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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

TECHNICAL WORKING PARTY FOR FRUIT CROPS

Forty-Seventh Session
Angers, France, November 14 to 18, 2016

REPORT

adopted by the Technical Working Party for Fruit Crops

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Opening of the session

1. The Technical Working Party for Fruit Crops (TWF) held its forty-seventh session in Angers, France, from November 14 to 18, 2016. The list of participants is reproduced in Annex I to this report.

2. The session was opened by Mr. Katsumi Yamaguchi (Japan), Chairman of the TWF, who welcomed the participants and thanked the European Union for hosting the TWF session.

3. The TWF was welcomed by Mr. Martin Ekvad, President of the Community Plant Variety Office of the European Union (CPVO).

4. The TWF received a presentation by Mr. Ekvad on the plant variety protection system in the European Union. A copy of the presentation is provided in Annex II to this report.

Adoption of the agenda

5. The TWF adopted the agenda as reproduced in document TWF/47/1 Rev.

Short reports on developments in plant variety protection

(a) Reports on developments in plant variety protection from members and observers

6. The TWF noted the information on developments in plant variety protection from members and observers provided in document TWF/47/24 Prov. The TWF noted that reports submitted to the Office of the Union after November 9, 2016, would be included in the final version of document TWF/47/24.

(b) Reports on developments within UPOV

7. The TWF received a presentation from the Office of the Union on the latest developments within UPOV, a copy of which is provided in document TWF/47/16.

Molecular techniques

8. The TWF considered documents TWF/47/2.

Developments in the Technical Working Parties

9. The TWF noted the developments in the TWPs and BMT, as set out in paragraphs 5 to 15 of document TWF/47/2.

Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)

10. The TWF noted that the BMT, at its fifteenth session, held in Moscow from May 23 to 27, 2016, had been invited to develop a list of possible joint initiatives with the Organization for Economic Co-operation and Development (OECD) and the International Seed Testing Association (ISTA), including the development of a list of terminology (definitions) used by OECD, UPOV and ISTA for consideration at the Technical Committee (TC), at its fifty-third session, to be held in 2017.

11. The TWF noted that the BMT, at its fifteenth session (see document BMT/15/28 "Report", paragraphs 39 to 44) had:

- noted that the development of a joint document explaining the principal features of the systems of the OECD, UPOV and ISTA could only start after agreement by OECD and ISTA;

- noted that the development of a joint OECD/UPOV/ISTA document containing an inventory of molecular marker techniques used by crop could only start after agreement by OECD and ISTA;

- noted that OECD, ISTA and UPOV had different objectives and cooperation between the organizations in the use of molecular techniques would need to reflect that. However, the BMT agreed that it would be important to explore circumstances in which the same techniques and information could be used. In the first instance, it agreed that it would be more effective to explore such possibilities on the basis of real situations rather than at a theoretical and institutional level;

- welcomed the proposal by the Netherlands to organize a practical workshop in 2017, with support from UPOV, OECD and ISTA, to explore how molecular techniques might be applied in an efficient way for UPOV, OECD and ISTA purposes; and

- agreed that possible future collaboration between UPOV, OECD and ISTA might include the harmonization of terms and methodologies used for different crops and the possible development of standards, after the agreement by these organizations.

OECD/UPOV/ISTA Joint Workshop on Molecular Techniques

12. The TWF noted that a Joint OECD/UPOV/ISTA/AOSA (Association of Official Seed Analysts) Workshop on Biochemical and Molecular Methods had been held in Paris on June 8, 2016, and noted that the following recommendations of the Joint OECD/UPOV/ISTA/AOSA Workshop had been approved by the Annual Meeting of the OECD Seed Schemes, held in Paris on June 9 and 10, 2016:

- To develop a joint document explaining the principal features (e.g. DUS, variety identification, variety purity, etc.) of the systems of OECD, UPOV, AOSA and ISTA and, for mutual understanding, to repeat the joint workshop at relevant meetings of the OECD and ISTA;

- To carry out a joint inventory by UPOV, OECD, AOSA and ISTA of the use of molecular marker techniques, by crop, with a view to developing a document containing that information. The OECD will contribute to the document by sharing the ongoing list of molecular techniques used by NDAs and continuously collected by the Secretariat;

- To develop a list of terms and their definitions as used by OECD, UPOV, AOSA and ISTA and to make an attempt to harmonize these;

- To consider organizing another similar workshop in three years' time; and

- To consider replacing "internationally validated" by another term such as "internationally harmonized."

13. The Annual Meeting endorsed the proposal of the Netherlands to organize a practical workshop in 2017, with support of the OECD, UPOV and ISTA, to explore how molecular techniques might be applied in an efficient way for UPOV, OECD and ISTA purposes.

Presentation of Information on the situation in UPOV with regard to the use of molecular techniques

14. The TWF noted that the TC, at its fifty-second session, had agreed a draft question and answer concerning the information on the situation in UPOV with regard to the use of molecular techniques for a wider audience, including the public in general, as set out in document TWF/47/2, paragraph 23, and as agreed by the Administrative and Legal Committee (CAJ), at its seventy-third session, and the Consultative Committee, at its ninety-second session, and adopted by the Council, at its fiftieth ordinary session held in Geneva on October 28, 2016.

Developments in UPOV members

15. The TWF received a presentation by an expert from France on "The use of molecular techniques in DUS Examination for fruit species in France", a copy of which is provided in document TWF/47/2 Add..

16. The expert from the European Union reported on the creation of the working group on the integration of molecular data into DUS testing (IMODDUS), the aim of which is to review different projects using molecular techniques in DUS examination. The TWF noted that a first meeting was held in June 2016, with experts on DUS examination and experts on molecular techniques. The TWF noted that 2 projects were running in tomato and rose, and that one other project was foreseen for apple, in particular mutants in apple.

TGP documents

17. The TWF considered the TGP documents below on the basis of documents TWF/47/3 and TWF/47/3 Add..

Matters proposed for adoption by the Council in 2016

18. The TWF noted the revisions to documents TGP/7, TGP/8 and TGP/0, which had been adopted by the Council at its fiftieth session, as set out in paragraphs 6 to 13.

Possible future revisions of TGP documents

19. The TWF noted that the proposals for future revisions of TGP documents to be discussed by the TWPs at their sessions in 2016 would be dealt with under separate documents.

New proposals for future revisions of TGP documents

20. The TWF noted the new proposals for revision of TGP documents to be discussed by the TWF at its session in 2016.

Program for the Development of TGP documents

21. The TWF noted the program for the development of TGP documents, as set out in Annex III to document TWF/47/3.

TGP/7: Development of Test Guidelines: Revision of document TGP/7: Drafter's Kit for Test Guidelines

22. The TWF considered document TWF/47/9.

23. The TWF noted the issues addressed in response to the comments by Leading and Interested Experts that participated in the testing of the prototype of the web-based TG Template, as set out in paragraphs 21 and 22 of document TWF/47/9.

24. The TWF noted that the TC had agreed the format of the Table of Characteristics in all Test Guidelines with a structure as set out in paragraph 16 of document TWF/47/9.

25. The TWF noted that the TC had agreed that guidance should be developed on the order of the methods of observation for a characteristic in the Table of Characteristics to indicate that the most commonly used method was displayed first.

26. The TWF noted that the development of Version 2 of the web-based TG Template would not start before 2018, subject to availability of resources, after Version 1 had been fully stabilized and tested.

27. The TWF noted that document TGP/7 would be revised to reflect the introduction of the web-based TG Template after Version 1 was fully stabilized and tested.

28. The TWF received a demonstration by the Office of the Union of Version 1 of the web-based TG Template.

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

Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, Section 9: the Combined-Over-Years Uniformity Criterion (COYU)

29. The TWF considered document TWF/47/10.

30. The TWF noted that the TC, at its fifty-second session, had agreed to request members of the Union to provide larger data sets to the United Kingdom for developing probability levels for the new method that would match results obtained using the previous probability levels, as set out in paragraph 20 of document TWF/47/10.

31. The TWF noted that the Office of the Union had issued UPOV Circular E-16/098 to invite UPOV members' experts to provide to the United Kingdom by May 27, 2016, data sets including at least 100 candidate varieties, with a possibility that data for those 100 varieties could be derived from several years.

32. The TWF noted the report by an expert of the United Kingdom on the results and further progress, including contribution of data to be made at the thirty fourth session of the TWC.

Revision of document TGP/8: Part II: Selected Techniques used in DUS Examination, New Section: Examining DUS in Bulk Samples

33. The TWF considered document TWF/47/11.

34. The TWF considered the proposed guidance for examining DUS in bulk samples as presented in the Annex to document TWF/47/11, for inclusion in a future revision of document TGP/8. The TWF agreed with the TWV and the TWA that the proposed guidance did not present enough examples for examining DUS in bulk samples, and therefore requested the drafter to further elaborate on the proposal and to include more examples, as requested by the TC at its fifty-second session.

Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions

35. The TWF considered document TWF/47/12 and the developments reported in the document.

36. The TWF recalled the presentation made by the experts from Germany and New Zealand under agenda item "Number of growing cycles in DUS examination" (see document TWF/47/15 Add.) and agreed on the importance of an appropriate range of expression and number of states for each characteristic for assessing distinctness and producing accurate variety descriptions. The TWF agreed to report to the TWC on the work done by Germany on "Variability of assessment data over years in apple", on the basis of the presentation reproduced in document TWF/47/15 Add..

TGP/10: Examining Uniformity

Revision of document TGP/10: Assessing uniformity by off-types on basis of more than one growing cycle or on the basis of sub-samples

37. The TWF considered document TWF/47/13.

38. The TWF considered the draft guidance as presented in Annexes I and II for inclusion in a future revision of document TGP/10 and agreed that in the case of fruit, DUS examination is usually done on the same plant material (with the exception of strawberry), and uniformity assessed in a single growing cycle. In some cases a second growing cycle is needed (e.g. mutants for apple), but results from the two cycles are treated independently, and never combined.

39. The TWF agreed with the TWO that the term "clear" should be clarified in the sentence: "Furthermore, on the basis of a clear lack of uniformity, a variety may be rejected after a single growing cycle". It agreed to propose that the sentence in approaches 1 and 2 should read as follows:

> "Furthermore, if a variety exceeds in the first growing cycle the allowed number of off-types in two growing cycles, the variety may be rejected after a single growing cycle."

Variety denominations

40. The TWF considered document TWF/47/4.

41. The TWF noted the work on the possible development of a UPOV similarity search tool for variety denomination purposes by the WG-DST, as set out in paragraphs 5 to 13 of document TWF/47/4.

42. The TWF noted that a revision of document UPOV/INF/12/4 in relation to changes of registered variety denominations had been adopted by the Council (document UPOV/INF/12/5), at its forty-ninth ordinary session, as set out in paragraph 14 of document TWF/47/4.

43. The TWF noted that the mandate and the composition of the WG-DST had been expanded to prepare recommendations for the CAJ concerning a possible revision of document UPOV/INF/12 (to become the WG-DEN).

44. The TWF noted that the first two meetings of the WG-DEN had been held in Geneva, on March 18, 2016 and October 25, 2016, respectively.

Management of variety collections

45. The TWF received a presentation from France on "DUS Reference Collection: French approach". It noted the difficulty that PVP Offices sometimes had to obtain plant material from breeders, especially when a variety was no longer in commercialization.

46. The TWF agreed to report this difficulty to obtain plant material from breeders to the TC, at its fifty-third session, during the discussion on management of variety collections, in order for the TC to consider whether to investigate possible options to address this issue.

Duration of DUS tests in the fruit sector

47. The TWF considered document TWF/47/19.

48. The TWF considered the proposal from an expert from the European Union and agreed to propose to modify the wording of document TGP/7 as follows, in order to reflect common practice in the fruit sector (sentences/modification highlighted in grey):

- ***Addition of a standard sentence at the point 3 of the UPOV TG Template so that it reads:***

" 3. Method of Examination

3.1 Number of Growing Cycles

The minimum duration of tests should normally be:

{ **ASW 2** (Chapter 3.1(.1)) – number of growing cycles }
{ GN 8 (Chapter 3.1.2) – explanation of the growing cycle }
{ **ASW 3** (Chapter 3.1.2) – explanation of the growing cycle }

As soon as it can be established with certainty that the outcome of the DUS test will be negative, it can be stopped independently from the number of growing cycles carried out so far.

- ***Additional option(s) to be included in the ASW 2***

ASW 2 (TG Template: Chapter 3.1) – Number of growing cycles

(a) Single growing cycle

"The ~~minimum~~ duration of tests should ~~normally~~ typically be a single growing cycle. At the end of the growing cycle the competent authority will determine whether or not a following growing cycle is required."

(b) Two independent growing cycles

"The ~~minimum~~ duration of tests should ~~normally~~ typically be two independent growing cycles. Nevertheless, at the end of each growing cycle the competent authority will determine whether or not a following growing cycle is required

Calibration book for harmonized variety description in apple

49. The TWF considered document TWF/47/23 and received a presentation from an expert of the European Union.

50. The TWF recognized the use of Test Guidelines as a means of facilitating harmonization among members of UPOV in DUS examination, however it further agreed:

- on the importance, during the Test Guidelines discussion, to agree between experts on the clarity of the states of expression and the scale to be used, in order to limit the risk of discrepancies in interpretation by examiners;
- that each characteristic should fulfill the requirements of a characteristic, as set out in the "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of new Varieties of Plants" (see document TG/1/3, Section 4.2.1), and this should be kept under review;
- on the need to revise some adopted Test Guidelines and adjust states and notes accordingly;
- on the importance of example varieties allocated to each state;
- on the importance of the method of observation and its explanation, to clarify for the examiners when and where to measure/observe in order to reduce variation between observers/ observation;
- on the potential influence of the environment on the expression of the characteristic.

51. The TWF recalled the presentation made by an expert from Germany under agenda item "Number of growing cycles in DUS examination" (see document TWF/47/15 Add.) illustrating the variation that may be recorded for characteristics in the Test Guidelines between years for a range of varieties.

52. The TWF noted that the work done by the expert from the European Union, as reproduced in document TWF/47/23, illustrated differences in variety descriptions between authorities for the same variety. It further agreed that this information would be interesting to be considered for each characteristic in any future revision of the Test Guidelines, an in particular in this case for apple.

53. The TWF agreed on the proposal made by the expert from the European Union, to study the discriminating power of characteristics on the basis of a model study developed previously by the TWV for peas (see document TWV/47/25 "pea database study"). This information would be useful to review each characteristic in a possible future revision of the Test Guidelines for Apple. The TWF also noted that some characteristics are less effective than others in examining distinctness taking into account their variation according to the environment. The study would aim to clarify the use of each characteristic in DUS examination and its ability to describe the variety and/or to assess distinctness in an efficient way.

54. The TWF requested the expert from the European Union to coordinate the study. The TWF noted that experts from Australia, Canada, Czech Republic, France, Germany, Hungary, New Zealand and Poland were willing to contribute to this study and provide their data by April 2017.

55. The TWF agreed on the need to exchange more information among PVP Offices, and suggested to organize, when relevant, ring tests for DUS experts in order to harmonize the way to assess characteristics.

The TWF suggested to discuss the topic of a harmonized way of describing varieties further during the technical visit to be organized during the forty-eighth session of the TWF.

Matters concerning variety descriptions

56. The TWF considered documents TWF/47/14.

57. The TWF noted the purpose of the variety description developed at the time of the granting of the breeder's right (original variety description), and the status of the original variety description in relation to the verification of the conformity of plant material to a protected variety for enforcement of the breeder's right, as set out in paragraph 28 of document TWF/47/14.

58. The TWF noted the presentations on "matters concerning variety descriptions" received by the TWPs, at their sessions in 2015, as set out in paragraph 7 of document TWF/47/14.

59. The TWF noted the comments by the TWPs, at their sessions in 2015, on matters concerning variety descriptions and the role of plant material used as the basis for the DUS examination, as set out in paragraphs 8 to 26 of document TWF/47/14.

60. The TWF noted the presentations made by experts on their experiences with regard to the role of plant material used as the basis for the DUS examination in relation to matters presented in paragraph 31 of document TWF/47/14.

61. The TWF received a presentation on "Updating Variety Descriptions – Outcome of the survey" by an expert from the Community Plant Variety Office of the European Union. A copy of the presentation is provided in Annex I to document TWF/47/14 Add..

62. The TWF received a presentation on "The role of plant material used as the basis for the DUS examination for fruit species" by an expert from France. A copy of the presentation is provided in Annex II to document TWF/47/14 Add..

Proposal for revision of the term "recurved"

63. The TWF noted that the expert from Israel had withdrawn the proposed revision of the term "recurved" and that therefore no document would be considered under this agenda item. The TWF agreed that this matter should not be considered further.

Guidance for drafters of Test Guidelines

64. The TWF considered document TWF/47/17 and received a presentation by the Office of the Union on the following tutorials for the web-based Test Guidelines template:

- Leading Expert drafting tutorial
- Interested Expert comments tutorial
- Leading Expert checking tutorial.

65. The TWF noted that the tutorials were available online on the TG Drafters' webpage of the UPOV website and that a copy was reproduced in the Annex to document TWF/47/17.

66. The TWF noted that further comments by users of the web-based TG Template could be sent to the Office of the Union.

DUS examination of mutant varieties of apple

67. The TWF received a presentation on "DUS examination of mutant varieties of apple" by an expert from the European Union. A copy of the presentation is provided in the Annex to document TWF/47/21.

68. The TWF agreed on the importance of exchanging information among PVP Offices about applications received at national level, especially for some apple mutation groups where similar varieties might be submitted in various countries. Such an exchange would help to allow all relevant varieties of common knowledge to be taken into consideration and, if appropriate, included in the growing trial for the examination of distinctness. It further agreed on the importance of exchanging information about rejected varieties, which might be the subject of ongoing procedures in other UPOV members.

69. The TWF agreed with the proposal made by the expert from the European Union to collect information on applications under process and existing varieties for certain apple mutation groups among UPOV members and to report to the next session of the TWF how this data has been/ could be used and what could be the possible next steps and solution.

Minimum distance between varieties

70. The TWF noted the report by an expert from the European Union that it was too early to provide any results on the trial organized in relation to minimum distance between varieties.

71. The TWF requested the expert from the European Union to report on developments at its next session.

Method of observation for derived characteristics

72. The TWF considered document TWF/47/22 and noted the presentation made by the expert from New Zealand.

73. The TWF agreed that the example given was very useful and demonstrated that the method of observation of the components of a derived characteristic can be treated independently from the method of observation of the derived characteristic.

Number of growing cycles in DUS examination

74. The TWF considered document TWF/47/15.

75. The TWF noted that the TC, at its fifty-second session, had agreed to invite members of the Union to simulate the impact of using different numbers of growing cycles on DUS decisions using actual data and to report on their results at the TWP sessions in 2016 and at the fifty third session of the TC.

76. The TWF received a presentation on the “Number of growing cycles in DUS Examination for fruit species” by an expert from France. A copy of this presentation is provided in Annex I to document TWF/47/15 Add..

77. The TWF received a presentation on “Variability of assessment data over years in apple” by an expert from Germany. A copy of this presentation is provided in Annex II to document TWF/47/15 Add..

78. The TWF received a presentation on “Interpreting Variety Descriptions for Apple – Environmental influence on Quantitative Characters” by an expert from New Zealand. A copy of this presentation is provided in Annex III to document TWF/47/15 Add..

79. The TWF agreed on the importance of the variety collections, in order to have reliable data when comparing varieties during DUS examination.

80. The TWF agreed that some characteristics are more efficient than others to examine distinctness.

Proposal concerning the ‘Guide to the UPOV Code System’ on the Principal Botanical name for Inter-Generic and Interspecific Hybrids

81. The TWF considered document TWF/47/18 and received a presentation by an expert from the European Union.

82. The TWF noted that the TC, at its fifty-second session, had agreed to invite the European Union to make a proposal to the TWPs, at their sessions in 2016, for a revision of the Guide to the UPOV Code System with regard to UPOV codes for hybrid genera and species.

83. The TWF considered the proposal to present the principal botanical name for UPOV Codes of hybrid genera and species indicating the parents in alphabetical order. The TWF noted the existence of different procedures among members of the Union and noted that, in some members of the Union, the information on parents of an intergeneric or interspecific hybrid variety were published with the female parent first. On that basis, the TWF agreed with the TWV and TWA that it would not be appropriate to revise the Guide to the UPOV Code System in relation to the principal botanical name for inter-generic and interspecific hybrids.

84. The TWF noted the comment made by the expert from the European Union that the creation of new botanical name in GENIE database, upon the request from CPVO, cannot be seen in accordance with the "Guide to the UPOV code system". In order to avoid any misinterpretation, the CPVO makes it clear that the information provided to the Office of the Union is in alphabetical order.

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

Mango (Mangifera indica L.)

85. The TWF considered document TWF/47/20 and agreed with the proposed changes.

Corrections

86. The TWF noted the corrections which will be made to the Test Guidelines of Japanese Plum and Avocado Rootstocks

Discussion on draft Test Guidelines

*Apricot (*Prunus armeniaca *L.) (Revision)*

87. The subgroup discussed document TG/70/5(proj.1), presented by Mr. Hendrik Venter (South Africa), and agreed the following:

2.3	(a) to read "varieties resulting from crossings 3 trees (one-year-old grafts) or 5 budsticks or"
3.3.2	to add ASW 4 (c) Observation of color by eye
3.4	to read: "3.4.1 Varieties resulting from crossing: Each test should be designed to result in a total of at least 3 trees. "3.4.2 Varieties resulting from mutation: Each test should be designed to result in a total of at least 9 trees."
4.1.4	to read "Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 3 plants or parts of plants taken from each of 3 plants and any other observations made on all plants in the test, disregarding any off-type plants. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 5."
4.2.2	to add "In the case of a sample size of 3 plants no off-types are allowed."
4.2.3	to be deleted
5.3	to add Chars. 1, 2, 15, 30
Table of Chars.	to delete information in field for growth stages (duplication of labels for characteristics covering several characteristics)
Char. 1	- to be indicated as VG - to add (*)
Char. 2	- to provide example variety or delete state 6 - to add (*)

Char. 5	- to move wording in brackets to 8.2 - to read “Young shoot: intensity of anthocyanin coloration of apex” - to add state 1 “absent or very weak”
Char. 10	to have states from “very low” to “very high”
Char. 13	to move wording in brackets to 8.2
Char. 15	- to add explanation that observations should be made on the upper half of the leaf - to check whether to delete state 3 “bidentate” - to add (*) - to correct spelling of example variety “Royal Roussillon” (double “s”, throughout TG)
Char. 19	to have states from “low” to “high”
Char. 20	to have notes 1, 2, 3
Char. 21	“Petiole: intensity of anthocyanin coloration of upper side”
Char. 22	to delete “predominant”
Char. 26	to move wording in brackets to 8.2
Char. 27	to check when to be observed
Char. 28	- to read “Sepal: attitude” - to add illustrations
Char. 31	- to have a different grid for the explanation as in Ad. 30 (different states of expression 7-8) - to delete example variety “Sant’ Ambrogio” from state 4
Char. 33	to read “Fruit: width in lateral view”
Char. 34	to read “Fruit: width in ventral view”
Char. 35	to have states from “low” to “high”
Char. 36	to have states from “very low” to “high”
Char. 37	to add illustrations
Char. 41	to move wording in brackets to 8.2
Char. 48	to add example varieties
Char. 50	- state 1 to read “isolated spots” - state 3 to read “covered all over with very small spots”
Char. 51	- to invert first states to have white (1) and whitish green (2) - to replace “cream” with “yellowish white”
Char. 53	to add explanation “Firmness of the flesh is observed by squeezing the fruit.”
Char. 54	to have states from “low” to “high”
Char. 59	to replace hyphen with “to” in all intermediate states
8.1 (a) to (d)	to read “~~Unless otherwise stated, all o~~ Observations on …”
8.1 (a)	to replace “winter season” with “dormant season”
8.1 (b)	to delete “in summer”
8.1 (d)	to read “Fruit/Stone: All observations on the fruit and stone should be made on 15 fruits, five from each of three trees. In the case of ten trees, 20 fruits should be observed, two from each tree”
Ad. 2	state 3 to read “upright to spreading”
Ad. 6	to read: “Observations should be made…”
Ad. 13	to review illustration (not appropriate for apex)
Ad. 24	to read: “Observations and measurements should be made…”
Ad. 26	state 1 to read “elliptic”
Ad. 27	to read: “Observations should be made…”
Ad. 30, 31	to have two different grids in Ad. 30 and 31
Ad. 30, 31 ,32, 33, 34, 35, 36, 42	to be moved to 8.1(d)
Ad. 40	to read: “Observations should be made…”

Ad. 58	to read: “Observations or measurements should be made when 5-10% of the flowers are open”
8.3	- to add sentence/ tilte “Synonyms of example varieties” - to check whether trademarks are included in the synonyms and if so, delete them - to delete “Velkopavlovická” as synonym for “Magyar kajszi” - to delete “Rutbhart” and its synonym “Early Blush®”
TQ 5	to add Chars. 1, 2. 15, 30
TQ 5.1, 5.3, 5.5	to complete to have full scale (all nine states and notes)

*Argania (*Argania spinosa *(L.) Skeels)*

88. The subgroup discussed document TG/ARGAN(proj.1), presented by Ms. Ibtihaj Belmehdi (Morocco), and agreed the following:

Cover page	to delete “Other associated UPOV documents”
2.2	to read “The material is to be supplied in the form of bud sticks or trees.”
2.3	to read “The minimum quantity of plant material, to be supplied by the applicant, should be: 8 one-year-old grafted trees or 10 bud sticks”
3.1.3	to read “The growing cycle is considered to be the period ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting of fruit.”
3.3.2	to check whether to be deleted
4.2	to add new paragraph 4.2.2 to read “For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 8 plants, no off-types are allowed.”
5.3	to add grouping characteristics
Table of Chars.	to add example varieties
Char. 1	to be deleted
Char. 2	- to be indicated as QN - to read “Tree: vigor”
Char. 4	- to be indicated as QL - to read “Trunk: texture of bark” - to have states striate (1) and grooved (2)
Char. 5	- to be indicated as QL - to have notes 1 and 9
Char. 6	- to have states “sparse”, “medium”, “dense” - to be indicated as VG
Char. 7	- to be indicated as QL and VG - to read “Shoot: zigzag alignment” - to have states absent (1) and present (9)
Char. 8	- to be indicated as QL - to have states erect (1) and drooping (2)
Char. 10	- to be indicated as MG/VG - to read “Branch: attitude” to have states erect (1), semi-erect (3), horizontal (5)
Char. 12	- to be indicated as VG - to read “Leaf blade: length” - to have states short (3), medium (5), long (7)
Char. 13	- to read “Leaf blade: intensity of green color of upper side” - state 5 to read “medium green” - to delete state “other”
Char. 14	- to be indicated as PQ and VG - to have states lanceolate (1), oblong (2), spatulate (3)

Char. 15	- state 2 to read “obtuse” - state 3 to read “rounded”
Char. 16	- to have states acute (1), acute to obtuse (2) and obtuse (3)
Char. 19	to have states from “low” to “high” (ratio, see TGP/14)
Char. 20	- to check whether to read “…on lower side” - to have states from “sparse” to “dense”
Char. 21	to check whether to add state 5 “medium”
Char. 23	- to read “Time of flowering” - to clarify state “phased”
Char. 25	- to check whether to read “Petal: color” - state 3 to read “light yellow” or “medium yellow”
Char. 26	- state 1 to read “light brown” or “medium brown” - to check wording of states 4 and 5 (dark black doesn’t exist)
Char. 30	to have states from “low” to “high” (ratio, see TGP/14)
Char. 35	to have states from “low” to “high” (ratio, see TGP/14)
Char. 37	state 3 to read “strong”
Char. 38	to check name of characteristic
Char. 41	to have states from “narrow” to “broad”
Char. 43	to replace state “other” with appropriate state(s) of expression
Char. 44	state 4 to read “more than three”
Char. 45	- state 3 to read “medium yellow” or “dark yellow” - to replace state “other” with appropriate state(s) of expression
8., 9., 10.	to be completed

Blueberry (Revision)

89. The subgroup discussed document TG/137/5(proj.2), presented by Mr. Nik Hulse (Australia), and agreed the following:

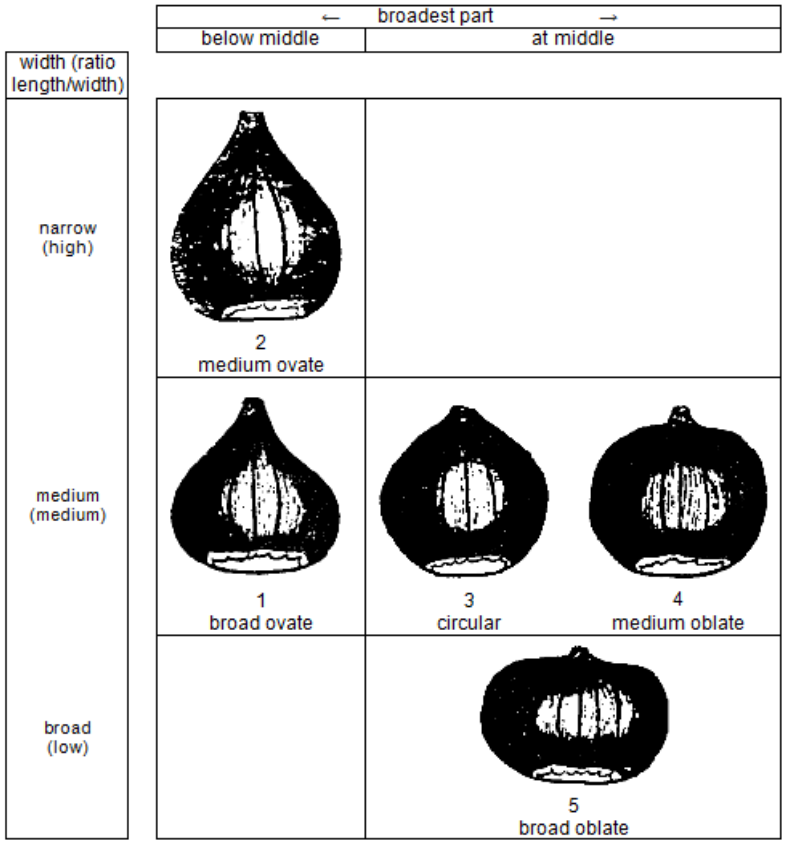
Cover page	- to check the coverage of the Test Guidelines in relation to the UPOV codes (GRIN) - to add *Vaccinium elliottii*
1.	to review coverage of the Test Guidelines
2.2	to read “The material is to be supplied in the form of plants”
2.3	to read “The minimum quantity of plant material, to be supplied by the applicant, should be: 5 plants”
3.1.3	- to delete second sentence - to review wording and clarify the notion of “satisfactory” (e.g. quantity & juvenile?)
5.3	to add Characteristic 1
Table of Chars.	- to review example varieties in the Table of characteristics and agree them with Interested Experts (high/low chilling) - to check whether to add new characteristic “Leaf: anthocyanin coloration of lower side” - to check whether to add new characteristic “Young shoot: anthocyanin coloration” - to check whether to add new characteristic “Leaf: color of edge”; to be indicated as QL; with states red (1) with example variety “DrisBlueTen” and green (2) - to check whether to add new characteristic “Leaf: glossiness” with 3 states; to be indicated as QN
Char. 2	to add example varieties: - “Cargo” and “Spartan” for state 1 - “Draper” for state 2 - “Blue Ribbon” for state 3
Char. 4	- to add example varieties - to have notes 1,2,3

Char. 10	- to read “Leaf: intensity of green color of upper side” - to delete state 1 “yellow” - to have states light (1), medium (2), dark (3) - to be indicated as QN
Char. 13	- to move brackets to 8.2 - to add explanation on where/how to observe
Char. 14	state 3 to read “cylindric”
Char. 15	- to delete states 1 and 9 - to have notes 1, 3, 5
Char. 16	to have notes 1, 2, 3, 4
Char. 17	to add example varieties: - “Atlantic” for state 2 - “Bluejay” for state 3
Char. 20	to add example varieties “Emil” and “Putte” for state 1
Char. 24	to add explanation
Char. 25	- to add explanation - to add example varieties - “Nelson” and “Olympia” for state 1 - “Denis” for state 7 - to have notes 1, 2, 3, 4
Char. 27	- to add example varieties: - “Pink Lemonade” for state 5 - “Emil, Freda, Putte” for state 6 - to move text in brackets to 8.2 - to review order of states
Char. 30	to add explanation on how to assess
Char. 31	to delete (*)
Char. 32	to read “Time of beginning of vegetative growth”
Char. 33	to be reordered
Chars. 34, 36	to add underline “Only …shoots:”
Char. 37	to be deleted
Char. 38	to be moved after Char. 11
Char. 39	to delete underlining
Char. 40	to be reordered
8.1 (b)	to delete “in early summer”
Ad. 17	to read “Observations should be made on outer side.”
Ad. 19	to read “Observations should be made on…”
9.	to check whether to add additional literature references (other than German and Polish references)
TQ 1	to add a box for interspecific hybrids
TQ 5	to add Char. 1
TQ 5.4 to 5.6	to complete to have full scale (all nine states and notes)

*Chestnut (*Castanea sativa *Mill.) (Revision)*

90. The subgroup discussed document TG/124/4(proj.3), presented by Mr. Katsumi Yamaguchi (Japan), and agreed the following:

General	to correct botanical name “*Castanea crenata* Sieold & Zucc.” to “*Castanea crenata* Siebold & Zucc.” (throughout TG: cover page, Chapter 1, TQ 1)
4.2.2	to read “For the assessment of uniformity of vegetatively propagated varieties,…”
Table of Chars.	to check spelling of example variety ”Boumette(A)” (“Bournette(A)”?)
Char. 3	to read “Current season's shoot: thickness”

Char. 5	- to read “Current season's shoot: arrangement of leaves” - state 1 to read “opposite” - state 2 to read “alternate”
Char. 7	to read “Current season's shoot: density of lenticels”
Char. 8	- to delete underlining - to delete (d) (explanation provided in Ad. 8)
Char. 10	state 3 to read “short”
Char. 19	to add (+) see Ad.19
Char. 29	to underline “Poly-embryonic varieties only”
Char. 31	to have states broad ovate (1), medium ovate (2), circular (3), medium oblate (4), broad oblate (5)
Char. 33	- to delete MS - to have notes 3, 5, 7
Char. 34	to add (+) see Ad. 34
Char. 35	- to be indicated as QL - state 2 to read “conspicuous”
Char. 36	- to be indicated as QL - to have states absent (1) and present (9)
Char. 38	to add explanation “Observations should be made on height, width and thickness of the nut.”
Char. 41	to add underlining to “Mono-embryonic varieties only”
Ad. 31	to update grid as follows: 
Ad. 39	to read “The adherence to kernel should be determined by observation of the ease of peeling the seed coat by hand following steaming or roasting . Nuts should be cut in half before steaming or roasting.”
Ad. 42	to read “The time of leaf bud burst is when 20% of buds show green color at the top of bud.”
Ad. 43	to read “The time of female flowering is when 50% of the flowers are fully open.”
Ad. 44	to read “The time of female flowering is when 50% of the flowers are fully open.”
Ad. 45	to read “The time of maturity for consumption is when 50% nuts are harvested.”

8.3	- to be moved to 8.1 (f) - to replace “grain” with “embryo”
9.	to present literature references in alphabetical order
TQ 5	to be completed (same as grouping characteristics)
TQ 6	to add example

*Date Palm (*Phoenix dactylifera*)*

91. The subgroup discussed document TG/PHOEN_DAC(proj.1), presented by Mr. Rashid Al-Yahyai (Oman), and agreed the following:

1.2	to be deleted
2.2	to check whether to read “The material is to be supplied in the form of young trees.”
2.3	to check whether to read “… 5 off-shoots or 20 tissue-cultured plantlets” or “… 5 young trees”
3.1.2	to be deleted
3.1.4	to check whether to read “Each test should be designed to result in a total of at least 5 trees.”
4.1.4	to check number of plants or parts of plants (5?)
4.1.6	to be deleted
4.2.3	to check whether to read “For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, 1 off-type is allowed.”
5.3	to add grouping characteristics
Table of Chars.	- to add example varieties - to check methods of observation
Char. 1	- to read “Young plant: intensity of green color of shoot” - to have states light (1), medium (3), dark (5)
Char. 2	to be indicated as VG
Chars. 3, 4	to be moved to the end of the Table of Chars.
Char. 5	- to improve illustration - to read “Plant: attitude of foliage” - to have states “upright”, “intermediate”, “drooping”
Char. 6	to be indicated as MG/VG
Char. 8	to read “Leaflet: width”
Char. 9	- to read “Leaflet: color on lower side” - to be indicated as PQ - state 3 to read “bluish green”
Char. 10	- state 1 to read “yellow” - state 3 to read “black”
Chars. 11, 12	to be moved after Char. 16
Char. 11	to read “Peduncle: length”
Char. 12	to read “Peduncle: width”
Char. 13	to read “Inflorescence: length of central axis”
Char. 14	to read “Inflorescence: shape of spathe”
Char. 15	- to read “Inflorescence: density of spikelets” - state 1 to read “sparse” - state 3 to read “dense”
Char. 17	to read “Infructescence: number of fruits per strand”
Char. 18	- to check colors - to move “Khalal (Besr) Stage” to 8.3 as growth stages

Char. 19	- to move “Tamar Stage” to 8.3 as growth stages - to have states green, yellow, orange, light red, medium red, dark red, black
Char. 20	- to check states (TGP/14) and adapt Ad. 20 accordingly - to check example variety for state 2 (synonyms?)
Char. 21	to check states (TGP/14) and adapt Ad. 21 accordingly
Char. 22	to check states (TGP/14) and adapt Ad. 22 accordingly
Char. 23	to delete indication of length
Char. 24	- to delete indication of width - state 3 to read “broad” - state 4 to read “very broad”
Char. 25	to read “Fruit: type”
Char. 26	- to check wording of states of expression - to read “Flesh: texture”
Char. 27	to add explanation
Char. 28	to be checked (to be indicated as QN?)
Char. 31	to have states “short”, “medium”, “long”
Char. 32	to replace “cream” with appropriate color (see TGP/14)
Char. 33	- to check whether to be indicated as VG only - to check wording of states of expression (at base, at bottom?)
Ad. 10	to be deleted (no illustrations for color)
Ad. 11	to be provided in English
Ad. 18	to be deleted (no illustrations for color)
Ad. 19	to be deleted (no illustrations for color)
Ad. 31	to be provided in English
Ad. 33	to be provided in English
10.	to be completed

Macadamia (Revision)

92. The subgroup discussed document TG/111/4(proj.2), presented by Mr. Nik Hulse (Australia), and agreed the following:

2.3	to read “The minimum quantity of plant material, to be supplied by the applicant, should be: 5 plants”
3.4.1	to read “Each test should be designed to result in a total of at least 5 plants.”
4.1.4	to read “Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts taken from each of 5 plants and any other observations made on all plants in the test, disregarding any off-type plants. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.”
4.2.2	to read “For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no off-type is allowed.”
Table of Chars.	- to add example varieties - to check whether to add new Char. “Husk: neck” with states 1 “absent”, 9 “present” with illustration
Chars. 1 to 4	to read “Tree:…” (instead of “Plant”)
Char. 1	to be indicated as PQ
Char. 2	- to be indicated as VG - state 3 to read “tall” - to add explanation
Char. 3	to add explanation
Char. 5	to add explanation on which stem/where to be observed

Char. 10	- to review order of states: ovate (1), lanceolate (2), elliptic (3), oblong (4), obovate (5), oblanceolate (6) - to move illustration for “oblanceolate” one row up
Char. 11	- to add explanation - to add new state 5 “rounded” with example variety “Nelmak 26” - to check whether to have two separate apex and tip characteristics
Char. 12	to add explanation
Char. 14	- to have notes 1, 2, 3 - to read “Leaf blade: depth of incisions of margin”
Char. 16	to be deleted
Char. 17	- to review order of colors according to TGP/14 (red, purple, brown) - to add explanation on when to observe leaf color
Char. 23	to add explanation on how to observe
Char. 24	- wording in brackets to be moved to 8.2 - to add new state “elliptic” with example variety “Nelmak 1”
Char. 26	to add explanation on where to be observed
Char. 30	to be moved before Char. 6
Char. 31	to be moved before Char. 8
Char. 34	- to read “Kernel: micropyle” - state 3 to read “fully open”
Char. 36	to add (+) and use same explanation as for Char. 35
8.1 (a)	to check whether to be improved
Ad. 4	to read “… at time”
Ad. 10	to review order of states (see comment on Char. 10)
Ad. 31	to add illustration/ drawing

*Papaya (*Carica papaya *L.) (Revision)*

93. The subgroup discussed document TG/264/2(proj.8), presented by Mr. Alejandro Barrientos-Priego (Mexico), via electronic communication, and agreed the following:

3.4.1	to read “In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 5 trees.”
4.1.4	number of parts to be taken from each of the plants should be indicated as 2
4.2.5	to read “For the assessment of uniformity of seed-propagated hybrid varieties,…”
Char. 1	to check whether to provide example variety for state 5
Char. 11	to delete underlining
Char. 15	- to be moved to the end of the table of characteristics - to be indicated as MG/VG
Char. 20	- to delete (c) (see Ad. 20) - to replace “cream” with “yellowish white”
Char. 28	to reorder states as follows: ovate (1), elliptic (2), oblong (3), obovate (4), pyriform (5), obovate waisted (6)
Char. 29	to add (+) with same explanation as in Char. 28
Char. 31	to be indicated as PQ
Char. 37	to add (+) and explanation “To be assessed with the help of a penetrometer.”
Char. 38	to add (+) and explanation “To be assessed with the help of a refractometer.”
8.1	to add new explanation with the illustration used in Ads. 7 and 10 to apply to Chars. 7, 8, 10
8.1 (c)	- to underline “Inflorescence” - to read “Observations on the inflorescence should be made…”
Ads. 7, 10	to be deleted and moved to 8.1

Ad. 11	to read state 9 “present” (instead of 2)
Ad. 28	to review order of states in the grid (see comment on Char. 28
Ad. 35	to read “transversal” (instead of transverse)

Pear Hybrids

94. The subgroup discussed document TG/PYRUS(proj.2), presented by Mr. Chris Barnaby (New Zealand), and agreed that the development of the draft Test Guidelines for Pear hybrids should be discontinued on the basis that the Leading Expert wished to review whether adequate experience has been obtained in national testing. In addition, doubt had been expressed by the subgroup on whether Test Guidelines were needed at this time due to the low number of protected hybrid Pear varieties, internationally.

95. However, the subgroup discussed document TG/PYRUS(proj.2) and agreed that, in case of a future continuation of the development of the draft Test Guidelines for Pear hybrids, the following changes be made in the new draft on the basis of document TG/PYRUS(proj.2):

1.2	to be checked (current coverage according to last years’ TWF report)
3.3.2	to be checked
Table of characteristics	to add more example varieties
Char. 1	to read “Tree: vigor”
Char. 5	to have states greyish (1), greenish brown (2), orange brown (3), brown (4)
Char. 7	- to add explanation and clarify how to assess (area, length …?) - to check whether to reduce scale
Char. 9	state 1 to read “none or few”
Char. 14	to have states from “low” to “high”
Char. 15	- to review order of states according to TGP/14 (see Ad. 15) - state 2 to read “elliptic rounded” - state 3 to read “rounded elliptic”
Char. 19	- to read “Leaf blade: margin” - to move wording in brackets to 8.2
Char. 22	to read “Leaf: ratio length of petiole/length of blade”
Char. 32	to read “Anthers: intensity of anthocyanin coloration”
Chars. 33 to 38	to be moved after Char. 29
Char. 36	to move wording in brackets to 8.2
Char. 37	to read “Petal: color of upper side”
Char. 38	to read “Petal: color of lower side”
Char. 46	to check wording of characteristic name (see TGP/14)
Char. 47	to add explanation to explain ground color (see TGP/14)
Char. 51	to clarify weak and strong flush and to provide illustrations (could the states be “solid”, “flush”, “stripes”?)
Char. 52	- to add explanation - to check method of observation
Chars. 66, 67, 69, 70	to add explanation
Ad. 14	to have illustration on ratio only
Ad. 15	to review order of states
Ad. 42	to have illustration on ratio only
Ad. 61	to review explanation
Ad. 64, 71	to improve quality of text in the illustration

*Physic Nut (*Jatropha curcas *L.)*

96. The subgroup discussed document TG/JATRO_CUR(proj.1), presented by Mr. Alejandro Barrientos-Priego (Mexico), via electronic communication, and agreed the following:

Cover page	to add Spanish common names “Piñón, Jatropha”
3.4	to read “In the case of vegetatively propagated trees, each test should be designed to result in a total of at least 5 trees. In the case of seed propagated trees, each test should be designed to result in a total of at least 15 trees.”
4.1.4	the number of parts to be taken from each of the plants should be indicated as 2
4.2.3	to delete second sentence on uniformity assessment of seed-propagated characteristics
Table of Chars.	to add example varieties
Chars. 2, 3, 4	to be indicated as MS/VG
Char. 4	to have states from “low” to “high”
Char. 8	to check whether to be observed on young leaves as well
Char. 10	to be indicated as MS/VG
Char. 12	to be indicated as VG
Chars. 14, 15, 16	to be indicated as MS/VG
Char. 16	to have states from “low” to “high”
Char. 18	to delete (d), add (+) with explanation to read “Observations should be made on the middle part of the fruiting area at the time just before fruit maturity.”
Chars. 19, 20, 21, 22, 23	to be indicated as MS/VG
Char. 22	to have states from “low” to “high”
Char. 25, 26, 27, 28	to be indicated as MS/VG
Char. 27	to have states from “low” to “high”
Char. 30	- to read “Endocarp: glossiness” and have states absent (1) and present (9) - to be indicated as VG
Char. 31	- to have states from “weak” to “strong” - to be indicated as VG
8.1 (c)	to read “Inflorescence and flower: Observations on the inflorescence and flower should be made at the time of first full flowering.”
8.1 (d)	to be deleted
8.1 (e)	to replace “fruiting region” with “fruiting area”
8.2	to be completed
TQ 5	to add all states of expression to have full scales

*Pistachio (*Pistacia *L.)*

97. The subgroup discussed document TG/PISTA(proj.1), presented by Ms. Urszula Braun-Mlodecka (European Union), and agreed the following:

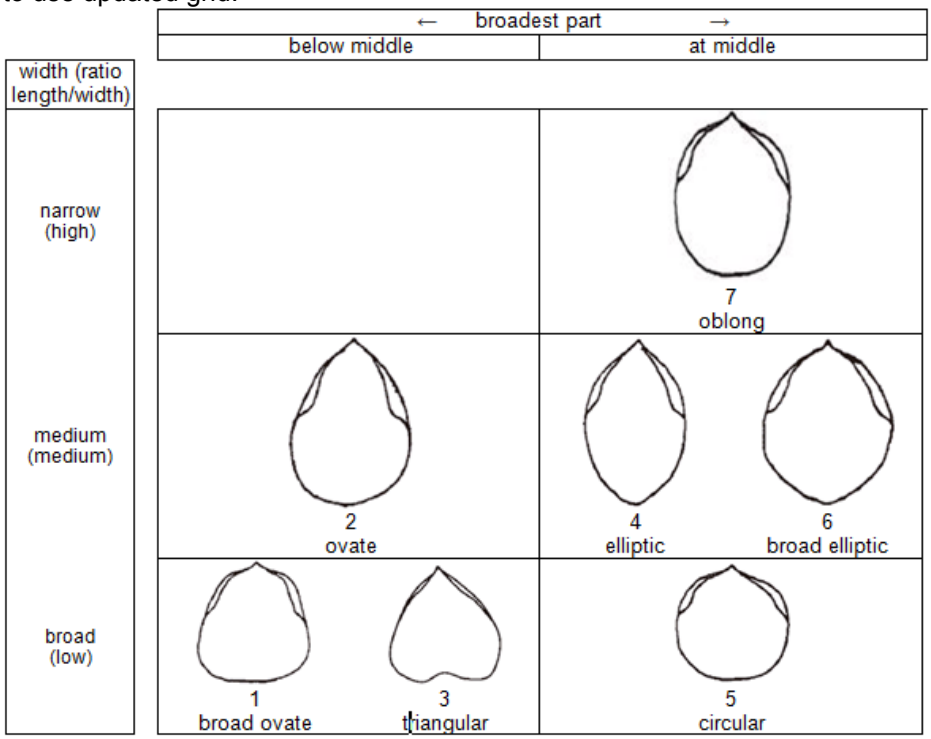
1.	to delete “which are vegetatively propagated”
4.1.6	to be deleted
Table of characteristics	to add more example varieties
Char. 4	to be moved after Char. 2
Char. 5	to delete (b) and to move explanation to 8.2 (covers only Char. 5)
Char. 6	to read “Young shoot: intensity of anthocyanin coloration of growing tip”
Char. 8	to be indicated MS/VG

Char. 11	to have states from “low” to “high” and update illustration accordingly
Char. 15	to reorder states of expression: ovoid (1), globose (2), ellipsoid (3)
Char. 16	to move “reddish brown” after “dark brown”
Char. 19	to check whether to replace “cream” with appropriate color or delete state “light cream”
Char. 20	to check wording of characteristic (relative area of over color/distribution/pattern?)
Char. 28	to check whether this characteristic is suitable for DUS examination
Char. 29	to read “Nut: suture”
Char. 30	to be indicated as PQ
Char. 33	to have states from “low” to “high”
Char. 34	to have states green (1), yellowish green (2), yellow (3), purple (4)
8.1 (b)	to be moved to 8.2 and become Ad. 5
8.1 (c)	to delete “vigorous”
8.1 (e)	- to delete “All” - to delete “typical”
Ads. 8, 9, 10	to be moved to 8.1
Ad. 11	illustration to be updated (see comment on Char. 11)
Ads. 13, 14	to be completed
Ad. 33	to read “Crack 10 nuts that are ready for consumption. Remove and weigh the kernels and assess the average weight.”
TQ 4.2	to be completed
TQ 6	to be completed

*Walnut (*Juglans regia *L.) (Revision)*

98. The subgroup discussed document TG/125/7(proj.4), presented by Ms. Dong Pei and Mr. Qing-guo Ma (China), and agreed the following:

1.	to check wording “for fruit use”
4.2	to add new paragraph 4.2.3 to read “For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 5 plants, no off-types are allowed.”
4.3.3	to be deleted
Table of Chars.	- to delete “(EUR)” from example varieties throughout the Table of Characteristics - to review example varieties and circulate them for approval by correspondence to the Interested Experts
Char. 4	- to be indicated as QN - to have states - narrow elliptic (3) with example varieties “, Daifeng, Daixiang, Hartley, Liaoning 1, Payne,Shangsong 6, Vina - medium elliptic (5) with example varieties “Corne, Franquette, Marbot” - broad elliptic (7) with example varieties “Adam 10, Chase D 9”
Char. 5	to delete (*)
Char. 10	to have states broad ovate (1), ovate (2), triangular (3), elliptic (4), circular (5), broad elliptic (6), oblong (7)
Char. 11	- to read “Nut: shape in ventral view” - to move wording in brackets to Ad. 11 to have states broad ovate (1), triangular (2), ovate (3), circular (4), broad elliptic (5), oblate (6)
Char. 20	- to delete example variety “Milotai intenzív (EUR)” from state 3 - to move example variety “Tiszacsécsi 83 (EUR)”from state 4 to state 3
Char. 22	to add state 5 “very thick” with example varieties “Aodidaguanmao” and “Jilong”

Char. 23	- state 2 to read “coriaceous” - state 3 to read “ligneous”
Char. 27	- to add state 5 “very difficult” with example varieties “Aodidaguanmao” and “Jilong” - to delete example variety “Milotai 10 (EUR)” from state 2
8.1 (c)	- to be moved to 8.2 and become Ad. 4 - to read “.. on lateral leaves…”
Ad. 4	to be updated (see comment on Char. 4)
Ad. 5	to improve illustration
Ad. 10	to use updated grid: 
Ad. 11	- to add “Observations should be made facing the suture.” - to move illustration for “broad ovate” one row up
Ad. 12	- to move illustration for “elliptic” one row up - to move illustration for “circular” one row up
Ad. 22	to delete indication of primary and secondary dividing membranes
Ad. 24	to be deleted
Ad. 27	second sentence to read “Assess the ease of removal…”
9.	to check formatting of literature
TQ 5.4	to be deleted

Recommendations on draft Test Guidelines

(a) Test Guidelines to be put forward for adoption by the Technical Committee

99. The TWF agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-third session, to be held in Geneva from April 3 to 5, 2017, on the basis of the following documents and the comments in this report:

Subject	Relevant document(s)
Chestnut (*Castanea sativa* Mill.) (Revision)	TG/124/4(proj.3)
Papaya (*Carica papaya* L.) (Revision)	TG/264/2(proj.8)
*Walnut (*Juglans regia* L.) (Revision)	TG/125/7(proj.4)

(b) Test Guidelines to be discussed at the forty-eighth session

100. The TWF agreed to discuss the following draft Test Guidelines at its forty-eighth session:

Apricot (*Prunus armeniaca* L.) (Revision)
Argania (*Argania spinosa* (L.) Skeels)
*Blueberry (*Vaccinium angustifolium* Aiton; *V. corymbosum* L.; *V. formosum* Andrews; *V. myrtilloides* Michx.; *V. myrtillus* L.; *V. virgatum* Aiton; *V. simulatum* Small) (Revision)
Black Walnut (*Juglans nigra* L.)
Date Palm (*Phoenix dactylifera*)
*Japanese Plum (*Prunus salicina* Lindl.) (Partial revision: Characteristic 42)
*Macadamia *(Macadamia integrifolia* Maiden et Betche, *Macadamia tetraphylla* L.A.S. Johnson) (Revision)
Pistachio (*Pistacia* L.)
Physic Nut (*Jatropha curcas* L.)
Sweet Cherry (*Prunus avium* L.) (Revision)

101. The leading experts, interested experts and timetables for the development of the Test Guidelines are set out in Annex IV of this report.

(c) Possible Test Guidelines to be discussed in 2018

102. The TWF expressed its interest to possibly consider revisions of the following Test Guidelines in 2018:

- Apple (*Malus domestica* Borkh.) (Revision) (document TG/14/9)
- Grapevine (*Vitis* L.) (Revision) (document TG/50/9)
- Sour Cherry (*Prunus cerasus* L.); Duke Cherry (*Prunus* ×*gondouinii* (Poit. & Turpin) Rehder) (Revision) (document TG/230/1)

103. The TWF expressed its interest to possibly consider the development of the draft Test Guidelines for Pear hybrids (document TG/PYRUS(proj.2))in 2018.

Information and databases

(a) UPOV information databases

104. The TWF considered document TWF/47/5.

UPOV Code System

105. The TWF noted that the TC, at its fifty-second session, had agreed to invite the European Union to make a proposal to the TWPs, at their sessions in 2016, for a revision of the Guide to the UPOV Code System with regard to UPOV codes for hybrid genera and species.

106. The TWF noted that European Union proposal “Proposal to the ‘Guide to the UPOV Code System’ on the principal botanical name for inter-generic and interspecific hybrids” from Community Plant Variety Office of the European Union (CPVO) was presented in document TWF/47/18.

107. The TWF noted the developments concerning UPOV codes, as set out in paragraph 8 of document TWF/47/5.

108. The TWF noted the invitation to check the amendments to UPOV codes, which are provided in Annex III, part A, to document TWF/47/5.

109. The TWF noted the invitation to check the new UPOV codes or new information added for existing UPOV codes, which are provided in Annex III, part B, to document TWF/47/5.

110. The TWF noted the invitation to check the UPOV codes used in the PLUTO database for the first time, which are provided in Annex III, part C, to document TWF/47/5.

111. The TWF agreed to submit comments on Annex III, part A "UPOV codes amendments to be checked", part B "New UPOV codes or new information", and part C "Crop type(s) of UPOV codes used in the PLUTO database for the first time" to the Office of the Union by November 30, 2016.

PLUTO database

112. The TWF noted the summary of contributions to the PLUTO database from 2012 to 2015 and the current situation of members of the Union on data contribution, as presented in the Annex II to document TWF/47/5.

113. The TWF noted that the CAJ, at its seventy-second session, had agreed, that the WG-DEN should consider proposals for the expansion of the content of the PLUTO database to include all recognized varieties, including those that had not been, or were no longer, registered/protected.

114. The TWF noted that the WG-DEN, at its first meeting, had agreed to defer the consideration of the matters concerning the possible expansion of the content of the PLUTO database to include all recognized varieties, including those that had not been, or were no longer, registered/protected until its second, or a subsequent, meeting.

115. The TWF noted the information concerning the training courses "Contributing data to the PLUTO database", held in Geneva in September and October 2015, as set out in paragraphs 22 to 24 to document TWF/47/5.

(b) Variety description databases

116. The TWF considered document TWF/47/6 and noted the developments reported in document TWF/47/6 and, in particular, that:

(a) the TC, at its fifty-second session, had agreed to invite members of the Union to make presentations at the next session of the BMT on how databases containing molecular data might be developed in UPOV; and

(b) the outcome of discussions during the BMT on how databases containing molecular data might be developed in UPOV would be reported to the TC at its fifty-third session.

117. The TWF received a presentation on "Facilitating development of databases for DUS examination by an expert from France, a copy of which is provided in document TWF/47/6 Add..

(c) Exchange and use of software and equipment

118. The TWF considered document TWF/47/7.

Document UPOV/INF/16 "Exchangeable Software"

119. The TWF noted that the Council, at its forty-ninth ordinary session, held in Geneva, on October 29, 2015, had adopted document UPOV/INF/16/5 "Exchangeable Software"

120. The TWF noted that the TC, at its fifty-second session, and the CAJ, at its seventy-third session, had agreed to propose the revision of document UPOV/INF/16/5 to include information on the use of software by members of the Union. The TWF noted that document UPOV/INF/16/6 "Exchangeable Software" had been adopted by the Council at its fiftieth ordinary session.

Document UPOV/INF/22 "Software and Equipment Used by Members of the Union"

121. The TWF noted that the Council, at its forty-ninth ordinary session, held in Geneva, on October 29, 2015, had adopted document UPOV/INF/22/2 "Software and Equipment Used by Members of the Union"

122. The TWF noted that the TC, at its fifty-second session, had agreed to propose the revision of document UPOV/INF/22/2 and that the Council at its fiftieth ordinary session adopted document UPOV/INF/22/3.

(d) Electronic application systems

123. The TWF considered document TWF/47/8 and noted developments concerning the development of a prototype electronic form presented in this document.

124. The TWF received a presentation on the "Electronic Application Form Project - Report to Technical Working Parties" by the Office of the Union. A copy of the presentation is provided in document TWF/47/8 Add..

Date and place of the next session

125. At the invitation of Canada, the TWF agreed to hold its forty-eighth session in Kelowna, British Columbia, Canada, from September 18 to 22, 2017, with the preparatory workshop on September 17, 2017.

Chairperson

126. The TWF agreed to propose to the TC that it recommend to the Council to elect Mr. Jean Maison (European Union), as the next chairperson of the TWF.

Future program

127. 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 (written reports to be prepared by members and observers
   (b) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques (document to be prepared by the Office of the Union)
5. TGP documents (documents to be prepared by the Office of the Union)
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
   (a) UPOV information databases (documents to be prepared by the Office of the Union)
   (b) Variety description databases (documents to be prepared by the Office of the Union)
   (c) Exchangeable software (document to be prepared by the Office of the Union)
   (d) Electronic application systems (document to be prepared by the Office of the Union)
8. Experiences with new types and species (oral reports invited)
9. Management of variety collections (oral reports invited)
10. Calibration book for harmonized variety description in apple (document to be prepared by the European Union)
11. DUS examination of mutant varieties of apple (document to be prepared by the European Union)

12. Impact of revisions of states of expression of existing characteristics in the revision of Test Guidelines (document to be prepared by France and presentations invited)

13. Minimum distance between varieties (document to be prepared by the European Union)

14. Guidance for drafters of Test Guidelines

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

16. Proposals for partial revision/corrections of Test Guidelines

17. Discussion on draft Test Guidelines (Subgroups)

18. Recommendations on draft Test Guidelines

19. Date and place of the next session

20. Future program

21. Adoption of the Report of the session (if time permits)

22. Closing of the session

Visit

128. On the afternoon of November 16, 2016, the TWF visited the Variety and Seed Study and Control Group (*Groupe d'Etude et de contrôle des Variétés Et des Semences*, GEVES) in Beaucouzé near Angers, where it was welcomed by Ms. Carole Dirwimmer, Manager of Fruit DUS team, GEVES, and received a presentation by Ms. Dirwimmer on the activities of GEVES with regard to DUS in fruit trees in France in general and DUS testing of Apple in particular. A copy of the presentation is provided in Annex III to this report. Afterwards, the TWF visited the National Institute for Agricultural Research (INRA) in Beaucouzé where, following the discussions on mutant varieties of Apple on Wednesday morning, the TWF saw several Apple mutant varieties of Gala and Fuji in order to demonstrate the difficulties in DUS testing of Apple mutant varieties. During this part of the visit the TWF was accompanied by M. Rémi Guisnel and Laurence Feugey, French Apple Examiners, Horticulture and Seeds Research Institute (*Institut de Recherche en Horticulture et Semence*, IRHS), INRA. The TWF also received presentations by Mr. François Laurens, Deputy Director, IRHS, INRA, on the activities of INRA IRHS, and by Ms. Dominique Thévenon, Board member, CIOPORA, on minimum distances.

129. The TWF adopted this report at the end of the session.

[Annexes follow]

ANNEX I

LIST OF PARTICIPANTS

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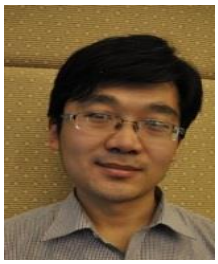

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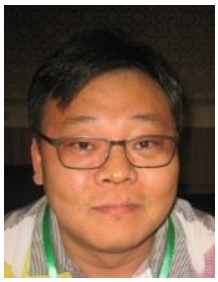

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III. ORGANIZATIONS

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[Annex II follows]

CPVO
Community Plant Variety Office

The EU PVR System

Martin EKVAD
President

UPOV TWF
Angers, 14 - 18 November 2016

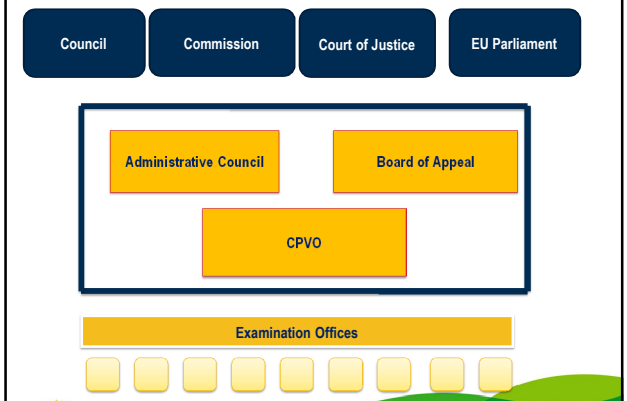
@CPVOTweets

Outline

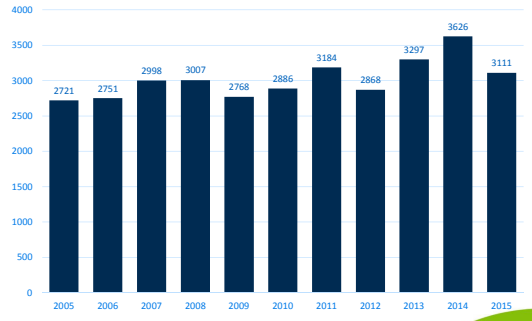
1. The CPVO
2. The EU system on plant variety protection
3. Technical examinations
4. Scope / Enforcement
5. Details of CPVO fruit sector
6. Board of Appeal
7. Final remarks

1. The CPVO

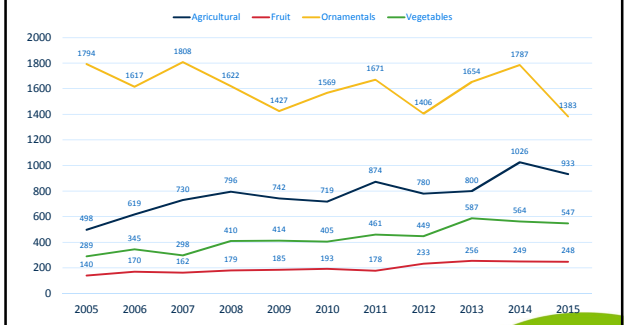
- The Community Plant Variety Office (CPVO) has been operational since 1995.
- We're delighted to welcome you to Angers!
- The CPVO has a total of 45 staff members: 12 Nationalities.
- To ensure transparency, the activites of the CPVO are directly monitored by our Administrative Council.



Applications (2005 – 2015)



Applications by crop sector (2005 – 2015)



2. The EU Plant Variety System

- A system for the intellectual protection of plant varieties was established by a Regulation of the European Community in 1994.
- The intellectual property rights granted under this system are valid throughout the 28 Member States of the European Union.

Application procedure:

- One application
- One procedure
- One technical examination
- One decision
- One right covering the 28 Member States of the European Union

The CPVR system

- Varieties of **all botanical genera and species** may be protected
- The CPVO has received up to today applications for almost **2000** different plant species
- **Duration** of the Community right: **25 years or 30 years** for vines, trees and potato varieties

3. EU Technical Examinations

- The CPVO technical examinations are carried out according to CPVO Technical Protocols which are based on UPOV guidelines. The CPVO has not created its own technical infrastructure.
- Entrusted examination offices (EOs) test the distinctness, uniformity & stability of varieties.

Technical Examinations in the EU System

- The EO tests are prescribed by the CPVO
- We work with ca. 30 examination offices
- An independent Quality Audit Service of CPVO audits the EOs every 3 years

11

CPVO network of Examination offices in the EU

EU / national

- The EU system co-exists with the national systems of those 24 EU Member States
- It is the applicant's choice: national or EU plant variety rights

UPOV

- The EU system is in line with the UPOV 1991 Act
- 24 out of 28 EU Member States are UPOV members
- The EU is a member of UPOV as an inter-governmental organisation

4. Scope & Enforcement

- The use of protected material is subject to authorization of the breeder
- The right holders enforce the rights
- Some aspects of enforcement:
  - ✓ are regulated in European law (e.g. Infringement - Art. 94 Reg. 2100/94)
  - ✓ are regulated in National law implementing the Directive on enforcement (2004/48/EC)
- Legislator must create the necessary legislative environment
- National courts competent to hear infringement cases

5. Details of CPVO fruit sector

- In terms of number of applications, the fruit sector is the smallest in the Office and it accounted for ca. 8% of all annual applications in 2015
- Peach, strawberry and apple dominate

- Sector characterised by
  - multiannual testing
  - large living reference collections
  - the highest costs of the technical examination comparing to other sectors
  - special rules on postponement of testing due to specific phytosanitary requirements, effects of the opposite cycle and a particular rootstock

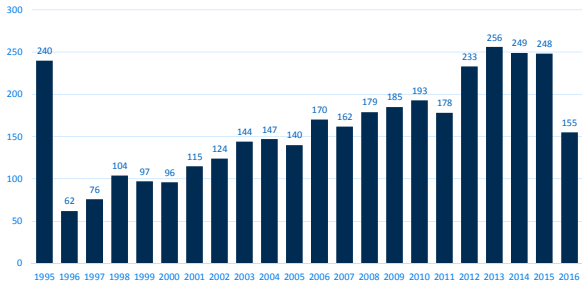
11 Entrusted EOs from the EU + MEXICO

Bundessortenamt – GERMANY
Central Controlling and Testing Institute in Agriculture (UKZUP) – SLOVAKIA
Central Institute for Supervising & Testing in Agriculture (UKZUZ) – CZECH REPUBLIC
COBORU – POLAND
CREA – FRU – ITALY
CREA – VIT – ITALY
Direção Geral de Alimentação e Veterinária – PORTUGAL
GEVES – FRANCE
National Food Chain Safety Office – HUNGARY
Oficina Española de Variedades Vegetales – SPAIN
Servicio Nacional de Inspeccion y Certificacion de Semillas (SNICS) – MEXICO

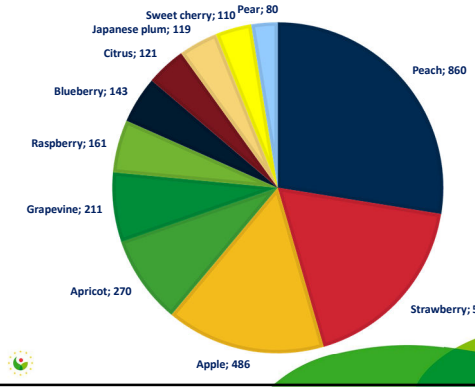
Challenges

- Harmonization of the DUS testing amongst EOs
- Following on phytosanitary measures
- Reduction of costs of the DUS testing
- Organisation of testing for tropical crops
  currently we are looking for a competent EO to test guava and papaya
- Appeal cases

Number of applications in the fruit sector (1995 – 31 October 2016)



Number of applications for main species in the fruit sector (1995 – 31 October 2016)



Main fruit applicants 2015

Applicant	Country	N° applications
Driscoll Strawberry Associates Inc.	United States of America	15
Prunus Persica Pty Ltd.	Australia	14
Rolfe Nominees Pty Ltd.	Australia	14
Jean-Pierre Darnaud	France	11
Università degli studi di Udine	Italy	11
Istituto di Genomica Applicata	Italy	10
Viveros Proseplan S.L.	Spain	10

248 applications were made by **120 applicants**

20

6. The Board of Appeal

Composition:

Composed by one permanent Chairman and two other members nominated by the Chair

Tasks:

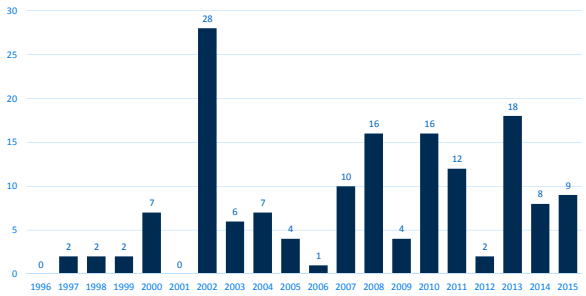
Responsible to decide on appeals filed against decisions of the CPVO

Status:

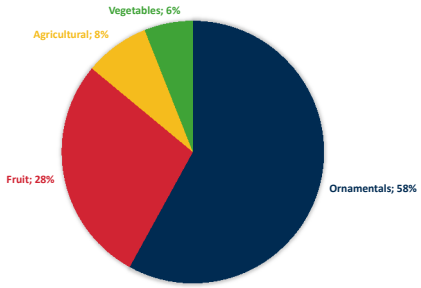
Members shall be independent and not involved in the work of the CPVO

21

Number of appeals received (1996 – 2015)



Appeals by crop sector



7. Final Remarks

- The CPVO:
  - Offers plant variety protection at a reasonable price
  - Reduces the administration for applicants & national authorities – resulting in efficiency gains
  - Allows close co-operation between CPVO and Member States on a technical level – increased sharing of resources

[Annex III follows]

UPOV TWF 47
Technical visit at GEVES- INRA
16/11/2016

Carole DIRWIMMER

GEVES
Expertise & Performance

Welcome to GEVES !

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

Agenda of the afternoon

- **13h30-14h30:** about GEVES and Fruit testing (GEVES)
- **14h30-16h00**: focus on mutants of apple by observing fruits (INRA)
- **16h00-16h30**: coffee break (GEVES)
- **16h00-17h00:** about INRA-IRSH, about Minimum Distances by CIOPORA

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

About GEVES and Fruit testing in France
Focus on Apple DUS tests

TWF 47, 16/10/2016, Carole DIRWIMMER

GEVES
Expertise & Performance

Agenda

- What is GEVES ?
- DUS on Fruit Trees in France: legislation and organization
- Focus on Apple DUS tests

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

Agenda

- What is GEVES ?
- DUS on Fruit Trees in France: legislation and organization
- Focus on Apple DUS tests

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

What is GEVES ?

Groupe d'Etude et de contrôle des Variétés Et des Semences
Variety and Seed Study and Control Group

- A Public structure
- An official and unique organization in France
- Partnership of :

INRA (National Institute for Agricultural Research)

Ministry for Agriculture, Food and Forestry

GNIS (French National Association for Seeds and Plantlets)

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

7

What is GEVES ?

The role of GEVES in the sector

GEVES
- Genetic resource management

GEVES
- Expertise of varieties for inclusion in the official Catalogue and the protection of breeders rights

GEVES
- Expertise on seeds for certification and control
- National Reference Laboratory

RESEARCH SELECTION → PRODUCTION MULTIPLICATION of seedlings → MARKETING → CULTURE → TRANSFORMATION → CONSUMPTION

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

What is GEVES ?

GEVES missions

Expertise and methodological research


On new plant varieties
- For their registration on the French catalogue (DUS + VCUS)
- For their legal protection given at national level by and European level by

INOV (National Office for plant breeders rights) — CPVO (Community Plant Variety Office)

On seeds

Support to the seed chain, especially to the seed certification.

GEVES is organized into **3 operating divisions :**

SEV : Variety Study Department | BioGEVES : Biotechnologies | SNES : National Seed Testing Station

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

What is GEVES ?

3 technical departments :

SEV : Variety Studies Department

12 experimental units
DUS and VCUS trials

SEV Agricultural species
SEV vegetable and ornamental species

SNES : National Seed Testing Station

4 laboratories :
- Sampling,
- Seed Purity,
- Germination
- Seed Health

SNES
BioGEVES
BioGEVES
SEV Agricultural species
SEV vegetable and ornamental species
SEV Agricultural species

Head Office
National Seed Testing Station
Variety testing department
Autonomous experimental units
SEV experimental units in association with INRA
BioGEVES Laboratory

BioGEVES : laboratory for molecular and biochemical analysis
- GMOs detection,
- Variety Genotyping,
- Biochemical analyses

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255 employees

National Seed Testing Station (SNES)

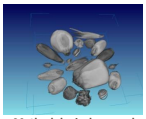
Activities

National Reference Laboratory

Permanent staff : 75
Temporary staff : ~30

1 Customer service
1 Sampling service
3 laboratories

Labs network animation
~75 authorized labs



Methodological research

Analyses : 80 000 /an
from 45 000 samples

Analyst training
~40 trainers
350-400 trainees formations days

Cytology and phenotyping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What is GEVES ?

BioGEVES : Molecular biology and biochemistry laboratory

BioGEVES performs four major types of analysis:
- Detection of GMOs
- Detection of pathogens and other specific sequences
- Genetic descriptions of varieties
- Analysis of biochemical constituents

Approximately 40 methods used routinely applying :
- Electrophoresis of proteins
- Chromatography
  - HPLC (High Performance Liquid Chromatography)
  - GC (Gas Chromatography)
- Near infrared spectroscopy (NIRS)
- Amplification of DNA by PCR (Polymerase Chain Reaction) Standard and real-time
- The multi-capillary electrophoresis



1

What is GEVES ?

Variety Testing Department (SEV)

140 employees - 420 ha on 12 experimental units

DUS
(Distinctness, Uniformity and Stability)
Field and greenhouse tests, following CPVO or UPOV protocols

VCUS
(Value for Cultivation , Use and Sustainability)
- yield
- disease resistance
- quality criteria
- environment


Tests and analysis done in GEVES units

Trials done in networks controlled by GEVES – 100 partners

INOV | CPVO | Bilateral cooperation | SOC | CTPS

PBR | Certification | Registration

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Le GEVES partner of national and international bodies

- French Ministry of Agriculture
- INRA (National Institute for Agricultural Research)
- CTPS (Technical Committee for Plant Breeding)
- INOV (National Office for Plant Breeder's Rights)
- SOC (Official service of Control and Certification)
- GNIS (The French Association for Seeds and Seedlings)

- CPVO (The Community Plant Variety Office)
- UPOV (The International Union for the Protection of New Varieties of Plants)
- ISTA (The International Seed Testing Association)
- ISHI (International Seed Health Initiative)
- COUNTERPARTS : Bundessortenamt, Naktuinbouw, Niab, Coboru, ...

Végépolys = an international competitiveness plant cluster

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Agenda

- What is GEVES ?
- DUS on Fruit Trees in France: legislation and organization
- Focus on Apple DUS tests

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DUS on Fruit Trees

National Listing:
- In France, optional for Fruit Trees
- held by **CTPS** (Technical Comitee for Plant Breeding), directly linked to the Ministry of Agriculture)
- mandatory if you want to enter the French Plant **Certification** System
- No VCU

National and international plant protection
- Held by INOV and CPVO
- DUS

Plant certification
- Held by CTIFL
- Optional
- Based on sanitary and variety identity controls

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DUS on Fruit Trees

Principle of One Key Several Doors:
as a **CPVO entrusted Examination Office**, the same DUS test can be used for:

National Listing
National Legal Protection
European Legal Protection

With the possibility to buy other CPVO-entrusted EOs DUS results

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DUS on Fruit Trees

GEVES has managed DUS for Fruit Trees since 2002: 2 engineers in charge of the CTPS Fruit Trees Section and of the management of the DUS trials

INRA conducts the technical examination at its premises: historically is expert on Fruit Trees description and characterization, and maintains large collections through various projects.

An INRA-GEVES convention is signed, and this co-working system is entrusted by CPVO.

INRA / 70 ans SCIENCE & IMPACT

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DUS ON FRUIT TREES

In 2015:

287 varieties under study
71 new applications
11 species

2 new species: Vanilla and Banana

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DUS ON FRUIT TREES

DUS tests for Fruit Trees in France:

Apple Pear *Malus* and *pyrus* rootstocks	→	**INRA Angers**
Apricot Peach Japanese Plum *Prunus* rootstocks	→	**INRA Avignon**
Cherry *Prunus* rootstocks	→	**INRA Bordeaux**
Vanilla	→	**CIRAD La Réunion**
Banana	→	**CIRAD La Guadeloupe**

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DUS ON FRUIT TREES

Other species, studied by other EOs:

Olive: Spain
Citrus: Spain
European Plum: Germany
Raspberry: Germany
…

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DUS ON FRUIT TREES

For all the species studied in France: living reference varieties collections

- Varieties protected at the UE level or in one of the UE member States
- Varieties protected in other UPOV Member States
- Varieties registered in the official French Catalogue of varieties (CTPS)
- Any other variety of common knowledge (listing, certification…)

+ databases (shared with other EOs when possible)

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Molecular tools on fruit trees

Description of reference collections & Identity control

→Genotypes as supplementary tools
→Evaluation of genetic diversity
→Looking for synonymous varieties
→Establishment of a core collection
→Renewal of reference samples
→Comparison of samples
→…

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Molecular tools on fruit trees

Peach

CPVO R&D project from 2008 to 2011
Routinely used in the lab since 2012
16 SSR
Molecular database of ≈ 850 varieties
Description of new DUS varieties every year
GEMMA database

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Molecular tools on fruit trees

Apricot

Collaboration between INRA Avignon and GEVES
Routinely used in the lab since 2013
25 SSR
Molecular database of ≈ 250 varieties
Description of new DUS varieties every year

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Molecular tools on fruit trees

Apple & Pear

Collaboration between INRA Angers and GEVES
First experimentation in 2014 in BioGEVES
16 SSR
Description of the French collection
≈ 700 varieties of apple and ≈ 160 varieties of pear
Routinely used in the lab since this year for Apple and next year for pear

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Molecular tools on fruit trees

Cherry

Collaboration between INRA Bordeaux and GEVES
In developpment in 2016 for application in 2017
16 SSR
Description of the French collection (≈ 150 varieties)

Perspectives:

Development of molecular tools
- on Japanese Plum
- on *Malus* and *Prunus* rootstock

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Agenda

- What is GEVES ?
- DUS on Fruit Trees in France: legislation and organization
- Focus on Apple DUS tests

APPLE DUS TESTS

At **INRA Angers**, held by Rémi Guisnel and Laurence Feugey.

In 2016:

69 varieties under DUS test

Including **32** Hybrids and **37** mutants

DUS reference collection: **500** varieties

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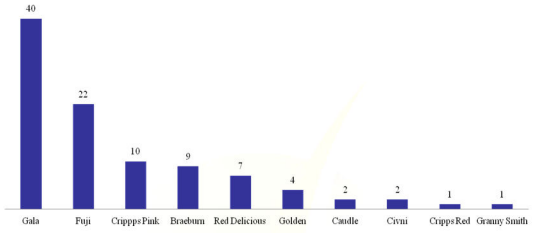
Apple DUS tests

Number of varieties by mutant group 2000-2016 tested at INRA/GEVES Angers



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Apple DUS tests

reception: Healthy plants with European Plant Passport and Sanitary certificate for quality diseases

test:
- DUS examination plot
- Mutants: 10 trees of the candidate variety on M9 in orchard
- Hybrids: 6 trees of the candidate variety on M9 in orchard
- 4 trees of comparative varieties on M9 in orchard

conservation:
- DUS collection
- 2 trees of the candidate variety on M9 in orchard

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Apple DUS tests

First sample : 30 fruits
- Storage +2°C
- Colorimetric analysis SPECTROPHOTOMETER
- DESCRIPTION (CPVO characteristics)

Second sample : 20 fruits
- Firmness analysis TEXTURE-ANALYSE
- Starch analysis STARCH IODINE TEST
- Juice extraction
  - Sugar analysis REFRACTOMETER
  - Acid analysis TITRIMETER

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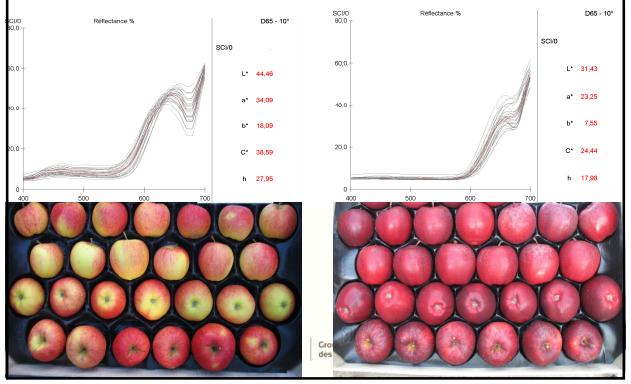
Apple DUS tests

Spectro-colorimetric analysis



Apple DUS tests

Decision and reporting

With the assistance of 2 **experts commissions**:
- at the end of August in the orchards
- in the middle of Decembre to examine the fruits

A group of experts: because of their **knowledge** of appletree, *intuite personnae*, have to keep **confidential** what they see and ear. Not allowed to defend their own varieties.

2016: **2 Italian experts**: Mr Martinelli and Mr Guerra.
Allowed to see: CTPS, INOV, CPVO

⟹ Assist in the research of relevent reference varieties
⟹ If necessary give a complementary expertise to comfort the decision taken by GEVES

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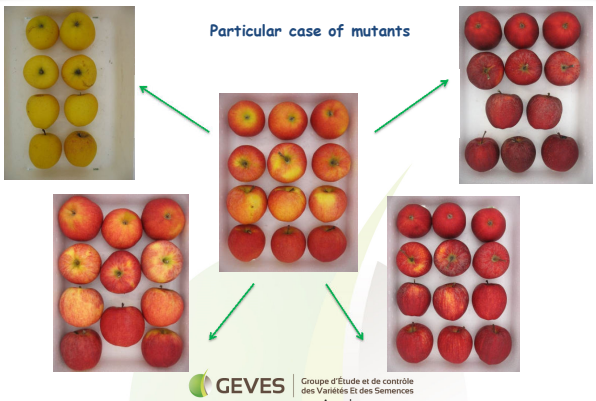
Apple DUS tests

Particular case of mutants



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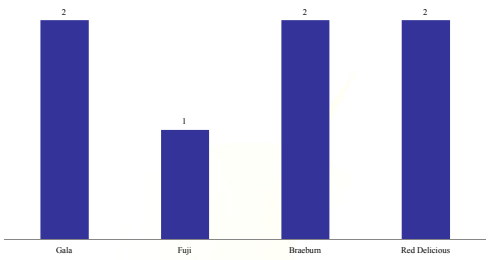
Annaglo

Apple DUS tests

Number of appeals by mutant group (rejected proposition 2013-2015)



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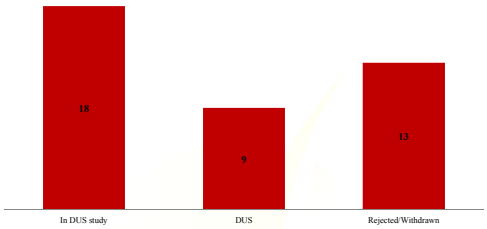
Apple DUS tests

Situation of the Gala mutant group
2000 - 2016



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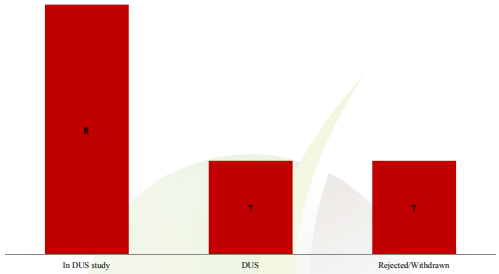
Apple DUS tests

Situation of the Fuji mutant group
2000 - 2016



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Apple DUS tests

What are the issues and what to do ?

Distinctness issues:

- To help us to assess Distinctness, we would like to add the character « **colour of young fruit, 120 days after flowering** »
- what is the minimal distance relevant for PBR and for breeders and producers ?

Effects of the environment:

- Apple are strongly colored in our DUS plots in Angers: a plot **in South of France** is under testing, closer to the Italian conditions
- The influence of the rootstock is important: planning to ask the applicants to send trees grafted on **M9 T337**
- The influence of the age of the tree could be important: trying to find a way to compare the varieties on trees of the same age without delaying DUS too much

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

Apple DUS tests

What are the issues and what to do ?

Stability issues:

- Some mutants are not very stable, breeders have difficulties to maintain some varieties: when we order plant material for testing, we sometimes receive something quite different from the original material kept in our collection !

And:

- Worldwide breeding: how to share relevant information about new mutants ?
- Important financial aspects for breeders

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Apple DUS tests

GEVES | Groupe d'Étude et de contrôle des Variétés Et des Semences

Apple DUS tests

To be illustrated now at INRA by observing fruits with you !

[Annex IV follows]

ANNEX IV

LIST OF LEADING EXPERTS

DRAFT TEST GUIDELINES TO BE SUBMITTED TO THE TECHNICAL COMMITTEE IN 2017

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

by December 30, 2016

Species	Basic Document(s)	Leading expert(s)	Interested experts (States/Organizations)[1]
Chestnut (*Castanea sativa* Mill.) (Revision)	TG/124/4(proj.3)	Mr. Katsumi Yamaguchi (JP)	CN, ES, FR, HU, KR, NZ, QZ, ZA, Office
Papaya (*Carica papaya* L.) (Revision)	TG/264/2(proj.8)	Mr. Alejandro Barrientos-Priego (MX)	BR, CN, IL, JP, KE, MY, OM, PH, QZ, TH, VN, ZA, Office
*Walnut (*Juglans regia* L.) (Revision)	TG/125/7(proj.4)	Ms. Dong Pei (CN)	ES, FR, HU, JP, KR, QZ, ZA, CIOPORA, Office

[1] for name of experts, see List of Participants

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWF/48
(* indicates possible final draft Test Guidelines)

(Guideline date for Subgroup draft to be circulated by Leading Expert: June 9, 2017
Guideline date for comments to Leading Expert by Subgroup: July 7, 2017)

New draft to be submitted to the Office of the Union
before August 4, 2017

Species	Basic Document(s)	Leading expert(s)	Interested experts (States/Organizations) [2]
Apricot (*Prunus armeniaca* L.) (Revision)	TG/70/5(proj.1)	Mr. Hennie Venter (ZA)	AU, BG, CN, CZ, ES, FR, HU, IL, JP, KR, MA, NZ, PL, RO, QZ, CIOPORA, Office
Argania (*Argania spinosa* (L.) Skeels)	TG/ARGAN(proj.1)	Ms. Ibtihaj Belmehdi (MA)	IL, Office
*Blueberry (*Vaccinium angustifolium* Aiton; *V. corymbosum* L.; *V. formosum* Andrews; *V. myrtilloides* Michx.; *V. myrtillus* L.; *V. virgatum* Aiton; *V. simulatum* Small) (Revision)	TG/137/5(proj.2)	Mr. Nik Hulse (AU)	BR, CA, CZ, DE, JP, KR, NZ, PL, PT, QZ, RO, ZA, CIOPORA, Office
Black Walnut (*Juglans nigra* L.)	TG/JUGLA(proj.2)	Ms. Victoria Colombo (ES)	CN, KR, QZ, ZA, Office
Date Palm (*Phoenix dactylifera*)	TG/PHOEN_DAC (proj.1)	Mr. Rashid Al-Yahyai (OM)	BR, IL, MA, MX, TN, Office
*Japanese Plum (*Prunus salicina* Lindl.) (Partial revision: Characteristic 42)	TG/84/4 Corr.	Ms. Urszula Braun-Mlodecka (QZ)	CZ, ES, FR, HU, IT, JP, KR, NZ, ZA, CIOPORA, Office
*Macadamia *(Macadamia integrifolia* Maiden et Betche, *Macadamia tetraphylla* L.A.S. Johnson) (Revision)	TG/111/4(proj.2)	Mr. Nik Hulse (AU)	BR, KE, MX, ZA, Office
Pistachio (*Pistacia* L.)	TG/PISTA(proj.1)	Ms. Urszula Braun-Mlodecka (QZ)	AU, IT, MX, ZA, Office
Physic Nut (*Jatropha curcas* L.)	TG/JATRO_CUR (proj.1)	Mr. Alejandro Barrientos-Priego (MX)	BR, IL, QZ, Office
Sweet Cherry (*Prunus avium* L.) (Revision)	TG/35/7	Ms. Carensa Petzer (ZA)	AU, BG, CZ, FR, HU, JP, KR, NZ, PL, QZ, RO, SK, CIOPORA, Office

[End of Annex IV and of document]

[2] for name of experts, see List of Participants