



Food and Agriculture
Organization of the
United Nations



International
Plant Protection
Convention

REPORT

Technical Panel on Diagnostic Protocols (TPDP)

Melbourne, Australia

5–9 August 2019

IPPC Secretariat

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO, 2020



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (<http://www.fao.org/publications>) and can be purchased through publications-sales@fao.org. Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: copyright@fao.org.

CONTENTS

1.	Opening of the Meeting	5
1.1	Welcome	5
2.	Meeting Arrangements	5
2.1	Selection of the Chairperson	5
2.2	Election of the Rapporteur	5
2.3	Adoption of the agenda	5
3.	Administrative Matters	5
4.	The TPDP Work Programme.....	6
4.1	Review of the standard setting process	6
4.2	Overview of the TPDP work programme.....	6
5.	Updates from Relevant IPPC Bodies and Strategic Discussion on the IPPC Diagnostic Protocols and the Work of the TPDP.....	9
5.1	Relevant updates from other IPPC meetings.....	9
5.2	Potential impact of the IPPC Strategic Framework.....	10
5.3	Other strategic issues.....	14
6.	Revision of Draft Diagnostic Protocols under Development	17
6.1	Begomoviruses transmitted by <i>Bemisia tabaci</i> (2009-023), priority 2, and ‘ <i>Candidatus Liberibacter</i> ’ spp. on <i>Citrus</i> spp. (2004-010), priority 2	17
7.	Analysis of Draft Diagnostic Protocols Added to the Work Programme as Requested by the SC	18
7.1	Psyllid vector of ‘ <i>Candidatus Liberibacter solanacearum</i> ’ (2018-030), priority 1 ...	18
7.2	Pospiviroid species (except <i>Potato spindle tuber viroid</i> (DP 7)) (2018-031), priority 2	18
7.3	<i>Acidovorax avenae</i> subsp. <i>citrulli</i> (2018-032), priority 2	19
7.4	<i>Meloidogyne mali</i> (2018-019), priority 3	19
7.5	<i>Cronartium comandrae</i> (2018-015), priority 4	20
7.6	Other analysis.....	20
8.	TPDP Working Papers.....	21
8.1	ELISA controls and interpretation of results.....	21
8.2	Control options for molecular tests for pest group categories.....	21
8.3	Quality assurance for diagnostic protocols	21
8.4	Best practices for sequencing.....	22
8.5	Interpretation of results from LAMP tests, considering existing available documents	22
8.6	Instructions to authors of diagnostic protocols.....	23
8.7	TPDP working procedures and checklists for discipline leads and referees	23
9.	Liaison	23
9.1	European and Mediterranean Plant Protection Organization (EPPO) update on diagnostic protocols	23
9.2	International Organization for Standardization (ISO).....	25
9.3	AgriBio – Centre for AgriBioscience.....	25

9.4	Global Taxonomy Initiative (GTI) of the Convention on Biological Diversity (CBD).....	25
10.	TPDP Work Plan	26
10.1	TPDP 2019–2020 work plan	26
11.	Other Business	26
12.	Recommendations to the Standards Committee (SC).....	26
13.	Closing of the Meeting	28
	Appendix 1: Agenda.....	29
	Appendix 2: Documents list	32
	Appendix 3: Participants list	35
	Appendix 4: IRSS project proposal for a study on the utility of IPPC diagnostic protocols	38
	Appendix 5: Study on the utility of IPPC diagnostic protocols	40
	Appendix 6: TPDP 2019 – 2020 work plan	42
	Appendix 7: Action points arising from the August 2019 TPDP meeting	46

1. Opening of the Meeting

1.1 Welcome

- [1] The Standard Setting Officer, Ms Adriana G. MOREIRA, from the International Plant Protection Convention (IPPC) Secretariat (hereafter referred to as the “IPPC Secretariat”), welcomed the participants of the fourteenth meeting of the Technical Panel on Diagnostic Protocols (TPDP). She thanked AgriBio – Centre for AgriBioscience, La Torbe University, Bundoora, Victoria, Australia, which is funded through the Department of Jobs, Precincts and Resources (DJPR) of the Government of Victoria, for hosting the meeting in cooperation with the Australian Department of Agriculture and Water Resources.
- [2] The IPPC Secretariat recalled that since the creation of the TPDP in 2004, 29 diagnostic protocols (DPs) had been adopted. Looking to the future, the International Year for Plant Health (IYPH) in 2020 and the IPPC Strategic Framework 2020–2030 would present challenges and opportunities for the TPDP, and would set the tone of this meeting.
- [3] The IPPC Secretariat informed the participants that two members of the TPDP could not attend the meeting. Two representatives of the host country and an invited expert from the European and Mediterranean Plant Protection Organization (EPPO), a regional plant protection organization (RPPO), attended the meeting.
- [4] Ms Sophie PETERSON, the representative of the Australian Department of Agriculture and Water Resources, welcomed all participants. She explained that, because Australia is a federal country, official plant health issues are shared between the national level and the state level (e.g. the state of Victoria). At the national level, a subcommittee is in charge of supervising a laboratory diagnostic network and a representative of New Zealand participates as an observer.
- [5] Mr Brendan RODONI, TPDP member and the representative of the State of Victoria, also welcomed the participants to AgriBio – Centre for AgriBioscience and announced that, in addition to the meeting, a visit to the AgriBio’s laboratories would be organized.

2. Meeting Arrangements

2.1 Selection of the Chairperson

- [6] Ms Géraldine ANTHOINE (France) was elected as Chairperson.

2.2 Election of the Rapporteur

- [7] Ms Juliet GOLDSMITH (Caribbean Agricultural Health and Food Safety Agency) was elected as Rapporteur.

2.3 Adoption of the agenda

- [8] The IPPC Secretariat distributed a new version of the agenda. In part 11 “Other business”, a subject was added: “Draft programme: International Plant Health Conference (2020)”. The version included four conference room papers related to agenda items 6.1, 7.2, 7.4 and 11. The TPDP adopted the agenda as provided in Appendix 1.

3. Administrative Matters

- [9] The IPPC Secretariat introduced the Documents list (Appendix 2) and the Participants list (Appendix 3). The participants were reminded to update their contact information if necessary, as it is reflected in the TPDP membership list¹ on the International Phytosanitary Portal (IPP – www.ippc.int).

¹ TPDP membership list: <https://www.ippc.int/en/publications/81560/>

[10] The host presented the local information document² related to AgriBio.

4. The TPDP Work Programme

4.1 Review of the standard setting process

[11] The IPPC Secretariat presented the Standard setting process³ that underlies the specific process for development of diagnostic protocols, with respective deadlines for each stage. The IPPC Secretariat recalled that DPs are developed as annexes of International Standard for Phytosanitary Measures (ISPM) 27 (*Diagnostic protocols for regulated pests*) under the supervision of the Standards Committee (SC)⁴.

[12] The IPPC Secretariat noted that in case of the review of a DP, depending on the level of change being considered, the process can be simplified, as outlined in the *IPPC procedure manual for standard setting*.

[13] In addition, some topics relevant to the implementation of standards are addressed by the IPPC Secretariat. The Implementation and Capacity Development Committee (IC) is in charge of developing manuals and guides in this respect. There is a manual on diagnostic protocols, for example.

[14] One participant asked if the documents developed by the IC are valid as internationally recognized references. The IPPC Secretariat responded that they do not have this validity as, unlike other IPPC documents such as CPM (Commission on Phytosanitary Measures) recommendations and DPs, they are not submitted to country consultation.

[15] Several participants asked whether the TPDP could develop manuals in a similar manner to other implementation guides and if the TPDP could be made aware of the list of topics supervised by the IC. In particular they thought it would be good for the TPDP to be involved in the review of the manual on diagnostic protocols. The IPPC Secretariat responded that the list of topics supervised by the IC is on the IPPC website. At the moment it is not foreseen that the TPDP will be involved in these, including the manual on diagnostic protocols. However, the IPPC Secretariat noted that the role of the TPDP, beyond supervising the development of DPs, could be discussed when addressing the potential impact of the IPPC Strategic Framework 2020–2030 (see agenda item 5.2).

[16] The TPDP:

- (1) *noted* the details of the specific process for developing DPs, in particular the deadlines for the successive stages.

4.2 Overview of the TPDP work programme

[17] The IPPC Secretariat presented the relevant document⁵ to which were attached the overview of the TPDP work programme presented to the SC in May 2019 and Specification TP 1 (*Technical Panel on Diagnostic Protocols*)⁶. There are currently 18 subjects (diagnostic protocols (DPs)) in the TPDP work programme at various stages of development, of which 13 are new, one is under consultation, three are under development and one is pending. These are as follows:

- Genus *Ceratit* (2016-001), priority 1 (under development)
- *Striga* spp. (2008-009), priority 1 (under consultation period)
- Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028), priority 1 (“pending status”)

² 04_TPDP_2019_Aug

³ Standard setting process: <https://www.ippc.int/en/publications/133/>. See also *IPPC procedure manual for standard setting*: <https://www.ippc.int/en/publications/85024/>

⁴ Standards Committee: <https://www.ippc.int/en/core-activities/standards-setting/standards-committee/>

⁵ 22_TPDP_2019_Aug

⁶ <https://www.ippc.int/en/publications/1297/>

- *Pyricularia oryzae* (syn. *Magnaporthe oryzae*) on *Triticum* (2019-010), priority 1 (“new”)
- *Microcyclus ulei* (2019-003), priority 1 (“new”)
- *Puccinia graminis* f. sp. *tritici* UG 99 (2019-004), priority 1 (“new”)
- *Mononychelus tanajoa* (2018-006), priority 1 (“new”)
- *Citrus leprosis virus* (2018-025), priority 1 (“new”)
- Psyllid vectors of ‘*Candidatus Liberibacter solanacearum*’ (2018-030), priority 1 (“new”)
- Begomoviruses transmitted by *Bemisia tabaci* (2006-023), priority 2 (under development)
- ‘*Candidatus Liberibacter*’ spp. on *Citrus* spp. (2004-010), priority 2 (under development)
- *Amaranthus palmeri* (2019-006), priority 2 (“new”)
- *Solanum rostratum* (2019-007), priority 2 (“new”)
- Pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031), priority 2 (“new”)
- *Acidovorax avenae* subsp. *citrulli* (2018-032), priority 2 (“new”)
- *Moniliophthora roreri* (2019-005), priority 3 (“new”)
- *Meloidogyne mali* (2018-019), priority 3 (“new”)
- *Cronartium comandrae* (2018-015), priority 4 (“new”).

[18] Concerning the genus *Ceratitis*, the lead author noted that the draft DP is not yet ready to be submitted for expert consultation but hoped that this would be possible within the next six months. The IPPC Secretariat stressed that the focus should be on achieving this objective by 1 March 2020 if the TPDP wishes to have a country consultation organized in 2020.

[19] One participant declared that a DP for the entire Tephritidae family is not realistic, although DPs for genera within this family are possible. It was suggested that the Panel revisit the information provided at a previous TPDP meeting, which explained why this DP was not feasible. The IPPC Secretariat reminded the Panel that a proposal in that regard had been submitted to the SC and had been rejected in favour of the original request. It was suggested that the Panel repackaging the paper and resubmit to the SC, including a justification and recommendations for proceeding. A reviewed proposal could also be considered in relation to commodity and pathway standards. The TPDP agreed on that.

[20] One participant asked whether, for commodity and pathways standards, the IPPC Secretariat would need DPs or guidance on detection. The IPPC Secretariat responded that there are discussions ongoing in the CPM Bureau, and that a focus group will be in charge of drafting an overarching ISPM for commodity and pathway standards, to which specific annexes will be attached and which will be addressed by a newly created technical panel. The draft should be approved by CPM-15 in 2020 and then will be submitted to country consultation. The SC will be involved.

[21] The TPDP assigned discipline leads and referees for some subjects according to Table 1, these being on a temporary basis because during its meeting in May 2019, the SC had asked the IPPC Secretariat to open a Call for new TPDP members who were experts in botany, mycology and virology in response to the inclusion of relevant DPs.

[22] In order to ease the transition for new members, the TPDP suggested they receive an introduction to the IPPC Standard setting process and be mentored by an established member of the panel. It was noted that the SC has an introductory process for new members and a suggestion was made that this be adapted for the TPDP new panel members.

Table 1. Discipline leads and referees assigned to new subjects for DPs entered in the TPDP work programme

Topic No	Title	Discipline lead	Referee
2018-006	<i>Mononychelus tanajoa</i>	Ms Juliet GOLDSMITH	Mr Norman BARR
2018-025	<i>Citrus leprosis virus</i>	M Brendan RODONI	Mr Norman BARR
2018-030	Psyllid vectors of ' <i>Candidatus Liberibacter solanacearum</i> '	Mr Norman BARR	Ms Juliet GOLDSMITH
2019-010	<i>Pyricularia oryzae</i> (syn. <i>Magnaporthe oryzae</i>) on <i>Triticum</i>	Mr Robert TAYLOR	M Brendan RODONI
2019-003	<i>Microcyclus ulei</i>	Mr Robert TAYLOR	Ms Géraldine ANTHOINE
2019-004	<i>Puccinia graminis</i> f. sp. <i>tritici</i> UG 99	Mr Robert TAYLOR	Mr Brendan RODONI
2006-023	Begomoviruses transmitted by <i>Bemisia tabaci</i>	M Brendan RODONI	Ms Géraldine ANTHOINE
2018-031	Pospiviroid species (except <i>Potato spindle tuber viroid</i> (DP 7))	M Brendan RODONI	Mr Robert TAYLOR
2018-032	<i>Acidovorax avenae</i> subsp. <i>citrulli</i>	Mr Robert TAYLOR	Ms Géraldine ANTHOINE
2019-006	<i>Amaranthus palmeri</i>	Ms Liping YIN	Ms Juliet GOLDSMITH
2019-007	<i>Solanum rostratum</i>	Ms Liping YIN	Ms Géraldine ANTHOINE
2018-019	<i>Meloidogyne mali</i>	Ms Géraldine ANTHOINE	Norman BARR
2019-005	<i>Moniliophthora roreri</i>	Mr Robert TAYLOR	Ms Juliet GOLDSMITH
2018-015	<i>Cronartium comandrae</i>	Mr Robert TAYLOR	Ms Géraldine ANTHOINE

- [23] In order to set up drafting groups, the IPPC Secretariat indicated that it would organize Calls for authors taking into account the priority given to the subjects. In any case, all the Calls for authors will be launched and TPDP e-decision organized by the end of October 2019.
- [24] Several participants considered that the applicants to these calls should be aware, from the outset, of the Standard setting process for DPs, including the deadlines (e.g. 12 months for drafting a version for expert consultation). The IPPC Secretariat responded that it could ensure that the applicants are aware of the commitments involved, by providing them a link to an IPPC brochure which explains the Standard setting process.
- [25] One participant declared that a revision of DP 21 ('*Candidatus Liberibacter solanacearum*') may be necessary, taking into consideration the recent development regarding the definition of haplotypes. The TPDP considered that it was necessary to assess that situation and that a document on this subject should be submitted to the next TPDP meeting.
- [26] It was also pointed out that because the taxonomic keys for *Ips* spp have been revised, the current DP 27 (*Ips* spp.) may also need to be revised. The TPDP agreed that there is a need to review the situation and determine the necessity for a revision.
- [27] One participant declared that a revision of the current DP 25 (*Xylella fastidiosa*) is necessary regarding sampling and subspecies identification.
- [28] One participant declared that to ensure that the current DP 9 (Genus *Anastrepha* Schiner) allows identification of new species, DP 9 should be revised. The TPDP considered that a justification would be necessary for that.
- [29] One participant drew the attention of the TPDP to a problem with DP 5 (*Phyllosticta citricarpa* (McAlpine) Aa on fruit), as several laboratories had found that it lacked specificity because it also provides a positive result for *Phyllosticta paracitricarpa*, a species described in 2017 which produces symptoms similar to those of *P. citricarpa*. For that reason, EPPO is preparing a diagnostic protocol

specifically for *P. citricarpa* which should be finalized by the end of 2019. The TPDP agreed that the SC should be made aware of this situation during its meeting in November 2019, and that on this occasion the TPDP should also provide justification to the SC to launch the process of revision of DP 5. It was also agreed that text should be added immediately to the “Pest Information” section of the DP to explain that the protocol does not differentiate *P. citricarpa* from *P. paracitricarpa*.

[30] The TPDP:

- (2) *noted* the TPDP work programme
- (3) *agreed* that the draft DP for the genus *Ceratitis* (2016-001) should be transmitted by 1 March 2020 to the IPPC Secretariat
- (4) *asked* Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising the scope of the draft DP on Tephritidae (2006-028) in order to detect these pests at the level of the genus rather than the level of the family
- (5) *noted* that the IPPC Secretariat will organize a Call for new TPDP members as experts in botany, mycology and virology
- (6) *assigned* discipline leads and referees to all new subjects (see Table 1)
- (7) *noted* that the IPPC Secretariat will organize Calls for authors for the new subjects for DPs and organize a TPDP e-decision by 31 October 2019
- (8) *asked* the IPPC Secretariat to ensure that applicants to Calls for authors are aware of the Standard setting process for DPs, including the deadlines
- (9) *agreed* that the drafts of new DPs be transmitted to the IPPC Secretariat by 1 March 2020
- (10) *asked* Mr Robert TAYLOR to further assess the need to revise DP 21 (*Candidatus Liberibacter solanacearum*) and provide a document for the next TPDP meeting
- (11) *asked* Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising DP 27 (*Ips* spp.)
- (12) *asked* Mr Robert TAYLOR to prepare a discussion paper for the next TPDP meeting regarding the need for revision of DP 25 (*Xylella fastidiosa*)
- (13) *asked* Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising DP 9 (Genus *Anastrepha* Schiner)
- (14) *asked* Mr Robert TAYLOR to transmit to the IPPC Secretariat by 15 September 2019 a document that can be used to inform the SC about the lack of specificity of DP 5 (*Phyllosticta citricarpa* (McAlpine) Aa on fruit) and to justify the revision of this DP.

5. Updates from Relevant IPPC Bodies and Strategic Discussion on the IPPC Diagnostic Protocols and the Work of the TPDP

5.1 Relevant updates from other IPPC meetings

[31] The IPPC Secretariat presented the relevant document⁷. The Fourteenth Session of the Commission on Phytosanitary Measures (CPM-14) had noted the adoption of six diagnostic protocols and acknowledged the contribution of Ms Jane CHARD (UK), the TPDP Steward who had left in 2018. CPM-14 had also added seven DPs to the *List of topics for IPPC standards*. CPM-14 had adopted the CPM recommendation *Preparing to use high-throughput sequencing (HTS) technologies as a diagnostic tool for phytosanitary purposes*⁸, which is now available on the IPP, and had endorsed the contents of the IPPC Strategic Framework 2020–2030 in advance of its formal adoption during CPM-15 (2020). Lastly, CPM-14 had requested the SC and the IC to review the use and development of DPs. During CPM-14, a contracting party had requested that the SC and the IC conduct surveys on the utility of existing DPs using the project “Implementation Review and Support System” (IRSS).

⁷ 19_TPDP_2019_Aug

⁸ <https://www.ippc.int/en/publications/87199>

[32] During its meeting held in May 2019, the SC had considered the strategic directions of the technical panels together with the IPPC Strategic Framework 2020–2030. Although the SC had acknowledged that it was premature to provide detailed feedback, the SC had discussed the following points in relation to the technical panels:

- the impact of the IPPC Strategic Framework 2020–2030
- the scope of standards (e.g. testing protocols for commodity categories)
- the review of diagnostic protocols and the prospect of organizing a survey through IRSS in collaboration with IC
- the length of the Standard setting process for DPs, especially taking into consideration the necessity to provide harmonized DPs for emerging and fast-spreading pests.

[33] The SC had agreed to discuss the impact of the IPPC Strategic Framework 2020–2030 on standard setting at its meeting in November 2019. In preparation for this, the SC had invited the technical panels to comment on the potential impact of the IPPC Strategic Framework 2020–2030 on their work and had invited the TPDP and TPPT to comment on possible ways to shorten the length of time it takes to develop technical standards.

[34] The SC had acknowledged the contribution of Mr Delano JAMES who had left the TPDP in 2019 and thanked him for the services he had rendered to the panel. The SC had asked the IPPC Secretariat to open a Call for experts in botany, mycology and virology and had agreed to add six subjects to the work programme of the TPDP (all of which the TPDP had previously assessed).

[35] The TPDP:

(15) *noted* the current subjects in the TPDP work programme.

5.2 Potential impact of the IPPC Strategic Framework

[36] The IPPC Secretariat presented the document “Potential impact of the IPPC Strategic Framework 2020–2030 on TPDP”⁹. Out of the eight key development agenda items in the IPPC Development Agenda 2020–2030, DPs are mainly concerned with the following three:

- commodity- and pathway-specific ISPMs
- diagnostic laboratory networking
- strengthening pest outbreak alert and response systems.

[37] Another development agenda item that may be relevant to the work of the TPDP concerns global phytosanitary research coordination.

Commodity- and pathway-specific ISPMs

[38] As explained in the document, commodity standards (item 2 of the development agenda of the IPPC Strategic Framework) will focus on commodity – or pathway – topics rather than broad conceptual and foundational issues. Discussions are ongoing within the framework of a focus group specially dedicated to this subject, under the CPM Bureau. The focus group had met in June 2019 and drafted an overarching concept standard similar to ISPM 27 and ISPM 28 (*Phytosanitary treatments*); future commodity- and pathway-specific standards will be annexed to the concept standard. The IPPC Strategic Framework foresees ISPMs developed with accompanying diagnostic protocols.

[39] Several participants noted that the scope of the DPs should be clearly defined in the framework of commodity and pathway standards and agreed on the fact that DPs should still concern a pest or a limited group of pests (e.g. a genus) rather than being driven by commodity. Otherwise the number of pests concerned would be considerable and the development of a DP very difficult to achieve.

⁹ 28_TPDP_2019_Aug

[40] The TPDP then considered a series of questions relating to commodity or pathway standards.

[41] *Question 1:*

Would it be necessary to conceive a preliminary key of visual, preliminary diagnostics adapted to a commodity or pathway in order to help national plant protection organization (NPPO) inspectors to choose the analyses to be carried out for testing the presence of a particular pest of concern?

[42] The TPDP considered that this is tantamount to the development of an inspection manual, but while there is an actual need for the inspectors to be guided on the symptoms of pests associated with a commodity or pathway, this need should be addressed by an ad hoc technical panel. The TPDP could help in that respect but after selection of the main pests of concern.

[43] *Question 2:*

Would high-throughput sequencing (HTS) technologies be an interesting diagnostic tool for phytosanitary purposes, taking into consideration that HTS potentially allows analysis without targeting a specific pest or disease?

[44] The TPDP confirmed that these technologies could be of interest for the future.

[45] *Question 3:*

If “yes” to the previous question, do the TPDP have to reflect already on how the future DP based on HTS should be conceived, noting the implications of its use and that not all IPPC contracting parties may have the capacity to implement and use HTS technologies?

[46] One participant suggested that thinking of a DP based on HTS could be premature since the evolution of these technologies is very fast. Also, it is necessary for the majority of countries to have the laboratory capacity. However, guidelines are conceivable and an international group is intending to develop such a document. The TPDP considered that the SC should be informed that from now the format of DPs is too constraining to refer to HTS technologies, but, taking into consideration the potentialities of these technologies for the future, the TPDP need to be aware of any further development regarding HTS which could impact DPs.

[47] *Question 4:*

At the moment that a commodity standard is put on the *List of topics for IPPC standards*, should the TPDP be involved and reflect on the major pests of concern for the commodity in order to verify if relevant DPs are available and if others would be necessary?

[48] The TPDP responded that it is willing to contribute from the beginning of the process, particularly to avoid duplication of existing DPs and in assessing gaps.

[49] Regarding *commodity- and pathway-specific ISPMs*, the TPDP invited the SC to:

- (16) *note* that the scope of DPs should be clearly defined in the framework of commodity and pathway standards
- (17) *note* that the development of DPs should still be based on pest taxonomy rather than commodity, otherwise the scope of the DPs in terms of the pests concerned would be considerable and very difficult to achieve
- (18) *note* that the TPDP considered it too early to provide detailed feedback
- (19) *note* that the TPDP considered that “inspection standards” may be needed and may be possible in the future, and that the TPDP could help in that respect, provided that the main pests of concern have been defined previously
- (20) *note* that the TPDP considered that HTS technologies are promising, but that it is premature to consider them for DPs since development of such technologies is very fast, and also taking into consideration the need for laboratory capacity in the majority of countries

- (21) *note* that the TPDP strongly expressed its willingness to be involved at the beginning of the development of such standards, to avoid duplications, to understand potential gaps and build stronger relationships with the SC and the new technical panel.

Diagnostic laboratory networking

- [50] The aim in relation to diagnostic laboratory networking (item 8 of the development agenda of the IPPC Strategic Framework) is to establish a network of diagnostic laboratory services and diagnostic protocols to support countries to identify pests in a more reliable and timely manner. This has a strong linkage with the work of the TPDP.
- [51] The TPDP acknowledged the need for many contracting parties to be supported in their diagnostic capacity, particularly in the face of occurrence of emerging pests, and that this could be achieved through a network of diagnostic laboratories.
- [52] The TPDP noted that a network of diagnostic laboratories exists in the field of animal health, which is managed by the World Organization for Animal Health (OIE); however, this network deals with approximately 15 pests, while in the plant health field the number of pests to be taken into consideration is far greater. Despite this difficulty, there are networks in the plant health field, but they concern only certain regions of the world (e.g. the network of official reference laboratories within the European Union), or they function on an informal basis which, besides the lack of sustainability, can lead to difficulties when the matter is for official NPPO purposes. The TPDP noted that this means that a laboratory network would have to comply with some rules. One participant noted that EPPO established a database of diagnostic laboratories in which the laboratories of its region can declare themselves on a voluntary basis.
- [53] The TPDP acknowledged that, in the framework of a diagnostic laboratory network, sending samples for laboratory testing from one country to another could present legal and procedural difficulties. The TPDP noted it was necessary to draw the attention of NPPOs and RPPOs to the need to facilitate the movement of plant material and specimens for diagnosis. A document should be drafted for this purpose and discussed during the next TPDP meeting in order to make a proposal to the SC for a CPM recommendation.
- [54] The TPDP underlined that the objective is both to facilitate diagnosis of regulated pests and new emerging pests which could be non-regulated.

The TPDP then considered a series of questions in relation to diagnostic laboratory networking.

[55] *Question 1:*

How could the TPDP collaborate in achieving the desired outcome with the development of DPs or other documents (e.g. CPM recommendations, cross-cutting DPs such as for the setting up of laboratories, or other type of documents such as guides or manuals)?

- [56] The TPDP considered that it could gather different types of information from different regions (e.g. manuals, guides, videos), and after assessment should be able to review the IPPC diagnostic manual ([Guide to Delivering Phytosanitary Diagnostic Services](#)), if and when needed. In this regard, Specification TP 1 should be adjusted in order to allow the TPDP to address such issues in collaboration with the SC and the IC.

[57] *Question 2:*

Could the TPDP consider supporting diagnostic laboratory networking beyond providing DPs (or other documents, such as CPM recommendations)?

- [58] The TPDP noted that the IPPC Secretariat could collect information on existing networks of laboratories.
- [59] The TPDP suggested that it could lead a workshop for diagnosticians. This would be very useful not only for sharing scientific information but also because, provided all regions of the world are represented, a face-to-face meeting (e.g. scientific workshop) among specialists would facilitate the

building of a network. In that respect, people from outside the TPDP should be invited, for instance through SC and IC members and representatives of OIE or international scientific bodies such the Centre for Agricultural and Bioscience International (CABI). This workshop should take place in 2021.

[60] *Question 3:*

If yes, would it be possible for the TPDP to consider advising or participating in capacity building in the field of diagnostic laboratories; for example, this could be training, advising on quality processes, or proficiency tests?

[61] The TPDP declared that it could encourage participation in the proficiency tests by preparing a guideline or cross-cutting DP aiming to describe how to organize such tests, and how to participate, particularly in relation to how to perform a good sampling.

[62] Regarding *laboratory networking*, the TPDP *invited* the SC to:

- (22) *agree* that the TPDP gather different sources of information (manuals, guides, videos) from different regions, in order to identify gaps in the existing diagnostic protocols
- (23) *agree* that, in collaboration with the SC and IC, the TPDP develops or revises manuals and guidelines when needed (e.g. the existing IPPC guide to diagnostic services, or guidelines on proficiency tests)
- (24) *consider* amending Specification TP 1 in order to allow the TPDP to participate in the activities described above
- (25) *note* that the TPDP recommended that a CPM recommendation on “Facilitating shipment and transport of reference material and specimens, to support diagnostic activities for regulated pests” be developed, and asked Mr Brendan RODONI and Ms Juliet GOLSMITH, supported by Ms Françoise PETTER (invited expert) to draft a justification for that purpose to be discussed during the next TPDP meeting
- (26) *note* that the TPDP is willing to take the lead in organizing the *first international workshop on diagnostic laboratories* in 2021, and asked Mr Norman BARR, supported by Mr Brendan RODONI, to draft a detailed proposal (justification, programme, resource mobilization) to be discussed during the next TPDP meeting.

Pest outbreak alert and response systems

[63] As explained in the document, strengthening pest outbreak alert and response systems (item 5 of the development agenda of the IPPC Strategic Framework) aims to help countries take more timely actions, especially against new incursions.

[64] One participant highlighted that the current work of the TPDP already supports such systems.

[65] Another participant noted that participation in the development of laboratory networking is mainly what could help in this regard, as shown by the discussion on diagnostic laboratory networking above.

[66] Regarding *pest outbreak alert and response systems*, the TPDP *invited* the SC to:

- (27) *note* that diagnostic networking could improve the support already given to these systems by the current activities of the TPDP, and *pass* this information to the IC.

Global phytosanitary research coordination

[67] As explained in the document, global phytosanitary research coordination (item 7 of the development agenda of the IPPC Strategic Framework) is also relevant to the TPDP. The purpose is to encourage coordination on a voluntary basis in order to accelerate development of science to support all regulatory phytosanitary activities. In that context, the IPPC Secretariat could establish an international collaboration, for instance with EUPHRESO.

- [68] The TPDP noted that the IPPC Secretariat could indeed establish collaboration with EUPHRESKO but also with other bodies which have the same objective, such as the G20 which plans to organize meetings on transboundary pests, including regulated pests.

5.3 Other strategic issues

- [69] The IPPC Secretariat presented the document “Review on the use and development of diagnostic protocols: study on adopted protocols”¹⁰. During its meeting in June 2013, in response to a request from the SC, the TPDP had agreed on a final questionnaire for the IRSS study, which is in Appendix 2 of the document¹¹. In April 2019, CPM-14 had requested that the SC and the IC review the use and development of diagnostic protocols. The TPDP had been invited to discuss the request from the CPM, review as necessary the IRSS project (Appendix 1 to the document) and the draft questionnaire (Appendix 2 to the document), and agree on recommendations to the SC to be forwarded to the IRSS subgroup of the IC to facilitate an effective and meaningful survey.
- [70] The TPDP reviewed the two appendixes referred to above; the updated versions are in Appendix 4 (IRSS project) and Appendix 5 (draft questionnaire) of this report.
- [71] One participant commented that the former version of the draft questionnaire gave excessive importance to the issue of translation from English into other languages.
- [72] Regarding the *review on the use and development of diagnostic protocols*, the TPDP invited the SC to:
- (28) *note* the discussion of the TPDP on this matter and *consider* the modifications provided by the TPDP to the IRSS project on the utility of DPs (Appendix 4) and the questionnaire on utility of DPs (Appendix 5)
 - (29) *modify, adjust* as necessary the documents and *invite* the IC and IRSS subgroup to consider this survey.

Length of time to develop diagnostic protocols

- [73] The IPPC Secretariat presented the document “Other strategic discussions for the TPDP”¹¹. During the SC meeting held in May 2019, some SC members had highlighted the difficulties that arise because the development process for DPs is long. In case of emerging and fast-spreading pests, contracting parties could be left without a relevant DP and develop a non-harmonized national protocol. The IPPC Secretariat had confirmed that it could provide an analysis of how long it takes to develop a DP through to adoption. One SC member had suggested that the TPDP could propose options for shortening the process without altering the quality of the DPs.
- [74] The IPPC Secretariat drew the attention of the TPDP, in particular, to the data presented in the document concerning the development of DPs. Figure 1 shows that the number of DPs increased significantly during the period 2015–2018.
- [75] Table 2 shows that for the DPs added as subjects between 2004 and 2007, the length of time for developing DPs was mostly greater than 8–10 years, while all DPs added after 2007 were developed in less than 5 years.

¹⁰ 25_TPDP_2019_Aug

¹¹ 29_TPDP_2019_Aug

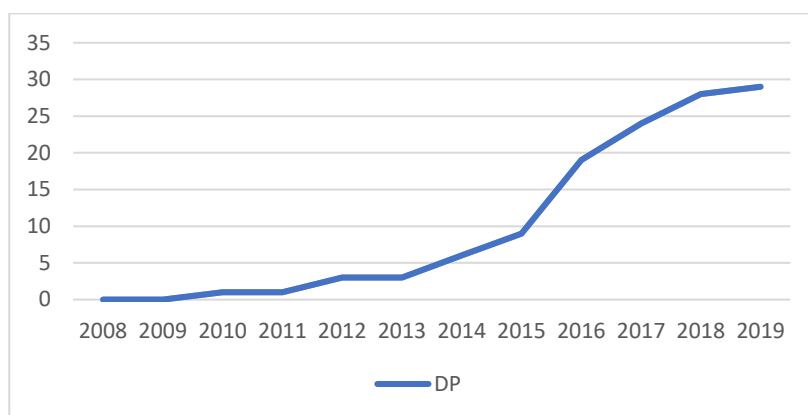


Figure 1. Cumulative number of diagnostic protocols adopted per year.

Table 2. Length of time for developing the DPs that are currently adopted

Diagnostic protocols adopted as at 1 July 2019	No. species	Topic added	Adopted	Development length in years
1-Thrips palmi	1	2006	2010	4
2-Plum pox virus	1	2006	2012	6
2b-Plum pox virus Revised	1	2016	2018	2
3-Trogoderma granatum	1	2006	2012	6
4-Tilletia indica	1	2006	2014	8
5-Phyllosticta citricarpa on fruits	1	2004	2014	10
6-Xanthomonas citri subsp citri	1	2004	2014	10
7-Potato spindle tuber viroid	1	2007	2015	8
8-Ditylenchus destructor, D. dipsaci	2	2006	2015	9
9-Anastrepha genus	several	2006	2015	9
10-Bursaphelenchus xylophilus	1	2004	2016	12
11-Xiphimema americanum sensu lato	several	2004	2016	12
12-Phytoplasma	several	2004	2016	12
13-Erwinia amylovora	1	2004	2016	12
14-Xanthomonas fragariae	1	2004	2016	12
15-Citrus tristeza virus	1	2004	2016	12
16-Liomyza genus	several	2006	2016	10
17-Aphelenchoides besseyi, A. ritzenabosi, A. fragariae	3	2006	2016	10
18-Anguina spp	several	2013	2017	4
19-Sorghum halepense	1	2006	2016	10
20-Dendroctonus ponderosae	1	2006	2017	11
21- 'Candidatus Liberibacter solanaceum'	1	2013	2017	4
22-Fusarium circinatum	1	2006	2017	11
23-Phytophthora ramorum	1	2004	2017	13
24-TSWV, INSV, WSMV	3	2004	2017	13
25-Xylella fastidiosa	1	2004	2018	14
26-Austropuccinia psidii	1	2006	2018	12
27-Ips spp	several	2006	2018	12

Diagnostic protocols adopted as at 1 July 2019	No. species	Topic added	Adopted	Development length in years
28-Conotrachelus nenuphar	1	2013	2018	5
29-Bactrocera dorsalis	1	2006	2019	13

[76] As noted in the document, as at August 2019, four subjects still under development had been added to the work programme more than 10 years ago and only one had progressed in the Standard setting process (listed below):

- 2004-010 '*Candidatus Liberibacter*' on *Citrus* spp. – added in 2004
- 2006-023 *Begomovirus* transmitted by *Bemisia tabaci* – added in 2006
- 2006-028 Tephritidae (immature stages of economic importance) – added in 2006
- 2008-009 *Striga* spp. – added in 2008: consultation period in 2019.

[77] Lastly, the document underlined that the development of DPs follows a special process within the framework of the current Standard setting process, as adopted by CPM-11 in 2016. Several simplifications can be noted for DPs compared to other types of standard issued by the IPPC Secretariat; for example, there is no specification document for individual DPs, the CPM delegated its authority to the SC to adopt DPs on its behalf, the SC grants its approval for consultation period or for adoption via electronic means, the DPs generally go to just one round of consultation, and the SC can adopt updates to adopted DPs via electronic means for a technical revision¹².

[78] Considering the case of emerging and fast-spreading pests for which there is no DP already published, several participants concluded that drafting a DP in time in such a situation is difficult due to the fact that DPs must be developed according to the IPPC Standard setting process. In that situation, it is essential to make information on existing diagnostic protocols, such as diagnostic protocols published at regional or national level, available to the contracting parties concerned. However, this would imply adapting the capacity of the IPPC Secretariat so that it could coordinate such activity among RPPOs, NPPOs or possibly other sources. The TPDP also noted that the CPM, the SC and the TPDP are all entitled to propose new subjects for DPs, and that good communication among these bodies would be particularly important in these situations.

[79] Regarding *emerging and fast-spreading pests*, the TPDP invited the SC to:

- (30) note that developing a DP implies following an IPPC process, which makes it difficult to issue the DP in time
- (31) note that, in case of emergency, consideration could be given to making available to contracting parties information on other type of diagnostics sourced from NPPOs, RPPOs or other bodies, but gathering the data would require a strong international network and further resources allocated to the IPPC Secretariat
- (32) note that the TPDP noted that the process to include a new topic in the work programme could be speeded up, with better communication between the several bodies involved and making use of the TPDP as part of it.

[80] Considering the objective to reduce the length of time it takes to produce and publish IPPC DPs, one participant stated that producing internationally recognized diagnostic protocols such as IPPC DPs implies a minimum span of time. Several participants were of the opinion that providing an accurate draft diagnostic protocol without waste of time depends on the availability of the drafting lead and discipline lead. This is the reason why clear commitments related to timeline, among others, have to be

¹² A technical revision for DPs has been defined by the SC and is recorded in the *IPPC procedure manual for standard setting* at: <https://www.ippc.int/en/core-activities/ippc-standard-setting-procedure-manual/> (or direct link at: <https://www.ippc.int/en/publications/85024/>)

taken by the experts responding to the Call for authors of DPs. Also, while the possibility exists for the TPDP to include additional authors in the drafting groups to speed up the drafting process if necessary, having two country consultation periods per year instead of a single one could be considered, as could organizing additional TPDP virtual meetings. The Acknowledgments section of the DPs is also important as it provides the list of the authors who can be contact points for implementation.

[81] Regarding the objective to *reduce the length of time to produce and publish IPPC DPs*, the TPDP invited the SC to:

- (33) *note* that developing a DP implies a minimum span of time due to the fact that this is an international standard
- (34) *note* that time could be gained at the drafting stage by requesting commitments from applicants to Calls for authors, especially on deadlines to be respected
- (35) *note* that, if necessary, two consultation periods per year could be organized, also virtual TPDP meetings
- (36) *note* that there are positive aspects in the current process: the possibility granted to the TPDP to add further experts outside the Call for authors, and the Acknowledgments section in the DPs to identify the experts as contact points which could help implementation.

6. Revision of Draft Diagnostic Protocols under Development

6.1 Begomoviruses transmitted by *Bemisia tabaci* (2009-023), priority 2, and ‘*Candidatus Liberibacter*’ spp. on *Citrus* spp. (2004-010), priority 2

[82] The Discipline Lead presented the document related to Begomoviruses transmitted by *Bemisia tabaci*¹³. He noted that no progress had been made with the development of the draft DP in the last 16 months. He also noted that, while detecting begomoviruses in general is possible, detecting species would be difficult.

[83] The TPDP considered that there was an urgent need to renew and reinforce the drafting group, and for the members of this working group to be made aware of the deadlines to be respected. The aim should be to organize an expert consultation in March 2020.

[84] The Discipline Lead presented the document related to ‘*Candidatus Liberibacter*’ spp. on *Citrus* spp.¹⁴. He noted that no progress had been made in the process since the previous TPDP meeting. However, the draft had already been submitted to expert consultation.

[85] The TPDP considered that there was an urgent need to renew and reinforce the drafting group. The attention of the members of this working group should be drawn to the fact that the matter is to review the draft DP, and not to rewrite it. The aim should be to submit this draft to country consultation from 1 July to 30 September 2020.

[86] The TPDP:

- (37) *asked* the IPPC Secretariat and the Discipline Lead to make contact with possible authors who could participate in the drafting group for Begomoviruses transmitted by *Bemisia tabaci*, in order to organize a TPDP e-decision by 30 September 2019, the aim being to transmit a completed draft to the IPPC Secretariat by 1 March 2020
- (38) *asked* the IPPC Secretariat and the Discipline Lead to make contact with possible authors who could participate in the drafting group for ‘*Candidatus Liberibacter*’ spp. on *Citrus* spp., in order to organize a TPDP e-decision by 30 September 2019, the aim being to transmit a completed draft to the IPPC Secretariat by 1 March 2020.

¹³ CRP_04_TPDP_2019_Aug

¹⁴ CRP_05_TPDP_2019_Aug

7. Analysis of Draft Diagnostic Protocols Added to the Work Programme as Requested by the SC

[87] The Chairperson presented the document “Analysis of diagnostic protocols added to the work programme”¹⁵.

[88] During its meeting held in October 2018, the Task Force on Topics (TFT) had agreed that the evaluation of DPs submitted in response to a Call for topics should focus on the global relevance of the pest for the IPPC community, including:

- the significance of the pest and its impact on food security, the environment and the economy
- the value of harmonizing diagnostic methods
- the relevance to multiple regions
- whether the pest is regulated in multiple regions.

[89] During the SC meeting of November 2018, the SC had reviewed the recommendations of the TFT and as a consequence had added seven DPs to the *List of topics for IPPC standards*, two of them having been already evaluated by the TPDP. During the SC meeting of May 2019, the SC had agreed to add six extra subjects, all already evaluated by the TPDP.

[90] The TPDP:

(39) *noted* this information.

7.1 Psyllid vector of ‘*Candidatus Liberibacter solanacearum*’ (2018-030), priority 1

[91] The Discipline Lead presented the evaluation for the DP¹⁶. Following the recommendation of the TFT, the SC had agreed that this should be added to the work programme with a priority 1 and had requested that the TPDP evaluate whether the scope of the DP should be limited or not (genus or species level).

[92] For the reason that only a few psyllid species across two large genera are vectors of ‘*Candidatus Liberibacter solanacearum*’ (i.e. *Bactrocera dorsalis*, *Bactrocera trigona* and *Trioza apicalis*), the Discipline Lead suggested that the DP should focus on identifying these species.

[93] The TPDP considered that a DP addressing only the species known as vectors would be suitable.

[94] The TPDP:

(40) *invited* the SC to *agree* that the draft DP for Psyllid vectors of ‘*Candidatus Liberibacter solanacearum*’ (2018-030) be developed at species level.

7.2 Pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031), priority 2

[95] The Discipline Lead presented the evaluation for the DP¹⁷. He considered that it was feasible to develop a DP for all species in the *Pospiviroid* genera.

[96] The TPDP considered that the DP should concern both the seeds and the plants.

[97] The TPDP:

(41) *invited* the SC to *agree* that it is feasible to develop a DP for Pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031) and that the DP should cover plants and seeds.

¹⁵ 06_TPDP_2019_Aug

¹⁶ 30_TPDP_2019_Aug

¹⁷ CRP_03_TPDP_2019_Aug

7.3 *Acidovorax avenae* subsp. *citrulli* (2018-032), priority 2

[99] The Discipline Lead presented the evaluation for the DP¹⁸. Following the recommendation of the TFT, the SC had agreed to add this DP to the work programme of the TPDP with priority 2, and had requested that the TPDP carry out a technical analysis of the feasibility of developing a DP.

[99] In his evaluation, the Discipline Lead underlined that *Acidovorax* is a genus that consists of phytopathological, saprophytic and environmental species, therefore it is important to identify to the level of species or subspecies. *Acidovorax avenae* subspecies *citrulli*, renamed *A. citrulli* in 2008¹⁹, is the causal agent of the bacterial fruit blotch on cucurbit fruits. The main epidemiological source of primary inoculum is infested seeds. Several diagnostic protocols exist, including one from EPPO (2016: isolation methods, semi selective media, biochemical, serological and molecular techniques) and validated PCR-based protocols. As a conclusion, the Discipline Lead considered it feasible to develop a DP.

[100] The TPDP had the same opinion as the Discipline Lead, but during the discussion considered that, taking into consideration that the pest can be transmitted by seeds, the level of priority should be raised up to 1.

[101] The TPDP:

- (42) *invited* the SC to *agree* that it is feasible to develop a DP for *Acidovorax avenae* subsp. *citrulli* (2018-032) and *noted* that it may be beneficial to liaise with the International Seed Testing Association (ISTA), the International Seed Federation (ISF) and the International Seed Health Initiative (ISHI)
- (43) *invited* the SC to *consider* changing the priority from 2 to 1 as *Acidovorax avenae* subsp. *citrulli* has a high economic impact, especially in developing countries, and is highly seed-transmitted
- (44) *asked* the Discipline Lead to review the document presented on *Acidovorax avenae* subsp. *citrulli* in order to justify the change of priority proposed.

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

[102] The Discipline Lead presented the evaluation for the DP (two documents^{20,21}), and three documents published by EPPO: a datasheet²², a diagnostic protocol²³ and an express pest risk analysis²⁴. Following the recommendation of the TFT, the SC had agreed to add this DP to the work programme of TPDP with priority 3, and requested that the TPDP make a recommendation on whether this DP should be drafted at genus level or species level.

[103] The conclusion of her evaluation was that, considering the high number of species (more than 100) belonging to the genus *Meloidogyne*, each of them with a specific climatic preference and a specific host range, and also taking in account that information can be found in the EPPO express pest risk analysis and that an EPPO diagnostic protocol is available, she recommended that a DP be developed at species level. For a DP to be developed at genus level, additional explanations would be needed from TFT and SC to identify which species among the current species described should be included, as done for other DPs (e.g. *Anguina*). She noted that the pest can be borne by machinery.

[104] The TPDP had the same opinion as the Discipline Lead.

¹⁸ 26_TPDP_2019_Aug

¹⁹ Schaad, N. et al. (2018). Systematic and Applied Microbiology 31 (2008) 434–446 ([see link](#)).

²⁰ 09_TPDP_2019_Aug

²¹ CRP_01_TPDP_2019_Aug

²² 12_TPDP_2019_Aug

²³ 13_TPDP_2019_Aug

²⁴ 14_TPDP_2019_Aug

[105] The TPDP:

- (45) *invited* the SC to *agree* that the draft for *Meloidogyne mali* (2018-019) is at species level, and to *note* that if there is a need to develop at the genus level, additional guidance from the SC should be given on which species should be focused on, as for other DPs (e.g. *Anguina*).

7.5 *Cronartium comandrae* (2018-015), priority 4

[106] The Discipline Lead presented the evaluation for the DP²⁵. The TFT had noted that this pest could have an economic impact at regional level only, and for that reason assigned priority 4. The TFT had considered that the TPDP should provide a technical analysis of the feasibility of developing a DP. The SC had agreed with this recommendation during its meeting held in November 2018.

[107] According to his evaluation, the main method for detection and identification of this species is based on host symptoms and fungal morphology. However, there are sufficient molecular data to enable species identification based on analysis of internal transcribed spacer (ITS) or other gene sequence. Therefore, it is technically feasible to develop a DP for this species. Some consideration could be given to whether it would be more beneficial from a global perspective to develop a DP for the *Cronartium* genus including other economically important species.

[108] During its discussion the TPDP recognized that, while drafting a DP solely for *Cronartium comandrae* is feasible, taking into consideration that several species (eight in the opinion of the European Food Safety Agency) belonging to this genus pose a risk and are regulated, the experts on the drafting group should have the possibility of enlarging the draft DP to all these species of concern during the development process.

[109] The TPDP:

- (46) *invited* the SC to *agree* that it is feasible to develop a DP for *Cronartium comandrae* (2018-015), and to *note* that during the development the scope may change to include other species.

7.6 Other analysis

[110] Ms Françoise PETTER introduced the document “Analysis of draft diagnostic protocols added to the work programme: Other analysis”²⁶. Three EPPO diagnostic protocols concern subjects which are on the TPDP work programme: *Meloidogyne mali* (2018-19) approved by EPPO in 2018, Pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031), and *Acidovorax avenae* subsp. *citrulli* (2018-032) approved in 2016.

[111] She drew the attention of the TPDP especially to the fact that there is both an EPPO diagnostic protocol and an IPPC DP (DP 21) on ‘*Candidatus Liberibacter solanacearum*’, which provide guidance on the determination of haplotypes; however, during the EPPO consultation on this protocol, questions were raised on how to determine a new haplotype and its delimitation as there is no consensus in the scientific community for that. The TPDP was invited to discuss the suggestion to add information on this difficulty to DP 21 (see also agenda item 4.2). The Discipline Lead also informed the TPDP that EPPO was intending to organize a virtual meeting on the issue.

[112] The TPDP acknowledged that an assessment on haplotypes in relation to DP 21 is necessary, so that it can be established whether a revision of the said DP needs to be considered (see also agenda item 4.2).

²⁵ 23_TPDP_2019_Aug

²⁶ 07_TPDP_2019_Aug

8. TPDP Working Papers

8.1 ELISA controls and interpretation of results

- [113] Ms Geraldine ANTHOINE introduced the document “ELISA controls and interpretation of results”²⁷. This provided guidance for positive and negative controls and interpretation of results for enzyme-linked immunosorbent assay (ELISA) tests for bacteria and viruses and for tissue print, squash or dot ELISA tests.
- [114] The document “Interpretation of ELISA controls in PM7/125 ELISA tests for viruses and in PM7/101 ELISA tests for plant pathogenic bacteria (EPPO DP)”²⁸ was also a basis for discussion.
- [115] The TPDP did not make special comments on the documents, except that the document “ELISA controls and interpretation of results” should be inserted as an appendix to the *Instructions to authors of diagnostic protocols for regulated pests*²⁹ (hereafter referred to as the “*Instructions to authors*”) with clear mention of the main source of information, which is EPPO. The TPDP considered that the entire instructions to authors should be subject to comments during the next TPDP meeting.
- [116] The TPDP:
- (47) *considered* that the document “ELISA controls and interpretation of results” should be inserted as an appendix to the *Instructions to authors*
 - (48) *considered* that the entire *Instructions to authors* should be subject to comments during the next TPDP meeting.

8.2 Control options for molecular tests for pest group categories

- [117] Ms Geraldine ANTHOINE introduced the document “Description of control options for molecular tests for pest categories and purpose of the tests”³⁰. The paper provided guidance (obligatory, recommended, optional or not needed) on the need to include different controls (negative amplification control, positive amplification control, negative extraction control, positive extraction control, internal control) during molecular tests. The guidance was provided for combinations of pest categories (bacteriology, phytoplasmas, entomology, mycology, nematology, virology and botany) and purposes of testing (detection or identification). Control options for botany had been added to the version presented during the previous TPDP meeting (February 2018).
- [118] The TPDP did not make special comments on the documents, except for the fact that it should be inserted as an appendix to the *Instructions to authors*. One participant confirmed that the entire *Instructions to authors* should be subject to comments during next TPDP meeting (see also agenda item 8.1).
- [119] The TPDP:
- (49) *considered* that the document “Description of control options for molecular tests for pest categories and purpose of the tests” should be inserted as an appendix to the *Instructions to authors*.

8.3 Quality assurance for diagnostic protocols

- [120] Mr Norman BARR introduced the document “Quality assurance issues associated with diagnostic protocols for regulated pests”³¹. This document compiled terminology related to DPs. The objective was to provide help to the author for harmonization, but it was pointed out that the document was not a glossary. In relation to the terms “validation” and “verification”, the TPDP was invited to decide whether

²⁷ 24_TPDP_2019_Aug

²⁸ 15_TPDP_2019_Aug

²⁹ *Instructions to authors of diagnostic protocols*: <https://www.ippc.int/en/publications/83612/>

³⁰ 18_TPDP_2019_Aug

³¹ 10_TPDP_2019_Aug

the definition from ISO/IEC GUIDE99:2007 (*International vocabulary of metrology: Basic and general concepts and associated terms*) should be removed and the definition from the American Phytopathological Society should be accepted.

[121] The TPDP considered that, given that the International Organization for Standardization (ISO) reference is an international reference, it is better to keep both the ISO and the American Phytopathological Society references in the document. The TPDP considered that this document should be revised for the next meeting, and could be a guide for discipline leads.

[122] Ms Françoise PETTER introduced the document³² which concerns the revision of the EPPO standard PM 7/98 (*Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity*). This revision was deemed necessary because a new version of ISO standard 17025, approved in 2017, will enter into force in 2020.

[123] The TPDP noted that several quality systems and standards exist throughout the world at regional or national level, and one participant stated that performing laboratory tests under a quality framework is important for NPPOs, in order to resolve disputes with stakeholders. The participants agreed that bilateral collaboration could be useful in this field.

[124] However, the TPDP recalled that ISO standards are not mandatory in the context of IPPC standards, and one participant considered that it is not the task of the IPPC community to provide guidance on this matter, except for harmonization within the TPDP.

[125] The TPDP:

(50) asked Mr Norman BARR to review the document “Quality assurance issues associated with diagnostic protocols for regulated pests” and present it during the next TPDP meeting.

8.4 Best practices for sequencing

[126] Mr Norman BARR introduced the document “Best practices for sequencing: Using DNA sequences to diagnose a pest”³³. The TPDP reviewed the document, especially the changes which were underlined, and were asked to provide recommendations on whether the information in this document should be converted into a section for the *Instructions to authors*.

[127] One participant commented that paragraph 5 of the document should not quote only one database. The TPDP agreed that, instead, reference should be made in general to all databases that are freely available.

[128] The TPDP considered that there should be an agenda item on this at the next TPDP meeting. The document should also be revised in order to be inserted in the *Instructions for authors*.

[129] The TPDP:

(51) asked Mr Brendan RODONI to review the document “Best practices for sequencing: Using DNA sequences to diagnose a pest” and present it during the next TPDP meeting.

8.5 Interpretation of results from LAMP tests, considering existing available documents

[130] Mr Norman BARR introduced the document “Interpretation of results from LAMP tests”³⁴. This document proposed guidance for authors on interpretation of loop-mediated isothermal amplification (LAMP) tests based on a positive nucleic acid control and a negative amplification control as the minimum controls. When interpreting LAMP results using fluorescence measurement (end-point or real-time) the protocol should state the value expected for negative and positive controls and how to interpret

³² 11_TPDP_2019_Aug

³³ 08_TPDP_2019_Aug

³⁴ 20_TPDP_2019_Aug

samples. When interpreting LAMP results using visual inspection, the protocol must state that any colour change in the negative control must invalid the result. Instructions should be given on samples that have colour changes intermediate between the controls. As the use of LAMP may require licensing from specific countries, a specific footnote has to be included for every mention of LAMP in the DP.

[131] One participant considered that if there is a colour change in the negative control, this is the *run* which must be invalid and consequently the *result cannot be interpreted*.

[132] As there was uncertainty on the validity of the patent, the TPDP considered that it was to be verified.

[133] The TPDP discussed the difficulty of interpreting LAMP tests without equipment. Since the LAMP test is an on-site diagnostic tool, the TPDP considered that while interpretation of visual readings should be addressed in the document, it is necessary to draw the attention of authors to the precautions to be taken in that situation. One participant suggested that a second test be recommended, interpreted with equipment, in case of a problem with visual interpretation.

[134] The TPDP considered it necessary to review the document and present it during the next TPDP meeting.

[135] The TPDP considered that the second document on this subject³⁵ was along the same lines as the previous one and it was not presented.

[136] The TPDP:

(52) *asked* Mr Norman BARR to review the document “Interpretation of results from LAMP tests” and present it during the next TPDP meeting.

8.6 Instructions to authors of diagnostic protocols

[137] The IPPC Secretariat mentioned editorial changes in this document. These changes will be reported to the SC, and are available online (<https://www.ippc.int/en/publications/83612/>) to all authors.

8.7 TPDP working procedures and checklists for discipline leads and referees

[138] The IPPC Secretariat noted that some comments made throughout the meeting could impact the working procedure³⁶ and that this would also imply a review of Specification TP 1, for instance to allow the TPDP to liaise with the IC. However, this should be discussed first during the SC meeting before being discussed by the TPDP.

[139] The TPDP had no comment on the Checklist for discipline leads and referees³⁷.

9. Liaison

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

[140] Ms Françoise PETTER presented the document “EPPO work programme on pest specific diagnostic protocols 2019–2020”³⁸. A total of 62 DPs are on the EPPO work programme, these being either new (14) or for revision (48). A series of workshops and meetings were also organized, with diagnostic protocols being the focus for the region. It was stressed that there was close collaboration with the IPPC Secretariat on these topics.

[141] Ms Françoise PETTER and Ms Géraldine ANTHOINE gave a presentation on the highlights of the EPPO Panel on Diagnostics in 2018–2019 and the EPPO work programme for 2019–2021.

³⁵ 16_TPDP_2019_Aug

³⁶ TPDP working procedures: <https://www.ippc.int/en/publications/tpdp-working-procedures-0/>

³⁷ Checklist for discipline leads and referees: <https://www.ippc.int/en/work-area-publications/82415/>

³⁸ 17_TPDP_2019_Aug

[142] **EPPO standards adopted.** Standard PM/76 (5) on use of diagnostic standards has a new section on communication with customers. Standard PM 7/84 (2), on basic requirements in plant pest diagnosis laboratories, addresses the issue of confidentiality of the results in case a regulated pest is detected.

[143] **Q-bank transfer.** The Q-bank database on quarantine pests is the result of a Dutch project. The Dutch NPPO asked EPPO to host this database when funding stopped at the end of 2018. The data to be integrated as priority are DNA sequences for blasting, protocols for barcoding and where to find biological material. The EPPO-Q-bank was launched in May 2019³⁹ and the work on collection will start in the second semester of 2019.

[144] **Valitest.** The aim of this project is to provide a more complete and precise description of the performance of diagnostic tests, including HTS; stimulate, optimize and strengthen the interactions between stakeholders in plant health for better diagnostics; and lay the foundation for structuring the quality and the commercial offers for plant health diagnostic tools. The budget for the duration of the project is EUR 3 million of public (funded by the European Union) and private funding. It gathers several research institutes for plant health from Europe, all coordinated by the Plant Health Laboratory of ANSES (French Agency for Food, Environmental and Occupational Health and Safety). It comprises several work packages, among which are the following:

- validation of tests for identified needs and specific pests
- improvement of the validation process
- quality assurance for reference materials for validation purposes
- analysis of demand for testing and impacts
- optimization of proficiency evaluation for a horizontal assessment
- dissemination, communication and training
- market exploitation of the project results.

[145] More information is available on the Valitest website⁴⁰.

[146] **Euphresco.** Euphresco is an international network of organizations funding research projects and coordinating national research in the phytosanitary area⁴¹. Certain projects concern diagnostic protocols, such as the harmonized protocol for monitoring and detection of *Xylella fastidiosa* in its host plants and its vectors (PROMODE⁴²).

[147] Ms Juliet GOLDSMITH presented an update on the **Caribbean Agricultural Health and Food Safety Agency (CAHFSA)**⁴³. CAHFSA is an RPPO recognized by the IPPC which consists of 15 member states in the Caribbean area plus 5 associated states. The countries of the Caribbean community are import-dependent with most agricultural products imported from outside the Caribbean area, especially the United States of America. The countries of the region export both within the Caribbean area as well to countries beyond it, notably the United States of America and the European Union. The objective for the establishment of CAHFSA was to set up an effective and efficient sanitary and phytosanitary regime to assist member states in improving their agricultural health and food-safety systems. At the moment in plant health, CAHFSA is working on developing a database of pests of concern for its member states, pest risk analyses completed by member states and a list of professionals working in the various areas. CAHFSA collaborates with various international bodies, such as the United States Department of Agriculture (USDA), the International Atomic Energy Agency (IAEA), CABI, the Centre de coopération Internationale en recherche agronomique pour le développement (CIRAD) and FAO. The Caribbean Plant Health Directors Forum provides support as the Technical Committee for the RPPO. A

³⁹ EPPO-Q-bank: https://www.eppo.int/RESOURCES/eppo_databases/eppo_q_bank

⁴⁰ Valitest: <https://www.valitest.eu/>

⁴¹ Euphresco: <https://www.euphresco.net/>

⁴² PROMODE: <https://zenodo.org/record/2656679#.XV06z-TrDVh>

⁴³ CAHFSA: <https://cahfsa.org/>

challenge for CAHFSA is that the agricultural sector is weak within some of its member states, compared to other sectors such as tourism. However, the opportunity is that the member states are close to each other and there are important movements of people among them, which facilitates a common approach on regulatory systems.

9.2 International Organization for Standardization (ISO)

[148] The IPPC Secretariat presented the document “International Organization for Standardization (ISO)”⁴⁴. According to task 9 of the TPDP specification, the TPDP and the IPPC Secretariat cooperate with ISO through their working group WG4, which is tasked with drafting the ISO standard ISO/TC 34/SC 16/13484 on molecular biomarker analysis for plant pests. While CPM-8 (2013) had agreed that in the phytosanitary area ISPMs take precedence over ISO standards, the ISO committee had since disbanded the WG4. The IPPC Secretariat will follow up any new topics related to plant pests within ISO and will report to the CPM.

[149] The TPDP noted this information and considered that it should be informed of any project of ISO standards or guidelines which could impact diagnostics for plant health.

9.3 AgriBio – Centre for AgriBioscience

[150] Mr Brendan RODONI gave a presentation about AgriBio – Centre for AgriBioscience. This body depends on the government of the State of Victoria. It provides scientific support to other divisions dealing with animals and plants according to a five-year framework reviewed by economists. The number of staff concerned with microbial science, pests and diseases is 110. AgriBio is an accredited body according to ISO standard 17025, which means that an accreditation quality-management system is in place. Each year, 45 000 samples are tested. They come either from public servants (the state of Victoria for surveillance activity, the federal government for import controls) or from the private sector (industry or farmers).

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

[151] The IPPC Secretariat presented the document “Global taxonomic initiative (GTI) of the Convention on Biological Diversity (CBD)”⁴⁵. The Secretariat of the IPPC, as one of the biodiversity-related conventions, liaises with the Secretariat of the CBD. The TPDP and GTI share common elements on invasive alien species and Mr Norman Barr from the TPDP had been assigned as the contact person with the GTI Secretariat. The Secretariat of the CBD had organized a series of training sessions on rapid identification of priority species (DNA barcoding), and the IPPC Secretariat had facilitated one of these training sessions in Sri Lanka in August 2018.

[152] The IPPC Secretariat underlined that the link between the IPPC and CBD Secretariats is justified by invasive plant species, which are in the field of plant health. The networking foreseen by the IPPC Strategic Framework 2020–2030 has implications for the CBD Secretariat, for instance concerning training on DNA barcoding.

[153] The TPDP noted the information and agreed to discuss progress during the next TPDP meeting.

[154] The TPDP:

- (53) *noted* the information provided by the IPPC Secretariat and *agreed* to discuss progress during the next TPDP meeting.

⁴⁴ 21_TPDP_2019_Aug

⁴⁵ 27_TPDP_2019_Aug

10. TPDP Work Plan

10.1 TPDP 2019–2020 work plan

- [155] The TPDP reviewed its tentative work plan for 2019–2020 and modified it according to the decisions taken during this meeting (Appendix 6).
- [156] To facilitate references, a list of action points arising from the meeting is provided in Appendix 7 of this report.
- [157] The IPPC Secretariat announced that a face-to-face meeting is tentatively planned for 17 to 21 August 2020 at EPPO headquarters in Paris, France.

11. Other Business

- [158] The IPPC Secretariat presented the document “Draft programme for the first International Plant Health conference”⁴⁶. Finland had offered to sponsor and host an International Plant Health conference within the framework of the 2020 IYPH, from 5 to 8 October 2020. The Technical Advisory Board for IYPH was developing a programme. The TPDP had been invited to comment on this programme and provide ideas on speakers and themes. The attention of the TPDP was drawn to the workshops on plant health diagnostics which is mentioned in point 1.4, page 5 of the draft programme.
- [159] One participant stated that it was too early to comment as the programme is at too early a stage.
- [160] The IPPC Secretariat acknowledged that it is crucial that the NPPOs provide their comments on this draft programme.
- [161] The participants considered that the TPDP should take the lead in organizing this workshop on behalf of the IPPC community, and that the TPDP could propose to the SC that sources of information from different sources be gathered for this purpose.
- [162] The TPDP:
- (54) *invited* the SC to *agree* that the TPDP should take the lead for the workshop on plant health diagnostics foreseen in the draft programme of the International Plant Health conference being organized within the framework of the 2020 International Year for Plant Health (IYPH) from 5 to 8 October 2020, and should gather information from different sources for this purpose.

12. Recommendations to the Standards Committee (SC)

- [163] Recommendations to the SC are described in previous sections of this report. To facilitate reference, they are compiled below.
- [164] *Regarding commodity- and pathway-specific ISPMs*, the SC is *invited* to:
- (1) *note* that the scope of DPs should be clearly defined in the framework of commodity and pathway standards
 - (2) *note* that the development of DPs should still be based on pest taxonomy rather than commodity, otherwise the scope of concerned pests would be considerable and very difficult to achieve
 - (3) *note* that the TPDP considered it too early to provide detailed feedback
 - (4) *note* that the TPDP considered that “inspection standards” may be needed and possible in the future, and that TPDP could help in that prospect, provided that the main pests of concern have been defined previously

⁴⁶ CRP_02_TPDP_2019_Aug

- (5) *note* that the TPDP considered that HTS technologies are promising, but that it is premature to consider them for DPs since development of such technologies is very fast, and also taking into consideration the need for laboratory capacity in the majority of countries
- (6) *note* that the TPDP strongly expressed its willingness to be involved at the beginning of the development of such standards, to avoid duplications, to understand potential gaps and build stronger relationships with the SC and the new technical panel.

[165] Regarding diagnostic laboratory networking, the SC is invited to:

- (7) *agree* that the TPDP gather different sources of information (manual, guides, videos) from different regions, in order to identify gaps in the existing manual of diagnostic protocols
- (8) *agree* that, in collaboration with the SC and IC, the TPDP develops or revise manuals and guidelines when needed (e.g. the existing manual of diagnostic protocols, or guidelines on proficiency tests)
- (9) *consider* amending Specification TP 1 in order to allow the TPDP to participate to the activities described above
- (10) *note* that the TPDP recommended that a CPM recommendation on “Facilitating shipment and transport of reference material and specimens, to support diagnostic activities for regulated pests” be developed, and asked Mr Brendan RODONI and Ms Juliet GOLSMITH, supported by Ms Françoise PETTER to draft a justification for that purpose to be discussed during the next TPDP meeting
- (11) *note* that TPDP is willing to take the lead in organizing the *first international workshop on diagnostic laboratories* in 2021, and asked Mr Norman BARR, supported by Mr Brendan RODONI, to draft a detailed proposal (justification, programme, resource mobilization) to be discussed during the next TPDP meeting.

[166] Regarding pest outbreak alert and response systems, the SC is invited to:

- (12) *note* that diagnostic networking could improve the support already given to these systems by the current activities of the TPDP, and *pass* this information to the IC.

[167] Regarding the review on the use and development of diagnostic protocols, the SC is invited to:

- (13) *note* the discussion of the TPDP on this matter and *consider* the modifications provided by the TPDP to the IRSS project and the draft questionnaire
- (14) *modify, adjust* as necessary the documents and *invite* the IC and IRSS subgroup to consider this survey.

[168] Regarding the emerging and fast-spreading pests, the SC is invited to:

- (15) *note* that developing a DP implies following an IPPC process, which makes difficult to issue the DP in time
- (16) *note* that in case of an emergency, consideration could be given to making available to contracting parties information on other type of diagnostics sourced from NPPOs, RPPOs or other bodies, but gathering the data would require a strong international network and further resources allocated to the IPPC Secretariat
- (17) *note* that the TPDP noted that the process to include new topics to the work programme could be speeded up, with better communication between the several bodies involved and making use of the TPDP as part of it.

[169] Regarding the objective to reduce the length of time to produce and publish IPPC DPs, the SC is invited to:

- (18) *note* that developing a DP implies a minimum span of time due to the fact that this is an international standard

- (19) *note* that time could be gained at the drafting stage by requesting commitments from applicants to Calls for authors, especially on deadlines to be respected
- (20) *note* that if necessary, two country consultation periods per year could be organized, also virtual TPDP meetings
- (21) *note* that there are positive aspects in the current process: the possibility granted to the TPDP to add further experts outside the Call for authors, and the Acknowledgments section in the DPs to identify the experts as contact points which could help implementation.

[170] **Regarding analysis of draft diagnostic protocols added to the work programme as requested by the SC**, the SC is invited to:

- (22) *agree* that the draft DP for Psyllid vectors of '*Candidatus Liberibacter solanacearum*' (2018-030) be developed at species level
- (23) *agree* that it is feasible to develop a DP for Pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031) and that the DP should cover plants and seeds
- (24) *agree* that it is feasible to develop a DP for *Acidovorax avenae* subsp. *citrulli* (2018-032) and to *note* that it may be beneficial to liaise with the International Seed Testing Association (ISTA), the International Seed Federation (ISF) and the International Seed Health Initiative (ISHI)
- (25) *consider* changing the priority from 2 to 1 as *Acidovorax avenae* subsp. *citrulli* has a high economic impact, especially for developing countries, and is highly seed-transmitted
- (26) *agree* that the draft for *Meloidogyne mali* (2018-019) is at species level, and to *note* that if there is a need to develop at genus level, additional guidance from the SC should be given on which species should be focused on, as for other DPs (e.g. *Anguina*)
- (27) *agree* that it is feasible to develop a DP for *Cronartium comandrae* (2018-015), and to *note* that during the development the scope may change to include other species.

[171] **Regarding the International Year for Plant Health**, the SC is invited to:

- (28) *agree* that the TPDP should take the lead for the workshop on plant health diagnostics foreseen in the draft programme of the International Plant Health conference being organized within the framework of the 2020 International Year for Plant Health (IYPH) from 5 to 8 October 2020, and should gather information from different sources for this purpose.

13. Closing of the Meeting

[172] The TPDP thanked the IPPC Secretariat staff for their professional support and dedication to the work.

[173] The Chairperson noted that the discussions were fruitful and took advantage of the experience in different regions of the participants.

[174] The IPPC Secretariat thanked the participants for their active participation, and informed the participants that a link would be sent to the participants and that they were encouraged to provide their feedback.

[175] The Chairperson closed the meeting.

Appendix 1: Agenda

2019 MEETING of the TECHNICAL PANEL ON DIAGNOSTIC PROTOCOLS (TPDP)

05 - 09 August 2019

AgriBio – Centre for Agri Bioscience, Melbourne, Australia

Opening: Monday 05 August at 10:00

Daily Schedule: 09:00-12:00 and 13:00-17:00

AGENDA

Agenda Item	Document No.	Presenter
1. Opening of the Meeting		
1.1 Welcome by the IPPC Secretariat		MOREIRA
1.1 Welcome by the meeting hosts: - Agribio: Centre for Agri Bioscience - Australian Department of Agriculture	--	RODONI PETERSON
2. Meeting Arrangements	--	
2.1 Selection of the Chairperson	--	MOREIRA
2.2 Selection of the Rapporteur	--	CHAIRPERSON
2.3 Adoption of the Agenda	01_TPDP_2019_Aug	CHAIRPERSON
3. Administrative Matters	--	
3.1 Documents list	02_TPDP_2019_Aug	ALLEX / RODONI
3.2 Participants list	03_TPDP_2019_Aug TPDP membership list	
3.3 Local information	04_TPDP_2019_Aug	
4. The IPPC TPDP work programme		
4.1 Review of IPPC standard setting process	Link to IPPC standard setting process 05_TPDP_2019_Aug	ALLEX
4.2 Overview of the TPDP work programme: - TPDP approved specification TP 01 - Diagnostic protocols (DPs) in the work programme	22_TPDP_2019_Aug Link to specification TP 01 Link to List of topics for IPPC Standards Link to IPPC DPs drafting groups list Link to TPDP 2018-02 Meeting Report	MOREIRA

Agenda Item		Document No.	Presenter
5.	Updates from relevant IPPC bodies and strategic discussion on the IPPC diagnostic protocols and the work of the TPDP		CHAIRPERSON
5.1	Relevant updates from other IPPC meetings: <ul style="list-style-type: none"> - Updates from CPM-14 (2019) - Updates from CPM Bureau - Updates and recommendations from Standards Committee (SC) 	19_TPDP_2019_Aug Link to CPM Bureau meeting reports Link to CPM-14 report Link to SC meeting reports Link to IPPC Strategic Framework 2020-2030 ⁴⁷	MOREIRA
5.2	Potential impacts of the IPPC strategic framework 2020-2030 in the TPDP work: <ul style="list-style-type: none"> - Possible recommendations to the SC 	28_TPDP_2019_Aug	MOREIRA /
5.3	Other strategic issues: <ul style="list-style-type: none"> - Review on use and development of Diagnostic Protocols: Study on adopted DPs - Possible ways to shorten the length of time to develop diagnostic protocols, particularly in the case of emerging pests - Way of working - Contact with drafting groups - Identification of gaps (new/revision) 	25_TPDP_2019_Aug 29_TPDP_2019_Aug TPDP specification TP 1 Link to adopted ISPMs Link to List of topics for IPPC Standards	MOREIRA / ALLEX
6.	Revision of draft diagnostic protocols under development ⁴⁸		CHAIRPERSON
6.1	<ul style="list-style-type: none"> - Begomoviruses transmitted by <i>Bemisia tabaci</i> (2009-023), priority 2 - '<i>Candidatus Liberibacter</i>' spp. on <i>Citrus</i> spp. (2004-010), priority 2 	CRP_04_TPDP_2019_Aug CRP_05_TPDP_2019_Aug	RODONI
7.	Analysis of draft diagnostic protocols added to the work programme as requested by the SC	06_TPDP_2019_Aug	CHAIRPERSON
7.1	<ul style="list-style-type: none"> - Psyllid vectors of '<i>Candidatus Liberibacter solanacearum</i>' (2018-030), priority 1 - Discipline lead's summary 	30_TPDP_2019_Aug	GOLDSMITH / BARR
7.2	<ul style="list-style-type: none"> - Pospiviroid species (except <i>Potato spindle tuber viroid</i> (DP7)) (2018-031), priority 2 - Discipline lead's summary 	CRP_03_TPDP_2019_Aug	RODONI
7.3	<ul style="list-style-type: none"> - <i>Acidovorax avenae</i> subsp. <i>citrulli</i> (2018-032), priority 2 - Discipline lead's summary 	26_TPDP_2019_Aug	TAYLOR
7.4	<ul style="list-style-type: none"> - <i>Meloidogyne mali</i> (2018-019), priority 3 - Discipline lead's summary - Literature references 	09_TPDT_2019_Aug 12_TPDT_2019_Aug 13_TPDT_2019_Aug 14_TPDT_2019_Aug CRP_01_TPDP_2019_Aug	ANTHOINE

⁴⁷ IPPC Strategic Framework 2020–2030 as presented to the Commission on Phytosanitary Measures (CPM-14, 2019). Slight adjustments will be made.

⁴⁸ Additional resources: IPPC procedure manual for standard setting: <https://www.ippc.int/en/core-activities/ippc-standard-setting-procedure-manual/>; IPPC style guide: <https://www.ippc.int/en/publications/81329/>; TPDP instructions to authors: <https://www.ippc.int/en/publications/83612/>

Agenda Item		Document No.	Presenter
7.5	<i>Cronartium comandrae</i> Peck (2018-015), priority 4 - Discipline lead's summary	23_TPDP_2019_Aug	TAYLOR
7.6	<i>Other analysis</i>	07_TPDP_2019_Aug	PETTER
8.	TPDP working papers		CHAIRPERSON
8.1	ELISA controls and interpretation of results	24_TPDP_2019_Aug 15_TPDP_2019_Aug	ANTHOINE and TAYLOR / PETTER
8.2	Control options for molecular tests for pest group categories	18_TPDP_2019_Aug	ANTHOINE
8.3	Quality Assurance for diagnostic protocols	10_TPDP_2019_Aug 11_TPDP_2019_Aug	BARR / PETTER
8.4	Best practices for sequencing	08_TPDP_2019_Aug	BARR
8.5	Interpretation of results from LAMP tests, considering existing available documents	20_TPDP_2019_Aug 16_TPDP_2019_Aug	BARR / PETTER
8.6	Instructions to authors of diagnostic protocols	Link to Instruction to authors	MOREIRA
8.7	TPDP Working procedures and Checklists for discipline leads and referees	TPDP Working procedures Checklist for discipline leads and referees (work area page)	MOREIRA
9.	Liaison		
9.1	European and Mediterranean Plant Protection Organization (EPPO) update on diagnostic protocols	17_TPDP_2019_Aug	PETTER
9.2	International Organization for Standardization (ISO)	21_TPDP_2019_Aug	MOREIRA
9.3	AgriBio – Centre For AgriBioscience	--	RODONI
9.4	Global Taxonomy Initiative (GTI) of the Convention on Biological Diversity (CBD)	27_TPDP_2019_Aug	MOREIRA
9.5	Caribbean Agricultural Health and Food Safety Agency (CAHFSA)	--	GOLDSMITH
10.	TPDP work plan		
10.1	- TPDP 2019-2020 work plan - TPDP mid-term plan	(To be prepared during the meeting)	IPPC Secretariat
11.	Other business - Draft programme: International Plant Health Conference (2020)	CRP_02_TPDP_2019_Aug	CHAIRPERSON
12.	Recommendations to the Standards Committee (SC)		CHAIRPERSON
13.	Closing of the meeting - Evaluation of the meeting - Close		MOREIRA CHAIRPERSON

Appendix 2: Documents list**TECHNNICAL PANEL ON DIAGNOSTIC PROTOCOLS**

05-09 August 2019
Melbourne, Australia

DOCUMENTS LIST

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

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
01_TPDP_2019_Aug	2.3	Agenda	2019-06-28 (1 st version) 2019-07-25 (2 nd version) 2019-07-30 (3 rd version) 2019-08-04 (4 th version)
02_TPDP_2019_Aug	3.1	Documents list	2019-07-30 (1 st version) 2019-08-04 (2 nd version)
03_TPDP_2019_Aug	3.2	Participants list	2019-07-26
04_TPDP_2019_Aug	3.3	Local information	2019-05-11
05_TPDP_2019_Aug	4.1	Review of IPPC standard setting process	2019-07-10
06_TPDP_2019_Aug	7	Analysis of draft diagnostic protocols added to the work programme as requested by the SC	2019-07-10
07_TPDP_2019_Aug	7.6	Analysis of draft diagnostic protocols added to the work programme: Other analysis	2019-07-17
08_TPDP_2019_Aug	8.4	Best practices for sequencing	2019-07-17
09_TPDP_2019_Aug	7.4	<i>Meloidogyne mali</i> (2018-019): Discipline lead's summary	2019-07-17
10_TPDP_2019_Aug	8.3	Quality Assurance for diagnostic protocols	2019-07-17
11_TPDP_2019_Aug	8.3	Quality assurance: Interpretation of ELISA controls in PM 7/125	2019-07-17
12_TPDP_2019_Aug	7.4	<i>Meloidogyne mali</i> : Literature reference 1	2019-07-17
13_TPDP_2019_Aug	7.4	<i>Meloidogyne mali</i> : Literature reference 2	2019-07-17
14_TPDP_2019_Aug	7.4	<i>Meloidogyne mali</i> : Literature reference 3	2019-07-17
15_TPDP_2019_Aug	8.1	Interpretation of ELISA controls in pm 7/125	2019-07-17
16_TPDP_2019_Aug	8.5	Interpretation of LAMP tests in EPPO Protocols	2019-07-17

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	POSTED
17_TPDP_2019_Aug	9.1	Liaison: EPPO work programme on pest specific diagnostic protocols (2019-2021)	2019-07-17
18_TPDP_2019_Aug	8.2	Control options for molecular tests for pest group categories	2019-07-17
19_TPDP_2019_Aug	5.1	Relevant updates from IPPC meetings	2019-07-17
20_TPDP_2019_Aug	8.5	Interpretation of results from LAMP tests	2019-07-18
21_TPDP_2019_Aug	9.2	Liaison: International Organization for Standardization (ISO)	2019-07-25
22_TPDP_2019_Aug	4.2	Overview of the TPDP work programme	2019-07-26
23_TPDP_2019_Aug	7.5	<i>Cronartium comandrae</i> (2018-015): Discipline lead's summary	2019-07-26
24_TPDP_2019_Aug	8.1	ELISA controls and interpretation of results	2019-07-26
25_TPDP_2019_Aug	5.3	Review on use and development of Diagnostic Protocols: Study on adopted DPs	2019-07-26
26_TPDP_2019_Aug	7.3	<i>Acidovorax avenae</i> subsp. <i>citrulli</i> (2018-032): Discipline lead's summary	2019-07-29
27_TPDP_2019_Aug	9.4	Liaison: Global Taxonomy Initiative (GTI) of the Convention on Biological Diversity (CBD)	2019-07-29
28_TPDP_2019_Aug	5.2	Potential impacts of the IPPC strategic framework 2020-2030 in the TPDP work	2019-07-30
29_TPDP_2019_Aug	5.3	Other strategic issues: TPDP	2019-07-30
30_TPDP_2019_Aug	7.1	Psyllid vectors of <i>Candidatus Liberibacter solanacearum</i> (2018-030): Discipline lead's summary	2019-07-30
CRP_01_TPDP_2019_Aug ⁴⁹	7.4	Further Comments: <i>Meloidogyne mali</i> (2018-019)	2019-08-05
CRP_02_TPDP_2019_Aug	11	Draft programme: International Plant Health Conference (2020)	2019-08-05
CRP_03_TPDP_2019_Aug	7.2	Pospiviroid species (except <i>Potato spindle tuber viroid</i> (DP7)) (2018-031): Discipline lead's summary	2019-08-05
CRP_04_TPDP_2019_Aug	6.1	Discipline lead's summary for Begomoviruses transmitted by <i>Bemisia tabaci</i> (2009-023)	2019-08-05
CRP_05_TPDP_2019_Aug	6.1	Discipline lead's summary for <i>Candidatus Liberibacter</i> spp. on <i>Citrus</i> spp. (2004-010)	2019-08-05

⁴⁹ CRP = Conference room paper

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

Links	AGENDA ITEM	DOCUMENT LINK
TPDP Membership list	3.2	TPDP membership list
List of Topics for IPPC Standards	4.0	Link to List of topics for IPPC Standards
DP Drafting groups list	4.0	Link to IPPC DPs drafting groups list
TPDP February 2018 meeting report	4.0	Link to TPDP 2018-02 meeting report
TPDP Specification TP 1	4.1, 5.2, 5.3	TPDP specification TP 1
Updates from CPM-14 (2019)	5.1	Link to CPM-14 report
Updates from CPM Bureau	5.1	Link to CPM Bureau meeting reports
Updates and recommendation Standards Committee (SC)	5.1	Link to SC meeting reports
Potential impact of the IPPC strategic framework 2020-2030	5.2	Link to IPPC strategic framework 2020-2030⁵⁰
Other strategic issues	5.2, 5.3	TPDP specification TP 1 Link to adopted ISPMs Link to List of topics for IPPC standards
TPDP working procedures	8.7	TPDP Working procedures TPDP instructions to authors: https://www.ippc.int/en/publications/83612/ Checklist for discipline leads and referees (work area page)
Additional resources	various	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/

⁵⁰ IPPC Strategic Framework for 2020–2030 (as presented to CPM-14, 2019):
<https://www.ippc.int/en/publications/86997/>

Appendix 3: Participants list

2019 August MEETING OF THE TECHNICAL PANEL ON DIAGNOSTIC PROTOCOLS (TPDP)

05-09 August 2019
Melbourne, Australia

PARTICIPANTS LIST

A check (✓) in column 1 indicates confirmed attendance at the meeting by the time this paper was posted.

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
	Steward	Ms Jayani Nimanthika WATHUKARAGE National Plant Quarantine Service, Canada Friendship Road, Katunayake, SRI LANKA Tel : +94718015660 Fax : +94112253709	jayaninimanthika@gmail.com		
✓	Bacteriology, and backup for mycology	Mr Robert TAYLOR Plant Health & Environment Laboratory New Zealand Ministry for Primary Industries 231 Morrin Road St Johns PO Box 2095 Auckland 1140 New Zealand Tel: (+64) 9 909 3548 Fax: (+64) 9 909 5739	Robert.Taylor@mpi.govt.nz	May 2011	2021 (2 nd term 2016-2021)
	Botany	Ms Liping YIN Plant Quarantine Laboratory Animal and Plant Inspection and Quarantine Technology Center Shanghai Entry-Exit Inspection and Quarantine Bureau 1208 Minsheng Road Shanghai, 200135 China Tel: (+86) 21 6854 0577 Fax: (+86) 21 6854 6481	yinlp@shciq.gov.cn ; yinlp2013@hotmail.com	April 2008	April 2023 (3 rd term)
✓	Entomology	Mr Norman B. BARR Assistant Director Mission Laboratory 22675 N. Moorefield Rd. Moore Air Base Bldg. S-6414 Edinburg, TX 78541 USA Tel. (+1) 956 205 7658 Fax: (+1) 956 205 7680	Norman.B.Barr@usda.gov	July 2012	2022 (2 nd term 2017-2022)

	Participant role	Name, mailing, address, telephone	Email address	Term begins	Term ends
✓	Entomology	Ms Juliet GOLDSMITH Plant Health Specialist Caribbean Agricultural Health and Food Safety Agency (CAHFSA) Letitia Vriesdelaan 10 Paramaribo Suriname Tel: (+597) 422 546 Mobile: (+597) 725 2922	julietgoldsmith@gmail.com ; juliet.goldsmith@cahfsa.org	November 2014	2019 (2 nd term 2019-2024)
✓	Nematology	Ms Géraldine ANTHOINE Directrice adjointe / Deputy head Chef d'unité coordination de la référence / Head of unit "coordination of reference activities" 7 rue Jean Dixméras 49044 ANGERS cedex 01 France Tel: (33) 241207431 Fax: (33) 240207430	geraldine.anthoine@anses.fr	April 2009	2019 3 rd term 2019- 2024)
✓	Virology, and backup for bacteriology	Mr Brendan RODONI Biosciences Research Division AgriBio Centre Ring Road La Trobe University Bundoora 3083 Australia Tel: (+61) 3 9032 7319 Fax: (+61) 3 9800 3521	brendan.rodoni@ecodev.vic.gov.au u	July 2012	2022 (2 nd term 2017-2022)

Other participants			
✓	Invited Expert	Ms Françoise PETTER Assistant Director European and Mediterranean Plant Protection Organization (EPPO) 21 Boulevard Richard Lenoir 75011 Paris FRANCE Tel: +33 1 45 20 77 94 / Fax: +33 1 70 76 65 47	petter@eppo.int
✓	Host country / Host agency	Mr Andrew TOMKINS Director Science and Surveillance Group Biosecurity Operations Divison Department of Agriculture GPO Box 858, Canberra, ACT, 2601 AUSTRALIA Phone: +61 3 8308 5056 Mobile: +61 466 514 236 Website: www.agriculture.gov.au	Andrew.Tomkins@agriculture.gov.au ;
✓	Host country / NPPO	Ms Sophie Alexia PETERSON Assistant Director Plant Health Policy Biosecurity Plant Division Department of Agriculture GPO Box 858, Canberra ACT 2601 AUSTRALIA Tel: (+61) 2 6272 3769 Mobile: +61 402 313 170	sophie.peterson@agriculture.gov.au ;
✓	IPPC Secretariat Coordinator for TPDP	Ms Adriana G. MOREIRA Standard Setting Officer (Programme Specialist) International Plant Protection Convention Secretariat (IPPC) Food and Agriculture Organization of the United Nations (FAO/UN) Viale delle Terme di Caracalla 00153 Rome, Italy Phone: + 39 06 570 55 809 Mobile: +39 389 590 8778	Adriana.Moreira@fao.org
✓	IPPC Secretariat Support for TPDP	Mr Denis ALLEX Standard Setting Associate International Plant Protection Convention Secretariat (IPPC) Food and Agriculture Organization of the United Nations (FAO/UN) Viale delle Terme di Caracalla 00153 Rome, Italy Phone: + 39 06 570 50921	Denis.Alex@fao.org

Appendix 4: IRSS project proposal for a study on the utility of IPPC diagnostic protocols

(As presented to the Bureau in June 2012 and reviewed by the TPDP in August 2019)

Activity Title:	Study on the utility of IPPC diagnostic protocols
Lead Agency:	IPPC
Key project collaborators:	Diagnostic experts, NPPOs, RPPOs, TPDP and IPPC Secretariat
Funding source:	IPPC-IRSS Project
Project duration:	3 months
Background	<p>Under the supervision of the Standards Committee, the Technical Panel on Diagnostic Protocols (TPDP) was established by the CPM to oversee the development of diagnostic protocols.</p> <p>In 2006, the First Session of the Commission on Phytosanitary Measures (CPM-1) adopted ISPM 27. 2006 <i>Diagnostic protocols for regulated pests</i> which provides an overview of what information should be included in a diagnostic protocol (DP). In addition, several pests were identified and added to the <i>List of topics for IPPC standards</i> by the CPM. To date, 29 DPs have been adopted by the CPM (add link).</p> <p>Currently there are 18 subjects (diagnostic protocols) arranged under 6 topics (disciplines: Bacteriology, Botany, Entomology, Mycology, Nematology and Virology) on the <i>List of topics for IPPC standards</i>.</p> <p>Under the current standard setting process, national plant protection organizations (NPPOs) and regional plant protection organizations (RPPOs) are called to submit experts to develop draft diagnostic protocols to take part of the TPDP. The development of DPs is overseen by the Technical Panel on Diagnostic Protocols (TPDP), which selects a DP drafting group for each DP from the nominated experts. The SC approves draft DPs recommended by the TPDP for consultation and, under the current standard setting process, the SC has been delegated authority by the CPM to adopt DPs on behalf of the CPM. All development work, up to the presentation for adoption, is done in English.</p> <p>It has been suggested to the Secretariat that the experts that use these DPs to perform diagnostics would all be comfortable using the English version and large amounts could be saved in translation costs. In addition, it would be useful to know how widely the DPs are used (April 2012 SC report, para 54). Notes from TPDP 2019: SC and IRSS subgroup to consider having just one answer from each NPPO or RPPO instead of multiple answers (i.e. multiple labs) per country.</p>
Objective	To verify that DPs are useful for NPPOs and utilize limited resources as best possible by producing DPs in the most usable global format.
Purpose	To gather data from each FAO region on the extent to which diagnostic protocols are used.
Key outputs and outcome	The key outputs will be:

	a) Identification of how widely DPs are used.
<i>Expected impact</i>	Ensure appropriate allocation of resources and obtain information on how widely DPs are used (and constraints to their use). Could identify capacity development issues and therefore be cross-cutting across IPPC functions.
<i>Target groups</i>	For the extent of use of DPs: NPPOs and RPPOs, with the involvement of diagnostic experts
<i>Approach</i>	The following outlines the strategy to produce listed outputs
Date	Activity
Month 1	Finalize the questionnaire. This should include ancillary questions on reasons for using / not using DPs and any other constraints (e.g. lack of infrastructure, capacity, funding; relevance of pest to production/trade; and could include suggestions for improvements). Send questionnaire to NPPOs and RPPOs, with the involvement of diagnostic experts (4 week deadline for responses)
Month 3	Analyse results and provide a summary of the results and any recommendations from the questionnaire to the SC.

Appendix 5: Study on the utility of IPPC diagnostic protocols

Draft survey: IPPC diagnostic protocols (prepared by IPPC Secretariat with TPDP inputs from its 2012 and 2019 meetings)

NPPOs and RPPOs are invited to liaise with diagnostic experts

1. Are you a NPPO or RPPO?	- _____
2. Is your NPPO/RPPO aware of the adopted IPPC diagnostic protocols?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3. Does your NPPO/RPPO use any IPPC adopted diagnostic protocol?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3. a) If so, then in which context?	- (Please select as many as apply) <input type="checkbox"/> Official analysis <input type="checkbox"/> Surveillance <input type="checkbox"/> Monitoring <input type="checkbox"/> Post-entry quarantine <input type="checkbox"/> Training <input type="checkbox"/> Research <input type="checkbox"/> Preparation of national/regional diagnostic standards <input type="checkbox"/> Other (please list them) - _____ - _____
3. b) If not, why are IPPC diagnostic protocols not used?	- (Please select as many as apply) <input type="checkbox"/> Existing national/regional diagnostic protocol <input type="checkbox"/> No diagnostic protocol existing for pest of concern <input type="checkbox"/> Lack of expertise to use the diagnostic protocols <input type="checkbox"/> Diagnostic protocol not available in my language <input type="checkbox"/> Diagnostic protocol is not up to date <input type="checkbox"/> Other (please list them) - _____ - _____
4. Who uses or who would use adopted diagnostic protocols in your NPPO/RPPO?	- (Please select one or more, as applicable) <input type="checkbox"/> Lab technicians / diagnosticians <input type="checkbox"/> Researchers <input type="checkbox"/> Other (please list them) - _____ - _____

5. Do the protocols used in your NPPO/RPPO have any modification from the IPPC diagnostic protocol?	- <input type="checkbox"/> YES* - <input type="checkbox"/> NO - *If YES, please list the modifications and the reasons for them: - _____ - _____
5a) If yes, list the diagnostic protocol(s) concerned and provide contact person details for further information	- _____ - _____
6. Do you think there is a need for the development of other DPs?	- <input type="checkbox"/> YES, there is a need for the development of other diagnostic protocols. - <input type="checkbox"/> NO, there is no need for the development of other diagnostic protocols.
6a) If yes, which other DPs should be developed?	- (please indicate the topic)
7. Do you have any suggestions for improvement of the protocols? Please, list them.	- (Please list maximum of three main suggestions) - _____ - _____ - _____
8. Any other comment	- _____ - _____ - _____ - _____ - _____

Appendix 6: TPDP 2019 – 2020 work plan

TPDP AUGUST 2019 – AUGUST 2020 WORK PLAN

(tentative)

Action 1: 2019 - 2020 Diagnostic Protocols (DPs) overall management	
Goals: a) Track, manage and ensure high quality DPs b) Overall management of 18 draft DPs	
Activities	Responsible
DP drafting groups management: TPDP members to update lead authors and DP drafting groups on the outcomes of the 2019 TPDP meeting and to inform the lead authors on the deadlines.	TPDP members
Draft DPs on the TPDP work programme ⁵¹	
<ul style="list-style-type: none"> • Genus Ceratitis (2016-001) • Striga spp. (2008-009) • Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028) • Pyricularia oryzae (syn. Magnaporthe oryzae) on Triticum (2019-002) • Microcyclus ulei (2019-003) • Puccinia graminis f. sp. tritici UG 99 (2019-004) • Mononychelus tanajoa (2018-006) • Citrus leprosis virus (2018-025) • Psyllid vectors of Candidatus Liberibacter solanacearum (2018-030) • Begomoviruses transmitted by Bemisia tabaci (2006-023) • Candidatus Liberibacter spp. on Citrus spp. (2004-010) • Amaranthus palmeri (2019-006) • Solanum rostratum (2019-007) • Pospiviroid species (except Potato spindle tuber viroid (DP 7)) (2018-031) • Acidovorax avenae subsp. citrulli (2018-032) • Moniliophthora roreri (2019-005) • Meloidogyne mali (2018-019) • Cronartium comandrae (2018-015) 	-

⁵¹ See *List of topics for IPPC standards*: <https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/list>

Action 2: DP Notification period for draft DPs⁵² Goals: a) To ensure a transparent and inclusive process for the adoption of draft DPs b) To facilitate the work to recommend draft DPs to the Standards Committee for adoption				
Activities	Start Date	Due Date	Related Steps	Responsible
Draft DPs for approval for the Notification Period <ul style="list-style-type: none"> Striga spp. (2008-009) 	1 July 2020	15 August 2020	Revised draft DP + responses comments to Secretariat 1 February 2020 TPDP e-decision 5-20 February 2020 SC e-decision April 2020	Respective Discipline lead and Secretariat

Action 3: Expert Consultation on draft Diagnostic Protocols (ECDPs) Goals: a) Ensure improvement of quality for the development of DPs, through inputs and feedback, on a scientific basis, from a wide number of worldwide experts who are not part of the DP drafting groups b) Facilitate the work to submit three DPs to the Expert Consultation on draft Diagnostic Protocols (ECDP)				
Activities	Start Date	Due Date	Related Steps	Responsible
2020 ECDPs <ul style="list-style-type: none"> Genus Ceratitis (2016-001) Begomoviruses transmitted by Bemisia tabaci (2006-023) 	10 March 2020	15 April 2020	Revised drafts to the Secretariat 1 March 2020 Draft DP from expert consultation back to Secretariat 15 July 2020	Respective discipline lead and Secretariat
<ul style="list-style-type: none"> Pyricularia oryzae (syn. Magnaporthe oryzae) on Triticum (2019-002) Microcyclus ulei (2019-003) Puccinia graminis f. sp. tritici UG 99 (2019-004) Mononychelus tanajoa (2018-006) Citrus leprosis virus (2018-025) Psyllid vectors of Candidatus Liberibacter solanacearum (2018-030) Amaranthus palmeri (2019-006) Solanum rostratum (2019-007) Pospiviroid species (except Potato spindle tuber viroid (DP 7)) (2018-031) Acidovorax avenae subsp. citrulli (2018-032) 	15 May 2020	15 June 2020	Draft DPs to Secretariat 1 March 2020 Draft DP from expert consultation back to Secretariat 15 July 2020	

⁵² Pending Standard Committee's approval

<ul style="list-style-type: none"> • Moniliophthora roreri (2019-005) • Meloidogyne mali (2018-019) • Cronartium comandrae (2018-015) 				
--	--	--	--	--

Action 4: TPDP meetings				
Goal: To discuss in detail the technical content of draft DPs, as well as challenges and opportunities for the panel and to review the TPDP work programme.				
Activities	Start Date	Due Date	Related Steps	Responsible
TPDP face to face meeting 2020 Tentative agenda: <ul style="list-style-type: none"> • Genus Ceratitis (2016-001) • Begomoviruses transmitted by Bemisia tabaci (2006-023) • Pyricularia oryzae (syn. Magnaporthe oryzae) on Triticum (2019-002) • Microcyclus ulei (2019-003) • Puccinia graminis f. sp. tritici UG 99 (2019-004) • Mononychelus tanajoa (2018-006) • Citrus leprosis virus (2018-025) • Psyllid vectors of Candidatus Liberibacter solanacearum (2018-030) • Amaranthus palmeri (2019-006) • Solanum rostratum (2019-007) • Pospiviroid species (except Potato spindle tuber viroid (DP 7)) (2018-031) • Acidovorax avenae subsp. citrulli (2018-032) • Moniliophthora roreri (2019-005) • Meloidogyne mali (2018-019) • Cronartium comandrae (2018-015) 	17 August 2020	21 August 2020	(Draft DPs coming from Expert Consultation – see section above)	TPDP members and Secretariat

Action 5: Consultation Period on draft ISPMs⁵³ Goals: a) To ensure a transparent and inclusive process for the development of high quality DPs b) Facilitate the work to submit draft DPs to the consultation period				
Activities	Start Date	Due Date	Related Steps	Responsible
2020 Consultation Period <ul style="list-style-type: none"> Candidatus Liberibacter spp. on Citrus spp. (2004-010) 	1 July 2020	30 September 2020	Revised draft to Secretariat 1 March 2020 5-20 March 2020 TPDP e-decision SC e-decision May/June 2020	Respective Discipline lead and Secretariat

⁵³ Pending Standard Committee's approval

Appendix 7: Action points arising from the August 2019 TPDP meeting

ACTION POINTS ARISING FROM THE AUGUST 2019 MEETING

(by agenda item)

	Action	Agenda Item	Responsible	Deadline
1.	The TPDP agreed that the draft DP for the genus <i>Ceratitis</i> should be transmitted by 1 March 2020 to the IPPC Secretariat.	4.2	Discipline lead and DP drafting group	1 March 2020
2.	The TPDP asked Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising the scope of the draft DP on <i>Tephritidae</i> in order to detect these pests at the level of the genus rather than the level of the family.	4.2	Mr Norman BARR	1 March 2020
3.	IPPC Secretariat to organize Calls for authors for the new subjects for DPs, ensuring that the applicants are aware of the Standard setting process, including the deadlines, and organize a TPDP e-decision by 31 October 2019.	4.2	Secretariat	31 October 2019
4.	The TPDP agreed that the drafts of new DPs are to be transmitted to the IPPC Secretariat by 1 March 2020.	4.2	Discipline lead and DP drafting group	1 March 2020
5.	The TPDP asked Mr Robert TAYLOR to liaise with EPPO in order to assess if DP 21 (' <i>Candidatus Liberibacter solanacearum</i> ') needs a revision, and if yes justify it, and provide a document on that subject for the next TPDP meeting.	4.2	Mr Robert TAYLOR	August 2020
6.	The TPDP asked Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising DP 27 (<i>Ips</i> spp.).	4.2	Mr Norman BARR	1 March 2020
7.	The TPDP asked Mr Robert TAYLOR to prepare a discussion paper for the next TPDP meeting regarding the need for revision of DP 25 (<i>Xylella fastidiosa</i>).	4.2	Mr Robert TAYLOR	August 2020
8.	The TPDP asked Mr Norman BARR to transmit to the IPPC Secretariat by 1 March 2020 a justification for revising DP 9 (Genus <i>Anastrepha</i> Schiner).	4.2	Mr Norman BARR	1 March 2020
9.	The TPDP asked Mr Robert TAYLOR to transmit to the IPPC Secretariat by 15 September 2019 a document in order to inform the SC about the lack of specificity of DP 5 (<i>Phyllosticta citricarpa</i> (McAlpine) Aa on fruit), and to justify the revision of this DP.	4.2	Mr Robert TAYLOR	15 September 2019
10.	(pending SC decision) The TPDP agreed that the TPDP gather different sources of information (manual, guides, videos) from different regions, in order to identify gaps in the existing diagnostic protocols.	5.2	Mr Robert TAYLOR supported by Ms Géraldine ANTHOINE	August 2020
11.	(pending SC decision) The TPDP recommended that a CPM recommendation on "Facilitating shipment and transport of reference material and specimens, to support diagnostic activities for regulated pests" be developed, and asked Mr Brendan RODONI and Ms Juliet GOLDSMITH, supported by Ms Françoise PETTER, to draft a justification for that purpose to be discussed during the next TPDP meeting.	5.2	Mr Brendan RODONI and Ms Juliet GOLDSMITH, supported by Ms Françoise PETTER	August 2020

	Action	Agenda Item	Responsible	Deadline
12.	(pending SC decision) The TPDP is willing to take the lead in organizing the first international workshop on diagnostic laboratories in 2021, and asked Mr Norman BARR, supported by Mr Brendan RODONI, to draft a detailed proposal (justification, programme, resource mobilization) to be discussed during the next TPDP meeting.	5.2	Mr Norman BARR, supported by Mr Brendan RODONI	August 2020
13.	The TPDP asked to the IPPC Secretariat and the Discipline Lead to make contact with possible authors who could participate in the drafting group for Begomoviruses transmitted by <i>Bemisia tabaci</i> , in order to organize a TPDP e-decision by 30 September 2019, the aim being to transmit a completed draft to the IPPC Secretariat by 1 March 2020.	6.1	Secretariat and discipline lead	30 September 2019
14.	The TPDP asked to the IPPC Secretariat and the Discipline Lead to make contact with possible authors who could participate in the drafting group for ' <i>Candidatus Liberibacter</i> ' spp. on <i>Citrus</i> spp., in order to organize a TPDP e-decision by 30 September 2019, the aim being to transmit a completed draft to the IPPC Secretariat by 1 March 2020;	6.1	Secretariat and discipline lead	30 September 2019
15.	The TPDP asked the Discipline Lead to review the document presented on <i>Acidovorax avenae</i> subsp <i>citrulli</i> in order to justify the change of priority proposed.	7.3	Discipline Lead	15 September 2019
16.	The TPDP asked Mr Norman BARR to review the document "Quality assurance issues associated with diagnostic protocols for regulated pests" and present it during the next TPDP meeting.	8.3	Mr Norman BARR	August 2020
17.	The TPDP asked Mr Brendan RODONI to review the document "Best practices for sequencing: Using DNA sequences to diagnose a pest" and present it during the next TPDP meeting.	8.4	Mr Brendan RODONI	August 2020
18.	The TPDP asked Mr Norman BARR to review the document "Interpretation of results from LAMP tests" and present it during the next TPDP meeting.	8.5	Mr Norman BARR	August 2020