REPORT

Shanghai, China
22-26 June 2015

Technical Panel on Diagnostic Protocols (TPDP)
June, 2015

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

CONTENTS

APPENDICES

1. Opening of the meeting

1.1 Welcome

[1] The International Plant Protection Convention (IPPC) Secretariat (hereafter "Secretariat") opened the meeting and welcomed all the participants to the tenth meeting of the Technical Panel on Diagnostic Protocols (TPDP), in particular the new TPDP member Ms Juliet GOLDSMITH (Jamaica) and presented apologies from Ms Ana Lìa TERRA (Uruguay) who was not able to attend. The Secretariat thanked the People's Republic of China's National Plant Protection Organization for hosting the meeting and the General Administration of Quality, Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) for helping to organize it.

[2] Mr Yucheng ZENG, Deputy Director of Shanghai Entry-Exit Inspection and Quarantine Bureau (SHCIQ) warmly welcomed all the participants to China and Shanghai and wished the panel a fruitful meeting. He highlighted there are about 2 300 employees, three technical centers, 25 regional centers or laboratories and 41 routine laboratories, and about 90 officials to support the SHCIQ services. He thanked the China Food Inspection and Quarantine Technology Center and AQSIQ for organizing the meeting.

[3] The Director of the Biosecurity Division, department for Supervision on Animal and Plant Quarantine of AQSIQ, Mr Hao WU, also welcomed all the participants wishing them a good meeting and expressing his hope that it would lead to an increase of knowledge sharing among the technical panel and China.

[4] The Division Director of the National Agro-Tech Extension and Service Centre, Mr Lifeng WU, also Standards Committee (SC) member, warmly welcomed the meeting participants. He mentioned that in the past 10 years more than 20 pests were introduced in China. This, he noted stressed the importance and benefits of internationally harmonized diagnostic protocols.

[5] The Director of the Technical Center for Animals and Plants and Food Inspection and Quarantine (AFTC) of the SHCIQ, Mr Yuping HE made a presentation about AFTC and mentioned that AFTC receives about 200 thousand batches for inspection and about 700 thousand testing items per year. AFTC has 89 permanent staff. Mr He also welcomed all the participants noting his wish to strengthen the technical cooperation between China, the IPPC Secretariat and the TPDP.

[6] Participants introduced themselves briefly.

1.2 Election of the Chairperson

[7] Mr Robert TAYLOR (New Zealand) was elected Chairperson.

1.3 Election of the Rapporteur

[8] Mr Hans de GRUYTER (Netherlands) was elected Rapporteur.

1.4 Adoption of the Agenda

[9] The Agenda was adopted as presented in Appendix 1.

2. Administrative Matters

[10] Ms Liping YIN introduced the Local information document[1]. The Secretariat introduced the Documents list (Appendix 2) and Participants list (Appendix 3) asking that participants inform the Secretariat should they find any information that needed to be changed as the information will be reflected in the TPDP membership list[2].

[1] 02_TPDP_2015_Jun

[2] TPDP membership list: https://www.ippc.int/en/publications/1181/

3. Scrutiny of draft diagnostic protocols

[11] The TPDP reviewed five draft diagnostic protocols (DPs) reported in the individual sections below. Four draft DPs had been submitted to the Expert Consultation on draft DPs[3] in 2015, and the draft DP for *Liberibacter solanacearum* (2013-001) will be submitted in the fourth quarter of 2015, as previously agreed by the TPDP in its April 2015 virtual meeting[4]. For all draft DPs, discipline leads will work with the respective DP drafting group[5] to revise the drafts after this meeting, and the modified drafts will then be submitted to the SC, via electronic decision tools, for their approval for member consultation.

[12] From the discussions, one general concern was voiced regarding the detection of viable organisms by molecular methods and tests in the protocols. This discussion was raised in several draft protocols revisions (e.g. *Bursaphelenchus xylophilus* (2004-016)[6], *Liberibacter solanacearum* (2013-001), *Fusarium moniliformis / moniliforme* syn. *F. circinatum* (2006-021), *Phytophthora ramorum* (2004-013)) and the panel noted this is a horizontal issue especially for detection of pests in seeds and in wood material. The panel considered this was an important issue and needed further discussion, the outcome of this is noted under agenda item 11 "Other Business". Another concern raised was the consistency on the use of the words "assay", "method" and "test". The panel agreed this should be reviewed for consistency (see further discussions under agenda items 3.2 *Fusarium moniliformis / moniliforme* syn. *F. circinatum* (2006-021) and 3.3 *Phytophthora ramorum* (2004-013)).

[13] The following general comments were made in reference to all draft DPs discussed at the meeting:

- In the *Pest information* section, the panel suggested not to mention a large number of countries, but instead refer to a pest's regional distribution. This is because some references to the presence of a pest in country may not have been officially reported by IPPC contracting parties.
- Information and illustrations of symptoms should be included only if essential for the diagnosis. Symptom descriptions should be aligned to match the related figures.
- If figures are included in the draft DP, they should: be of high quality; have measurement bars, if possible, or magnifying lens numbers; give the proper credits to the author; use Latin names instead of common names for hosts and be aligned to match the related symptoms.
- Discipline leads should revise the status box of draft DPs as regards to "consultation on technical level" and "main discussion points during development of the diagnostic protocol". The Secretariat will update and revise the other sections of the status box. Guidance on how to revise the status box is available in Appendix 1 of the *Instructions to authors*[7].
- Contact points for further information should preferably be member of the DP drafting group. The contact point must agree to act in this capacity.
- The use of vendor and brand names should be avoided unless extremely necessary for the test performance. One paragraph at the beginning of the *Detection section* should be included to cover all mentions of brand names. The generic wording is available in the *Instructions to authors*.
- If in the draft DP there is more than one mention to a brand name, the second mention (and the following mentions) to a brand name shall be associated with the same footnote. The *Instruction to Authors* was updated accordingly.
- Specificity and sensitivity of serological and molecular methods should be included in the draft DPs where available, and clearly expressed.

[3] Expert consultation on draft DPs: https://www.ippc.int/core-activities/expert-consultation-draft-diagnostic-protocols

[4] 2015 April TPDP Virtual Meeting Report: https://www.ippc.int/en/publications/81009/

[5] IPPC DPs drafting groups: https://www.ippc.int/en/publications/2582/

[6] *Bursaphelenchus xylophilus* (2004-016) draft DP was submitted for member consultation on February 2015: https://www.ippc.int/en/publications/2736/

[7] TPDP Instruction to authors of diagnostic protocols: https://www.ippc.int/en/publications/1180/

- The TPDP decided that the use of template tables for polymerase chain reactions (PCR) for the draft DPs under development (before the member consultation stage in the IPPC Standard Setting process) is required for better clarity on the information provided for diagnosticians to use the IPPC protocols. The *Instruction to Authors* was updated accordingly.
- Regarding controls for molecular tests, in the case of a high risk of aerosol contamination, and for specific pest, consider if instructions should be provided to monitor possible cross contamination, e.g. by comparing the sequences of positive controls and positive samples. The *Instruction to Authors* was updated accordingly
- If a draft DP has a flow diagram, each method mentioned in the flow diagram should be accompanied by a cross-reference to the section number where this method is described, for ease of reference and enhanced clarity of the diagnostic process.

3.1 Liberibacter solanacearum (2013-001) (Priority 1)

[14] The discipline lead for Bacteria (2006-005), Mr Robert TAYLOR (New Zealand), introduced the draft DP. The referee introduced the checklist for discipline leads and referees[8].

[15] The discipline lead mentioned that the DP drafting group proposed a new title to '*Candidatus* Liberibacter solanacearum' to reflect the current taxonomy classification. He also mentioned that the DP drafting group is still considering whether to include another real-time PCR method, called quantitative PCR (qPCR), for the protocol.

[16] The panel stressed that for '*Ca.* Liberibacter solanacearum' the minimum requirement for diagnosis is molecular testing and recommended the inclusion of a flow diagram to clarify this. It was suggested that for all molecular tests, especially for identification, information and references for the validation data reproducibility, specificity and sensitivity should be provided.

[17] It was recalled that countries can use their own methods as long as they are technically justified, and that this is mentioned in the disclaimer in all IPPC diagnostic protocols. Some participants mentioned that authors of DPs would normally choose the most widely used and most validated methods. However, if validated methods are available, these should be included in the protocol, along with the sensitivity and specificity of the test. If there are more validated methods available, the most common method used by NPPOs should be taken into consideration. It was also noted that once adopted DPs are revised some of the methods may also be changed. Lastly, it was pointed out that IPPC protocols should include a detailed written, validated method, rather than describe all possible protocols from the literature.

[18] One participant pointed out that information on how to identify haplotypes was missing in the draft protocol; haplotype identification is important at a regional level as new haplotypes are being described, especially in Europe. Another member, however, queried if there was a need to identify the different haplotypes because the scope of the protocol is to identify '*Ca.* Liberibacter solanacearum' and not the haplotypes *per se*. It was also noted that, even if this information is not in an IPPC protocol this could be also addressed in a regional or national protocol for regulation at the regional or national level. Some participants pointed out that the first thing to determine was whether a haplotype is part of the identification to understand if it should be included in the draft DP. If it should be included then it would need an indication of the reliability of the methodology. The panel *agreed* to ask the authors whether the haplotype methodologies are reliable and if there is any ring testing information. If so, the panel *recommended* that this information be added in the draft DP. It was recalled that information of validation and ring testing should be publicly available, but did not necessarily have to be published.

[19] Other discussion points were as follows:

[8] 17_TPDP_2015_Jun

[20] Pest Information. The scientific names of other '*Candidatus* Liberibacter spp.' associated with Huanglongbing disease should be added ('*Ca.* L. africanus', '*Ca.* L. asiaticus' and '*Ca.* L. americanus'). It was suggested to clarify the information about biology.

[21] Taxonomic information. When the authority is related to the naming of a pest which is not an official taxonomic name, such as '*Candidatus* Liberibacter spp.', it is a literature reference. If there are more than two authors mentioned, the panel agreed to use "*et al.*" to refer to the authority and reference. When the authority is related to an official taxonomic name, all authors are mentioned. The *Instruction to Authors* was updated accordingly.

[22] Sampling material – Carrot (*Daucus carota*) seeds. It was recommended to add more clarity on the amount of seeds to be collected. The reference text provided was sampling carrot seeds from an infected lot, so it was not the limit of the detection.

[23] Sampling material – Psyllids: Because this protocol is for bacteriology detection, the panel agreed it would be useful to add more information on vector sampling. Clarification should be added as to the number of psyllids and what the bulking rate is for sampling or glue traps, and if the sample is collected from the field or not. The panel recommended to preserve the insects in 95% ethanol rather than 70% ethanol for better preservation of the DNA (to avoid DNA degradation) if the samples will be used for further molecular tests.

[24] Molecular detection. The panel agreed that the information on nucleic acid extraction methods should be more detailed, noting that there were references to scientific papers (e.g. cetyl trimethylammonium bromide (CTAB) method). This would be important not only for the completeness of this protocol but also to ensure consistency across DPs.

[25] The panel pointed out that the examples for commercial kits should be given in a more descriptive way, and that it would be appropriate to refer to the relevant publications that have been used for the successful detection of '*Ca.* Liberibacter solanacearum'.

[26] The panel suggested that information on how to homogenize (disrupt) the tissue before the DNA extraction should be included. This information on "sample preparation" should be as a new section and be added before the "Nucleic acid extraction section".

[27] The panel pointed out that clarification was needed on the screening method; it was not clear if it was for sample preparation for CTAB extraction or if it would be used for any PCR method (conventional or qPCR).

[28] Dilution of the sample. Information should be added to better explain the dilution rate of the samples used to perform the test analysis.

[29] Conventional PCR and real time PCR. The panel asked the DP drafting group to use the template tables for PCR (appendix 5 of the *Instruction to Authors*) as some information on the final concentration of the PCR mixes was missing in the draft DP.

[30] It was noted that if multiplex PCR was recommended in the draft, information on the conditions of the reaction should be added along with data that demonstrates the multiplex test does not affect the sensitivity.

[31] Controls for molecular tests: Positive and negative controls. Comments were made on the need for a positive extraction control and the need for positive control to be sequenced every time. Some participants felt that the intention of the standard wording in the *Instructions to Authors* is that the prior sequence of the positive control, which is done before the diagnosis tests are performed, is for confirmation of the control sample (confirmation of the reference material). It was noted that the sequence of the positive control should be known because knowing the sequence would be useful when checking for cross contamination. It was noted that for some pathogens this would not be conclusive because the sequences may be the same. The *Instruction to Authors* was updated accordingly.

[32] Cross-contamination. The panel discussed if the negative control would help to assess any cross-contamination. It was noted that currently in the *Instructions to Authors* it says that the cross-contamination is only assessed with the positive control; however some participants noted that the negative control can also be used. Text for this draft DP was adjusted to include this information and the *Instruction to Authors* was updated accordingly.

[33] Interpretation of results: Real-time PCR. It was noted that the cytochrome oxidase (COX) reaction is used for real time PCR, so information for this reaction should be included. The panel also noted that for the negative controls no amplification curve (or exponential curve) is seen as a condition of negative control result and this should be clearly mentioned in the text.

[34] Identification. The panel noted that the minimum requirements for identification are not clear from this section and this should be clarified. Since real time PCR provides reliable results, and conventional PCR provides less sensitivity, the panel agreed that it was advisable to sequence the PCR products from conventional PCR for further confirmation in cases where the outcome is critical (e.g. post-entry quarantine samples, new host recorded or new distribution). The panel also recommended the inclusion of a flow diagram to clarify the minimum requirements for identification and for the all diagnosis.

[35] The panel asked that further information for the sequences analysis process be included in the draft (e.g. % homology and reference numbers of the sequences).

[36] The need for a section on haplotype identification and how to interpret the results of the sequences analysis was stressed again. On this, clarification is crucial on the interpretation of the results for the sequence analysis on how to identify the haplotypes.

[37] The same comment as was made in the "detection section", on the use of the table templates, was also made in the "identification section".

[38] The TPDP:

(1) *invited* the DP drafting group to consider the TPDP recommendations and consequently adjust the draft DP on *Liberibacter solanacearum* (2013-001) and submit it for an Expert Consultation on draft DPs. Following, the draft DP should be revised again by the DP drafting group and presented to the TPDP via e-decision for recommendation to the SC for approval for member consultation.

(2) *invited* the SC to *note* the name of the draft DP "*Liberibacter solanacearum* (2013-001)" was changed to "'*Candidatus* Liberibacter solanacearum'(2013-001)".

3.2 Fusarium moniliformis / moniliforme syn. *F. circinatum* (2006-021) (Priority 2)

[39] The discipline lead for *Fungi and fungus-like organisms* (2006-006), Mr Hans DE GRUYTER (Netherlands), introduced the draft DP and the summary of comments from experts received during the Expert consultation[9]. Two experts had provided comments and the discipline lead acknowledged and thanked the experts. The referee reviewed the checklist for discipline leads and referees[10].

[40] The discipline lead mentioned that the information given in the detection and identification sections followed those of the adopted DP 5 (*Phyllosticta citricarpa* (McAlpine) Aa on fruit)[11]. However, he noted that in the *Fusarium* draft DP, parts of the information given under the "identification section" might be better placed under the "detection section". The panel agreed and this will be rearranged.

[41] He mentioned that the name of the pest was suggested to be changed to "*Fusarium circinatum*" to reflect the current taxonomy classification and the most used name. The DP

[9] 05_TPDP_2015_Jun

[10] 15_TPDP_2015_Jun

[11] DP 05: *Phyllosticta citricarpa* (McAlpine) Aa on fruit: https://www.ippc.int/en/publications/2577/

drafting group agreed that the name *Fusarium circinatum* is used with *Gibberella circinata* as synonym, following Geiser *et al.*, 2013[12]. He pointed out, however, that in the Mycobank[13] the name of the pathogen was not adjusted yet.

[42] Some participants asked that the use of the words "assay", "method" and "test" be reviewed for consistency, referring also to other protocols (e.g. *Phytophthora ramorum* (2004-013) – see section 3.3 of this report). The panel agreed that "test" is usually a combination of methods and that "assay" is a test. However it was noted that in ISPM 5 (*Glossary of phytosanitary terms*) "test" is defined as an "official examination, other than visual, to determine if pests are present or to identify pests". The panel asked the Secretariat editor to check the use of the terminology. The panel *agreed* to have a discussion on the use in DPs of the terms "assay", "method" and "test" at the next TPDP face-to-face meeting.

[43] Other discussion points were as follows:

[44] Pest information. The panel felt that there were too many synonyms and maybe some of them had the status of species. The panel asked the DP drafting group to check the list of synonyms.

[45] Detection. One member queried whether the word "cryptically" is commonly used in mycology. The discipline lead explained that it is; however, an explanation on the meaning could be included to better explain that "cryptically" refers to "no obvious symptoms". It was stressed that IPPC protocols should use simple wording (understandable to non-native English speakers) and thus the panel agreed to remove mention of "cryptically" in the detection section and asked the DP drafting group to apply this change to the whole draft DP.

[46] It was noted that *F. circinatum* may also be soil-borne, however, there are no published methods dealing with isolation of *F. circinatum* from soil and mention of this was included.

[47] Identification. It was pointed out that minimum requirements are not clear in the draft and this should be clarified. The reason of performing PCR tests in seeds was queried because there is the possibility of having positive results but the pest may not viable. It was stressed that this is an old and very crucial issue among scientists when performing PCR tests, especially on treated material. It was also stressed that there is no alternative method to resolve this, however, if a positive result is obtained in a PCR test and if the viability of the *Fusarium* sp. needs to be checked, isolation of the pest in culture medium would need to be performed (see also agenda item 11 "Other Business").

[48] One participant queried if asymptomatic seedlings should be covered in this draft DP. It was noted that this draft only covers symptomatic plant tissue, including symptomatic seedlings (i.e. asymptomatic material is not covered in the draft DP). However, the panel felt that clarification on the material covered in the draft DP was needed.

[49] The panel agreed that specificity levels or limits of detection for each method should be included. It was suggested to include information on the strains of *Fusarium* spp. used to determine the specificity levels and limits of detection.

[50] Sampling preparation. The panel wondered about the number of days needed for plant tissue material preparation because longer periods may not be the best case for this pest due to possible degradation of the plant tissue. It was also pointed out that information on sampling of a consignment, referring to ISPM 31 (*Methodologies for sampling of consignments*), was somehow mixed with information of laboratory sampling. The panel felt that these two types of information should both be retained in the protocol and asked the DP drafting group to clarify this.

[12] Geiser, D. M.; Aoki, T.; Bacon, C. W.; Baker, S. E.; Bhattacharyya, M.K. 2013: One Fungus, One Name: Defining the Genus *Fusarium* in a Scientifically Robust Way That Preserves Longstanding Use. Phytopathology 103**,** 400-408.

[13] http://www.mycobank.org/

[51] Isolation and culturing. The panel felt that the parts related to the identification requirements for the pest would fit better under the "identification section".

[52] Culture media. One member suggested to list and to provide further information on different types of culture media. It was explained that some culture media are specific for isolation (e.g. Potato Dextrose Agar (PDA amended with bactericide, Dichloran Chloramphenicol Peptone Agar (DCPA), others are to verify morphology of conidia (e.g. Spezieller-Nährstoffarmer Agar (SNA). It was pointed out that PDA medium is also used for morphological characterization of colonies, especially in pure cultures, and this information should be added in the draft DP.

[53] The panel agreed to keep the reference to different types of culture media and asked the DP drafting group to provide explanations for the different usages.

[54] Morphology. Some participants felt it would be useful to have a caveat saying that morphological characterization should be performed by experienced persons and that similar sentences to flag this as a point for implementing the protocol are included in other DPs (e.g. nematodes draft DPs). Other participants found that it should not be added because this is under each country's jurisdiction. The panel agreed not to include a general sentence on this.

[55] Macroconidia. One participant stressed that this was an important feature to be analyzed because if no macroconidia are found, the pest can be confused with other genera. It was noted that, even doing a colony characterization (section above), it can be confused with other *Fusarium* species. The panel asked the DP drafting group to stress this in the draft DP.

[56] Flow diagram. The panel agreed that the flow diagram should be adjusted to align with the options to perform molecular tests using pure cultures. It was highlighted that in this protocol the samples are coming from symptomatic plant material and this should be specified in the flow diagram. The panel recommended that two flow diagrams or two different routes be shown, depending on if plant tissue or seeds were used. It was stressed that the flow diagram should match the sections in the text.

[57] References. It was noted that some references were missing and this should be addressed by the DP drafting group.

[58] Figures. The panel found that some figures are out of synchronization and that the figures for *in vitro* tests were not of sufficient quality and that these figures should be improved. Measure bars or magnifying lens numbers should be included, just as proper credits to the figures' authors should be provided.

[59] The TPDP:

(3) *invited* the DP drafting group to consider the TPDP recommendations and consequently adjust the draft DP on *Fusarium moniliformis / moniliforme syn. F. circinatum* (2006-021). The revised draft DP will then be recommended to the SC for member consultation.

(4) *invited* the SC to *note* the name of the draft DP "*Fusarium moniliformis / moniliforme* syn. *F. circinatum* (2006-021)" was changed to "*Fusarium circinatum* (2006-021)".

(5) *agreed* to have the horizontal discussion on the use of "assays", "methods" and "tests" and in the next TPDP meeting and *asked* Mr Norman BARR and Ms Geraldine ANTHOINE to prepare a discussion paper.

3.3 Phytophthora ramorum (2004-013) (Priority 2)

[60] The discipline lead for *Fungi and fungus-like organisms* (2006-006), Mr Hans DE GRUYTER (Netherlands), introduced the draft DP and the summary of comments from experts received during the Expert consultation[14]. Four experts had provided comments during the Expert consultation and the

[14] 06_TPDP_2015_Jun

discipline lead acknowledged and thanked the experts. The referee reviewed the checklist for discipline leads and referees[15].

[61] As for the previous draft DP discussed, also this DP used of the words "assay", "method" and "test" inconsistently and the panel asked that the use be verified. It was noted that all the mentions to "methods", even though a horizontal issue for all DPs, for this specific one it should be replaced with "tests" (see also discussions under agenda item 3.2).

[62] The panel voiced concerns about the inclusion of the nested PCR test because it can lead to false positives. The panel strongly recommended that more information should be added to explain the use of nested PCR for the panel to decide whether it should be kept in.

[63] It was noted that the lateral flow test is not used for identification, but rather for detection and this should be clarified in the draft DP. Also, the information on sensitivity, specificity and the choice for the tests presented in the draft DP should be made more clear.

[64] Lastly, as a general comment the panel recalled that the use of common names should be avoided and scientific names (Latin names) should always be used.

[65] Other discussion points were as follows:

[66] Pest information. The panel discussed whether to mention that the pest's origin is unknown and add some reference to the origin speculation. The panel agreed that this information was not useful for a diagnostic protocol.

[67] The panel noted that information on the pest dispersion was missing, for example by water, to explain the reason that water samples should be collected. It was suggested that this information on the pest dispersion should be captured in "pest information" section.

[68] Detection. The panel was concerned that the text gave direct instructions, not necessarily related to diagnosis, to national plant protection organizations (NPPOs). The text was adjusted to address this concern.

[69] It was pointed out that for this pest there are several detection and identification methods available in the literature. The panel felt it was useful to mention this, also to clarify to IPPC contracting parties that there are other methods available and that the ones captured in the protocol include data on specificity, sensitivity and reliability.

[70] Symptoms. Some participants suggested including examples of non-pathogenic disorders associated with dieback symptoms. It was explained that this list could be very extensive thus the panel agreed not to include it.

[71] Sampling and sample preparation. The panel highlighted that personal opinions (e.g. "other recommended") should be avoided in draft DPs. The text was modified accordingly.

[72] Some participants were confused whether the information provided on the temperature for water samples was for storage or for transportation of the sample. It was also noted that the sample should be skimmed slowly, because the spores are most likely to be on the surface of the water. The panel asked the DP drafting group to adjust the text for clarity.

[73] The panel asked the DP drafting group to add information about the sampling procedures for non-symptomatic plants.

[74] Isolation from plant samples. It was noted that "baiting" was used in this draft DP under different tests, and the meanings should be clarified.

[15] 16_TPDP_2015_Jun

[75] Isolation media. It was noted that active ingredients of fungicides were mentioned and the panel agreed that it would be useful to insert a reference. Also, validation data, if available, should be included.

[76] The panel discussed whether the isolation plates could be sealed or unsealed. It was explained that sporangia are formed more readily on unsealed plates, so the text was adjusted accordingly. Also regarding the incubation conditions, the panel felt that the text should give more direct guidance, noting that incubation conditions may vary depending on the conditions in each individual laboratory, and that this fact should be reflected in the text.

[77] Molecular detection. Information on the reasons for including the tests should be provided (e.g. costs, sensitivity and specificity). The panel felt that more clarification was needed on the first round of nested PCR, and on whether it can be used as a stand-alone PCR test. It was pointed out that if the different tests should be separated, the sensitivity, specificity and validation data for each test should be considered and that this should be clearly reflected in the flow diagram.

[78] As to the detection of the viability of pests, it was stressed that PCR-based methods will detect both non-viable and viable *P. ramorum* in infected plant material, while isolation and culturing tests will detect viable *P. ramorum* (see also agenda item 11).

[79] Nucleic acid extraction. It was highlighted that there is no nucleic acid extraction method described in the protocol and this should be included.

[80] Conventional polymerase chain reaction for detection. The panel asked that this section be adjusted to reflect the guidance given in the *Instruction to Authors* (tables and text). Clarification was needed on the limits of detection and gene target for both real-time PCR and conventional PCR.

[81] The panel noted that this entire section needed to be adjusted as several other tests are mentioned. It was recalled that the selection of the tests in draft DPs should rely on available validation data.

[82] Real-time PCR for detection. It was noted that reference to the cut-off (Ct) value was missing. The panel also suggested it would be useful for the DP users to know that non-target *Phytophthora* spp. might give cross reactions (with high Ct values). Wording was adjusted to mention that the researchers found positive cross reactions.

[83] Controls for molecular tests under detection. It was noted that controls to be used for detection should be rechecked by the DP drafting group because the negative extraction control was not included and that because for the internal control (for duplex/multiplex test) verification was needed whether the sensitivity or specificity of the test was affected. Also, a section on the interpretation of the results should be included in the protocol.

[84] Identification. The minimum requirements should be clarified.

[85] Morphological identification. The growth and morphology characteristics should be specified more precise in a chapter providing the minimum requirements for a positive diagnosis,

[86] It was noted that the most essential features for growth characteristics are presented as examples of a selective and non-selective medium. The panel discussed if there was a need to include the two mating types for the morphological identification, because sexual structures are difficult to obtain and will be used only in rare cases. The discipline lead explained that it may be needed and the panel agreed to keep this information. The panel asked the DP drafting group to add references, if any, on the fungus identification characteristics in selective and non-selective media and; the characteristics shown with the figures should be cross-referenced in the text.

[87] Lastly, media recipes specified in the protocol should be included.

[88] Pathogenicity tests. The panel discussed whether Koch's postulates is used for pathogenicity testing and in this case if it is used for diagnosis. It was agreed to include the performance of Koch's

postulates under "pest information section" because it is crucial to demonstrate the pest in a new host, as a basic principle of plant pathology.

[89] Serological detection. The panel agreed to remove this section as there is no recommended serological test for the detection of this pest.

[90] Molecular identification. Some participants queried the methods described as being species-specific because cross reactions may occur. It was explained that cross reactions may occur with *P. lateralis* but usually this pest is present in different hosts. Other members pointed out that they could be used as a detection tool but not as an identification tool, because other additional identification methods should be made for confirmation (e.g. sequencing of PCR product or isolation). It was highlighted that, for countries doing surveillance for *P. ramorum* it would be up to each country to decide which confirmatory test should be used and this will depend on the pest presence or absence of the pest. The panel asked the DP drafting group to review the section on molecular identification.

[91] Internal transcribed spacer (ITS) sequencing. The panel agreed that information on the target gene should be included as described in the reference paper. The panel discussed the use of a phylogenetic tree for analysis because different results may be obtained depending on which type of tree the analysis used (see further discussions under agenda item 7).

[92] Flow diagram. The panel agreed that a flow diagram was needed for the diagnosis of this pest, but it should be simplified.

[93] The TPDP:

(6) *invited* the discipline lead and the referee to consider the TPDP recommendations, adjust the draft DP on *Phytophthora ramorum* (2004-013) and forward it to the DP drafting group for their review. Following, the draft will be presented to the TPDP via e-decision for approval to recommend the draft to the SC for member consultation.

3.4 Dendroctonus ponderosae syn. Scolytus scolytus (2006-019) (Priority 3)

[94] The discipline lead for *Insects and mites* (2006-007), Mr Norman BARR (USA), introduced the draft DP, the summary of comments from experts received during the Expert consultation[16] and reviewed the checklist for discipline leads and referees[17]. He summarized the comments received during the expert consultation from five experts and noted that most of the comments had been incorporated into the draft DP. He thanked the experts. It was pointed out that the accurate name of the pest is *Dendroctonus ponderosae* without the synonym, because the correct synonym is *D. monticolae*, as described in the draft protocol in the appropriate section. *Scolytus scolytus* is a different species.

[95] The participants made general comments on the molecular tests for diagnosis for *D. ponderosae*. It was queried if there is publicly available data for molecular detection and identification of this pest. It was explained that there is no published data but research on barcoding is under development. Thus, the panel agreed that a general paragraph be included explaining that research on this is being carried out. The panel agreed not to recommend molecular tests for the diagnosis of this pest in this draft as there is currently no published data.

[96] Other discussion points were as follow:

[97] Personal communications. The panel reiterated that personal communications should be avoided (cf. *Instruction to Authors*). Text was adjusted to include available references.

[98] Pest information. The panel felt that this section should be reduced. Also, inclusion of references should be made whenever they are available.

[16] 07_TPDP_2015_Jun

[17] 08_TPDP_2015_Jun

[99] Detection. The panel felt that the section should be reorganized for better flow (e.g. outlining where the pest different stages are found in the hosts, the host symptoms when the pest is present and how to collect the pest).

[100] Identification. It was pointed out that similar species might be found and that information provided in the table with a list of '*Dendroctonus* species and distribution' was useful because it may help with the identification.

[101] Morphological identification. The panel felt that some information on the preparation of specimens (e.g. specimen labels with relevant collection information) was more related to quality assurance than to diagnosis and this information was excluded from the draft DP.

[102] Diagnostic features of Scolytinae larvae for identification. It was suggested to separate the larval information from the adult information for better flow of the text.

[103] Key to distinguish *Dendroctonus* adults from other *Scolytinae* for identification. The key was adjusted to better reflect that it is a key to diagnose *Dendroctonus* and not *Scolytinae*.

[104] Similar Species. One member asked if this information should rather be provided somewhere else. It was explained that information on host and geography are used for identification of this pest and thus this information on similar species should be captured in the identification section.

[105] It was pointed out that it would be beneficial to include images for similar or closely related species. The lead explained that the DP drafting group had tried to obtain them but had not been successful; during member consultation, contracting parties will be encouraged to submit images for possible inclusion in the draft DP.

[106] Diagnostic features of *D. ponderosae* larvae for identification. Due to similarity of species, it was stressed that the minimum requirement is to identify adults because definitive identification of larvae is not possible.

[107] One participant queried if there is a method to rear larvae to adults, in case larvae are detected in a consignment. It was explained that usually in consignments of woody material, the consignment would have been treated before shipment, so any detected larva would be dead. It was noted that there is some work on barcoding for larvae identification, however, it is not sufficiently developed to be included it in the draft DP although the panel agreed to refer to this as a possibility.

[108] Figures. It was noted that size bars or magnifying lens information of the figures should be included, even though the figures present the morphological features and not morphometric characteristics.

[109] The TPDP:

(7) *invited* the DP drafting group to consider the TPDP recommendations and consequently adjust the draft DP on *Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019). The revised draft DP will then be recommended to the SC for member consultation.

(8) *invited* the SC to note the name of the draft DP "*Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)" was changed to "*Dendroctonus ponderosae* (2006-019)".

3.5 Anguina spp. (2013-003) (Priority 3)

[110] The discipline lead for *Nematodes* (2006-008), Ms Geraldine ANTHOINE (France), introduced the draft DP, the summary of comments from experts received during the Expert consultation[18] and reviewed the checklist for discipline leads and referees[19]. Four experts had provided comments during the Expert consultation and the discipline lead acknowledged that these comments have been incorporated and addressed. She thanked the experts.

[18] 09_TPDP_2015_Jun

[19] 10_TPDP_2015_Jun

[111] It was noted by the discipline lead that for *Anguina* genera over 40 nominal species of gall-forming nematodes have been described. The scope of this draft DP was to detect and identify three species of major economic importance as agricultural and quarantine pests in various countries: *Anguina tritici*, *Anguina agrostis* and *Anguina funesta*. One participant queried whether to change the title to include the three species.

[112] It was noted that the original intent of this subject, when it was added to the TPDP work programme, was for the diagnosis of *Anguina* at genus level, as several countries regulate at the genus level. Some members felt that restricting the scope to the three major economic important species could cause some discomfort among contracting parties, because what is important for one contracting party may not be important for another, and this can be a sensitive issue. For this reason, the draft DP outlines diagnosis of the genus and detailed diagnosis for the main three species, and the panel agreed that the title should remain the same. In the draft, extra information should be added explaining the reasons of selecting the three specific species but that the use of the term "of major economic importance" should be avoided.

[113] Other discussion points were as follows:

[114] Pest information. The panel felt that this section provided guidance to NPPOs on actions to be taken, but did not provide information related to diagnosis. The panel proposed some adjustments but stressed that the entire section should be revised by the DP drafting group to ensure that regulators and NPPOs performing diagnosis were targeted.

[115] Detection. In this section there were some elements related to biology whereas the section should focus on symptoms and diagnosis; hence it should be revised. It was also noted that information on the *Anguina* genus was missing and should be included before the description of symptoms caused by *Anguina* species. The panel suggested to add a section with general description of the genus *Anguina* and consider whether there is any confusion possible with other genera.

[116] Nematode extraction - Direct examination. One participant queried the length of time needed to perform the direct examination. It was explained that direct examination can be performed in 30 minutes if the material is heavily infested. If after 30 minutes no nematodes are observed, other methods should be used. Because of this, the mention of the material's level of infestation was retained in the text.

[117] Extraction from soil and plant material. The panel asked the DP drafting group clarification for having five different extraction methods, referring to the fact that "Baermann funnel" was the method referenced. This should be clarified.

[118] Extraction from seed. The panel queried why only one extraction method was described in full (sieve blend method by Griesbach *et al*., 1999[20]). The discipline lead explained that it was likely because it has the best performance, however, the panel felt this information should be clarified and included in the draft DP. The panel also noted that there was a reference to a regional standard that included figures of extraction equipment and procedures and that it should be checked if this reference was suitable for this protocol.

[119] Identification. The panel asked that the minimum requirements to perform a positive identification be specified (i.e. morphology, biology, molecular, a combination, or all), because morphology and molecular tests are both mentioned. Also, the panel noted that there is no information on the nematode stages needed to perform the identification and if only females or males specimens are needed.

[120] Permanent preparations. The panel felt that this information was not needed for diagnosis but may be used for record keeping; it was retained in the text to ensure consistency across draft DPs.

[20] Griesbach, J.A., Chitambar, J.J., Hamerlynck, M.J. & Duarte E.O. 1999. A comparative analysis of extraction methods for the recovery of Anguina sp. from grass seed samples. Supplement to the Journal of Nematology 31(4S): 635–640.

[121] Molecular identification. Although molecular identification was not part of the minimum requirements, information was provided to support the diagnosis on morphological identification. It was stressed that sequencing is only possible after morphological identification, as a confirmatory test, because the target gene will depend on the genus species (e.g. ITS is used for *Anguina* species identification but not for *Meloydogyne* species).

[122] It was stressed that real-time PCR is only used for identification of *Anguina agrostis* and this information was captured in the draft DP.

[123] DNA extraction. The panel queried if DNA extraction can be performed only with juveniles or also with adults, because using only juveniles can be difficult. This should be clarified by the DP drafting group.

[124] PCR-RFLP for *Anguina* spp. The panel asked that information on genus identification should be included because the section only reflected identification for three selected species.

[125] The panel noted that in this draft DP there were also inconsistencies (as noted in the previous reviews) in the use of "assay", "method" and "test", which should be adjusted. The panel also asked that the section be modified according to the PCR table formats in the *Instructions to Authors* for improved readability. Lastly, the panel asked the DP drafting group to confirm if the table on restriction enzymes patterns was needed.

[126] DNA sequence analysis of ITS 1&2 rRNA. The panel asked the DP drafting group to clarify if cloning is necessary for obtaining the sequence, noting that cloning is a common practice to obtain the sequences when there are several copies of ITS.

[127] Interpretation of results for sequence analysis. It was noted that there is general information about sequence analysis and genetic distances. However, specific information for the pests, such as accession numbers, percentage of homology and references, was missing. This should be revised by DP drafting group.

[128] Controls for molecular tests. Some participants queried if controls were needed for restriction fragment length polymorphism (RFLP) to ensure the enzymes were active. The discipline lead explained that it might be needed because it is fundamental to identify the correct pattern of restriction. The panel agreed that this should be mentioned in the test section (i.e. "PCR-RFLP for *Anguina* spp.") to ensure the "controls" section should remain the same as provided in the *Instruction to Authors*.

[129] Records. The panel suggested to include information of permanent slides as there was a description on how to prepare permanent slides.

[130] The TPDP:

(9) *invited* the DP drafting group to consider the TPDP recommendations and consequently adjust the draft DP for *Anguina* spp. (2013-003). The revised draft DP will then be forwarded to the TPDP for e-decision for approval for recommending to the SC for member consultation.

4. Updates from relevant IPPC bodies

4.1 Updates from other relevant IPPC meetings

[131] The TPDP Steward, Ms Jane CHARD (UK), presented a summary[21] of TPDP relevant issues arising from the SC May 2015 meeting, transmitting profound thanks from the SC to the panel and authors of the DP drafting groups for the immensely important work they do and the high quality protocols they develop[22].

[21] 11_TPDP_2015_Jun

[22] 2015 May SC meeting report: https://www.ippc.int/en/publications/81111/

[132] She was pleased to inform the panel that the presentation and the update on the TPDP work, made at the SC May 2015 meeting, were now publicly available on the IPP TPDP webpage[23]. The TPDP discussed the issues arising from the SC May 2015 meeting regarding the subject *Anoplophora* spp. (2004-020). The SC had stressed the importance of a DP for this pest but recognized that there are challenges for the present DP drafting group in developing the draft. Therefore, the status of the DP has been changed to "pending" subject to finding experts and establishing a full DP drafting group.

[133] The TPDP members explained that they had enquired with the current DP drafting group members for *Anoplophora* spp. (2004-020) on their commitment to continue work and those responses had not been positive. Some authors informed the TPDP that they did not have time to allocate for the development of this draft and others replied they felt that there is no need to develop a DP because there are scientific publications available to help with the detection and identification of this pest. The TPDP confirmed that the members had attempted, without success, to identify other authors to join the DP drafting group.

[134] The TPDP reiterated the importance of this pest and their support to develop an internationally harmonized DP, which is different from a scientific publication. Depending on the outcomes from the SC members' liaison with the current DP drafting group members and identification of experts to join the DP drafting group, the TPDP asked the Secretariat try to contact and engage the current DP drafting group and possibly to open a call for authors for *Anoplophora* spp. (2004-020), as a last resort.

[135] The TPDP steward gave a brief update on TPDP relevant issues from the Tenth Session of the Commission on Phytosanitary Measures (CPM-10, 2015)[24] (see also the TPDP April 2015 virtual meeting report where a detailed updated was provided[25]).

[136] She informed the panel that a draft CPM recommendation on pest diagnosis had been proposed and explained the background for the need of a recommendation. The recommendation would be processed through the established process for adoption of CPM recommendations with a consultation period.

[137] The panel felt it was a good initiative to promote pest diagnosis discussions among IPPC contracting parties, but noted that the recommendation should include: i) costs and impacts; ii) encouragement to develop educational material on pest diagnosis and taxonomy; iii) encouragement of NPPOs to identify their needs and shortcomings in terms of pest diagnosis and surveillance. TPDP members were encouraged to submit these views to the IPPC Secretariat via their NPPOs.

[138] The TPDP:

(10) *noted* the update from the SC May 2015 meeting.

(11) *considered* the need to "hand-pick" some experts to be part of DP drafting group for *Anoplophora* spp. (2004-020) and *asked* panel members to obtain the curricula for suggested authors, if any, for the next virtual meeting.

(12) *asked* the Secretariat to open a call for authors for *Anoplophora* spp. (2004-020) if no new experts were identified by the SC and the current DP drafting group members could not be engaged.

[23] TPDP public page: https://www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-diagnostic-protocols/

[24] The final report of the CPM-10 is available at: https://www.ippc.int/en/core-activities/governance/cpm/

[25] 05_TPDP_2015_Apr

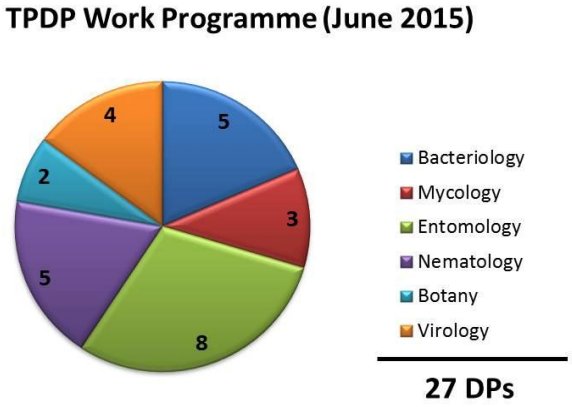
5. Overview of the TPDP work programme

5.1 General overview of DPs and next steps

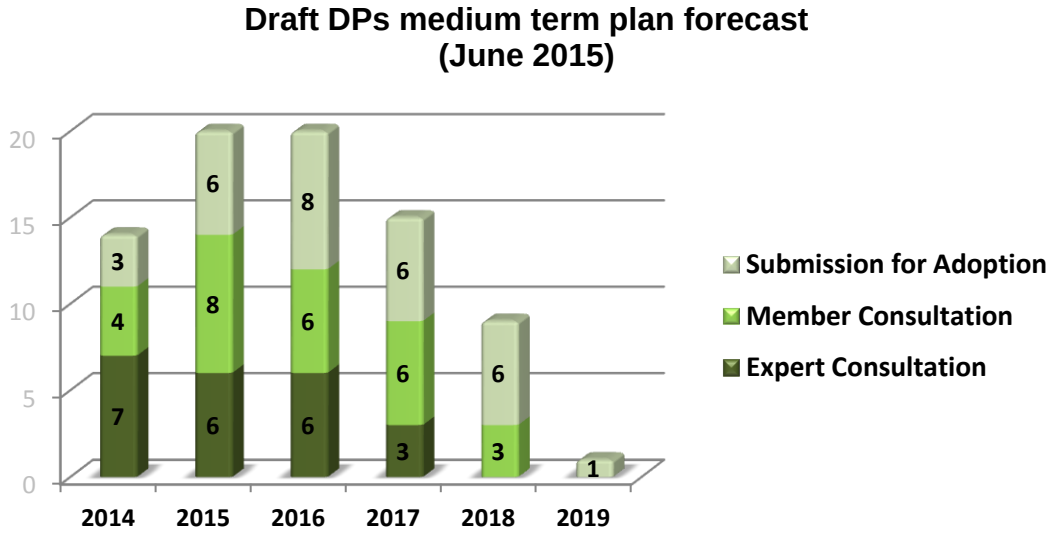
[139] The Secretariat presented the current status of the TPDP work programme (see figures 1 and 2) and highlighted the dates when it is expected the 27 DPs will reach the various steps in the standard setting process (i.e. expert consultation, member consultation, submission to the SC for approval for adoption, notification period)[26]. The Secretariat once again thanked the panel and the DP drafting groups for their work, noting that there will be a peak production of DPs with a forecast of 20 draft DPs going through the Standard Setting process during 2015 and 2016.

[140] The Secretariat noted that the responses to comments from member consultations are presented to the SC for their review, and that the SC responses to comments will be posted publicly on the International Phytosanitary Portal (IPP – www.ippc.int). To facilitate the review, standard wording for the responses to member comments should be used.

[141] **Figure 1.** Number of subjects (DPs) per topic (discipline) under the Technical Panel on Diagnostic Protocols (TPDP) work programme (updated on 2015-06-10).



[142] **Figure 2.** Draft diagnostic protocols (DPs) medium term plan forecast: Number of diagnostic protocols under the Technical Panel on Diagnostic Protocols (TPDP) work programme per year (forecast) under different stages of the Standard Setting Process (updated on 2015-06-10).



[26] Presentation available at the restricted TPDP work area: https://www.ippc.int/en/work-area-pages/technical-panel-on-diagnostic-protocols-tpdp/2015-june-shanghai/

5.2 General overview of status of protocols

Reports on individual DPs status by discipline leads (scope and status of protocols)

[143] The Secretariat introduced the *List of topics for IPPC standards* and outlined the status of the draft DPs[27]. Each discipline lead provided updates on development of the individual draft DPs. Discipline leads and referees were adjusted for some draft DPs and updated information will be reflected in the List of Topics for IPPC Standards.

[144] The main points raised on individual draft DPs were as follow:

[145] ***Erwinia amylovora* (2004-009).** The DP drafting group is reviewing the member comments and revising the draft DP. The revised draft DP is expected to be presented to the TPDP in September 2015.

[146] ***Liberibacter* spp. / *Liberobacter* spp. on *Citrus* spp. (2004-010).** The draft DP is under development and a first version is expected to be ready in January 2016 to be submitted to an expert consultation with the aim to have this draft DP discussed at the next TPDP face-to-face meeting.

[147] ***Striga* spp. (2008-009).** The DP drafting group was recently formed and a draft DP is under development. The discipline lead intends to have the draft submitted to an expert consultation in January 2016 with the aim to have this draft DP discussed at the next TPDP face-to-face meeting.

[148] ***Xylella fastidiosa* (2004-024).** The DP drafting group was re-formed but the current lead author has changed employment and will not be able to lead so Ms Helga REISENZEIN (Austria) will be taking over this role as lead author. It was mentioned that the DP drafting group is discussing new findings of this pest in Europe and reviewing new diagnosis tests that are being developed. The draft DP is expected to be submitted to an expert consultation in January 2016 with the aim to have this draft DP discussed at the next TPDP face-to-face meeting.

[149] ***Puccinia psidii* (2006-018).** The DP drafting group was recently re-formed and a draft DP is under development. The draft DP is expected to be presented to an expert consultation in January 2016 with the aim to discuss the draft DP discussed at the next TPDP face-to-face meeting.

[150] ***Bactrocera dorsalis* complex (2006-026).** The DP drafting group is waiting for more information on synomyzation of *Bactrocera* species. The discipline lead hopes to finalize the first version of the draft and submit it to an expert consultation in February 2016 with the aim to discuss the draft DP at the next TPDP face-to-face meeting.

[151] ***Conotrachelus nenuphar* (2013-002).** The draft DP is under development and a first version is expected to be ready in September 2015 to be submitted to an expert consultation in the fourth quarter of 2015. It was pointed out that discussions on this draft DP might be done in a TPDP virtual meeting or via TPDP e-forum.

[152] **Begomoviruses transmitted by *Bemisia tabaci* (2006-023).** The DP drafting group was recently re-formed, however, the discipline lead had not managed to receive an update on the development of the draft DP. The discipline lead will ask the DP drafting group finalize the first draft and submit it to an expert consultation in January 2016 with the aim to discuss the draft DP at the next TPDP face-to-face meeting.

[153] ***Ips* spp. (2006-020).** The draft DP is under development and it is expected that the first draft will be submitted to an expert consultation in February 2016 with the aim to be discussed at the next TPDP face-to-face meeting. The discipline lead requested guidance on the scope of the draft and the panel explained that the scope was for diagnosis at genus level.

[27] 12_TPDP_2015_Jun; *List of Topics for IPPC Standards*: https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/

[154] **Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028).** It was noted that this draft DP is still with "pending status" because, in spite of there being several molecular techniques available there are currently no validation data. The discipline lead highlighted that it is very difficult to develop a DP on family level (i.e. Tephritidae) and suggested that the scope could be changed. The panel considered splitting the subject into other draft DPs. The TPDP agreed to discuss this further in their next virtual meeting and the lead author will produce a discussion paper for the next virtual meeting. Any recommendation as to splitting the DP would need approval by the SC.

Review of DP drafting groups associated with the work programme

[155] The panel reviewed the progress of the DP drafting groups and noted that some authors had not been in contact with the discipline leads. It was agreed that the relevant panel members would try to establish contact with these authors by the beginning of August 2015 and follow up on this with the Secretariat if they encountered difficulties. Regarding unresponsive authors, the panel asked that the Secretariat contact them to understand their continued commitment. It was also recalled that the authors who are not interested in participating in the process any longer should formally resign.

[156] The panel members agreed to confirm the composition of the DP drafting groups by 10 August 2015 to the Secretariat. The panel noted the DP drafting groups' composition and contact information are publicly available on the TPDP page of the IPP[28].

6. Procedures and guidance related to TPDP

TPDP Working procedures[29]

[157] There were no comments.

TPDP Instructions to authors (Checklist for authors, Criteria for prioritization of protocols and Draft standardized template for draft diagnostic protocols)

[158] The Steward introduced the *Instructions to authors*[30]. It was recalled that the *Instructions to authors* provide guidelines to help DP drafting groups to develop DPs.

[159] The Secretariat highlighted that the majority of the *Instruction to Authors* is replicated in the *IPPC Style Guide*[31] and asked that the Style Guide be shared with DP drafting groups. It was explained that the Secretariat is revising the Style Guide so that it is more concise and that the intention was to include the *Instructions to authors* as an appendix. This would help drafting groups because they would have a complete set of information (guidance on content, terminology, references, etc.) and would not have to refer to two documents. Additionally, an annotated draft DP template as a Word document would be developed which the drafting groups should use with the aim to facilitate their work.

[160] The TPDP acknowledged that this was a good proposition to avoid duplication of information however, the TPDP expressed concerns on including the *Instruction to Authors* in the IPPC Style Guide as they feared it would be a very long document and not easy to use. However, the panel recognized that if the *IPPC Style Guide* would be reduced, the proposed suggestion by the Secretariat could be suitable. The panel also felt that this would need a thorough review and preferred to have this after the current high peak period of the development of DPs slows down. The TPDP favor to have the *Instruction to Authors* publicly available on the TPDP page, as it currently is, and a link on the TPDP page to the *IPPC Style Guide* could be provided.

[28] IPPC Diagnostic Protocols (DPs) drafting groups: https://www.ippc.int/en/publications/2582/

[29] TPDP Working procedures: https://www.ippc.int/en/publications/1187/

[30] 19_TPDP_2015_Jun; TPDP Instructions to authors: https://www.ippc.int/en/publications/1180/

[31] IPPC Style Guide: https://www.ippc.int/en/publications/132/

[161] Changes noted throughout this report will be incorporated into the *Instructions to authors* and the SC will be invited to note the changes.

Checklist for discipline leads and referees[32]

[162] There were no comments.

7. Follow-up on actions from the TPDP previous meetings

Quality Assurance issues

[163] The *Insects and mites* discipline lead, Mr Norman BARR (USA) introduced the paper[33] related to issues of quality assurance (QA) and what common words, related to QA should be used in IPPC diagnostic protocols. He mentioned that a previous version of this document had been revised by the TPDP in its 2014 July meeting and that the panel agreed that the document should serve as an internal resource for discipline leads. It was noted that the document would be useful for discipline leads, both during the drafting and the review stages as well it would help avoid inconsistency usage of terms across subject disciplines (e.g. Entomology, Virology).

[164] The panel agreed to include references for the terms defined by other organizations (e.g. ISO) and used in IPPC DPs.

[165] It was pointed out that the term "internal controls", as outlined in this document, is not used consistently in draft DPs, and that the document should be revised accordingly. It was noted out that in Chinese the wording "sensitivity" is confused with "analytical sensitivity". It was suggested to have more explanation on the word commonly used in QA for "analytical sensitivity" and to revise "internal controls".

[166] Suggestion to revise "reference material" was made. It was noted that "ring test" there is no need to have explanation because this term is not used in IPPC DPs.

[167] The TPDP:

(13) *reviewed* the Quality assurance document associated with DPs for regulated pests.

(14) *agreed* that the document be posted on the TPDP restricted work area page on the IPP for future references, as needed, by the panel members.

(15) *encouraged* TP members to submit comments and suggestions of other terms to be added in this document to the lead (Mr Norman BARR) by 7 September 2015 (before the next TPDP virtual meeting), at which point the document will be revised to be presented to the TPDP in the next face-to-face meeting.

(16) *asked* Ms Geraldine ANTHOINE to help the lead to search and include references to the terms described in the document.

Best practices for sequencing

[168] The *Insects and mites* discipline lead introduced the paper[34] noting that the discipline lead for *Fungi and fungus-like organisms* (2006-006) had reviewed this document. It was pointed out that this was a draft document for further consideration by the panel. The main points of discussion were as follows:

[169] Controls for sequencing. One participant noted that the quality of the controls is crucial for the quality of the sequences, highlighting this issue as fundamental for QA. The panel added information on the type of controls for sequences to clarify this point.

[170] Direction of the sequences. It was pointed out that sequencing should be done for two directions (forward and reverse). One member mentioned that usually the two directional sequencing is used for

[32] Checklist for TPDP discipline leads and referees: https://www.ippc.int/en/publications/81302/

[33] 13_TPDP_2015_Jun

[34] 14_TPDP_2015_Jun

identification and for a sequence database. Another member pointed out that for some cases it needs to be sequenced in both directions to ensure the quality of the sequence. The panel suggested adding information on the range, as examples, for phred scores, as phred scores are also cited as examples.

[171] DNA sequence library used. It was suggested to include other sequence libraries, as there are a few that can be used.

[172] Interpretation of comparisons: phylogenetic trees. There was a discussion about the use of phylogenetic tree for analysis as, depending on which type of tree is built, different results can be obtained. The panel agreed that this information should be updated at a later stage.

[173] Next generation sequencing. A participant pointed out that this document excludes next generation sequencing. The panel agreed that this topic needs further discussion to have a consolidated view on how it would be translated to DPs and how it would apply to the drafting work, and that a discussion paper should be prepared for the next TPDP face-to-face meeting.

[174] The TPDP:

(17) *reviewed* and *revised* the "Best practices for sequencing" document.

(18) *encouraged* TP members to submit comments and suggestions on this document to the lead (Mr BARR), by 7 September 2015 (before the next TPDP virtual meeting). The lead will revise the document for presentation the next TPDP face-to-face meeting for possible inclusion into the QA document.

(19) *asked* Mr Brendan RODONI to prepare a paper on "next generation sequencing" to be presented at the next TPDP face-to-face meeting.

Communications material (DPs drafting groups): Introduction to authors - brochure

[175] The Secretariat introduced the draft brochure[35] and welcomed comments, noting that the intended target audience was DP authors. The brochure was scheduled to be released by the end of August 2015.

[176] The panel expressed appreciation to the Secretariat for this and they found the brochure to be informative and felt that it would help DP authors to gain a better understanding of the IPPC Standard setting process and hereby, hopefully, also have a higher engagement and motivation for the development of DPs.

[177] The panel asked that some information be added (e.g. the flow chart of the standard setting process and explanation of the steps related to editing by the Secretariat and revision of the draft by the DP drafting group). The panel also suggested providing the information about time periods of the different steps.

[178] Regarding the section "A Fun Tale - Or how a diagnostic protocol saved the day", one member volunteered to try to obtain a true story that could be included; he would request his government's authorization to do this.

[179] The TPDP:

(20) *encouraged* TP members to submit comments and suggestions on the draft "Introduction to authors" brochure to the Secretariat by 10 August 2015.

8. Update on the work of other organisations

International Organization for Standardization (ISO)

[180] The discipline lead for *Viruses and phytoplasmas* (2006-009), Mr Delano JAMES (Canada), updated on the project ISO/TC 34/SC 16 *Horizontal methods for molecular biomarker analysis*. ISO is

[35] 18_TPDP_2015_Jun

developing the standard *General requirements for molecular biology analysis for detection and identification of destructive organisms in plants and derived products* now, which overlaps with some of the work of the IPPC in relation to DPs.

[181] He informed the panel that a draft ISO standard was developed under the guidance of a new convener. The draft ISO standard was sent for a vote and to collect comments from the committee work group members and there will be a meeting in July 2015 to address the comments. The draft ISO standard is scheduled to be submitted for commenting among ISO members this year.

[182] Some participants found that the scope of the draft standard had been changed considerably and that it was now too broad: The original scope covered molecular tools, including PCR and variations for validation, whereas it now included other diagnosis tools (e.g. ELISA). The relation of this new draft ISO standard with ISO 17025 was discussed.

[183] The Secretariat noted that IPPC Secretariat, in its capacity as an observer, had submitted comments, and recalled that CPM-10 2015 had been informed about the development of this draft.

[184] The TPDP:

(21) *noted* the update on the ISO project ISO/TC 34/SC 16 *Horizontal methods for molecular biomarker analysis*.

(22) *asked* Mr Delano JAMES to inform the TPDP on the outcomes of the meeting on *Horizontal methods for molecular biomarker analysis* (ISO/TC 34/SC 16).

(23) *asked* Mr Delano JAMES to contact the convener to ask for clarification on the reasons for developing this standard.

Global Taxonomy Initiative (GTI)

[185] The discipline lead for *Insects and Mites* (2006-007), Mr Norman BARR, informed the panel of recent activities under the GTI. He mentioned that a training workshop was organized by GTI and that he had not had much contact with the GTI during the last year.

[186] The panel recalled that the relationship between the TPDP and the GTI was to be based on building synergies and the TPDP would investigate how the GTI can help them develop better diagnostic protocols, and suggested that the lead investigate this further.

[187] The TPDP:

(24) *noted* the update on the GTI.

(25) *asked* Mr Norman BARR to obtain more information about the GTI work and how a synergistic relationship could be established between the TPDP and GTI.

9. TPDP work plans

TPDP Work plan 2015-2016

[188] The TPDP reviewed their work plan for 2015-16 and modified it according to decisions taken in this meeting (Appendix 4). The panel also reviewed their medium term plan as presented in Appendix 5.

[189] For ease of reference, a list of action points arising from the meeting is attached as Appendix 6.

TPDP medium term plan

[190] The Secretariat outlined the proposed medium term plan. It was pointed out that "revision of adopted DPs" should be included, as it is a task in the TPDP specification[36]. The first adopted DP (DP 1: *Thrips palmi* Karny) was adopted in 2010 and according to ISPM 27 (*Diagnostic protocols for regulated pests*), the TPDP members should review the DPs in their discipline every 5 years or as

[36] Specification TP 1 - Technical Panel on Diagnostic Protocols: https://www.ippc.int/en/publications/1297/

determined by the TPDP. In this context, the Secretariat recalled that there is a procedure established for the revision of adopted DPs[37] which mentions that:

On a regular basis, the TPDP members review existing DPs in their disciplines. It was considered appropriate that adopted DPs be reviewed every 5 years unless a specific issue was raised. In particular, the TPDP members for the discipline should make a literature review, and bring to the attention of the TPDP any new literature that may have an impact on the DP.

[191] The TPDP discussed the criteria for a minor change, because a minor change does not need to go for member consultation. New taxonomy and new diagnostic tools could be considered as major changes, in contrast with minor changes such as editorial issues. The need for revisions of DPs will be put on the agenda for the face to face meeting next year.

[192] The Secretariat also noted that the IPPC Secretariat opened a call for topics recently[38] where propositions for revision or development of new DPs can be submitted.

The TPDP briefly discussed the challenges and the importance of the TPDP work. TPDP discussed the need for a 5-10 year work plan. Some felt that a review of the panel's work would be beneficial to better plan in the medium term. The panel highlighted some challenges to the production of DPs including: nomination of experts; length of time taken to get agreement between experts; DPs which cover several aspects (surveillance, testing of imports, confirmation of new pests in a country); cost of development of a DP; the need for continual updating. Regarding benefits, the major example was the IPPC DPs as global standards, i.e. scrutiny by all IPPC contracting parties, so consensus on reliable methods (sensitivity, specificity and reproducibility globally harmonize) should help to minimize disputes. Another aspect of importance of a harmonized DP is to aid the development of expertise and technical cooperation among contracting parties. The panel felt that more discussion on the challenges and importance of the TPDP would be beneficial, and proposed that a discussion paper be developed to be included in a TPDP virtual meeting in 2015

[193] The TPDP also noted that the term of the discipline lead for *Bacteriology*, Mr Robert TAYLOR, ends in May 2016. The discipline lead was keen to continue, pending confirmation from his employer. The TPDP supported the continued membership of the current discipline lead for Bacteriology.

[194] The TPDP:

(26) *invited* the SC to *approve* the TPDP medium term plan (Appendix 5).

(27) *agreed* to develop a paper on "Challenges and the importance of the TPDP work" for a TPDP virtual meeting and *asked* the TPDP Steward to develop this.

10. Date and Location of Next Meeting

[195] The next TPDP face-to-face meeting is scheduled for 11 – 15 July 2016 to be hosted by the NPPO of Jamaica, tentatively in Montego Bay.

[196] The panel discussed the possibility of inviting Ms Françoise PETTER (EPPO) to participate in the meeting. The panel felt that it would be positive for Ms PETTER to participate because she had contributed with valuable input into the last TPDP meetings, is aware of the TPDP procedures and, due to the large programme she manages, would help ensure synergies on an international level. The panel also noted that participation from regional plant protection organizations as observers may prove beneficial.

[197] The TPDP:

(28) *Requested* the SC to consider that Ms Françoise PETTER (EPPO) be invited to the 2016 TPDP face-to-face meeting, as invited expert.

[37] See IPPC Standard Setting procedure manual (section 7.4 Technical Panel on Diagnostic Protocols (TPDP)): https://www.ippc.int/en/core-activities/ippc-standard-setting-procedure-manual/

[38] IPPC 2015 call for topics: https://www.ippc.int/en/core-activities/calls-topics/

11. Other Business

Detection of viable pests by molecular tools

[198] The panel briefly discussed the detection of viable organisms by methods and tests being described in DPs, as this is a horizontal issue, especially detection of pests in seeds and in wood material (e.g. treated wood and the pine wood nematode (*Bursaphelenchus xylophilus*)), noting also that this issue has a link with pathogenicity tests.

[199] The panel found that, although the role of the TPDP is to develop DPs and not give direction on regulatory issues (the decision on whether to regulate or take action in response to a specific test result is taken by an NPPO), it is also important for the TPDP to evaluate methods in relation to their usefulness.

[200] Referring to the implementation aspects mentioned under task 11 of the TPDP specification, the TPDP agreed that there were grounds to further discuss the detection of viable pests by molecular tools.

[201] The TPDP:

(29) *agreed* to develop a discussion paper on "Diagnostic protocols and the detection of viable pests by molecular tools" for the next face-to-face meeting and *assigned* Ms Geraldine ANTHOINE (Discipline lead for nematodes) as lead.

EPPO programme on diagnostic protocols – update

[202] Ms Françoise PETTER made a presentation on the recent advances on EPPO programme on diagnostic protocols. It was mentioned that there are several horizontal standards under development, just as several standards are being revised either to include new techniques due to validation data been available or to align with adopted IPPC DPs.

[203] Some new projects were highlighted, such as: "Q-Collect" which includes a survey on collection of plant pests in Europe, and recommendations on quality criteria for collection and on establishment of a collection network. The project will be discussed in the upcoming Q-Collect Workshop (8-9 September 2015, Rome, Italy); "Testa" which is a project for seeds testing with several diagnostic protocols in preparation, it will be discussed at a workshop in December 2015; EUPHRESCO which is being hosted by EPPO.

[204] Ms PETTER also informed the panel of the presentation she had made during CPM-10 (2015) on the EPPO diagnostic protocols, highlighting the link with the IPPC DPs and the TPDP. At this CPM session, there had been other events on pest diagnosis in which EPPO had participated (CPM-10 side session on the "International Plant Sentinel Network" and CPM-10 Marketplace on "new diagnostic technologies demonstrations"), events that highlighted the importance of reliable identification of plant pests and pathogens.

12. Recommendations to the SC

[205] Recommendations to the SC are reported from previous sections of this report, for easy reference.

[206] The SC is invited to:

- *note* the name of the draft DP "*Liberibacter solanacearum* (2013-001)" was changed to "'*Candidatus* Liberibacter solanacearum'(2013-001)", to reflect current and accurate taxonomy information.

- *note* the name of the draft DP "*Fusarium moniliformis / moniliforme* syn. *F. circinatum* (2006-021)" was changed to "*Fusarium circinatum* (2006-021)" to reflect current and accurate taxonomy information.

- *note* the name of the draft DP "*Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)" was changed to "*Dendroctonus ponderosae* (2006-019)" to reflect current and accurate taxonomy information.

- *provide feedback* on the request made by the SC 2015 May that the relevant SC members to liaise with the current DP drafting group for *Anoplophora* spp. (2004-020) and try to encourage them to develop the draft.

- *provide feedback* on the request made by the SC 2015 May that asked SC members to identify experts for the DP drafting group for *Anoplophora* spp. (2004-020) and submit the names to the Secretariat.

- *note* the following TPDP information on the reasons why the DP on *Anoplophora* spp. (2004-020) had not been developed:

  - no positive responses were received from the current DP drafting group regarding their commitment to work on this draft because some expressed that they do not have time to allocate for the development of this draft and some replied they feel that there is no need to develop a DP for this pest.
  - unsuccessful attempts to identify other authors to form the DP drafting group were made by the TPDP, as there are few experts worldwide on this pest.

- *approve* the TPDP medium term plan (Appendix 5).

- *consider* Ms Françoise PETTER (EPPO) be invited to the 2016 TPDP face-to-face meeting (tentative: 11-15 July 2016, Montego Bay, Jamaica), as invited expert, as she had contributed with valuable input into the last TPDP meetings, is aware of the TPDP procedures and, due to the large programme she manages, would help ensure synergies on an international level.

13. Close of the meeting

Evaluation of the meeting

[207] The Secretariat informed that an electronic evaluation form had been created and invited all TPDP meeting participants to submit their evaluation for future improvement of TPDP meetings.

[208] The panel stressed the importance of having face-to-face meetings noting that they facilitate tremendously the work of the TPDP and the development of DPs.

[209] One participant noted that a prerequisite for a successful meeting was that the participants were well prepared. The Secretariat invited the TPDP members to consider carefully the importance of meeting deadlines.

Close

[210] The IPPC Secretariat thanked the panel members for their hard work, commitment and motivation. The Secretariat asked the panel members to extend the appreciation to all DP authors. The Secretariat also thanked the People's Republic of China National Plant Protection Organization and the AQSIQ, for hosting and organizing this meeting and appreciated the great hospitality and logistical arrangements.

[211] The TPDP thanked the Chairperson for managing the meeting successfully, the rapporteur for ensuring the decisions made were correctly recorded, the Steward for her valuable inputs and the Secretariat for their support.

[212] The Steward thanked the participants for their excellent work during the meeting and for their work between sessions and she wished them all success in their future work, and she thanked the host and organizer for their outstanding hospitality and logistical arrangements.

[213] On behalf of the TPDP, the Chairperson thanked People's Republic of China Plant Protection Organization and the AQSIQ for hosting the meeting and for the hospitality provided and also thanked all panel members for their continued dedication and the Secretariat.

Appendix 01 - Agenda

AGENDA ITEM	DOCUMENT NO.	PRESENTER
1. Opening of the meeting		Ms MOREIRA
1.1 Welcome	-	IPPC Secretariat / AQSIQ
1.2 Election of the Chairperson	-	IPPC Secretariat
1.3 Election of the Rapporteur		CHAIRPERSON
1.3 Review and adoption of the agenda	01_TPDP_2015_Jun	CHAIRPERSON
2. Administrative Matters		CHAIRPERSON
- Local information - Documents list - Participants list (and membership)	02_TPDP_2015_Jun 03_TPDP_2015_Jun 04_TPDP_2015_Jun (link to the TPDP membership)	Ms YIN Ms MOREIRA Ms MOREIRA
3. Scrutiny of draft diagnostic protocols		CHAIRPERSON
3.1 *Liberibacter solanacearum* (2013-001) (Priority 1) - Checklist for discipline leads and referees	2013-001 17_TPDP_2015_Jun	Bacteriology discipline lead (Mr TAYLOR)
3.2 *Fusarium moniliformis / moniforme* syn. *F. circinatum* (2006-021) (Priority 2) - Summary of comments from expert consultation - Checklist for discipline leads and referees	2006-021 05_TPDP_2015_Jun 15_TPDP_2015_Jun	Mycology discipline lead (Mr de GRUYTER)
3.3 *Phytophthora ramorum* (2004-013) (Priority 2) - Summary of comments from expert consultation - Checklist for discipline leads and referees	2004-013 06_TPDP_2015_Jun 16_TPDP_2015_Jun	Mycology discipline lead (Mr de GRUYTER)
3.4 *Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019) (Priority 3) - Summary of comments from expert consultation - Checklist for discipline leads and referees	2006-019 07_TPDP_2015_Jun 08_TPDP_2015_Jun	Entomology discipline lead (Mr BARR)
3.5 *Anguina* spp. (2013-003) (Priority 3) - Summary of comments from expert consultation - Checklist for discipline leads and referees	2013-003 09_TPDP_2015_Jun 10_TPDP_2015_Jun	Nematology discipline lead (Ms ANTHOINE)
4. Updates from relevant IPPC bodies		CHAIRPERSON
4.1 Updates from other relevant IPPC meetings - CPM-10 - SC May 2015	11_TPDP_2015_Jun	Steward (Ms CHARD)
5. Overview of the TPDP work programme		CHAIRPERSON
5.1 General overview of DPs and next steps	(presentation)	Ms MOREIRA

AGENDA ITEM	DOCUMENT NO.	PRESENTER
5.2 General overview of status of protocols - Reports on individual DPs status by discipline leads (scope and status of protocols) - Review of DP drafting groups associated with the work programme	12_TPDP_2015_Jun Link to IPP List of topics for IPPC Standards Link to IPP IPPC DPs drafting groups list	Discipline leads / Ms CHABAANE
6. Procedures and guidance related to TPDP		CHAIRPERSON
6.1 TPDP procedures: - TPDP Working procedures - TPDP Instructions to authors (Checklist for authors, Criteria for prioritization of protocols and Draft standardized template for draft diagnostic protocols) - Checklist for discipline leads and referees	19_TPDP_2015_Jun TPDP Working procedures TPDP Instruction to authors Checklist for discipline leads and referees	IPPC Secretariat / Steward (Ms CHARD)
7. Follow-up on actions from the TPDP previous meetings		
- Quality Assurance issues - Best practices for sequencing - Communications material (DPs drafting groups): Introduction to authors - brochure	13_TPDP_2015_Jun 14_TPDP_2015_Jun 18_TPDP_2015_Jun	Entomology discipline lead (Mr BARR) Mr BARR and Mycology discipline lead Mr De GRUYTER Ms MOREIRA
8. Update on the work of other organisations		CHAIRPERSON
- ISO (especially regarding draft ISO standard 13484) - Global Taxonomy Initiative (GTI)	- -	Virology discipline lead (Mr JAMES) Entomology discipline lead (Mr BARR) Ms MOREIRA
9. TPDP work plans		CHAIRPERSON
- TPDP 2015-2016 work plan - TPDP medium term plan	(To be prepared during the meeting)	IPPC Secretariat
10. Date and location of next meeting	-	CHAIRPERSON
11. Other business	-	CHAIRPERSON
12. Recommendations to the SC		CHAIRPERSON
13. Close of the meeting - Evaluation of the meeting - Close	-	 IPPC Secretariat CHAIRPERSON

Appendix 02 - Documents list

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
Draft Diagnostic Protocols			
2006-021	3.2	*Fusarium moniliformis / moniforme* syn. *F. circinatum* (2006-021)	2015-05-28
2004-013	3.3	*Phytophthora ramorum* (2004-013)	2015-05-28
2006-019	3.4	*Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)	2015-05-28
2013-003	3.5	*Anguina* spp. (2013-003)	2015-05-28
2013-001	3.1	*Liberibacter solanacearum* (2013-001)	2015-06-09
Other documents			
01_TPDP_2015_Jun	1.3	Agenda	2015-06-05
02_TPDP_2015_Jun	2	Local information	2015-03-12
03_TPDP_2015_Jun	2	Documents list	2015-06-05
04_TPDP_2015_Jun	2	Participants list	2015-06-05
05_TPDP_2015_Jun	3.2	Summary of comments from expert consultation system – *Fusarium moniliformis / moniforme* syn. *F. circinatum* (2006-021)	2015-05-28
06_TPDP_2015_Jun	3.3	Summary of comments from expert consultation system – *Phytophthora ramorum* (2004-013)	2015-05-28
07_TPDP_2015_Jun	3.4	Summary of comments from expert consultation system – *Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)	2015-05-28
08_TPDP_2015_Jun	3.4	Checklist for discipline leads and referees – *Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)	2015-05-28
09_TPDP_2015_Jun	3.5	Summary of comments from expert consultation system – *Anguina* spp. (2013-003)	2015-05-28
10_TPDP_2015_Jun	3.5	Checklist for discipline leads and referees – *Anguina* spp. (2013-003)	2015-05-28
11_TPDP_2015_Jun	4.1	Updates from other relevant IPPC meetings	2015-05-28
12_TPDP_2015_Jun	5.2	General overview of status of protocols	2015-05-28
13_TPDP_2015_Jun	7	Quality Assurance issues	2015-05-28
14_TPDP_2015_Jun	7	Best Practices for Sequencing	2015-05-28

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
15_TPDP_2015_Jun	3.2	Checklist for discipline leads and referees – *Fusarium moniliformis / moniforme* syn. *F. circinatum* (2006-021)	2015-06-05
16_TPDP_2015_Jun	3.3	Checklist for discipline leads and referees - *Phytophthora ramorum* (2004-013)	2015-06-05
17_TPDP_2015_Jun	3.1	Checklist for discipline leads and referees - *Liberibacter solanacearum* (2013-001)	2015-06-17
18_TPDP_2015_Jun	7	Introduction to authors - brochure	2015-06-05
19_TPDP_2015_Jun	6.1	Instructions to authors	2015-06-05

Appendix 03 - Participants list

A check (✓) in column 1 indicates confirmed attendance at the meeting.

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
TPDP members					
✓	Steward	**Ms Jane Chard** SASA, Scottish Government Roddinglaw Road Edinburgh EH12 9FJ **United Kingdom** Tel: (+44) 131 2448863 Fax: +44 131 2448940	jane.chard@sasa.gsi.gov.uk		
✓	Bacteriology	**Mr Robert Taylor** MAF Biosecurity New Zealand, New Zealand Ministry of Agriculture and Forestry (MAFBNZ) 231 Morrin Road St Johns PO Box 2095 Auckland 1140 **New Zealand** Tel: (+64) 9 909 3548 Fax: (+64) 9 909 5739	Robert.Taylor@mpi.govt.nz;	May 2011	2016
✓	Botany	**Ms Liping Yin** Plant Quarantine Laboratory Animal and Plant Inspection and Quarantine Technology Center Shanghai Entry-Exit Inspection and Quarantine Bureau 1208 Minsheng Road Shanghai, 200135 **China** Tel: (+86) 21 6854 6481 Fax: (+86) 21 6854 6481	yinlp@shciq.gov.cn; yinlp2013@hotmail.com	April 2008	2018 (2nd term 2013-2018)
	Entomology	**Ms Ana Lía Terra** Director, Biological Laboratories Ministry of Livestock, Agriculture and Fisheries Agricultural Services General Directorate Av. Millán 4703 Montevideo, CP.12900 **Uruguay** Tel: (+598) 2 304 3992 Fax: (+598) 2 304 3992	alt2912@live.com	April 2008	2018 (2nd term 2013-2018)
✓	Entomology	**Mr Norman B. Barr** Assistant Director Mission Laboratory 22675 N. Moorefiled Rd. Moore Air Base Bldg. S-6414 Edinburg, TX 78541 **USA** Tel. (+1) 956 205 7658 Fax: (+1) 956 205 7680	Norman.B.Barr@aphis.usda.gov	July 2012	2017

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Entomology	**Ms Juliet Goldsmith** Manager, Pest Risk Analysis Unit Ministry of Agriculture & Fisheries 193 Old Hope Road, Kingston 6, **Jamaica** Tel: 1876-9777160 Fax: 1876-9776992	jvgoldsmith@moa.gov.jm; julietgoldsmith@gmail.com	November 2014	November 2019
✓	Mycology	**Mr Johannes de Gruyter** Head, Mycology Department Plant Protection Service (NPPO) 15 Geertjesweg P.O. Box 9102 6706 HC Wageningen **Netherlands** Tel: (+31) 317 496 831 Fax: (+31) 317 421 701	j.degruyter@nvwa.nl	April 2008	2018 (2nd term 2013-2018)
✓	Nematology	**Ms Géraldine Anthoine** Directrice adjointe / Deputy head Chef d'unité coordination de la référence / Head of unit "coordination of reference activities" 7 rue Jean Dixméras 49044 ANGERS cedex 01 **France** Tel: (33) 241207431 Fax: (33) 240207430	geraldine.anthoine@anses.fr	April 2009	2019 2nd term April 2014-April 2019)
✓	Virology	**Mr Delano James** Head, Research Section, Canadian Food Inspection Agency Sidney Laboratory 8801 East Saanich Road Sidney, BC, V8L 1H3 **Canada** Tel: (+1) 250 363 6650 ext 235 Fax: (+1) 250 363 6661	Delano.James@inspection.gc.ca	Nov. 2010	2020 (2nd term November 2015-November 2020)
✓	Virology, and backup bacteriology	**Mr Brendan Rodoni** Biosciences Research Division AgriBio Centre Ring Road La Trobe University Bundoora 3083 **Australia** Tel: (+61) 3 417 308 194 Fax: (+61) 3 9800 3521	brendan.rodoni@ecodev.vic.gov.au	July 2012	2017

Other participants			
✓	Invited Expert	**Ms Françoise PETTER** European and Mediterranean Plant Protection Organization (EPPO) 21 boulevard Richard Lenoir 75011 Paris France Tel: +33 1 45 20 77 94 / Fax: +33 1 70 76 65 47	petter@eppo.int
✓	Host/ organizer	**Ms Luo JINYAN** Section chief /Senior agronomist, Shanghai Agricultural Technology Extension and Service Center, P.R. China Address: No. 628, Wuzhong Road, Minhang District, Shanghai Municipality, 201103 China Tel.: +86-021-64052029, 18101819186	toyanzi@126.com
✓	Host/ organizer	**Ms Wu CUIPING** Researcher, Animal ,Plant and Food Inspection Center of Jiangsu Entry-Exit Inspection and Quarantine Bureau, P.R. China Address: No.99,Zhonghua Road of Nanjing, 210001 China Tel.:+86-025-52345239, 13813836210	wucp@jsciq.gov.cn
✓	IPPC Secretariat	**Ms Adriana G. MOREIRA** Standard Setting Programme Specialist International Plant Protection Convention Secretariat (IPPC) Food and Agriculture Organization of the United Nations (FAO/UN) Viale delle Terme di Caracalla 00153 Rome, Italy Phone: + 39 06 570 55 809	Adriana.Moreira@fao.org
✓	IPPC Secretariat	**Ms Yosra CHABAANE** Standard Setting Consultant International Plant Protection Convention Secretariat (IPPC) Food and Agriculture Organization of the United Nations (FAO/UN) Viale delle Terme di Caracalla 00153 Rome, Italy Phone: + 39 06 570 53 615	Yosra.Chabaane@fao.org

Appendix 04 - TPDP 2015 - 2016 work plan

Action 1: 2015-2016 Diagnostic Protocols (DPs) overall management **Goals: a)** Track, manage and ensure high quality DPs **b)** Overall management of 27 draft DPs				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
DP drafting groups management: TPDP members to update lead authors and DP drafting groups on the outcomes of the 2015 TPDP meeting and inform the deadlines for the lead authors.	On going	On going	-	TPDP members
TPDP e-decisions: Draft DPs to SC for approval for adoption (DP notification period 15 December 2015) 1. *Ewinia amylovora* (2004-009) 2. *Bursaphelenchus xylophilus* (2004-016) 3. *Citrus tristeza virus* (2004-021) 4. *Tomato spotted wilt virus, Impatiens necrotic spot virus* and *Watermelon silver mottle virus* (2004-019) 5. *Xiphinema americanum sensu lato* (2004-025) 6. Genus *Liriomyza* (2006-017)	30 September 2015	09 October 2015	- **01/09/2015:** Revised draft DP + responses to member comments to the Secretariat - **02 – 11/09/2015:** IPPC editor - **25/09/2015:** Revised draft DP back to the Secretariat - **30/09/2015:** Open TPDP e-decision	- Respective discipline lead - Secretariat - Respective discipline lead - Secretariat
TPDP e-decisions: DPs intended to be submitted to the 2016 member consultation (MC) period 1. *Phytophthora ramorum* (2004-013) 2. *Anguina* spp. (2013-003)	02 November 2015	10 November 2015	- **15/09/2015:** Revised draft DP to the Secretariat - **02 – 11/09/2015:** IPPC editor - **28/10/2015:** Revised draft DP to the Secretariat	- Respective discipline lead - Secretariat - Respective discipline lead

TPDP e-decisions: Draft DPs to SC for approval for adoption (DP Notification Period 01 July 2016) 1. *Sorghum halpense* (2006-027) 2. *Aphelenchoides besseyi, A. ritzemabosi* and *A. fragariae* (2006-025) 3. *Xanthomonas fragariae* (2004-012)	29 February 2016 or April 2016	11 Mar 2016 or April 2016	- **25/01/2016:** Revised draft DP + responses to member comments to the Secretariat - **26/01 – 05/02/2016:** IPPC editor - **22/02/2016:** Revised draft DP back to the Secretariat - **29/02/2016:** Open TPDP e-decision	- Respective discipline lead - Secretariat - Respective discipline lead - Secretariat
TPDP e-decisions: Draft DPs to SC for approval for adoption (DP Notification Period 15 December 2016) 1. *Fusarium circinatum* (2006-021) 2. *Phytophthora ramorum* (2004-013) 3. *Dendroctonus ponderosae* (2006-019) 4. *Anguina* spp. (2013-003)	03 October 2016	12 October 2016	- **01/09/2016:** Revised draft DP + responses to member comments back to the Secretariat - **04 – 18/09/2016:** IPPC editor - **29/09/2016:** Revised draft DP back to the Secretariat - **03/10/2016:** Open TPDP e-decision	- Respective discipline lead - Secretariat - Respective discipline lead - Secretariat
TPDP virtual meetings	17 September 2015 04 November 2015 16 March 2016 02 June 2016 06 September 2016 03 November 2016	-	(see documents and draft DPs in the various sections of the TPDP June 2015 meeting report) *Notes:* 16 March 2016 (Tentative: *Conotrachelus nenuphar* (2013-002))	- Secretariat and TPDP members

Action 2: Call for Authors **Goals:** Collect nominations of experts around the world to help the development of ensure high quality DPs.				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
Tentative: Call for authors for *Anoplophora* spp. (2004-020)	-	-	1. Ask feedback from SC members. 2. Open call for authors	- Secretariat - Secretariat

Action 3: Expert Consultation on draft Diagnostic Protocols (ECDPs) **Goals: a)** Ensure improvement on quality for the development of DPs, through inputs and feedback, in a scientific basis, from a wider number of experts worldwide not part of the DP drafting groups **b)** Facilitate the work to submit 9 DPs to the ECDPs				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
2015 Third ECDPs: 1. *Liberibacter solanacearum* (2013-001) 2. *Conotrachelus nenuphar* (2013-002)	21 September 2015	30 November 2015	- **14/09/2015:** Revised version of the draft DP back to the Secretariat - **07/12/2015:** Compile Expert Comments and send them to the respective discipline lead	- Respective discipline lead - Secretariat
2016 First ECDPs: 1. *Striga* spp. (2008-009) 2. *Xylella fastidiosa* (2004-024) 3. *Liberibacter* spp. / *Liberobacter* spp. on *Citrus* spp. (2004-010) 4. *Puccinia psidii* (2006-018) 5. *Ips* spp. (2006-020)	29 January 2016	29 March 2016	- **25/01/2016**: Revised version of the draft DP to the Secretariat - **04/04/2016**: Compile Expert Comments and send them to the respective discipline lead	- Respective discipline lead - Secretariat
2016 Second ECDPs: 1. *Bactrocera dorsalis* complex (2006-026) 2. Begomoviruses transmitted by *Bemisia tabaci* (2006-023)	26 February 2016	25 April 2016	- **15/02/2016**: Revised version of the draft DP to the Secretariat - **02/ 05/ 2016**: Compile Expert Comments and send them to the respective discipline lead	- Respective discipline lead - Secretariat

Action 4: 2016 TPDP meeting (face to face meeting: Montego Bay, Jamaica) **Goal:** Discuss deeply the technical content of draft DPs, as well as challenges and strengthens of the panel and review the TPDP work programme.				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
1. *Striga* spp. (2008-009) 2. *Xylella fastidiosa* (2004-024) 3. *Liberibacter* spp. / *Liberobacter* spp. on *Citrus* spp. (2004-010) 4. *Puccinia psidii* (2006-018) 5. *Ips* spp. (2006-020) 6. *Bactrocera dorsalis* complex (2006-026) 7. Begomoviruses transmitted by *Bemisia tabaci* (2006-023) 8. Tentative: *Conotrachelus nenuphar* (2013-002)	11 July 2016	15 July 2016	- **15/09/2015:** Feedback on a more realistic scenario of the draft DPs - **25/01/2016** or **15/02/2016** Submission of the revised draft DP to the Secretariat for the ECDP - **23/03/2016:** Invitation sent (+ draft agenda) - **30/05/2016:** deadline to send all papers related to the meeting - **10/06/2016:** posting deadline of all draft DPs - **24/06/2016:** posting deadline of all papers	- Respective Discipline lead - Respective Discipline lead - Secretariat - Respective Discipline lead/ Secretariat - Secretariat - Secretariat

Action 5: Member Consultation (MC) on draft ISPMs **Goals: a)** To ensure a transparent and inclusive process for the development of high quality DPs **b)** Facilitate the work to submit 9 DPs to the Member Consultation				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
2015 July MC 1. *Aphelenchoides besseyi, A. fragariae* and *A. ritzemabosi* (2006-025) 2. *Xanthomonas fragariae* (2004-012) 3. *Sorghum halepense* (2006-027)	01 July 2015	30 November 2015	-	- Respective Discipline lead
2016 February MC: 1. *Fusarium circinatum* (2006-021) 2. *Phytophthora ramorum* (2004-013) 3. *Dendroctonus ponderosae* (2006-019) 4. *Anguina* spp. (2013-003)	01 February 2016	30 June 2016	- **01/10/ 2015**: Revised version of the draft DP to the Secretariat -**10 to 22/02/2015**: Discipline lead / lead author to work on the editor's comments - **02 to 10/11/ 2015**: TPDP e-decision.	- Respective Discipline lead - Discipline lead/ DP Drafting Group - Secretariat
2016 July MC: 1. *Liberibacter solanacearum* (2013-001) 2. *Conotrachelus nenuphar* (2013-002)	01 July 2016	30 November 2016	- **30/01/2016**: Revision of the drafts DP by DP drafting groups - **10 to 22/02/2016:** Discipline lead / lead author to work on the editor's comments - **25/02/2016- 11/03/2016:** TPDP e-decision	- Respective Discipline lead. - Discipline lead/ DP Drafting Group - Secretariat

Action 6: Notification period (NP) for draft DPs **Goals: a)** To ensure a transparent and inclusive process for the adoption of draft DPs **b)** Facilitate the work to submit 16 draft DPs for adoption				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
2015 July NP: 1. *Ditylenchus dipsaci* and *Ditylenchus destructor* (2004-017) 2. Phytoplasmas (2004-018) 3. Genus *Anastrepha* (2004-015)	01 July 2015	15 August 2015	-	- Respective Discipline lead
2015 December NP: 1. *Ewinia amylovora* (2004-009) 2. *Bursaphelenchus xylophilus* (2004-016) 3. *Citrus tristeza virus* (2004-021) 4. *Tomato spotted wilt virus, Impatiens necrotic spot virus* and *Watermelon silver mottle virus* (2004-019) 5. *Xiphinema americanum sensu lato* (2004-025) 6. Genus *Liriomyza* (2006-017)	15 December 2015	30 January 2016	- **01/10/ 2015**: Revised draft DP + responses to member comments to the Secretariat - **30/09/2015** to **09/10/2015**: TPDP e-decision	- Respective Discipline lead - Secretariat
2016 July NP: 1. *Aphelenchoides besseyi, A. fragariae* and *A. ritzemabosi* (2006-025) 2. *Xanthomonas fragariae* (2004-012) 3. *Sorghum halepense* (2006-027)	01 July 2016	15 August 2016	- **25/01/ 2016**: Revised draft DP + responses to member comments to the Secretariat - **29/02/2016** to **11/03/2016**: TPDP e-decision	- Respective Discipline lead - Secretariat
2016 December NP: 1. *Fusarium circinatum* (2006-021) 2. *Phytophthora ramorum* (2004-013) 3. *Dendroctonus ponderosae* (2006-019) 4. *Anguina* spp. (2013-003)	15 December 2016	30 January 2016	- **01/09/ 2016**: Revised draft DP + responses to member comments to the Secretariat - **03/10/2016** to **12/10/2016**: TPDP e-decision	- Respective Discipline lead - Secretariat

Appendix 05 - TPDP Medium Term Plan

TPDP Medium Term Plan	
Year	**Activities**
2015	• Submission of 3 draft DPs for SC approval for contracting parties notification period for adoption • Submission of 8 draft DPs for SC approval for member consultation • Expert consultation period: 6 draft DPs • TPDP face-to-face meeting preparation: Shanghai, China (5 draft DPs on the agenda) • Call for authors: possible for *Anoplophora* spp. • Call for expert for TPDP: possible Bacteriology (TBC) • TPDP to consider the workload and issues on diagnosis and potential work for the future.
2016	• Submission of 8 DPs for SC approval for contracting parties notification period for adoption • Submission of 6 DPs for SC approval for member consultation • Expert consultation period: 6 draft DPs • TPDP face-to-face meeting preparation: Montego Bay, Kingston (o Tentative agenda: 6-8 draft DPs, review of topics (DPs) submissions from 2015 Call for Topics, if any • Call for authors as needed • Call for expert for TPDP: possible Entomology, Virology (Bacteriology) (TBC)
2017	• Submission of 6 draft DPs for SC approval for contracting parties notification period for adoption • Submission of 6 DPs for SC approval for member consultation • Expert consultation period: 3 draft DPs • TPDP face-to-face meeting preparation: o Tentative agenda: 4-6 draft DPs • Call for authors as needed • Call for expert for TPDP: possible Mycology and Botany (TBC)
2018	• Submission of 6 draft DPs for SC approval for contracting parties notification period for adoption • Submission of 3 DPs for SC approval for member consultation • Expert consultation period: No forecast • TPDP face-to-face meeting preparation o Tentative agenda: 2 draft DPs, Revision of adopted DPs, New topics from 2015 Call for Topics • Call for authors as needed • Call for expert for TPDP: possible Nematology and Entomology (TBC)
2019	• Submission of 1 draft DPs for SC approval for contracting parties notification period for adoption • No forecast on draft DPs for submission for SC approval for member consultation • Expert consultation period: No forecast • TPDP face-to-face meeting preparation: o Tentative agenda: Revision of adopted DPs; New topics from 2015 Call for Topics • Call for authors as needed

Appendix 06 - Action points arising from the June 2015 TPDP meeting

	Action	Agenda Item	Responsible	Deadline
1.	TPDP members invited the SC to note the name of the draft DP "*Liberibacter solanacearum* (2013-001)" was changed to "'*Candidatus Liberibacter solanacearum'*(2013-001)	3.1	Secretariat	Next SC meeting
2.	TPDP members invited the Standards Committee (SC) to note the name of the draft DP "*Fusarium moniliformis* / *moniforme* syn. *F. circinatum* (2006-021)" was changed to "*Fusarium circinatum* (2006-021)"	3.2	Secretariat	Next SC meeting
3.	TPDP members asked Mr Norman BARR and Ms Geraldine ANTHOINE to prepare a draft paper with regards the use of "methods", "tests" and "assays" to be attached to the quality assurance document for the next TPDP meeting.	3.2	Mr Norman BARR and Ms Geraldine ANTHOINE	30 May 2016
4.	Review the draft DP for *Phytophthora ramorum* (2004-013) based on the TPDP comments before sharing with the DP drafting group.	3.3	Mr Hans de GRUYTER and Mr Robert TAYLOR	01 September
5.	TPDP members invited the Standards Committee (SC) to note the name of the draft DP "*Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)" was changed to "*Dendroctonus ponderosae* (2006-019)"	3.4	Secretariat	Next SC meeting
6.	Draft DPs revised at TPDP June 2015 meeting: Draft DPs back to Secretariat • *Liberibacter solanacearum* (2013-001) • *Phytophthora ramorum* (2004-013) • *Anguina* spp. (2013-003)	3.1, 3.3, 3.5	TPDP members (discipline leads and referees)	15 September 2015
7.	Draft DPs revised at TPDP June 2015 meeting: Draft DPs back to Secretariat • *Fusarium moniliformis* / *moniforme* syn. *F. circinatum* (2006-021) • *Dendroctonus ponderosae* syn. *Scolytus scolytus* (2006-019)	3.2, 3.4	TPDP members (discipline leads and referees)	01 October 2015
8.	TPDP members are invited to provide more information on the reasons why the DP for *Anoplophora* spp. (2004-020) had not been developed.	4.1	TPDP members	Next SC meeting
9.	TPDP members asked the Secretariat to try contact and engage the current DP drafting group to continue working on the development of this DP. It was noted that this would be last tentative contact establishment attempt.	4.1	Secretariat	No deadline set
10.	TPDP members asked the Secretariat to update them on the follow-up actions from the SC, as for the outcomes on the SC members liaison with the current DP drafting group and identification of experts to form the DP drafting group.	4.1	Secretariat	No deadline set
11.	TPDP members asked the Secretariat to open a call for authors for the draft DP *Anoplophora* spp. (2004-020) if no experts were identified by the SC and after the attempt to try contact and engage the current DP drafting group.	4.1	Secretariat	No deadline set
12.	TPDP members are invited to consider the need to "hand-pick" some experts to be part of DP drafting groups for *Anoplophora* spp. (2004-020) and asked the discipline leads of the respective draft DPs to get the CVs for those experts suggested for the next virtual meeting, if any	4.1	Mr Norman BARR and Ms Juliet GOLDSMITH	07 September 2015

	Action	Agenda Item	Responsible	Deadline
13.	TPDP members agreed to confirm the information of the DP drafting groups to the Secretariat.	5.2	TPDP members	10 August 2015
14.	Draft DPs out of February 2015 member consultation: Revised draft DP + responses to member comments • *Erwinia amylovora* (2004-009) • Genus *Liriomyza* (2006-017) • *Tomato spotted wilt virus* (TSWV), *Impatiens necrotic spot virus* (INSV) and *Watermelon silver mottle virus* (WSMoV) (2004-019) • *Bursaphelenchus xylophilus* (2004-016) • *Citrus tristeza virus* (2004-021) • *Xiphinema americanum sensu lato* (2004-025)	5.2	TPDP members (discipline leads and referees)	01 September 2015
15.	Draft DPs under July 2015 member consultation: Revised draft DP + responses to member comments • *Sorghum halepense* (2006-027) • *Aphelenchoides besseyi, A. ritzemabosi* and *A. fragariae* (2006-025) • *Xanthomonas fragariae* (2004-012)	5.2	TPDP members (discipline leads and referees)	28 February 2016
16.	Revise information on "teliomorph and anamorph" for fungi taxonomy in section 4.3 of the Instruction to Authors (Taxonomic Information).	6	Mr Hans de GRUYTER	10 August 2015
17.	TPDP members are encouraged to submit comments and suggestions of other terms to Mr Norman BARR to be added in the document '*Quality Assurance issues'*.	7	TPDP members	07 September 2015
18.	TPDP members asked Ms Geraldine ANTHOINE to help Mr Norman BARR to work on the draft document '*Quality Assurance issues'* and add references to the terms.	7	Ms Geraldine ANTHOINE and Mr Norman BARR	30 May 2016
19.	TPDP members are encouraged to submit comments and suggestions to Mr Norman BARR to the document 'Best practices for sequencing*'*.	7	TPDP members	07 September 2015
20.	TPDP members asked Mr Brendan RODONI to prepare a paper on "next generation sequencing" to be presented at the next TPDP face-to-face meeting.	7	Mr Brendan RODONI	30 May 2016
21.	TPDP members are invited to submit comments to Secretariat on the brochure '*An Introduction for Authors of IPPC Diagnostic Protocols'*	7	TPDP members	10 August 2015
22.	TPDP members asked Mr Delano JAMES to inform them on the outcomes of the meeting on Horizontal methods for molecular biomarker analysis (ISO/TC 34/SC 16).	8	Mr Delano JAMES	No deadline set
23.	TPDP members asked Mr Delano JAMES to try contact with the convener and ask for clarification on the reason for developing this standard (ISO/TC 34/SC 16).	8	Mr Delano JAMES	No deadline set
24.	TPDP members asked Mr Norman BARR to obtain more information about the GTI work and how a synergistic relationship could be established between the TPDP and GTI.	8	Mr Norman BARR	No deadline set
25.	TPDP members asked the Steward (Ms Jane CHARD) to develop a discussion paper on "*Challenges and the importance of the TPDP work*".	11	Ms Jane CHARD	26 October 2015

	Action	Agenda Item	Responsible	Deadline
26.	TPDP members asked Ms Geraldine ANTHOINE to develop paper on *"Diagnostic protocols x viability of pests"*.	11	Ms Geraldine ANTHOINE	30 May 2016