**2004-015: Draft annex to ISPM 27- Genus *Anastrepha***

**(2015\_eSC\_Nov\_05: SC responses to member comments)**

| **Comm.  no.** | **Para.  no.** | **Comment  type** | **Comment** | **Explanation** | **Country** | **SC response** |
| --- | --- | --- | --- | --- | --- | --- |
| 1. | *G* | Substantive | I support the document as it is and I have no comments |  | Lao People's Democratic Republic, Georgia, Thailand, United States of America, Canada, Mexico, New Zealand, Ghana, Korea, Republic of, OIRSA, Malawi, Burundi, Belize, Gabon | **NOTED.** |
| 2. | *G* | Substantive | Suggest to supplement the relevant materials for this standard is not full. | This standard describe the identification of Genus Anastrepha. But there is large difference in the research for morphological classify and molecular biology , especially the complex species of Anastrepha fraterculus is in the researching.The scientific basis is disputed. | China | **Considered, but not incorporated.** As described in the Introduction of DP, the diagnostics of the *Anastrepha* species especially relies on adult morphology, since today there is no globally agreed diagnostic protocol using molecular methods. In the case of AF cryptic species complex, there are no standardized methods for taxonomic identification of cryptic species.  Instead of a key ending in A. fraterculus species complex it will end in multiple species that cannot be separated using the key. These names can be updated in future revisions. There is currently no published molecular diagnostic to separate the species complex or to provide reliable identification of other species in the DP. Once those data are available the DP can be updated with new methods. |
| 3. | *G* | Substantive | ﻿1- The standard is well-written and detailed in terms of diagnostics. The keys are relevant and they work.  2-This standard is very relevant to the Caribbean  3- Paragraph 46:  It is recommended that another clearing agent other than xylene be used.  4-It is recommended that the labels on the Figures are consistent with the characters mentioned in the keys. E.g. [204] Figure 2  5-The captions for the Figures should be placed beneath the relevant diagram | The use of xylene is being phased out due to its carcinogenic property. The diagrams appear after the captions and usually on the other page. | Jamaica, Trinidad and Tobago, Saint Kitts And Nevis, Dominica, Barbados, Antigua and Barbuda | 3-**Modified.** Changed for “Euparal”. Any other suggestion would be acceptable.  4- **Modified**. Figures and labels adjusted.  5- **Considered**. Editorial comment to be addressed in the final version of the DP once adopted. |
| 4. | *G* | Substantive | 1-This Diagnostic Protocol (DP) presents the characteristics of the most economically relevant species. However there are many other species, what means that we can find Anastrepha species that are not contemplated in the protocol. As it is very difficult to get key to all species, we suggest (since it was a group of experts that drew up the protocol) that should be placed as an annex, a key that includes the largest number of species as possible. ﻿  2- For species key in the larval stage it would be recommended to include optical microscope images in addition to electron microscope photos, because they show better how the structures of the key would be seen. Observation with electron microscope is not a routine procedure and in many countries is costly, so that is not used in routine daily work. Therefore it would be convenient to have images showing the key structures under optical microscope. We are proposing to include some new figures, and if the proposal is accepted, numbering of Figures should be fixed accordingly.   3-It would also be useful to include an identification key for adults of Anastrepha. Although the PD includes a genus description it may be useful to include a key for differentiate the Anastrepha genus from other Tephritidae genus. In this regard we propose the TPDP to consider the inclusion of Hernandez-Ortiz key.﻿ | This Diagnostic Protocol (DP) presents the characteristics of the most economically relevant species. However there are many other species, what means that we can find Anastrepha species that are not contemplated in the protocol. As it is very difficult to get key to all species, we suggest (since it was a group of experts that drew up the protocol) that should be placed as an annex, a key that includes the largest number of species as possible. For species key in the larval stage it would be recommended to include optical microscope images in addition to electron microscope photos, because they show better how the structures of the key would be seen. Observation with electron microscope is not a routine procedure and in many countries is costly, so that is not used in routine daily work. Therefore it would be convenient to have images showing the key structures under optical microscope. We are proposing to include some new figures, and if the proposal is accepted, numbering of Figures should be fixed accordingly. It would also be useful to include an identification key for adults of Anastrepha. Although the PD includes a genus description it may be useful to include a key for differentiate the Anastrepha genus from other Tephritidae genus. In this regard we propose the TPDP to consider the inclusion of Hernandez-Ortiz key.﻿ t | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | 1- **Considered, but not incorporated**. Currently there are ca 250 known Anastrepha species, and many others undescribed. Therefore there is no a comprehensive key. The DP not intended to be an exhaustive taxonomic monograph of the genus, which is circumscribed to diagnose the species of most relevant or economic significance. Please note that revised literature includes some specific references for additional species taxonomy (eg, Norrbom et al. 2012). Moreover, it would be very difficult, for non-experienced person, to follow a full key to all species.  **2- Considered, but not incorporated**. Inclusion of additional figures on larval morphology under the optical microscope is difficult, because in general, there are not enough specific traits for larval identification. The DP defines in the introduction some limitations in identifying the immature stages and therefore preferably adult specimens are needed for a full identification.  **3-Considered, but not incorporated**. DP includes a diagnosis of the genus *Anastrepha* with the relevant characteristics to the case. It is not possible to consider a key to discard some or all Tephritid genera,because a comprehensive handbook of all characters mentioned in the key will be needed. Users of this protocol will find support in the related literature cited. |
| 5. | *G* | Substantive |  | 1) Suggest using "A. fraterculus species complex" instead of a number of different names as used in this protocol such as "A. fraterculus sensu lato" in paragraph [79], or "A. fraterculus (species complex)" in paragraph [132], or "A. fraterculus" in paragraph [134] and [136], and adding a description of the features of each known local population to appropriately reflect the recent progress in taxonomic research on A. fraterculus.  2) Add clear pictures or figures of the habitus (thorax in dorsal aspect, abdominal tergites and wings) of every species, as such pictures or figures are useful for identification.  3) Point out the names of parts using arrows in the pictures or figures. | Japan | **1- Incorporated.** Change the term *A. fraterculus sensu lato* by *A. fraterculus* species complex.  Adding a description of the features of local populations of the AF complex, because there is not enough information and morphometric methods would be needed at this time. This particularly comment was not accepted.  **2- Considered, but not incorporated**. It would be desirable to include the habitus photos of each one of the addressed species in the DP. These figures are helpful but not necessary to identify adults. These illustrations can be found at the website (<http://delta-intkey.com/anatox/index.htm>). We would need to acknowledge the source for these illustrations but each species in the DP has a habitus on the site (see paragraph 188 for reference) One example was included.  **3-** **Considered.** Editorial comment to be addressed in the final version of the DP once adopted. |
| 6. | *1* | Substantive | Draft Annex to ISPM 27:2006 – **Major economic significance species of genus Anastrepha﻿Genus *Anastrepha*** (2004-015) | The text was written only including 7 economic significance species of genus Anastrepha. | China | **Considered, but not incorporated**. This issue has been largely discussed for the development of DP. However most of the reviewers agree keep only “Genus *Anastrepha*”. The DP covers the determination of the genus and some species of economic concern belonging togenus *Anastrepha.* |
| 7. | *6* | Editorial | The family Tephritidae, members of which are commonly known as true fruit flies, comprises about 4 450 species in 500 or so genera (Norrbom *et al.,* 1999a, 1999b; Norrbom, 2004a) (the figure is about 4 700 species currently, A.L. Norrbom, pers. comm., XXXX2014). The Tephritidae are distributed worldwide in temperate, tropical and subtropical regions. *Anastrepha* Schiner (Tephritidae: Toxotrypanini) is the largest genus of Tephritidae in the Americas, and is represented by more than 250 species that occur from the southern United States (Texas and Florida) to northern Argentina (Foote *et al.*, 1993; Hernández-Ortiz, 1992; Hernández-Ortiz and Aluja, 1993; Norrbom, 2004a; Norrbom *et al*., 2012). At least sevensix species of *Anastrepha*are considered major economic pests because of the great importance of the cultivated fruits they attack (e.g. mango and citrus) and their wide host range; for example, the Mexican fruit fly*, A. ludens* (Loew); the West Indian fruit fly, *A. obliqua* (Macquart); the Caribbean fruit fly, *A. suspensa* (Loew)*;*the guava fruit fly, *A. striata* Schiner*;*the sapodilla fruit fly, *A. serpentina* (Wiedemann); the melon fruit fly, *A. grandis* (Macquart); and the South American fruit fly, *A. fraterculus* (Wiedemann). The latter has been recognized as a cryptic species complex (Hernández-Ortiz *et al*., 2004, 2012). This diagnostic protocol for *Anastrepha* covers morphological identification of the genus and the species of major economic concern. For further general information about species of Tephritidae, see Norrbom (2010). | 1. Superfluous text.  2. Date needed for pers comm.  3. Seven species: A. ludens, A. obliqua, A. suspensa, A. striata, A. serpentina, A. grandis and A. fraterculus, or refer to A fraterculus separately.  4. Reference to common names is not necessary, complicates text and may generate difficulties in translation. | EPPO, European Union, Georgia, Serbia | **1- Incorporated**  **2- Incorporated**  **3 - Incorporated**  **4- Incorporated**. As the common names are in the usual item (Taxonomy) in Table 1. Common names are widely used for these species, including the vast literature available. The common name is used as a basic reference for those people who are not familiar with the group, without implying an official name for identification.  Only the scientific name is considered as valid in the diagnosis of species. |
| 8. | *6* | Editorial | The family Tephritidae, members of which are commonly known as true fruit flies, comprises about 4 450 species in 500 or so genera (Norrbom *et al.,* 1999a, 1999b; Norrbom, 2004a) (the figure is about 4 700 species currently, A.L. Norrbom, pers. comm., XXXX). The Tephritidae are distributed worldwide in temperate, tropical and subtropical regions. *Anastrepha* Schiner (Tephritidae: Toxotrypanini) is the largest genus of Tephritidae in the Americas, and is represented by more than 250 species that occur from the southern United States (Texas and Florida) to northern Argentina (Foote *et al.*, 1993; Hernández-Ortiz, 1992; Hernández-Ortiz and Aluja, 1993; Norrbom, 2004a; Norrbom *et al*., 2012). At least sixseven species of *Anastrepha* are considered major economic pests because of the great importance of the cultivated fruits they attack (e.g. mango and citrus) and their wide host range; for example, the Mexican fruit fly*, A. ludens* (Loew); the West Indian fruit fly, *A. obliqua* (Macquart); the Caribbean fruit fly, *A. suspensa* (Loew)*;* the guava fruit fly, *A. striata* Schiner*;* the sapodilla fruit fly, *A. serpentina* (Wiedemann); the melon fruit fly, *A. grandis* (Macquart); and the South American fruit fly, *A. fraterculus* (Wiedemann). The latter has been recognized as a cryptic species complex (Hernández-Ortiz *et al*., 2004, 2012). This diagnostic protocol for *Anastrepha* covers morphological identification of the genus and the species of major economic concern. For further general information about species of Tephritidae, see Norrbom (2010). | This protocol explains 7 species. | Japan | **Incorporated** |
| 9. | *7* | Technical | The length of the tephritid life cycle varies according to genusotype as well as environmental and climatic conditions(Basso, 2003). Female *Anastrepha* deposit their eggs inside fruits. The number of eggs deposited per fruit is variable, and depends mainly on features of the host fruit such as size and ripeness (Malavasi *et al.*, 1983), but each species also seems to have innate limits on the number of eggs laid (Aluja *et al*., 1999). Within several days, deposited eggs hatch and larvae emerge. Larvae usually feed on fruit pulp, but in some cases also or exclusively on seeds. Mature larvae usually leave the fruit to pupate in the ground, but in certain cases pupation can take place within the fruit. Adults usually emerge after a pupal period of 16–25 days, and they require a period of sexual maturation of 5–20 days after emergence. During this process the flies obtain food from homopteran secretions, bird faeces, and juice produced by ripe fruits (Prokopy and Roitberg, 1984). | "Genotype" seems too specific - there are many gentoypes in a species. Definitely life cycles vary between genera. | EPPO, European Union, Georgia, Serbia | **Modified** |
| 10. | *9* | Editorial | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. striata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | "A. triata" to be replaced by "A. striata" (cf. paragraphs [6] ret [19]). | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 11. | *9* | Editorial | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. Striata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | The correct scientific name is "Striata". | COSAVE, Uruguay, Brazil, Peru | **Incorporated** |
| 12. | *9* | Editorial | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. striata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | The correct scientific name is "striata". | Chile | **Incorporated** |
| 13. | *9* | Editorial | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. triatastriata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | Editorial correction | Japan | **Incorporated** |
| 11. | *9* | Editorial | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. Striata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | The correct scientific name is "Striata". | Argentina | **Incorporated** |
| 15. | *9* | Technical | The introduction of some cultivated exotic species such as *Mangifera indica* and *Citrus* spp. have allowed some pest species of *Anastrepha* to expand their original areas of distribution and enhance their reproductive potential. However, they still have marked preferences for certain native hosts, which is probably indicative of their original host relationships. In this regard, the species *A. suspensa, A. fraterculus* and *A. striata* breed mainly in hosts belonging to the family Myrtaceae, *A. ludens* in the Rutaceae, *A. obliqua* in the Anacardiaceae, *A. serpentina* in the Sapotaceae, and *A. grandis* in the Cucurbitaceae (Norrbom, 2004b). | The 's' is missing from A. striata | Jamaica, Trinidad and Tobago, Saint Kitts And Nevis, Dominica, Barbados, Antigua and Barbuda | **Incorporated** |
| 16. | *10* | Editorial | Among native hosts in the American tropics, there seems to be an ancestral association with plants that produce latex and particularly the family Sapotaceae. Sapotaceous fruits are frequent hosts of species of the *dentata, leptozona, serpentina, daciformis, robusta* and *cryptostrepha* groups (cryptic species complexes﻿). The Myrtaceae are also very important hosts: about 26 *Anastrepha* species, in particular belonging to the *fraterculus* group, have been reported in plants belonging to this family (Norrbom and Kim, 1988; Norrbom *et al*., 1999c). | The term "group" is not defined. Or replace "group" by "specIes complex" in the last sentence. | EPPO, European Union, Georgia, Serbia | **Considered, but not incorporated**. In the infrageneric classification of *Anastrepha* there are also "species groups" which include phylogenetically related species (see Norrbom et al. 1999; 2012 Norrbom et al.). So these groups do not correspond to cryptic species. The wording of paragraph is corrected. |
| 17. | *19* | Editorial | **Table 1.** Common names and synonyms of fruit fly species of major economic significance belonging to the genus *Anastrepha*   |  |  |  | | --- | --- | --- | | **Common name** | ***Anastrepha* species** | **Synonyms** | | South American fruit fly | ***Anastrepha fraterculus***(Wiedemann, 1830) | *Tephritis mellea* Walker, 1837  Trypeta unicolor Loew, 1862  Anthomyia frutalis Weyenbergh, 1874  Anastrepha fraterculus var. soluta Bezzi, 1909  Anastrepha peruviana Townsend, 1913  Anastrepha braziliensis Greene, 1934  Anastrepha costarukmanii Capoor, 1954  Anastrepha scholae Capoor, 1955  Anastrepha pseudofraterculus Capoor, 1955  Anastrepha lambayecae Korytkowski and Ojeda, 1968 | | Melon fruit fly | ***Anastrepha grandis*** (Macquart, 1846) | *Anastrepha schineri* Hendel, 1914  *Anastrepha latifasciata* Hering, 1935 | | Mexican fruit fly | ***Anastrepha ludens***  (Loew, 1873) | *Anastrepha lathana* Stone 1942 | | West Indian  fruit fly | ***Anastrepha obliqua*** (Macquart, 1835) | *Anastrepha mombinpraeoptans* Sein, 1933  Anastrepha fraterculus var. ligata Lima, 1934  Anastrepha trinidadensis Greene, 1934 | | Sapodilla fruit fly | ***Anastrepha serpentina*** (Wiedemann, 1830) | *Urophora vittithorax* Macquart, 1851 | | Guava fruit fly | ***Anastrepha striata*** Schiner, 1868 | *Dictya cancellaria* Fabricius, 1805  (see Norrbom *et al.*, 1999b) | | Caribbean fruit fly | ***Anastrepha suspensa***  (Loew, 1862) | *Anastrepha unipuncta* Sein, 1933  *Anastrepha longimacula* Greene, 1934 | | 1) The date (1942) is missing for the description of the species A. lathana which is a synonym of A. ludens. | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 18. | *19* | Substantive | **Table 1.** Common names and synonyms of fruit fly species of major economic significance belonging to the genus *Anastrepha*   |  |  |  | | --- | --- | --- | | **Common name** | ***Anastrepha* species** | **Synonyms** | | South American fruit fly | ***Anastrepha fraterculus***(Wiedemann, 1830) | *Tephritis mellea* Walker, 1837  Trypeta unicolor Loew, 1862  Anthomyia frutalis Weyenbergh, 1874  Anastrepha fraterculus var. soluta Bezzi, 1909  Anastrepha peruviana Townsend, 1913  Anastrepha braziliensis Greene, 1934  Anastrepha costarukmanii Capoor, 1954  Anastrepha scholae Capoor, 1955  Anastrepha pseudofraterculus Capoor, 1955  Anastrepha lambayecae Korytkowski and Ojeda, 1968 | | Melon fruit fly | ***Anastrepha grandis*** (Macquart, 1846) | *Anastrepha schineri* Hendel, 1914  *Anastrepha latifasciata* Hering, 1935 | | Mexican fruit fly | ***Anastrepha ludens***  (Loew, 1873) | *Anastrepha lathana* Stone 1942 | | West Indian  fruit fly | ***Anastrepha obliqua*** (Macquart, 1835) | *Anastrepha mombinpraeoptans* Sein, 1933  Anastrepha fraterculus var. ligata Lima, 1934  Anastrepha trinidadensis Greene, 1934 | | Sapodilla fruit fly | ***Anastrepha serpentina*** (Wiedemann, 1830) | *Urophora vittithorax* Macquart, 1851 | | Guava fruit fly | ***Anastrepha striata*** Schiner, 1868 | *Dictya cancellaria* Fabricius, 1805  (see Norrbom *et al.*, 1999b) | | Caribbean fruit fly | ***Anastrepha suspensa***  (Loew, 1862) | *Anastrepha unipuncta* Sein, 1933  *Anastrepha longimacula* Greene, 1934 |   Add: to illustrate briefly proof economic significance evaluation species of genus *Anastrepha*, and to consider whether this protocol  should add the species such as, *A. bistrigata, A. ocresia, A. antunesi, A. antunesi* etc. | Based on circumstances and host plants, results of economic significance evaluation for species of genus Anastrepha will be great different. | China | **Considered, but not incorporated**.  The current economic significance of each one of these species has not been determined, and it is agreed that, depending upon the hosts of a particular species, economic losses may vary.  The choice of species listed in this DP was carried out based on the geographical and historical reports of damage to fruits in the Neotropical region. Additional species with restricted distribution ranges will occur. However, species with restricted distribution ranges were not part of the criteria that the DP drafting group established for this DP. |
| 19. | *19* | Technical | **Table 1.** Common names and synonyms of fruit fly species of major economic significance belonging to the genus *Anastrepha*   |  |  |  | | --- | --- | --- | | **Common name** | ***Anastrepha* species** | **Synonyms** | | South American fruit fly | ***Anastrepha fraterculus***(Wiedemann, 1830) | *Tephritis mellea* Walker, 1837  Trypeta unicolor Loew, 1862  Anthomyia frutalis Weyenbergh, 1874  Anastrepha fraterculus var. soluta Bezzi, 1909  Anastrepha peruviana Townsend, 1913  Anastrepha braziliensis Greene, 1934  Anastrepha costarukmanii Capoor, 1954  Anastrepha scholae Capoor, 1955  Anastrepha pseudofraterculus Capoor, 1955  Anastrepha lambayecae Korytkowski and Ojeda, 1968 | | Melon fruit fly | ***Anastrepha grandis*** (Macquart, 1846) | *Anastrepha schineri* Hendel, 1914  *Anastrepha latifasciata* Hering, 1935 | | Mexican fruit fly | ***Anastrepha ludens***  (Loew, 1873) | *Anastrepha lathana* Stone 1942 | | West Indian  fruit fly | ***Anastrepha obliqua*** (Macquart, 1835) | *Anastrepha mombinpraeoptans* Sein, 1933  Anastrepha fraterculus var. ligata Lima, 1934  Anastrepha trinidadensis Greene, 1934 | | Sapodilla fruit fly | ***Anastrepha serpentina*** (Wiedemann, 1830) | *Urophora vittithorax* Macquart, 1851 | | Guava fruit fly | ***Anastrepha striata*** Schiner, 1868 | *Dictya cancellaria* Fabricius, 1805  (see Norrbom *et al.*, 1999b) | | Caribbean fruit fly | ***Anastrepha suspensa***  (Loew, 1862) | *Anastrepha unipuncta* Sein, 1933  *Anastrepha longimacula* Greene, 1934 | | The coorect scientific name is "Anastrepha fraterculus var﻿ mombinpraeoptans Sein". We propose to add other synonyms. | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | **Modified**.  *Anastrepha fraterculus* var. *mombinpraeoptans* Sein is a junior synonym of *A. obliqua*, and the ICZN does not consider varieties as valid taxonomic categories in Zoology.  Synonymies considered in this DP are currently recognized for each binomial based on latest catalog of Tephritidae (see Norrbom et al. 1998). |
| 20. | *22* | Technical | **Inspection of fruits.** Infested fruits can be found in imported or exported shipments, in baggage, and even on aeroplanes or terrestrial transportation vehicles. Fruits with soft areas, dark stains, rot, orifices or injuries that might have originated from female oviposition or larval feeding activities are targeted for inspection. In order to detect punctures made by female flies during oviposition, the visual examinationtest should be done under a microscope by a specialist. If larval exit holes are observed, the fruit containers should be inspected for pupae. Second and third instar larvae and pupae are not likely to occur when unripe fruits are collected and packed; however, these fruits might host eggs and first instar larvae, which are more difficult to detect. Potentially infested fruits that show typical punctures made by ovipositioning female flies should be opened to search for eggs or larvae inside. The success of detection phytosanitary measures depends on careful sampling and examination of fruits. | 1. Cf. ISPM 5. 2. Clarity. The paragraph is specifically on detection. | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 21. | *23* | Editorial | **Inspection of traps.** Guidance on trapping *Anastrepha* fruit flies for establishment of pest free areas is given in Appendix 1 of ISPM 26:2006. In general, monitoring systems established for the detection of fruit fly adults in trees, either in fruit-growing regions or in border areas between countries, require the utilization of McPhail traps baited with food attractants or synthetic lures. The baits, often with rich sources of ammonium, should be recognized and approved internationally (e.g. ISPM 26:2006). The specific methods of trap deployment and time of service of the traps must be in agreement with the national phytosanitary regulations in use by each country. | Simpler. | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 22. | *23* | Technical | **Inspection of traps.** Guidance on trapping *Anastrepha* fruit flies for establishment of pest free areas is given in Appendix 1 of ISPM 26:2006. In general, monitoring systems established for the detection of fruit fly adults in trees, either in fruit-growing regions or in border areas between countries, require the utilization of McPhail traps baited with food attractants or synthetic lures. The baits, often with rich sources of ammonium, should be recognized and approved internationally (e.g. ISPM 26:2006). The specific methods of trap deployment and time of service of the traps must be in agreement with the phytosanitary regulations in use by each country. | Appendix 1 to ISPM 26 provides detailed information for trapping procedures for fruit fly species (Tephritidae) of economic importance under different pest statuses | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | **Incorporated** |
| 23. | *28* | Technical | To study this idea further, the International Atomic Energy Agency (IAEA) is coordinating an international research project to describe the cryptic species in the *Anastrepha fraterculus* complex. As part of this project, molecular methods are being examined for diagnostic utility within the genus. Based on available data, methods such as DNA barcoding using the *cytochrome oxidase* I gene cannot reliably diagnose several important pest species. Some progress was made by internal transcribed spacer (ITS)1 analysis (e.g. Sonvico *et al.*, 2004: GenBank AY686689). This information was associated with morphological characterization of specimens and karyotypic analysis, along with cross-mating studies (Basso, 2003). | A reference should be given for the lack of species discrimination of economically important species using the COI gene (i.e. DNA Barcoding), as there is a large number of species represented on the Barcode of Life Database (BOLD), with 82 x species currently with DNA Barcodes (BOLD, accessed Aug 2014) | Australia | **Incorporated** |
| 24. | *32* | Editorial | The fruits to be examined are placed in cages covered with cloth or fine mesh and that have a sterile pupation medium (e.g. damp vermiculite, sand or sawdust) at the bottom. Once the larvae emerge from the fruit, they will move to the substratum for pupation. It is recommended to incubate each fruit separately. Each sample must be observed and pupae gathered daily. The pupae are placed in containers with the pupation medium, and the containers are covered with a tight lid that enables proper ventilation. Once the adults emerge, they must be kept alive for 48–72 h to ensure that the tegument and wings acquire the rigidity and characteristic coloration of the species. The adults are then killed and preserved by placing them in 70% ethanol, or they are killed with ethyl acetate or another agent and then mounted on pins. For female flies, immediately after killing them (before they harden) it is useful to gently squeeze the apical part of the preabdomen with forceps, then squeeze the base and apex of the oviscape to expose the aculeus tip (so that it does not need to be dissected later). | Simpler wording | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 25. | *32* | Technical | The fruits to be examined are placed in cages covered with cloth or fine mesh and that have a sterile pupation medium (e.g. damp vermiculite, sand or sawdust) at the bottom. Once the larvae emerge from the fruit, they will move to the substratum for pupation. It is recommended to incubate each fruit separately. Each sample must be observed and pupae gathered daily. The pupae are placed in containers with the pupation medium, and the containers are covered with a tight lid that enables proper ventilation. Once the adults emerge, they must be kept alive for 48–72 h to ensure that the tegument and wings acquire the rigidity and characteristic coloration of the species. The adults are then killed and preserved by placing them in 70% ethanol, 96% ethanol for molecular studies (ADN)﻿ or they are killed with ethyl acetate or another agent and then mounted on pins. For female flies, immediately after killing them (before they harden) it is useful to gently squeeze the apical part of the preabdomen with forceps, then squeeze the base and apex of the oviscape to expose the aculeus tip (so that it does not need to be dissected later). | For molecular studies the percentage of ethanol used is 96. | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | Accepted. However, this protocol does not consider techniques for DNA extraction |
| 26. | *36* | Technical | It is preferable to cut off the whole abdomen from a female to dissect the oviscape (syntergosternite 7), the eversible membrane and the aculeus. For preserved dry (pinned) specimens, fine dissection scissors are recommended to remove the abdomen. The abdomen needs to be cleared. This can be accomplished by placing it in a 10% sodium hydroxide (NaOH) or a 10% potassium hydroxide (KOH)﻿ solution and heating it in a boiling water bath for 10–15 min, washing the structure with distilled water, and then removing internal contents under a stereomicroscope with the help of dissection forceps. The aculeus and the eversible membrane should be exposed. At this step it is possible to examine the aculeus directly in one or two drops of glycerine under a microscope. Afterwards, the structure can be transferred to a microvial with glycerine and pinned under the mounted dry specimen. For permanent slides, proceed as described in section 4.1.2. Mounting the aculeus permanently in the ventral position prevents the observation of some characters better seen in lateral view. For this reason, preservation in glycerine in a microvial is often preferable. | Potassium hydroxide is also used to remove the internal contents. | Japan | **Incorporated** |
| 27. | *38* | Substantive | For permanent slides, proceed as described in section 4.1.2.1, avoiding the NaOH solution. Wing characters can usually be observed without mounting, so mounting is not recommended as a general practice. It may be necessary for morphometric studies, but it is not necessary for observation of the characters used in the key in section 4.3.2. If permanent mounts are made, it is recommended to cut off one of the wings from its base (the right wing is preferred because it facilitates comparison with images reported in the literature and this diagnostic protocol). | Section 4.1.2.1 does not have any information applicable to the preparation of wings for microscopic examination. | Jamaica, Trinidad and Tobago, Saint Kitts And Nevis, Dominica, Barbados, Antigua and Barbuda | **Incorporated** |
| 28. | *42* | Technical | Morphological examination of larvae (section 4.2.2) can be performed on unmounted larvae using a stereomicroscope, on slide-mounted larvae using a compound microscope, or on critical-point dried larvae using a scanning electron microscope (SEM). Slide mounting larvae can preclude subsequent analysis of morphological characters. On slide-mounted larvae it is possible to examine external morphology (e.g. anterior and posterior spiracles, oral ridges) as well as internal structures such as the cephalopharyngeal skeleton (Figures 21–44), using an optical microscope with objective 20×, 40× or higher. Detailed, high resolution observation of the external morphology of larvae is only possible using an SEM (Figures 45–61). It is therefore not recommended to slide mount all specimens representing a sample or the only larva available for diagnosis; unmounted larvae should be kept for future analysis. | Compound microscopes are used for slide mounted specimens. | Jamaica, Trinidad and Tobago, Saint Kitts And Nevis, Dominica, Barbados, Antigua and Barbuda | **Incorporated** |
| 29. | *44* | Editorial | To prepare specimens for examination, the larvae must be treated in hot water, which can be accomplished by placing live larvae in water atof approximately 65° C for 2–4 min. The larvae are cooled to room temperature and then immersed in 50% alcohol for 15–30 min. The specimens are transferred to a hermetic vial (15–25 ml) filled with 70% alcohol. It is advisable to include a label on the vial with all sampling information. These samples are ready for examination under a stereomicroscope or subsequent preparation for slide mounting or examining under an SEM. | Clearer | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 30. | *45* | Technical | To prepare specimens for slide mounting, it is necessary to remove (clean) all the internal contents to allow observation of the cuticle, oral opening, cephalopharyngeal skeleton and anterior spiracles, as well as the posterior spiracular plate and anal lobes. This can be accomplished by making two transverse incisions in the larva, one behind the cephalic region and the anterior spiracles, and one before the caudal segment. The incised larva then needs to be immersed in a test tube containing 10% NaOH or KOH solution and heated in a boiling water bath for 10–15 min. The internal contents can then be carefully removed from the specimen using forceps and distilled water under a stereomicroscope (45× magnification or greater). | Same as paragraph [36]. | Japan | **Incorporated** |
| 31. | *46* | Technical | Permanent slide mounts can be made using Canada balsam or Euparal. Before doing this, cleaned structures must be dehydrated by placing them for 25 min in each of 50%, 75% and 100% ethanol. For mounting with Canada balsam, the specimens should be transferred to absolute xylene for 3–5 min to clear them and then immediately mounted on a slide with one or two drops of Canada balsam. When Euparal is used as the mounting medium, structures should be transferred from 100% ethanol to clove oil for about 30 min to clear them before mounting. In both cases, slides must be allowed to dry for several days (the time can be reduced by using an oven), but they can be examined under the microscope at low magnification immediately after mounting. Slides should be labelled. | In the third sentence, for health and safety, we suggest recommending a bath in lavender oil (15 minutes? or more) rather than in xylene. | EPPO, European Union, Georgia, Serbia | **Modified.**  Changed to “lavender oil”. |
| 32. | *46* | Technical | Permanent slide mounts can be made using Canada balsam or Euparal. Before doing this, cleaned structures must be dehydrated by placing them for 25 min in each of 50%, 75% and 100% ethanol. For mounting with Canada balsam, the specimens should be transferred to absolute xylene for 3–5 min to clear them and then immediately mounted on a slide with one or two drops of Canada balsam. When Euparal is used as the mounting medium, structures should be transferred from 100% ethanol to clove oil for about 30 min to clear them before mounting. In both cases, slides must be allowed to dry for several days (the time can be reduced by using an oven), but they can be examined under the microscope at low magnification immediately after mounting. Slides should be labelled. | Suggest that an alternative to xylene be considered for example histoclear. | Jamaica | **Incorporated** |
| 33. | *48* | Substantive | **4.3 Morphological identification of adults**  Add：the taxonomy index of other approximate genus with the genus Anastrepha in the Tephritidae.﻿ | As diagnostic protocol of genus Anastrepha, approximate genus morphology characters of Tephritidae should be provided. | China | **Considered, but not incorporated**.  This DP provides a description of the genus *Anastrepha*. If a key to separate it from other genera is included, we would need to illustrate them, and we should discuss the relevance or not of their inclusion. |
| 34. | *51* | Substantive | Wings (Figure 4): Subcostal break present; crossvein *r-mR-M* placed distal to mid-length of discal cell (*dm*); basal cubital cell (*bcu*) with a well-developed posteroapical extension; vein *M* usuallyconspicuously curved forwards apically (strongly so in all pest species) and not meeting costa at a 90° angle. Wing pattern with orange to brown coloured bands forming a typical pattern as follows: costal (C)-band on basal costal margin including all of vein *R1*, subcostal cell and the pterostigma; S-band extending from apex of cell *bcu* across cell *dm* and crossvein *r-mR-M,* reaching costal margin, and continuing to apex of wing; and V-band forming an inverted V shape, comprising the proximal arm (subapical band) along vein *dm-cuDM-CU* and the distal arm (posterior apical band) arising from cell *m*, both are convergent in cell *Rr4+5*; distal arm frequently incomplete or absent. The typical wing pattern is modified in some economically important species (see key to species). | Capital letters are used for both longitudinal and cross veins in Fig. 4. Lowercase letters are used for cells of wings in Fig. 4. | Japan | **Incorporated** |
| 35. | *68* | Editorial | 4- Anterior apical band of wing (=distal section of S-band) narrow to moderately broad, never reaching apex of vein *M*; V-band with arms separated anteriorly or if joined, with large hyaline mark between them and vein *M*.; Sscuto-scutellar suture with or without brown spot medially; aculeus variable. | 1) Cf. paragraph [70]. 2) Cf. paragraph [70]. | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 36. | *70* | Editorial | Anterior apical band of wing (=distal section of S-band) extremely wide, reaching apex of vein *M*; V-band broad and complete, with arms widely connected anteriorly, hyaline mark between them and vein *M* small or absent (Figure 10); scuto-scutellar suture usually with large rounded brown spot medially; female aculeus 1.4–1.6 mm long (Figure 17), tip 0.19–0.23 mm long, 0.10–0.13 mm wide, lateral margins serrate on distal 0.50–0.65 (Figure 17). | Cf. paragraph [66] and Figure 17 (paragraph [213]). | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 37. | *78* | Editorial | Both mediotergite and subscutellum with broad dark brown to black markings on sides (Figure 3A); brown spot on scuto-scutellar suture usually present.; aculeus 1.4–1.9 mm long,; aculeus tip 0.20–0.28 mm long,; lateral margins with 8 to14 teeth on distal two-fifths to three-fifths (Figure 20); wing pattern variable (Figure 13). | Consistency with paragraph 70 | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 38. | *81* | Substantive | Add the taxonomy of Dacus genus to index.﻿  **4.4.1 Key to third instar larvae of major economically important genera of Tephritidae in the Americas** | The Dacus genus is one of important quarantine fruit fly groups in the world. | China | **Considered, but not incorporated**.  The genus “*Dacus*” is not considered in the scope of this DP. |
| 39. | *100* | Editorial | Key adapted from Steck *et al*. (1990). \*Geographic distribution and hosts are quoted only as additional information of the common source of origin for the species. | Why is there a "\*"? | EPPO, European Union, Georgia, Serbia | **Incorporated** (removed the asterisk). |
| 40. | *105* | Substantive | 2- Prominent chitinized preoral teeth (=stomal guards) adjacent to oral opening, or dental sclerite conspicuous (Figures 45, 47); and/or caudal tubercles strongly developed; or larva taken from papaya with caudal tuberclesridges lacking and caudal sensilla strongly reduced. | The term "caudal ridges" is used in Figs. 59 and 60. Change "caudal tubercles" to"caudal ridges" based on White et al. (2000) Glossary. pp. 881-924. M. Aluja & A.L. Norrbom (ed.), Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior. | Japan | **Incorporated** |
| 41. | *111* | Editorial | Dorsal spinules absent on all abdominal segments, or if present, only in segment A1 (Abdominal segment)(some specimens of *A. ludens*). | For more clarity. | Japan | **Incorporated** |
| 42. | *121* | Editorial | 6- Oral ridges in 11 to 17 rows, usually with margins entire; anterior spiracles with 12 to 20 tubules (Figures 33, 51); posterior spiracular slits 3.1–4.6 times longer than wide (Figure 34). Cephalopharyngeal skeleton as in Figure 27. (Main hosts: larvae breed in fruits of *Citrus* spp. (Rutaceae) or *Mangifera indica*; distribution: southern Texas, (USA) to Panama.) | Clearer. | EPPO, European Union, Georgia, Serbia | **Modified** |
| 43. | *123* | Editorial | Oral ridges in 8 to 11 rows with stout, bluntly rounded, widely spaced teeth; anterior spiracles with 9 to 15 tubules (Figure 41); posterior spiracular slits 2.5–3.5 times longer than wide (Figure 42). Cephalopharyngeal skeleton as in Figure 29. (Main hosts: larvae breed in fruits of Myrtaceae; distribution: Florida, (USA) and Antilles.) | Clearer. | EPPO, European Union, Georgia, Serbia | **Modified** |
| 44. | *125* | Substantive | 7- Posterior spiracular processes SP-I and SP-IV with 5 to 11 short basal trunks (average, 8) (Figure 36); oral ridges usually in 12 to 14 rows; anterior spiracle with 13 to 19 tubules in a single row (Figure 35); anal lobes usually bilobed (as in Figure 57). Cephalopharyngeal skeleton as in Figure 30. (Main hosts: larvae breed in fruits of Sapotaceae; distribution: tropical Americas.) | Indicate the position of trunks in any of Figs. 46, 49 or 50 because the number of trunks differs between basal and apical branched parts. | Japan | **Modified** It refers to basal trunks.  Text modified |
| 45. | *153* | Editorial | - Allen L. Norrbom (Systematic Entomology Laboratory (SEL), United States Department of Agriculture (USDA), Smithsonian Institution, Washington, DC, USA) | 1) More precise (cf. paragraph [2]). 2) More precise (cf. paragraphs [2] et [156]). | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 46. | *157* | Editorial | - Gary Steck (Florida Department of Agriculture and Consumer Services, Division of Plant Industry., Gainesville, FL, USA) | Consistency | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 47. | *159* | Editorial | - Mallik Malipatil (La Trobe University, Bioprotection, Biosciences Research Division, Department of Primary Industries, Knoxfield Centre, Melbourne, Victoria, Australia).    - Valérie Balmès (Anses, Laboratoire de la santé des végétaux, Unité entomologie et plantes invasives, Montpellier, France). | New paragraph [159]bis suggested if relevant: please see paragraph [2], "Consultation on technical level": has Ms Valérie Balmès been forgotten in the section "7. Acknowledgements" or has she commented to a lesser extent than the other experts? | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 48. | *160* | Editorial | **8. References** | Check the order of references (alphabetical) e.g. rows 175 and 176 should be after row 181. Also check the order of rows 186, 189,190. | EPPO, European Union, Georgia, Serbia | **Modified** |
| 49. | *190* | Editorial | **Norrbom, A.L., Korytkowski, C.A., Zucchi, R.A., Uramoto, K., Venable, G.L., McCormick, J. & Dallwitz, M.J.** 2012. Onwards. *Anastrepha* and *Toxotrypana*: descriptions, illustrations, and interactive keys. Version 31 August 2012. Available at <http://delta-intkey.com> (last accessed XXX date ???). | Last accessed at which date? | EPPO, European Union, Georgia, Serbia | **Modified** |
| 50. | *198* | Editorial | **9. Figures** | The legend of the figures should be below and not above the figures. | EPPO, European Union, Georgia, Serbia | **Considered**. Editorial comment to be addressed in the final version of the DP once adopted. |
| 51. | *203* | Editorial | Source: Figure 1(A) adapted from Hernández-Ortiz *et al.* (2010); Figures 2 and 3 adapted from Hernández-Ortiz (1992). | See paragraph [202]. | EPPO, European Union, Georgia, Serbia | **Incorporated** |
| 52. | *214* | Substantive | |  | | --- | | **Figures 21–26. (21)** Morphology of the cephalopharyngeal skeleton of third instar larvae. Mandible hook of third instar larvae, lateral view: **(22)***Ceratitis capitata*; **(23)***Anastrepha obliqua*; **(24)***Bactroceradorsalis*; **(25)***Rhagoletis tomatis*; **(26)***Toxotrypana* sp. *At,* apical tooth; *DC,* dorsal cornu; *Hb,* hypopharyngeal bridge; *HS,* hypopharyngeal sclerite; *MD,* mandible; *Mn,* mandibular neck; *PB,* parastomal bar; *Pt,* preapical tooth; *Va,* ventral Apodeme; *VC,* ventral cornu.  Source: All figures adapted from Frías *et al.* (2006). | | Add the dental sclerite in Fig. 21. The features of the dental sclerite are explained in paragraphs [105] and [107], but the dental sclerite is not indicated in Fig. 21. | Japan | **Modified** |
| 53. | *221* | Technical | **Figures 45–5051. (45, 47, 48)** Cephalic segment of third instar larvae. **(46, 49, 50)** Spiracular plates of caudal segment. **(45)***Rhagoletis sp.***(46)***Anastrepha fraterculus.***(47)***Rhagoletis brncici.***(48)***Ceratitis capitata.***(49)***Toxotrypana* sp. **(50)***Anastrepha obliqua*. *Ac,* anteno-maxillary complex; *At,* apical tooth; *Lb,* labium; *Or,* oral ridges; *Ort,* oral teeth; *Po,* preoral organ; *Prt,* preoral teeth; *sl,* spiracular slits. Spiracular processes (=spiracular hairs): *SP-I* dorsal, *SP-II* and *SP-III* medials, *SP-IV* posterior. (51) Anastrepha fraterculus spiracular slits. Spiracular processes (=spiracular hairs): SP-II and SP-III (left), SP-I (right) under optical microscope﻿ | To adjust numeration and because a new figure is proposed to be added. | COSAVE, Uruguay, Brazil, Peru | **Considered, but not incorporated**.  Larvae of the cryptic species AF complex cannot be separated from each other. It is not appropriate to consider including the morphology of AF from a particular geographical region, because it might confuse for identification purposes. |
| 54. | *221* | Technical | **Figures 45–5051. (45, 47, 48)** Cephalic segment of third instar larvae. **(46, 49, 50)** Spiracular plates of caudal segment. **(45)***Rhagoletis sp.***(46)***Anastrepha fraterculus.***(47)***Rhagoletis brncici.***(48)***Ceratitis capitata.***(49)***Toxotrypana* sp. **(50)***Anastrepha obliqua*. *Ac,* anteno-maxillary complex; *At,* apical tooth; *Lb,* labium; *Or,* oral ridges; *Ort,* oral teeth; *Po,* preoral organ; *Prt,* preoral teeth; *sl,* spiracular slits. Spiracular processes (=spiracular hairs): *SP-I* dorsal, *SP-II* and *SP-III* medials, *SP-IV* posterior. (51) *Anastrepha fraterculus*﻿ spiracular slits. Spiracular processes (=spiracular hairs): SP-II and SP-III (left), SP-I (right) under optical microscope﻿ | To adjust numeration and because a new figure is proposed to be added. | Chile | **Considered, but not incorporated**. Same as above. |
| 53. | *221* | Technical | **Figures 45–5051. (45, 47, 48)** Cephalic segment of third instar larvae. **(46, 49, 50)** Spiracular plates of caudal segment. **(45)***Rhagoletis sp.***(46)***Anastrepha fraterculus.***(47)***Rhagoletis brncici.***(48)***Ceratitis capitata.***(49)***Toxotrypana* sp. **(50)***Anastrepha obliqua*. *Ac,* anteno-maxillary complex; *At,* apical tooth; *Lb,* labium; *Or,* oral ridges; *Ort,* oral teeth; *Po,* preoral organ; *Prt,* preoral teeth; *sl,* spiracular slits. Spiracular processes (=spiracular hairs): *SP-I* dorsal, *SP-II* and *SP-III* medials, *SP-IV* posterior. (51) Anastrepha fraterculus spiracular slits. Spiracular processes (=spiracular hairs): SP-II and SP-III (left), SP-I (right) under optical microscope﻿ | To adjust numeration and because a new figure is proposed to be added. | Argentina | **Considered, but not incorporated**. Same as above |
| 56. | *223* | Technical | New Figure ﻿﻿﻿  ﻿  ﻿﻿ ﻿ ﻿ ﻿ ﻿ ﻿ | New figure 51 is being proposed to be added. | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | **Considered, but not incorporated**.  See explanation above. |
| 57. | *224* | Technical | **Figures 51–56.** Anterior spiracles of the first thoracic segment, third instar larvae: **(51)***Anastrepha ludens*; **(52)***Anastrepha fraterculus*; **(53)***Toxotrypana curvicauda*; **(54)***Rhagoletis conversa*; **(55)** *Ceratitis capitata*; **(56)***Bactrocera cucurbitae*. New Figure: Anastrepha fraterculus under optical microscope﻿ | New figure is proposed to be added. It is necessary to adjust the numbers of figures. | COSAVE, Uruguay, Brazil, Peru | **Considered, but not incorporated**.  See explanation above |
| 58. | *224* | Technical | **Figures 51–56.** Anterior spiracles of the first thoracic segment, third instar larvae: **(51)***Anastrepha ludens*; **(52)***Anastrepha fraterculus*; **(53)***Toxotrypana curvicauda*; **(54)***Rhagoletis conversa*; **(55)** *Ceratitis capitata*; **(56)***Bactrocera cucurbitae*. New Figure: *Anastrepha fraterculus*﻿ under optical microscope﻿ | New figure is proposed to be added. It is necessary to adjust the numbers of figures. | Chile | **Considered, but not incorporated**.  See explanation above. |
| 57. | *224* | Technical | **Figures 51–56.** Anterior spiracles of the first thoracic segment, third instar larvae: **(51)***Anastrepha ludens*; **(52)***Anastrepha fraterculus*; **(53)***Toxotrypana curvicauda*; **(54)***Rhagoletis conversa*; **(55)** *Ceratitis capitata*; **(56)***Bactrocera cucurbitae*. New Figure: Anastrepha fraterculus under optical microscope﻿ | New figure is proposed to be added. It is necessary to adjust the numbers of figures. | Argentina | **Considered, but not incorporated**.  See explanation above. |
| 60. | *226* | Technical | ﻿     New Figure ﻿  ﻿ | New figure was added. It is necesssaru to adjust the number of figures. | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | **Considered, but not incorporated**.  See explanation above. |
| 61. | *227* | Technical | **Figures 57–61. (57)** Anal lobes bifids, *Anastrepha striata*; **(58)** Anal lobes entire, *Anastrepha obliqua*; **(59)** caudal ridges absent, *Anastrepha suspensa*; **(60)** caudal ridges present, *Bactrocera carambolae*; **(61)***Anastrepha striata*, dorsal view of third instar larva showing rows of dorsal spinules. New Figure: Anastrepha fraterculus, dorsal view of third instar larva showing dorsal spinules﻿ | New figure was added. It is necessary to adjust the numbers of figures. | COSAVE, Uruguay, Brazil, Peru | **Considered, but not incorporated**.  See explanation above. |
| 62. | *227* | Technical | **Figures 57–61. (57)** Anal lobes bifids, *Anastrepha striata*; **(58)** Anal lobes entire, *Anastrepha obliqua*; **(59)** caudal ridges absent, *Anastrepha suspensa*; **(60)** caudal ridges present, *Bactrocera carambolae*; **(61)***Anastrepha striata*, dorsal view of third instar larva showing rows of dorsal spinules. New Figure: *Anastrepha fraterculus*﻿, dorsal view of third instar larva showing dorsal spinules﻿ | New figure was added. It is necessary to adjust the numbers of figures. | Chile | **Considered, but not incorporated**.  See explanation above. |
| 61. | *227* | Technical | **Figures 57–61. (57)** Anal lobes bifids, *Anastrepha striata*; **(58)** Anal lobes entire, *Anastrepha obliqua*; **(59)** caudal ridges absent, *Anastrepha suspensa*; **(60)** caudal ridges present, *Bactrocera carambolae*; **(61)***Anastrepha striata*, dorsal view of third instar larva showing rows of dorsal spinules. New Figure: Anastrepha fraterculus, dorsal view of third instar larva showing dorsal spinules﻿ | New figure was added. It is necessary to adjust the numbers of figures. | Argentina | **Considered, but not incorporated**.  See explanation above. |
| 64. | *229* | Technical | New Figure ﻿  ﻿ | New figure was added. It is necessary to adjust the numbers of the figures. | COSAVE, Uruguay, Brazil, Peru, Chile, Argentina | **Considered, but not incorporated**  See explanation above. |