPPC) and relevant for international trade. They are addressed to diagnosticians/diagnostic laboratories performing official tests as part of phytosanitary measures. The DPs provide guidance on the diagnosis of specified pests. Information is provided on the



specified pest, its taxonomic status and the methods to detect and identify it. As indicated in Section 1.1, DPs contain the minimum requirements for reliable diagnosis of the specified pest and provide flexibility to ensure the methods are appropriate for a range of circumstances of use.

DPs may cover a species, taxa below species level, several species within a genus, or an entire genus, for example where several species within a genus are regulated pests.

Authors should draft DPs in accordance with the requirements given in the main text of ISPM No. 27.

General guidelines on the formatting of DPs are appended. By using these guidelines, authors will help ensure consistency between DPs and facilitate processing of draft DPs. These guidelines will be consolidated as more DPs are developed. Authors are also invited to refer, as a model, to the first DP (for *Thrips palmi*).

DPs are drafted by a group of authors called an editorial team co-ordinated by a lead author and overseen by a discipline lead from the TPDP. The editorial team, including the lead author, is recommended by the TPDP discipline lead and approved by the entire TPDP. To ensure global coverage of the protocol and to facilitate adoption, authors should consult relevant experts from different regions outside of the editorial team prior to submission of final drafts to the TPDP. The names of the experts consulted and indications of major difficulties that have been encountered and not yet resolved should be submitted to the TPDP. A list of the experts consulted will be included in a cover letter for member consultation.

## 2. Definitions

- **Pest Diagnosis:** The process of detection and identification of a pest.
- **Reproducibility:** Ability of a test method to provide consistent results when applied to aliquots of the same sample tested in different conditions.
- **Sensitivity:** Smallest detectable amount of the target (target may include live organisms, antibodies, nucleic acids).
- **Specificity:** Characteristics of a test as concerns its performance with regard to cross-reactions with non-target (false positives) or lack of reaction with target (e.g. subgroups or individuals of the pest) (false negatives).

## 3. Methodology

Each DP should contain the methods and guidance necessary for the named pest(s) to be detected and positively identified by an expert (i.e. an entomologist, mycologist, virologist, etc.). Authors should select methods on the basis of their sensitivity, specificity and reproducibility, also taking into account the availability of equipment, the expertise required for these methods and their practicality (for example, ease of use, speed and cost).

All methods should be described separately in a consistent manner with sufficient detail (including equipment, reagents and consumables) to be able to perform the test without further reference to the literature. Brand names should not be given unless they are technically necessary and directly affect the result of the diagnosis. If the method is based on a commercial kit it is not necessary to repeat the manufacturer's instructions. DPs should not be written in the form of standard operating procedures but should provide sufficient detail to allow NPPOs to develop such procedures. Where appropriate, reference may be made to methodology described in other adopted DPs annexed to the ISPM No. 27.

For all methods, information on their sensitivity, specificity and reproducibility, and specifications from multi-laboratory validation trials (when available) should be included. These data, as far as possible, should be quantitative, but in the absence of quantitative data, qualitative information may be provided. Where sensitivity, specificity and reproducibility data are likely to be affected by the use of a particular brand of equipment or reagents, the circumstances under which these data were generated should be included and the specific equipment should be indicated. In such instances, the following text should be included:

“In this diagnostic protocol, methods (including reference to brand names) are described as published as these defined the original level of specificity, sensitivity and/or reproducibility achieved. *Use of names of chemicals or equipment in these diagnostic protocols implies no approval of them to the exclusion of others that may also be suitable. Laboratory procedures*

*presented in the protocols may be adjusted to the standards of individual laboratories, provided that they are adequately validated.”*

Guidance on positive and negative controls and reference material should be included in each of the tests. Methods where the inclusion of appropriate controls is essential (e.g. enzyme-linked immunosorbent assay [ELISA]) should be indicated. Sources and specifications of controls and reference materials (e.g. catalogue numbers of bacterial reference strains) should be provided.

Authors should provide information and guidance on methods that either singly or in combination lead to diagnosis of the pest. Guidance should also be provided on the interpretation of results, in particular the criteria for the determination of a positive or negative result for each method.

It is not necessary to include all methods which have been reported for a particular pest, only those which are reliable, currently available and considered to be of use for the purposes described in ISPM No. 27.

If several methods are needed for the diagnosis, and / or if many alternative methods are included, a schematic flow diagram may be presented. The diagram should indicate the reliability of each method or combination of methods. It is not intended to be a decision-making tree but is intended to assist NPPOs in determining which method(s) are appropriate for use under different circumstances. When authors conclude that a combination of methods is needed, the reasons should be provided.

When several methods are mentioned, their advantages and disadvantages should be given (e.g. duration of the test, cost, availability of reagents, requirements for specialized knowledge or equipment, limited validation data available such as covering only some populations of an organism) as well as the extent to which the methods or combinations of methods are equivalent.

If illustrations (e.g. photographs or line drawings) are essential to the diagnosis, they should be included in the protocol. Photographs that provide additional information but are not essential for the diagnosis may be posted on the IPP. In some cases links may be provided to other web sources for photographs. The lead author is responsible for obtaining any relevant permissions to use the photographs.

#### **4. Structure and content of a diagnostic protocol**

DPs should follow the layout of section 2 of ISPM No. 27 and should be arranged into the following sections, numbered as follows:

1. Pest information
2. Taxonomic information
3. Detection
4. Identification
5. Records
6. Contact points for further information
7. Acknowledgements
8. References

Each section should be divided into sub-sections as required (especially the detection and identification sections) and both sections and sub-sections should be numbered. An index of the sections should be included at the start of the DP and the pages of the DP numbered. As DPs themselves will be annexes to ISPM No. 27, they should not have annexes or appendices.

##### **4.1 Pest information**

Authors should provide brief information on the pest (generally less than one page of type-written text), including, where appropriate, its life cycle, morphology, variation (morphological and/or biological), relationship with other organisms, host range (in general), effects on hosts, present and past geographic distribution (in general), mode of transmission and dissemination (vectors and pathways). It is not necessary to include specific details about the epidemiology of the disease or its management.

Supplementary information, such as detailed information on the pest's geographic distribution or hosts, should not be included except when directly relevant for diagnosis. The DP is not intended to be a pest data

sheet but reference to such data sheets should be provided when publicly available and considered to provide useful background information.

## 4.2 Taxonomic information

Under this paragraph, the correct scientific name and authority should be given and an overview of the relevant taxonomic hierarchy (e.g. Kingdom, Phylum, Order, Family, Genus, Species, relevant below species taxon). Include synonyms and relevant former names (these may be taxonomically incorrect but relevant in relation to the literature) as appropriate. For fungi, the teleomorph name should be used; teleomorph synonyms may be included as appropriate. The anamorph name and its synonyms (as relevant) should also be presented. For viruses, internationally recognized acronyms should be included. Common names widely used in international scientific literature should also be included.

## 4.3 Detection

As stated in ISPM No. 27, this section provides information and guidance on:

- *the plants, plant products or other articles capable of harbouring the pest*
- *the signs and/or symptoms associated with the pest (characteristic features, differences or similarities with signs and/or symptoms from other causes), including illustrations, where appropriate*
- *the part(s) of the plant, plant products or other articles on/in which it may be found*
- *the developmental stages of the pest that may be encountered, together with their likely abundance and distribution on/in the plants/plant products or other articles*
- *the likely occurrence of the pest associated with developmental stages of the host(s), climatic conditions and seasonality*
- *methods for discovering the pest in the commodity (e.g. visual, hand lens)*
- *methods for extracting, recovering, and collecting the pest from the plants, plant products or other articles, or for demonstrating the presence of the pest in the plants, plant products or other articles.*
- *methods for indicating the presence of the pest in asymptomatic plant material or other materials (e.g. soil or water), such as ELISA tests or culturing on selective media*
- *viability of the pest*

The ISPM also states that *guidance is also provided on resolving possible confusion with similar signs and/or symptoms due to other causes.*

Methods for detection may be interpreted differently depending on the type of pest being considered. For example, detection of an insect may relate to observation of individuals or signs of damage in consignments, whereas detection methods for bacteria may involve culturing extracts of suspected plant material on differential or semi-selective medium.

When a detection method may also be used for identification, it is recommended that it is described in the detection section and then referred to in the following identification section. Any comments about its use for detection or identification should be included in the relevant section. Methods that detect a group of pathogens rather than a specific pathogen should be described in the detection section.

Sampling procedures for inspectors and inspectors' instructions on recognition of the pest from signs and symptoms should not be included but essential information for diagnosis should be given. Procedures for inspectors are likely to be covered in an inspection manual. Additional information on the sample that may be relevant for proper diagnosis should be provided (e.g. storage conditions).

## 4.4 Identification

In this section, in addition to a description, authors should provide information and guidance on methods that either used alone or in combination lead to the identification of the pest. Methods for quick, presumptive indications of identity (which will later need to be confirmed) may also be included.

Two main types of methodology are included in DPs, methodologies based on morphological, morphometric or biological characteristics of a pest and those based on biochemical and/or molecular properties. Morphological characteristics may be investigated directly or may only be examined after culturing or isolation of the pest. This may also be required for biochemical and/or molecular assays. Where culturing or isolation procedures are necessary components of methods, details should be provided.

Where appropriate, methods for isolation of pests from asymptomatic plants or plant products (such as tests for latent infection) should be given as well as methods for extraction, recovery and collection of pests from plant or other material. Methods should similarly be provided for direct identification of pests using biochemical or molecular tests on asymptomatic material.

ISPM No. 27 states:

For morphological and morphometric identifications, details are to be provided, as appropriate, on:

- *methods to prepare, mount and examine the pest (such as for light microscopy, electron microscopy and measurement techniques)*
- *identification keys (to family, genus, species)*
- *descriptions of the morphology of the pest or of its colonies, including illustrations of diagnostic characters [as appropriate], and an indication of any difficulties in seeing particular structures*
- *comparison with similar or related species*
- *relevant reference specimens or cultures.*

Guidance should be provided on resolving possible confusion with similar and related species or taxa.

For molecular methods, details should be provided, as appropriate, on:

- the target sequence (e.g. target gene, amplicon size and location) and reaction conditions (e.g. oligonucleotide sequence, enzyme source and thermal cycler)
- nucleic acid extraction and purification (e.g. tissue sources, extraction and purification methods, and nucleic acid concentration)
- reverse transcription (e.g. reaction volume, concentration and volume of constituents, denaturation and incubation temperatures)
- polymerase chain reaction (e.g. reaction volume, concentration and volume of constituents, thermocycling conditions)
- restriction analysis (e.g. DNA preparation, reaction volume, concentration and volume of constituents, denaturation and incubation conditions)

#### **4.5 Records**

In this section, authors should refer to section 2.5 of ISPM No. 27 which lists the records required to be kept. There is no need to repeat section 2.5, only records that are required in addition to those detailed in ISPM No. 27 should be listed in the DP. However, in addition, authors should include a description of appropriate evidence of results where other NPPOs may be adversely affected by the results of the diagnosis and therefore the records and evidence of the results of the diagnosis should be retained for at least one year.

#### **4.6 Contact points for further information**

In this section, authors, in cooperation with the discipline lead, should provide contact details (name, address, e-mail, telephone, facsimile, etc.) of organizations or individuals with particular expertise on the pest(s), which may be consulted regarding any questions on the DP. These contacts must agree to act in this capacity prior to their inclusion in the DP.

#### **4.7 Acknowledgements**

In this section, the name and address of the experts who wrote the first draft of the DP are given, together with those of any others who made major contributions. In instances where these experts are the same individuals as those listed in the preceding section, the details should be cross-referenced. Only those significantly involved in the development of the draft should be included in this section.

#### **4.8 References**

ISPM No. 27 states: *References to accessible scientific publications and/or published laboratory manuals are given that may provide further guidance on the methods and procedures contained in the diagnostic protocol.*

In this section, relevant references to scientific publications and published laboratory manuals cited in the text should be given. The references should be kept to a minimum and should concern the diagnosis of the pest and species with which the pest may be confused, its symptomatology and methods for extraction,

detection and identification. It is not necessary to include a complete list of references concerning geographic distribution, host lists, epidemiology and general biology, although reference may be made to key publications which review this information, e.g. pest data sheets. The number of references included will vary between DPs, but preferably the list should include fewer than 40 references.

See the guidelines in the Appendix to these Instructions to authors for the format of references.

## Appendix - Guidelines on formatting of diagnostic protocols

General guidelines on formatting of ISPMs are given in “Administrative guidelines for the structure of standard-setting documentation” in the IPPC Procedural Manual, which can be found on the internet on the IPP (<https://www.ippc.int>). This Appendix partly uses these Administrative guidelines but also gives additional recommendations that are specific to DPs.

### **1- TITLE AND CONTENTS PAGE**

The first page refers to ISPM No. 27 (*Diagnostic Protocols for Regulated Pests*) and gives the title of the protocol. At the drafting stage, only the title of the draft is needed i.e. the name of the organism/s for which the protocol is drafted. The formatting and other details will be added by the Secretariat at a later stage.

A table of contents is also included on the first page. It should be added below the title. It lists all sections, including all numbered headings and subheadings. At the drafting stage, such a table of contents should be included in the standard, but it is not necessary to indicate page numbers.

### **2- MAIN TEXT**

#### **Section on endorsement**

The first section of the standard should be added as follows:

#### **"Endorsement**

This diagnostic protocol was adopted by the Commission on Phytosanitary Measures in ---- [to be completed after adoption]."

#### **Numbered headings and sub-headings**

Individual sections are detailed in the instructions on formatting of ISPMs above. Headings, sub-headings and further subdivisions should be numbered with Arabic numbers, for example: 1.1, 1.2.1, 1.3.2.2, etc.

Titles of level one (1., 2. etc) have a capital letter at the beginning of each word. Other numbered titles have only one capital letter at the beginning of the title.

#### **Use of illustrations and tables**

All illustrations (i.e. photographs, line drawings) and tables should be numbered with Arabic numbers and should be referred to in the text.

Illustrations should be of a sufficient quality for printing. A high quality file of each illustration should be provided, separately from the text, to the IPPC Secretariat.

#### **Terminology**

- Phytosanitary terms should be used according to the most recent version of the ISPM No. 5: *Glossary of phytosanitary terms*.
- The general dictionary reference for English ISPMs is the Oxford English dictionary.
- Use *organize*, *authorize* and *recognize* (and not *organise*, *authorise* or *recognise*).
- Use *website* and not *Web site* or *Website*.

#### **Latin names**

- The species name should be written in full at its first occurrence, e.g. *Thrips palmi*, and shortened at others: *T. palmi*. If another species of the same genus are mentioned later in the text, it is not necessary to write the genus name in full, e.g. *T. flavus*.
- Latin names are italicized (but not spp, sp. etc.)

#### **Measurement units**

- When measurement units are abbreviated, the standard abbreviation should be used, e.g.:
- |   |        |
|---|--------|
| m | meter  |
| s | second |
| W | watt   |

min minutes

### **Lists of items**

- In a list of items, the first level should be indicated by a "-" and the following level by "•". Avoid using automatic bullet points.
- If the list of items is composed of sentences, each item should start with a capital letter and end with a period.
- If the list of items is word or expressions, but not sentences, each item should start with a lower case letter, and there should be no ";" or period at the end of each indent. The last item should end with a period.

### **Specific editorials**

- There should be no comma before "and" in a list. e.g. "IPPC, NPPOs and RPPOs" and not "IPPC, NPPOs, and RPPOs".
- When a term is used which has an acronym (e.g. PRA), the first occurrence in the introduction section, in the main text and in an annex or appendix should be written in full with the abbreviation between brackets (e.g. pest risk analysis (PRA)). Other occurrences should use only the abbreviation. In main titles, such terms should be written in full (and the abbreviation should not be mentioned).

### **List of references**

References should be in alphabetical order.

References to other ISPMs and the IPPC are detailed in the procedural manual. Regarding scientific references and other publications, some examples extracted from the DP for *Thrips palmi* are given below. Attention is drawn to the fact that the total number of pages should be included for references to books.

#### **Article in a journal or proceedings:**

- Bhatti, J.S. 1980. Species of the genus *Thrips* from India (Thysanoptera). *Systematic Entomology*, 5: 109–166.
- Brunner, P.C., Fleming, C. & Frey, J.E. 2002. A molecular identification key for economically important thrips species (Thysanoptera: Thripidae) using direct sequencing and a PCR-RFLP-based approach. *Agricultural and Forest Entomology*, 4: 127–136.
- Murai, T. 2002. The pest and vector from the East: *Thrips palmi*. In R. Marullo, & L.A. Mound, eds. *Thrips and Tospoviruses: Proceedings of the 7th International Symposium on Thysanoptera*. Italy, 2–7 July 2001, pp. 19–32. Canberra, Australian National Insect Collection.

#### **Book:**

- Mound, L.A. & Kibby, G. 1998. *Thysanoptera. An Identification Guide*. 2nd edition. Wallingford, UK, CAB International. 100 pp.
- Nakahara, S. 1994. The genus *Thrips* Linnaeus (Thysanoptera: Thripidae) of the New World. USDA Technical Bulletin No. 1822. 183 pp.
- Sakimura, K., Nakahara, L.M. & Denmark, H.A. 1986. A thrips, *Thrips palmi* Karny (Thysanoptera: Thripidae). Entomology Circular No. 280. Division of Plant Industry, Florida; Dept. of Agriculture and Consumer Services. 4 pp.

#### **Section from a book:**

- EPPO/CABI. 1997. *Thrips palmi*. In I.M. Smith, D.G. McNamara, P.R. Scott & M. Holderness, eds. *Quarantine Pests for Europe*, 2nd edition. Wallingford, UK, CAB International. 1425 pp.

#### **CD-Rom:**

- Moritz, G., Mound, L.A., Morris, D.C. & Goldarazena, A. 2004. Pest thrips of the world: visual and molecular identification of pest thrips (CD-ROM), Centre for Biological Information Technology (CBIT), University of Brisbane. ISBN 1-86499-781-8.

## **Technical Panel on Diagnostic Protocols (TPDP) WORKING PROCEDURES**

(approved by the TPDP October 2006 (annex 3), noted by the SC May 2007, revised by the TPDP June 2008)

### **Annual work programme**

- The TPDP annually identifies priority subjects for diagnostic protocols (DP) taking into account guidance from the Standards Committee (SC), and any requests for reviews and amendments to a DP that have been received by TPDP members and the criteria for prioritization of DPs. The TPDP submits recommendations on subjects to the SC. NPPOs and RPPOs may also submit subjects for a DP in response to the IPPC Secretariat's biennial call made for topics to be considered for the IPPC standard setting work programme. The list of subjects may be revised by the CPM.
- The TPDP reports annually through the Steward to the SC. This report includes the achievements during the year, proposals for subjects, a proposed work programme, and report on tasks allocated by the SC, such as revision of working procedures as necessary.

### **Nominations of experts**

- Once subjects for DPs are put on the work programme, the IPPC Secretariat issues a call requesting nominations of experts for DPs identified as priorities and posts the call on the IPP. For seed-related DPs the Secretariat also informs the International Seed Testing Association and the International Seed Federation of the call.
- The TPDP discipline leads may notify relevant experts of the call.
- The CVs of nominated experts are reviewed by the discipline lead taking into account the expertise required for authors for DPs (as detailed below). The TPDP discipline lead recommends an expert to lead the development of a DP (lead author) and a small group of experts to assist them with the development (editorial team). This information, along with a summary of the expertise of each expert, is submitted to the TPDP, who agrees or amends the recommendations as appropriate. The TPDP identifies one of its members to act as a referee for the DP. The list of lead authors, editorial teams and referees is included in the TPDP report, which is presented to the SC

### **Expertise required for experts to draft DPs**

- The editorial team should have appropriate global coverage.
- Authors of existing DPs, such as regional DPs, should be included in the editorial team, where appropriate.

#### Core expertise required:

- technical and scientific expertise with the pest, especially diagnostic expertise.

#### Additional expertise that would be helpful:

- taxonomy and molecular diagnostics
- practical experience related to the pest (detection, identification, isolation etc.)
- drafting of DPs (such as regional DPs)
- development of novel diagnostic methods
- experience using DPs for diagnosis of regulated pests
- experts associated with international seed testing organizations may be included, where considered appropriate by the TPDP.

### **The development of a draft DP**

- The lead author uses ISPM No. 27 (*Diagnostic Protocols for Regulated Pests*) and the *Instructions to authors of diagnostic protocols for regulated pests* to produce a first draft. Additional guidance is provided by the TPDP discipline lead if needed.
- The lead author is assisted in the preparation of the DP by the editorial team.
- Where the subject of the DP is a genus, or the scope is unclear, the discipline lead and author, in consultation with the editorial team, should propose amendments to the scope of the DP. The TPDP may modify the amended scope and should inform the author and the editorial team. The TPDP



should report on its discussions to the SC, in the report of a meeting or by email through the Secretariat.

- Where disagreement arises within an editorial team during preparation of a protocol, the author should discuss the issues with the discipline lead. The discipline lead may discuss the issues, if necessary, with the full editorial team in order to resolve them. The discipline lead should decide how to proceed based on scientific evidence and present a proposal to the TPDP. Once the proposal is final, it should be reported to the author and editorial team.

### **Changes to the editorial team**

- When an expert who has been chosen as lead author is unable to continue in this role, the TPDP discipline lead will ask a member of the editorial team to become the lead author. The TPDP is informed of the change of leadership.
- Where additional experts are required for the editorial team, the TPDP discipline lead, in consultation with the lead author, chooses from the experts nominated in the original call for authors. If no suitable experts are available, the IPPC Secretariat is requested to seek new nominations for the DP by announcing the vacancy on the IPP, with a 30 day deadline for receipt of CVs. The TPDP discipline lead or editorial team may also notify relevant experts of the call... The TPDP discipline lead reviews the CVs and submits a recommendation of an expert, along with a summary of their expertise to the TPDP, who reviews and approves the addition, which is included in the TPDP's annual report to the SC.

### **Assessment of draft DPs by the TPDP**

- The lead author and editorial team discuss the draft DP
- The draft DP should be reviewed by a wider group of experts from the particular discipline related to the DP in order to ensure broad global relevance.
- Once the author and editorial team are satisfied with the draft DP, the author submits it to the TPDP discipline lead.
- The TPDP discipline lead reviews the draft DP and ensures it meets all the requirements set out by ISPM No. 27 (*Diagnostic Protocols for Regulated Pests*) instructions previously agreed to by the TPDP including the checklist for DPs.
- The member of the TPDP identified as referee reviews the draft, assembles comments using the "checklist for DP review" and sends a modified draft to the discipline lead.
- The discipline lead consults the lead author and editorial team to modify the draft.
- Once satisfied with the draft DP, the TPDP discipline lead sends the draft DP and updated checklist to the entire TPDP for assessment.
- The TPDP either finds the draft DP suitable for member consultation and recommends it to the SC, or returns it to the lead author and editorial team for further work, or agrees on some other action such as to consult with other relevant experts.

### **Review of member comments on a draft DP**

- Member comments are compiled by the Secretariat and forwarded to the TPDP discipline lead for action
- Compiled member comments are forwarded to the TPDP and SC for information, and are posted on the IPP.
- Member comments are reviewed by the TPDP discipline lead, who produces an amended draft (with track changes) and includes responses to member comments within the compiled member comments. The TPDP discipline lead should consult with and may be assisted by the editorial team in this process. The amended draft and responses to comments are circulated to all TPDP members.
- Substantial comments that have broad implications should be discussed by the TPDP, even if the discipline lead might have made a proposal for the specific DP under consideration. This process is coordinated by the TPDP discipline lead or TPDP steward. Proposed changes may be incorporated or not, or the TPDP may recommend further study, with the reasons documented. Whether the draft is changed or not as a result of member comments, the compiled comments and responses to comments are submitted to the SC
- If no amendments are made to the draft, it is submitted to the CPM for adoption.

- If the draft standard is changed as a result of comments, the draft is submitted to the SC. The TPDP should make recommendations on how to proceed.

### **Review of published DPs**

- On an annual basis, the TPDP members review existing DPs in their disciplines. In consultation with the original authors and editorial teams, discipline leads recommend updates to take into account newly published and/or validated methods, and modifications to methods in existing DPs. Proposals for update are presented to the TPDP. If a change is required, the TPDP recommends that the SC adds the revision of the DP to the standard setting work programme.
- Once revision is on the work programme, the TPDP either modifies the DP using expertise within the panel, consults the original lead author and editorial team, or follows the procedure for development of new DPs.
- Once agreed by the TPDP, the revised DP is submitted to the SC.

### **ROLE OF TPDP MEMBERS**

#### **TPDP members:**

- Track and manage preparation of DPs under their lead.
- Inform authors and editorial teams of changes in procedures or instructions relevant to development of DPs.
- Prepare a written summary for each meeting of the status of each DP under their lead.
- Act as referees for draft DPs and assemble comments using the “checklist for DP review”.
- Manage the response to comments received during member consultation
- Review published DPs in their discipline annually, and recommend revision as appropriate.

**Table of experts for diagnostic protocols and progress of protocol development**  
(Updated by the TPDP on 6<sup>th</sup> June 2008 and modified by the Secretariat 19 June 2008)

<b>Title</b>	<b>Main Author</b>	<b>Editorial Team</b>	<b>Progress of protocol</b>
<b>Bacteria</b> Discipline lead: Lum Keng-Yeang (MY)			
<i>Erwinia amylovora</i> (referee: Yin Liping)	Maria Lopez (ES)	Robert Taylor (NZ) Rodney Roberts (US)	Draft presented by author at 2006 meeting. Latest draft, with the comments of the editorial team, received late Sept. 2007 (document 2008_TPDP_27). This draft was sent to referee on 080513. Referees comments and TPDP comments during the 2008 meeting will be transmitted by discipline lead to author.  Note from 2007 draft: Some techniques described were ring tested in the DIAGPRO project financed by the EU and the participants in the ring test for evaluating the <i>E. amylovora</i> detection techniques were J. Janse, M. Keek, A. Sletten, M.A. Cambra, J.L. Palomo, S. Simpkins, T. Teixeira Duarte, F. Poliakoff and van Vaerenbergh.
<i>Liberibacter</i> spp. (referee: Yin Liping)	Rita Christina Lanfranchi (AR)	Solke de Boer (CA) Jancek Planzinski (AU)	Draft presented to 2005 meeting. Revised draft discussed at the 2007 meeting. Comments from 2007 meeting sent to author, waiting for new draft.
<i>Xanthomonas axonopodis</i> pv. <i>citri</i> (referee: Hans de Gruyter)	Enrique Francisco Verdier Rossi (UY)	Rita Christina Lanfranchi (AR) Maria Lopez (ES)	Draft presented at 2006 meeting. Revised draft discussed with the author at the 2007 meeting. Latest draft (document 2008_TPDP_25) sent to referee 080513. Comments received from referee and comments by the TPDP at the 2008 meeting will be transmitted by the discipline lead to the author.
<i>Xanthomonas fragariae</i> (referee: Hans de Gruyter)	Ed Civerolo (US)	Solke de Boer (CA) Maria Lopez (ES) John Elphinstone (UK)	Draft presented at 2006 meeting, revised draft received late Sept. 2007. This draft (document 2008_TPDP_26) was discussed at the 2008 meeting and comments will be transmitted by the discipline lead to the author; referee to check the draft once it has been amended.
<i>Xyllela fastidiosa</i>	Marta Isabel Francis Mastalli (UY/US)	Helga Reizenzein (AT ) John Hartung (US)	Author contacted, but no reply yet. Main author has moved laboratory (Florida), still no contact information.
<b>Fungi and fungus-like organisms</b> Discipline lead : Hans de Gruyter (NL)			

<i>Fusarium moniliformis</i> / <i>moniforme</i> syn. <i>F. circinatum</i>	Kurt Zeller (US)	Ik-Hwa Hyun (KR) Ana Maria Perez (ES)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Guignardia citricarpa</i> (referee: Lum Keng-Yeang)	Irene Vloutoglou (GR)	Johan Meffert (NL) Luis E Diaz Morales (UY)	Draft submitted for 2008 meeting (document 2008_TPDP_31). Discussed at 2008 meeting. Discipline lead will transmit TPDP comments to the author and referee will check the draft once it has been amended prior to submission to the SC for member consultation.
<i>Gymnosporangium</i> spp	Mary Palm (US)	Johannes de Gruyter (NL) Yoichi Motokura (JP)	Call for Asian and North American experts, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Phytophthora ramorum</i> (referee: Gerard Clover)	Kelvin Hughes (GB)	Stephan Brière (CA) Mary Palm (US)	First draft discussed at the 2007 meeting. Latest draft distributed at the 2008 meeting (document 2008_TPDP_32), but not discussed. Discipline lead will discuss general comments on drafting with authors in order to produce a new draft for the 2009 meeting.
<i>Puccinia psidii</i>	Jack Simpson (AU)	José Hernandez (US) Luis Díaz (UY)	Call for authors, closing date 15 September 2007. (Australian protocol received during nomination process.) Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Tilletia indica</i> / <i>T. controversa</i> (referee: Yin Liping)	Dominie Wright (AU)	Kelvin Hughes (UK) Guiming Zhang (CN)	First draft produced and circulated for the 2007 meeting, but not discussed. Latest draft (document 2008_TPDP_28) discussed at the 2008 meeting. Discipline lead will transmit TPDP comments to the authors and the referee will check the draft once it has been amended.
<b>Insects and mites</b> Discipline leads: Ana Lía Terra (UY) and Mallik Malipatil (AU)			
<i>Anastrepha</i> spp. Lead: Ana Lía Terra (UY) (referee: Mali Malipatik)	Vicente Hernández-Ortiz (MX)	Norma Christina Vaccaro (AR) Alicia Leonor Basso (UY)	The draft protocol that was produced was based on morphology. There was a difference of opinion within the editorial team on the inclusion of molecular methods. The TPDP agreed at the 2007 meeting that the protocol should proceed (based on morphology alone) while further information is obtained on the results of molecular studies. Latest draft (document 2008_TPDP_23) was discussed at the 2008 meeting. The discipline lead will transmit TPDP comments to the authors. Referee will check the draft once it is amended and consider suitable experts for further consultation on the draft.

<i>Anoplophora</i> spp. Lead: Ana Lía Terra (UY)	Hannes Krehan (AT)	Stephen Lingafelter (US) Alba Enrique Briano (AR) Yulin An (CN) Briggita Wessels-Berk (NL)	Authors working on the protocol, awaiting approval to be able to include molecular methods. Author difficult to contact; Ana Lía to consult with editorial team members about possibility of changing main author.
<i>Bactrocera dorsalis</i> complex Lead: Mallik Malipatil (AU)	Kenji Tsuruta (JP)	Eddy Dijkstra (NL) Sue McCombs (US) Sujinda Thanaphum (TH)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Dendroctonus ponderosae</i> syn. <i>Scolytus scolytus</i> Lead: Mallik Malipatil (AU)	Ki-Jeong Hong (KR)	Edson Tadeu Iede (BR) Linda Semeraro (AU) Briggita Wessels-Berk (NL)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Ips</i> spp. Lead: Mallik Malipatil (AU)	Ki-Jeong Hong (KR)	Edson Tadeu Iede (BR) Briggita Wessels-Berk (NL)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Liriomyza</i> spp. Lead: Ana Lía Terra (UY)	Mallik Malipatil (AU)	Dominique Collins (GB) Chen Nai-zhong (CN) Heung-Sik Lee (KR)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques Joint leads: Ana Lía Terra (UY)/ Mallik Malipatil (AU)			Call for authors, closing date 15 September 2007. TPDP recommends a new call for Tephritidae : Identification of immature stages of fruit flies of economic importance by molecular techniques.
<i>Thrips palmi</i> Lead: Ana Lía Terra (UY) (referee: Mallik Malipatil)	Dominique Collins (GB)	Bert Vierbergen (NL) Norma Christina Vaccaro (AR)	Formal objections received during member consultation in 2007. Discussed at CPM-3 and Australia's technical comments (document 2008_TPDP_10) discussed during the 2008 meeting with the lead author. Lead author will amend the draft based on these discussions. Referee will check the revised draft and send it to experts in Thailand, Malaysia and India prior to submission of the final draft to the SC for member consultation.

<i>Trogoderma granarium</i> Lead: Ana Lía Terra (UY) (referee: Mallik Malipatil)	Andras Szito (AU)	Witold Karnovski (PL) Alba Enrique Briano (AR)	Draft for discussion at the 2008 meeting, reviewed by referee (document 2008_TPDP_16 Rev1). Authors' comments on referee's proposals were received just prior to the 2008 meeting and a draft containing the referees' comments and author's responses was discussed during the meeting. Referee will check this draft (revised in the meeting) prior to submission of a final draft to the SC for member consultation.  Note - from 2005 submission: The following experts have reviewed the preliminary draft of the Protocol adding their comments (in alphabetical order): Cornel Adler (Germany), Richard S. Beal Jr. (USA), Charles F. Brodel (USA), Chris P. Haines (United Kingdom), Leslie Hammack (Canada), Marcin Kadej (Poland), Jan Nawrot (Poland), Joe Ostojka-Starzewski (United Kingdom), Henrikas Ostrauskas (Lithuania), David P. Rees (Australia), Lawrence Wongo (Kenya) and Natalia Vanderberg (USA)
<b>Nematodes</b> Discipline lead: Esther van den Berg (ZA)			
<i>Aphelenchoides besseyi</i> , <i>A. ritzemabosi</i> and <i>A. fragariae</i>	Ms. Renata Cesar Vilardi Tenente (BR)	Sue Hockland (GB) Xie Hui (CN) Rinus Knoetze (ZA) Fegru Zhang (US)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Bursaphelenchus xylophilus</i> (referee: Gerard Clover)	Thomas Schroeder (DE)	Vladimir Gaar (CZ) David McNamara (ex EPPO) Maria Elena Manna (AR)	Draft discussed at the 2007 meeting. TPDP discussed issues associated with the draft with the author at the 2008 meeting. Revised draft to be submitted to the discipline lead and reviewed by referee prior to the 2009 meeting.
<i>Ditylenchus destructor</i> / <i>D. dipsaci</i>	Antoinette Swart (ZA)	Maria Elena Manna (AR) Eliseo Jorge Chaves (AR)	Final drafts of <i>D. destructor</i> and <i>D. dipsaci</i> will be presented when molecular work is complete. R Tinente has contributed to the draft; D Sturhan, M Hodda, J Webster and H Bennypaul have also been contacted to contribute to the draft. A North American DP has also been considered and relevant parts included.  Dr. Sergei Subbotin (US) R Mathis (FR), P Castillo (ES), N Vovlas (IT) and M. Marek (CZ) will be consulted to review the draft.

<i>Xiphinema americanum</i>	Sue Hockland (GB)	Antoinette Swart (ZA) Saša Širca (SI) Eliseo Jorge Chaves (AR)	Draft presented at 2005 meeting. The lead author prefers to concentrate on working on the EPPO protocol, which is undergoing an EPPO-wide consultation, until a final format for the IPPC protocol is agreed. Further work is required to improve the currently available keys and there is little reliable molecular data available.
<b>Plants</b> Discipline lead: Yin Liping (CN)			
<i>Sorghum halepense</i>	Qaing Sheng (CN)	Ahmet Uludag (TR) Rodney Young (US)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
<i>Striga</i> spp.	Call for authors to be made by IPPC Secretariat		Secretariat to make call for authors.
<b>Viruses and Phytoplasmas</b> Discipline lead: Gerard Clover (NZ) (and formerly Daphne Wright (GB))			
<i>Citrus tristeza virus</i>	Mariano Cambra (ES)	Stephanus Petrus van Vuuren (ZA) Marta Isabel Francis Mastalli (UY/US) Laurene Levy (US)	Original main author could not act and Mariano Cambra selected as replacement. Draft to be prepared upon completion of PPV DP.
Phytoplasmas (general)	Philip Jones (GB)	Wilhelm Jelkmann (DE) Ester Torres (ES) Fiona Constable (AU) Jacobus Verhoeven (NL) Lia Liefing (NZ)	A draft has been produced, but still needs to be refined. Waiting for new draft from author.

<p><i>Plum pox virus</i> (referee: Esther van den Berg)</p>	<p>Mariano Cambra (ES)</p>	<p>Laurene Levy (US) Sergio Luis Lenardon (AR) Noland Africander (ZA)</p>	<p>Draft presented by author at 2006 meeting. Revised draft discussed at the 2007 meeting. Author to confirm whether discipline lead's changes are appropriate. Final draft to go to referee in June 2008. Anticipate submission to Secretariat July 2008.</p> <p>Note from 2006 draft: the following colleagues and institutions participated in the DIAGPRO ring-test: E. Grabensteiner and B. Suárez (Osterreichische Agentur für Gesundheit und Ernährungssicherheit GmbH, Wien, AT); J. Kummert, S. Steyer and E. Demonty (Centre de Recherches Agronomiques, Gembloux, BE); P. Gentit, N. Grasseau and F. Chappoux (CTIFL, Prignonrieux, FR); V.M.J. Boeglin (ENSA-INRA, Montpellier, FR); T. Candresse, M.J. Delucq and L. Svanella-Dumas (INRA, Villenave d'Ornon, FR); W. Jarausch and G. Krczal (Centrum Grüne Gentechnik, SLFA Neustadt, DE); R. Mumford, A. Blockley and B. Jarvis (CLS, York, GB); C. Varveri (Benaki Phytopathological Intitute, Kifissia, GR); L. Krizbai, D. Sevestyén, I. Ember and M. Kölber (Central Laboratory for Pest Diagnosis, Gödollo, HU); A. Myrta and Abou-Ghanem (Istituto Agronomico Mediterraneo, Valenzano, IT); O. Potere, D. Boscia, A. Minafra, L. Barbarossa and M. Al Rwahnih (Istituto di Virologia Vegetale del CNR, Bari, IT); G. Pasquini and M. Barba (Istituto Sperimentale per la Patologia Vegetale, Roma, IT); P. Martínez-Gómez, M. Rubio and F. Dicenta (CBAS-CSIC, Murcia, ES); R. Flores and C. Muñoz (Sanidad Vegetal, Sevilla, ES); M.Á. Cambra and M.L. Palazón (Centro de Protección Vegetal, Zaragoza, ES); E. Bertolini, M.C. Martínez and M.T. Gorris (IVIA, Valencia, ES). This proposal has been reviewed by Drs. D. Boscia, T. Candresse, J.A. García, M. Glasa, D. James, G. Llácer, R. Mumford, A. Myrta, M. Navrátil, L. Palkovics, B. Rodoni and C. Varveri and discussed during the XX International Symposium on Virus and Virus-like Diseases of Temperate Fruit Crops and XI International Symposium of Small Fruit Virus Diseases, 22-26 May 2006, Antalya, Turkey; and during the XII Congress of the Mediterranean Phytopathological Union. 11-15 June 2006, Rhodes Island, Greece.</p>
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<i>Potato spindle tuber viroid</i>	Colin Jeffries (GB)	Jorge Abad (US) Nuria Duran-Vila (ES) Ana Etchervers (UY) Brendan Rodoni (AU) Johanna Roenhorst (NL) Huimin Xu (CA)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol.
Tospoviruses (TSWV, INSV, WSMV)	Tom German (US)	Jane Morris (GB) Concepción Jordá-Gutiérrez (ES) Gerhard Pietersen (ZA)	First discipline lead was Daphne Wright. Initial draft presented to 2005 meeting. Author contacted during 2006, but no reply received. New discipline lead (Gerard Clover) contacted author; waiting for response.
Viruses transmitted by <i>Bemisia tabaci</i>	Stephan Winter (DE)	Pissawan Chiemsoombat (TH) Anne Dalmon (FR) Clarissa Maroon-Lango (US) Marcia Roye (JM)	Call for authors, closing date 15 September 2007. Authors selected from nominations; discipline lead will invite them to start drafting the protocol. Scope is broad and may need to be refined.

### WORK PROGRAMME 2008-2009

(Agreed by TPDP 6 June 2008 and modified by the Secretariat)

<b>2008</b>	
June	<p>20 (approx) Author to send text of <i>T palmi</i> to discipline lead</p> <p>20 Drafts for 2<sup>nd</sup> member consultation (likely protocols: PPV, Trogoderma and Guignardia to be sent to TPDP)</p> <p>30 Discipline lead to send draft <i>T palmi</i> text to TPDP for final review; MM to act as referee and to send draft to Malaysian, Indian and Thai experts</p> <p>30 MM to send Instructions to Authors to TPDP</p> <p>30 Secretariat to send draft checklist to YL</p> <p>30 Secretariat to send template for letters of invitation and non-selection of authors to TPDP</p> <p>30 Secretariat to send draft report of the meeting to participants</p>
July	<p>5 Comments on drafts for 2<sup>nd</sup> member consultation to send to discipline lead</p> <p>15 MM and TPDP to send final comments on <i>T palmi</i> protocol to discipline lead (copied to all panel)</p> <p>20 Discipline lead to send final drafts for 2<sup>nd</sup> member consultation to TPDP to get approval to send to the SC</p> <p>31 Final draft of <i>T palmi</i> DP protocol to be submitted to Secretariat by discipline lead (copied to all TPDP)</p> <p>31 Final version of drafts for 2<sup>nd</sup> member consultation (likely protocols: PPV, Trogoderma and Guignardia to be submitted to Secretariat)</p> <p>31 YL to send draft checklist to TPDP for comments</p> <p>31 Comments from participants on the draft report of the meeting to Secretariat</p>
Aug	<p>15 TPDP to send comments on Instructions to Authors to MM (copied to TPDP)</p> <p>31 TPDP to send comments on the QA document and relevant experts to whom the document should be circulated to MM</p> <p>31 TPDP to send comments on the draft checklist to YL</p> <p>31 MM to send final Instructions to Authors to Secretariat (and TPDP)</p>
Sept	<p>5 Invitation of new authors of protocols to join editorial team and start working on new drafts</p> <p>5 Discipline leads to notify unsuccessful nominees that they have not been selected.</p> <p>10 Report of the meeting to be posted on the IPP</p> <p>30 YL to send final version of the checklist to TPDP for use in evaluating draft protocols</p> <p>30 Authors to send draft protocols for the next meeting to discipline lead (having had appropriate consultation). (Likely protocols: <i>Xac</i>, <i>X fragariae</i>, <i>Tilletia</i>, <i>Anastrepha</i>)</p>
Oct	<p>15 MM to produce a paper on QA and send to TPDP and relevant experts globally for comment</p> <p>31 Discipline lead to send draft protocols and checklists for the next meeting to TPDP referee</p>
Nov	<p>3-7 SC-7 meeting</p> <p>10-14 SC meeting</p> <p>20 TPDP referees to send completed checklists and modified protocols back to discipline leads</p> <p>30 Responses from experts and TPDP on QA document to be sent to MM</p>
Dec	<p>15 Discipline leads to send updated checklists and revised drafts to TPDP and Secretariat for posting</p>
<b>2009</b>	
Jan	<p>26 Final date for posting documents for the meeting</p> <p>Documents for the QA session</p> <p>Draft protocols</p>
Feb	<p>16-20 TPDP meeting (tentative)</p> <p>Agenda:</p> <ul style="list-style-type: none"> <li>- Secretariat to provide an update on the work with the CBD and Global Taxonomy Initiative</li> <li>- One-day session on QA (invite an expert from NAPPO region)</li> <li>- Reference laboratories</li> <li>- Combination of methods (document 2008_TPDP_34 - J Unger)</li> <li>- PCR checklist (document 2008_TPDP_22)</li> <li>- Priorities (consider in particular <i>Anguina</i> spp, <i>Conotrachelus nenuphar</i> and <i>Phoma exigua</i> var. <i>foveata</i>)</li> </ul>

## Participants list for TPDP meeting, Braunschweig, Germany, 2-6 June 2008

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### Other participants

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### Unable to attend

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