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International Plant Protection Convention

REPORT

Technical Panel on Diagnostic Protocols (TPDP)

Yokohama, Japan
21-25 October 2024

IPPC Secretariat

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1. Opening of the Meeting

1.1 Welcome

[1] The Deputy Lead to the Standard Setting Unit (SSU), Adriana G. MOREIRA, from the International Plant Protection Convention (IPPC) Secretariat (hereafter "the secretariat"), welcomed the participants of the Technical Panel on Diagnostic Protocols (TPDP) meeting and thanked the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF – Japan) and its national plant protection organization (NPPO) for hosting the meeting in Yokohama, Japan. She highlighted the importance of the TPDP panel in its contribution to harmonizing diagnostic procedures at global level, in which, for example, enhances global surveillance, our preparedness and response capabilities. Moreover, the TPDP meeting serves as a platform for exchanging scientific knowledge, sharing best practices, and fostering innovation in diagnostic techniques. This collaborative environment enables experts to address emerging challenges, adapt to new technologies, and improve the overall efficiency and accuracy of plant pest and disease diagnosis.

[2] Hidetoshi KOMIYA, Director of Plant Protection Division of MAFF Japan, welcomed all participants, thanked the work and contributions to standard setting and wished them a fruitful meeting. He highlighted that Japan has been hosting IPPC meetings since 2009 as it is of importance point to their agenda in also help build capacity. He mentioned that pest diagnostic plays an important role in NPPOs work and that for Japan NPPO, around1000 plant protection officers are trained to perform pest diagnostics throughout the country. He mentioned the importance of ISPM 27 (Diagnostic protocols for regulated pests) and the adopted 33 annexes for diagnostic of specific regulated pests (as of October 2024).

[3] The participants introduced themselves briefly.

[4] The Secretariat welcomed the new members David OUVRARD (Entomologist – France), and Vijayasankar RAMAN (Botanist – United States of America), the new steward Prudence Tonator ATTIPOE (Standards Committee (SC) member – Ghana), and the new assistant steward Mi Chi YEA (SC member – Republic of Korea). Also, the new IPPC secretariat support staff and Phytosanitary Standard Setting Specialist, Marina MARTINO.

2. Meeting Arrangements

Presentation on roles for the meeting

[5] The IPPC secretariat provided a presentation on the roles of participants for this meeting.

2.1 Selection of the chairperson and vice-chairperson

[6] The TPDP selected Norman BARR as chairperson and selected Geraldine ANTHOINE as vice-chairperson.

2.2 Election of the rapporteur

[7] The TPDP elected Vessela MAVRODIEVA as rapporteur.

2.3 Adoption of the agenda

[8] The TPDP adopted the agenda (Appendix 1).

3. Administrative matters

[9] The documents list (Appendix 2) and the participants' list (Appendix 3) had been made available to the TPDP before the meeting.

3.1 Documents list

[10] The IPPC Secretariat introduced the documents list and announced that all documents have been posted prior the meeting.

3.2 Participants list

[11] The IPPC Secretariat introduced the participants list. It was informed that Ms Juliet GOLDSMITH was unable to attend this meeting, while Ms Julie PATTEMORE (expert in Mycology) resigned from the panel.

[12] The TPDP:

(1) *requested* the secretariat to open a call for experts for the TPDP Mycology expert vacancy.

3.3 Local arrangements

[13] The host presented the local information[1].

3.4 Review of the IPPC standard setting procedure

[14] The IPPC Secretariat introduced the standard setting process[2], underlining the specific process to develop the diagnostic protocols (DPs). It was pointed out that more details will be provided during the workshop "Boosting Agricultural Resilience: Novel plant pests diagnostic techniques". The IPPC Secretariat recalled that DPs are developed as annexes of ISPM 27 (*Diagnostic protocols for regulated pests*) under the supervision of the Standard Committee (SC) based on Specification TP 01[3]. The video on the IPPC standard setting procedure[4] was presented to the participants.

[15] The TPDP:

(2) *noted* the presentation and the video on the standard setting process.

4. TPDP work programme – review of DPs and comments from consultation (January and July of 2024): for recommendation to the SC for adoption

General comments from consultation period:

[16] **Editorial comments**: the TPDP noted that there were several editorial comments related to formatting or against the IPPC Style Guide[5]. The TPDP noted that, although useful most of these comments will not be incorporated as it needs to follow the IPPC style guide (e.g. use of italics for "*et al*", "*sensu lato*" and references).

[17] **The TPDP agreed** that a note to highlight that the "draft DP has been edited following the IPPC Style Guide" should be added to the drafts approved for consultation period, to avoid unnecessary editorial comments.

[18] **The TPDP also agreed** that a document should be developed by the panel on the major editorial notes and formatting to be provided to the DP drafting groups, to help address some of these editorial comments.

[19] **Use of synonyms or other scientific names.** The TPDP noted that not all synonyms can be accurate, however this does not mean that they are the preferred names. Therefore, the TPDP agreed that from now on, the draft DPs field under "Taxonomic Information" would be refereed as to "other scientific

[1] 04_REV_TPDP_2024_Oct

[2] Presentation IPPC standard setting process: https://ippc.int/en/publications/90063/

[3] Specification TP 1 – TPDP: https://www.ippc.int/en/publications/1297/

[4] https://youtu.be/W8zciLFG--8

[5] IPPC Style Guide: https://openknowledge.fao.org/items/eb11e77b-8696-4364-8c31-040ccb095631

names" instead of "Synonyms". As a consequence, this decision will be reflected in the Instruction for Authors and also communicated to the IPPC scientific copy-editor.

[20] **Copyrights:** The TPDP discussed again the use of figures, images and related information that may be under copyrights. It was acknowledged that there is already guidance in the IPPC TPDP Instructions for Authors. The TPDP requested the IPPC secretariat to follow up it closely with the IPPC scientific copyeditor and FAO Office of Corporate Communication, and to provide feedback and guidance back to the TPDP.

[21] **DP notification period dates:** The TPDP agreed to request the SC to modify the date for the January DP notification to start on the same date of the January consultation period, i.e. from 05 January to 30 January each year (noting that the 01 July 45-Day DP notification period will still be valid).

[22] **Guidance for sequencing.** It was agreed to add information in the Instructions to Authors when further guidance is needed for sequencing (e.g. specific PCR, or refer back to a previous section in the DP).

[23] **Geographical distribution of a pest.** It was agreed to include more guidance in the draft DPs, to keep it broader, so the DP are up to date (see example of draft DP for *M. mali*).

4.1. Pospiviroid species (2018-031), priority 2

[24] The discipline lead, Vessela Assenova MAVRODIEVA, presented the draft DP and all supporting documentation[6]. Around 245 comments were submitted during the consultation period. Most comments were requests to adjust text for clarity, especially in pest biology section. It was also noted that this draft DP was based on a regional DP, in which when turning into an IPPC protocol it was challenging, and thus several options of tests are provided in this draft DP to give to IPPC contracting parties a wider range of options to use in accordance with their capacities. The TPDP discussed the following main points:

[25] **The title.** The DP drafting group noted the title adjustment to "Pospiviroid species", as agreed at the last TPDP face to face meeting and approved by the SC. This was because it is difficult to differentiate the pospiviroids from *Potato spindle tuber viroid* (PSTVd), as the diagnosis will detect PSTVd anyways, and thus it will have complementary information to the adopted DP 7 (DP 7: *Diagnostic protocol for Potato spindle tuber viroid*).

[26] **Nature of comments.** The discipline lead pointed out that many comments received were editorial, and suggested to refer to the IPPC style guide. Moreover, other comments such as addition of references were made. The TPDP highlighted again that the DPs are not scientific publications, and references can be added if relevant to the diagnosis of the pest.

[27] **Botanical names - hosts.** The TPDP noted that there were some inconsistencies with the botanical names of the hosts. The panel asked the TPDP botanist to have a further review on the section to obtain up to date information.

[28] **Biological detection section.** There were consultation comments regarding the specific variety provided on grafting and the symptoms. It was pointed out by the TPDP that the there is a need to be specific for visual symptoms observation, as it is related to the sensitivity and types of symptoms. It was also agreed to keep the host variety, as it relates to the types of symptoms and there were references.

[29] **Seeds sampling.** There were some comments on the use of "pooling" or "bulking". It was mentioned that "bulking" is used in the adopted DP 7(*Potato spindle tuber viroid*). It was noted the use of "composite", which could be more technical. The TPDP agreed to further discuss in the Instructions to authors which term is more appropriate between bulking, pooling and composite. "Bulking" was retained for the time being to keep consistency with DP 7.

[6] 2018-031, 06_TPDP_2024_Oct, 07_TPDP_2024_Oct, 08_TPDP_2024_Oct, 09_TPDP_2024_Oct, https://www.ippc.int/en/publications/93386/

[30] **Table for recommended methods for detection or identification of pospiviroids.** Consultation comments were made to include Plum viroid (PLVd), however the discipline lead highlighted that, although this species is within the scope of this draft DP, it was left out from the table because there is not sufficient information on validation methods. Other consultation comments on the table showed support to keep the table as a very useful summary of the draft DP.

[31] **Other detection methods - Hybridization with a digoxigenin (DIG)-labelled RNA probe.** The TPDP agreed to remove this method as the commercial kit is no longer available. Moreover, the TPDP agreed to remove commercial kits names for "other detection methods" section.

[32] **Identification of Columnea latent viroid (CLVd):** It was highlighted that every pospiviroid can be identified by sequencing. However, for CLVd there is no need for sequencing because of the sensitivity of the primer used. Text in the draft DP was adjusted to better reflect this.

[33] **Sequence identity**. One TPDP member queried if a sequence identity of more than 90% is required for viroid identification. The discipline lead explained that pospiviroids have several sequence similarities, hence they cannot be easily identified by PCR: genome sequencing and a sequence identity > 90% are needed for a reliable identification, according to ICTV. However, the TPDP requested the drafting group to better clarify how users should take decisions when the sequence identity doesn't correspond exactly to 90% but it is close to this value.

[34] **Flow diagram:** One member noted that there is need to clarify that a test with negative result refer to the identification of the pospiviroid species described at the time the protocol has been developed. This is to better preserve the functionality of the protocol in case new pospiviroid species will be identified in the future. In addition, another member noticed that there is need to include in the flow chart some references to the sections in the text that describe the sequencing analysis. The flow chart was amended accordingly.

[35] **Identity confirmation through additional tests.** One comment suggested to remove the practice of conducting an additional test or asking another laboratory to conduct a test in critical cases, such as a first finding in a country or in a new host. The TPDP agreed to remove this sentence as this practice is not always undertaken, and there is no additional instructions in the rest of the section on how to perform these additional tests.

[36] Once the entire draft DP was reviewed by the TPDP, the Secretariat explained the future scenarios and respective deadlines.

[37] The TPDP:

(3) *thanked* the drafting group and the discipline lead of this draft DP - Pospiviroid species (2018-031);

(4) *agreed* that Andrew APPIAH is the new referee for this draft DP and *requested* that the IPPC secretariat to update the *List of topics for IPPC standards* accordingly;

(5) *asked* Veejay RAMAN to revise the botanical names in this draft DP;

(6) *agreed* that the discipline lead, in collaboration with the referee and DP drafting group, will further revise the draft DP with the adjustments agreed to at this meeting, and the responses to consultation comments;

(7) *agreed* to present back the draft DP and the responses to consultation comments to the TPDP (via e-decision) with the recommendation to the SC for approval for adoption (tentative: July 2025 DP Notification period).

4.2 *Heterobasidion annosum* sensu lato (2021-015), priority 3

[38] The lead author, Yazmin RIVERA, presented the draft DP and supporting documentation[7]. A total of 179 comments were submitted during consultation period. Most comments were requests to adjust text for clarity especially in pest biology section and clarifications on interpretation of results from the various tests. The DP drafting group thanked all reviewers for the thorough feedback that has led to the improvement of the protocol. The TPDP discussed the following main points:

[39] **Use of antibiotic before or after autoclave for the PCNB-based selective culture medium for isolation.** There was a consultation comment suggesting that the addition of antibiotic should be after the autoclave. However, the drafting group mentioned that it should follow the original reference Kuhlman, E.G. & Hendrix Jr, F.F. 1962[8] in which the use of antibiotic is implemented prior the autoclave. Although with this note, the TPDP agreed that the common practice is to add antibiotics after the autoclave and asked the DL to adjust the text and add a footnote stating that the order of steps slightly differs from the original publication.

[40] **Flow diagram.** The TPDP noted that there was a consultation comment requesting the flow diagram to be inserted back. The DL noted that addressing this request could be very challenging because of the nature of the draft DP that describes multiple detection methods that can be performed in combination or not to target different pathogenic species or group of species in *Heterobasidion annosum* sensu lato. The TPDP acknowledged the relevance of flow diagrams, but also recognized that they can be challenging to develop, especially for complex protocols in which they would result to be too extensive and complicated to updated them.. One panel member queried the added value of a flow diagram in comparison to the current existing table 3 in this draft DP, hence the TPDP agreed that such table can provide the necessary guidance for the detection and identification and could substitute the flow diagram for this draft DP.

[41] **Controls for molecular tests - Synthetic controls.** There was a consultation comment on the potential use of a positive synthetic control. The TPDP discussed that it is possible to use it, however it needs to be handled with care. The TPDP agreed that no further information on the band size should be included in the draft DP but agreed that this topic should be added to the "parking lot" and perhaps general guidance should be provided and included in the Instructions for Authors.

[42] **Images of agarose gel electrophoresis.** There was a consultation comment suggesting the inclusion of images of the agarose gel electrophoresis for conventional PCR, LAMP and the qPCR and LAMP curves as supporting material for the interpretation of results. The TPDP recalled that in previous discussions it was decided that there is no need for images of agaroses gel given that the high definition bands might not show in tests performed routinely.

[43] **Tree stability and windthrow risk to trees – detection section.** The TPDP noted that the addition of a section on "tree stability" was suggested in consultation comments. However, the TPDP also noted that such section would be intended more as general information and queried its added value to the detection section. Therefore, the TPDP asked the DL and DP drafting group to further revise the "tree stability" section and to highlight the key features useful for proper detection.

[44] **Master mix composition.** The TPDP noted that one critical point raised was specifying the final concentration of reagents, however it is up to each laboratory to define it according to the validation. Additionally, it was discussed if including the DNA polymerase type used would be useful as well given that it may influence the PCR performance. The TPDP agreed to discuss these points under agenda item 6.6 TPDP Instructions for Authors. The TPDP:

(8) *thanked* the drafting group of the draft DP - *Heterobasidion annosum* senso lato (2021-015);

[7] 2021-015, 10_TPDP_2024_oct, 11_ TPDP_2024_Oct

[8] Kuhlman, E.G. & Hendrix Jr, F.F. 1962. A selective medium for the isolation of *Fomes annosus*. Phytopathology, 52: 1310–1312.

(9) *agreed* that the discipline lead, in collaboration with the referee, will further revise the draft DP with the adjustments agreed to at this meeting, and the responses to consultation comments; and

(10) *agreed* to present the draft DP and the responses to consultation comments to the SC with recommendation for approval for adoption (tentative: January 2025 DP Notification period).

4.3 *Meloidogyne mali* (2018-019), priority 3

[45] The discipline lead, Geraldine ANTHOINE, presented the draft DP and supporting documentation[9]. The TPDP then reviewed the draft DP and discussed the issues raised by the lead author at the relevant points in the draft.

[46] Although the TPDP was unable to review the responses to the comments and the updated version of the draft DP as they were not completed at the time of the meeting[10] as the draft had just underwent consultation period (July – September 2024), they had a general discussion and agreed to request the discipline lead to review the DP and the responses to the comments according to the outcomes of the discussion, and present it back to the TPDP.

[47] **Definition of "emerging pest"**. There were consultation comments requesting the TPDP to define "emerging pest". The TPDP assistant steward explained the discussions in the IPPC community around "emerging pest" in which there is still no agreement on the term. The discipline lead noted and will address the consultation comment removing the use of "emerging pest", but perhaps using "pest of concern", to highlight that it can be a real concern for some countries.

[48] **Geographical distribution.** There were consultation comments regarding the geographical distribution, pointing out that for this pest is still very limited distribution, however it has been found in some global regions. The TPDP adjusted the text to address the comments, noting that there is also a reference to the pest distribution in which would make the draft DP up to date. Moreover, the TPDP noted again that pest distribution is not a feature for pest diagnosis, but a relevant information for IPPC contracting parties.

[49] **Sampling.** There was a consultation comment asking the possibility of having a separate section on sampling. The TPDP noted that the section on "extraction" is very comprehensive and that there was no need for having a separate section. The TPDP also agreed that this guidance be included in the IPPC TPDP Instructions for Authors.

[50] **Detection and identification.** There were consultation comments suggesting that information on description of the specimens should be placed under "identification" section instead of "detection" section. The TPDP acknowledged that there is a need for better clarification on the actual "detection" and "identification. Besides guidance in ISPM 27, the TPDP agreed that further guidance is needed for authors, and perhaps may be also useful for the better understanding within countries (noting that this may vary among countries). For the draft DP the TPDP agreed that the description of the specimens should be placed under "detection" (consultation comment considered but not incorporated).

[51] **Number of individuals for reliable identification.** There was consultation comment requesting guidance on how to manage if the appropriate number of individuals for reliable identification is not reached. The TPDP discussed and noted that the relevant number of individuals depends on the type of analysis to be performed. The minimum requirement in fact will change according to the morphological or molecular analysis. There should be a recommendation about the minimum number, thus the TPDP agreed to ask the discipline lead and the DP drafting group to provide a minimum number of individual nematodes and provide the technical justification.

[52] **Sequencing and DNA barcoding.** There were consultation comments requesting more guidance on sequencing and DNA barcoding, even with reference provided in the draft DP. The TPDP acknowledged that the level of information varies among the disciplines within the draft DPs, however it was also

[9] 2021-015, 29_TPDP_2024_Oct, 30_ TPDP_2024_Oct, https://www.ippc.int/en/publications/93801/

[10] *Note:* Consultation period closed on 30 September 2024.

acknowledged that a more standard approach on the level of guidance being provided should be further developed by the panel. The TPDP agreed to further discuss a potential template, for each discipline, for guidance on information to be provided for sequencing and DNA barcoding. For the draft DP for *M. mali*, the TPDP agreed that there was no need for further guidance, as additional information is also available on the "interpretation of results" sections.

[53] **Controls of molecular tests / barcoding.** There were consultation comments regarding the language used on "should", "may" and "can", as there are implications on the level of obligation. The TPDP noted that this section is a standard section, however acknowledged that it is clear in this draft DP which are the minimum requirements for the controls. The TPDP asked the discipline lead and DP drafting group to clarify the minimum requirements for the controls for controls, and that consequently the consultation comments would be addressed.

[54] **References.** There were several consultation comments asking to add the "issue" of the journals. It was clarified that in the IPPC style guide, says:

> For journals, the volume number is always given. The issue number, given in parentheses, is optional.

[55] On this, the TPDP asked the IPPC scientific copyeditor to make it consistent within this document, noting that the previous version before the consultation period the DP drafting group have included the issues of journals. Moreover, the TPDP agreed to further discuss this for standardize the approach for future DPs (guidance to be provided in the IPPC TPDP Instructions for Authors).

[56] **Figures.** There were consultation comments asking for better definitions or addition of scale bars in some of the figures. The TPDP asked the DL to follow up with the DP drafting group to try to obtain other figures and try to address the consultation comments.

[57] The TPDP:

(11) *thanked* the drafting group and the discipline lead of this draft DP - *Meloidogyne mali* (2018-019);

(12) *agreed* that the discipline lead and the DP drafting group, in collaboration with the referee, will further revise the draft DP with the adjustments agreed to at this meeting, and the responses to consultation comments;

(13) *agreed* to present back the draft DP and the responses to consultation comments to the TPDP (via e-decision) with the recommendation to the SC for approval for adoption (tentative DP notification period in July 2025).

5. TPDP work programme - TPDP work programmee – Review of new draft DPs: for recommendation to the SC for consultation period

[58] *Note:* The draft DPs provided in this section are still going to be submitted for the IPPC DP expert consultation[11].

5.1 *Drosophila suzukii* (Diptera: Drosophilidae) (2021-017), priority 1

[59] The discipline lead, Norman BARR, introduced the draft DP and the supporting documentation[12]. Main points raised by the discipline lead were as follows.

[60] **Based or adapted from regional standards.** It was also informed that, this draft DP includes, with permission, morphological methods and images previously reported in EPPO protocol for the species. The TPDP recalled that it was agreed that acknowledgements to any regional standards should be made in the "acknowledgments section".

[11] IPPC DPs expert consultation: https://www.ippc.int/en/core-activities/expert-consultation-draft-diagnostic-protocols/

[12] 2021-017, 18_TPDP_2024_Oct, 19_TPDP_2024_Oct

[61] **Molecular options**. Molecular options are provided to identify immature life stages. For confirmation of species identity, a combination of molecular methods is recommended.

[62] **LAMP.** A published LAMP method (Wang et al 2021) is recommended as a screening tools. LAMP is included as an option for quick testing, but it was tested on a limited number of fly species for specificity. One unusual aspect of the draft structure is for DNA extractions. The DNA isolation section is written as a sample preparation section because Wang et al. describes a quick toothpick method and Murphy et al. (2015) describe a method of using larval tissue in direct PCR. These methods do not isolate nucleic acid from other contents of the cells.

[63] Discussion on the draft DP by the TPDP:

[64] **Pest information.** The TPDP provided comments that the section could be revised for the text to be more concise. Moreover, it was pointed out that, whenever possible to have information on the survival of the pest outside of the host, as it may have implications on the pathway. It was also noted that there is a mention for potential survival on shipping containers, therefore, the TPDP asked to better clarify this.

[65] **Trapping.** One member queried that there was detailed information on how to do the lures. On the contrary, other members pointed out that that it may be relevant if the quality of the insects detection and identification will be dependent on the type of the lures. Therefore, the TPDP asked the discipline lead and DP drafting group to check the information and adjust the text appropriately.

[66] **Storage of larvae and adults for DNA methods.** Few members queried the best place to have this section, if in the current allocation under "detection section". The discipline lead explained that, although not really detection, it is important to capture this information at the beginning of the DP to give guidance to countries on how to perform analysis. The TPDP agreed that it should be best placed at the beginning of the draft DP (current section), however that there is a need to make it more generic section and also to include storage for morphological characterization.

[67] **Adult species.** One member queried if there is a minimum of preparation needed for performing the analysis for identification, for example "mounting" the specimens. The DL mentioned that for *D. susukii* probably not, however this will be clarified with the DP drafting group.

[68] **Molecular identification.** The TPDP noted that there is a need for further revision to clarify some of the tests, for example if the PCR is for conventional PCR or real time PCR. Also, to adjust the text to be less "SOP" language and tables to be with the IPPC style. Specific comments were provided in the draft text and the DL will follow up with the DP drafting group.

[69] **LAMP.** The discipline lead highlighted and included in the text of the draft DP that the use of LAMP is used to screen and collect flies, but it is not an identification method for the first records, and therefore other additional methods need to be used. One member queried if in this case LAMP is an identification, although noted the text included in the draft DP. It was then suggested to move LAMP to the detection section, as it may give indication that in the sample there may be potential Drosophila.

[70] **Interpretation of results.** The TPDP noted that this section is missing, and it should be included.

[71] The TPDP:

(14) *thanked* the DP drafting group for *Drosophila suzukii* (Diptera: Drosophilidae) (2021-017);

(15) *agreed* that the discipline lead and the DP drafting group will further revise the draft DP with the adjustments agreed to at this meeting;

(16) *requested* the IPPC secretariat to open Expert Consultation Period for this draft DP after the revision of the draft DP;

(17) *agreed* to present back the revised draft DP, from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.

5.2 Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028), priority 1

[72] The lead author, Norman BARR, introduced the consultation comments, the summary of comments and the revised draft DP[13]. He explained that the draft DP was first added to the work program in 2006, and the DP drafting group authors were selected in 2009. An initial draft of the protocol was not advanced because of challenges regarding a lack of available technical information and protocol development feasibility.

[73] This initial scope of the protocol included many pests in an insect family. Other protocols focus on the genus level, a group of species, or a single species. The scope of the protocol was very broad, and the drafting team explained technical and operational problems in multiple papers to the TPDP and SC. There was interest in using DNA barcoding as a single approach to identification. As evidenced in other adopted fruit fly protocols, common molecular methods such as DNA barcoding are not successful for all important pests and for some pests require specialized protocols to generate and interpret information. The inclusion of many taxa is also problematic. Changes in scientific understanding would require frequent updates to the adopted protocol. At the time of drafting, the pest genera were the subject of large research studies to support taxonomic revisions. The protocol was placed in pending status for several years to allow for new scientific information on pest diagnosis to be developed.

[74] Request for a change to scope was proposed to facilitate development of a protocol and remove it from pending status. The adjustment to the scope was approved by the IPPC SC and the current draft reflects a protocol that is focused on identification of six fruit fly genera that represent the fruit fly plant pests with global impact. The protocol is intended to complement other adopted DPs for fruit flies annexes to ISPM27 that are focused on diagnosis of species, species complexes, and genera. Those other DPs are inclusive of molecular and non-molecular methods that are important for cost effective identification of adults.

[75] It was further explained that the current protocol is focused on molecular methods of immature life stages using DNA barcoding. Furthermore, it was explained that DNA barcoding is designed for species, not for genus. To address the broad taxonomic scope of an insect family, this protocol uses DNA barcoding to diagnose the pest genera. Two approaches to interpreting DNA barcode data are included. In addition to phylogenetic analysis, a similarity threshold is included. The interpretation of DNA barcode similarity values in this draft is based on analyses in an unpublished manuscript. The protocol will be updated if published. No morphological methods are provided but these can be found in other adopted fruit fly DPs.

[76] **Scope.** A few TPDP members suggested that the title should be modified to better reflect the scope and to indicate that it is detection and identification by DNA barcoding. Moreover, another member pointed out that it should be also adjusted to identify immature stages of fruit flies' genera. The lead author highlighted that other molecular techniques for other Tephritidae fruit flies are provided in adopted DPs, and that in the future if other techniques are made available for Anastrepha for example, these can be added to the DP 09 Genus Anastrepha Schiner. It was also explained that immature stages can be identified with molecular techniques. The TPDP agreed with proposing title change to better reflect the scope of the draft DP and request the lead author to develop a paper with the proposed new title and rationale to be presented to the SC.

[77] **DP drafting group.** The TPDP agreed to open a call for authors, however after the title change request to the SC, and to add a note in the call that a first version of the draft DP has been reviewed by the TPDP.

[78] Discussion on the draft DP by the TPDP:

[13] 2006-028, 16_TPDP_2024_Oct, 17_TPDP_2023_Oct

[79] **Taxonomic information.** It was noted that there is a need to adjust this section for accuracy and for better formatting. It was pointed out that each DP should follow the correct taxonomic position and that the format of how it is presented can vary among disciplines and DPs.

[80] **Detection.** It was suggested to start the section with describing the symptoms in a fruit, however noting that they may not be specific for Tephritidae, and then, follow with the description of the fruit flies at the life stages. It was also requested to include a reference or a picture showing how the exit holes look like. This was for enhanced clarity and trying to give better understanding for the users of this DP.

[81] **Identification.** The TPDP asked to revise this section to clarify and add more emphasis on which information are expected to be found in the section, rather than what will not be found.

[82] **DNA isolation.** The TPDP queried on including more details for DNA extraction. The lead author mentioned that for fruit flies any DNA extraction would work. The TPDP proposed adjustments to the text to highlight this.

[83] **Sequencing and interpretation of results.** The TPDP asked the lead author to clarify and align the sequencing approach and the interpretation of its results , providing specific and clear information. It was also suggested to include information on the use of tools for the sequence comparison, such as BLAST, and point out any detail needed.

[84] **Interpretation of results.** It was requested that, for better clarification, the interpretation of results of the pairwise distance analysis and tree-based analysis should be described in two different sections. Moreover, in the tree-based analysis results it should be clarified which are the conditions and which are the outcomes and how these are related to each other.

[85] **IPPC diagnostic protocols**. It was noted that throughout the document there are references to previous IPPC diagnostic protocols without indicating the specific ones. Hence, it was requested to provide more detailed references.

[86] **Figures**. The TPDP requested to replace all the pictures with better quality ones, noting the required citation and any potential copyrights agreements.

[87] The TPDP:

(18) *thanked* the lead author for Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028);

(19) *agreed* that the lead author will further revise the draft DP with the adjustments agreed at this meeting;

(20) *agreed* to propose a new title to better reflect the current scope and *requested* the lead author to develop a paper with the proposed new title and rationale to be presented to the SC; \

(21) *requested* the IPPC secretariat to open a call for authors after the title change, and to include a note that a first version of the draft has been reviewed by the TPDP; and

(22) *noted* that the expert consultation will be done at later stage.

5.3 *Dickeya* spp. on *Solanum tuberosum* (2021-014), priority 2

[88] The DP discipline lead, Robert TAYLOR, introduced the draft DP and the supporting documentation[14].

[89] The *Dickeya* spp. on *Solanum tuberosum* is a new diagnostic protocol (DP). This protocol describes the detection and identification of pathogenic *Dickeya* species on potato and was developed by a drafting team involving five bacteriology experts, covering a good range of geographical representation.

[14] 2021-014, 14_TPDP_2024_Oct, 15_TPDP_2023_Oct

[90] The discipline lead explained that detection of *Dickeya* spp. on potato can be challenging due to the genetic heterogeneity observed among strains, and that multiple species are known to cause similar symptoms on this one host. Detection and identification of *Dickeya* spp. on potato can be further complicated by other bacterial pathogens such as *Pectobacterium* spp., *Ralstonia solanaecarum* and *Clavibacter sepedonicus*.

[91] It was stressed that, as other IPPC DPs, this draft DP describes a range of test methods that include isolation, biochemical, pathogenicity testing and molecular methods. It was noted that EPPO in 2023 published diagnostic protocol PM 7/155 (1) *Pectobacterium* spp. and *Dickeya* spp. Some of the methods described in the IPPC protocol are similar to those in the EPPO protocol.

[92] The discipline lead mentioned that some comments from the initial review have not been addressed. For example, some reformatting issues remain, and clarity around the minimum requirements for detection and identification. However, it was felt that this version of the draft DP has progressed enough to be discussed at the TPDP meeting.

[93] The draft DP:

[94] **Pest information**. The discipline lead explained that there are non-pathogenic species in the Dickeya genus, and text was added and adjusted to clarify this. The TPDP also suggested to add a sentence at the end of this section to make it clear for diagnosticians that the DP focuses on species that are pathogenic to potato.

[95] **Sample preparation**. The TPDP asked for clarification in the text regarding when to sample from tubers, stems and microplants. For microplants, it was requested to include the plant/buffer ratio. For tubers, it was requested to clarify with the authors whether field sampling or consignment sampling is involved.

[96] **Sample preparation of potato tubers, minitubers, and stems.** The TPDP noted that more consistency is needed when mentioning plant anatomical elements.

[97] **Molecular detection**. The TPDP noted that there were several tables for the master mixes and asked the discipline lead and the DP drafting group to consider having just one table in which the different primers are associated with the different species. The text should be maintained, as there is information on validation, but referenced to a sole table for mix composition.

[98] **Real time PCR for the detection of *Dickeya solani*.** One member questioned the relevance of describing two real time PCR tests for this species. The discipline lead will consult the drafting group to check the rationale behind it.

[99] **Interpretation of results.** It was discussed that alignment is needed between the interpretation of results section and the corresponding test sections described in the protocol.

[100] **Recombinase-based isothermal amplification (RPA).** It was discussed that there is need to point out the benefits associated with this method (it is fast and can detect the pest at low concentrations), and what is its relevance compared with the other tests mentioned.

[101] **Title of sections.** One member suggested amending the titles of the different tests in a way that the targeted Dickeya species is mentioned rather than the reference to the protocol.

[102] **Flow chart.** The TPDP suggested removing the flow chart as it doesn't bring additional clarity to the text.

[103] **Molecular identification - Whole genome sequencing (WGS).** It was mentioned that WGS is a critical approach for sequencing the entire genome and comparing multiple reference genomes for precise and accurate identification of bacterial pathogens. Despite the TPDP noted that this technology may be more important in the future, they agreed to keep it in the draft DP. However, the panel asked the DL and the DP drafting group to include more details and guidance on the method and the types of strains.

[104] **Interpretation of pathogenicity tests**. The TPDP asked to include more details on completing Koch's postulate.

[105] **Figures.** The TPDP suggested including pictures of symptomatic tubers, (for example cross section of a tuber showing vascular bundle), pictures or figures results from LAMP test and color-coded test results, and pictures of symptoms that could possibly help in distinguishing Dickeya infection from other species infection.

[106] The TPDP:

(23) *thanked* the discipline lead and the DP drafting group for *Dickeya* spp. on *Solanum tuberosum* (2021-014);

(24) *agreed* that the discipline lead and the DP drafting group will further revise the draft DP with the adjustments agreed at this meeting;

(25) *requested* the IPPC secretariat to open Expert Consultation Period for this draft DP after the revision of the draft DP;

(26) *agreed* to present back the revised draft DP, from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.

(27) *noted* that the title change to "*Dickeya* spp. on *Solanum tuberosum* (2021-014)" to follow the IPPC style and *requested* the IPPC secretariat to update the List of topics for IPPC standards accordingly.

5.4 *Bactrocera zonata* and *Bactrocera correcta* (2021-013), priority 2

[107] The discipline lead, Norman BARR, introduced the draft DP and the supporting documentation[15]. The discipline lead explained that this draft DP was initiated under the topic *Bactrocera zonata* (Saunders, 1842) (2021-013). The DP drafting group developed a first version of the protocol for this pest and a final draft was prepared in 2022 for Expert Consultation but not submitted. That protocol included many details for how to identify the *Bactrocera correcta* because of high similarity in appearance.

[108] The addition of *Bactrocera correcta* (Bezzi, 1916) (2023-015) to the work program resulted in a new call for authors. Members of the *B. zonata* drafting group were nominated and selected for that protocol. Rather than process two protocols with redundant information through the adoption process, the scope of the *B. zonata* protocol was expanded to include the *B. correcta* species and agreed by the IPPC Standards Committee (SC).

[109] These species are closely related invasive species. The earlier *B. zonata* draft DP included figures and diagnostic information for *B. correcta*. The draft DP was modified to expand pest information and taxonomic information for both species. In addition, molecular methods were updated to include methods specific for *B. correcta*.

[110] The two species have large, overlapping host use ranges for fruits. These hosts are also used by other species of fruit flies. Detection methods for the species are consistent with prior adopted IPPC fruit fly DPs.

[111] Adults can be diagnosed reliably using morphology or DNA methods. Both are provided as options. Immature life stages require DNA methods. DNA barcoding is described in the draft DP as specific for both species. DNA amplification methods are also provided as an option for laboratories that process many specimens. Some methods have more confidence in specificity because greater validation data are available in comparison to other methods. Included in the protocol are a conventional PCR method for both species, real-time PCR for both species, and an isothermal amplification for *B. correcta*.

[15] 2021-012, 20_TPDP_2024_Oct, 21_TPDP_2023_Oct

[112] The isothermal amplification assay of Li et al (2024) uses RPA technology includes two options for the technology. One using UV light to detect product formation and one using lateral flow dipstick. The authors indicate RPA is less susceptible to inhibitors than PCR. This method lacks a control for sample to assist in interpreting amplification failure.

[113] The discipline lead specifically mentioned that comments be provided for clarity in draft DP regarding when to use the different molecular methods and in description of how to perform the isothermal method.

[114] The draft DP discussions by the TPDP:

[115] **Detection.** The TPDP requested to include pictures of the boxes containing the pupation medium for larvae rearing, given that it would provide more graphical guidance to the users. In addition, the TPDP requested to include more information about how to store specimen prior identification at the end of this section.

[116] **Identification.** The TPDP requested to clarify which of the molecular approaches mentioned in protocol can be used to provide final identification. Moreover, the TPDP acknowledged that there is need to better clarify the purpose of each method described in the draft DP. For example, methods used for first detection or for routine diagnosis.

[117] **Conventional PCR method.** One member noted that there is the need to specify that the primers listed for this method are intended to be used separately. However, another member proposed to follow what has been done for previous protocol, meaning mentioning primer pairs. These options can be analysed and addressed by the DL.

[118] **Comparison with Tephritidae diagnostic protocol.** One member suggested that, during DP revision, there is need to cross check the primers mentioned in the molecular identification by sequencing section in a way that they are aligned with the ones mentioned in DP 2006- 028 Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques. The same applies to the interpretation of sequencing results.

[119] **Interpretation of results from molecular tests.** The TPDP noticed that there is currently some confusion regarding how interpretation of results from molecular tests is described (i.e. DNA barcoding interpretation versus the amplicon-based tests interpretation). As a result, the TPDP requested to the discipline lead to clearly discriminate the instructions on how to interpret those tests results. The TPDP:

(28) *thanked* the discipline lead and DP drafting group for *Bactrocera zonata* and *Bactrocera correcta* (2021-013);

(29) *agreed* that the discipline lead and the DP drafting group will further revise the draft DP with the adjustments agreed to at this meeting;

(30) *requested* the IPPC secretariat to open Expert Consultation Period for this draft DP after the revision of the draft DP;

(31) *agreed* to present back the revised draft DP, from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.

5.5 *Cronartium comandrae* Peck (2018-015), priority 4

[120] The discipline lead, Yazmín RIVERA, introduced the draft DP and the supporting documentation[16]. She explained that in 2018, the SC agreed with the Task Force on Topics recommendation for a DP with priority 4, and that the TPDP should do a technical analysis of the feasibility of developing a DP. *C. comandrae* was added to the TPDP work programme in 2019 after a recommendation from the TPDP.

[16] 2018-015, 12_TPDP_2024_Oct, 13_TPDP_2023_Oct

[121] After several attempts to find authors, a DP drafting group was established in 2022. A first draft was reviewed in 2023, but the DP drafting group and discipline lead recommended review of the protocol by experts from the US and Canada, where the pest is present. Several experts were contacted with limited success. The DP drafting group proceeded with drafting the protocol and included additional experts from China. Reviewers from the US also contributed by reviewing the protocol.

[122] The *C. comandrae* draft DP includes morphological and molecular methods for the detection and identification. Furthermore, the DL mentioned that the authors were using the draft flow diagram and invited the TPDP to check if the inclusion of the flow diagram is useful for this DP. Also, to check the records section.

[123] Discussions on the draft DP by the TPDP:

[124] **Geographical distribution**. The TPDP noted that there were specific country names listed in the draft DP and asked the DP drafting group to revise it in order to prevent the distribution of the species from appearing limited to the areas mentioned only. In addition, the TPDP asked to make it clear where the host and alternate hosts coexists.

[125] **Taxonomy**. One member raised a concern about the inclusion of detailed information regarding the history of the higher pest classification in the taxonomic data, as it does not impact the identification of the pest itself. The TPDP agreed and asked the discipline lead to revise it.

[126] **Detection**. TPDP asked to highlight the fact that the accurate identification of the host is crucial for subsequent pest identification. In this sense, in the case that an unknown symptomatic host is detected, a combination of morphological and molecular analyses is necessary to accurately identify the pest.

[127] **Signs and symptoms.** The TPDP asked that this section should be split by hosts, as the plant tissues of each host are affected differently (hence resulting in distinctive signs) due to the different types of spores produced by the pest. This should also be reflected in the life cycle section.

[128] **Sampling and sample preparation.** One member asked to provide more guidance on how to conduct the first step of DNA extraction in the field. In addition, the TPDP raised a concern about the last part of this section to be too instructive and asked the discipline lead to revise it considering that quarantine practices differ across countries. Hence, it would be optimal to emphasize only general information, namely the fact that particular care should be taken to cross contamination in the lab due to easy dispersal of the spores.

[129] **Morphological detection.** TPDP proposed to include pictures to show specific diagnostic characteristics, i.e. the ornamentation of peridial cells and spores. Additionally, the TPDP observed that some information in this section should be relocated to the morphological identification section, as it mentions microscopic details that are not necessary for the pest detection stage.

[130] **Detection – nested PCR**. The TPDP queried if there is need to indicate the size of the amplicons, and thus the need to run a gel. This was raised because the protocol mentioned the need to do two PCRs, and thus to ensure that there is DNA amplified. The TPDP asked the DL and the DP drafting group to clarify this, and perhaps add more information under "controls section" (as it will depend on the controls used).

[131] **Identification**. The TPDP suggested that for the morphological identification, the information could be provided in a table. This would enhance readability of the DP.

[132] **Multilocus sequence-based identification.** One member suggested to provide data on the amplicon size that are needed for sequencing. It was also suggested to consider a more tree base analysis involving concatenated sequences.

[133] **Molecular identification – Interpretation of results.** The TPDP asked the DL and the DP drafting group to revise the similarity level for the identification (100% and 400 bp). Moreover, it was also questioned the relevance of mentioning all the representative loci sequences useful for final identification.

[134] **Records.** The TPDP requested to reduce the number of records to be retained (i.e. the magnitude of infection, the name of the laboratory/operators, the state of the pathogen) and to consider their relevance for the scope of the diagnostic protocol.

[135] **Figures**. The TPDP asked the drafting group to consider the possibility of including figures of all types of spores. The TPDP also discussed the relevance of the flow diagram and suggested that, if kept, it should be aligned with the main text of the diagnostic protocol.

[136] The TPDP:

(32) *thanked* the discipline lead and DP drafting group for *Cronartium comandrae* Peck (2018-015);

(33) *agreed* that the discipline lead and the DP drafting group will further revise the draft DP with the adjustments agreed to at this meeting;

(34) *asked* Veejay RAMAN to revise the botanical names in this draft DP;

(35) *requested* the IPPC secretariat to open Expert Consultation Period for this draft DP after the revision of the draft DP;

(36) *agreed* to present back the revised draft DP, from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.

6. TPDP work programme: Review of topics in the work programme

6.1 Update on draft DPs in the work programme

[137] The TPDP reviewed their entire work programme. The discipline leads gave updates on the progress of each topic and the IPPC secretariat provided schedule and upcoming deadlines for the development of these DPs. The TPDP:

(37) *agreed* to update the drafting groups list; and

(38) *agreed* to the workplan as completed at the meeting.

6.2 Update on the draft DP with pending status: Revision of DP 5 (Phyllosticta citricarpa (McAlpine)) Aa (2019-011), priority 1

[138] The discipline lead, Yazmin RIVERA, introduced the document 22_TPDP_2024_Oct. She mentioned that the revision of the ISPM 27 Diagnostic Protocol (DP) Annex DP 5[17]: *Phyllosticta citricarpa* (McAlpine) Aa on fruit (adopted in 2014) was accepted as a subject for the Technical Panel on Diagnostic Protocols (TPDP) to address concerns over misidentifications with newly reported *Phyllosticta* species.

[139] Citrus Black Spot (CBS) disease, caused by *Phyllosticta citricarpa*, is a leaf-spotting and fruit-blemishing fungus that affects a variety of *Citrus* sp, *Poncirus trifoliata* and *Fortunella* and their hybrids. There are a number of closely related *Phyllosticta* species on citrus that include *P. citriasiana*, and the recently described *P. paracapitalensis* and *P. paracitricarpa* (Guarnaccia *et al.* 2017[18]).

[140] During 2019, it was noted that there is a lack of methods in DP 5 for the accurate identification of *P. citricarpa*, given the recently described species. In particular, the PCR methods described in DP 5 will produce positive results for *P. paracitricarpa* and *P. citriasiana* (Schirmacher *et al.* 2019[19]). These

[17] DP 5 available on IPP at: https://www.ippc.int/en/publications/2577/

[18] Guarnaccia, V., Groenewald, J. Z., Li, H., Glienke, C., Carstens, E., Hattingh, V., Fourie, P.H., & Crous, P. W. (2017). First report of *Phyllosticta citricarpa* and description of two new species, *P. paracapitalensis* and *P. paracitricarpa*, from citrus in Europe. *Studies in mycology*, *87*, 161-185.

[19] Schirmacher, A. M., Tomlinson, J. A., Barnes, A. V., & Barton, V. C. (2019). Species-specific real-time PCR for diagnosis of *Phyllosticta citricarpa* on Citrus species. *EPPO Bulletin* 49: 306-313.

fungal species cannot be reliably differentiated from *P. citricarpa* based on other methods described in DP5, for example by morphological identification.

[141] A request to initiate a revision of DP 5 to address concerns over misidentifications was approved by the IPPC Standards Committee in 2020 and a drafting team to address the revisions was selected in 2021.The drafting team worked on the revision of the DP 5, and the revised DP was submitted to expert consultation in 2022. However, concerns over the lack of methods to discriminate between *P. citricarpa* and *P. paracitricarpa* were raised by the DP drafting group.

[142] A revision to update the DP 5 to address concerns over misidentifications was paused later in 2022 ('pending status'), as new research findings (unpublished) supported the identification of *P. citricarpa* and *P. paracitricarpa* as synonymous based on preliminary phylogenomic analyses.

[143] Research by van Ingen-Buijs et al. 2024[20] now supports *P. citricarpa* and *P. paracitricarpa* as one species, a concept agreed upon experts in the field and thus, reducing the impact on the need for revising the DP 5.

[144] The DP 5 however, still benefits from revisions to address misidentifications between *P. citricarpa* and *P. citriasiana* by including updated methods (i.e. Schirmacher et al. 2019 and others). The drafting team has agreed to resume the work on this revision to include new methods to accurately detect and identify *P. citricarpa*, an important task to ensure accurate diagnostics.

[145] The DL confirmed that the current DP drafting group is willing to conduct the revision of this draft DP.

[146] The TPDP:

(39) *thanked* the DL for this update;

(40) *agreed* to recommend to the SC to remove from pending status and *inform* that a full revision will be undertaken; and

(41) *requested* the DL to develop a document with the background, justification and rationale for this request by 15 February 2025, to be presented to the SC (via e-decision).

6.3 Selection of DP authors for drafting groups[21]:

[147] The IPPC secretariat introduced document 23_REV_TPDP_2024_Oct listing nominations submitted during February and July 2024 calls for DPs *Oryctes rhinoceros* (2023-003), *Alopecurus myosuroides* (2023-010) and *Halyomorpha halys* (2023-012). The TPDP was invited to select the experts for the drafting groups.

[148] ***Oryctes rhinoceros* (2023-003), priority 2.** The TPDP reviewed the document and noted that for *O. rhinoceros* there were already two calls for authors and only one nomination was submitted (from the call in February 2024). According to the TPDP procedures, a third call will be launched and if no enough experts will be nominated, the TPDP will ask to remove this DP from the work programme.

[149] ***Alopecurus myosuroides* (2023-010), priority 3.** The TPDP agreed to select all three experts nominated:

- Ms. Han XU (China) – lead auhor
- Mr Wentao YU (China)
- Mr Matthew SEWELL (USA)

[20] van Ingen-Buijs, V.A., van Westerhoven, A.C., Skiadas, P., Zuijdgeest, X.C., Haridas, S., Daum, C., Duffy, K., Guo, J., Hundley, H., LaButti, K. and Lipzen, A., 2024. Phyllosticta paracitricarpa is synonymous with the EU quarantine fungus P. Citricarpa based on phylogenomic analyses. *Fungal Genetics and Biology*, p.103925.

[21] https://www.ippc.int/en/calls/2024-07-call-for-dp-authors/

[150] ***Halyomorpha halys* (2023-012), priority 1.** The TPDP revised the nominations submitted but it was noticed that the candidates were not enough qualified in molecular diagnostics. Therefore, the TPDP requested the IPPC secretariat to open a third call for authors.

[151] The TPDP thanked and acknowledged all countries nominating experts to the drafting groups, acknowledging their contribution to the development of diagnostic protocols.

[152] The TPDP:

(42) *requested* the IPPC secretariat to open a third call for authors for *Oryctes rhinoceros* (2023-003); if not enough qualified experts are nominated, the TPDP will consider asking SC the removal of this DP from the TPDP workprogramme;

(43) *confirmed* the new DP authors for *Alopecurus myosuroides* (2023-010) drafting group as listed in the report;

(44) *assigned* the lead author for *Alopecurus myosuroides* (2023-010) drafting group as indicated in the report;

(45) *requested* the IPPC secretariat to contact the selected authors to initiate the work;

(46) *requested* the IPPC secretariat to update the DP drafting groups contact information list on the IPP; and

(47) *requested* the IPPC secretariat to open a third call for authors for *Halyomorpha halys* (2023-012), noting that the already submitted nominations will be kept.

6.4 Quality assurance

[153] Norman BARR introduced the document, noting that there have been no modifications since the last time it was presented. He reminded the purpose of the document: to maintain consistency across protocols. The TPDP agreed to forward any specific comment to Norman BARR.

6.6 Review of TPDP Instructions to Authors

[154] Throughout the week, the TPDP identified several key topics to be addressed and included in the Instructions to Authors, for which Géraldine ANTHOINE was elected as champion. The secretariat informed the TPDP that the IPPC scientific copyeditor is also keen to support the work and acknowledges the need to align the document with IPPC style guide.

[155] The champion suggested that the secretariat and the TPDP share the parking lot notes gathered during the week to identify which issues could be more effectively addressed in a virtual meeting and which ones would require more in-depth discussion during the face-to-face meeting in 2025.The TPDP:

(48) *agreed* that the secretariat and the TPDP will send the champion the inputs collected throughout the week related to the Instructions to Authors by January 15;

(49) *asked* the champion, the IPPC secretariat and the IPPC scientific copyeditor to work inter-sessionally to start to address the main points;

(50) *requested* the champion to prepare a list of such points to be shared before the next TPDP virtual meeting;

(51) *requested* the secretariat to schedule a virtual meeting in the first half of 2025 to go through the more straightforward points and identify which, on the other hand, will be addressed during the next face to face meeting; and

(52) *requested* to allocate a half-day session to revise the Instructions to Authors as one of the first agenda items in the next face to face meeting.

6.8 Review of the 2023 TPDP SWOT analysis with SC comments

[156] The secretariat introduced the topic for the new TPDP members, recalling that during the 2023 face to face meeting in Paris, the TPDP conducted a SWOT analysis which resulted in being a beneficial exercise.

[157] The secretariat then presented the results of the analysis to the SC during their meeting in May 2024. SC members reacted positively to this exercise, noted the forms submitted and provided some comments summarized in paper 05_TPDP_2024_Oct.

[158] The TPDP:

(53) *noted* the updates provided by the secretariat and the SC comments to the SWOT analysis.

7. Updates

7.1 Updates from the IPPC Secretariat

[159] The secretariat presented the document[22]outlining the updates that were also addressed during the SC meeting in May 2024. Specifically, the secretariat brought the focus on three main points.

[160] **CPM Focus Group on Laboratory Diagnostic Networking.** The establishment of a Commission on Phytosanitary Measures (CPM) Focus Group on Laboratory Diagnostic Networking was agreed in 2023 by CPM-17 with the purpose of helping countries to identify plant pests in a more reliable and timely manner. Subsequently, at the CPM-18 (2024), the Commission agreed with the Terms of Reference of the Focus Group. As of October 2024, the work is yet to commence, but it is foreseen that a call for experts for the Focus Group will be launched on 3rd – 4th quarter of 2025, as recently communicated by the Bureau. The secretariat also highlighted the fact that it is foreseen some involvement of the TPDP in the work of the Focus Group on Laboratory Diagnostic Networking.

[161] **International Forestry Quarantine Research Group (IFQRG) and working group on diagnosis molecular tools**. The secretariat introduced the work of the IFQRG whose goals include identifying critical questions for the international forest phytosanitary community, conducting independent research and offering considered advice to regulatory bodies under the IPPC. In this framework, IFQRG established a separate working group on molecular tools for the diagnosis of pests affecting forest species. Having IFQRG scheduled a meeting from 4th – 8th November 2024, the secretariat invited TPDP members to join the virtual sessions to learn about the working group latest research and recommendations on forest pest diagnostics. This could be beneficial in sight of the future development of DPs on forest pests. However, the secretariat also emphasized the need to prevent tasks and roles to overlap between the IFQRG Molecular Tools working group and the TPDP.

[162] **IPPC 2025 Call for Topics: Standards and Implementation.** The secretariat announced that a combined IPPC Call for Topics for Standards and Implementation resources will start mid-May and will remain open until mid-September 2025. Contracting parties and regional plant protection organizations (RPPOs) will have the chance to submit topic proposals. In 2023, as result of the previous call, IPPC received around 10 topic proposals regarding diagnostic protocols. However, the SC has been informed of the increasing TPDP workload, hence the outcomes of the 2025 call will be considered taking into account such issue.

[163] The TPDP:

(54) *noted* the updates provided by the secretariat.

8. Any other business

[164] The TPDP recommended to invite Valerie GRIMAULT, the EPPO Assistant director to the next TPDP face to face meeting as invited expert.

[22] 27_TPDP_2024_Oct

9. Recommendations to the Standards Committee (SC) or IPPC Secretariat

[165] Recommendations to the SC are described in previous sections of this report. To facilitate reference, they are compiled below.

[166] The SC is invited to:

(55) *recommend* to CPM-19 (2025) to note that an additional consultation period may be opened for DPs only, in January-May (in addition to the consultation period in July–September);

(56) *adjust* the start date of the DP Notification from 05 January to 30 January (DP Notification Period: 30 January – 15 March), to align with the January consultation period for draft DPs;

(57) *consider* opening a call for new TPDP member for Mycology and, if agreed, request the IPPC secretariat to open the call;

(58) *change* the title of Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028) to a new one that will be proposed by the discipline lead;

(59) *approve* the draft DP Pospiviroid species (2018-031) for adoption in 2025 with the adjustments agreed to at this meeting;

(60) *approve* the draft DP *Heterobasidion annosum* sensu lato (2021-015) for adoption in 2025 with the adjustments agreed to at this meeting;

(61) *approve* the draft DP *Meloidogyne mali* (2018-019) for adoption in 2025 with the adjustments agreed to at this meeting;

(62) *approve* the draft DP *Drosophila suzukii* (Diptera: Drosophilidae) (2021- 017) for consultation in 2025 with the adjustments agreed to at this meeting;

(63) *approve* the draft DP *Dickeya* spp. on potato (2021-014) for consultation in 2025 with the adjustments agreed to at this meeting;

(64) *approve* the draft DP *Bactrocera zonata* and *Bactrocera correcta* (2021- 013) for consultation in 2025 with the adjustments agreed to at this meeting;

(65) *approve* the draft DP *Cronartium comandrae* Peck (2018-015) for consultation in 2025 with the adjustments agreed to at this meeting;

(66) *remove* from pending status Revision of DP 5 (*Phyllosticta citricarpa* (McAlpine)) Aa (2019-011) and *acknowledge* that a full revision of this DP will be undertaken;

(67) *invite* Valerie GRIMAULT, the EPPO Assistant director to the next TPDP meeting as invited expert

10. Tentative dates for upcoming meetings

[167] The secretariat indicated that, based on TPDP needs, there could be an increase in the number of virtual meetings planned for 2025, and doodle polls will be sent to agree on suitable dates.

[168] The next TPDP face to face meeting is scheduled on 21st-25th July 2025 in Angers, France. It will be kindly hosted by Anses (Agence nationale de sécurité sanitaire).[23]

11. Evaluation of the meeting

[169] The secretariat invited TPDP members to complete the survey by clicking on the link included in the agenda and reminded that the responses are anonymous and that every comment or improvement inputs are welcomed.

[23] Anses: https://www.anses.fr/en

11. Closing of the meeting

[170] The TPDP and the secretariat thanked MAFF Japan for hosting the meeting, and for providing everything necessary for its successful outcome.

[171] The TPDP thanked the secretariat staff for their professional support and dedication to the work.

[172] The secretariat thanked the participants for their active participation.

[173] The chairperson thanked the participants for their contributions and closed the meeting.

APPENDIX 1: AGENDA

Agenda Item		Document No.	Presenter
1.	**Opening of the Meeting**		
1.1	Welcome by the IPPC Secretariat	--	IPPC Secretariat - Adriana MOREIRA (Deputy Lead to Standard Setting Unit)
1.2	Welcome by the host, NPPO of Japan (Ministry of Agriculture, Forestry and Fisheries of Japan)	--	Mr Hidetoshi KOMIYA Director, Plant Protection Division, MAFF
1.3	Introductions	--	IPPC Secretariat / MAFF
2.	**Meeting Arrangements** - Presentation on roles for the meeting		
2.1	Selection of Chairperson	--	MOREIRA
2.2	Selection of the Rapporteur	--	Chairperson
2.3	Adoption of the Agenda	01_TPDP_2024_Oct	Chairperson
3.	**Administrative Matters**		
3.1	Documents List	02_TPDP_2024_Oct	MARTINO
3.2	Participants List / TPDP membership list	03_TPDP_2024_Oct TPDP membership list	
3.3	Local information for participants	04_REV_TPDP_2024_Oct	YAMAMOTO
3.4	Review of the IPPC standard setting procedure	Link to video (PPT link)	MOREIRA / MARTINO
4.	**TPDP work programmee – review of DPs and comments from consultation (January and July of 2024): for recommendation to the SC for adoption**		
4.1	Pospiviroid species (except Potato spindle tuber viroid (DP 7)) (2018-031), priority 2 Discipline lead: Vessela MAVRODIEVA Referee: Julie PATTEMORE - Discipline lead notes (summary of major comments) - Responses to comments	2018-031 06_TPDP_2024_Oct 07_TPDP_2024_Oct 08_TPDP_2024_Oct 09_TPDP_2024_Oct Link to the compiled comments	MAVRODIEVA
4.2	*Heterobasidion annosum* sensu lato (2021-015), priority 3 Discipline lead: Yazmin RIVERA Referee: Robert TAYLOR - Discipline lead notes (summary of major comments) - Responses to comments	2021-015 10_TPDP_2024_Oct 11_TPDP_2024_Oct Link to the compiled comments	RIVERA

Agenda Item		Document No.	Presenter
4.3	*Meloidogyne mali* (2018-019), priority 3 *(note: consultation period closes on 30 September)* Discipline lead: Geraldine ANTHOINE Referee: Norman BARR - Discipline lead notes (summary of major comments) - Responses to comments	2018-019 29_TPDP_2024_Oct 30_TPDP_2024_Oct Link to the compiled comments	ANTHOINE
5.	**TPDP work programmee – Review of new draft DPs: for recommendation to the SC for consultation period**		
5.1	*Drosophila suzukii* (Diptera: Drosophilidae) (2021-017), priority 1 Discipline lead: Norman BARR Referees: Juliet GOLDSMITH, David OUVRARD - Discipline lead notes - Checklist for discipline leads and referees	2021-017 18_TPDP_2024_Oct 19_TPDP_2024_Oct	BARR
5.2	Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028), priority 1 Discipline lead: Norman Barr Referee: David Ouvrard - Discipline lead notes - Checklist for discipline leads and referees	2006-028 16_TPDP_2024_Oct 17_TPDP_2024_Oct	BARR
5.3	*Dickeya* spp. on potato (2021-014), priority 2 Discipline lead: Robert TAYLOR Referee: Geraldine ANTHOINE - Discipline lead notes - Checklist for discipline leads and referees	2021-014 14_TPDP_2024_Oct 15_TPDP_2024_Oct	TAYLOR
5.4	*Bactrocera zonata* and *Bactrocera correcta* (2021-013), priority 2 Discipline lead: Norman BARR Referee: Juliet GOLDSMITH - Discipline lead notes - Checklist for discipline leads and referees	2021-013 20_TPDP_2024_Oct 21_TPDP_2024_Oct	BARR
5.5	*Cronartium comandrae* Peck (2018-015), priority 4 Discipline lead: Yazmin RIVERA Referees: Géraldine ANTHOINE and Julie PATTEMORE - Discipline lead notes - Checklist for discipline leads and referees	2018-015 12_TPDP_2024_Oct 13_TPDP_2024_Oct	RIVERA
6.	**TPDP work programme: Review of topics in the work programme**		
6.1	Update on draft DPs in the work programme	28_TPDP_2024_Oct Link to List of topics for IPPC Standards Link to IPPC DPs drafting groups list	MOREIRA / ALL

Agenda Item		Document No.	Presenter
6.2	Update on the draft DP with pending status: Revision of DP 5 (*Phyllosticta citricarpa* (McAlpine)) Aa (2019-011), priority 1 - Notes from the discipline lead	Scientific paper: Van Ingen-Buijs et all (2024) 22_TPDP_2024_Oct	RIVERA
6.3	Selection of DP authors for drafting groups[24]: - *Oryctes rhinoceros* (2023-003) - *Alopecurus myosuroides* (2023-010) - *Halyomorpha halys* (2023-012)	23_TPDP_2024_Oct 24_TPDP_2024_Oct	MARTINO
6.4	Quality assurance issues associated with diagnostic protocols for regulated pests	25_TPDP_2024_Oct	BARR
6.5	Review of TPDP working procedures	TPDP Working procedures Checklist for discipline leads and referees (work area page)	MOREIRA / ATTIPOE
6.6	Review of TPDP Instruction for Authors	26_TPDP_2024_Oct Link to Instruction to authors (word file of the current Instructions to Authors – work area) Check list for authors	ANTHOINE / IPPC Secretariat
6.7	Review of TPDP work plan: 2024-2025	(to be finalized at the meeting)	IPPC Secretariat
6.8	Review of the 2023 TPDP SWOT analysis with SC comments	05_TPDP_2024_Oct	Chairperson / ATTIPOE
7.	**Updates**		
7.1	Updates from the IPPC Secretariat	27_TPDP_2024_Oct Link to the IPPC brochure: TPDP instructions to authors	MOREIRA
8.	**Any other business**	--	Chairperson
9.	**Recommendations to the Standards Committee (SC) or IPPC Secretariat**	--	IPPC Secretariat / Chairperson
10.	**Tentative dates for upcoming meetings** - Virtual meetings - 2025 face to face meeting: Tentative: 20-24 October 2025	--	Chairperson / IPPC Secretariat
11.	**Evaluation of the meeting**	Online survey	Chairperson
12.	**Closing of the meeting**	--	MOREIRA / Chairperson

[24] https://www.ippc.int/en/calls/2024-07-call-for-dp-authors/

APPENDIX 2: DOCUMENTS LIST

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
01_TPDP_2024_Oct	2.3	Agenda	2024-09-18 (1st version) 2024-10-14 (2nd version)
02_TPDP_2024_Oct	3.1	Documents list	2024-10-14
03_TPDP_2024_Oct	3.2	Participants list	2024-10-15
04_REV_TPDP_2024_Oct	3.3	Local information for participants	2024-09-30
05_TPDP_2024_Oct	6.8	Follow up to the SWOT analysis for the TPDP	2024-10-04
06_TPDP_2024_Oct	4.1	Summary of major comments on draft annex to ISPM 27: *Pospiviroid* species DP (2018-031)	2024-10-08
07_TPDP_2024_Oct	4.1	Compiled comments for 2024 First Consultation: 2018-031 DP *Pospiviroid* species - Discipline lead's response	2024-10-08
08_TPDP_2024_Oct	4.1	*Pospiviroid* decision scheme updated (2018-031)	2024-10-08
09_TPDP_2024_Oct	4.1	Potential response to paragraph 54 (out of OCS version) (2018-031)	2024-10-08
10_TPDP_2024_Oct	4.2	Compiled comments for 2024 First Consultation: 2021-015 DP *Heterobasidion annosum* sensu lato - Discipline lead's response	2024-10-08
11_TPDP_2024_Oct	4.2	Summary of major comments on Draft annex to ISPM 27: *Heterobasidion annosum* DP (2021-015)	2024-10-08
12_TPDP_2024_Oct	5.5	*Cronartium comandrae* (2018-015) – Referee Checklist	2024-10-09
13_TPDP_2024_Oct	5.5	*Cronartium comandrae* (2018-015) – Discipline lead notes	2024-10-09
14_TPDP_2024_Oct	5.3	*Dickeya* spp. on potato (2021-014) – Referee Checklist	2024-10-11
15_TPDP_2024_Oct	5.3	*Dickeya* spp. on potato (2021-014) – Discipline lead notes	2024-10-11
16_TPDP_2024_Oct	5.2	Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028) – Discipline lead notes	2024-10-11

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
17_TPDP_2024_Oct	5.2	Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028) – Referee Checklist	2024-10-11
18_TPDP_2024_Oct	5.1	*Drosophila suzukii* (Diptera: Drosophilidae) (2021-017) – Discipline lead notes	2024-10-11
19_TPDP_2024_Oct	5.1	*Drosophila suzukii* (Diptera: Drosophilidae) (2021-017) – Referee Checklist	2024-10-11
20_TPDP_2024_Oct	5.4	*Bactrocera zonata* (2021-013) and *Bactrocera correcta* (2023-015) – Discipline lead notes	2024-10-11
21_TPDP_2024_Oct	5.4	*Bactrocera zonata* (2021-013) and *Bactrocera correcta* (2023-015) – Referee Checklist	2024-10-11
22_TPDP_2024_Oct	6.2	Update on the draft DP with pending status: Revision of DP 5 (*Phyllosticta citricarpa* (McAlpine)) on fruit (2019-011)	2024-10-11
23_REV_TPDP_2024_Oct	6.3	Selection of diagnostic protocols (DP) authors	2024-10-14
24_TPDP_2024_Oct	6.3	Experts CVs	2024-10-11
25_TPDP_2024_Oct	6.4	Quality Assurance Issues Associated with DPs for Regulated Pests	2024-10-11
26_TPDP_2024_Oct	6.6	Occurrence of terms “assay”, “test” and “method” in diagnostic protocols	2024-10-14
27_TPDP_2024_Oct	7.1	Updates from the IPPC Secretariat	2024-10-17
28_TPDP_2024_Oct	6.1	Update on draft DPs in the work programme	2024-10-20
29_TPDP_2024_Oct	4.3	Summary of major comments on Draft annex to ISPM 27: *Meloidogyne mali* (2018-019)	2024-10-17
30_TPDP_2024_Oct	4.3	Compiled comments for 2024 First Consultation: 2018-019 DP *Meloidogyne mali* - Discipline lead’s response	2024-10-17

List of draft DPs

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
2018-031	4.1	Pospiviroid species (except Potato spindle tuber viroid (DP 7)) (2018-031), priority 2	2024-10-08
2021-015	4.2	*Heterobasidion annosum* sensu lato (2021-015), priority 3	2024-10-08
2018-019	4.3	*Meloidogyne mali* (2018-019), priority 3	2024-10-17
2021-017	5.1	*Drosophila suzukii* (Diptera: Drosophilidae) (2021-017), priority 1	2024-10-08

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
2006- 028	5.2	Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028)	2024-10-08
2021-014	5.3	*Dickeya* spp. on potato (2021-013), priority 2	2024-10-11
2021-013	5.4	*Bactrocera zonata* and *Bactrocera correcta* (2021-013), priority 2	2024-10-08
2018-015	5.5	*Cronartium comandrae* Peck (2018-015), priority 4	2024-10-09

Additional resources

- IPPC standard setting procedure: video
- Link to adopted ISPMs
- IPPC Strategic Framework 2020-2030
- Link to SC meeting reports
- 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/
- Standard setting main page: https://www.ippc.int/en/core-activities/standards-setting/
- TPDP main page: https://www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-diagnostic-protocols/

APPENDIX 3: PARTICIPANTS LIST

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Steward	**Mr Prudence Tonator ATTIPOE** Deputy Director, Head Plant Quarantine Division. Plant Protection and Regulatory Services Directorate (PPRSD), Ministry of Food and Agriculture (MoFA) P.O. Box M37, Accra **GHANA** Tel: 0209793292, 0262235397	tonattipoe@yahoo.co.uk		
✓	Assistant Steward	**Ms Mi Chi YEA** Department of Plant Quarantine, Animal and Plant Quarantine Agency 177, Hyeoksin 8-ro Gimcheon-si, Gyeongsangbuk-do, **REP. OF KOREA** Tel: 82-54-912-0627 Fax: 82-54-912-0635, Mobile: 82-10-8405-9278	kittymc@korea.kr		
✓	Bacteriology and back up 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	May 2026 (3rd term)
✓	Botany	**Mr Vijayasankar RAMAN** Botanist, National Identification Services, APHIS USDA, Beltsville, MD-20705, **USA** Tel: +13013139332	vijay.raman@usda.gov	October 2023	October 2028 (1st term)

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Entomology	**Mr Norman B. BARR** National Identification Services Pest Exclusion and Import Programs United States Department of Agriculture 4700 River Road, Riverdale, MD 20737 **USA** Tel. (+1) 956 205 7658 Fax: (+1) 956 205 7680	norman.b.barr@aphis.usda.gov	July 2012	July 2027 (3nd term)
	Entomology	**Ms Juliet GOLDSMITH** Plant Health Specialist Caribbean Agricultural Health and Food Agency (CAHFSA) Letitia Vriesdelaan 10 Paramaribo **SURINAME** Tel: (+597) 422 546 Mobile: (+597) 725 2922	juliet.goldsmith@cahfsa.org	November 2014	May 2029 (3rd term)
✓	Entomology	**Mr David OUVRARD** Deputy Head of Unit ANSES/Plant Health Laboratory/Entomology and Botany Unit, Montpellier-France 755 avenue du campus Agropolis – CS 30016 – 34988 Montferrier-sur-Lez Cedex **FRANCE** Mobile: +33675003904	david.ouvrard@anses.fr	May 2024	May 2029 (1st term)
✓	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	May 2029 (4th term)

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Virology	**Ms Vessela Assenova MAVRODIEVA** Assistant Laboratory Director USDA APHIS, PPQ Beltsville, MD **USA** Tel: (+1) 301-313-9208	vessela.a.mavrodieva@usda.gov	March 2020	March 2025 (1st term)
✓	Virology	**Mr Andrew Sarkodie APPIAH** Senior Research Scientist Biotechnology and Nuclear Agriculture Research Institute, Ghana Atomic Energy Commission P. O. Box LG 80, Legon, Accra **GHANA** Tel: +233 249166128	andysark2000@gmail.com andrew.appiah@gaec.gov.gh	November 2022	November 2027 (1st term)
	Mycology	**Ms Julie PATTEMORE** Assistant Director: Plant Pathology, Department of Agriculture, Water and the Environment, Melbourne, **AUSTRALIA** Tel: (+61) 3 83186957	julie.pattemore@aff.gov.au	March 2020	March 2025 (1st term)
✓	Mycology	**Ms Yazmin Rivera RIVERA** Assistant Laboratory Director USDA APHIS, PPQ Beltsville, MD **USA** Tel: (+1) 301-313-9273	yazmin.rivera@usda.gov	March 2020	March 2025 (1st term)
✓	Invited Expert	**Ms Valérie GRIMAULT** Assistant Director **European and Mediterranean Plant Protection Organization (EPPO)** 21 Boulevard Richard Lenoir 75011 Paris, FRANCE	valerie.grimault@eppo.int		
✓	Host – NPPO of Japan	**Ms Masumi YAMAMOTO** Deputy Director, Plant Protection Division, Food Safety and Consumer Affairs Bureau, MAFF **JAPAN**	masumi_yamamoto440@maff.go.jp		

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Host – NPPO of Japan	**Ms Natsumi YAMADA** Deputy Director, Plant Protection Division, Food Safety and Consumer Affairs Bureau, MAFF **JAPAN**	natsumi_yamada770@maff.go.jp		
✓	Host – NPPO of Japan	**Ms Megumi MURAKAMI** Plant Protection Division, Food Safety and Consumer Affairs Bureau, MAFF **JAPAN**	megumi_murakami990@maff.go.jp		
✓	IPPC Secretariat Lead to TPDP	**Ms Adriana MOREIRA** Standards Officer / Deputy Assistant to Unit Leader IPPC Secretariat / FAO Viale delle Terme di Caracalla 00153 Rome **ITALY** Tel: (+39) 06 570 55809	adriana.moreira@fao.org		
✓	IPPC Secretariat Support to TPDP	**Ms Marina Elena MARTINO** Phytosanitary Standard Setting Specialist IPPC Secretariat / FAO Viale delle Terme di Caracalla 00153 Rome **ITALY**	marina.martino@fao.org		

Other participants			Participation date
✓	Host - NPPO	Mr Yuji FUJIWARA Senior researcher, Plant Pathology Section, Research Division, Yokohama Plant Protection Station, MAFF yuji_fujiwara590@maff.go.jp	Monday, 21 October 2024
✓	Host - NPPO	Dr Makoto ARIMOTO Senior researcher, Entomology and Nematology section, Research division, Yokohama Plant Protection Station, MAFF makoto_arimoto030@maff.go.jp	Tuesday, 22 October 2024
✓	Host - NPPO	Mr Taro SAITO Senior researcher, Entomology and Nematology section, Research division, Yokohama Plant Protection Station, MAFF taro_saito180@maff.go.jp	Wednesday, 23 October 2024

✓	Host - NPPO	Dr Takayuki MATSUURA Chief researcher, Plant Pathology Section, Research Division, Yokohama Plant Protection Station, MAFF takayuki_matsuura150@maff.go.jp	Thursday, 24 October 2024

APPENDIX 4: MINI-WORKSHOP CONCEPT NOTE

CONCEPT NOTE

Mini-workshop – Technical capacity building session between the IPPC TPDP and the NPPO of Japan

25 October 2024

09:00-12:30h

Boosting Agricultural Resilience: A Workshop on Advancing Knowledge Sharing in the IPPC Technical Panel on Diagnostic Protocols (TPDP) and New Plant Pest Diagnostic Techniques

Introduction:

The workshop on knowledge sharing about the IPPC and its Technical Panel on Diagnostic Protocols (TPDP) and processes and, new plant pest diagnostic techniques aims to build capacity and knowledge sharing about the topic. This event will provide a platform for TPDP experts, researchers, and NPPO from MAFF-Japan to brainstorm, collaborate, and exchange innovative ideas to improve plant pest diagnostics.
It is also expected that participants will enhance their understanding about the IPPC standard setting procedure, how NPPOs and their employees can be involved (e.g. nominating experts during calls, participating in consultations) and benefit from it.

Objectives:

1. Facilitate the dissemination of the IPPC standard setting procedure and the work of the Technical Panel on Diagnostic Protocols (TPDP).

2. Foster collaboration among the TPDP members, IPPC Secretariat and NPPO of Japan to enhance knowledge sharing and capacity building on cutting-edge plant pest diagnostic technologies and methodologies.

3. Information sharing on strategies for early detection and effective management of plant pests using advanced diagnostic techniques.

4. Networking opportunities for participants to share experiences, ideas, and best practices.

Audience:

IPPC secretariat staff, Technical Panel on Diagnostic Protocols (TPDP) members, MAFF NPPO staff and researchers.

Key Takeaways:

1. Increased awareness of the IPPC procedure and the work of the TPDP.

2. Increased knowledge of the latest advancements in plant pest diagnostic techniques.

3. Increased knowledge of the work of MAFF on plant pests diagnostics.

4. Enhanced collaboration among participants to improve knowledge sharing.

Location: Yokohama Shinko Government Office Building, 3F, Meeting room B (TPDP meeting venue)

Workshop Structure:

A total of half day, from 09:00 to 12:30 on Friday 25 October 2024.

Proposed length: 3h

Proposed agenda:

Time	Title	Presenter
09:00-09:10	Welcome by MAFF Japan and IPPC Secretariat	Mr Takanori TSUKAMOTO / MOREIRA
09:10-09:25	The World Horticultural Exhibition Yokohama 2027	Expo Secretariat
09:25-09:50	Overview to the IPPC standard setting procedure with a focus on diagnostic protocols	Dr Adriana MOREIRA (IPPC Secretariat)
09:50-10:05	Novel Diagnostic Techniques for Early and Accurate Detection of Plant Pests and Ghana's experience with plant virus's diagnostics	Dr Andrew APPIAH (TPDP member)
10:05-10:25	CRISPR technologies for improved point-of-care diagnostics	Dr Yazmin RIVERA (TPDP member)
10:25-10:35	Short Q&A	
10:35-10:45	Short break	
10:45-11:00	NPPO of Japan: Overview	Mr Yasunori SHIRAGA/Dr Masami MASUMOTO
11:00-11:15	MAFF presentation – *Meloidogyne enterolobii* intercepted from seedlings of *Ficus microcarpa* during import plant quarantine	Dr Shigeyuki SEKIMOTO/Mr Kazuki NAKAE
11:15-11:30	MAFF presentation – Molecular diagnostics of insect pests	Ms Haruka ODA
11:30-11:45	MAFF presentation – Artificial lntelligence Development for Detection of Plant Pathogenic Fungi Spores	Ms Miyu MATSUYAMA
11:45-12:05	Short Q&A	
12:05-12:10	Photo	
12:10-12:20	Break	
12:20	Move to a restaurant (5 min walk)	
12:30-14:00	Lunch	

APPENDIX 5: MINI-WORKSHOP ABSTRACTS

NOVEL DIAGNOSTIC TECHNIQUES FOR EARLY AND ACCURATE DETECTION OF PLANT PESTS AND GHANA'S EXPERIENCE WITH PLANT VIRUSES' DIAGNOSTICS

Presenter: Andrew Sarkodie Appiah, PhD. Senior Research Scientist / Biotechnology and Nuclear Agriculture Research Institute, Ghana Atomic Energy Commission

Plant pests cause enormous yield losses in several crops of economic importance resulting in major economic losses in the agricultural industry worldwide. The spread of these plant pests/pathogens and the emergence of new ones is facilitated by human practices such as global trade and monoculture farming. Thus, early detection and identification of plant pests/pathogens is of utmost importance in reducing disease spread and the associated agricultural losses. Current techniques for plant pest detection include culture based, PCR-based, sequencing-based, and immunology-based techniques. Although these methods have revolutionized plant pest detection, they are not very reliable at asymptomatic stage, especially in case of pathogen with systemic diffusion, and are laboratory-based. The potential use of point-of-care devices, including biosensors, lateral flow devices and loop-mediated isothermal amplification (LAMP) are gaining popularity. Other methods such as metagenomics, high-throughput sequencing (HTS), remote sensing, artificial intelligence and machine learning, volatile organic compound (VOC) analysis and genome editing (CRISPR/Cas9) present opportunities for enhanced plant pest detection and identification. These novel techniques will complement the traditional methods of detection for a more precise, rapid, and comprehensive pest diagnosis, thus enhancing our ability to manage and control plant pests effectively.

CRISPR TECHNOLOGIES FOR IMPROVED POINT-OF-CARE DIAGNOSTICS

Presenter: Yazmín Rivera, PhD. USDA APHIS PPQ S&T Plant Pathogen Confirmatory Diagnostics Laboratory

Clustered regularly interspaced short palindromic repeats (CRISPR) were first detected in 1987 by scientist Yoshizumi Ishino in Escherichia coli. While at the time, the lack of sufficient DNA sequence data made it impossible to predict their function, advances on sequencing technologies and further studies on sequence similarities allowed scientists to understand how CRISPR work alongside CRISPRassociated enzymes (Cas) as a system (CRISPR-Cas) to protect prokaryotic cells against invading viruses and plasmids. Further studies on CRISPR-Cas systems led to the discovery of CRISPR-Cas9 genetic editing and the 2020 Nobel Prize in Chemistry awarded to Jennifer Doudna and Emanuelle Charpentier.

CRISPR-Cas systems have been the focus of extensive research and development for their application in genome editing. With the recent discovery of trans-cleavage activity by specific Cas nucleases, they have also gained attention as an emerging technology in the field of infectious disease diagnostics for their potential portability and sensitivity. CRISPR-Cas-based detection systems using various enzymes and approaches such as SHERLOCK and DETECTR have since emerged. CRISPR-Cas-based assays have been developed for detecting potato virus X (PVX), potato virus Y (PVY), and tobacco mosaic virus (TMV), tomato brown rugose fruit virus (ToBRFV), and citrus huanglongbing pathogen ('Candidatus Liberibacter asiaticus') among others. Despite the novelty CRISPR-Cas-based tools developed by the research community, optimization and validation of these technologies for 'real world' diagnostic use remains a challenge. In this presentation, we will discuss our experience with this technology as a potential diagnostic tool for point-of-care detection of plant pathogens.

MELOIDOGYNE ENTEROLOBII INTERCEPTED FROM SEEDLINGS OF *FICUS MICROCARPA* FROM CHINA DURING IMPORT PLANT QUARANTINE

Presenters: Shigeyuki Sekimoto, PhD. Pest Identification Section, Yokohama Plant Protection Station, MAFF; Kazuki Nakae. Entomology and Nematology Section, Research Division, Yokohama Plant Protection Station, MAFF

In March 2023, root-knot nematodes suspected to be *Meloidogyne enterolobii* were intercepted from seedlings of *Ficus microcarpa* from China during an import plant quarantine inspection at Nagoya port, Japan. We identified the nematode population as *M. enterolobii* by the morphological and molecular methods. Moreover, the host pathogenicity test confirmed that *F. microcarpa* is a host of *M. enterolobii*. To the best of our knowledge, this is the first record of *M. enterolobii* from *F. microcarpa*.

MOLECULAR DIAGNOSTICS TO IDENTIFY PEST INSECTS IN JAPANESE PLANT QUARANTINE

Presenter: Haruka ODA, Entomology and Nematology section, Research division, Yokohama Plant Protection Station, MAFF

Molecular diagnostics of pest insects is one of the tools to support morphological identification in Japanese plant quarantine. It is mainly applicable when we don't have suitable samples or time for morphological identification. The discrimination among *Bactrocera* species based on PCR-RFLP of mitochondrial COII is presented as an example. 12 species can be identified by this PCR-RFLP method, including *B. dorsalis*, *B. cucurbitae* (*Zeugodacus cucurbitae*), *B. latifrons* and 9 local species. New primers were designed to amplify COII region of mitochondrial DNA. PCR products amplified by the new primers were digested by three restriction enzymes: Taq I, Hinf I and Dra I. Simply banding patterns useful for discrimination were detected. Based on the results, a scheme to identify the 12 *Bactrocera* species was proposed. This is a rapid and accurate identification method and is used in the invasive survey when fruit flies are detected in Japan.

ARTIFICIAL INTELLIGENCE DEVELOPMENT FOR DETECTION OF PLANT PATHOGENIC FUNGI SPORES

Presenter: Miyu Matsuyama, Plant Pathology Section, Research Division, Yokohama Plant Protection Station MAFF

Uromyces betae (Pers.) Tul. （=*U. beticola*） is a rust fungus of obligate plant pathogens affecting beet production, occurring in Asia except India, China etc., most European countries, and some states in the United States, but not in Japan. To prevent the introduction of this seedborne pathogen, we inspect the imported beet seeds, and it has a process that is both time-consuming and labor-intensive. To address this issue, we developed Artificial Intelligence (AI) diagnosis model using deep learning to identify *U. betae* spores. Initially, AI model was trained and validated with a large number of Identified *U. betae* urediniospores, teliospores and beet pollen. Subsequently, the trained AI model was tested on the test dataset composed of identified images to evaluate its diagnostic accuracy and confidence. The trained AI model successfully distinguished urediniospores, teliospores, and pollen with high accuracy and confidence. Further improvements enabled real-time diagnostic capabilities. In the future, we aim to incorporate automatic size measurement of spore in addition to detection technology.

APPENDIX 6: LIST OF ACTION POINTS

	Decisions & Actions	Agenda Item	Responsible	Deadline
1.	requested to open a call for experts for the TPDP Mycology expert vacancy	3.2	Secretariat	December 2024
2.	agreed to request the SC to modify the date for the January DP notification to start on the same date of the January consultation period, i.e. from 05 January to 30 January each year (noting that continue the 01 July 45-Day DP notification period).	4	Secretariat	SC November
3.	agreed that Andrew APPIAH is the new referee for Pospiviroid species DP (2018-031) and requested that the IPPC Secretariat to update the List of topics for IPPC standards accordingly	4.1	Secretariat	As soon as possible
4.	asked Veejay RAMAN to revise the botanical names in DP Pospiviroid species (2018-031)	4.1	Veejay RAMAN	During DP revision
5.	agreed to present back the draft DP Pospiviroid species (2018-031) and the responses to consultation comments to the TPDP (via e-decision) with the recommendation to the SC for approval for adoption (tentative: July 2025 DP Notification period).	4.1	Vessela MAVRODIEVA	Before July 2025
6.	agreed to present back the draft DP *Heterobasidion annosum* sensu lato (2021-015) and the responses to consultation comments to the SC with recommendation for approval for adoption (tentative: January 2025 DP Notification period).	4.2	Yazmin RIVERA	Before January 2025
7.	agreed to present back the draft DP *Meloidogyne mali* (2018-019) and the responses to consultation comments to the TPDP (via e-decision) with the recommendation to the SC for approval for adoption (for DP notification period in July 2025).	4.3	Geraldine ANTHOINE	Before July 2025
8.	requested the IPPC Secretariat to open Expert Consultation Period for the draft DP *Drosophila suzukii* (Diptera: Drosophilidae) (2021-017) after the revision.	5.1	Secretariat	After DP revision

Decisions & Actions	Agenda Item	Responsible	Deadline
9. agreed to present back the revised draft DP *Drosophila suzukii* (Diptera: Drosophilidae) (2021-017), from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.	5.1	Norman BARR	After 2025 Expert Consultation
10. requested the lead author of draft DP Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028) to develop a paper with the proposed new title and rationale to be presented to the SC (to be presented to the TPDP prior to the SC).	5.2	Norman BARR (paper) and Secretariat (e-decision)	15 November 2024
11. requested the IPPC Secretariat to open a call for authors for draft DP Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006- 028) after the title change, and to include a note that a first version of the draft has been reviewed by the TPDP.	5.2	Secretariat	After the change of title is approved by SC
12. requested the IPPC Secretariat to open Expert Consultation Period for draft DP *Dickeya* spp. on *Solanum tuberosum* (2021-014) after the revision of the draft DP.	5.3	Secretariat	After DP revision
13. agreed to present back the revised draft DP *Dickeya* spp. on *Solanum tuberosum* (2021-014), from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.	5.3	Robert TAYLOR	After expert consultation
14. requested the IPPC Secretariat to open Expert Consultation Period for draft DP *Bactrocera zonata* and *Bactrocera correcta* (2021-013) after the revision of the draft DP.	5.4	Secretariat	After DP revision
15. agreed to present back the revised draft DP *Bactrocera zonata* and *Bactrocera correcta* (2021-013), from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.	5.4	Norman BARR	After expert consultation

Decisions & Actions	Agenda Item	Responsible	Deadline
16. asked Veejay RAMAN to revise the botanical names in draft DP *Cronartium comandrae* Peck (2018-015).	5.5	Veejay RAMAN	During DP revision
17. requested the IPPC Secretariat to open Expert Consultation Period for draft DP *Cronartium comandrae* Peck (2018-015) after the revision of the draft DP.	5.5	Secretariat	After DP revision
18. agreed to present back the revised draft DP *Cronartium comandrae* Peck (2018-015), from the expert consultation to the TPDP (via e-decision or virtual meeting) with the recommendation to the SC for approval for consultation period.	5.5	Yazmín RIVERA	After expert consultation
19. (tentative) agreed to present the first draft of draft DP *Citrus leprosis virus* (2018-025) at the TPDP face to face meeting 2025.	6.1	Vessela MAVRODIEVA	TPDP face to face meeting (21-25 July 2025)
20. (tentative) agreed to present the first draft of draft DP *Microcyclus ulei* (2019-003) at the TPDP face to face meeting 2025.	6.1	Robert TAYLOR	TPDP face to face meeting (21-25 July 2025)
21. (tentative) agreed to present the first draft of draft DP *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on Triticum spp. (2019-010) at the TPDP face to face meeting 2025.	6.1	Geraldine ANTHOINE	TPDP face to face meeting (21-25 July 2025)
22. (tentative) agreed to present the first draft of draft DP *Spodoptera frugiperda* (Fall Armyworm) on *Triticum* spp. (2021-016) at the TPDP face to face meeting 2025.	6.1	Norman BARR	TPDP face to face meeting (21-25 July 2025)
23. (tentative) agreed to present the first draft of draft DP *Tomato brown rugose fruit virus* (2021-025) at the TPDP face to face meeting 2025.	6.1	Vessela MAVRODIEVA	TPDP face to face meeting (21-25 July 2025)
24. (tentative) agreed to present the first draft of draft DP *Acidovorax avenae subsp. citrulli* (2018-032) at the TPDP face to face meeting 2025.	6.1	Robert TAYLOR	TPDP face to face meeting (21-25 July 2025)
25. requested the DL of Revision of DP 5 (*Phyllosticta citricarpa* (McAlpine)) Aa (2019-011) to develop a document with the background, justification and rationale for "pending status" removal to be presented to the SC (via e-decision).	6.2	Yazmín RIVERA	By 15 February 2025

Decisions & Actions	Agenda Item	Responsible	Deadline
26. requested to open a call for authors for the following DPs: - *Oryctes rhinoceros* (2023-003); - *Halyomorpha halys* (2023-012); - *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on *Triticum* spp. (2019-010).	6.3	Secretariat	By December 2024
27. asked the champion, and the IPPC Secretariat to work inter-sessionally on the document Instructions to Authors to address the main points. And then, the champion will work on and circulate with the TPDP. It was noted to include the IPPC scientific copyeditor.	6.6	TPDP, Geraldine ANTHOINE, Secretariat, IPPC copyeditor	By 15 January