REPORT

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Technical Panel on Diagnostic Protocols (TPDP)

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Food and Agriculture Organization of the United Nations

CONTENTS

1. Opening of the meeting

1.1 Welcome

[1] The International Plant Protection Convention (IPPC) Secretariat (hereafter "IPPC Secretariat"), welcomed the participants of the thirteenth meeting of the Technical Panel on Diagnostic Protocols (TPDP). The IPPC Secretariat stressed that diagnostic protocols (DPs) are crucial for surveillance, pest status, support eradication programs, the application of proper phytosanitary treatments and export certification. The IPPC Secretariat thanked the host, the European and Mediterranean Plant Protection Organization (EPPO), the panel members for the work done over the years on the development of DPs, and also all the authors who are part of the DP drafting groups. The IPPC Secretariat recalled that the main role of the TPDP is to oversee the production of IPPC diagnostic protocols (DPs) as directed by the Standards Committee (SC). The tasks are set out in Specification TP1[1].

[2] The IPPC Secretariat highlighted that the TPDP members have been working extremely hard over the last few years managing more than 100 authors of protocols to complete the production of DPs on the *List of Topics for IPPC standards*[2]. It was noted that, as per February 2018 there is a suite of 24 adopted DPs[3] for specific pests, and that harmonized DPs are highly beneficial and help meet the needs and demands of the IPPC community. As per the 2016 IPPC Implementation Review and Support System (IRSS) general survey results[4] on implementation of International Standards for Phytosanitary Measures (ISPMs), an average of 35% of contracting parties had implemented 12 DPs – noting that by the time the survey was conducted this was the number of adopted DPs. It was mentioned that further discussion on the future of the TPDP's work will continue during this week (see agenda item 8.1 of this report). The IPPC Secretariat expressed sincere thanks for the outgoing steward, Ms Jane CHARD, whose excellent work has been essential to the TPDP for over a decade.

[3] The IPPC Secretariat briefly mentioned the TPDP work programme (i.e. the draft DPs in the *List of topics for IPPC standards*), noting that at the moment it contains a total of 11 DPs, with one on pending status because validation and verification data for molecular methods are not currently available.

[4] The Secretariat recalled that discussions on the future work of the TPDP have been ongoing over the last years and emphasized that the panel should strive to have the majority of the draft DPs currently on the TPDP work programme submitted for adoption in 2018 and the remaining ones for the following year. It was stressed that the IPPC Secretariat is currently facing budget constraints and that therefore the work of the Secretariat will be refocusing on other priority areas as set up by the IPPC Commission on Phytosanitary Measures (CPM). In this context, it was suggested that the work of the TPDP should slow down and that the 2018 TPDP face-to-face meeting may be the last one for some time. Nevertheless, the work on the DPs that are on the TPDP work programme should be finalized.

[5] During a brief discussion about possible new proposals as outcomes from previous meetings, and about the need for revisions of adopted DPs, the TPDP noted that there is still a lot of work to be done and thus the memberships may need to be renewed. The TPDP shared thoughts about working via virtual meetings, and they expressed concerns in using just virtual tools for discussions on such technical documents – IPPC DPs have about 25 pages (see also agenda item 8.1 of this report). The TPDP also expressed concerns about the reasons for slowing the work of the panel, stressing the importance of the IPPC DPs at international level – the main reasons for an international mechanism and forum. They also highlighted the need to keep the DPs up to date, i.e. revising existing adopted DPs to incorporate advances in science or improvements in the methods. It was stressed that the revision of adopted DPs on a regular basis is a fundamental part of the TPDP work. One member noted that the TPDP is able to provide guidance on strategic horizontal issues such as appropriate controls and interpretation of results

[1] Specification TP 1 - Technical Panel on Diagnostic Protocols: https://www.ippc.int/en/publications/1297/
[2] List of topics for IPPC Standards: https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/
[3] IPPC adopted standards page: https://www.ippc.int/en/core-activities/standards-setting/ispms/
[4] IRSS 2016 general survey results: http://www.fao.org/3/I7637EN/i7637en.pdf

that are relevant to both the development and implementation of DPs. Furthermore, the TPDP stressed that one of the main missions of IPPC is to facilitate safe trade and for that appropriate diagnostic protocols are essential. The TPDP noted that the CPM recommendation on the importance on pest diagnosis[5] highlights this subject for the IPPC community.

[6] The Secretariat pointed out that the thirteenth session of the Commission on Phytosanitary Measures (CPM-13, 2018) will discuss a joint call for phytosanitary issues, either standards or guidance material, matching up with the framework for standards and implementation. Therefore, it was stressed that, if there is a need for new DPs, as already identified by the TPDP in February 2017 and presented to the SC as part of the TPDP work, contracting parties should submit these as topics in this next call. The IPPC Secretariat also expressed the hope that adequate budgetary resources for translation of IPPC documents will be allocated, as well as some extra budgetary resources for diagnosis, alongside the increasing priority of DP topics. The IPPC Secretariat noted that the need to revise adopted DPs may come as priority over drafting new ones, however new submissions should come via a call.

[7] The EPPO Secretariat welcomed all participants to the meeting and to the EPPO premises. EPPO expressed deep thanks for the TPDP and mentioned that the work of this panel should not stop due to its importance and relevance to the IPPC community. It was emphasized that the work of the TPDP is beyond the development of DPs: under the direction of the SC, the TPDP can consider other topics related to diagnosis of regulated pests and to help with the implementation of DPs by contracting parties.

2. Meeting Arrangements

2.1 Election of the Chairperson

[8] Ms Géraldine ANTHOINE (France) was elected Chairperson.

2.2 Election of the Rapporteur

[9] Mr Robert TAYLOR (New Zealand) was elected Rapporteur.

2.3 Review and adoption of the agenda

[10] The TPDP adopted the Agenda (Appendix 1).

3. Administrative Matters

[11] The IPPC Secretariat introduced the Documents list (Appendix 2) and the Participants list (Appendix 3). The EPPO Secretariat presented the local information document[6]. Documents referenced in this report are available only to TPDP members. The participants were reminded to update their contact information as it will be reflected in the TPDP membership list[7] on the International Phytosanitary Portal (IPP – www.ippc.int).

4. Overview of the TPDP work programme

[12] The IPPC Secretariat presented the 2017-2018 standard setting calendar related to DPs and the current status of the TPDP work programme (see Figures 1 and 2). The IPPC Secretariat presented proposed dates for when the 11 DPs on the TPDP work programme would tentatively reach the various steps in the standard setting process (i.e. expert consultation, consultation period, submission to the SC for approval for adoption and DP notification period[8]). The IPPC Secretariat highlighted the continued high workload for processing DPs, noting the dedicated involvement of all TPDP members and DP drafting groups.

[5] CPM recommendation R-07: The importance on pest diagnosis (https://www.ippc.int/en/publications/84234/)
[6] Local information: 04_TPDP_2018_Feb
[7] TPDP membership list: https://www.ippc.int/en/publications/81560/
[8] Presentation available at the restricted TPDP work area: https://www.ippc.int/en/work-area-pages/technical-panel-on-diagnostic-protocols-tpdp/2018-february-paris/

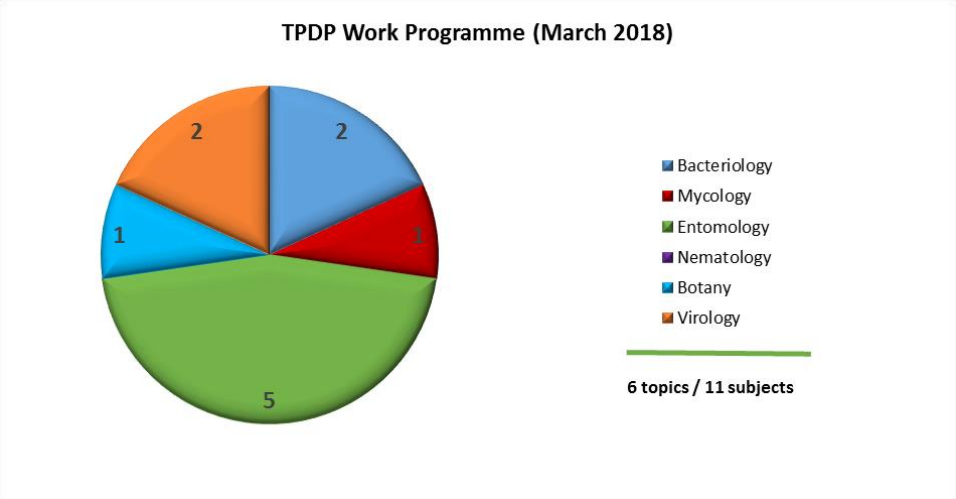

Figure 1. Number of subjects (DPs) per topic (discipline) under the Technical Panel on Diagnostic Protocols (TPDP) work programme (updated on 2018-03-13).

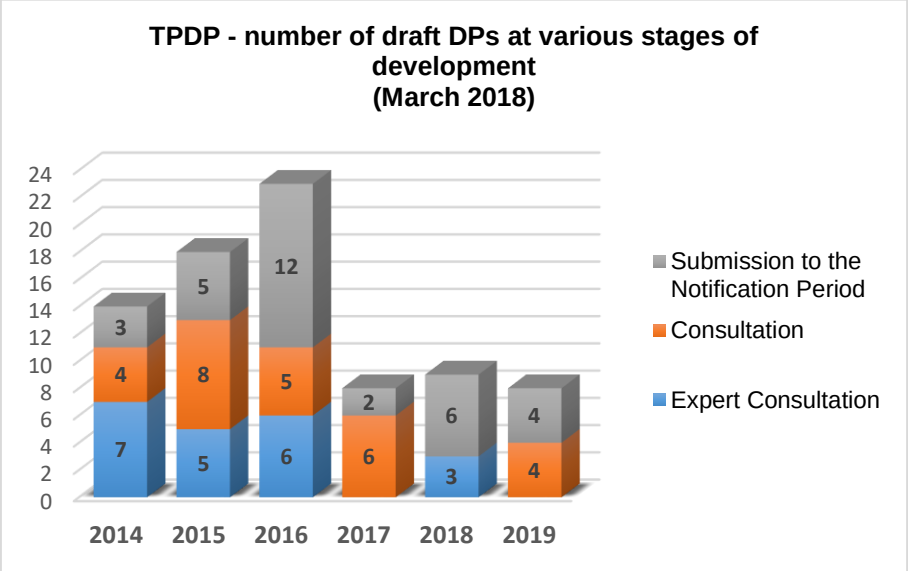

Figure 2. Draft diagnostic protocols (DPs) medium term plan forecast: Number of DPs under the Technical Panel on Diagnostic Protocols (TPDP) work programme per year (forecast) under different stages of the Standard setting process (updated on 2018-03-13).

[13] The Secretariat stressed the need for the discipline leads to continue engaging experts in the DP drafting groups in order to meet the established deadlines and to have these DPs adopted. It was highlighted that deadlines may be negotiated between TPDP members and the DP drafting groups, as long as it was clear that if deadlines are not met, the adoption of the DPs may be delayed.

5. Review of draft diagnostic protocols after consultation period[9]

[14] Several horizontal issues concerning multiple draft DPs were discussed, based on comments received during the 2017 consultation period, as follows.

[15] **Preservation of samples**: In response to several comments requesting additional guidance for the preservation of samples, the TPDP agreed to include additional information within the "records section"

[9] Additional resources: IPPC procedure manual for standard setting: https://www.ippc.int/en/core-activities/ippc-standard-setting-procedure-manual/; IPPC style guide: https://www.ippc.int/en/publications/81329/; TPDP instructions to authors: https://www.ippc.int/en/publications/83612/

of draft DPs and to forward this issue to the SC with the aim to bring to the attention of the Implementation Committee (IC), and to the IPPC Secretariat, with the recommendation to develop guidance material to support implementation of the DPs by the NPPOs.

[16] **Access to reference materials**: In response to several comments from contracting parties about the availability and acquisition of positive controls for diagnostics, the TPDP noted that many countries do not permit imports but could allow them provided there are adequate safeguards to prevent risks of escape. The TPDP also noted that there is existing guidance in some regional standards (e.g. EPPO has a standard on import and control of quarantine pests) and that the IPPC work programme contains a topic for the development of an ISPM on "import requirements" (Use of specific import authorization (Annex to ISPM 20: *Guidelines for a phytosanitary import regulatory system*; 2008-006)) and maybe this issue could be tackled there. The TPDP agreed to forward this issue to the SC with the aim to bring it to the attention of the Implementation Committee (IC), and to the IPPC Secretariat, with the recommendation to develop guidance material to support implementation of the DPs by the NPPOs.

[17] **Direct links in the core text of the DP:** Some hyperlinks to websites are provided in the text of DPs because the information on these websites are frequently updated. It was noted that direct links should be avoided in the core of the text whenever possible and be included in the reference section. The TPDP agreed that this should be a **global change**, to be included in all draft DPs and in the Instructions to Authors. Exceptions should be made on a case-by-case basis.

[18] **Figures/photos:** The TPDP agreed that if figures and photos are not included in the draft DP, references to external web links should be provided in a separate section and added to the list of references. The TPDP recommended that such an approach be included in the Instruction to Authors for those draft DPs that do not contain figures but links to external websites.

[19] **Standard disclaimer for laboratory methods and brand names:** In response to several comments from contracting parties on the duplication of text in the DPs, as a standard paragraph in the body of the text and as a footnote, the TPDP agreed to adjust the disclaimer text to avoid unnecessary duplication (see also agenda item 9.1). The TPDP further agreed to include the general disclaimers in all draft DPs because it is considered important. The revised standard disclaimers agreed were:

- **Paragraph (in DP body text):** In this diagnostic protocol, methods (including reference to brand names) are described as published, as these define the original level of sensitivity, specificity and reproducibility achieved. Laboratory procedures presented in the protocols may be adjusted to the standards of individual laboratories, provided that they are adequately validated.
- **Footnote (only necessary if brand names are mentioned in the methods):** The use of names of reagents, chemicals or equipment in these diagnostic protocols implies no approval of them to the exclusion of others that may also be suitable.

5.1 Revision of DP 02: *Plum pox virus* (2016-007)[10] (Priority 1)

[20] The discipline lead introduced the draft DP[11], the responses to the consultation comments[12] and the summary[13]. He recalled that the *Plum pox virus* (PPV) DP was the second IPPC DP adopted as an annex to ISPM 27 (*Diagnostic protocols for regulated pests*) in 2012. The initial justification for the revision was based mainly on the fact that since adoption of the DP new strains of PPV were described such as CR (Cherry Russian) and An (Ancestor Marcus). The document also lacked proper and adequate descriptions of controls, the sections on enzyme-linked immunosorbent assay (ELISA) detection needed improvements and the general format of the document needed updating.

[10] Adopted DP 02: *Plum pox virus:* https://www.ippc.int/en/publications/637/
[11] 2016-007
[12] 06_TPDP_2018_Feb
[13] 05_TPDP_2018_Feb

[21] After some initial revisions the draft DP was submitted to the consultation period in July 2017[14]. Extensive and very comprehensive comments were received[15] and all 178 comments were considered by the discipline lead and the DP drafting group. Comments were incorporated into the draft DP where appropriate, including editorial suggestions. Several comments were identified as horizontal issues and discussions of these topics are reported under section 5 of this report (see section above).

[22] The discipline lead mentioned that the draft DP was fully revised including significant revisions to the format, detailed information on controls were added, and information on ELISA testing was updated. Some changes were not made as recommended either because the existing information was considered more accurate or suitable alternatives were not available. New technologies such as reverse transcriptase loop-mediated isothermal amplification (RT-LAMP) and next generation sequencing (NGS) technologies are now mentioned in the draft protocol but are not yet recommended for routine detection, as there is not enough data on validated tests available in the public domain.

[23] The TPDP discussed the following main issues:

[24] **General comments:** One contracting party comment suggested improving the structure of the protocol to make the steps involved in detection and identification more logical and clear. The drafting group updated the DP accordingly. Some comments suggested the addition of photos of relevant symptoms, however, the TPDP considered it more useful to add database weblinks as references for photographs (e.g. EPPO global database), because these websites are more frequently updated and provide extensive examples of symptoms.

[25] **Use of LAMP for detection and identification.** One comment suggested to include LAMP kits as methods for detection and identification. One member noted that for the EPPO DP for PPV, kits for LAMP are described for detection of PPV during field testing, but are not recommended for identification of strains. The discipline lead mentioned that there are only two references and there is only validation for one strain, therefore LAMP was excluded as a method from this draft DP. Thus, the TPDP agreed to exclude LAMP tests from the draft DP.

[26] **Taxonomic information:** One contracting party comment queried on the reference for the synonym "Sharka virus". The discipline lead explained that indeed it was a common name, but also historically the first naming of the virus. The panel agreed that according to the International Committee on Taxonomy of Viruses (ICTV) there is no synonym reference for Sharka, but "Sharka virus" is well known by scientific experts, and could therefore be considered a synonym.

[27] **ELISA:** Several contracting parties' comments questioned whether alternative polyclonal antibodies for DAS and TAS ELISA could be included in the methods, as the monoclonal antibody (Mab 5b-IVIA) may not be available to all contracting parties. The TPDP discussed the use of other available kits, provided they are properly validated. The reason why they were not initially included in the DP is because of the lack of published validation data. However, the panel noted that there are other providers of antibodies and stressed that contracting parties may use other kits as outlined in the disclaimer. Additional references were added mentioning alternative polyclonal antibodies or ELISA kits that could be used once properly validated. One TPDP member pointed out that validation of kits is different from validation of methods. It was explained that it is usually best practice of labs to check or verify different batches of kits. The TPDP agreed that verifications of reagents and kits should always be carried out.

[28] **pH of extraction buffer:** One comment questioned the suitability of immunocapture and the recommended buffers for it. The discipline lead explained that for one of the new strains, PPV-CR, the extraction buffer for ELISA detection has to be adjusted to pH 6.0 for optimal detection. The pH in the IC-RT-PCR protocol refers to the carbonate buffer for binding of antibody to reaction tubes and should

[14] 2017-07 Draft DP revision for *Plum pox virus* (First consultation): https://www.ippc.int/en/publications/84443/
[15] 2017-07 Compiled comments draft Revision of DP 2: *Plum Pox Virus* (First consultation): https://www.ippc.int/en/publications/84906/

be at pH 9.6. The draft DP was updated to include appropriate references and to make this differentiation clearer.

[29] **Flow chart:** The flow chart provided was updated to clarify steps in the identification of PPV. Sequencing of the virus was not included but outlined in the text.

[30] **Possible implementation issues:** There were some contracting parties' comments on possible implementation issues, for example on the capacity of countries for appropriate laboratory infrastructure and technical level of staff (see comments 1 and 9 of the compiled comments). The TPDP mentioned that training and development of rapid diagnostic kits could help fill these gaps, and some diagnostic kits were included in the draft DP. The TPDP agreed that the existence of implementation issues should be considered and to forward them to the relevant IPPC bodies, via the SC.

[31] **Availability of protocols:** Several comments requested that protocols in some of the references be made available (see comments 77 and 123 of the compiled comments). The TPDP drafting group recalled that NPPOs and RPPOs need to be informed about their availability online, and about the existence of contact points to provide any assistance required.

[32] **The TPDP:**

(1) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 16 March 2018.

(2) *invited* the SC to consider submitting the revised draft Revision of the DP 2: *Plum pox virus* (2016-007) for adoption in the next DP notification period.

(3) *invited* the SC to note the consultation comments and their responses (comments 1, 9, 77 and 123) on possible implementation issues with regards to appropriate laboratory infrastructure, staff expertise and access to protocols referenced in the DP.

5.2 *Xylella fastidiosa* (2004-024), priority 2

[33] The discipline lead introduced the draft DP[16], the responses to the consultation comments[17] and the summary[18]. She mentioned that the draft DP was submitted to the consultation period in July 2017[19] and a total of 244 comments were submitted[20], 52 of which were substantive, 102 were editorial and 90 were technical. Most of the comments were accepted and the protocol was revised accordingly. In cases where the proposed changes were not incorporated, the rationale for the decisions were given. The discipline lead also mentioned that several countries supported the draft DP. Some comments were identified as horizontal issues and discussions of these topics are reported under section 5 of this report.

[34] The technical comments focused on restructuring the section on sampling (of plants and vectors) and on including complementary information on sampling, storage conditions of samples, guidance on ELISA testing, media composition and sensitivity of PCR tests.

[35] The TPDP discussed the following main points:

[36] **Subspecies identification:** One contracting party comment suggested including additional guidance on the identification of subspecies in the protocol. The TPDP discussed this issue and noted that similar questions had been discussed in previous meetings and that there is still a lot of uncertainty about subspecies identification e.g. some sub-species are not currently accepted taxonomically. The TPDP agreed that there was already some guidance provided in the draft DP, that identification to subspecies level was out of the agreed scope of the protocol and thus the scope and title of the DP would suffice.

[16] 2004-024
[17] 08_TPDP_2018_Feb
[18] 07_TPDP_2018_Feb
[19] 2017-07_Draft DP for *Xylella fastidiosa* (First consultation): https://www.ippc.int/en/publications/84437/
[20] 2017-07_ Compiled comments for draft DP for *Xylella fastidiosa* (First consultation): https://www.ippc.int/en/publications/84901/

[37] **Preservation of samples:** One contracting party comment requested additional information on preservation methods for suspected positive samples. The discipline lead informed that some guidance was already included in the draft DP, as for example under section "sampling of symptomatic plants". One member mentioned that there are different types of samples, as for example plant material samples, plant sap and DNA extracts. The TPDP adjusted the draft to improve the records section of the draft DP based on guidance provided in the draft DP for PPV. The responses to comments and the draft DP were adjusted accordingly.

[38] **Direct links in the core text:** As mentioned by the DP drafting group, some hyperlinks to websites are provided in the text of the DP because the lists or information on these websites are more frequently updated (e.g. list of the susceptible hosts on the EPPO global database or link to the European Commission). The TPDP highlighted that direct links should be avoided in the core of the text whenever possible and instead be included in the reference section. The TPDP agreed that this should be a global change, and to be included in other draft DPs and in the Instructions to Authors.

[39] **Definition of "detection".** One contracting party comment (see comment 55 of compiled comments) proposed that the word "detection" be defined in this DP and in ISPM 5 (*Glossary of phytosanitary terms*). The TPDP noted that according to ISPM 27, IPPC diagnostic protocols should provide detailed information and guidance for the detection of pests, and a specific section "detection" should be included as outlined in section "Specific Requirements for a Diagnostic Protocol". According to the Oxford Dictionary, the word "detection" means *"the action or process of identifying the presence of something concealed."* Therefore, the TPDP felt that the term is sufficiently defined and that there is no need to have a definition for "detection" in ISPM 5.

[40] **Appropriateness of screening tests:** Several contacting parties' comments requested additional information on which diagnostic tests to use under what circumstances. It was clarified that the comment suggested including clear guidance on which screening tests to choose based on performance characteristics. The TPDP noted that IPPC DPs should not directly instruct NPPOs – it is each contacting party's sovereignty to adjust the protocol following the minimum requirements and validation steps. Additionally, the TPDP noted that it was difficult to capture all possible scenarios in one draft DP. However, the TPDP agreed that enough guidance should be included on the appropriateness of the recommended tests, for example for symptomatic and asymptomatic samples. It was stressed that unlike for other bacteria, isolation using selection media and serological methods are not recommended for detection of *X. fastidiosa*. Isolation of *Xylella* spp. is very difficult and not effective, as it is a very slow growing bacterium and prone to be overgrown by other contaminating bacteria, which may lead to false negative results. Serological methods also have limitations, for example they are not recommended for detection in vectors or asymptomatic plants, and validation data is not available for all subspecies and matrices. The TPDP agreed to include additional guidance in the draft DP to clarify this issue.

[41] **Interpretation of results from LAMP tests:** Several contacting parties' comments requested additional guidance on the interpretation of LAMP tests in the draft DP. As LAMPs are being used more frequently in a phytosanitary context, the TPDP agreed to develop a paper on the use and interpretation of LAMP tests for discussion in a future meeting and to provide a standard text to be included in the Instructions to Authors. For this particular draft DP, the TPDP agreed to include a paragraph with guidance on the interpretation of LAMP.

[42] **Multi-locus sequence typing (MLST):** This test was included in the draft DP as a method for identification of subspecies, and it was also recommended to be used for the detection analysis of strains in new areas or on new hosts.

[43] **Figures:** Some comments suggested to include a flowchart to outline the minimum identification requirements, and additional pictures or figures in the draft DP to highlight symptoms. The TPDP discussed this and agreed that adding a flowchart to the DP was not suitable as there are many different scenarios. Furthermore, the TPDP agreed that external weblinks should be included in to the DP to provide additional figures and photographs, and that these references should be added in the draft section

reserved for Figures. The TPDP recommended that such an approach be included in the Instruction to Authors for draft DPs that do not contain figures but links to external websites.

[44] **Possible horizontal issues:**

[45] **Obtaining positive controls**. One contracting party commented on potential implementation issues concerning the difficulty to get access to quarantine pests as reference material (see also section 5 of this report). It was mentioned that this is a horizontal issue, however some guidance was provided in the DP on where reference strains as positive controls can be obtained from public collections. The TPDP highlighted the importance of reference material as essential components to perform diagnostics.

[46] **The TPDP:**

(4) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 23 February 2018.

(5) *invited* the SC to consider submitting the revised draft on *Xylella fastidiosa* (2004-024) for adoption in the next DP notification period.

(6) *invited* the SC to note the contracting party comment (comment 55 of the compiled comments) on the recommendation to include in the work programme of the Technical Panel for the Glossary (TPG) the definition of "detection" as well as the recommendation of the TPDP that there is no need to have this definition in ISPM 5 as the TPDP felt that the term is sufficiently defined and explained in ISPM 27.

(7) *invited* the SC to note the consultation comments and their responses (comments 176 and 206 of the compiled comments) on possible implementation issues on the acquisition of positive controls to perform diagnosis.

(8) *invited* Mr Delano JAMES to prepare a paper on interpretation of results from LAMP tests, considering existing available documents, for discussion in the next TPDP face-to-face meeting for possible inclusion in the Instruction to Authors.

5.3 *Austropuccinia psidii* (2006-018), priority 2

[47] The discipline lead introduced the draft DP[21], the responses to the consultation comments[22] and the summary[23]. He recalled that the draft DP for *Austropuccinia psidii* (2006-018) was submitted to first consultation on 01 July 2017 as "*Puccinia psidii*"[24]. There were a total of 127 comments in which 17 were substantive comments[25]. The comments were considered by the discipline lead and the DP drafting group and incorporated into the draft DP where appropriate. A number of editorial changes were suggested and these have been incorporated. Several comments were identified as horizontal issues and discussions of these topics are reported under section 5 of this report.

[48] The TPDP discussed the following main points:

[49] **Taxonomy change**: The taxonomy of *Puccinia psidii* has been changed to *Austropuccinia psidii* (Beenken, 2017)[26]. This is a new genus name for "myrtle rust", which is now placed within the redefined family *Sphaerophragmiaceae* (*Pucciniales*). This has resulted in a name change for the diagnostic protocol.

[21] 2006-018
[22] 10_TPDP_2018_Feb
[23] 09_TPDP_2018_Feb
[24] 2017-07 Draft DP for *Puccinia psidii* (First consultation): https://www.ippc.int/en/publications/84439/
[25] 2017-07 Compiled comments draft DP for *Puccinia psidii* (First consultation): https://www.ippc.int/en/publications/84902/
[26] Beenken, L. 2017. *Austropuccinia*: a new genus name for the myrtle rust *Puccinia psidii* placed within the redefined family Sphaerophragmiaceae (Pucciniales). Phytotaxa 297 (1): 053–061.

[50] **Minimum size of samples for asymptomatic material:** There was a contracting party comment asking for guidance on appropriate sample size for asymptomatic material. The TPDP acknowledged that there currently is no information on minimum sample size, therefore the TPDP cannot provide specific guidance. The panel agreed that this would be at the discretion of each laboratory or NPPO performing the diagnosis.

[51] **Morphological characteristics:** One contracting party comment mentioned that a reference publication (Simpson et al., 2006[27]) refers to two other genera in the *Pucciniales* order related to *Austropuccinia psidii*, and therefore requested that information in Table 7 be adjusted (Table 7 refers to morphological characters of the six rust species currently accepted as infecting Myrtaceae). The discipline lead explained that Table 7 is correct and accurate, but the DP drafting group probably got the morphological characters from more than one source of publication. However, he noted that Simpson's species are no longer accepted. The discipline lead agreed to confirm this information with the lead author, to report back to the panel and to revise the table if necessary.

[52] **Description of symptoms**: Some contracting parties' comments requested to clarify on the description of symptoms in the key, especially on the coloring of urediniospores, and the corresponding references. The discipline lead noted that uredinia of *A. psidii* are typically bright yellow-orange, but the morphology is more important. In addition, the coloring can vary considerably on different hosts, which is reflected in the different references. Therefore, diagnosis only via morphological characters is not recommended.

[53] **Flow chart:** Several comments questioned the completeness of the flowchart provided in the draft DP. The discipline lead explained that the chart is designed for identification and that additional tests not required for this purpose are not easily incorporated in the flow diagram. Another contracting party comment asked what the recommended procedure is for confirming positive results from real time PCR when the material has deteriorated and no urediniospores are present. The discipline lead explained that it is recommended to collect fresh sample for confirmation and that confirmatory identification is based on a reference specimen and sequence comparison with the epiptype, not a positive PCR result. The flow diagram was updated according to the comments and guidance provided in the response to the consultation comments.

[54] **The TPDP:**

(9) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 23 February 2018.

(10) *invited* the SC to note the name change of this draft DP from "*Puccinia psidii* (2006-018)" to "*Austropuccinia psidii* (2006-018)" due to changes in taxonomy as this is a new genus name for myrtle rust now placed within the redefined family Sphaerophragmiaceae (Pucciniales).

(11) *invited* the SC to consider submitting the revised draft on *Austropuccinia psidii* (2006-018) for adoption in the next DP notification period.

5.4 *Bactrocera dorsalis* complex (2006-026) (Priority 2)

[55] The discipline lead introduced the draft DP[28], the responses to the consultation comments[29] and the summary[30]. He mentioned that the draft DP was submitted to the July 2017 consultation period[31], where there were a total of 146 comments in which 23 were substantive comments[32]. The comments were

[27] Simpson, J.A., Thomas, K., Grgurinovic, C.A., 2006. Uredinales species pathogenic on species of Myrtaceae. Australasian Plant Pathology, 35(5):549-562.
[28] 2006-026
[29] 23_TPDP_2018_Feb
[30] 22_TPDP_2018_Feb
[31] 2017-07 Draft DP for *Bactrocera dorsalis* complex (First consultation): https://www.ippc.int/en/publications/84441/
[32] 2017-07 Compiled comments draft DP for *Bacterocera dorsalis complex* (First consultation): https://www.ippc.int/en/publications/84904/

considered by the discipline lead and the DP drafting group and incorporated into the draft DP where appropriate. A number of editorial changes were suggested and these have been accepted. Several comments were identified as horizontal issues and discussions of these topics are reported under section 5 of this report. Furthermore, the discipline lead noted that a recent publication affecting the taxonomy of *Bactrocera* may be useful to reassess the complex, which as of February 2018 contains over 460 species, and would be taken into consideration before submitting the draft DP to the SC. He agreed to review the new literature and incorporate changes where appropriate.

[56] The TPDP discussed the following main points:

[57] **The *B. dorsalis* complex, its species and the scope of the DP.** A contracting party questioned if the six species of the *B. dorsalis* complex (*B. dorsalis, B. carambolae, B. caryeae, B. kandiensis, B. occipitalis* and *B. pyrifoliae*) should be treated as one species. The primary literature supports these as six separate species. The contracting party also commented that the current version of the draft DP is not practical for these six species especially for most members of IPPC. The TPDP pointed out that this draft DP is important for the IPPC contracting parties because the targeted species are regulated in several countries. It was stressed that this draft DP is for the detection and identification of the complex, which according to a recent publication currently contains 461 species. However, for the DP, only six species of high economic importance in international trade are described in detail.

[58] The TPDP noted that it is indeed a difficult group to identify but that the protocol outlines methods to complete identification. The discipline lead explained that the *B. dorsalis* complex DP provides information on how to detect, handle, store and identify an adult fly. The protocol can be used to complete an identification to the species complex-level and to species-level, for six economically important plant pests. Based on current scientific research the six species are valid species and not treated as synonyms of other *Bactrocera*. The minimum requirements to complete a reliable identification of the six species using morphology are detailed in the DP. In addition, a molecular method for distinguishing *B. dorsalis* from *B. carambolae* is included, as it can be very difficult to distinguish these two based on morphology only, and this is the only validated molecular method at the moment.

[59] **Title of the DP:** One TPDP member suggested to change the title of the DP to only "*Bactrocera dorsalis*" instead of "*Bactrocera dorsalis* complex", because only some species, but not the entire complex are regulated. However, the TPDP noted that the "complex" is related to taxonomy and therefore the TPDP agreed to keep the title as it is, also because there was no consultation comment related to this. The panel acknowledged that this issue was brought forward on other occasions, as for example DP 11: *Xiphinema americanum senso latu* and DP 18: *Anguina* spp., protocols dealing with major pest species of economic importance. In these cases the DPs include descriptions of the genus and several important species within it. The TPDP noted that IPPC DPs are intended for diagnostic purposes and that contracting parties' regulations do not necessarily cover the exact same species.

[60] **Molecular identification to species level.** A contracting party proposed the addition of a statement on the appropriate molecular identification technique to species level. The protocol includes only those methods that are published and recommended for identification of the six species. Many of the species lack methods to confirm species identity based on DNA.

[61] **Additional publications for identification of pests using molecular methods**. A contacting party requested to include additional publications addressing identification of pests using molecular methods. Additional studies were not included if they did not provide methods appropriate for reliable identification. There are many research studies that examine *Bactrocera dorsalis* complex and to include all would require a lengthy literature review outside the scope of an IPPC DP.

[62] **Identification of larvae.** A contracting party considered it necessary either to develop identification of the larval stage as it is the stage that mostly spreads on plant products, e.g. tropical fruits, or to adopt the present draft DP, and to add information on larvae identification during revisions of the DP. The TPDP agreed that as methods for larval identification become available they should be included in revisions of the DP at later stages, however as currently there is no information available, identification of larvae

was not included in this draft DP. This request was archived for future revisions of the DP. One comment asked for additional information on how to rear adult flies from larvae. The discipline lead explained that the intention of the protocol is not to keep colonies, but to have insects reach the adult stage and to keep them alive just long enough to develop their final diagnostic colour pattern. The TPDP agreed that rearing conditions are part of common laboratory practice and a wide range of conditions could be suitable.

[63] **The terms "definition of the complex" and "description of the complex".** It was commented that these terms could have different meanings. Both terms were avoided in favor of "the set of characters used to identify" the complex.

[64] **Internal transcribed spacer 1 (ITS1) DNA.** A question about specificity of the internal transcribed spacer 1 (ITS1) DNA as a method of identification was raised because the ITS1 data records are limited to four species. It was noted that another fly species (*B. tryoni*) also has a 44bp insertion in the same place in the ITS1. The discipline lead explained that specificity is appropriate because the test aims to distinguish between only two species that are in the records. Morphology must separate the others prior to DNA analysis or subsequent to it. The text of the DP was modified to clarify that the morphological methods would exclude *B. tryoni* and that the 44bp insert in this species also has a distinct sequence. In addition, some contracting parties noted that ITS1 sequences in the reference data do not support identification using provided accession information. The authors were notified in 2015, re-examined the data and confirmed that there was a mistake in their GenBank submission. The records are correct for the following accession numbers: *B. dorsalis* s.l.: KC446910, KC446930, and KC446861; *B. carambolae*: KC446898 and KC446981.

[65] **Scale bars in figures.** A request to insert scale bars to photos was not incorporated because it meant modifying photos after production without records on how images were captured. The absolute size of the insects and structures are not critical for performing identification in this DP.

[66] **New images.** A contracting party comment requested new images of early instar larvae. The discipline lead explained that larvae are not used for species identification and the images provided in the DP are there to help with general recognition of a larva during detection. Replacement images are not readily available to the drafting team.

[67] The TPDP:

(12) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 23 February 2018.

(13) *invited* the SC to submit the revised draft on *Bactrocera dorsalis* complex (2006-026) for adoption in the next DP notification period.

(14) *invited* the SC to note the request from a contracting party for future revision of this DP on "*Bactrocera dorsalis* complex" to include larvae identification, once methods are available (see comment 52 of the compiled comments) and

(15) *invited* the Secretariat to archive this request for the future.

5.5 *Conotrachelus nenuphar* (2013-002) (Priority 2)

[68] The discipline lead introduced the draft DP[33, 34], the responses to the consultation comments[35] and the summary[36]. He mentioned that the draft DP was submitted to first consultation on 01 July 2017[37] and

[33] 2013-002
[34] 21_TPDP_2018_Feb
[35] 20_TPDP_2018_Feb
[36] 19_TPDP_2018_Feb
[37] 2017-07_Draft DP for *Conotrachelus nenuphar* (First consultation): https://www.ippc.int/en/publications/84442/

that there had been a total of 144 comments, 14 of which were substantive[38]. The comments were considered by the discipline lead and the DP drafting group and incorporated into the draft DP where appropriate. A number of editorial changes were suggested and these were mostly accepted. Several comments were identified as horizontal issues and discussions of these topics are reported under section 5 of this report.

[69] The TPDP discussed the mains points as follows:

[70] **Strains or biotypes**: A contracting party questioned if the described phenological strains are strains or biotypes. It was explained that literature refers to populations as phenological strains. According to the Dictionary of Entomology by G. Gordh and D.H. Headrick:

- A *biotype* is "a genetically cohesive population of insects that demonstrates biological and phenological differences from morphologically identical forms";
- A *strain* is "a traceable lineage of descendants from a common ancestral species sharing and distinguished by characters and qualities that are often the result of artificial breeding."

[71] **Authority names:** The IPPC editor requested reviewing the authority names used in the draft DP, and recommended using Zoobank, although this database does not include all species, including *C. nenuphar*. The TPDP noted that there is no universal database for insect taxonomy with all species present and agreed that it should be at the discretion of each discipline lead on a case-by-case basis for each draft DP. The discussions referred to a document on species authority from the editor[39] (see also agenda item 9.1).

[72] **Pictures and figures:** Some contracting parties requested the addition of pictures or figures of egg, larva, and pupa. It was mentioned that images and illustrations of eggs are not readily available. The opinion of the drafting experts is that inclusion of egg, larva, and pupa images would not enhance the quality of the protocol as these life stages cannot be used to identify the pest. The TPDP agreed and these pictures or figures were not included in the draft DP.

[73] **Molecular methods**: A contracting party recommended adding molecular methods of diagnosis for this species as reported by Lin et al. (2008). That paper reports a primer set for this species using the *COI* gene. It was explained by the discipline lead that the Lin et al. (2008) study did not demonstrate specificity of the method for *C. nenuphar* using related weevils. Therefore, the method might not be appropriate for reliable identification of the pest and thus, the TPDP agreed to not include it in the draft DP.

[74] **Identification key**: A contacting party suggested adding a key for 22 genera in the tribe *Conotrachelini* to identify the weevil specimens to the genus level. It was mentioned that the purpose of the DP is to identify the species *C. nenuphar*. The discipline lead mentioned that the DP drafting group highlighted that identification of the many genera of the tribe or subfamily is not required to perform this species identification accurately. The necessary characters are provided in Table 1 to determine if the specimen is of the genus *Conotrachelus* or not. Interested identifiers are referred to other literature, which includes a key to North American genera in the tribe *Conotrachelini*. Inclusion of other species would alter the scope of the protocol and could be considered in a revision. The TPDP agreed with this and thus the key for 22 genera in the tribe *Conotrachelini* was not included in the draft DP.

[75] ***C. corni***: One comment suggested modifying images to facilitate differentiation from *C. corni*, which is considered the most similar species to *C. nenuphar*. The TPDP felt that it was impractical to modify images as this would complicate them, but some text was added to clarify. It was stressed that the Tables 2 and 3 provide the characters needed to perform the identification. The TPDP agreed to adjust the titles of Tables 2 and 3 to better summarize their content as per the description in the text.

[38] 2017-07_Draft DP for *Conotrachelus nenuphar* (First consultation) Compiled comments: https://www.ippc.int/en/publications/84907/
[39] 16_TPDP_2018_Feb

[76] The TPDP:

(16) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 23 February 2018.

(17) *invited* the SC to consider submitting the revised draft on *Conotrachelus nenuphar* (2013-002) for adoption in the next DP notification period.

5.6 *Ips* spp. (2006-020) (Priority 4)

[77] The discipline lead introduced the draft DP[40], the responses to the consultation comments[41] and the summary[42]. He mentioned that the draft DP for *Ips* spp. (2006-020) was submitted to first consultation on 01 July 2017[43]. There were a total of 141 comments, of which 23 were substantive comments[44]. A number of editorial changes were suggested and these have been accepted. Several comments were identified as horizontal issues and discussions of these topics are reported under section 5.

[78] The TPDP discussed the mains points as follows.

[79] **Identification of adult beetles**: A general comment requested that the protocol be clearer on its use of adults only for identification. The discipline lead explained that the current version of the DP includes diagnostic characteristics of larvae and describes a process to sort out larvae that are not *Ips* but cannot identify a larva as an *Ips*. The authors suggested that this information is useful, because initial detection is usually of larvae or pupae, as these are more commonly found in host plants and wood products. The TPDP highlighted that this section would help in sorting of suspected samples and it can help exclude *Ips* in the sample, but that the detection of larvae or pupae is not sufficient to identify *Ips*, i.e. the detection of larvae or pupae will not allow morphological identification to species level. Therefore, the TPDP recommended that for confirmation of identification, adult beetles have to be examined. The text in the draft DP was amended to clarify this.

[80] **Partial diagnosis**: There had been concern about the use of the term 'partial identification', which referred to the use of larvae in initial detection but not identification (see above). The TPDP considered this to be confusing, and agreed to adjust the text to remove this term.

[81] **Classification and taxonomy**: Several contracting parties' comments suggested inclusion of additional synonyms in the draft DP or cited different taxonomic information. The discipline lead confirmed that the current information in the draft DP is correct and did not recommend the inclusion of additional text of past revisions in the protocol – the TPDP agreed to not include additional synonyms.

[82] **Host genera**: One contacting party comment suggested that Table 1 include information on primary host genera instead of host genera. The TPDP discussed the appropriateness of this change, also in view of another contracting party comment suggesting the addition of host species for *Ips hauseri*. The discipline lead agreed to confirm with the lead author whether "primary host genera" was a good use. According to the lead author, the term "hosts - main, major or primary" all refer to the tree in which the *Ips* species is most commonly collected; it is likely the tree that allows the greatest brood survival. So, it is not a statement of what hosts are possible but rather states what the most common hosts are in the native range. The text was therefore adjusted to indicate "Principal host genera" where appropriate and to include mention of the possibility of beetles to feed on other hosts if their main hosts are not present.

[83] **Inclusion of additional species in the DP**: One comment requested to include another seven *Ips* species in Table 2. The discipline lead explained that these species are not targets of the protocol and should therefore not be included in Table 2. The selection of 14 target species was made by authors and in

[40] 2006-020
[41] 30_TPDP_2018_Feb
[42] 29_TPDP_2018_Feb
[43] 2017-07_Draft DP for Ips spp. (First consultation) https://www.ippc.int/en/publications/84440/
[44] 2017-07_Drat DP for Ips spp. (First consultation) Compiled comments https://www.ippc.int/en/publications/84905/

consultation with experts and the TPDP when drafts were in review. The TPDP noted that additions of species can be done in revised versions of adopted DPs.

[84] **Key for identification.** The key was modified to include species names instead of non-target (NT) when possible. The previous version included names for the 14 target species but did not consistently use either NT designation or the species name of that non-target species.

[85] **Figures**. Some comments requested updates to figures or inclusion of additional figures highlighting certain features or subspecies. The discipline lead explained that this was not possible as such pictures are not readily available. Furthermore, the authors do not believe there is a need to add photos to improve the use of the diagnostic protocol. The TPDP agreed and new pointers highlighting characters were added to some figures.

[86] The TPDP:

(18) *requested* the discipline lead and the DP drafting group to revise the draft DP and the responses to comments and send it to the Secretariat by 23 February 2018.

(19) *invited* the SC to consider submitting the revised draft on *Ips* spp. (2006-020) for adoption in the next DP notification period.

6. Review of draft diagnostic protocols before consultation period

6.1 *Striga* spp. (2008-009), priority 1

[87] The discipline lead introduced the draft DP[45], the summary[46] and the checklist for discipline lead and referee[47]. She mentioned that the DP drafting group was newly re-structured. She informed that this is the first time the draft DP for *Striga* spp. (2008-009) is presented to the TPDP. It is included in the SC work programme with a high priority (priority 1) as a highly invasive species parasitizing important grain crops. She mentioned that this draft still needs to be submitted for expert consultation.

[88] The TPDP acknowledged the contribution from Mr Ran-Ling Zuo (China) to the development of the draft DP and agreed to include him as a co-author in the DP drafting group.

[89] The discipline lead highlighted that there are 42 species of *Striga* known, but only three are described in this draft as major economically important species. Some overlap is present between text in pest information and identification sections and this requires revision of the draft. The distribution of *Striga* spp. is not presented in detail in the current draft DP. She also mentioned that the references section needs to be updated. She pointed out that there is some molecular information on *Striga* spp. available in the National Center for Biotechnology Information (NCBI) databases, which could be added in pest information but not as a method for detection or identification. She also noted that the draft DP contains a key for identification and that additional figures should be added to the protocol.

[90] The TPDP adjusted the draft DP whenever possible and discussed the main points as follows:

[91] **Rearrangement of the text.** The TPDP noted that the draft DP needs some rearrangement of the information, and therefore asked the DP drafting group to address this to enhance text clarity and readability. Also, the TPDP recalled that terminology should be checked against ISPM 5. The TPDP noted that there are sub-sections and felt that not all of them are needed and should be avoided according to the IPPC Style Guide. The TPDP worked in small groups to outline an overall structure of this draft DP, highlighting the main points that the DP drafting group should consider in the revision. It was mentioned that this is still a working document and that the DP drafting group should consider carefully and improve the document.

[45] 2008-009
[46] 32_TPDP_2018_Feb
[47] 33_TPDP_2018_Feb

[92] **References.** The TPDP noted that the references needed to be updated to more recent ones, whenever possible. Also, the reference list should be completed and formatted following the Instruction to Authors and the IPPC Style Guide.

[93] **Scientific names and common names.** As identified by the referee, the TPDP agreed that the scientific name should always come first followed by the common names in parenthesis, according to the Instruction to Authors and the IPPC Style Guide.

[94] **Scope.** The TPDP asked to better outline the scope of the draft DP, which is to identify the genus *Striga* and to identify the three main species of economic importance: *S. asiatica*, *S. hermonthica* and *S. gesnerioides*. One member suggested the draft DP be more general in scope, but that economically important species be highlighted. It was explained that while detection and identification of *Striga* plants are important in surveillance (especially for first time detection within an area), *Striga* seeds as contaminants in consignments of seeds, grain and processed grain are the main pathway of spreading the pest, and therefore most relevant for international trade. Therefore, both states should be included in the scope and put in a better context.

[95] **Pest information**. The TPDP requested that this section should be reordered to better explain that *Striga* is a parasitic plant and to better outline the scope (see above). The TPDP noted that some of the information is already present but it needs to be rearranged; additional information needs to be included such as the biology of the pest and pest distribution. It was pointed out that the DP 19: *Sorghum halepense* should be taken as a model.

[96] **Pest distribution information.** The TPDP agreed that only country names or regions should be described and not specific states, following the Instructions to Authors and the IPPC Style Guide.

[97] **Taxonomic information**. The TPDP noted that this section needs to be updated following the Instruction to Authors and the IPPC Style Guide. It was pointed out that the DP 18: *Anguina* spp. has a well-structured section and appropriate authority names, and therefore the TPDP asked the DP drafting group to take DP 18 as a model for this section. The species authority for *Striga* was identified as *Striga* Lour.

[98] **Sampling.** The TPDP agreed that general information on sampling of the consignment should not be included as ISPM 31 (*Methodologies for sampling of consignments*) already provides guidance, and that for seeds ISPM 38 (*International movement of seeds*) also provides information. Therefore, this section should focus on providing information on the recommended sampling size that will provide reliable results required to perform the analysis in the laboratory. One member noted that in DP 04: *Tilletia indica*, which is relevant to seeds and grains, there is no detailed information on sampling because it is up to each NPPO to set the minimum requirements for sampling of consignments. It was noted that the sampling section would have to be rearranged and clarified, to ensure consistency on the use of the words and terms and the requirements to perform sampling for laboratory analysis either for detection or for identification (i.e. working samples). It was also noted that depending on the commodity type the sampling may vary and thus, guidance should be clear, including information on sampling for the flour ("dust") of suspected consignments, as *Striga* seeds are known to be "dust-like" seeds. The TPDP queried which features are needed for the detection of *Striga* and thus clarification should be provided in the draft DP. The TPDP noted that there was too much information directly instructing NPPOs, including several mentions to inspection and inspectors in the current draft. To avoid this the TPDP recommended that the draft DP be revised as outlined in the Instructions to Authors.

[99] **Detection.** The TPDP noted that some information included in this section belonged to pest information section or identification, and adjustments were made. The TPDP asked the DP drafting group to include information on the minimum requirements for detection. Detection would typically be in consignments of seeds, grain or processed grain, since *Striga* seeds are usually introduced as contaminants of these. Also, the TPDP asked that information be added for the detection of Striga in dust-like consignments (processed grains, e.g. flour) and for the detection of *Striga* plants in the field (e.g. for surveillance purposes). The TPDP also noted that some tests were missing or not comprehensive, and should be

included in the draft DP (e.g. water filtration for seed detection). It was explained that for field detection of the plant, the defining character is the flower as *Striga* spp. flowers are very prominent. The TPDP also recommended including additional information on potentially confusing species.

[100] **Identification.** The TPDP adjusted the text to clarify that seeds and plants of *Striga* species are identified using morphological features. Other adjustments to the text were made to enhance clarity and to better define the structure of this section. The TPDP felt that references to pictures should be made when relevant. The TPDP noted some inconsistencies on the description of some features, and recommended that these should be carefully checked. The TPDP also asked the DP drafting group to provide information on identification of *Striga* at genus level, as it is in the scope of the DP. One TPDP member highlighted that the identification of *Striga* species via seeds is possible, albeit very difficult because of the morphology of the seeds. However, as most of the countries regulate the entire *Striga* genus, identification at the species level may not be required in most cases. The TPDP noted that if identification via seeds is possible then the DP drafting group should clarify and provide validated tests. The TPDP also highlighted that there is a need to clarify the minimum requirements for identification, for example if all features need to be observed to conclude on the identity of the pest.

[101] **Germination of seeds.** One member suggested including in the draft DP some guidance on how to germinate seeds. It was noted that it is very difficult since *Striga* is a parasitic plant requiring specific hosts and the panel was not aware of validated tests for germination. Therefore, the TPDP was not sure if including germination of seeds could be possible or necessary, also because usually countries regulate at the genus level. However, the TPDP agreed to ask the DP drafting group to verify the need to include germination of seeds in the draft DP.

[102] **Plant identification.** The TPDP asked the DP drafting group to include information for the identification of plants to the genus level for *Striga* spp. as this information was missing but considered important in pest surveillance.

[103] **Records.** The TPDP asked the DP drafting group to include information on storage of samples, seeds and plants and suggested to check adopted DPs for guidance.

[104] The TPDP:

(20) *agreed* to include Mr Ran-Ling ZUO (Huangpu Entry-exit Inspection and Quarantine Bureau, China) as a co-author of the DP drafting group for *Striga* spp. (2008-009).

(21) *invited* the DP drafting group to provide revisions to the draft diagnostic protocol for *Striga* spp. (2008-009).

(22) *requested* the discipline lead to send the revised draft DP to the IPPC Secretariat by 01 June 2018 and *asked* the Secretariat to open a TPDP e-decision before submission to expert consultation.

(23) *agreed* to submit the draft diagnostic protocol to the expert consultation period in 2018.

6.2 Begomoviruses transmitted by *Bemisia tabaci* (2006-023), priority 2

[105] The discipline lead introduced the draft DP[48], the summary[49] and the checklist for discipline lead and referee[50]. He mentioned that a first draft had been presented and discussed at the TPDP meeting in Jamaica in July 2016[51]. At the time it was noted that the draft required editorial modifications as well as a more comprehensive review of methods available for the diagnosis of Begomoviruses transmitted by *B. tabaci*, including clarification on the minimum requirements for identification. As a consequence of the recommendations of the TPDP, the discipline lead and referee adjusted the draft DP and forwarded it to the DP drafting group for revision.

[48] 2006-023
[49] 17_TPDP_2018_Feb
[50] 18_TPDP_2018_Feb
[51] 2016-07 TPDP Meeting Report (Montego Bay, Jamaica): https://www.ippc.int/en/publications/82977/

[106] The discipline lead summarized the current status of the DP, pointing out that the DP drafting group still needs to address and incorporate many of the comments from the last meeting. Several points were raised and discussed by the TPDP members. It was noted that this draft still needs to be submitted for expert consultation. Therefore, the TPDP asked the Secretariat to establish contact with the entire DP drafting group to ensure their continued participation in the development of the draft DP.

[107] The TPDP adjusted the draft DP whenever possible and discussed the main points as follows:

[108] **Draft text.** The TPDP recalled that terminology should be checked against ISPM 5, the Instruction to Authors and the IPPC Style Guide (e.g. references, acknowledgement and contact points sections).

[109] **References.** The TPDP stressed that the references should be formatted in accordance with the IPPC Style Guide and that web links should be avoided in the middle of the text.

[110] **Pest information.** The TPDP felt that there was a need to better define virus genotypes occurring in the "Old world" and "New world", and asked the DP drafting group to clarify and to include additional references. The TPDP also noted that the text should be clarified overall, for example the mentions of "zones" vs "regions".

[111] **Seed transmission of begomovirus:** The TPDP noted that the draft DP included a reference describing seed transmission. However, the drafting group questioned whether this reference was valid, as it described a laboratory situation and seed transmission was not known to occur in economic situations. Therefore, the panel suggested to reword the paragraph to better clarify and capture this point in an overall approach to outline the observation that while seed transmission was formerly not considered a pathway for begomovirus spread, it can occur at least in some virus-host plant systems.

[112] **Methods, reagents and brand names.** The TPDP asked the DP drafting group to update the standard paragraph and the footnotes for the mention of methods and brand names following the last decision made by the panel at this meeting (see agenda item 9.1 of this report).

[113] **Detection and identification.** The TPDP asked the DP drafting group to clarify the minimum requirements for detection and identification. The TPDP noted that there is a lot of information but not all is necessary for the diagnosis and for the draft DP. The TPDP also asked the DP drafting group to better outline the information on different tests (e.g. ELISA and PCR tests) to improve the flow of the text. The TPDP noted that at the moment the section on methods for detection indicates that the rolling circle amplification (RCA) method is the only method for genera identification and asked the DP drafting group to clarify that there are PCR methods for the genus as well as the specific species.

[114] **Q-bank:** The TPDP noted that Q-bank, a comprehensive database on quarantine pests and diseases, which is cited in the DP, may be incorporated into the EPPO database, possibly requiring an update on the corresponding web link in the DP.

[115] **ELISA tests**: It was acknowledged that most ELISA tests are not normally relevant for begomoviruses, as they have limited specificity and sensitivity and do not detect all begomovirus strains. However, there is value for using ELISA in screening for begomovirus in a specific area (e.g. for surveillance purposes) where the target species are known to occur. Therefore, the TPDP asked the DP drafting group to consider including more guidance for the use of ELISA tests.

[116] **Symptoms.** The TPDP asked the DP drafting group to consider regrouping the figures according to the symptoms type (e.g. crinkling and mosaic), and refer to them in the text. Web links to additional pictures should also be provided.

[117] **Methods for detection and identification.** The TPDP asked the DP drafting group to reorganize this section, starting from genus level and then discussing *Begomovirus* species. The panel recommended to better differentiate and separate the information on methods, for example ELISA tests and PCR tests.

[118] Some members queried what verification of specificity of the PCR means and whether there was a need to sequence the PCR products. It was explained that usually verification is done prior to the test and if

the genus Begomovirus is detected, there is no need for sequencing. However, the panel still felt that this was unclear and asked the DP drafting group for clarification on the usage of the words "specificity" and the need for sequencing.

[119] The TPDP also noted that additional information on the PCR for detection of the genus should be included, to provide more guidance on how to perform this test. Therefore, the panel asked the DP drafting group to expand on this guidance.

[120] The TPDP also asked the DP drafting group to consider including LAMP tests in the protocol.

[121] **Extraction of plant DNA and PCR**. The TPDP asked the DP drafting group to consider describing in more detail the CTAB DNA extraction method (as for example in DP 12: Phytoplasmas). The TPDP also asked the DP drafting group to describe the PCR conditions in more detail, including the number of cycles, in table format, following the Instructions to Authors. The TPDP also noted that no information was provided on when and why to use specific primer combinations and requested the drafting group to clarify. The TPDP noticed some inconsistencies for primer sequences that did not match in their sequence with the citation referred to, and asked the drafting group to double-check all primers against the original papers.

[122] **Controls for molecular tests.** The TDPD stressed the need to include the appropriate controls in the IPPC DPs. Thus, the TPDP requested the DP drafting group to include the appropriate controls for both RCA and generic PCR.

[123] **Interpretation of results.** The TPDP noted that there was some confusion, as it mentioned interpretation of results for identification (e.g. sequencing) in the detection section. Thus, revision of this section is necessary to clearly differentiate the sections for detection and identification and the panel suggested using the draft DP for *Xylella fastidiosa* as example.

[124] **Identification of *Begomovirus* species.** The discipline lead mentioned in his summary that this section was not completed yet. The TPDP asked the DP drafting group to expand more in this section on how to identify *Begomovirus* species.

[125] **Flow chart.** The TPDP suggested that the flow chart be removed, however they noted that it contains a lot of information that should be captured in the text.

[126] The TPDP:

(24) *asked* the Secretariat to establish contact with the entire DP drafting group to ensure timely processing of the draft DP.

(25) *invited* the DP drafting group to provide revisions to the draft DP for Begomoviruses transmitted by *Bemisia tabaci* (2006-023).

(26) *requested* the discipline lead to send the draft DP to the Secretariat by 01 June 2018 and *asked* the Secretariat to open a TPDP e-decision before submission to expert consultation.

(27) *agreed* to submit the draft diagnostic protocol to the expert consultation period in 2018.

6.3 *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010), priority 2

[127] The discipline lead introduced the summary paper[52], which outlines the current status of this draft DP and the current status of the DP drafting group. He recalled that a draft for '*Candidatus* Liberibacter spp. on *Citrus* spp. (2006-0023) was first presented and discussed at the TPDP meeting in Jamaica in July 2016[53] and has already been submitted to expert consultation[54] .

[52] 28_TPDP_2018_Feb

[53] 2016-07 TPDP Meeting Report (Montego Bay, Jamaica): https://www.ippc.int/en/publications/82977/

[54] https://www.ippc.int/en/core-activities/expert-consultation-draft-diagnostic-protocols/2016/04/candidatus-liberibacter-spp-on-citrus-spp-2004-010/

[128] The discipline lead acknowledged that little progress had been made on this draft DP since August 2016. He noted that the then lead author (Ms Rita Lanfranchi – Argentina) informed the TPDP at the end of 2016 that she was unable to continue in this role due to other work commitments. The IPPC Secretariat informed that contact had been made with Ms Maria Lopez (Spain) to take on the Lead Author mantle with Dr Zhou (China) as a co-author. If no progress is made on the DP by the current authors Mr Robert Taylor has volunteered to join the DP drafting group to rewrite the protocol to try and address the concerns outlined.

[129] The original goal of submitting the draft DP to first consultation in July 2018 will not be possible. The TPDP was concerned that the methods listed in the draft DP may not be the most relevant and up to date and requested at a minimum a review of the currently available methods. One TPDP member suggested that if there were significant changes to the DP, the draft be resubmitted to the experts who had commented during the expert consultation period. One member mentioned that EPPO has completed a protocol in 2014, which could be used as guidance.

[130] The TPDP acknowledged that this pest is of global economic importance and the DP will be closely scrutinized by the contracting parties and therefore requires extensive revision.

[131] The TPDP:

(28) *noted* the update provided by the discipline lead and *asked* that any potential additional expert should be confirmed with the entire panel.

(29) *agreed* that Ms Maria LOPEZ is the lead author for the DP drafting group for *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010).

(30) *asked* the Secretariat to establish contact with the entire DP drafting group to ensure their continued participation in this DP drafting group.

(31) *asked* the discipline lead together with the DP drafting group to provide revisions to the draft diagnostic protocol for *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010) and send it to the Secretariat by 02 November 2018 with the aim that this draft DP will be submitted to the consultation period in 2019.

(32) *suggested* that once the draft DP is ready, and before 02 November, the draft could be circulated among the experts that provided comments during the expert consultation in 2016.

7. Relevant updates from other IPPC meetings

[132] The Secretariat presented the paper[55] and provided an update to the TPDP.

[133] SC meetings: The SC agreed to adjust the date of the second notification period (now from 5 January to 20 February) to facilitate reporting on results concerning the adoption of DPs. Discussions during the SC meetings included the issue of molecular tests and pest viability and the use of Next Generation Sequencing (NGS) technology for phytosanitary purposes. The SC thanked the TPDP for their valuable input into these technical discussions, acknowledging their broader impact on pest diagnosis. The SC invited the CPM to note the challenges associated with the use of the NGS technologies and that further work is needed on NGS technologies before they can be considered as the sole method for pest detection.

[134] CPM Bureau: The Secretariat presented relevant updates from the Bureau meetings in June, October and December 2017. One major concern in the Bureau's discussions was the complex issue of pest viability in context with the use of indirect molecular tests in pest diagnosis. These new technologies are very sensitive and may not distinguish between live or dead pests, thus having broader ramifications in a phytosanitary context, especially noted by the seed industry. The Bureau decided that the issue of pest viability should not be covered by IPPC DPs, as there are currently no solutions for this problem.

[55] 15_Rev_TPDP_2018_Feb

[135] SPG 2017: A draft Strategic framework for 2020-2030 will be presented to CPM-13 (2018). The Secretariat invited the TPDP to review the draft and provide comments via their CPM representatives. One member queried about the "diagnostic laboratory network" included in the development agenda, noting the panel's efforts to raise the importance of diagnostic protocols. The TPDP was very pleased that the draft strategic framework proposed the formation of a network of diagnostic laboratories.

[136] IRSS 2016 general survey[56]: The TPDP was pleased to note the rate of implementation of DPs by the IPPC contracting parties and hope the new cycle of IRSS surveys will provide more evidence on the implementation of the convention and standards. The TPDP also noted that lack of financial and human resources, infrastructure and long-term policy support were stated as the key factors impeding implementation of DPs.

[137] Global emerging issues[57]: The Secretariat presented findings from the 2016 IPPC regional workshops questionnaire on global emerging issues, which was also a topic during the Bureau meeting in October 2017 and the IPPC Technical Cooperation (TC)-RPPOs 2017 meeting. The TPDP briefly discussed the role of RPPOs in creating and curating pest alert lists as is done for example by EPPO, and recognized their important role in coordinating actions on emerging regulated pests. The panel also highlighted the need to have clear criteria for emerging pests, and, as there are different concepts, it may be beneficial to have a clear definition of 'emerging pest' in the IPPC.

[138] The TPDP:

(33) *noted* this update.

(34) *noted* the Bureau decision that diagnostic protocols should not address viability of pests at this time.

(35) *noted* the outcome of the 2016 IRSS general survey regarding the implementation level of DPs.

CPM-13 side session on gene sequencing and molecular technologies.

[139] The IPPC Secretariat introduced the document[58] outlining that this CPM-13 side event is jointly organized by the IPPC and EPPO Secretariats. This side session will be on gene sequencing and molecular technologies in plant pest diagnostics with a focus on NGS. Presentations will include an introduction to NGS technology, and information on practical applications of NGS technologies in plant pest diagnostics, including case studies & challenges. Additionally, a framework for the evaluation of biosecurity, commercial, regulatory and scientific impacts of NGS technologies will be presented. The TPDP welcomed with enthusiasm that this side session will take place and supported the proposed schedule. One TPDP member pointed out that during the side session the difference between PCR, barcoding and NGS should be outlined – in order to improve the understanding of these technologies by the IPPC contracting parties.

[140] The IPPC Secretariat mentioned that a draft CPM recommendation on the use of NGS technologies as diagnostic tools for phytosanitary purposes has been posted for discussion at CPM-13[59], accompanying the side session. The TPDP was invited to provide comments on the CPM draft recommendation via their NPPOs, if the CPM-13 agrees to submit it to consultation period. There were some discussions around the recommendation and the panel noted that there were a number of aspects that would impact their future work and future DPs.

[56] IRSS 2016 general survey. URL: http://www.fao.org/3/I7637EN/i7637en.pdf
[57] Global emerging issues – A report of findings from the 2016 IPPC regional workshops questionnaire. URL: http://www.fao.org/3/a-i8016e.pdf
[58] 25_TPDP_2018_Feb
[59] Draft CPM recommendation - The application of Next Generation Sequencing technologies for plant pest diagnostics in a phytosanitary context: https://www.ippc.int/en/publications/85463/

[141] The TPDP:

(36) *noted* and supported the proposed schedule for the CPM-13 side session on gene sequencing and molecular technologies.

8. Follow-up on actions from previous TPDP meetings

8.1 Strategic discussion on the future of the TPDP and diagnostic protocols

[142] The TPDP Steward introduced the document[60] and highlighted the importance of the TPDP and the work on the development of IPPC DPs and guidance to the SC and IPPC community.

[143] The TPDP acknowledged that the majority of their activities will need to continue for the foreseeable future. Within the existing programme[61], the TPDP stressed that there were continuing commitments and a planned workload until the final DPs have been completed. Also, there was a need for the panel to continue to function as present to ensure that IPPC DPs remain relevant and useful, including consideration of revisions to adopted DPs. Once again, the TPDP stressed that one of the main missions of IPPC is to facilitate safe trade and for that appropriate diagnostic protocols are essential.

[144] **New way of working via virtual meetings:** The panel considered whether virtual meetings could substitute for face-to-face meetings for some parts of its work programme. This was proposed due to financial constraints in the Secretariat. However, it was noted that this may be impractical, because discussions on draft protocols typically take longer than the average virtual meeting and would thus require a lot of preparatory work, also adding extra work for the Secretariat. For example, TPDP members would need to provide written comments on the drafts before the virtual meeting so that the discipline lead has enough time to prepare a response in advance. In addition, multiple virtual meetings would be needed to cover current single draft DP and thus likely require more work by the Secretariat, essentially canceling out the intended reduction of Secretariat work load. It was suggested that under certain circumstances it might be appropriate to consider having small group virtual meetings to discuss a specific topic. Therefore, the TPDP felt that with the current work programme to finalize, and possible revisions of adopted DPs, replacing face-to-face meetings with virtual meetings it is not a good and practical approach.

[145] **Future work:** The TPDP discussed areas where they could contribute their expertise in future work, including development of new DPs, revisions of existing adopted DPs and strategic discussions on horizontal issues.

[146] The TPDP recalled that six pests (*Citrus leprosis virus, Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on *Triticum* spp., *Microcyclus ulei, Mononychellus tanajoa, Puccinia graminis* f.sp. *tritici* UG 99, and *Moniliophthora roreri)* had previously been identified by the panel and recommended to the SC for the development of DPs. During their May 2017 meeting[62] the SC noted that it would be beneficial to develop DPs for these pests. The TPDP thus proposed that these six pests be added to the IPPC Framework for Standards and Implementation[63]. The TPDP reminded the SC of the importance of accurate diagnoses for the operation of effective phytosanitary systems and the SC's role in ensuring this by overseeing the production of globally agreed DPs.

[147] The TPDP also noted that the inclusion of these pests, to develop DPs, into the TPDP work programme (i.e. *List of Topics for IPPC Standards*) would depend on the outcome of the discussion during the CPM-13 on the joint call for standards and implementation. The TPDP further proposed that the SC consider a way to identify gaps in DPs and work to identify a core group of pests for which there is a need to

[60] 11_TPDP_2018_Feb
[61] As of January 2017 there were 11 draft DPs in the TPDP work programme, including 5 draft DPs at the drafting stage or with pending status. Please see the List of topics for IPPC standards: https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/
[62] SC May 2017 Report: https://www.ippc.int/en/publications/84388/
[63] IPPC Framework for Standards and Implementation: https://www.ippc.int/en/core-activities/governance/ippc-framework-for-standards-and-implementation/

develop IPPC diagnostic protocols. The panel also suggested the SC consider requesting the CPM to agree that if an emerging pest is identified, a DP should be developed if there is no appropriate diagnostic protocol available.

[148] The TPDP also noted that there will likely be revisions of existing adopted DPs in the future, following advances in methodologies. One member questioned whether papers on horizontal issues should be considered in future work plans (e.g. draft CPM recommendation on the use of NGS, quality management issues, best practices for sequencing and use of appropriate controls) and what value those could have for the IPPC and the CPM. One member also recommended the TPDP be involved in strategic issues, especially as it concerns the implementation of adopted DPs, for example by giving feedback to the SPG on how well the DPs work under different circumstances. For example, the draft IPPC 2020-2030 strategic framework[64] contains an item under the IPPC development agenda on a diagnostic laboratory network, in which the TPDP should be involved somehow. The Secretariat reminded TPDP members that their current mandate was to develop diagnostic protocols and that they should submit their concerns on strategic issues to the SC and CPM through their NPPO or RPPO contact points.

[149] **Potential topics of interest.** Ms Liping YIN introduced the document[65] on possible topics for the development of IPPC DPs. She highlighted the importance of *Solanum rostratum* and *Amaranthus palmeri* as invasive plants, noting that several countries regulate these organisms as pests. Some members queried if there is information available for the development of DPs for these pests. It was explained that there is some information available on morphological studies, on some tests and on DNA barcoding.

[150] The TPDP agreed to complete the forms on the criteria for prioritization for DP for the two pests proposed. Volunteers were Ms Juliet GOLDSMITH for *Amaranthus palmeri* and Ms Jayani WATHUKARAGE and Ms Géraldine ANTHOINE for *Solanum rostratum*, and they agreed to submit completed forms to the Secretariat by 30 March 2018. The TPDP agreed to discuss these proposals during a TPDP e-decision in April so that the outcomes of these decisions by the TPDP can be presented to the SC with the aim to invite the SC to include these two pests as gaps in the Framework for Standards and Implementation.

[151] The TPDP:

(37) *discussed* the work that will still need to be undertaken by the TPDP in the future and *stressed* that with the current work programme, and with possible revisions of adopted DPs, replacing face-to-face meetings with virtual meetings is not an efficient and practical approach.

(38) *invited* the SC to include in the Framework for Standards and Implementation, as gaps, the following:

- *Citrus leprosis virus*
- *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on *Triticum spp.*
- *Microcyclus ulei*
- *Mononychellus tanajoa*
- *Puccinia graminis* f.sp. *tritici* UG 99
- *Moniliophthora roreri.*

(39) *encouraged* TPDP members via their NPPOs and RPPOs to submit topic proposals for the development of DPs in the next call for topics, noting the six pests already identified by the TPDP.

(40) *agreed* that *Solanum rostratum* and *Amaranthus palmeri* are potential topics for the development of DPs and asked Ms Juliet GOLDSMITH for *Amaranthus palmari* and asked Ms Jayani

[64] Draft IPPC 2020-2030 Strategic Framework: https://www.ippc.int/en/news/ippc-secretarys-message-on-in-depth-discussions-over-the-ippc-strategic-framework/
[65] 31_TPDP_2018_Feb

WATHUKARAGE and Ms Géraldine ANTHOINE for *Solanum rostratum* to fill in the criteria form and present to the TPDP for a TPDP e-decision before the SC May 2018 meeting.

8.2 Guidance on the controls for the immunocapture RT-PCR

[152] Mr Delano JAMES introduced the document[66]. One member commented on the use of immunocapture to concentrate DNA from dilute samples before sequencing in NGS applications, and suggested that it could be used either specifically to capture a certain pest or more broad spectrum to concentrate, for example bacteria, in general from a sample. Another member said that the simplicity and low cost of the method refers to the fact that no DNA or RNA extraction is needed.

[153] The TPDP modified the document in session and agreed to make it available in the report, but felt that there was no need to include it now in the Instructions to Authors.

[154] The TPDP:

(41) *agreed* to include the modified document on "Guidance on the controls for the immunocapture RT-PCR" as appendix to the report (Appendix 4).

8.3 ELISA controls and interpretation of results

[155] Ms Géraldine ANTHOINE introduced the document[67] and mentioned that it did not change too much since the last meeting. However, she mentioned that for the *Xylella* draft DP some comments were received during consultation period and therefore some revision should be incorporated in this document.

[156] The TPDP reviewed the document to include the recommendation on the interpretation of ELISA test results when using a commercial kit and recommended that the manufacture's instructions should be followed in these cases.

[157] One member queried for the positive controls, if using tissue prints would be the same situation as having aliquots of positive controls. It was explained that it would be the same for tissue print, and additional guidance on storage of tissue print aliquots would be included in the document.

[158] Some members queried the need to specify the combinations for the interpretation of results for identification from pure cultures of bacteria. In the current document there is the possibility of having several combinations and thus, the statements provided, even though they are general, can be somehow misleading. The TPDP asked Ms Géraldine ANTHOINE and Mr Robert TAYLOR to revise the paragraph on interpretation of results for identification from pure cultures of bacteria.

[159] The TPDP felt that this document may be too detailed for DP authors as it includes guidance for laboratories. One TPDP member suggested that the document might be more useful for the TPDP members to help the discipline lead ensure that the DPs outline the minimum requirements for controls and interpretation results.

[160] The TPDP:

(42) *invited* TPDP members to submit additional comments to the document to the leads by 30 August 2018.

(43) *requested* Ms Géraldine ANTHOINE and Mr Robert TAYLOR to revise the document "ELISA controls and interpretation of results" to include controls needed when using commercial kits before the next TPDP face-to-face meeting.

[66] 12_TPDP_2018_Feb
[67] 13_TPDP_2018_Feb

8.4 Control options for molecular tests for pest group categories

[161] Ms Géraldine ANTHOINE introduced the document[68]. The paper provides guidance on the need (i.e. obligatory, recommended, optional or not needed) to include different controls (negative amplification control, positive amplification control, negative extraction control, positive extraction control, internal control) during molecular tests.

[162] The TPDP noted that controls for Botany are not included and need to be added. The panel recalled that the aim of this paper was to give more guidance on the controls to be included to the different disciplines.

[163] It was noted that for the term "positive nucleic acid control", which is currently in use in several DPs, it is not clear what the control is for. The TPDP suggested that the term "positive amplification control" as suggested in this paper might be more appropriate, because this control aims at providing evidence that a test (typically based on PCR amplification) can detect the pest. The panel agreed with this but the DPs currently going through the drafting process at a late stage (after consultation period) should not be changed because the Instructions to Authors will not have been changed by then. For those draft DPs at an earlier stage of development the change can be made.

[164] It was highlighted that for adopted DPs not all the "obligatory controls" are described, and that it would be difficult to change them at this time. The TPDP noted that this should be brought forward during future revisions of adopted DPs.

[165] The TPDP revised the paper during session, but further revision was needed (e.g. for inclusion of controls for Botany). It was also suggested to include control options for immunocapture in the section on viruses. A revised version of the document will be included in the Instructions to Authors once agreed.

[166] The TPDP:

(44) *agreed* to include the draft document on "Control options for molecular tests for pest group categories" as appendix to the report (Appendix 5).

(45) *invited* TPDP members to submit additional comments to the draft document to the leads by 15 May 2018.

(46) *requested* Ms Géraldine ANTHOINE to revise the draft document "Control options for molecular tests for pest group categories", to include controls for Botany, for the next TPDP face-to-face meeting.

8.5 Quality Assurance for diagnostic protocols

[167] Mr Norman BARR introduced the document[69] and pointed out that since last meeting there were no changes.

[168] The TPDP noted that for the moment no changes to the document were required, however some changes will possibly be needed if the new ISO/IEC standard 17025 (*General requirements for the competence of testing and calibration laboratories*) is out for consultation.

[169] One member noted that the definitions for "validation" and "verification" provided by ISO were confusing and felt that there were some conflicts in meaning, therefore the TPDP adjusted the terms.

[170] The TPDP:

(47) *invited* TPDP members to submit additional comments on the document to the lead prior to the next TPDP meeting.

[68] 14_TPDP_2018_Feb
[69] 26_TPDP_2018_Feb

(48) *requested* Mr Norman BARR to revise the document "Quality Assurance for diagnostic protocols" for the next TPDP meeting.

8.6 Best practices for sequencing

[171] Mr Norman BARR introduced the document[70] and pointed out that since last meeting there were few adjustments and recalled that the paper was attached to the 2017-02 TPDP meeting report.

[172] One member queried the meaning of "vouchers" and the term defined in ISPM 5 for "reference specimen". It was explained that the word "voucher" is commonly used for insects, but these terms have the same meaning. Therefore, the TPDP agreed to adjust the text to refer to the term in ISPM 5. It now reads "reference specimens (also known as vouchers)".

[173] The TPDP:

(49) *invited* TPDP members to submit additional comments to the document to the lead before the next meeting.

(50) *requested* Mr Norman BARR to revise the document "Best practices for sequencing" for the next TPDP meeting.

9. Considerations for updating TPDP procedures and guidance

9.1 Proposed changes based on the review of DPs

Editorial queries on DPs

[174] The Secretariat introduced the document on notes on format for multiple authors for genus and species authorities[71], and the document on editorial queries on DPs[72]. It was mentioned that the recommendations were provided by the IPPC editor who is seeking guidance from the panel to improve the quality of IPPC DPs.

[175] **Species authorities.** The editor proposed to adjust the style of species authorities in the DPs to use 'and' where there are two authors rather than '&', and 'et al.' where there are more than two authors. The TPDP acknowledged that international scientific organizations have their own style but also noted that internal consistency within IPPC DPs would be beneficial. However, the TPDP felt that styles would vary between disciplines and sometimes between specific pests. Therefore, the TPDP agreed that international scientific taxonomy and authority convention should be applied and no additional rule should be created for the IPPC. Moreover, the TPDP agreed that guidance on relevant references would be provided to the editor by the discipline lead for easy reference. So the use of "and" or "et al." would be considered case by case, following the original reference in which the authority is cited. The TPDP stressed that for the references section the IPPC Style Guide should be followed.

[176] **Sources for species authorities.** The TPDP identified the following sources as appropriate for citing species authorities: For plants, International Plant Name Index (IPNI) is recommended, however, since plant taxonomy can change rapidly, the source and date of the authority should be referred to. For fungi, both Index Fungorum and MycoBank are recommended sources for species authorities. For animals, Zoobank is considered incomplete and thus not appropriate. The TPDP suggested that where the taxon is not listed under Zoobank, the author surname should be cited in full, with forename initials given where necessary to avoid confusion. For bacteria, the list of Prokaryotic names with standing in nomenclature (LPSN) website was considered appropriate, however, the TPDP suggested the editor also consult the output of the taxonomic committee where recommendations on how to refer to bacteria are

[70] 27_TPDP_2018_Feb
[71] 16_TPDP_2018_Feb
[72] 24_TPDP_2018_Feb

given. In conclusion, the TPDP agreed that discipline leads should supply the relevant source for the appropriate authority to the editor to ensure correct citation.

[177] **Standard text (disclaimer) regarding brand names.** The TPDP agreed to remove duplication from the disclaimer text, but considered it important to be included in the DPs. The following text was agreed on and included in the Instructions to Authors and the TPDP asked the SC to note these adjustments:

- **Body text paragraph (to be included in every protocol):** In this diagnostic protocol, methods (including reference to brand names) are described as published, as these define the original level of sensitivity, specificity and reproducibility achieved. Laboratory procedures presented in the protocols may be adjusted to the standards of individual laboratories, provided that they are adequately validated.
- **Footnote (only if mention of brand names in the protocol):** The use of names of reagents, chemicals or equipment in these diagnostic protocols implies no approval of them to the exclusion of others that may also be suitable.

[178] **PCR terminology.** The editor requested clarification between the terms "elongation" and "extension". One member pointed out that Kary Mullis (inventor of PCR) used "elongation" in his original paper and that in the Instruction to Authors the table template the term "elongation" is also used. The TPDP did not have a strong opinion on this issue, as nowadays both terms are used interchangeably, but highlighted that consistency within a DP should be a priority.

[179] **Standard text regarding "negative amplification control".** The TPDP agreed that the text would vary slightly depending on the type of tests being described and the target pest and that the term "contamination" in this case is not used following the definition of ISPM 5. The panel wondered whether this was a significant issue as no comments had been received on the use of contamination being used in its common English sense. The TPDP agreed that a "qualifier" should be added to differentiate from the Glossary definition. This qualifier may vary according to each DP, therefore flexibility is needed for each discipline.

[180] **Standard text on negative extraction control.** It was noted that this text will also vary according to the discipline and test described in the DP. For example, for insects there is no host tissue that could contaminate the sample, so the text would need to be adjusted. Therefore, flexibility is needed for each discipline and each discipline lead should ensure that appropriate text is provided.

[181] **TPDP working procedures.** There were no comments.

[182] **Checklist for discipline lead and referees.** There were no comments.

[183] **TPDP instruction to authors.** Comments were made and decisions incorporated as follows (see also agenda item 8).

1. Figures/photos: If figures and photos are not provided in the draft DP, references to external web links should be provided in a separate section and added to the list of references.
2. The footnotes and standard paragraph on the use of brand name, methods and reagents.

[184] The TPDP:

(51) *invited* the SC to note the adjustments made in the IPPC Instruction to Authors, especially for the standard texts on the use of brand names.

10. Liaison

10.1 European and Mediterranean Plant Protection Organization (EPPO) update on diagnostic protocols

[185] Ms Françoise PETTER gave a presentation on the highlights from outcomes of EPPO's Panels on Diagnostics in 2017. She explained that EPPO protocols are prepared by expert teams, who form specific

panels for different disciplines. Furthermore, she said that EPPO protocols are in line with IPPC DPs content, but follow EPPO specific formats.

[186] **Flexible scope in plant health.** EPPO is working on developing a standard on this topic as it is considered important in relation to ISO standard 17025. The goal is to have a harmonized standard for accredited reference laboratories to allow them to undertake certain tests and report the results, even though they are not explicitly stated in the laboratory's scope. This is particularly important because there will soon be a requirement in the European Union (EU) for phytosanitary laboratories to be accredited to ISO 17025.

[187] EPPO held a workshop on this topic, discussing quality assurance, validation and expertise within the framework of flexible scope. Because this topic was considered high priority, EPPO decided to revise and adjust existing standards to reflect the needs of flexible scope. Comments from country consultation for the revised standards were expected in February 2018. EPPO aims at reviewing and revising these standards for adoption in 2018.

[188] **National reference laboratories.** EPPO has adopted a new standard describing the main tasks of Reference Laboratories for official plant pest diagnostics based on a NAPPO standard.

[189] **Workshop on NGS in Bari in November.** Together with Euphresco and COST Action, EPPO organized a workshop on the use of NGS technologies for plant pest diagnostics with some input from the IPPC Secretariat (see also agenda item 7.1). Hands-on sessions were divided based on levels of expertise with NGS and focused on different aspects, such as NPPO decisions on the use of NGS, hands-on training on NGS data and quality assurance on the interpretation of NGS data.

[190] In conclusion, a white paper on NGS is in preparation by an international group, and is mainly targeted at pest risk managers underlining the importance of NGS and explaining possibilities and limitations of these technologies. In addition, technical guidelines will be produced for recommendation for laboratories using or intending to use NGS. Documents from the workshop are available on the EPPO web site[73]. It was mentioned that EPPO has been asked to produce a standard on the use of NGS, but they doubt whether a standard is appropriate because the field is moving quickly, making it difficult to draft a standard.

[191] **Reference material – Q-collect project.** Within the framework of the 2015 EU Q-collect project, a white paper on the requirements for need and costs associated with reference collections was presented to the heads of NPPOs. EPPO was asked to convert this into a standard. However, it was felt that it would be too difficult to convert the recommendations into practical obligations that would be workable for laboratory collections. Thus, focus has shifted to prepare a recommendation on how to prepare and share valid reference material, not whole collections. This would make it easier for a lab that is not a proper repository to send material to other labs for test performance studies. If it were a standard, only official collections would be allowed to distribute reference material, impeding Quality Assurance systems. The white paper is available on the EPPO web site[74].

[192] **Nematode collection:** EPPO organized a workshop on maintenance of nematode collections in Wageningen, NL. The agreed goal was to develop guidelines on the maintenance of nematode reference material. Nematology panels have been looking at how they operate and asked to share their SOPs and protocols so that these can be combined in the guidelines.

[193] **Communication between diagnosticians and pest risk managers:** This topic started from an issue with *Xylella fastidiosa* but has been broadened to be more widely applicable. The USA also have such issues and it is an area of importance. The main idea is that the risk manager needs to understand the results of diagnostics and their confidence level in order to make a decision. At the same time the diagnostician needs to know what information is required and how to communicate to the risk manager

[73]URL: http://archives.eppo.int/MEETINGS/2017_conferences/Workshop_NGS.htm
[74]URL: http://archives.eppo.int/MEETINGS/2015_conferences/q-collect/White_paper_on_collections_2015-10.pdf

what testing has been done and the levels of confidence for the test results. The revision of the standard will include a chapter on communication and examples for different circumstances such as first findings (critical cases) or results of surveys. These different situations require different levels of certainty and confidence in the results and speed of reaction. The TPDP expressed interest in reading the chapter and providing input.

[194] **Pest specific diagnostic protocols:** EPPO reported that around 30 pest specific DPs are currently in different stages of revision or preparation. EPPO is considering improving their procedures by adopting a fast track process for all pest specific DPs, even in their first versions. This would allow faster reaction to tackle emerging pests and also reflect the high speed of methodological advances. It was stressed that this fast track process only applies to DPs, not to horizontal standards.

10.2 International Organization for Standardization (ISO)

[195] The IPPC Secretariat and the Chairperson updated the TPDP on the activities of ISO regarding the draft standard ISO/TC 34/SC 16/ 13484: *Molecular Biomarker Analysis: General requirements for molecular biology analysis for detection and identification of plant pests*. This draft ISO standard has been rejected in the vote twice by ISO member countries. There were some suggestions as for example that it could be a technical document – this requires less approval by the members. As such, it will not be a requirement as a standard. It was informed that no final decision has been made on the type of document, however, this can change quickly. It was highlighted that it will be important for the TPDP to be aware of it and make sure that the information is not conflicting with IPPC's mandate.

[196] The TPDP was also informed that there are some initiatives on NGS. However, currently there is nothing related to plant and plant products, but this will be followed up and if there is any development in this direction the IPPC community will be informed.

[197] New version of ISO 17025–2017. It was informed that this ISO revised standard will come into force in 2019. It includes a risk-based approach and can include sequences as reference material. Laboratories have to consider how to manage the risks because they do not typically manage the web sites providing reference sequence data. Also, more emphasis was put on risk management for IT systems. A publicly available PowerPoint presentation on the evolution of the ISO 17025 standard was circulated to the TPDP members.

[198] The Secretariat reiterated that there is no requirement to have an ISO standard in place to implement the IPPC and standards, as per a CPM decision.

10.3 Global Taxonomy Initiative (GTI) of the Convention on Biological Diversity (CBD).

[199] Mr BARR updated the panel on activities of the GTI[75]. He mentioned that GTI continues its work on capacity building for experts, on taxonomy based on DNA sequence identification, with some focus on biodiversity. He mentioned that in 2017 there was a call for proposals for countries to have training on DNA based methods. Eleven proposals have been selected and courses will be organized in 2018. More information can be found on the CBD website[76].

[200] The TPDP:

(52) *noted* the updates on the EPPO, ISO and GTI activities.

11. TPDP work plan

11.1 TPDP 2018-2019 work plan

[201] The TPDP reviewed their tentative work plan for 2018 - 2019 and modified it according to decisions taken during this meeting (Appendix 6). The Secretariat highlighted that a face-to-face meeting is

[75] URL: https://www.cbd.int/gti/
[76] URL: http://www.cbd.int/doc/notifications/2018/ntf-2018-021-gti-en.pdf

tentatively planned for 28 January – 01 February 2019 in Melbourne, Australia – however, pending confirmation on the IPPC Secretariat budgetary situation.

[202] For ease of reference, a list of action points arising from the meeting is attached as Appendix 7.

12. Other business

[203] Mr Delano JAMES informed the TPDP that the taxonomy of Tospoviruses has changed and they are now called Orthotospovirus, according to ICTV. The panel agreed that this should be passed on to the Secretariat for filing and consideration when the corresponding diagnostic protocol DP 24: *Tomato spotted wilt virus, Impatiens necrotic spot virus* and *Watermelon silver mottle virus* is revised.

13. Recommendations to the SC

[204] Recommendations to the SC are described in previous sections of this report. For easier reference they are compiled below.

[205] The SC is invited to:

(1) *consider* submitting the revised draft Revision of the DP 2: *Plum pox virus* (2016-007) for adoption in the next DP notification period.

(2) *note* the comments and their responses (comments 1, 9, 77 and 123) from the consultation on Revision of the DP02: *Plum pox virus* (2016-007) on possible implementation issues with regards to appropriate laboratory infrastructure, staff expertise and access to protocols referenced in the DP.

(3) *consider* submitting the revised draft on *Xylella fastidiosa* (2004-024) for adoption in the next DP notification period.

(4) *note* the contracting party comment (comment 55 of the compiled comments) on the recommendation to include in the work programme of the Technical Panel for the Glossary (TPG) the definition of "detection" as well as the recommendation of the TPDP that there is no need to have this definition in ISPM 5 as the TPDP felt that the term is sufficiently defined and explained in ISPM 27.

(5) *note* the comments (comments 176 and 206) from the consultation on *Xylella fastidiosa* (2004-024) on possible implementation issues on the acquisition of positive controls to perform diagnosis.

(6) *note* the name change of the draft DP "*Puccinia psidii* (2006-018)" to "*Austropuccinia psidii* (2006-018)" due to changes in taxonomy as this is a new genus name for myrtle rust now placed within the redefined family Sphaerophragmiaceae (Pucciniales).

(7) *consider* submitting the revised draft on *Austropuccinia psidii* (2006-018) for adoption in the next DP notification period.

(8) *consider* submitting the revised draft on *Bactrocera dorsalis* complex (2006-026) for adoption in the next DP notification period.

(9) *note* the request from a contracting party for future revision of the DP on "*Bactrocera dorsalis* complex" to include larvae identification, once methods are available (see comment 52 of the compiled comments).

(10) *consider* submitting the revised draft on *Conotrachelus nenuphar* (2013-002) for adoption in the next DP notification period.

(11) *consider* submitting the revised draft on *Ips* spp. (2006-020) for adoption in the next DP notification period.

(12) *include* in the Framework for Standards and Implementation, as gaps, the following:

- *Citrus leprosis virus*

- *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on *Triticum spp.*
- *Microcyclus ulei*
- *Mononychellus tanajoa*
- *Puccinia graminis* f.sp. *tritici* UG 99
- *Moniliophthora roreri.*

(13) *note* the adjustments made in to the IPPC Instruction to Authors, especially for the standard texts on the use of brand names as follows:

- **Paragraph (in DP body text):** In this diagnostic protocol, methods (including reference to brand names) are described as published, as these define the original level of sensitivity, specificity and reproducibility achieved. Laboratory procedures presented in the protocols may be adjusted to the standards of individual laboratories, provided that they are adequately validated.
- **Footnote (only necessary if brand names are mentioned in the methods):** The use of names of reagents, chemicals or equipment in these diagnostic protocols implies no approval of them to the exclusion of others that may also be suitable.

(14) *consider* that Ms Françoise PETTER (EPPO) be invited to the next TPDP face-to-face meeting, as invited expert.

14. Closing of the meeting

[206] The TPDP thanked the Standard Setting Secretariat staff for their professional support and dedication to the work.

[207] The TPDP thanked EPPO for hosting the meeting.

[208] The Secretariat thanked the participants for their active participation. The Secretariat also requested the discipline leads to pass on thanks to all the members of the DP drafting groups.

[209] The Chairperson informed the TPDP that a link to the electronic evaluation of this meeting would be sent to the participants and that they were encouraged to provide their feedback before 6 March 2018.

[210] The Chairperson closed the meeting.

Appendix 1

2018 MEETING of the
TECHNICAL PANEL ON DIAGNOSTIC PROTOCOLS

05 - 09 February 2018
EPPO headquarters, Paris, France

Opening: Monday 05 February at 09:30
Monday schedule: 09:30 – 13:00 and 14:00 – 17:00
Daily Schedule (Tuesday – Friday): 09:00-12:00 and 13:00-17:00

AGENDA

Agenda Item		Document No.	Presenter
1.	**Opening of the Meeting**		
1.1	• Welcome by the IPPC Secretariat • Welcome by the meeting host: European and Mediterranean Plant Protection Organization (EPPO)	--	MOREIRA PETTER
2.	**Meeting Arrangements**	--	
2.1	Selection of the Chairperson	--	MOREIRA
2.2	Selection of the Rapporteur	--	CHAIRPERSON
2.3	Adoption of the Agenda	01_TPDP_2018_Feb	CHAIRPERSON
3.	**Administrative Matters**	--	
3.1	Documents list	02_TPDP_2018_Feb	MOREIRA / PETTER
3.2	Participants list	03_TPDP_2018_Feb TPDP membership list	
3.3	Local information	04_TPDP_2018_Feb	
4.	**Overview of the TPDP work programme**	Link to List of topics for IPPC Standards Link to IPPC DPs drafting groups list Link to TPDP 2017-02 meeting report	MOREIRA
5.	**Review of draft diagnostic protocols after consultation period[77]**	--	CHAIRPERSON
5.1	Revision of the DP2. *Plum pox virus* (2016-007), priority 1 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses)	2016-007 05_TPDP_2018_Feb 06_TPDP_2018_Feb	JAMES
5.2	*Xylella fastidiosa* (2004-024), priority 2 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses)	2004-024 07_TPDP_2018_Feb 08_TPDP_2018_Feb	ANTHOINE

[77] Additional resources: IPPC procedure manual for standard setting: https://www.ippc.int/en/core-activities/ippc-standard-setting-procedure-manual/; IPPC style guide: https://www.ippc.int/en/publications/81329/; TPDP instructions to authors: https://www.ippc.int/en/publications/83612/

Agenda Item		Document No.	Presenter
5.3	*Austropuccinia psidii* (2006-018), priority 2 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses)	2006-018 09_TPDP_2018_Feb 10_TPDP_2018_Feb	TAYLOR
5.4	*Bactrocera dorsalis* complex (2006-026), priority 2 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses)	2006-026 22_TPDP_2018_Feb 23_TPDP_2018_Feb	BARR
5.5	*Conotrachelus nenuphar* (2013-002), priority 2 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses) - Figures for the draft DP	2013-002 19_TPDP_2018_Feb 20_TPDP_2018_Feb 21_TPDP_2018_Feb	BARR
5.6	*Ips* spp. (2006-020), priority 4 - Discipline lead's summary of comments from consultation - Compiled comments (including discipline lead's responses)	2006-020 29_TPDP_2018_Feb 30_TPDP_2018_Feb	BARR
6.	**Review of draft diagnostic protocols before consultation period**	--	CHAIRPERSON
6.1	*Striga* spp. (2008-009), priority 1 - Discipline lead's summary - Checklist for discipline leads and referees	2008-009 32_TPDP_2018_Feb 33_TPDP_2018_Feb	YIN
6.2	Begomoviruses transmitted by *Bemisia tabaci* (2006-023), priority 2 - Discipline lead's summary - Checklist for discipline leads and referees	2006-023 17_TPDP_2018_Feb 18_TPDP_2018_Feb	RODONI
6.3	*Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010), priority 2 - Discipline lead's summary update on the draft DP status	28_TPDP_2018_Feb	RODONI
7.	**Updates from relevant IPPC bodies**		CHAIRPERSON
7.1	Relevant updates from other IPPC meetings: - Standards Committee (SC) - CPM Bureau - IRSS 2016 general survey - Global emerging issues: A report of findings from the 2016 IPPC regional workshops questionnaire - CPM-13 (2018) side session on "gene sequencing and molecular technologies"	15-Rev_TPDP_2018_Feb Link to SC meeting reports Link to CPM Bureau meeting reports Link to 2016 IRSS survey Global emerging issues link 25_TPDP_2018_Feb	Steward (CHARD) / MOREIRA / PETTER
8.	**Follow-up on actions from TPDP previous meetings**		CHAIRPERSON

Agenda Item		Document No.	Presenter
8.1	Strategic discussion on the future of the TPDP and diagnostic protocols - New way of working - Identification of gaps (new / revisions)	11_TPDP_2018_Feb TPDP specification TP 1 Link to adopted ISPMs 31_TPDP_2018_Feb	Steward (CHARD) / MOREIRA GOLDSMITH / BARR YIN
8.2	Guidance on the controls for the immunocapture RT-PCR	12_TPDP_2018_Feb	JAMES
8.3	ELISA controls and interpretation of results	13_TPDP_2018_Feb	ANTHOINE
8.4	Control options for molecular tests for pest group categories	14_TPDP_2018_Feb	ANTHOINE and TAYLOR
8.5	Quality Assurance for diagnostic protocols	26_TPDP_2018_Feb	BARR
8.6	Best practices for sequencing	27_TPDP_2018_Feb	BARR
9.	**Considerations for updating TPDP procedures and guidance**		CHAIRPERSON
9.1	Proposed changes based on the review of DPs - Editorial queries on DPs - Notes on format for multiple authors in genus and species authorities	24_TPDP_2018_Feb 16_TPDP_2018_Feb TPDP Working procedures TPDP Instructions to authors Checklist for discipline leads and referees (work area page)	IPPC Secretariat / Steward (CHARD)
10.	**Liaison**		
10.1	• European and Mediterranean Plant Protection Organization (EPPO) update on diagnostic protocols	-	PETTER
10.2	• International Organization for Standardization (ISO)	-	JAMES / MOREIRA
10.3	• Global Taxonomy Initiative (GTI) of the Convention on Biological Diversity (CBD)	-	BARR
11.	**TPDP work plan**		
11.1	TPDP 2018-2019 work plan	(To be prepared during the meeting)	IPPC Secretariat
12.	**Other business**		CHAIRPERSON
13.	**Recommendations to the SC**		CHAIRPERSON
14.	**Closing of the meeting** - Evaluation of the meeting - Close		IPPC Secretariat CHAIRPERSON

Appendix 2

DOCUMENTS LIST

(Documents are presented in the order of the document numbers)

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
Draft Diagnostic Protocols			
2004-024	5.2	*Xylella fastidiosa* (2004-024)	2018-01-17
2006-018	5.3	*Austropuccinia psidii* (2006-018)	2018-01-17
2006-020	5.6	*Ips* spp. (2006-020)	2018-01-19
2006-023	6.2	Begomoviruses transmitted by *Bemisia tabaci* (2006-023)	2018-01-19
2006-026	5.4	*Bactrocera dorsalis* complex (2006-026)	2018-01-17
2008-009	6.1	*Striga* spp. (2008-009)	2018-01-19
2013-002	5.5	*Conotrachelus nenuphar* (2013-002)	2018-01-19
2016-007	5.1	Revision of the DP2. *Plum pox virus* (2016-007)	2018-01-17
Other documents			
01_TPDP_2018_Feb	2.3	Agenda	2017-11-10 (Updated version posted on: 2018-01-25
02_TPDP_2018_Feb	3.1	Documents list	2018-01-30
03_TPDP_2018_Feb	3.2	Participants list	2018-01-17
04_TPDP_2018_Feb	3.3	Local information	2017-12-20
05_TPDP_2018_Feb	5.1	Summary of comments from consultation: *Plum pox virus*	2018-01-17
06_TPDP_2018_Feb	5.1	Compiled comments for Draft revision of DP 2: *Plum pox virus*	2018-01-17
07_TPDP_2018_Feb	5.2	Summary of comments from consultation: *Xylella fastidiosa*	2018-01-17
08_TPDP_2018_Feb	5.2	Compiled comments for Draft DP for *Xylella fastidiosa*	2018-01-17
09_TPDP_2018_Feb	5.3	Summary of comments from consultation: *Austropuccinia psidii*	2018-01-17
10_TPDP_2018_Feb	5.3	Compiled comments for Draft DP for *Austropuccinia psidii*	2018-01-19

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
11_TPDP_2018_Feb	8.1	Strategic discussion on the future of the TPDP and diagnostic protocols	2018-01-17
12_TPDP_2018_Feb	8.2	Guidance on the controls for the immunocapture RT-PCR	2018-01-17
13_TPDP_2018_Feb	8.3	ELISA controls and interpretation of results	2018-01-17
14_TPDP_2018_Feb	8.4	Control options for molecular tests for pest group categories	2018-01-17
15-Rev_TPDP_2018_Feb	7.1	Updates from relevant IPPC bodies and meetings	2018-01-18
16_TPDP_2018_Feb	9.1	Editorial notes on format for multiple authors in genus and species authorities	2018-01-17
17_TPDP_2018_Feb	6.2	Summary on status of draft DP on Begomoviruses	2018-01-19
18_TPDP_2018_Feb	6.2	Checklist for discipline leads and referees for draft DP on Begomoviruses	2018-01-19
19_TPDP_2018_Feb	5.5	Summary of comments: *Conotrachelus nenuphar*	2018-01-19
20_TPDP_2018_Feb	5.5	Compiled comments for Draft DP for *Conotrachelus nenuphar*	2018-01-19
21_TPDP_2018_Feb	5.5	Figures for the draft DP for *Conotrachelus nenuphar*	2018-01-19
22_TPDP_2018_Feb	5.4	Summary of comments from consultation: *Bactrocera dorsalis* complex	2018-01-19
23_TPDP_2018_Feb	5.4	Compiled comments for Draft DP for *Bactrocera dorsalis* complex	2018-01-19
24_TPDP_2018_Feb	9.1	Editorial queries on Diagnostic Protocols	2018-01-19
25_TPDP_2018_Feb	7.1	CPM side session on “gene sequencing and molecular technologies”	2018-01-19
26_TPDP_2018_Feb	8.5	Quality Assurance for diagnostic protocols	2018-01-19
27_TPDP_2018_Feb	8.6	Best practices for sequencing	2018-01-19
28_TPDP_2018_Feb	6.3	Summary update on draft DP: *Candidatus* Liberibacter spp. on *Citrus* spp.	2018-01-19
29_TPDP_2018_Feb	5.6	Summary of comments from consultation: *Ips* spp.	2018-01-19
30_TPDP_2018_Feb	5.6	Compiled comments for Draft DP for *Ips* spp.	2018-01-19
31_TPDP_2018_Feb	8.1	Potential topics of interest	2018-01-25
32_TPDP_2018_Feb	6.1	Summary on status of draft DP on *Striga* spp.	2018-01-30
33_TPDP_2018_Feb	6.1	Checklist for discipline leads and referees for *Striga* spp.	2018-01-30

Documents links (presented in the order of the agenda items)

DOCUMENT NO.	AGENDA ITEM	DOCUMENT LINK
TPDP Membership list	3.2	TPDP membership list
List of Topics for IPPC Standards	4.0	Link to List of topics for IPPC Standards
DP Drafting groups list	4.0	Link to IPPC DPs drafting groups list
TPDP February 2017 meeting report	4.0	Link to TPDP 2017-02 meeting report
Updates from other relevant IPPC meetings – CPM Bureau meeting	7.1	Link to CPM Bureau meeting reports
Updates from other relevant IPPC meetings - Standards Committee (SC)	7.1	Link to SC meeting reports
Implementation and Review Support System (IRSS) 2016 general survey	7.1	Link to summary of IRSS survey
Global emerging issues: A report of findings from the 2016 IPPC regional workshops questionnaire	7.1	Global emerging issues link
TPDP Specification TP 1	8.1	TPDP specification TP 1
Adopted ISPMs	8.1	Link to adopted ISPMs
TPDP Working procedures	9.1	TPDP Working procedures
TPDP Instructions to authors	9.1	TPDP Instruction to authors
Checklist for discipline leads and referees	9.1	Checklist for discipline leads and referees (work area page)
TPDP public page (main page)	-	Link to TPDP public page
IPPC Standard Setting Procedure Manual	-	Link to IPPC Standard Setting Procedure Manual
IPPC Style Guide	-	IPPC Style Guide
IPPC brochure: An introduction for the authors of IPPC DPs	-	An Introduction for the authors of IPPC DPs

Appendix 3

PARTICIPANTS LIST

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

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
TPDP members					
✓	Steward	**Ms Jane CHARD** **United Kingdom** Tel: (+44) 131 447 5980	janemchard@yahoo.co.uk		
✓	Assistant Steward	**Ms Jayani Nimanthika WATHUKARAGE** National Plant Quarantine Service, Canada Friendship Road, Katunayake, **SRI LANKA** Tel : +94718015660 Fax : +94112253709	jayaninimanthika@gmail.com		
✓	Bacteriology, and backup for mycology	**Mr Robert TAYLOR** Plant Health & Environment Laboratory New Zealand Ministry for Primary Industries 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	2021 (2nd term 2016-2021)
✓	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 0577 Fax: (+86) 21 6854 6481	yinlp@shciq.gov.cn; yinlp2013@hotmail.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	2022 (2nd term 2017-2022)

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Entomology	**Ms Juliet GOLDSMITH** Plant Health Specialist Caribbean Agricultural Health and Food Safety Agency (CAHFSA) Letitia Vriesdelaan 10 Paramaribo **Suriname** Tel: (+597) 422 546 Mobile: (+597) 725 2922	juliet.goldsmith@cahfsa.org	November 2014	2019
✓	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 2014-2019)
✓	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	November 2010	2020 (2nd term 2015- 2020)
✓	Virology, and backup for bacteriology	**Mr Brendan RODONI** Agriculture Victoria Research AgriBio Centre Ring Road La Trobe University Bundoora 3083 **Australia** Tel: (+61) 3 9032 7319 Fax: (+61) 3 9800 3521	brendan.rodoni@ecodev.vic.gov.au	July 2012	2022 (2nd term 2017-2022)

Other participants			
✓	Invited Expert	**Ms Françoise PETTER** Assistant Director 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

✓	IPPC Secretariat Standard Setting Officer Team Lead	**Mr Brent LARSON** Standard Setting Team Lead 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 54915	Brent.Larson@fao.org
✓	IPPC Secretariat Lead for TPDP	**Ms Adriana G. MOREIRA** Standard Setting Officer (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 Support for TPDP	**Ms Sandra GORITSCHNIG** Standard Setting Associate 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 50160	Sandra.Goritschnig@fao.org

Appendix 4

GUIDANCE ON THE CONTROLS FOR IMMUNOCAPTURE RT-PCR

(*Prepared by Mr Delano JAMES*)

Background

[1] Sample preparation can influence the validity and reliability of a test and is a critical step in the application of a diagnostic test such as RT-PCR. Most RT-PCR tests are preceded by total RNA extraction. There are various methods of RNA extraction that utilize a range of different chemicals for example; ethidium bromide-cesium chloride gradient centrifugation, guanidinium thiocyanate – phenol-chloroform RNA extraction and cetyltrimethylammonium bromide (CTAB) RNA extraction. These methods are complex and time consuming.

[2] More recently commercially available RNA extraction kits based on silica matrix extraction, such as QIAGEN's RNeasy Plant Mini Kit, are in common use due to their convenience, simplicity, and consistency. The kits tend to be expensive which may in some cases prevent their use in routine and large scale diagnostics.

[3] To reduce cost alternative RT-PCR methods have been described that do not require RNA extraction. Some include: direct RT-PCR methods that allow analysis using a special sample grinding buffer without the need for RNA extraction (Kim et al., 2008); immunocapture (IC) RT-PCR where antibody-coated microtubes are used to trap the target virus with subsequent denaturation followed directly by RT-PCR (Candresse et al., 1994; James, 1999); also tube capture (TC) RT-PCR where select microtubes with validated binding capacity are used to capture directly the target virus followed by RT-PCR (James, 1999).

[4] Some advantages of IC-RT-PCR include their simplicity, low cost of template preparation (compared to commercial extraction kits) and sensitivity (Candresse et al., 1994; James, 1999). In various studies comparing sensitivities IC-RT-PCR was found to be more sensitive than RT-PCR (Candresse et al., 1994; James, 1999).

Appropriate controls

[5] As with other molecular tests, including appropriate controls are necessary for reliable and valid test results.

[6] In the case of IC-RT-PCR where no nucleic extraction is performed, plant sap from a known positive plant should be used as a positive control, and plant sap from a healthy plant should be used as a negative control. A negative amplification control should also be included. The latter control is used to rule out false positives due to contamination during the preparation of the reaction mixture. RNase-free PCR-grade water that was used to prepare the reaction mixture is added at the amplification stage for use as a negative amplification control.

Necessary Controls:

[7] **Positive immunocapture control.** This control is used to monitor the reliability of the test for IC-RT-PCR, and the amplification process. A known infected host similar to the species being tested should be used. Infected plant material printed on a membrane may also be used. Control samples should be prepared fresh or stored under conditions similar to the test samples.

Negative immunocapture control. This control is necessary to rule out false positives due to contamination during sample preparation and should be obtained from a healthy plant sample similar to the species being tested.

[8] **Negative amplification control (no template control).** This control is useful to rule out false positives due to contamination during preparation of the reaction mixture. RNase-free PCR-grade water that was used to prepare the reaction mixture is added at the amplification stage.

References

[211] Candresse, T., Macquaire, G., Lanneau, M., Bousalem, M., Wetzel, T., Quiot-Douine, L., Quiot, J.B., and Dunez, J. 1994. Detection of plum pox potyvirus and analysis of its molecular variability using immunocapture-PCR. EPPO Bulletin 24: 585-594.

[212] James, D. 1999. A simple and reliable protocol for the detection of apple stem grooving virus by RT-PCR and in a multiplex PCR assay. Journal of Virological Methods 83: 1-9.

[213] Kim, W.-S., Stobbs, L.W., Lehman, S.M., James, D., and Svircev, A.M. 2008. Direct real-time PCR detection of Plum pox virus in field surveys in Ontario. Canadian Journal of Plant pathology 30: 308-317.

Appendix 5

DESCRIPTION OF CONTROL OPTIONS FOR MOLECULAR TESTS FOR PEST CATEGORIES AND PURPOSES OF THE TESTS

(Prepared by Geraldine ANTHOINE)

Background

[214] The issue of controls for the molecular tests was discussed by the TPDP during the 2016 July meeting[78]. The Panel considered the minimum requirements for a negative extraction control for PCR. The Panel concluded that for each test, a set of controls should be used, but agreed that the set would vary from test to test and from pest to pest. Thus, the TPDP requested Ms Géraldine ANTHOINE to prepare a document with control options for each pest group (i.e. each discipline) to be discussed by the Panel.

[215] The paper provides guidance (obligatory, recommended, optional or not needed) on the need to include different controls (negative amplification control, positive amplification control, negative extraction control, positive extraction control, internal control) during molecular tests. The guidance is provided for combinations of pest categories (bacteriology, phytoplasmas, entomology, mycology, nematology and virology) and purposes of testing (detection or identification).

[216] Suggestions of improvement were made during TPDP meetings in February 2017 and 2018. The text was adjusted accordingly.

[78] TPDP meeting reports are available at: https://www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-diagnostic-protocols/

DESCRIPTION OF CONTROL OPTIONS FOR MOLECULAR TESTS FOR PEST CATEGORIES AND PURPOSES OF THE TESTS

Discipline	Purpose of the test	Negative extraction control (NEC)	Positive extraction control (PEC)	Negative amplification control (NAC)	Positive amplification control (PAC)	Internal control
Bacteriology	**Detection**	**Obligatory** Include this control for each series of extractions When negative samples are expected in the area and if an internal control is in place, this control can be replaced by samples detected as negative in the same PCR run.	**Obligatory** Include this control for each series of extractions Where the pest is present in the area, this control can be replaced by samples detected as positive in the same PCR run.	**Obligatory**	**Obligatory** If several species are to be detected, PAC for each species should be included	**Not needed** if a universal primer set that amplifies pest and matrix (e.g. generic primers, which amplify target regions in 16S rDNA) is used. **Recommended** in other cases the use of primers targeting a plant housekeeping gene such as Actin, *COX*, 18S rDNA or *GAPDH*
	Identification (pure culture)	**Optional**	**Optional**	**Obligatory**	**Obligatory** If several species are to be identified, PAC for each species should be included	**Not needed** if a universal primer set (that amplifies pest) is used **Recommended** in other cases
Botany	**Identification** (isolated plant part / seed)	**Obligatory**	**Optional**	**Obligatory**	**Obligatory** If several species are to be identified, PAC for each species should be included	**Recommended** use of primer sets to detect either plant housekeeping gene (e.g. Actin, 28S rDNA or *COX*) or host specific sequence.

Discipline	Purpose of the test	Negative extraction control (NEC)	Positive extraction control (PEC)	Negative amplification control (NAC)	Positive amplification control (PAC)	Internal control
Entomology	**Identification** (isolated insect/acari)	**Obligatory**	**Optional**	**Obligatory**	**Obligatory** If several species are to be identified, PAC for each species should be included	**Not needed** if a universal primer set is used (e.g. 18S rDNAor ITS gene target) **Recommended** in other cases, e.g. *COI* (*CoxI*) primers LCO1490/ HCO2198 (Folmer *et al.* Molecular Marine Biology and Biotechnology 1994:3(5) 294-299).
Mycology	**Detection**	**Obligatory** Include this control for each series of extractions When negative samples are expected in the area and if an internal control is in place, this control can be replaced by samples detected as negative in the same PCR run.	**Obligatory** Include this control for each series of extractions Where the pest is present in the area, this control can be replaced by samples detected as positive in the same PCR run.	**Obligatory**	**Obligatory** If several species are to be detected, PAC for each species should be included	**Not needed** if a universal primer set that amplifies pest and matrix, e.g. 18S rDNA gene or a fungal housekeeping gene such as mitochondrial *nad5* (NADH dehydrogenase 5), is used **Recommended** in other cases the use of primers targeting a plant housekeeping gene such as Actin, *COX*, 18S rDNA or *GAPDH.*
	Identification (pure culture)	**Optional**	**Optional**	**Obligatory**	**Obligatory** If several species are to be identified, PAC for each species should be included	**Not needed** if a universal primer set (that amplifies pest e.g. 18S rDNA) is used **Recommended** in other cases (e.g. 18S rDNA primers)

Discipline	Purpose of the test	Negative extraction control (NEC)	Positive extraction control (PEC)	Negative amplification control (NAC)	Positive amplification control (PAC)	Internal control
Nematology	**Detection**	**Obligatory** Include this control for each series of extractions When negative samples are expected in the area and if an internal control is in place, this control can be replaced by samples detected as negative in the same PCR run.	**Obligatory** Include this control for each series of extractions Where the pest is present in the area, this control can be replaced by samples detected as positive in the same PCR run.	**Obligatory**	**Obligatory** If several species are to be detected, PAC for each species should be included	**Not needed** if a universal primer set (that amplifies pest and matrix, e.g. 18S gene or ITS region) is used **Recommended** in other cases the use of primers targetting a plant housekeeping gene such as Actin, *COX*, 18S rDNA or *GAPDH.*
	Identification (isolated nematodes)	**Optional**	**Optional**	**Obligatory**	**Obligatory** If several species are to be identified, PAC for each species should be included	**Not needed** if a universal primer set (that amplifies pest, e.g. 18S gene) is used. **Recommended** in other cases (e.g. 18S rDNA or *COI* gene)
Phytoplasmas	**Detection / identification**	**Obligatory** Include this control for each series of extractions When negative samples are expected in the area and if an internal control is in place, this control can be replaced by samples detected as negative in the same PCR run.	**Obligatory** Include this control for each series of extractions Where the pest is present in the area, this control can be replaced by samples detected as positive in the same PCR run.	**Obligatory**	**Obligatory** If several species are to be detected, PAC for each species should be included.	**Not needed** if a universal primer set that amplifies pest and matrix (e.g. generic primers, which amplify target regions in 16S rDNA) is used **Recommended** in other cases the use of primers targeting a plant housekeeping gene such as Actin, *COX*, 18S rDNA or *GAPDH*

Discipline	Purpose of the test	Negative extraction control (NEC)	Positive extraction control (PEC)	Immunocapture control (ICC)	Negative amplification control (NAC)	Positive amplification control (PAC)	Internal control
Virology	**Detection / identification**	**Obligatory (not applicable for IC PCR)** Include this control for each series of extraction When negative samples are expected in the area and if an internal control is in place, this control can be replaced by samples detected as negative in the same PCR run.	**Obligatory (not applicable for IC PCR)** Include this control for each series of extraction Where the pest is present in the area, this control can be replaced by samples detected as positive in the same PCR run.	**Obligatory** In the case of IC-RT-PCR where no nucleic extraction is performed, plant sap from positive material should be used as a positive control, and plant sap from a healthy plant should be used as a negative control.	**Obligatory**	**Obligatory** If several species are to be detected, PAC for each species should be included	**Recommended** is the use of primers targeting a plant housekeeping gene such as Actin, *COX*, 18S rDNA or *GAPDH.*

COI/COX, cytochrome c oxidase; *GAPDH*, Glyceraldehyde-3-Phosphate Dehydrogenase; IC, Immunocapture; ITS, internal transcribed spacer; NADH, nicotineamide adenine dinucleotide; PCR, polymerase chain reaction; rDNA, ribosomomal DNA; RT-PCR, reverse transcription polymerase chain reation;

Appendix 6

TPDP February 2018 – July 2019 work plan (tentative)

Action 1: 2018 - 2019 Diagnostic Protocols (DPs) overall management **Goals: a)** Track, manage and ensure high quality DPs **b)** Overall management of 11 draft DPs	
Activities	**Responsible**
DP drafting groups management: TPDP members to update lead authors and DP drafting groups on the outcomes of the 2018 TPDP meeting and to inform the lead authors on the deadlines.	TPDP members
Draft DPs on the TPDP work programme[79]	
• Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028), priority 1 (*pending status*) • Genus *Ceratitis* (2016-001), priority 1 • *Striga* spp. (2008-009), priority 1 • Revision of DP 2: *Plum pox virus* (2016-007), priority 1 • *Xylella fastidiosa* (2004-024), priority 2 • *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010), priority 2 • *Austropuccinia psidii* (2006-018), priority 2 • *Bactrocera dorsalis* complex (2006-026), priority 2 • *Conotrachelus nenuphar* (2013-002), priority 2 • Begomoviruses transmitted by *Bemisia tabaci* (2006-023), priority 2 • *Ips* spp. (2006-020), priority 4	-

[79] See List of topics for IPPC standards: https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/

Action 2: DP Notification period for draft DPs[80] **Goals: a)** To ensure a transparent and inclusive process for the adoption of draft DPs **b)** To facilitate the work to recommend draft DPs to the Standards Committee for adoption				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
Draft DPs for approval for the December 2017 DP Notification Period (1 July – 15 August 2018) 1. *Xylella fastidiosa* (2004-024) 2. *Austropuccinia psidii* (2006-018) 3. Revision of DP 2: *Plum pox virus* (2016-007) 4. *Bactrocera dorsalis complex* (2006-026) 5. *Conotrachelus nenuphar* (2013-002) 6. *Ips* spp. (2006-020)	1 July 2018	15 August 2018	(see above: Diagnostic Protocols (DPs) overall management)	Respective Discipline lead and Secretariat

Action 3: Expert Consultation on draft Diagnostic Protocols (ECDPs) **Goals: a)** Ensure improvement of quality for the development of DPs, through inputs and feedback, on a scientific basis, from a wide number of worldwide experts who are not part of the DP drafting groups **b)** Facilitate the work to submit three DPs to the Expert Consultation on draft Diagnostic Protocols (ECDP)				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
First 2018 ECDPs 1. Begomoviruses transmitted by *Bemisia tabaci* (2006-023) 2. *Striga* spp. (2008-009)	2 July 2018	10 September 2018	Draft DPs back to the Secretariat: **01 June 2018** TPDP e-decision: **8-22 June 2018**	Respective discipline lead and Secretariat
Second 2018 ECDPs: Tentative: 1. Genus *Ceratitis* (2016-001)	10 September 2017	10 November 2017	Draft to Secretariat: **10 August 2018** TPDP e-decision: **17-31 August 2018**	Respective discipline lead and Secretariat

[80] Pending Standards Committee's approval

Action 4: TPDP meetings **Goal:** To discuss in detail the technical content of draft DPs, as well as challenges and opportunities for the panel and to review the TPDP work programme.				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
TPDP face to face meeting 2019 Tentative agenda: 1. Genus *Ceratitis* (2016-001) 2. *Striga* spp. (2008-009) 3. Begomoviruses transmitted by *Bemisia tabaci* (2006-023) 4. *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010) 5. Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028)	28 January 2019	1 February 2019	*(Draft DPs going for Expert Consultation – see section above)*	TPDP members and Secretariat
TPDP virtual meetings (tentative) • 06 June 2018 • 03 October 2018	-	-		Secretariat and TPDP members

Action 5: Consultation Period on draft ISPMs[81] **Goals: a)** To ensure a transparent and inclusive process for the development of high quality DPs **b)** Facilitate the work to submit draft DPs to the consultation period				
Activities	**Start Date**	**Due Date**	**Related Steps**	**Responsible**
2019 Consultation Period 1. Genus *Ceratitis* (2016-001) 2. *Striga* spp. (2008-009) 3. Begomoviruses transmitted by *Bemisia tabaci* (2006-023) 4. *Candidatus liberibacter* spp. on *Citrus* spp. (2004-010)	01 July 2019	30 September 2019	(see above: Diagnostic Protocols (DPs) overall management and Expert consultation)	Respective Discipline lead and Secretariat

[81] Pending Standards Committee's approval

Appendix 7

Action points arising from the February 2018 TPDP meeting (by agenda item)

	Action	Agenda Item	Responsible	Deadline
1.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on Revision of DP 2: *Plum pox virus* (2016-007) and the responses to comments and send it to the Secretariat by 16 March 2018.	5.1	Discipline lead and DP drafting group	16 March 2018
2.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Xylella fastidiosa* (2004-024) and the responses to comments and send it to the Secretariat by 23 February 2018.	5.2	Discipline lead and DP drafting group	23 February 2018
3.	The TPDP invited Mr Delano JAMES to prepare a paper on interpretation of results from LAMP tests, considering existing available documents, for discussion in the next TPDP meeting for possible inclusion in the instruction to authors.	5.2	Mr Delano JAMES	9 January 2019
4.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Austropuccinia psidii* (2006-018)and the responses to comments and send it to the Secretariat by 23 February 2018	5.3	Discipline lead and DP drafting group	23 February 2018
5.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Bactrocera dorsalis complex* (2006-026) and the responses to comments and send it to the Secretariat by 23 February 2018.	5.4	Discipline lead and DP drafting group	23 February 2018
6.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Conotrachelus nenuphar* (2013-002) and the responses to comments and send it to the Secretariat by 23 February 2018.	5.5	Discipline lead and DP drafting group	23 February 2018
7.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Ips* spp. (2006-020) and the responses to comments and send it to the Secretariat by 23 February 2018..	5.6	Discipline lead and DP drafting group	23 February 2018
8.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on *Striga* spp. (2008-009) and send it to the Secretariat by 01 June 2018 and asked the Secretariat to open a TPDP e-decision before submission to expert consultation.	6.1	Discipline lead and DP drafting group	01 June 2018
9.	Secretariat to try contact the DP drafting groups: 1. Begomoviruses transmitted by *Bemisia tabaci* (2006-023) 2. *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010)	6.2	Secretariat (and Discipline leads and referees)	30 March 2018
10.	Update the DP drafting groups contact information list	6.2	Secretariat	No deadline set
11.	The TPDP requested the discipline lead and the DP drafting group to revise the draft DP on Begomoviruses transmitted by *Bemisia tabaci* (2006-023) and send it to the Secretariat by 01 June 2018 and asked the Secretariat to open a TPDP e-decision before submission to expert consultation.	6.2	Discipline lead and DP drafting group	01 June 2018
12.	The TPDP asked that the discipline lead confirm Maria LOPEZ as lead author and confirm any potential additional expert on the draft DP *Candidatus* Liberibacter spp. on *Citrus* spp. (2004-010) with the entire panel.	6.3	Mr Brendan RODONI	30 March 2018

	Action	Agenda Item	Responsible	Deadline
13.	The TPDP requested the discipline lead together with the DP drafting group to provide revisions to the draft diagnostic protocol for Candidatus Liberibacter spp. on Citrus spp. (2004-010) and send it to the Secretariat by 02 November 2018 with the aim that this draft DP will be submitted to the consultation period in 2019.	6.3	Discipline lead and DP drafting group	02 November 2018
14.	The TPDP encouraged TPDP members to submit topic proposal in the next call for topics via their NPPOs and RPPOs.	8.1	TPDP members	next Call for topics
15.	The TPDP asked to submit completed forms for criteria for potential topics for *Amaranthus palmeri* and *Solanum rostratum*, to be considered in TPDP e-decision before the SC May 2018 meeting	8.1	Ms Juliet GOLDSMITH, Ms Jayani WATHUKARAGE and Ms Géraldine ANTHOINE	30 March 2018
16.	The TPDP agreed to submit comments on the document "ELISA controls and interpretation of results" to the leads by 30 August 2018.	8.3	TPDP members	30 August 2018
17.	The TPDP *requested* Ms Géraldine ANTHOINE and Mr Robert TAYLOR to revise the document "ELISA controls and interpretation of results" to include controls needed when using commercial kits before the next TPDP face-to-face meeting.	8.3	Ms Géraldine ANTHOINE and Mr Robert TAYLOR	9 January 2019
18.	The TPDP agreed to submit comments on the document "Control options for molecular tests for pest group categories" to the leads by 15 May 2018.	8.4	TPDP members	15 May 2018
19.	The TPDP *requested* Ms Géraldine ANTHOINE to revise the document "Control options for molecular tests for pest group categories" to include controls for Botany for the next TPDP face-to-face meeting.	8.4	Ms Géraldine ANTHOINE	9 January 2019
20.	The TPDP agreed to submit comments on the document "Quality Assurance for diagnostic protocols" to the lead before the next TPDP face-to-face meeting.	8.5	TPDP members	01 December 2018
21.	The TPDP *requested* Mr Norman BARR to revise the document "Quality Assurance for diagnostic protocols" for the next TPDP face-to-face meeting.	8.5	Ms Norman BARR	9 January 2019
22.	The TPDP agreed to submit comments on the document "Best practices for sequencing" to the leads before the next TPDP face-to-face meeting.	8.6	TPDP members	01 December 2018
23.	The TPDP *requested* Mr Norman BARR to revise the document "Best practices for sequencing" for the next TPDP face-to-face meeting.	8.6	Ms Norman BARR	9 January 2019
24.	Update the Instructions to Authors.	9.1	Secretariat	No deadline set (but prior to SC May 2018)