



TWF/42/26 Rev.

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

TECHNICAL WORKING PARTY FOR FRUIT CROPS

Forty-Second Session
Hiroshima, Japan
November 14 to 18, 2011

REVISED REPORT

adopted by the
Technical Working Party for Fruit Crops

Opening of the Session

1. The Technical Working Party for Fruit Crops (TWF) held its forty-second session in Hiroshima, Japan, from November 14 to 18, 2011. The list of participants is reproduced in Annex I to this report.
2. The TWF was welcomed by Mr. Takashi Ueki, Director, PVP Office, New Business and Intellectual Property Division, Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries. The welcome address made by Mr. Ueki is provided in Annex II to this report.
3. A short presentation on the Examination System in Japan was given by Mr. Katsumi Yamaguchi, Chief Examiner, PVP Office, New Business and Intellectual Property Division, Ministry of Agriculture, Forestry and Fisheries. A copy of this presentation is provided in Annex III to this document.
4. The session was opened by Mrs. Bronislava Bátorová (Slovakia), Chairperson of the TWF, who welcomed the participants and, in particular, new participants to the TWF.

Adoption of the Agenda

5. The TWF adopted the agenda as reproduced in document TWF/42/1 Rev. 2.

Short Reports on Developments in Plant Variety Protection

(a) Reports from Members and Observers

6. The TWF noted the information on development in plant variety protection from members and observers provided in document TWF/42/23 Draft. Document TWF/42/23, with minor editorial changes, would be posted on the TWF website in due course.

(b) Reports on Developments Within UPOV

7. The TWF received an oral report from the Office of the Union on the latest developments within UPOV, a copy of which is provided in document TWF/42/24.

Molecular techniques:

8. The TWF considered document TWF/42/2.

TGP Documents

9. The Office of the Union considered the TGP documents below on the basis of documents TWF/42/3.

Revision of TGP Documents:

TGP/7 Development of Test Guidelines

(i) Summary of revisions proposed for document TGP/7 “Development of Test Guidelines” (document TWF/42/11)

10. The TWF noted the summary of revisions proposed for document TGP/7 “Development of Test Guidelines”, as set out in Part I of document TWF/42/11.

11. The TWF considered Part II of document TWF/42/11 and made the following comments:

- Guidance on the number of plants to be examined (for distinctness)

12. The TWF considered the proposal in Annex I to document TWF/42/11, prepared by an expert from Germany, and the comments of the Technical Working Parties at their sessions in 2011, as set out in document TWF/42/11, paragraphs 15 to 25 and presented comments of the TWO. The TWF agreed that the following aspects should be considered in relation to guidance on the number of plants to be examined for distinctness:

(a) for some Test Guidelines (e.g. cross-pollinated grasses), the number of plants are intended to represent a specific number, because of the possibility of different decisions on distinctness if a different number is used. However, in other Test Guidelines (e.g. for vegetatively propagated fruit, ornamental plants and vegetables), the number could be considered to be a minimum number without having any effect on decisions for distinctness if a larger number of plants were examined. The guidance in TGP/7 and the explanations in the Test Guidelines should provide an explanation of this aspect;

(b) guidance for the number of plants to be examined for distinctness of candidate varieties and the number of plants of varieties of common knowledge to be included in the DUS trial should be developed. In that regard it was noted that it might be appropriate to accept a lower number of plants of a variety of common knowledge in order to determine the typical expression, given the greater knowledge and experience that would be available;

(c) to develop guidance on the number of plants required to establish a variety description and to consider whether to provide an extra guidance note to be included in TGP/7 concerning the number of plants and parts of plants.

(d) to note the comments of the TWV, as set in paragraph 25 of the document TWF/42/11, and to develop these issues as separate paragraphs.

13. The TWF agreed that Mr. Erik Schulte (Germany) be invited to participate in the development of guidance on the number of plants to be examined in order to ensure that the perspective of fruit crops would be taken into consideration.

- Guidance for method of observation

14. The TWF considered the background information concerning “Guidance for method of observation” (see document TWF/42/11, Annex II) and noted the comments by the TWPs at their sessions in 2010.

15. The TWF welcomed the observation by the Technical Working Party on Automation and Computer Programs (TWC), at its twenty-ninth session, held from June 7 to 10, 2011, that any records of observation by notes correspond to a visual (V) observation (see document TWF/42/11, paragraph 24). The TWF agreed that this guidance should be included in TGP/7.

(ii) Providing photographs with the Technical Questionnaire

16. The TWF considered document TWF/42/12 and noted the comments of the Technical Working Parties.

(iii) Quantity of plant material required

17. The TWF noted the information provided in document TWF/42/17.

(iv) Example varieties

18. The TWF considered the document TWF/42/18 and agreed with the general view expressed by the TWO, at its forty-fourth session, to add a new paragraph after paragraph 13:

“Test guideline drafters should take steps to ensure that example varieties proposed by other members of the subgroup are compatible with those provided by the leading expert for that characteristic. This is of particular importance for quantitative characteristics (QN). The best approach would be for a subgroup member to propose a full set of varieties for that characteristic.”

19. The TWF expressed the need to develop guidelines for leading experts on how to accept the example varieties proposed by the other experts, following the principles of regional sets of example varieties, as set out in document TWF/42/18.

20. The TWF supported the revision and review of example varieties and agreed to only include varieties which are readily available.

21. The TWF also agreed with the proposal that this issue be discussed on the Monday session of the TC meeting in 2012.

(v) Procedure for the development of Test Guidelines

22. The TWF noted that document TGP/7 states as follows:

“2.2.3.2 In cases where more than one TWP has proposed the development of Test Guidelines with the same coverage, the Technical Committee will decide which TWP should be responsible for the drafting of the Test Guidelines. This will be decided on the basis of the level of expertise in the TWPs concerned. In such cases, the Technical Committee will request the approval of all other interested TWPs before a draft is submitted for adoption.”

23. The TWF agreed with the proposal made by the TWV that consideration should be given, where possible, to allocate Test Guidelines to only one TWP on the basis that all TWPs would be informed on the development of all Test Guidelines and interested experts could participate in the relevant TWP.

TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability

24. The TWF considered document TWF/42/14 and agreed the following with regard to the development of the items covered by the annexes:

ANNEX I TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS
New Section 2 Data to be recorded

25. Mr. Erik Schulte (Germany) presented *Section 2 Data to be recorded*.

26. The TWF agreed that the information provided in document TWF/42/14, Annex I, provided valuable information that should be included in document TGP/8.

ANNEX II – TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 3 – Control of variation due to different observers

27. The TWF considered information in document TWF/42/14, Annex II, and agreed that it provided valuable information that should be included in document TGP/8, however it did not come to an agreement on how the section “Testing the calibration” should be handled. It concluded that a revision should go ahead in order to make it less prescriptive.

ANNEX III TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 6 – Data processing for the assessment of distinctness and for producing variety descriptions

28. The TWF considered document TWF/42/14, Annex III in conjunction with Annex VIII of that document. It agreed that the information provided in Annex VIII was a very important first step in developing common guidance on data processing for the assessment of distinctness and for producing variety descriptions, but concluded that the information as presented in Annex VIII would not be appropriate for inclusion in document TGP/8. It agreed to propose that the Office of the Union be requested to summarize the different approaches set out in Annex VIII with regard to aspects in common and aspects where there was divergence. As a next step, on the basis of that summary, consideration could be given to developing general guidance. The TWF agreed that the section should include an example of a fruit variety, with consideration of the number of notes for a quantitative characteristic.

ANNEX IV TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section – Information of good agronomic practices for DUS field trials

29. The TWF agreed on the importance of employing good agronomic practice in the conduct of DUS trials and on the need to ensure that staff had the appropriate training and experience for conducting DUS trials. However, it concluded that it would not be desirable to seek to develop detailed guidance in document TGP/8.

ANNEX V TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section after COYU – Statistical Methods for very small sample sizes

30. The TWF agreed that it was important to emphasize that, “if data are to be statistically analyzed, then the assumptions behind the theory on which the statistical methods are based must be met - at least approximately” (see document TGP/8/1: Part I: 2. VALIDATION OF DATA AND ASSUMPTIONS, Section 2.3 “Assumptions for statistical analysis and the validation of these assumptions”).

31. The TWF noted the proposal made by the TWA, at its fortieth session, to amend, in the first paragraph, “two varieties different” as “two varieties distinct” as follows:

“One of the main problems when applying a statistical test on small trials is that we do not have enough data available to limit the risk of making a wrong decision to an acceptable level. Every statistical test has a probability/risk of making wrong decisions: there is a Type I error, i.e. the risk of declaring ~~two varieties different~~ two varieties distinct where in reality they are not significantly different, and a Type II error: declaring two distinct varieties not significantly different.”

32. The TWF agreed that the wording should be amended for consistency with the wording in document TGP/8/1: Part I: 1. DUS TRIAL DESIGN:

“1.5.3.3.6.2.6 The test statistic is based on a sample of plants, trialled in a sample of growing conditions. Thus if the process were to be repeated at a different time, a different value of the test statistic would be obtained. Because of this inherent variability, there is a chance that a different conclusion is arrived at compared to the conclusion which would be reached if the trial could be repeated indefinitely. Such “statistical errors” can occur in two ways, let us first consider distinctness conclusions:

“- The conclusions based on the test statistic, i.e. from the DUS trial, is that two varieties are distinct, when they would not be distinct if the trial could be repeated indefinitely. This is known as a Type I error and its risk is denoted by α . [...]”

33. The TWF agreed that realistic examples should be included in the document, based on actual cases. If no such cases could be provided, the section should be deleted.

ANNEX VI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 11 Examining DUS in bulk samples

34. The TWF agreed that the example of sugar beet should be replaced by a crop for which there are UPOV Test Guidelines and to include an example of the fruit crops if it is available.

ANNEX VII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 12 Examining characteristics using image analysis

35. The TWF agreed that Section 12.1 should be reworded to explain that image analysis would be an alternative method for observing a characteristic, rather than a principal method for observing a characteristic.

ANNEX VIII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 13 Methods for data processing for the assessment of distinctness and for producing variety descriptions

36. The TWF noted that some other examples from Republic of Korea and other members presented at the Seminar on DUS testing should be added...

ANNEX IX TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Guidance of data analysis for blind randomized trials

37. The TWF agreed that the experts from France should develop guidance on data analysis for blind randomized trials from their experience, including their use of blind randomized trials for disease resistance.

ANNEX X TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Statistical methods for visually observed characteristics

38. The TWF noted the proposals in Annex X.

39. The TWF agreed with the TWA proposal to modify the title of the three parts of “Section 10 – Minimum number of comparable varieties for the Relative Variance Method” as follows:

THE COMBINED OVER-YEARS METHOD FOR NOMINAL-SCALED CHARACTERISTICS
THE COMBINED OVER-YEARS METHOD FOR ORDINAL-SCALED CHARACTERISTICS
THE COMBINED OVER-YEARS METHOD FOR BINOMIAL-SCALED CHARACTERISTICS

ANNEX XI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Guidance for the development of variety descriptions

40. The TWF agreed that the experts from the Netherlands should draft guidance on the development of variety descriptions with information from more than one growing cycle in one location and more than one location.

ANNEX XII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 4 – 2x1 % Method - Minimum number of degrees of freedom for the 2x1% Method

41. The TWF noted the proposals in Annex XII.

ANNEX XIII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 9 - The Combined-Over-Years Uniformity Criterion (COYU) - Minimum number of degrees of freedom for COYU

42. The TWF noted the proposals in Annex XIII.

ANNEX XIV TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 10 – Minimum number of comparable varieties for the Relative Variance Method

43. The TWF noted the comments made by the TWA and TWC concerning the minimum number of comparable varieties for the Relative Variance Method.

TGP/12: Guidance on Certain Physiological Characteristics (document TWF/42/15)

44. The TWF agreed with the proposal for explanations for disease resistance characteristics in Test Guidelines and nomenclature of pathogens, as presented in the annex to document TWF/42/15.

45. The TWF considered document TWF/42/21 and agreed that, at the moment there is no pressing need to adopt further disease resistance testing within the fruit Test Guidelines, although their possible use could be limited to exceptional situations where the applicant declares that this would be the only distinguishing characteristic from an existing variety of common knowledge; thus the claimed disease resistance could be used as an additional characteristic on a case-by-case basis, once a recognized test methodology has been described, and with any extra costs linked to test being borne by the applicant. Notwithstanding, examiners and authorities should be attentive to the market and breeding

effort being made in that direction in order that disease resistance test methods can be developed in good time if there is a sudden influx of fruit varieties being applied mostly for those distinguishing characteristic.

TGP/14: Glossary of Terms Used in UPOV Documents

46. The TWF considered documents TWF/42/3, Annexes I and II and TWF/42/16.

47. The TWF noted that the Table 1.2 (Characteristic: ratio length/width) contained in Annex I to document TWF/42/3 should be updated to reflect the order of states as indicated in TGP/14.

Developing Shape-Related Characteristics:

48. With regard to the use of characteristics for ratios, the TWF shared the views of the TWO that it should be possible to use states such as “high” or “low”, provided that explanations and illustrations were provided to avoid any risk of confusion. In that regard, it considered that it would also be important for those explanations be included in the Technical Questionnaire. It agreed that it should be possible to use states such as “elongated” and “compressed” for characteristics that were worded as shapes, rather than ratios. Therefore, the TWF emphasized that the use of these terms should only be used on a case-by-case basis. The TWF confirmed their decision in 2010 that they preferred to have states from compressed to elongated.

49. The TWF considered document TWF/42/16 “Revision of Document TGP/14: New Section for Color Characteristics”, and agreed the following with regard to Annex I:

	<u>PART I: INTRODUCTION</u>
1.	To add an explanation that “Color is complex and can be defined in terms of three main elements: HUE (distinguishes the different colors), SATURATION (the element of color that indicates the purity or grayness of the color) and the BRIGHTNESS (distinguishes the total amount of light that is reflected by the color, how the color is perceived by the eye on the dark to light scale).” – TWF ok In addition, to explain that, in some circles (e.g. industry), it is common practice to use a separation of two elements of color: COLOR and INTENSITY (= brightness): one-color; self-colored etc., but that such an approach is not necessarily followed in the Test Guidelines.
	<u>PART II: COLOR</u>
2.1	<i>2.1 Terms used for color</i> To be revised in accordance with changes below.
2.2	<i>2.2 States of expression for color characteristics</i> To explain that the level of precision of color used in states of expression will vary according to the circumstances. For example, the following states of

	expression reflect differing levels of precision: yellow; yellow orange; yellowish orange; light yellow; RHS Colour Chart reference
2.3	title to read “2.3 <i>Observation of color</i> ”
2.4.1	2.4.1 <i>Type of expression</i> To be reviewed in accordance with changes to 2.2.
	<u>PART III: APPROACHES TO DESCRIBE COLORS AND COLOR PATTERNS</u>
New	To provide introduction based on Section 3.3
3.1	3.1 General: The use of number of colors - to be deleted
3.2.1	3.2.1 <i>Main color / secondary color</i> to amend the example to read: “The main color is the color with the largest surface area. In cases where the areas of the main and secondary color are approximately the same [the darkest color] / [the color ...[location]...] is considered to be the main color.]”
3.2.2	3.2.2 <i>Ground color / over color:</i> (a) <i>GROUND COLOR:</i> To explain that “Ground color” can be used in the following ways: (i) For organs which have two independent layers of tissue containing color pigmentation (e.g. apple), the two layers could be described as follows: “The ground color is the first color to appear chronologically during the development of the plant part. Other colors may develop in time in the form of spots, blotches, or a color flush or blush” (ii) The ground color of the upper side is the color that is the main color of the lower side of an organ. (iii) The ground color is the color which has a continuous dispersion across the surface of the plant part. It should also be explained that the ground color is not always the color occupying the largest surface area of the plant part concerned. It should also be explained, where appropriate, that the ground color is not always visible.
3.2.3	3.2.3 <i>Colors of defined parts of an organ</i> Example 1: to delete “Only varieties with one color:”

3.2.4	<p><i>3.2.4 Order of observation of colors based upon the RHS Colour Chart number of the color in question (“Lisbon” approach)</i></p> <p>To add the example provided in document TG/HEUCH(proj.4)</p> <p>Example 1. to read “Leaf blade : secondary color (if present)”</p> <p>The RHS 203D is indicated as the highest in the ordering of the color charts. However, 203D is not included in Appendix I to Annex I on page 29. This is because the table in Appendix I does not include the 2007 edition of the charts. To update the paragraph as follows (changes highlighted in yellow):</p> <p>“The colors are then ordered from the lowest to highest number according to the color number from the Colour Chart, with the lowest number being RHS 1 A and the highest number being RHS 202D. Additional cards in new editions of the RHS Colour charts may increase the highest number. With this approach the determination of color is made without consideration of the surface area occupied by that color.</p> <p>The following standard explanation should be included in the Test Guidelines when using this approach for describing color: The order of colors follows the RHS Colour Chart order. For example, in the RHS Colour charts 2001 edition, the lowest number is RHS 1A and the highest RHS 202D.”</p>
3.2.5	<p><i>3.2.5 Variegation</i></p> <p>To delete new proposal</p>
3.2.7	<p><i>3.2.7 Conspicuousness</i></p> <p>To delete “In some cases conspicuousness could be difficult to be observed, for instance for small organs (e.g. veins, hairs), or because they are not consistently expressed across the organ.”</p>
3.2 (=3.3)	<p><i>3.2 Guidance for deciding which approach to use for the description of colors and color patterns</i></p> <p>To be moved to become the introduction to Part III.</p>
<u>PART IV: COLOR DISTRIBUTION AND COLOR PATTERNS</u>	
4.1	<p><i>4.1 Color distribution</i></p> <p>To be reviewed</p>
4.2	<p><i>4.2 Terms used for color distribution</i></p> <p>To be deleted</p>
4.3	<p><i>4.3. Terms used for Color Patterns</i></p> <p>To use the schematic illustration of the different color patterns in Annex II to define terms for pattern, with necessary amendments, e.g. addition of missing terms from Sections 4.3.2 to 4.3.6 and modification of “central band” to “transverse band”.</p> <p>To incorporate the schematic in Annex II into the main document. Sections 4.3.2 to 4.3.6 to be replaced by schematic in Annex II.</p>

4.5	<p><i>4.5 Illustrations</i></p> <p>To check for consistency with Annex II / revised Section 4.3</p> <p>To amend spelling of “BASAL THREE QUARTERS” in Section 4.5.2.</p>
	<p><u>PART V: INDEX OF DEFINITIONS</u></p> <p>To be created by links to table of contents.</p>
	<p><u>ANNEX I</u></p>
	<p><u>Color names for the RHS Colour Chart</u></p> <p>To update to include reference to latest RHS Colour Chart version</p> <p>To delete paragraph 1.3</p> <p>To check Spanish translation of colors in Appendix I.</p>

50. With regard to the comments of the Technical Working Party on Automation and Computer Programs (TWC), at its twenty-ninth session, held in Geneva, from June 7 to 10, 2011 (see document TWO/44/16, paragraph 13, the TWF noted that the reference to inviting papers on how information on colors is used for DUS examination referred to the use of image analysis to assess color.

51. The TWF did not agree with the proposal made by the TWV at its forty-seventh session, that the new section for color characteristics should include guidance that the Test Guidelines should provide an explanation of the use of color terms that did not follow generally accepted rules, e.g. the use of “red” in onion for “purple” colors.

Variety Denominations

52. The TWF noted the report on developments provided in document TWF/42/4.

Information and databases

(a) UPOV information databases

53. The TWF received a demonstration of the PLUTO Plant Variety Database.

54. The TWF noted the information provided in document TWF/42/5 and noted that Annex III to that document would be provided by the end of November 2011, with a request for comments by December 31, 2011. In response to a request, the Office of the Union confirmed that contributors of data to the Plant Variety Database should, where needed, request the Office of the Union for the creation of new UPOV codes at the earliest opportunity, but did not need to await UPOV codes before sending their data for the Plant Variety Database in the meantime.

(b) *Variety description databases*

55. The TWF noted the information provided TWF/42/6 and TWF/42/13.

(c) *Exchangeable software*

56. The TWF noted the information provided in document TWF/42/7. It agreed that information on the cost and intellectual property rights should be considered with regard to software proposed for inclusion in document UPOV/INF/18/1 “Exchangeable Software”.

(d) *Electronic application systems*

57. The TWF noted the information provided in document TWF/42/8. 57.

Uniformity assessment

(a) Method for calculation of COYU (document TWF/42/10)

58. The TWF took note of the information contained in document TWF/42/10.

(b) Assessing uniformity by off-types on the basis of more than one sample or sub-samples (document TWF/42/9)

59. The TWF considered document TWF/42/9.

60. The TWF noted that, in the table in paragraph 15, Germany should be added to the list of members of the Union that had provided information on Potato in Annex II and Apple in Annex III to document TWF/42/9.

Experiences with new types and species

61. The TWF received a presentation on “Testing Varieties of Pyrus Hybrids” by Mr. Chris Barnaby (New Zealand) provided in document TWF/42/25.

Proposal for Additional Characteristics to Test Guidelines

62. The TWF noted the information provided in document TWF/42/20 and agreed that the characteristics presented in the Annex to this document be considered as additional characteristics with a view to posting the characteristics on the password-restricted area of the UPOV website. Experts from Australia and Germany expressed their interest in checking the characteristic before initiating a revision or partial revision of the Test Guidelines for Blueberry (document TG/137/4).

Matters to be resolved concerning Test Guidelines adopted by the Technical Committee

63. The TWF noted that there were no matters to be resolved.

Discussion on draft Test Guidelines

Actinidia Lindl.(Kiwifruit)

64. The subgroup discussed document TG/98/7 (proj.3), presented by Mr. Chris Barnaby (New Zealand), and agreed the following:

Table of Chars.	Example varieties (spellings to be corrected and replacements): “Sinzan(B)” to read “Shinzan(B)” for Chars. 1, 4, 5, 6, 8, 10, 11, 12, 15, 19, 24, 25, 29, 34, 36, 37, 39, 40, 41, 50, 56, 57, 63, 65, 66, 70, 74 “Mitukou(B)” to read “Mitsukou(B)” for Chars. 4, 5, 7, 11, 13, 14, 21, 29, 34, 41, 45, 50, 51, 55, 58, 63, 70, 74, TQ 5.3B, 5.6B, 5.7B “Kaimitu(A)” to be replaced by “Kuimi(A)” for Chars. 4, 12, 19, 23, TQ5.1B, 5.1A “a-Syowa(B)” to read “a-Shouwa(B)” for to Chars. 23, 37, 45 “r-Nagano(A)” to read “r-Nagano(B)” for Chars. 14, 15, 45 “Sigemidori(B)” to read “Shigemidori(B)” for Char. 11 “r-Awaji(A)” to read “r-Awaji(B)” for Char. 14 “Ryokuou(B)”to be replaced by “Satoizumi(B)” in Char. 19 “Yamagataotome(B)” to read “Yamagatamusume(B)” for Char. 50 “Sanukigold(B)” to read “Sanuki Gold(B)” for Char. 56
Char. 2	to delete underlined part
Char. 3	to delete example variety “Hongyang(A)” for state (3)
Char. 9	to provide example variety for state (3)
Char. 13	to develop further explanation to assist understanding of Ad. 13 photographs
Char. 18	to change order from moderately elongated to moderately compressed and to add (+)
Char. 26	to delete (*)
Char. 27	to read: “Leaf blade: color of variegation if present”
Char. 29	to underline “upper side”
Char. 31	to be indicated as VG/MG
Char. 32	explanation to read: “The position of the first spike is determined by node order from the first spike, starting from the base.”
Char. 37	to delete “viewed from beneath”
Char. 40	to add (+) with explanation for state (4)
Char. 46	to delete example variety “Hongyang(A)” from state (3)
Char. 49	to change order from weakly elongated to weakly compressed
Char. 52	to delete “shape of”
Char. 53	to read: “Fruit: degree of pointed protrusion”
Char. 59	to delete indication (1) in first column and state (1) example varieties are “Shouwa(B), Shinzan(B)”
Char. 69	to read: “Fruit: width of core relative to fruit”
Chars. 72 to 76	to be indicated as VG/MG

8.1 a)	to change “10 to 20 cm from the tip” to “from the middle third” and to remove yellow highlighting
8.1 b)	to delete “over wintering”
8.1 e)	to replace “skin” with “surface”
Ad. 2	to update according to change to Table of Chars. : any reference to hermaphrodite varieties to be removed
Ad. 13	to provide explanation to clearly identify the bud cover
Ad. 14	to increase the photo size for state (2)
Ad. 16	to read “longitudinal” instead of “cross”
Ad. 20	to improve the diagram for state (1)
Ad. 21	to be provided by JP
Ad. 30	to improve illustration
Ad. 31	To read: “Flowers occur on the first 1-6 nodes on a current season’s shoot. The observation should be made immediately before flower opening, when at least 2 nodes have developed. The number of flowers present at each node is recorded. It is recommended that at least two shoots are observed per plant.”
Ad. 33	to delete
Ad. 37	to add “Flowers are viewed from beneath.”
Ad. 40	to provide explanation for state (4)
Ad. 41	to remove space between Ad. 41 and Ad. 42 header
Ad. 42	to remove highlighting and to provide improved explanation of shading
Ad. 53	to delete “on styler end”
Ad. 57	to read: “The relativity is determined...” and to replace “=” with the word “means”
Ad. 69	to read on diagram: “width of fruit (diameter of fruit)”
4.2.1 (b)	to read: “usual”
TQ 5.1A and 5.1B	to consider the place of Char. 5.1A and 5.1B. Keep or move to TQ7
TQ 5.4B	to delete “shape of”

Apple rootstocks (*Malus* Mill.)

65. The subgroup discussed document TG/163/4(proj.1), presented by Mr. Hendrik Venter (South Africa) and agreed the following:

1.	to delete second paragraph
2.3	to read: “5 one-year-old trees or 10 one-year-old rooted plants for stoolbeds”
3.1	to delete second sentence
3.4.2	to delete
4.1.4	to refer to “5 plants”
4.2.2	to add second sentence: “In the case of a sample size of 10 plants, 1 off-type is allowed.”
5.3	to provide grouping characteristics

General	to check whether this TG should be based on Trees or Stoolbeds or some kind of combination and adapt the effective Chars. accordingly.
Chars. 1 to 3	to change “Tree” to “Plant”
Char. 1	to keep notes: (1) to (9)
Char. 2	to delete example variety “M 9” from state (7) and to reconsider wording “Plant: number of shoots (stoolbeds only)”
Char. 3	to read: “Plant: habit” and to add (+) and provide illustration and to have example varieties from existing TG which are for stoolbeds and to indicate as PQ and to delete example variety “Cepiland” from state (2)
Char. 4	to have states: straight (1); moderately wavy (2); strongly wavy (3)
Char. 5	to have notes: 1 to 5
Char. 6	to have states: weak (1); medium (2); strong (3)
Char. 7	to delete “(at midlength)” and to have example variety “MM 106” for state (7)
Char. 9	state (1) to read: “very few”
Char. 10	to have notes: 1, 2, 3
Char. 11	to delete
Char. 12	to delete example variety “MM 106” for state (5)
Char. 13	to have notes: 1, 2, 3
Char. 14	to have states: acute (1); obtuse (2); rounded (3) and to update illustration accordingly
Char. 16	to have notes: 1, 2, 3
Char. 17	to read: “One-year-old shoot: color of upper part” and to add (+) with an explanation on where to look
Char. 18	to read: “Young leaf: Anthocyanin coloration” with states: absent or very weak (1); weak (2); medium (3); strong (4); very strong (5)
Char. 19	to read: “Young leaf: hue of anthocyanin coloration” with states: Reddish brown (1); brownish red (2); purple (3)
Char. 20	to have states: upwards (1); outwards (3); downwards (5)
Char. 23	to have states: slightly elongated (1); moderately elongated (3); strongly elongated (5)
Char. 24	to add example varieties “M 7” and “CG 707” to state (2)
Char. 25	to have notes: 1, 3, 5
Char. 26	to check whether to use terms in TGP/14 (crenate to serrate (3); serrate (4); biserrate (5))
Table of Chars. General	to check all example varieties in next proj.
Char. 28	to have notes: 1, 2, 3, 5
Char. 29	to have notes: 1, 2, 3

Char. 30	to have notes: 1, 2, 3, 5
Char. 31	to read: “Leaf blade: intensity of green color” and to have notes: 1, 3, 5
Char. 32	to delete
Char. 34	to add (+) and to provide illustration and to have notes: 1, 3, 5
Chars. 35, 36	to have notes 1, 3, 5
General	Flower Chars. problematic for stoolbed
Char. 37	to reconsider wording and to add (+) with explanation and to move after Char. 57
Char. 38	to have add states: white (1); white yellow (2)
Char. 40	to read: “Flower: diameter” and to move “with petals pressed in horizontal position” to Ad. 40 and to add (+)
Char. 43	to have states: very elongated (1); moderately elongated (2); medium (3); moderately compressed (4); very compressed (5) and to add (+) with illustration of where to observe
Char. 45	to check whether to change notes to 1 to 5
Char. 47	to check whether to have Char. and to have notes 1, 2, 3
Char. 48	to check if Char. is necessary and to add (+) with explanation
Char. 50	to move “-with bloom removed” to Ad. 50
Chars. 51, 52, 53, 56	to check if Char. is necessary
Char. 55	to have notes 1, 2, 3
Chars. 57, 58	to add (+) with explanation and to be indicated as VG/MG
Char. 59	to delete
New Char.	to read: “Plant: rooting ability of hardwood cutting”; JP to provide information on the basis of which DUS suitability is to be checked by experts
Ad. 18	information to be provided

Fortunella Swingle

66. The subgroup discussed document TG/FORTU(proj.1), presented by Mr. Katsumi Yamaguchi (Japan) and agreed the following:

4.1.4	to delete: “, disregarding any off-type plants”
5.3(d)	to read: “...(characteristic 31)”
Table of Chars.	to delete “G” and to check allocation of 8.1(a) to (f) notes throughout
Char. 2	to provide illustration and state (3) to read: “spreading”

Chars. 4, 8, 9, 14, 18, 19, 31	to delete (+)
Char. 5	to have notes: 1, 3, 5
Char. 10	to have states: very elongated (1); moderately elongated (2); slightly elongated (3)
Char. 11	to delete
Char. 12	to check whether to have the states: acute (1); acute to acuminate (2); acuminate (3)
Char. 13	to check whether to have the states: acute (1); right angle (2); obtuse (3)
Char. 16	to add (+)
Char. 17	to read: "...filaments"
Chars. 18 to 20	to check order of Chars. (see TGP/7)
Char. 20	to delete (+)
Char. 21	to use 2-dimensional states and to provide illustration in form of grid (see TGP/14/1: Section 2: Botanical Terms: Subsection 2: Shapes and Structures: I. SHAPE page 19, Section 2.1.3 and page 28)
Char. 24	to add (+)
Char. 26	to check whether to delete "(flavedo)"
Char. 28	to read: "Fruit: number of fully developed seeds"
Char. 29	States (2) to read: polyembryonic"
8,1(b)	to read: " <u>Plant</u> : All observations on the plant should be made in the winter season"
8.1(c)	to check wording: "One-year-old shoot: All observations on the one-year-old shoot should be made on moderate shoots at the equatorial part of the outer side of the plant."
8.1 (d)	to read: "...old shoots."
8.1(e), (f)	to consider which flower and which fruit to be observed (e) "... made on the primary flowers" (f) "... on the first fruit"
Ad. 2	to be provided
Ad. 11	to be deleted
Ad. 24	to read: "The sweetness should be determined by refractometer."
Ad. 26	to consider removing "(flavedo)" and to replace "brix meter" with "refractometer"
9.	to correct spelling of "encyclopedia"
TQ 1	to check whether to request information on species (see TGP/7, page 48)

Litchi Sonn

67. The subgroup discussed document TG/LITCHI(proj.1), presented by Ms. LU Xin (China) and agreed the following:

Cover	to add English name “Lychee”
2.3	to refer to “5 plants”
Table of Chars.	to remove “,” from after example varieties [comma]
Char. 1	to add (+) and provide illustration
Char. 2	to have states: circular (1); elliptic (2); triangular (3); irregular (4) and to check whether to update illustrations
Char. 3	to add (+) with explanation and to correct spelling of example variety for (7) as “Zhuangyuanhong”
Char. 5	to have states: 1, 2, 3
Char. 7	to read: “...lenticels”
New Char. before Char. 9	to check whether to add New Char. to read: “Young shoot: color” with states: yellow (1) yellow green (2); green (3); brown (4); red (5) or green (1); reddish green (2)
Char. 9	to add (+) and provide illustration (see TGP/14 for appropriate state names)
Char. 12	to read: “Leaflet: length of petiolule”
Char. 13	to move “ovate” to state (2) and to renumber accordingly
Char. 14	Example variety to read: “Sanyuehong” instead of “Zhongshanshanyuehong” – to check throughout Table of Chars.
Char. 16	to read: “Leaflet blade: length” and to be indicated as VG/MS
Char. 17	to read: “Leaflet blade: width” and to be indicated as VG/MS
Char. 18	to read: “Leaflet blade: ratio length/width” and to consider changing the order of states and to which example varieties best fit with which state (see TGP/14/1: Section 2: Botanical Terms (Subsection 2: Shapes and Structures: I. SHAPE: 1.5)
Char. 19	to read: “Leaflet: symmetry of apex and to consider new wording with illustration and explanation and to add (+)
Char. 20	to read: “Leaflet blade: shape of apex”
New Char.	to consider new Char. to read: “Leaflet blade: length of tip” (see explanation of tip/apex in TGP/14, Part I “SHAPE”, Section 2.4)
Char. 21	to read: “Leaflet blade: symmetry of base” and to consider new wording with illustration and explanation and to add (+)
Char. 22	to read: “Leaflet blade: undulation of margin” and to consider having states: absent or weak (1); medium (2); strong (3)
Chars. 23, 24, 25	to change “Leaf” to “Leaflet”

Chars. 26, 27	to be indicated as VG/MS
Char. 28	to consider changing the order of states and to which example varieties best fit with which state (see TGP/14/1: Section 2: Botanical Terms (Subsection 2: Shapes and Structures: I. SHAPE: 1.5)
Char. 30	to read: "... florets"
Char. 32	to provide further explanation of what part to observe
Char. 33	to use 2-dimensional states and to provide illustration in form of grid (see TGP/14/1: Section 2: Botanical Terms: Subsection 2: Shapes and Structures: I. SHAPE page 19, Section 2.1.3 and page 28) and to combine states (2) and (3) to read: cordate (2)
Char. 34	to read: "Fruit: shape of shoulder at stalk end" and to consider states: truncate (1); sloping (2); asymmetric (3); depressed (4) (see TG for Papaya)
Char. 36	to be indicated as QN
Char. 37	to have states: only green (1); green and red (2); yellow and red (3); only medium red (4); only dark red (5); purplish red (5) and reorder example varieties
Char. 38	to read: "... protuberances"
Char. 40	to read: "Fruit: tips of protuberances" and to add (+) and provide illustration and to check states
Char. 43	to check color states: to consider state (1) whitish
New Char. before Char. 46	to read: "Fruit: weight of seed compared to fruit: with states: low (3); medium (5); high (7) and to be indicated as QN, MG and to provide example varieties and to add (+) with explanation on how many fruits are observed
Char. 46	to confirm that it is reliable DUS characteristic and to change example varieties to read: Chenzi, Heiye (1); Nuomici, Xinxinxiangli (3)
New Char. After Char. 46	to read: "Fruit: sweetness" with states: low (3); medium (5); high (7) and to be indicated as QN, MG and to add (+) and to provide explanation "The total soluble solids content is measured by refractometer."
8.1(c)	to change "leaf" to "leaflet"
8.2	to update headings according to changes in Table of Chars.
Ad. 6	explanation to read: "Internodes to be observed on the middle third of the shoot"
Ad. 10	to correct position of label names and to show leaflet length (with arrow)
Ad. 12	label to read: "length of leaflet petiolule"
Ad. 29	explanation to read: "The density of the secondary branches is observed on the middle third nodes of the inflorescences"
Ad. 32	to add explanation "This applies to female flowers only."
Ad. 33	to inverse images to show stalk at the bottom of the image and to update illustration to show state (2) cordate
Ad. 35	to illustrate in longitudinal section
Ad. 44	to add an arrow to indicate arils
Ad. 45, Ad. 46	to replace "=" with "means"

Ad. 47	to remove yellow highlighting
TQ 1.1	to add “Lychee” under common name
TQ 4.2.1	to add “(b) air layering” and renumber accordingly
TQ 5	to update according to changes to Table of Chars. and to add all (*) Chars.
TQ 5.3	to replace ‘-’ with ‘to’
TQ 9.3	to be deleted

Lonicera caerulea L. (Blue Honeyberry)

68. The subgroup discussed document TG/LONIC (proj.2), presented by Mr. Erik Schulte (Germany) and agreed the following:

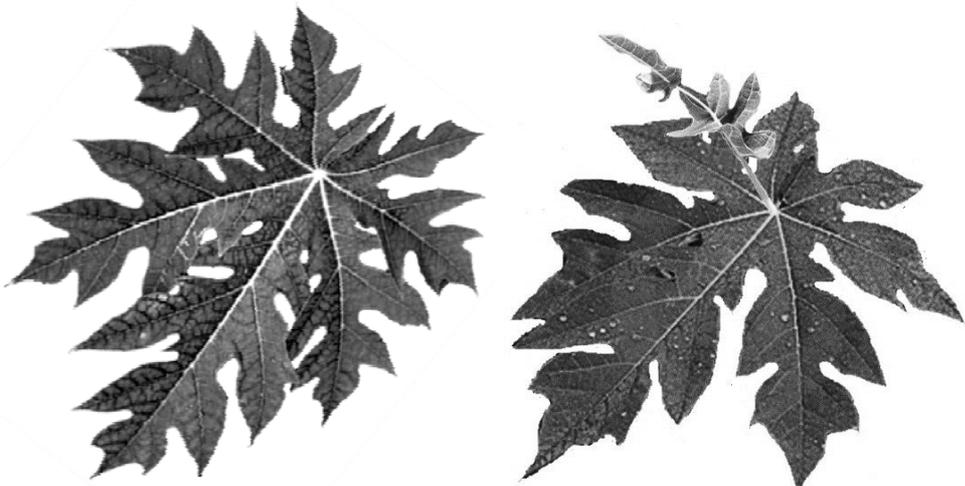
Cover page	to read: “ <i>Lonicera caerulea</i> L.”
Cover page	to add “Haskap” to English name and “Camérisier bleu” to French name
Chars. 7, 9	to reduce number of states to 1, 3, 5
Chars. 8, 9	to delete (a)
Table of Chars.	to remove “SK:” for all example varieties
Char. 10	to add (+) and example varieties: “Altai” for state (2) and “Amur” for state (4)
Char. 13	to read: “Leaf blade: length/width ratio” and to have states: moderately elongated (1); medium (2); moderately compressed (3)
Char. 14	to read: “Leaf blade: shape of apex”
Char. 17	to have example varieties: “Altai” for state (1) and “Amur” for state (5)
Chars. 19, 20	to delete
Char. 21	to have states: 1, 3, 5 and to have example variety “Amur” for state (5)
Chars. 22, 25, 26	to have states: 1, 3, 5
Char. 23	To change wording from “compared to” to “relative to”
Chars. 25, 25	to add (+) and provide illustration / explanation
Char. 27	to have states: narrow elliptic (1); broad elliptic (2); circular (3) and to add (+) and provide illustration in form of a grid
Char. 28	to have states: ovate (1); narrow oblong (2); broad oblong (3); obovate (4); companulate (5)
Char. 29	to have states: acute (1); rounded (2); truncate (3) and to amend illustration accordingly
New Char.	to read: “Fruit: tip” and to have states: absent (1); present (9) and to be indicated as QL [to check whether to read: “Fruit: tip” or “Fruit: protruding tip”] and to place after Char. 29
Char. 31	to read: “Fruit: surface” and to have states: smooth (1); intermediate (2); rough (3) and to add example varieties “Amur” for state (1) and “Altai” for state (2)
Char. 32	to add (+) with explanation (as for Blueberry)
Char. 34	to add example varieties “Amur” for state (1) and “Altai” for state (9)

Chars. 35, 36, 37	to indicate as VG/MG
Ad. 7,8,9	to delete Ad. 7 header and to add Ad. 10 header to same explanation
Ad. 14	to read: “Leaf blade: shape of apex”
Ad. 28	to update illustration with states updated as in Char. (drawings to be provided)
Ad. 29	to update with changes to Char. 29
Ad. 31	to read: “Fruit: surface” and update states as in Char. 31
9.	to replace “Article 1. US” with “3-8” in Hummer, K.E. reference and to replace second literature reference [Plekhanova, M.N] with “Plekhanova, M.N. 2000. BLUE HONEYSUCKLE (<i>Lonicera Caerulea</i> L.) - A New Commercial Berry Crop For Temperate Climate: Genetic Resources And Breeding. Acta Hort. (ISHS) 538:159-164“
TQ 1.1	to read: “ <i>Lonicera caerulea</i> L.”
TQ 5	to update according to changes in Table of Chars.
TQ 6	to change “..your candidate variety” to “narrow oblong”
TQ 9.3	to delete

Papaya (*Carica papaya* L.)

69. The subgroup discussed document TG/264/2(proj.1), presented by Mr. Alejandro F. Barrantes Priego (Mexico) and agreed the following:

Cover	To leave the name “Papaw” under English name and to add “Fruta bomba” to Spanish names	
2.3, 3.4.1	to change number of plants to “5” in the case of vegetatively propagated plants	
4.1.4	to change number of plants to “5” in the case of vegetatively propagated plants	
4.2	to be reviewed	
4.2.3, 4.3.2 (ii)	second sentence to read: “In the case of a sample size of 5 plants, no off-type is allowed.”	
Chars. 1, 3, 10, 11, 13, 14, 19, 21, 26 to 33, 35, 36, 38, 40, 44, 45	to indicate as VG	
Chars. 2, 4 to 9, 12, 18, 20, 22, 24, 25, 37	to indicate as VG/MS	
Chars. 5, 6	to add (+)	
Chars. 5, 6	to add (*)	
New Char. after Char. 10	to read: “Leaf: presence of flag leaflet” with states: absent (1) with example varieties “Cera, Maradol, Sunrise” and present (9) with example variety “Callina” and to be indicated as QL and to add (*) and (+)	
New Char. after	to read: “Time of flowering” with states: early (3); medium (5); late (7) with example varieties: “Arum, Carisya, Sinta (3); “Callina, Sunrise” (5); “Cavite	

Char. 10	Special, Wulung” (7) and to be indicated as QN and to add (*)
Char. 12, 22 and 38	to add (*)
Chars. 15, 16, 17	to be indicated as QN
Chars. 15, 16, 17, 34, 39, 41, 42, 43	to be indicated as VG/MG
Char. 20	to add (+) with explanation that applies only for hermaphradite or female varieties
Char. 21	to add (+) that this applies to all types of plants, regardless of the sex
Char. 26	to check whether state 6 to read: “oblong waisted”
Char. 27	example variety for state (3) to read: “Sunrise”
New Char. after Char. 30	to read: “Fruit: surface” with states: smooth (1); medium (2); rough (3 with example varieties “Callina, Paris (1); “Carisya”(2); “Sukma” (3)) and to be indicated as QN
Char. 34	to check whether to indicate as VG/MG and to improve explanation
Char. 38	state (4) to read: “stellate”; state (5) to read: “irregular” and to move example varieties accordingly
Char. 44	state (3) to read: “strongly towards base”
New Char. Ad.	<p>Leaf: presence of flag leaflet</p>  <p>absent (1) present (9)</p>

Ad. 15,16,17	<p>to read: “The observations on proportion of male, hermaphrodite and female, must be observed when the plant is in full bloom, only in seed propagated varieties” and table updated as below:</p> <table border="1" data-bbox="611 331 1390 757"> <thead> <tr> <th>Male, hermaphrodite, female plants</th> <th>Note</th> <th>Approximate percentage</th> </tr> </thead> <tbody> <tr> <td>absent or very low</td> <td>1</td> <td>< 10%</td> </tr> <tr> <td></td> <td>2</td> <td>11 to 20%</td> </tr> <tr> <td>low</td> <td>3</td> <td>21 to 30%</td> </tr> <tr> <td></td> <td>4</td> <td>31 to 40%</td> </tr> <tr> <td>medium</td> <td>5</td> <td>41 to 50%</td> </tr> <tr> <td></td> <td>6</td> <td>51 to 60%</td> </tr> <tr> <td>high</td> <td>7</td> <td>61 to 70%</td> </tr> <tr> <td></td> <td>8</td> <td>71 to 80%</td> </tr> <tr> <td>very high</td> <td>9</td> <td>> 90%</td> </tr> </tbody> </table>	Male, hermaphrodite, female plants	Note	Approximate percentage	absent or very low	1	< 10%		2	11 to 20%	low	3	21 to 30%		4	31 to 40%	medium	5	41 to 50%		6	51 to 60%	high	7	61 to 70%		8	71 to 80%	very high	9	> 90%
Male, hermaphrodite, female plants	Note	Approximate percentage																													
absent or very low	1	< 10%																													
	2	11 to 20%																													
low	3	21 to 30%																													
	4	31 to 40%																													
medium	5	41 to 50%																													
	6	51 to 60%																													
high	7	61 to 70%																													
	8	71 to 80%																													
very high	9	> 90%																													
Ad. 26	 <p>figure “waisted” was improved</p>																														
TQ 4.2	<p>to add “4.2 Method of propagating the variety 4.2.1 Seed-propagated varieties (a) Cross-pollination [] (b) Hybrid [] (c) Other []” (please provide details)</p>																														

Pineapple (*Ananas comosus* L. Merr.)

70. The subgroup discussed document TG/PINEAP (proj.7), presented by Mr. Richard Brand (France) and agreed the following:

2.3	to read “20 aerial suckers, crowns ,slips or young plants”
3.1.2	to add standard wording (b)
4.1.4	to read “20 plants or parts taken from each 20 plants”
4.2.2	to read “a sample size 20 plants”
5.3	to review Chars. according Table of Characteristics ; to add “Ploidy” from TQ 7.1 Chars.6,10,36,44 and “Ploidy” from TQ 7.1
Chars.2,4	to add (*) and indicate as VG/MS
Char.3	to add (*) and indicate as VG/MS, to add example variety “Aus-Carnival” for state 7
Char.5	to add example variety “MD2” for state 7

Char.6	to add example variety "Aus-Jubilee" for state 1 and "73-50" for state 9
Chars.7,17, 21,25,37, 39,43,52	to delete
Char.8	to have example varieties: "Smooth Cayenne" for state 2 and "Queen" for state 3
Char.9	to indicate as QL and move example variety from state 9 to state 1
Char.10	to read "Leaf: spines" with states absent (1) and present (9), indicate as QL,VG and to add example varieties "BRS Imperial" for state 1 and "Queen" for state 9
New char.	to add (after Char.10) "Leaf: density of spines" with states sparse(1),medium(2), dense(3), example varieties will be provided by JP and BR (BRS Victoria)
Char.11	to move example variety "Smooth Cayenne" to state 2 and add "MD2" for state 3
Char.12	to add example variety "MD2" for state 1
Char.13	to add (*) and example variety "MD2" for state 1
Char.14	to add(*) and example variety "Smooth Cayenne" for state 2
Char,15	to indicate as VG
Char.18	to read "Stamen: length"
Char.20	to add examples varieties: "Perola" for state 1, "Smooth Cayenne" for 2, "MD2" for 3, "Roxo de Tefe" for state 7
Char.23	to read "Peduncle: length" and indicate as VG/MS with states 1,2,3
Char.24	to read "Peduncle: diameter" and indicate as VG/MS
Char.26	to read "Plant number of underground suckers" with states none or very few (1), few (2),medium (3),many (4) and delete example variety Manzana, to move variety "Perola" to state 1, to add variety "Perolera" for state 2 and add varieties "MD2" and "Aus-Jubilee" for state3
Char.27	to read "Plant: number of aerial suckers on plant", to delete(*), to add examples varieties "Perola" for state 1, to move "Smooth Cayenne" to state 1, and add "Aus-Carnival" for state 3
Char.28	to read "Plant: size of aerial suckers on plant", delete (*) and add variety "Aus-Carnival" for state 3
Char.29	to combine with char.30 and read Plant: number of slips with states none or very few(1), few(3), medium(5), many(7), indicate as QN,VG/MS, add (+), delete example variety "Gold", add "Smooth Cayenne" for (1), add "MD2" and "Aus-Carnival" for state 3, "Queen Red Spanish" for (5); "BRS Imperial", "Perolera", "Perola" for state (7)
New char.	to add a new char.(after char.29) "Plant: size of slips" with states: small(3), medium(5), large(7) and add example variety "Queen" for state 5 and "Smooth Cayenne" for state 7
New char.	to add a new char.(before char.31) "Crown: number with states" one (1),more than one (2), indicate as QL, VG/MS , and to add example varieties "Smooth Cayenne" for state 1 and "Queen Red Spanish" for state 2
Example varieties	To correct spelling "MD2" to "MD-2" throughout Table of Chars.
Char.31	to delete example variety "Gold" and add "Smooth Cayenne", "MD2" and "BRS Imperial" for state 2, and to move "BRS Victoria" to state 3 , to add "Perolera" for state 3
Char.32	to delete (*)
Char.33	to add example variety "Gomo de Mel" for state 1, and to provide illustration in grid format

Chars.34, 35	to indicate as VG/MS
Char.36	to replace variety “Gold” by “MD2”
Char.38	to add example varieties “Aus-Jubilee” for state 3 and “Aus- Carnival” for state 5
Char.41	to indicate as VG
Char.42	to add example varieties “MD2” for state 2 and “Smooth Cayenne” for state 3
Char.44	to read “whitish yellow” instead of “whitish cream”, to delete “orange”
Char.45	to read Flesh: evenness of color and indicate as QN,VG, to add example varieties “MD2” for state 1, “Smooth Cayenne” for state 2 and “73-50” for state 3
Char.46	to read “Fruit: diameter of core” and to move before Char. 45, indicate as VG/MS, add “BRS Victoria” as example variety for state 3
Char.47	to read “Flesh: density”and to indicate as VG
Char.48	to read “Flesh: firmness”, indicate as VG/MS, to add example variety “BRS Imperial” for state 7
Char.49	to read “Flesh: fibrousness” with states 1, 2, 3. indicate as VG, to replace example variety “Gold” by “MD2”
Char.50	to read “Flesh: aroma” with states 1, 2, 3, indicate as VG, delete(+) ,to add example varieties “Queen” and “MD2” for state 3 and to move “Smooth Cayenne” to state 2
Char.51	to read “Flesh: juiciness” with states 1, 2, 3 and to indicate as VG
Char.53	to read’ Flesh: acidity”, indicate as VG/MS, to add variety Queen as example for state 3
Char.54	to read “Flesh: sweetness”, to add (*), indicate as VG/MS, to add variety “Smooth Cayenne” for state 5 and “Queen” as example for state 7
8.1-1-T	to add “immediately” before “flower emergence”
8.1 3-I	to delete “to be”
8.1 (a)	to read “vegetative characteristics”, to replace ”industry” by” technical” and to move last sentence to Ad.29
8.1(d)	to read “4-6 months”
8.1(e)	to replace “good be eaten” by” ready for consumption” and to check with TG/14/9
8.2	to delete “Manzana/Bumanguesa”
Ad.1	to delete “to be observed before flowering”
Ad.7, Ad.10	to delete
Ad.8	to read “Trichomes including hairs are located on the lower side of leaf.”
Ad.9	photo to be provided by BR
Ad.11	to read “Only varieties with spines visable” (wording of Char.11)
Ad,14	to read “Floral bracts are borne on the fruit at the base of each fruitlet (eye).”
Ad. 33	To replace illustration in grid format (see TGP/14)
Ad. 37, 39,43,47, 50	to delete
Ad. General	All Ads. should be updated according to changes in Table of Chars.
Ad.34	to read “To be observed excluding crown.”
Ad.23, 27, 30,31	to review according the Table of Characteristics, to improve illustration
Ad.42	to add explanation
Ad.48	to read “Can be assessed by using a penetrometer.”

8.3	to delete to the last sentence and to read “Floral induction should be invoked artificially about 36 to 54 weeks after planting depending on location and varieties.” and move to 8.1,
8.4	to delete explanation of juice and ascorbic acid content
8.4	- to read “Free acid content may be determined by titration of 10 ml filtered juice with 0.1 NaOH with phenolphthaleine as indicator. The result is given in meq per 100 ml of juice (meq/100ml)” - to delete data of fixed percentage; - to move “Total soluble content of juice” Sugar content (Brix value) may be recorded by using a refractometer” to Ad.54 - to delete Brix degrees data
9.	additional literature to be added (to be sent by BR)
TQ 5.	to check according the Table Characteristics and Grouping Characteristics
TQ 6	to add example
TQ 7.1	to add “Ploidy (diploid,tetraploid)”
TQ9.3	to keep

Pomegranate (*Punica granatum* L.)

71. The subgroup discussed document TG/PGRAN (proj.2), presented by Mr Guillermo Soler Fayos in the absence of Mr. Pedro Miguel Chome Fuster (Spain) and agreed the following:

1.	to delete text highlighted in yellow
2.3	to refer to “5 one-year-old rooted cuttings”
3.4.1	to refer to “5 plants”
Table of Chars.	to check method of observation – particularly MS (calculation of mean from individual plant measurements)
Char. 2	to read: “Plant: growth habit” and illustration to be reviewed in order to provide explanation that plants should be grown without pruning and to have states 1, 2, 3
Char. 3	to read: “Plant: intensity of grey color on main branches” and to delete (*) and to add (+)
Char. 5	state 1: delete “very” and to have states: none (1); few (2); medium (3); many (4)
Char. 6	to read: “Young shoot: predominant number of leaves per node” and to have states: two (1); three (2); more than three (3) and to delete (*), and to change QL to QN
Chars. 7, 8, 9	to be indicated as VG/MS
Char. 9	to add (+) and illustration in grid format (TGP/14)
Char. 10	to read “shape of apex excluding tip” and to check whether to have states: 1, 2, 3, 4, 5 (acute to obtuse) and to be indicated as PQ
Char. 11	to read “Leaf blade: intensity of green color”
Char. 12	to be indicated as PQ and to check if Char. necessary and check if anthocyanin present on the leaf blade
Chars. 13, 16, 25, 28, 30, 35,	to add (*)

37, 48, 49	
Chars. 13, 15, 16, 17, 20, 21, 25, 26, 27, 30, 34, 35, 36, 37	to be indicated as VG/MS
Char. 14	to reduce number of states to 1, 3, 5
Char. 15	to read: "Calyx: length"
Char. 16	to read: "Calyx: width"
Char. 17	to read: "Calyx: ratio length/width"
Char. 18	to read: "Calyx: color"
Char. 19	to read: "Corolla: color"
Char. 22	to indicate as QL and to check wording
Char. 23	to read: "One-year-old shoot: predominant number of flowers per node" with the states: one (1); two (2); three (3); more than three (4) and to be indicated as QN
Char. 24	to delete
Char. 25	to read: "Fruit: length"
Char. 26	to read: "Fruit: width" with states: narrow (1); medium (2); broad (3) and to be indicated as QN
Char. 27	to read: "Fruit: ratio length/width" and to delete state (9)
Char. 28	to be indicated as QN and to have the states: circular (1); circular to angular (2); angular (3) to add (+) and provide illustration
Char. 29	to have the states: pointed (1); rounded (2); truncated (3); depressed (4) and to be indicated as QN and to add (+) and provide illustration
Char. 30	to read: "Fruit: length of crown"
Char. 31	to check if there are more than two states: predominantly open (1), open and close (2), predominantly close (3) and to add (+) with explanation and to be indicated as QN
Char. 32	to read: "Fruit: over color" and to add (+)
Char. 33	to read: "Fruit: extent of over color"
Char. 38	To read "Stigma: shape" and to move before Char. 23 and to have states: narrow conical (1); medium (2); broad conical (3) and to add (+) and to check to see if clear differences
Char. 39	to read: "Aril: length"
Char. 40	to read: "Aril: width"
Char. 41	to read: "Seed: length"
Char. 42	to read: "Seed: width"
Chars. 39, 40, 41, 42,	to be indicated as VG/MS and to have states 1, 2, 3
Char. 43	to read: "Seed: hardness" and state (3) to read: "hard"
Char. 44	to read: "Aril: main color" with states: white (1); light pink (2); medium pink (3); dark pink (4); light red (5); medium red (6); dark red (7) and to move before Char. 41 and to add (+) and provide explanation
Chars. 45, 46	to delete

Char. 48	to add (+) and to be indicated as QN, VG and to delete states (1) and (9) and renumber states accordingly
Char. 49	to indicate as QL and VG and to add (+) with explanation of how to observe (conditions)
8.1(d)	to replace word “female” by “hermaphrodite”
Ad. 1	to read “..... plants.”
Ad. 2	to read: “Plant: habit” and to replace illustrations with photographs
Ad. 3	to delete
Ad. 5	to read: “One-year-old shoot: number of shoots ending in thorns”
Ad. 15	to replace illustration with photographs provided by KR delegation
Ad. 16	to read: “Calyx: width”
Ad. 18	to read: “Calyx: color”
Ad. 19	to read: “Corolla: color”
Ad. 20	to read: “Petal: length”
Ad. 21	to read: “Petal: width”
Ad. 24	to delete
Ad. 25	to read: “Fruit: length”
Ad. 26	to read: “Fruit: width”
Ad. 39	to read: “Aril: length”
Ad. 40	to read: “Aril: width”
Ad. 41	to read: “Seed: length”
Ad. 42	to read: “Seed: width”
Ad. 43	to read: “Seed: hardness” and explanation to read: “Hardness of tegmen assessed by chewing the arils: Soft means easy to chew; Hard means difficult to chew.”
TQ 1.1	to read: “ <i>Punica granatum</i> L.”
TQ 1.2	to read: “Pomegrante”
TQ 5	to update according to changes to Table of Chars.

Vanilla Mill.

72. The subgroup discussed document TG/VANIL(proj.1), presented by Mr. Alejandro F. Barrientos Priego (Mexico) and agreed the following:

Cover	to read: “ <i>Vanilla planifolia</i> Jacks.”
Cover	to add “Vanillier” as French name
1.	to read: “These Test Guidelines apply to all varieties of <i>Vanilla planifolia</i> Jacks. and interspecific hybrids.”
2.2	to read: “... in the form of plants.”
2.3	to refer to “10 plants”
4.2.1	second paragraph to read: “In the case of a sample size of 10 plants, one off-type

	is allowed.”
Table of Chars.	France to provide example varieties
Char. 1	to read, to be indicated as QN and to have the states light (1); medium (2); dark (3)
Char. 2	to have 3 states: round (1); round to angular (2); angular (3) and to be indicated as QN
Char. 3	to read: “Stem: diameter” and to be indicated as VG/MG and to add a new note (a) under 8.1 indicating where to be observed
Char. 4	to be indicated as VG/MG and to add a new note (a) under 8.1 indicating where to be observed
Chars. 5, 7	to delete
Char. 6	to be indicated as VG
Char. 8	to indicate as VG
Char. 9	to read: “Leaf blade: conspicuousness of main vein” and to check whether to have states: weakly visible (1); slightly visible (2); clearly visible (3) and to add (+) with explanation
Char. 10	to add (+) and provide illustration and to check states and to indicate as PQ
Char. 13	state 3 to read “medium green”
Chars. 14, 15,	to be indicated as VG/MS
New Char.	to read: “Leaf blade: length/width ratio” and to add (+) with illustration in grid format (TGP/14)
Char. 16	to have 3 states: symmetric or slightly asymmetric (1); moderately asymmetric (2); strongly asymmetric (3) and to be indicated as QN
Char 16	to read: “Leaf blade: thickness” and to be indicated as VG/MS
Char. 18	to read “Leaf blade: profile of surface”, with the states: flat or slightly concave (1); moderately concave (2); strongly concave (3) and to check number of states and check possibility of adding “convex” as state (5) and to be indicated as QN
Char. 19	to add (+) and provide illustration in form of grid (see TGP/14/1: Section 2: Botanical Terms: Subsection 2: Shapes and Structures: I. SHAPE page 19, Section 2.1.3 and page 28) and to refer to TGP/14 for states
Char. 20	to be moved after Char. 13
Char. 22	to read: “Flower: rostellum width” and to check whether to change states to: narrower than stigma (1); as large as stigma (2); wider than stigma (3) and to indicate as QN
Char. 23	to delete
Char. 24	to read: “Petal: color” and to move to Petal Chars. and to check whether to have 3 states
Char. 25	to add (+) and provide illustration
Chars. 26, 28	to delete
Chars. 27,	to check meaning of “ginostem” and to add (+) and provide illustration and to be

28	indicate as VG/MS
New	to check if Char. on “Flower: width of ginostem” necessary
New	to check if Char. on “Petal: margin” necessary
Char. 29	to read: “Petal: length” and to be indicated as VG/MS
Char. 30	to check whether to add state: dark green
Char. 31	to have more states and to add (+) and provide illustration and to indicate as PQ
Char. 32	to indicate as VG/MS
Char. 33	to check whether suitable DUS characteristic and to check whether to extend states to include a percentage
Char. 34	to read: “Fruit: texture of surface” and to check wording with other TGs
Char. 35	to check whether to increase number of states and to be indicated as QN
New Char.	to read: “Fruit: cross section shape” with states: circular (1); elliptic (2); triangular (3) (to check states with TGP/14
New Char.	to read: “Fruit: aroma at maturity” with states: absent (1); light (2); strong (3) and to be indicated as VG
New Char.	to read: “Flower: color of sepals” with same states as “Flower: color of petals” and to check if suitable to add
New Char.	to read: “Flower: color of lip of label” with states: white yellow (1); yellow orange (2); orange brown (3) and to check if suitable to add
Table of Chars.	to check whether sufficient number of (*) characteristics
8.1 (a)	to provide word for “Stem: to be observed ...” and to renumber notes accordingly
TQ 1.1	to read: “ <i>Vanilla planifolia</i> Jacks.”
TQ 5	to renumber accordingly

Proposals for Partial Revisions / Corrections of Test Guidelines

73. Proposals were made for proposals for partial revisions.

Strawberry

74. The TWF considered document TWF/42/22 and agreed to replace the drawing in Chapter 8.1(d) as stated in that document.

Mandarins

75. The TWF discussed documents TWF/42/19 and TWF/42/19 Add., in particular the proposal for a new Characteristic after existing Characteristic 98 (“Fruit: number of seeds (controlled manual cross-pollination)”). Experts from Morocco requested that the methodology of controlled manual cross-pollination be clarified, and made specific reference to the requirements in document TG/1/3: Section 4.2.1., before any such characteristic could be introduced. The TWF discussed the proposed mandarin partial revision and agreed that further studies were necessary to test the methodology and also agreed that the wording of the

Characteristic might need to be reviewed. With these objectives in mind, the TWF agreed to form a subgroup in which Morocco, South Africa and Spain would participate; Australia and Brazil also showed an interest in participating, however they were unable to commit at this time. Furthermore, the TWF requested Mr. Jean Maison (European Union), to coordinate the work of the subgroup. It was agreed to postpone any decision on the proposed mandarin partial revision until the subgroup had presented its results to the TWF.

Recommendations on draft Test Guidelines

76. The TWF agreed that the following draft Test Guidelines should be sent to the TC for adoption at its forty-eighth session, to be held in Geneva from March 26 to 28, 2012, on the basis of the following documents and the comments in this report. The TWF agreed that all comments should reach the Office of the Union by December 9, 2011:

<i>Actinidia</i> Lindl. (Kiwifruit)	TG/98/7(proj.3)
<i>Lonicera caerulea</i> L. (Blue Honeyberry)	TG/LONIC(proj.2)
Papaya (<i>Carica papaya</i> L.)	TG/264/2(proj.1)
Pineapple (<i>Ananas comosus</i> (L.) Merr.)	TG/PINEAP(proj.7)

Partial Revisions

Strawberry	TG/22/10
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77. The TWF agreed to re-discuss the following draft Test Guidelines at its forty-third session:

<i>Acca sellowiana</i> (Berg) Burret	New
Apple rootstocks (<i>Malus</i> Mill.) (Revision)	TG/163/4(proj.1)
<i>Fortunella</i> Swingle	TG/FORTU(proj.1)
<i>Litchi</i> Sonn	TG/LITCHI(proj.1)
Mandarins (partial revision)	TG/201/1
Pecan nut	TG/PECAN (proj.6)

Pomegranate (<i>Punica granatum</i> L.)	TG/PGRAN(proj.2)
<i>Vanilla</i> Mill.	TG/VANIL(proj.1)
<i>Cocos nucifera</i> L.	New
Prunus rootstocks (revision)	TG/187/1
Peach	TG/53/7

Guidance for drafters of Test Guidelines

78. The TWF considered document TC/47/3, Annex II “Practical Guide for Drafters (Leading Experts) of UPOV Test Guidelines”, Section “Test Guidelines for Discussion at the Technical Working Party” and agreed that draft Test Guidelines should not show revisions to previous versions and should not include comments, other than in an annex or separate document. It agreed that the Leading Expert should present a clear draft on the basis of the comments received by interested experts on the interim draft.

Date and place of the next session

79. At the invitation of the expert from China, the TWF agreed to hold its forty-third session in Beijing, China, from July 30 to August 3, 2012.

80. The TWF recalled that Australia and New Zealand had offered to jointly host the TWO and TWF sessions, respectively, in April / May 2013 and that the TWF had expressed its support for that offer.

Chairperson

81. Mrs. Bátorová was awarded a UPOV bronze medal in recognition of her chairmanship of the TWF from 2009 to 2011.

Future program

82. The TWF proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers (oral reports by the participants)
 - (b) Reports on developments within UPOV (oral report by the Office of the Union)

4. Molecular techniques:
5. TGP documents
6. Variety denominations
7. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
8. Assessing uniformity by off-types on the basis of more than one sample or sub-samples
9. Experiences with new types and species
10. Proposals for Partial Revision/Corrections of Test Guidelines (if appropriate)
11. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
12. Discussion on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. Guidance for drafters of Test Guidelines
15. Date and place of next session
16. Future program
17. Adoption of the Report of the session (if time permits)
18. Closing of the session

83. With regard to agenda item 3(a), the TWF agreed to invite experts to submit written reports to the Office of the Union in advance of the TWF session in order that a document could be prepared by the Office of the Union. In making that suggestion, the TWF noted that experts would still be invited to make a brief oral summary report at the session and would also be encouraged to make reports under agenda item 10. "Experiences with new types and species".

Technical visit

84. On the afternoon of Wednesday, November 16, 2011, the TWO visited the Grape and Persimmon Research Station of the National Institute of Fruit Tree Science, one of the institutes of the National Agriculture and Food Research Organization (NARO), and the Agricultural Technology Research Center of Hiroshima Prefecture Technology Research Institute (HITRI), where they were welcomed by Dr. Kazunori Ogawa, Director, Grape and Persimmon Research Station and Dr. Akihiko Sato, Chief Researcher, (NARO) and Mr. Hiromichi Nitta, Deputy Director General (HITRI) and Mr. Akira Hirao, Director of Fruit Research Department (HITRI), respectively. The presentations given during the technical visits are included in Annex IV to this document.

85. The TWF adopted this report at the close of the session.

[Annexes follow]

ANNEX I

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III. ORGANIZATIONS

INTERNATIONAL COMMUNITY OF BREEDERS OF ASEXUALLY REPRODUCED ORNAMENTAL AND FRUIT PLANTS (CIOPORA)



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AIGN®, International Community of
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IV. OFFICER

CHAIRPERSON



Bronislava BÁTOROVÁ (Mrs.), Chairperson

V. OFFICE OF UPOV



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Caroline ROVERE (Mrs.), Administrative Assistant, International Union
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[Annex II follows]

ANNEX II

WELCOME ADDRESS

MR. TAKASHI UEKI, DIRECTOR, PLANT VARIETY PROTECTION OFFICE,
NEW BUSINESS AND INTELLECTUAL PROPERTY DIVISION, MAFF

Thank you chairperson for sharing time to make my remarks. I'd like to express my sincere welcome for all of you participating the forty-second TWF, Technical Working party for Fruit crops in Kure city of Japan. I'm Takashi UEKI, Director, PVP office, New Business and Intellectual Property Division, MAFF, Ministry of Agriculture, Forestry and Fisheries. I also would like to express my great thankfulness to Ms. Bronislava Batoroba, chair of TWF, Ms. Julia Borys and Ms. Caroline Rover, secretariat of UPOV, delegates of every countries and organizations, and Japanese colleagues for the efforts all of you made to hold the TWF meeting.

MAFF of Japan has established Food Industries Affairs Bureau, to which PVP office belongs last September. Let me explain the background. Rural areas, rural communities produce most part of agricultural production of Japan, so to maintain and encourage rural community is crucial for Japanese agriculture. MAFF considers that we have various kinds of resources in these areas, including agricultural produces, large lands for solar panels and wind mills, materials for biomass energy (forest thinning...). Making the best use of these resources, producing foods made of local produces, generating power from solar panel or using biomass, would lead to creation of employment and increase of income in agricultural sector of Japan. Food Industries Affairs Bureau of Japan has been set up to put these ideas into action two months ago.

I'd like to say that PVP system also has a potential to encourage agriculture. UPOV has renewed its website. A video of Ashiro Rindo, lovely flower in Japan, story is posted on top page of UPOV website. The story tells how a group of farmers in the Ashiro region of Japan has used plant variety protection to enhance agriculture of rural area and has expanded their market globally. This is why PVP office of Japan belongs to New Business and Intellectual Property Division. This is why PVP office of Japan belongs to Food Industries Affairs Bureau of MAFF. I hope that the second, the third and more Ashiro Rindo stories which depict their contribution to agriculture would be posted on the

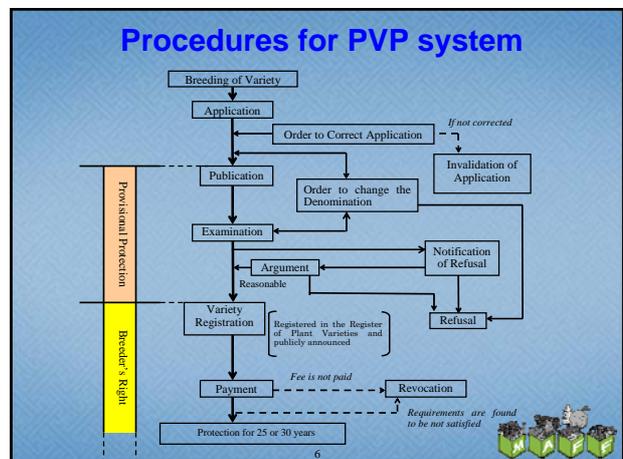
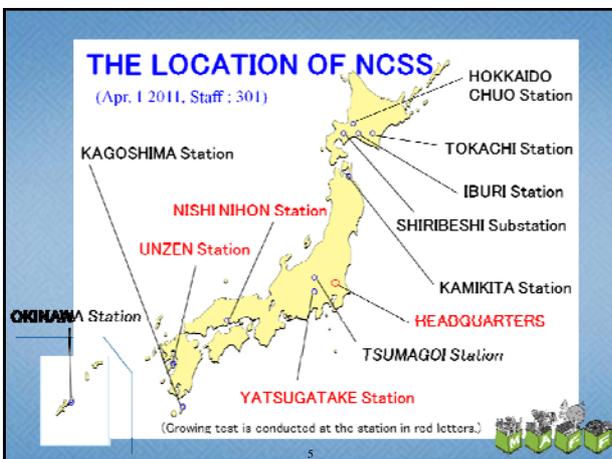
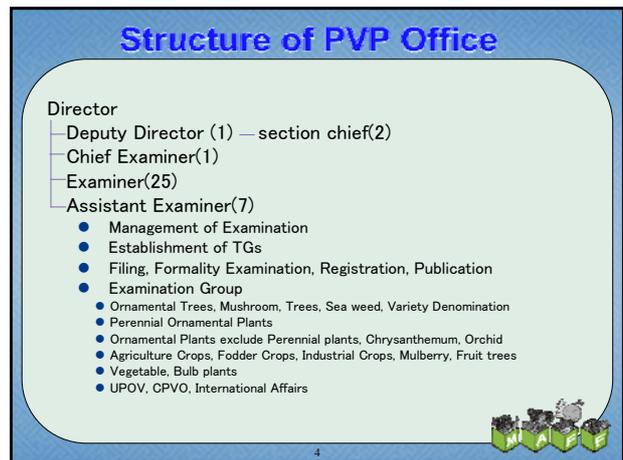
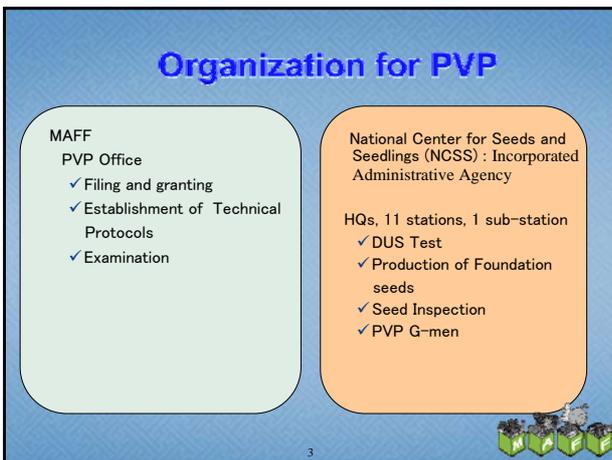
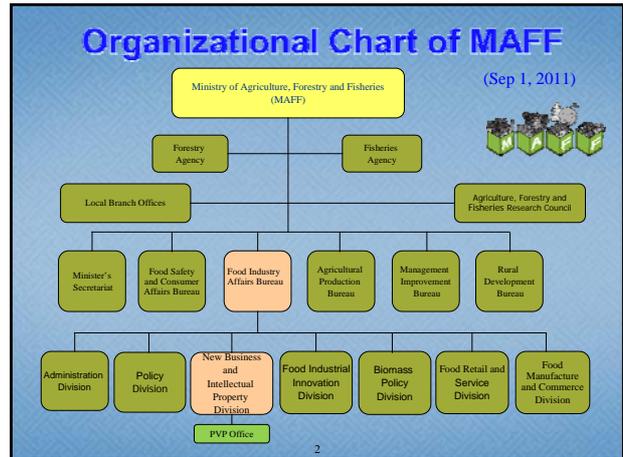
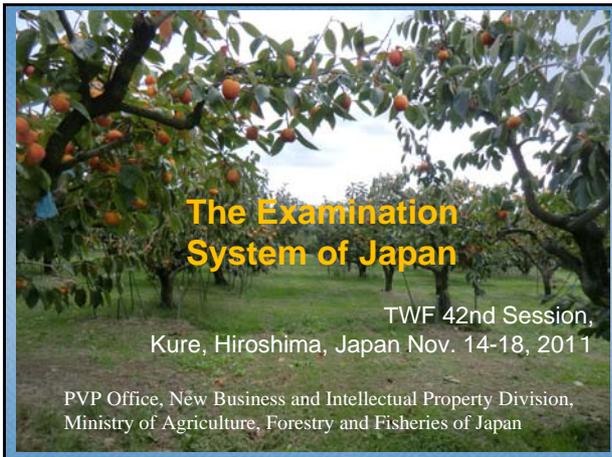
web site and more and more people would understand the importance of PVP and our activities.

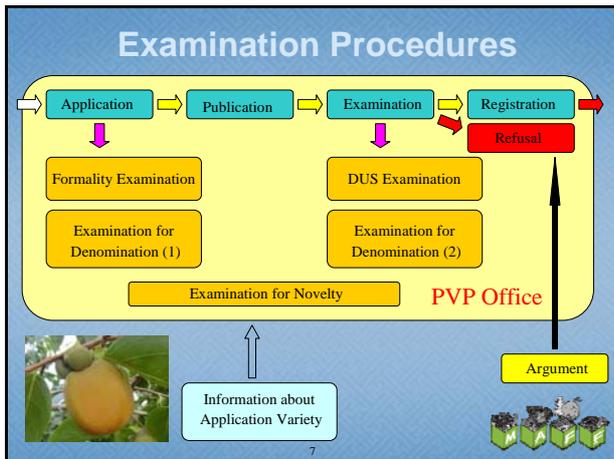
UPOV celebrated its 50th anniversary at forty-fifth ordinary session of Council in Geneva last month. Every guest who made a speech praised achievements of UPOV so far. Everyone knows that Technical Working Parties, including TWF, which makes so many Test Guidelines and discusses TGP documents, are the foundation of UPOV. I convince that this forty-second Technical Working party for Fruit crops would bring fruitful results.

Thank you again to travel a long way to Kure city. Japan is a country where four seasons are clear and distinct. And autumn is the best season for appreciating colorful leaves and tasty fruits. I'm happy to say that this period is the best season for appreciating colorful leaves in Chugoku district of Japan that Kure city belongs to. I wish all of you would enjoy staying in Kure city which faces sea.

Thank you

[Annex III follows]





Examination

- Procedure
 - Formality examination
 - Planning for DUS Test – decision about the test method
 - Growing Test (NCSS)
 - Breeder Testing (On-site Inspection)
 - Documentary Examination (including International Cooperation)
 - Examination on Denomination in twice
 - Examination on Novelty

the DUS test method (1)

Growing Test (NCSS)

- Conducted by the NCSS. Mainly ornamental plants (Chrysanthemum, Carnation, Rose, Petunia, Calibrachoa etc.) and vegetables
- Some of food crops and fruit crops are conducted by local government experimental stations according to the request of NCSS.

the DUS test method (2)

Breeder testing (On-site Inspection)
(In the event that the all following conditions are satisfied)

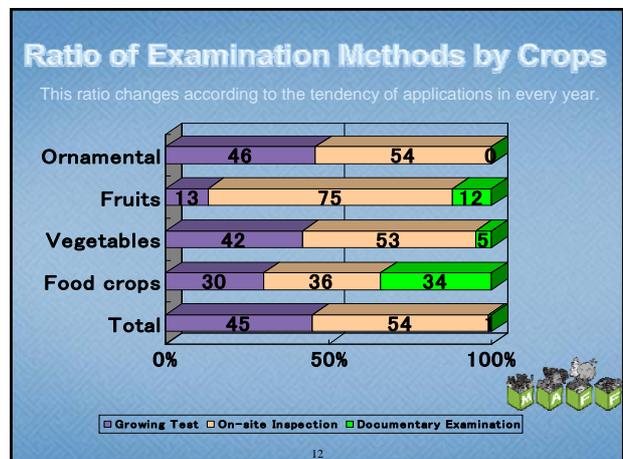
It is proven that

- the applicant or agent can conduct a reliable trial according to the instruction from PVP office,
- the characteristics on the TG can be confirmed and compared with those of the comparative varieties if on-site inspection would be conducted at an appropriate time,
- the applicant can submit reliable data if there were characteristics which could not assessed when on-site inspection was conducted.

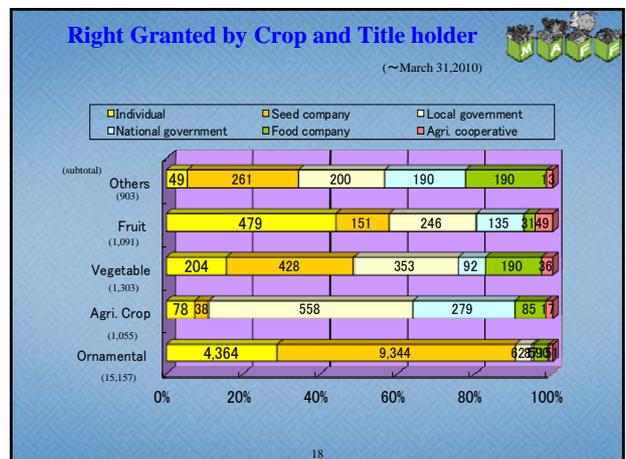
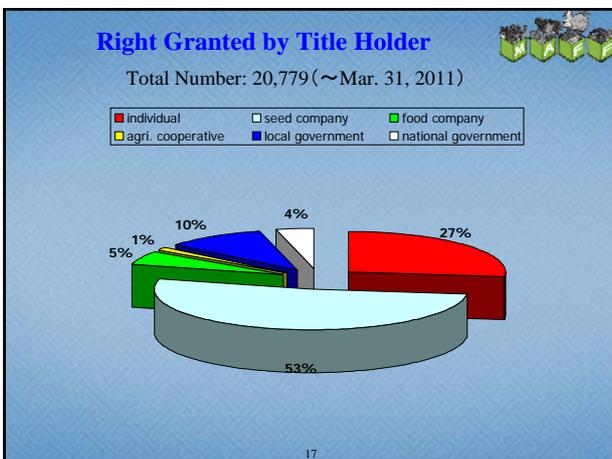
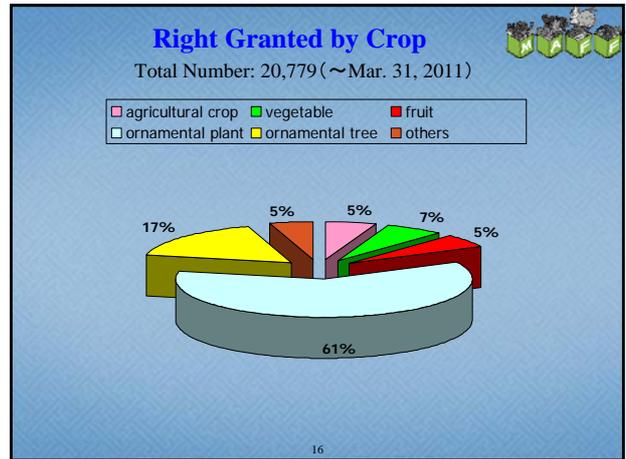
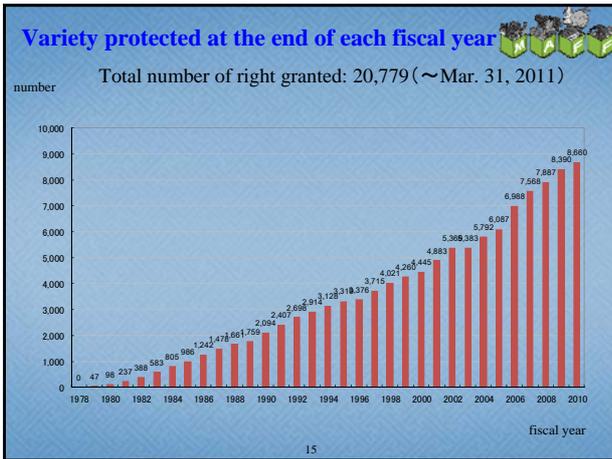
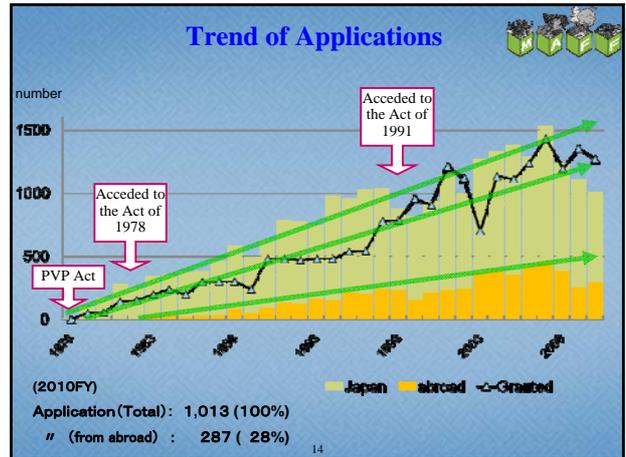
the DUS test method (3)

Documentary Examination (including International Cooperation)
(In the event that the all following conditions are satisfied)

- A characteristics assessment based on the TG for each variety was conducted for two or more years by a public research institution or an institution approved by the Director of IP Division.
- For characteristics requiring measurement based on the TG, data on actual measurements have been submitted that prove the characteristics scores for the candidate and comparative varieties on the application form are appropriate.
- For characteristics requiring observation based on the TG, data including photographs and specimens have been submitted that prove the characteristics scores for the candidate and comparative varieties on the application form are appropriate.



Statistics







National Institute of Fruit Tree Science



National Agriculture and Food Research Organization
(NARO)

History

- 1902 Established as Horticultural Division of Agricultural Experiment Station affiliated to the Ministry of Agriculture and Commerce in Okitsu, Shizuoka Prefecture
- 1906 Establishment of the School for Training
- 1921 Re-established as an Independent Institute, Horticultural Research Station, at the Same Location
- 1938 Establishment of Tohoku Branch in Fujisaki, Aomori Prefecture
December 1961 - Transferred to Morioka City, Iwate Prefecture and Renamed Morioka Branch
- 1947 Transfer of the Headquarters from Okitsu to Hiratsuka City, Kanagawa Prefecture.
Okitsu Station was Designated as Tokai Branch
- 1964 Establishment of Kuchinotsu Experiment Field in Kuchinotsu, Nagasaki Prefecture
January 1, 1973 - Re-established as Kuchinotsu Branch
- 1968 Establishment of Akitsu Branch in Akitsu, Hiroshima Prefecture
- 1973 Establishment of Fruit Tree Research Station by Reorganization of Horticultural Research Station
- 1977 Transfer of the Headquarters to Tsukuba Science City, Ibaraki Prefecture
- 1996 Renamed as National Institute of Fruit Tree Science(NIFTS). Reorganized Okitsu and Kuchinotsu Branches into Department of Citriculture (Okitsu and Kuchinotsu); renamed Morioka Branch as Apple Research Center and Akitsu Branch as Persimmon and Grape Research Center
- 2001 Establishment of NIFTS as One of the Institutes of National Agricultural Research Organization (NARO) .
Renamed the Dept. of Pomology as Dept. of Plant, Cell & Environment; Dept. of Citriculture, Okitsu and Kuchinotsu as Dept. of Citrus Research, Okitsu and Kuchinotsu; Apple Research Center as Dept. of Apple Research; Persimmon and Grape Research Center as Dept. of Grape and Persimmon Research
- 2003 NARO reorganized National Agriculture and Bio-oriented Research Organization
- 2006 NARO reorganized National Agriculture and Food Research Organization

Organization

National Agriculture and Food Research Organization

NIFTS

Director-General

Department of Planning and General Administration

Research Manager

Senior Coordinator for Citrus Research

Research Support Center

General Administration Coordinator, Senior Research Coordinator, Planning and Promotion Section (Assistant Manager, Planning Team and Management Team), General Administration Section (General Affairs Team, Accounting Team, Okitsu Administration Team, Kuchinotsu Administration Team, Akitsu Administration Team, and Morioka Administration Staff), Information and Public Relations Section, Training Section 1, Training Section 2, and Training Section 3

- Pear, Chestnut and Stone Fruits Breeding Research Team
- Grape and Persimmon Breeding and Physiology Research Team
- Citrus Breeding and Physiology Research Team
- Apple Breeding and Physiology Research Team
- Entomology Research Team
- Plant Pathology Research Team
- Research Team for Effects of Global Warming on Fruit Trees
- Citrus Greening Disease Research Team
- Fruit Genome Research Team
- Research Team for Health Benefits of Fruits
- Research Team for High Quality Fruit Production
- Apple Pest Control Research Subteam

Information Coordinator for Genetic Resource and Cultivar, Genetic Resources Laboratory, Technical Support Section 1, and Technical Support Section 2

Areas

	Tsukuba		Okitsu Citrus Research Station	Kuchinotsu Citrus Research Station	Apple Research Station	Grape and Persimmon Research Station	Total
	Fujimoto	Chiyoda					
Land Area (Orchards)	ha 40.0 (17.0)	ha 16.6 (8.6)	ha 12.2 (10.4)	ha 20.7 (16.4)	ha 27.6 (20.1)	ha 19.3 (13.1)	ha 136.4 (85.6)
Buildings (Glasshouses & Greenhouses)	m ² 22,881 (3,697)	m ² 1,758 (95)	m ² 7,082 (1,168)	m ² 6,175 (1,182)	m ² 6,104 (1,792)	m ² 4,482 (1,140)	m ² 48,482 (9,074)

NIFTS is the steward of fruits and fruit tree research for the nation to support healthy and profitable life.

NIFTS was founded in 1902, as Horticultural Division of Agricultural Experiment Station, within the Ministry of Agriculture and Commerce.

Since then, NIFTS has produced 'Fuji' apple, 'Kiyomi' tangor, 'Kosui' pear and more than 140 other new varieties. NIFTS has also developed new cultivation techniques and trained future fruit growers.

NIFTS, as the only national fruit research laboratory, has assisted Japanese fruit growers and consumers by providing fresh fruit to the dining table.

In 2001, NIFTS was re-founded as one of the Institutes of NARO. It now has the Tsukuba headquarters, and 4 other research stations, in order to carry out research on suitable land for each fruit tree species: Tsukuba for Japanese pears, Japanese chestnuts and peaches, Morioka for apples, Okitsu and Kuchinotsu for citrus, and Akitsu for grapes and persimmons.

Today, NIFTS also does much more. It is:

- Developing a new era for fruit growers, with the latest technologies.
- Providing safe and healthy domestic fruit with lower prices for consumers.

To achieve these goals, NIFTS has reorganized 29 laboratories for 11 new research teams, and 1 sub-research team.

NIFTS also coordinates with science societies and administrative agencies.

Pear, Chestnut and Stone Fruits Breeding Research Team

Breeding new, superior varieties.

Our current breeding programs are in three categories. We are developing: Japanese pears with multiple disease resistance, chestnuts that are easy to peel, and stone fruits (peach, Japanese apricot, plum, and apricot) that require less labor during production. Our effort is also focused on the development of superior fruit quality, including excellent flavor, large size, good texture, attractive appearance and extended shelf life, along with the incorporation of resistance to diseases and insect pests into new varieties.



Japanese pear 'Akizuki'



Chestnut 'Porotan'



Japanese apricot 'Kagajizou'

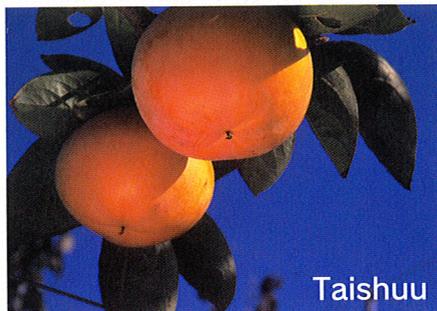


Major peach cultivar 'Akatsuki'

Grape and Persimmon Breeding and Physiology Research Team

Breeding new varieties and establishment of stable high quality fruits production.

To release new grape and persimmon varieties with both superior quality and high productivity, we are carrying out breeding and genetics analyses. To establish stable fruit production of Japanese persimmon with reduced labor intensity, we are investigating the use of dwarfing rootstocks.



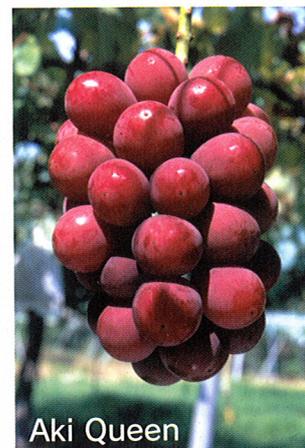
Taishuu

Persimmon trees grafted onto rootstock



own rootstock

dwarfing rootstock

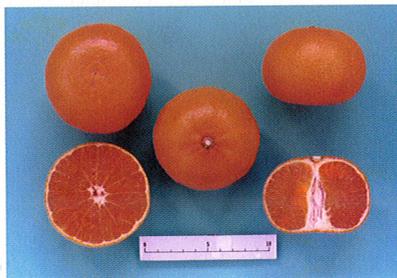


Aki Queen

Citrus Breeding and Physiology Research Team

Breeding new citrus varieties and establishment of high quality and stable fruit production.

We aim to breed new citrus varieties and to establish stable production of high quality citrus fruits. Our goal is to release new citrus varieties with easy-peeling, seedless, thin pulp segments, high quality and high productivity. We are also investigating the water usage of fruit trees, developing production techniques for reduced alternate bearing, and using dwarfing rootstocks.



Citrus variety 'Setoka' released recently



Measurement of volumetric water contents in citrus trees

Apple Breeding and Physiology Research Team

Development of high quality apple varieties and cost efficient apple production systems.

To improve the profitability of apple production, we are developing high quality apple varieties with long shelf life and dwarfing rootstocks. Apple breeding programs are being accelerated by the use of gene characterization technologies, and transformation of trees with important characteristics such as those that control flowering. The team is also developing the cost efficient production systems, using JM rootstock and uni-varietal planting.



Kotaro

Santaro

Kitaro

New apple varieties in the Taro Series



A training system that lowers the height of trees grafted onto JM 7



Precocious flowering of transgenic apple, by suppression of the terminal flowering gene (*MdTFL1*)

Research Team for Health Benefits of Fruits

Elucidation and enrichment of health functional constituents of fruits.

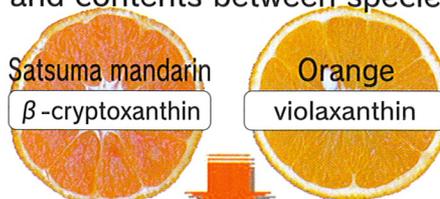
We are conducting epidemiological studies and animal experiments on the prevention of diseases such as diabetes by β -cryptoxanthin, which is contained in the Satsuma mandarin. Other functional constituents of fruits and the mechanisms of their accumulation, are being investigated. We are developing cultivation methods and postharvest treatments that increase the contents of such functional constituents in fruits.

The knowledge provided by epidemiological studies

Risk	Serum β -Cryptoxanthin	
	Low level	High level
Insulin resistance	High	Normal
Liver dysfunction by hyperglycemia and heavy-drinking	High	Normal
Atherosclerosis	High	Normal

β -Cryptoxanthin shows health benefits

Differences in carotenoid types and contents between species



Enrichment of carotenoid by cultivation and storage methods

Research Team for Effects of Global Warming on Fruit Trees

Development of technological countermeasures for impact of global warming.

In order to respond to environmental changes accompanying global warming, we are investigating the effects of high temperature on: the dormancy break of deciduous trees, the coloring of apples and grapes, and the physiological fruit drop of citrus. We are also developing technologies for mitigating these effects.



Influence of temperature on coloring of apple fruit



The dormancy break of Japanese pear by hydrogen peroxide treatment

Research Team for High Quality Fruit Production

Development of technologies for the stable supply of the high quality domestic fruit.

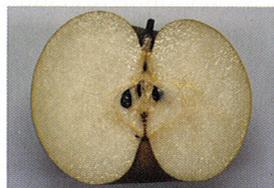
In order to improve the quality and value of domestic fruit, and to promote the export of them, we are investigating the mechanisms of fruit maturation, and developing post-harvest technologies to keep fruit fresh. We are also developing methods for identifying the districts where fruit are produced, to prevent false labeling.



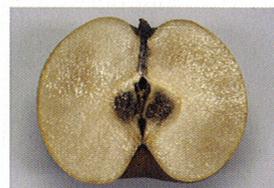
Fruit in the market

The analysis of trace elements

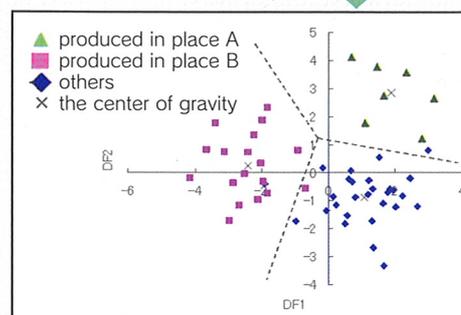
Fruit treated with 1-MCP



Untreated fruit



The effect of the ethylene action inhibitor '1-MCP', on the fruit freshness of Japanese pear 'Kosui' (The fruit were stored at 25°C for 2 weeks)

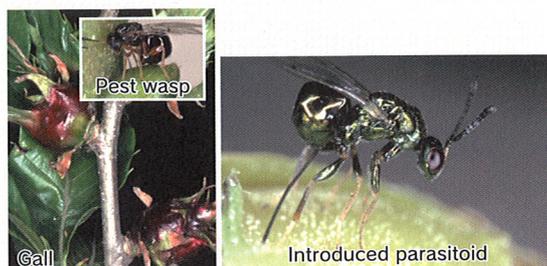


Determination of the geographical origins of fruit using trace elements

Entomology Research Team

Development of environment-friendly integrated pest management systems.

We aim to promote environment-friendly integrated pest management systems. To this end, we are investigating mechanisms for controlling the density of pest insects using natural-enemy insects and microorganisms, and we are developing technologies for utilizing such mechanisms. Other pest control methods are also being investigated, such as highly precise methods for forecasting pest insects, and mating disruption methods using pheromones.



Adult chestnut gall wasp, *Dryocosmus kuriphilus*, a gall produced by the wasp, and its introduced parasitoid, *Torymus sinensis*.



Aggregation pheromone-baited traps for fruit-piercing stink bugs

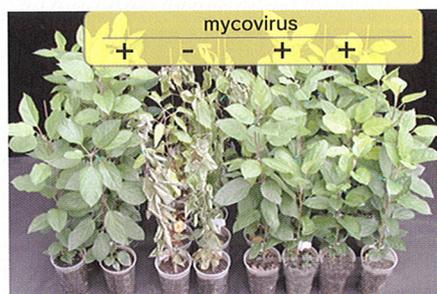


Brown-winged green bug, *Plautia crossota stali*, adults injuring citrus fruit

Plant Pathology Research Team

Development of methods for controlling serious diseases.

We aim to develop methods for controlling diseases that are difficult to prevent. To this end, our research is focused on analyzing pathogenicity genes, and on controlling diseases such as white root rot using microbial agents. We are also developing highly precise diagnostic methods using the genetic information of pathogenic viruses.



A hypovirulent isolate of *Rosellinia necatrix* caused by mycovirus on apple seedlings



Japanese pear tree dying from white root



Detection of Rupestris stem pitting-associated virus (RSPaV) in grapevine by RT-PCR

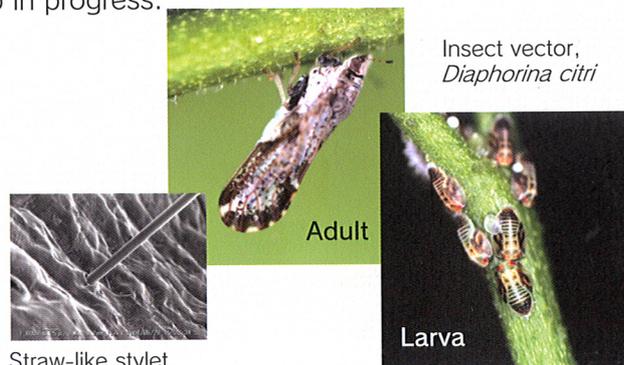
Citrus Greening Disease Reserach Team

Development of management practices to prevent further spread of citrus greening disease.

Citrus greening disease has invaded and spread over the southern islands of Japan in recent two decades. To estimate the incidence and prevent further spread of this disease, we are studying its epidemiology, and the biology of the insect vector that transmits the pathogen. Characterization of the pathogen, and development of control measures, are also in progress.



A citrus tree that has been killed by citrus greening disease



Insect vector, *Diaphorina citri*

Adult

Larva

Straw-like stylet

Apple Pest Control Research Subteam

Working towards pesticide-reduced agriculture in apple orchards.

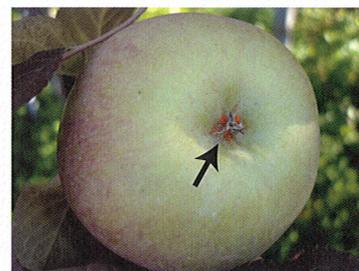
We aim to reduce the use of superfluous amounts of pesticides in apple orchards. To this end, we are investigating the biological characteristics of insect and mite pests, and mating disruption in the pests. We are also identifying the optimal time for fungicide sprays against blotch, and analyzing the appropriate tree form for less application of pesticides.



Tree form improvement for small amounts of pesticide application



Damage to flowers and young fruit by the larva of *Lepidoptera*



Two-spotted spider mite colonized at calyx end of apple fruit as a diapausing site

Fruit Genome Research Team

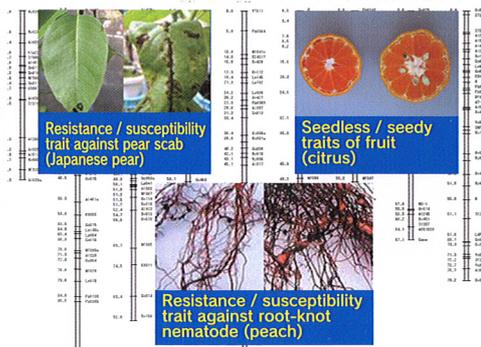
A functional genome analysis for fruit quality improvement.

We are isolating and evaluating genes that function to determine fruit quality or disease resistance in citrus, Japanese pear and peach. Molecular markers for important traits as well as high-density genetic linkage maps are also being developed. These new tools will facilitate elite cultivar development through marker-assisted selection in breeding programs of these fruit species.

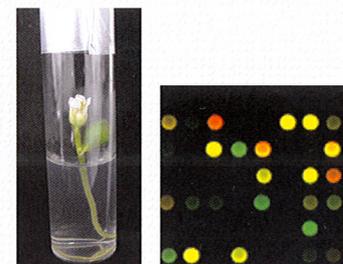
Expressed gene information
catggtggga agccagagggc
caacccttt ggcgcccgcg
acctcagcct cagccaacac
tatatatggg tatgtatgtg
ctggattatt gttcgtgata



Database construction



The evaluation of gene functions by the development and application of flowering induction system or DNA microarray



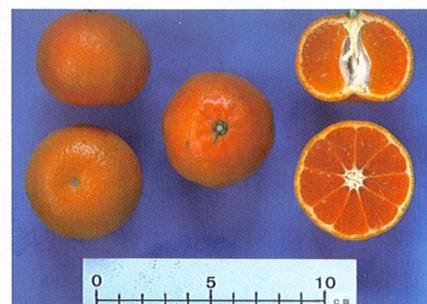
Genetic Resources Laboratory

Collection and development of useful materials for fruit breeding.

We are collecting genetic resources of fruit tree, including wild types and cultivars from all over the world, then preserving and evaluating them. The information will be published as the NIAS database. In addition, we are carrying out basic research on the introduction, preservation, evaluation and utilization of superior traits, and developing new breeding materials with these traits.



Exploration of fruit tree genetic resources in Turkey (Tree and fruit of wild sweet cherry)



Citrus parental line NO.5, a seedless breeding material with female sterility from 'Mukaku kishu'

Upgrading the experimental research support center and making it more efficient

We have set up a research support center that will fully support our breeding and cultivation experiments, by providing such services as canopy management. Our aim is to achieve a more efficient research operation.



Installation of a bird protection net using a vehicle for high-place work

Training course program

We conduct training in agricultural techniques, for trainee who will become the successors of fruit tree farmers and/or fruit farm experts. Graduates of this training course program are playing active roles as leaders in fruit growing districts throughout the nation.



trainees in practical training

Locations of NIFTS

Grape and Persimmon Research Station

Akitsu, Higashihiroshima, Hiroshima 729-2494
TEL: +81-846-45-1260



Apple Research Station

Morioka, Iwate 020-0123
TEL: +81-19-641-3164



Tsukuba Headquarters



Kuchinotsu Citrus Research Station

Kuchinotsu, Minamishimabara, Nagasaki 859-2501
TEL: +81-957-86-2306



Okitsu Citrus Research Station

Okitsunakamachi, Shimizu-ku, Shizuoka 424-0292
TEL: +81-543-69-7100



NATIONAL INSTITUTE OF FRUIT TREE SCIENCE(NIFTS)
National Agriculture and Food Research Organization (NARO)

2-1 Fujimoto, Tsukuba, Ibaraki 305-8605, JAPAN

TEL: +81-29-838-6447

URL <http://fruit.naro.affrc.go.jp>

Grape and Persimmon Research Station, National Institute of Fruit Science, National Agriculture and Food Research Organization (NARO)

Persimmon classification based on astringency

Persimmon cultivars are classified into four types depending on the nature of astringency-loss of the fruit and the change in flesh color.

Pollination-constant and non-astringent (PCNA)

The fruits of PCNA cultivars lose astringency naturally on tree. The flesh color does not change due to pollination.



Pollination-variant and non-astringent (PVNA)

The fruits of PVNA lose astringency on tree and flesh color turns brown when pollinated. The removal of astringency of this type is due to a large amount of volatiles from seeds. Without pollination, flesh color does not change to brown, and fruit remains astringent.



Pollination-variant and astringent (PVA)

The fruits of PVA remain astringent, and need a further treatment to remove astringency after harvest. The flesh color become brown only around the seeds due to a small amount of volatiles from seeds.



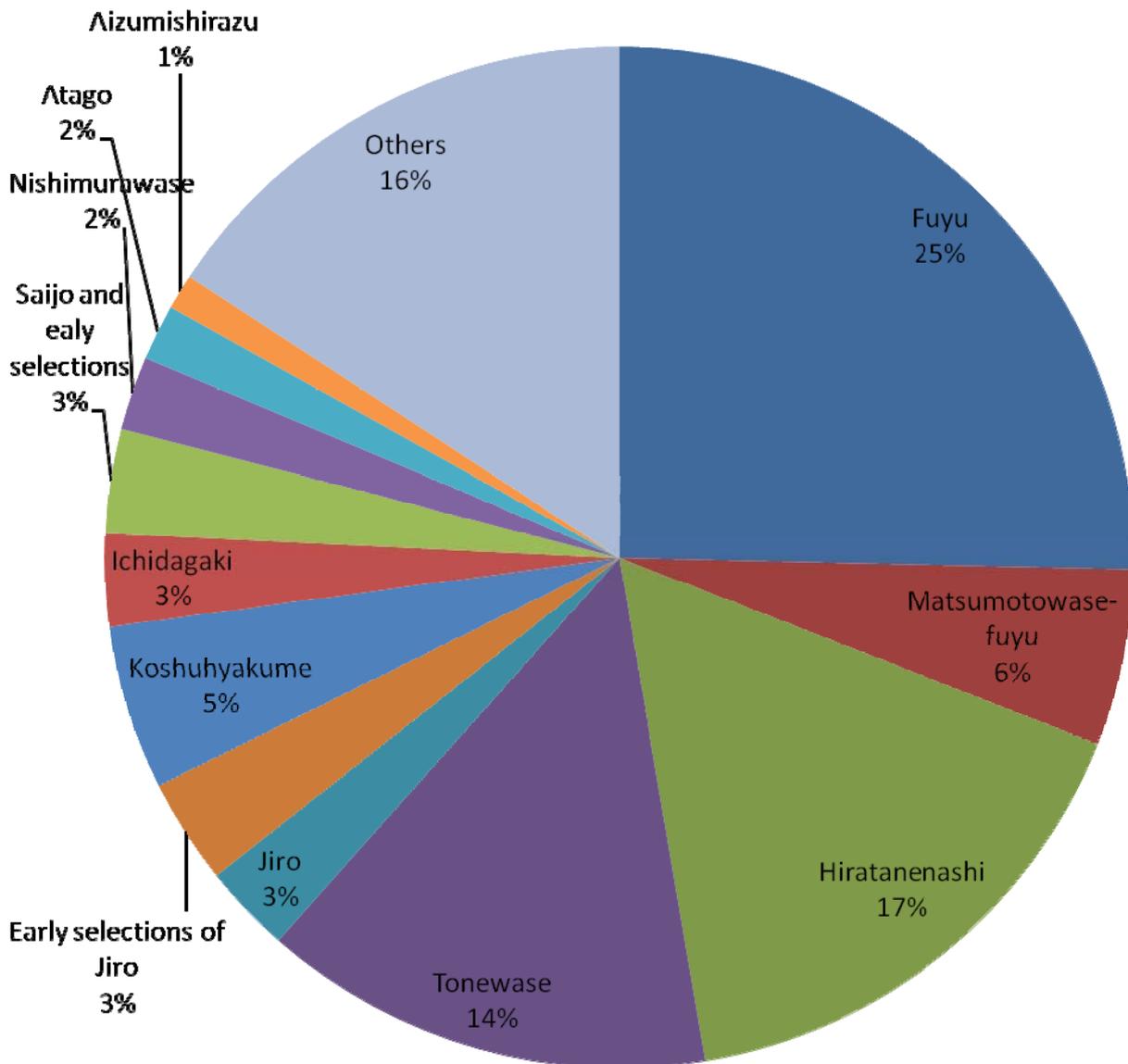
Pollination-constant and astringent (PCA)

The fruits of PCA remain astringent, and need a further treatment to remove astringency after harvest. The flesh color does not change due to pollination.



Grape and Persimmon Research Station, National
Institute of Fruit Science, National Agriculture and
Food Research Organization (NARO)

Persimmon cultivars in Japan



Introduction of the Fruit Tree Research Division

The aims of the Division are given as follows :

- Establishment of production techniques for high quality fruit and stable output
- Development of cost and labor - saving techniques
- Development of production techniques to cope with climate change
- Development of environmentally-sound pest control and soil management techniques in fruit production
- Selection of excellent cultivar and their promotion for fruit production

Central leader trained satsuma mandarin 'ishiji'



Grapes by root zone cultivation



Prefecturally-produced citrus cultivar 'akimarin'

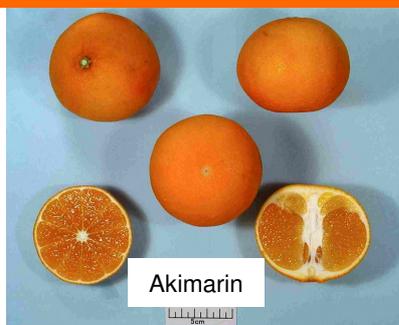
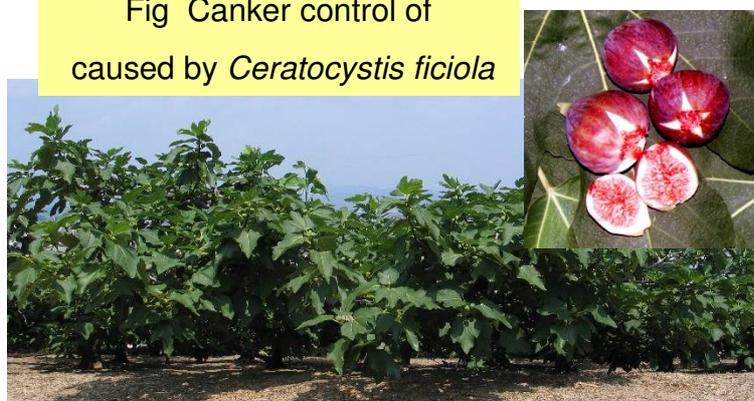


Fig Canker control of caused by *Ceratocystis ficiola*



Address: Fruit Tree Research Division , Agricultural Technology Research Center ,
Hiroshima Prefectural Technology Research Institute
2835 Mitsu Akitsu-cho, Higashi-Hiroshima, Hiroshima 739-2402, Japan
Tel: +81-846-45-5471, fax: +81-846-45-1227





This is How we Bred the New Citrus Cultivar !

- ◆ Presenting a new cultivar, corresponding perfectly to the needs of consumers.
- ◆ The competitive power of this new cultivar supports the vitality of its production regions.

★ Breeding in Agri. Tech. Res. Cent.

Crossing⇒ Seeding⇒ Bearing Fruit

Primary Selection
(mainly fruits characteristics investigation)



Promising strains were introduced in a seminar, discussing new technology

Secondary Selection
(cultivation characteristics investigation)



Naming and
Application for new variety Registration

Virus Free Tree Upbringing
and Multiplication

New Variety
Registration Decision

Contract of
Assent

Distribution of Virus Free Scion



★ Trial in production region

To ensure the smooth and quick spread of the new cultivar, the implementation of on-the-ground trials was settled in 2006.

This is being put into effect through contracts with the next 3 persons.

- ★ The head of the Regional Organization for the Promotion of Region of Fruit Tree
- ★ Trail implementation producer
- ★ Hiroshima Prefectural Technology Research Institute

On-the-Ground Trials

- ① Trial for regional applicability
 - Conducted Before the application for new variety registration
 - Investigates the Applicability of the new variety in various regions

On-the-Ground Trial

- ② Propagation promotion Trial
 - Conducted After the application for new variety registration
 - Investigates the Potential of regional introduction in of the new variety

Assent Destination
multiplication, scion and nursery
stock sale

Formation of a Production Region for the New Cultivar



Raising the Fresh New Citrus Cultivar 'Hiroshima Kaken No.11'

'Hiroshima Kaken No.11' is a non-acid, large fruit-bearing new cultivar, harvestable at the end of November.

○It was produced by a cross between the 'Kiyomi' tangor and the 'Southern Red' mandarin.

○Weighing over 200g, and having a diameter of 8cm, its fruit is particularly big.

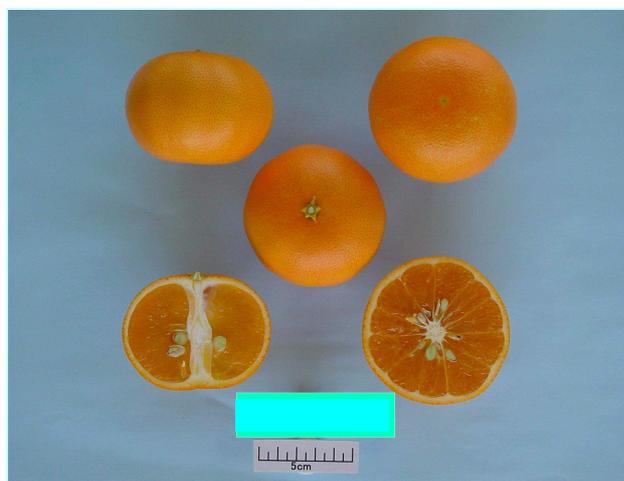
○The fruit's skin color is a dark orange, giving it a beautiful smooth external appearance.

○As citric acid content was measured at less than 1% at the end of November, the fruit is enjoyable for all. Its defining characteristic is its fresh and non-acidic flavor.

○It was registered as a cultivar in October of 2007.

Cultivar	Date of Analysis (y. m. d)	Fruit weight (g)	Transverse diameter (mm)	Longitudinal diameter (mm)	Shape index of fruit (length/vertical ×100)	Coloring*	Soluble solids content (%)	Acid content (%)
Hiroshima kaken No.11	00.11.15	247	83	67	124	10.0	11.0	0.88
	01.11.20	196	78	62	125	10.0	11.3	0.65
	02.11.20	265	85	68	124	9.9	12.0	1.03
	03.11.20	192	77	61	126	9.6	11.3	1.18
	Average		225	80	65	125	9.9	11.4

*Coloring is selected by 11 degrees between no-color to perfect color



Hiroshima Kaken No.11





New citrus cultivar `Akimarin' raised by Hiroshima prefecture

The new cultivar `Akimarin' can be harvested at the end of the year. It has abundant juices and fresh orange flavor. It becomes large fruits almost without the seed. It is suitable for the gifts at the new year.

Origin Hybrid of `Kiyomi' and `Southern red'

● Rind color is strong reddish-orange



● High yields



- Big fruits of about 250g
- 11.6 Brix% and less than 1.1% acidity at the end of December
- Few seeds
- Fresh orange flavor



Cultivar	Date of analysis	Fruit weight (g)	Transverse diameter (mm)	Longitudinal diameter (mm)	Rind coloring percentage(%)	Brix (%)	Acid content (%)
Akimarin	2000.12.01	248	82.0	75.5	100	11.7	1.13
	2001.12.20	237	81.6	71.2	100	11.6	1.08

★ It became a registered new variety on March 11, 2010. (Registration No.19246)



From ‘ Shiranui ’, Raising the New Cultivar ‘ Aki No Kagayaki’, of “Early Acid Decrease” Type

The following is a comparative evaluation of the characteristics of ‘Aki No Kagayaki’ and ‘Shiranui’ (Dekopon).



- Selected from an embryonic ‘Shiranui’ seedling.
- The fruit is big, and not much different from ‘Shiranui’.
- Though the fruit sugar content is lower than ‘Shiranui’ by 0.6~1.3%, it rises above 13% two years after setting.
- The volume of citric acid is low, and clearly decreases early.
- As the sugar-acid ratio is high, the fruit boasts a high quality taste.

Cultivar	Examination	Fruit weight (g)	Soluble solids content (%)	Acid content (%)	Total sugar-acid ratio (sugar/acid)
	Year				
Aki No Kagayaki	2001	246	12.3	1.32	9.3
	2002	262	13.0	1.02	12.8
	2003	269	15.0	1.33	11.3
Shiranui(Control cultivar)	2001	262	12.9	1.59	8.1
	2002	192	14.3	1.30	11.0
	2003	220	15.6	1.76	8.9

The examination dates were January 15 2001, February 4 2002, and February 4 2003.
‘Aki No Kagayaki’ was first set in 2001.

It became a new registered variety in 2006.

Producing Delicious Satsuma Mandarins with Little Work !

— Mandarin Central Leader Training —

1-year-old nursery plants



Spraying a 200ppm
BA solution just
before sprouting
(March)

Lengthening the trunk to 150cm

Nursery plants purchased at 1 year of age



2-years-old nursery plants



2 years after planting

7 years after planting

Planting after the birth of lateral shoots (June)

Characteristics of central leader training

	Central Leader Training	Modified Open-Leader Training
● Arrangement of lateral shoots	Simple	Complex
● Total working hours of fruit thinning, picking and pruning	27 hours / t (Fruit yield)	50 hours / t (Fruit yield)
● First fruit setting	1 year after planting	3 years after planting
● Fruit quality in a tree	Vary narrowly (Higher)	Vary widely (Lower)

Field Trial for 'Ishiji' Satsuma Mandarin Production Using Central Leader Training

Aims of this study: To Clarify the effects of central leader training on yield of satsuma mandarin in the field conditions.

Orchard Owner name: Chishio Nakata

Cultivar: Five year old 'Ishiji' satsuma mandarin

Soil: Decomposed granite soil

Treatments:

Central leader training (CLT)

240 trees / 10a

Open center training (OCT: control)

166 trees / 10a



Table. Effect of central leader training on yield of satuma mandarin in the field conditions.

Training method of trees		Observed data					Predicted data			Time required for maturation of orchard from setting
		2006	2007	2008	2009	2010	2011	2012	Total	
CLT ^{a)}	Yield amount (t / 10a)		0	1.3	3.3	3.6	4.0	4.0	16.2	4 years
	Shipment amount (t / 10a)		0	0.7	2.6	3.0	3.2	3.2	12.7	
OCT ^{b)}	Yield amount (t / 10a)	0	0	0.7	1.7	2.3	2.8	3.2	10.7	6 years
	Shipment amount (t / 10a)	0	0	0.4	1.0	1.7	2.3	2.6	8.0	

a) Transformation of seedlings suitable for CLT was carried out in 2006. The seedlings were set in the orchard in 2007.

b) Seedlings were set in 2006 without transformation.

ANNEX V

LIST OF LEADING EXPERTS

**DRAFT TEST GUIDELINES TO BE SUBMITTED
TO THE TECHNICAL COMMITTEE IN 2012**

All requested information to be submitted to the Office of the Union

before December 9, 2011

Species	Basic Document(s)	Leading expert(s)	Interested experts (States/Organizations) ¹
* <i>Actinidia</i> Lindl. (Kiwifruit) (Revision)	TG/98/7 (proj.3)	Mr. Barnaby (NZ)	AU, BR, CN, IL, IT, JP, KR, QZ, ZA, CIOPORA, Office
<i>Lonicera caerulea</i> L. (Blue Honeyberry)	TG/LONIC (proj.2)	Mr. Schulte (DE)	CA, PL, QZ, SK, CIOPORA, Office
*Papaya (<i>Carica papaya</i> L.) (Revision)	TG/264/1(proj.1)	Mr. Barrientos- Priego (MX)	BR, IL, JP, ZA, CIOPORA, Office
*Pineapple (<i>Ananas comosus</i>)	TG/PINEAP (proj.7)	Mr. Brand (FR)	AU, BR, ES, JP, KE, MX, PT, QZ, ZA, CIOPORA, Bioversity, Office

Partial Revisions

Species	Basic Document(s)	Leading expert(s)	Interested experts (States/Organizations)
*Strawberry (Partial revision for Chapter 8.1 (d))	TG/22/10	Mr. Schulte (DE)	AU, BR, CA, CL, CN, ES, FR, HU, IL, JP, KR, MX, NL, NZ, PL, PT, QZ, SK, ZA, CIOPORA, Office

¹ for name of experts, see List of Participants

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWF/43

(* indicates possible final draft Test Guidelines)

New draft to be submitted to the Office of the Union

before June 15, 2012

(Guideline date for Subgroup draft to be circulated by Leading Expert: April 20, 2012

Guideline date for comments to Leading Expert by Subgroup: May 18, 2012)

Species	Basic Document(s)	Leading expert(s)	Interested experts (States/Organizations) ²
<i>Acca sellowiana</i> (Berg) Burret	New	Mr. Barnaby (NZ)	, BR, Office
Apple rootstocks (<i>Malus</i> Mill.)(Revision)	TG/163/3(proj.1)	Mr. Venter (ZA)	CN, DE, CIOPORA, JP, KR, FR, QZ, BR, AU, NZ, Office
* <i>Fortunella</i> Swingle	TG/FORTU(proj.1)	Mr. Yamaguchi (JP)	AR, ES, IL, KR, RU, QZ, Office
* <i>Litchi</i> Sonn.	TG/LITCHI(proj.1)	Ms. Lu Xin (CN)	JP, KR, IL, ZA, Office
Mandarins (partial revision)	TG/20/1	Mr. Chomé Fuster (ES)	AU, CN, CO, IL, JP, KR, MA, MX, NZ, QZ, ZA, CIOPORA, Office
Peach (partial revision)	TG/53/7	Mr. Brand (FR)	AU, BR, CA, CN, ES, IL, JP, KR, MX, NZ, SK, QZ, ZA, CIOPORA, Office
Pecan nut	TG/PECAN (proj.6)	Mr. Barrientos-Priego (MX)	BR, IL, KR, ZA, Bioversity, Office
*Pomegranate (<i>Punica granatum</i> L.)	TG/PGRAN (proj.2)	Mr. Chomé Fuster (ES)	IL, KR, MX, QZ, ZA, Office
<i>Vanilla</i> Mill.	TG/VANIL (proj.1)	Mr. Barrientos-Priego (MX)	FR, QZ, Office
<i>Cocos nucifera</i> L.	New	Mrs. Machado (BR)	MX, ID, Office
Prunus rootstocks (revision)	TG/187/1-	Mr. Schulte (DE)	AU, BR, CN, ES, FR, KR, NZ, QZ, ZA, CIOPORA, Office

[End of Annex V and of document]

² for name of experts, see List of Participants