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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

TECHNICAL WORKING PARTY FOR VEGETABLES

Forty-Ninth Session
Angers, France, June 15 to 19, 2015

REVISED REPORT

adopted by the Technical Working Party for Vegetables (TWV)

Opening of the session

1. The Technical Working Party for Vegetables (TWV) held its forty-ninth session in Angers, France from June 15 to 19, 2015. The list of participants is reproduced in Annex I to this report.

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

3. The TWV received a presentation by Mr. Ekvad on the plant variety protection system in the European Union, a copy of which is provided in Annex II to this report.

4. The session was opened by Ms. Swenja Tams (Germany), Chairperson of the TWV, who welcomed the participants and thanked the CPVO for hosting the TWV session.

Adoption of the agenda

5. The TWV adopted the agenda as presented in document TWV/49/1 Rev.

6. The TWV agreed that the circulation in advance of the session of the draft workplan of the week with the link to the documents was useful and should be continued.

Short reports on developments in plant variety protection

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

7. The TWV noted the information on developments in plant variety protection from members and observers provided in document TWV/49/22 Prov. The TWV noted that reports submitted to the Office of the Union after June 1, 2015, would be included in the final version of document TWV/49/22.

(b) Reports on developments within UPOV

8. The TWV received a presentation from the Office of the Union on the latest developments within UPOV, a copy of which is provided in document TWV/49/21.

Molecular techniques

Developments in UPOV

9. The TWV considered document TWV/49/2.

10. The TWV noted the report on developments in the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT), as set out in paragraphs 7 to 10 of document TWV/49/2.

11. The TWV noted that the TC, at its fifty-first session, had agreed to develop a joint document explaining the principal features of the systems of Organization for Economic Co-operation and Development (OECD), UPOV and International Seed Testing Association (ISTA), subject to the approval of the Council and in coordination with the OECD and ISTA, as set out in paragraph 18 of document TWV/49/2.

12. The TWV noted that the TC, at its fifty-first session, had agreed to develop an inventory on the use of molecular marker techniques, by crop, with a view to developing a joint OECD/UPOV/ISTA document containing that information, in a similar format to UPOV document UPOV/INF/16 “Exchangeable Software”, subject to the approval of the Council and in coordination with the OECD and ISTA, as set out in paragraph 20 of document TWV/49/2.

13. The TWV noted that the TC, at its fifty-first session, had agreed the proposal for the BMT, at its fifteenth session, to develop lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques for consideration by the TC, as set out in paragraph 21 of document TWV/49/2.

14. The TWV noted that the OECD/UPOV/ISTA Joint Workshop on Molecular Techniques had agreed that it would be useful to repeat the joint workshop at relevant meetings of the OECD and ISTA, as set out in paragraph 19 of document TWV/49/2, and, in that regard, that the Technical Working Group Meeting of the OECD Seed Schemes had agreed that another OECD/UPOV/ISTA Joint Workshop on Molecular Techniques should be organized back-to-back with the Annual Meeting of the OECD Seed Schemes, in 2016.

15. The TWV supported the initial 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, discussed during the TC, at its fifty-first session, as reproduced below:

> “Is it possible to obtain protection of a variety on the basis of its DNA-profile?
>
> “For a variety to be protected, it needs to be clearly distinguishable from all existing varieties on the basis of characteristics that are physically expressed, e.g. plant height, time of flowering, fruit color, disease resistance etc. [Molecular techniques (DNA profiles) may be used as supporting information].
>
> “A more detailed explanation is provided in the FAQ ‘Does UPOV allow molecular techniques (DNA profiles) in the examination of Distinctness, Uniformity and Stability (“DUS”)?’
>
> “See also:
> “What are the requirements for protecting a new plant variety?”

TGP documents

16. The TWV considered the TGP documents below on the basis of documents TWV/49/3.

Matters for adoption by the Council in 2015

17. The TWV noted the revisions to documents TGP/0, TGP/5, TGP/9 and TGP/14 to be put forward for adoption by the Council at its forty ninth ordinary session, as set out in paragraphs 6 to 18 of document TWV/49/3.

Matters agreed by the TC concerning future revisions

18. The TWV noted that the TC had agreed that it was not necessary to develop further guidance to address issues relating to plant material submitted for examination beyond that already provided in documents TG/1/3, TGP/7 and TGP/9.

19. The TWV noted that the TC had agreed that authorities should provide guidance on the requirements of material submitted for DUS examination to avoid possible effects of the method of propagation (e.g. micropropagation) in the expression of DUS characteristics.

20. The TWV noted that the TC had agreed to add new standard wording in the TG template, Chapter 4.2 "Uniformity", and amend ASW 8 (c) to provide guidance for Test Guidelines that are developed on the basis of varieties with one type of propagation when varieties may be developed in the future with other types of propagation, for future revision of document TGP/7, as set out in paragraph 24 of document TWV/49/3.

21. The TWV noted that the TC had agreed that the existing guidance in documents TGP/8: Part I: "DUS trial design and data analysis" and TGP/9 "Examining distinctness" was sufficient to address guidance for blind randomized trials.

22. The TWV noted that the TC had agreed to include guidance on "Examining characteristics using image analysis", for future revision of document TGP/8, as presented in paragraphs 26 and 27 of document TWV/49/3.

Program for the development of TGP documents

23. The TWV noted the program for the development of TGP documents, as set out in the Annex to document TWV/49/3.

Future revision of TGP documents

24. The TWV noted the proposals for future revisions of TGP documents to be discussed by the TWPs at their sessions in 2015, as set out in document TWV/49/3.

TGP/7: Development of Test Guidelines

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

25. The TWV considered document TWV/49/12.

26. The TWV noted that all Leading Experts had prepared the draft Test Guidelines for discussion during the TWPs at their sessions in 2015 using the web-based TG Template.

27. The TWV noted that all Interested Experts had been required to provide their comments on draft Test Guidelines for discussion during the TWPs at their sessions in 2015 using the web-based TG Template.

28. The TWV noted the issues being addressed in response to the comments by Leading and Interested Experts that participated in the testing of the 2015 prototype of the web-based TG Template, as set out in paragraphs 13 and 14 of document TWV/49/12, and agreed with the proposed solutions for those issues:

- Allow use of italics and underlined text
- Improve the organization of images in explanation of characteristics (Chapter 8.2)
- Improve formatting of the Test Guidelines generated
- Provide a print preview for each Chapter
- Allow inclusion of annexes and/or growth stage keys (Chapter 8.3)
- Ensure compatibility with different web browsers versions
- Provide a link to templates for grids for shape characteristics that include ratio elements
- Enable printing of comments by interested experts sorted by Interested Expert or characteristic
- Provide more options in Chapter 4 "Assessments" for complex arrangements of Uniformity assessment.

29. The TWV further proposed the following improvements:

- Addition of hyperlinks in the exported documents to the symbols indicating that a characteristic has explanations covering individual and/or several characteristics in the Table of Characteristics in order to facilitate navigation in the document
- Addition of disclaimer for Leading Expert that all text, photographs, illustrations or other material used in the Test Guidelines that is subject to third party rights have the necessary permission for use by the third party.

- Possibility to adapt Standard and Additional Standard Wording to mushrooms (e.g. replacement of “plant material” by “material”, “plants” by “fruit bodies”)
- Possibility to display large tables in landscape format, such as for indication of growth types.
- Possibility for Interested Experts to provide illustrations

30. The TWV considered the proposal to standardize the format of the Table of Characteristics in all Test Guidelines with a structure as set out in paragraph 15 of document TWV/49/12. In order to clarify that the row with the indications of types of expression, methods of observations, explanations and growth stages was not related to the header above (which indicates the UPOV language), the TWV proposed to add borders between the information on types of expression, methods of observations, explanations and growth stages. The TWV further requested that the states of expression in the exported documents be clearly linked to the respective notes, particularly when a large number of example varieties is added.

31. The TWV agreed that subject to the above modifications Version 1 of the web-based TG Template would be a useful tool for the drafting of Test Guidelines and acknowledged the support provided to experts who used the web-based TG Template for the creation of the TWV draft Test Guidelines.

32. The TWV highlighted the importance of appropriate training on the use of the web-based TG Template in conjunction with the TWP sessions for Leading and Interested Experts using the system.

33. The TWV agreed that a detailed proposal for the revision of document TGP/7 reflecting the introduction of the web-based TG Template be presented to the TWPs and the TC in 2016, after Version 1 is finalized.

34. The TWV noted the timetable for development of the web-based TG Template, as set out in paragraphs 17 to 19 of document TWV/49/12.

Revision of document TGP/7: Use of Proprietary Photographs and Illustrations in Test Guidelines

35. The TWV considered document TWV/49/13.

36. The TWV agreed with the proposed guidance for inclusion in a future revision of document TGP/7 in relation to text, photographs or illustrations that could be subject to third party rights, as follows:

> “In the case of text, photographs, illustrations or other material that are subject to third party rights, it is the responsibility of the author of the document, including Test Guidelines, to obtain the necessary permission of the third party. Material must not be included in documents where such permission is required but has not been obtained.”

37. The TWV recommended to add a disclaimer in relation to text, photographs or illustrations in the web-based TG template.

Revision of document TGP/7: Regional Sets of Example Varieties

38. The TWV considered document TWV/49/14.

39. The TWV agreed to include guidance in document TGP/7 on the definition of “region” in order to justify a regional set of example varieties in Test Guidelines. However the TWV suggested that a “region” should be defined by environmental conditions rather than geographical borders.

40. The TWV highlighted that the purpose of the UPOV Test Guidelines is international harmonization and therefore was not in favor of regional sets of example varieties as a common practice. However, the TWV agreed that, in the case of the establishment of a regional set of example varieties, the relevant TWPs should determine the basis on which the region would be established for a regional set of example varieties (e.g. by an exchange of information, or by a ring-test).

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

Revision of document TGP/8: Part I: DUS Trial Design and Data Analysis, New Section: Minimizing the Variation due to Different Observers

41. The TWV considered document TWV/49/15.

42. The TWV agreed that the draft guidance in the Annex to document TWV/49/15 should continue to be developed for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers.

43. The TWV suggested that further consideration should be given to guidance on PQ characteristics and proposed the development of another section in the document to explain non-parametric methods. The TWV also encouraged the other TWPs to consider whether further work should be done on PQ characteristics in the draft guidance.

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

44. The TWV considered document TWV/49/16.

45. The TWV noted that the participants of the exercise to test the software on the new method for the calculation of COYU should:

(i) seek to define probability levels to match decisions using the previous COYU method;

(ii) run the test for rejection probabilities of 1, 2 and 5% levels; and

(iii) assess whether the results are consistent in all crops

46. The TWV noted that the expert from the United Kingdom had distributed the software module for calculation of COYU and the guidance document to the participants of the exercise.

47. The TWV noted that the experts from Czech Republic, France, Finland, Germany, Kenya, Poland and United Kingdom would participate in the exercise to test the new software on COYU.

48. The TWV noted that a report on the practical exercise and the development of DUST module would be presented at the thirty-third session of the TWC by an expert from the United Kingdom.

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

49. The TWV considered document TWV/49/17.

50. The TWV considered the information provided by an expert from the Netherlands on the example of a bulk characteristic in the Netherlands: Content of Glycoraphanin, as reproduced in Annex II to document TWV/49/17.

51. The TWV noted that the TC, at its fifty-first session, had agreed that further information on fulfilling the requirements of a DUS characteristic should be provided in the example of a characteristic examined on the basis of a bulk sample, and in that regard, considered a discussion paper provided by an expert from the Netherlands on uniformity requirements in bulk characteristics, as reproduced Annex I to document TWV/49/17.

52. The TWV agreed that characteristics examined on the basis of bulk samples should be assessed on the basis of the number of plants recommended in the Test Guidelines under Chapter 4.1.4.

53. The TWV noted that the TC, at its fifty-first session, had agreed to consider further whether the analysis of individual plants to validate characteristics examined on the basis of bulk samples was necessary, and the possible cost implications, and had invited alternative approaches for the examination of uniformity to be proposed.

54. The TWV noted that the TC, at its fifty-first session, had agreed that the determination of states of expression should be based on existing variation between varieties and considering environmental influence.

55. The TWV invited the expert from the Netherlands, with support from the European Union, France and Germany, to continue the work done for improving the discussion paper, and to clarify the possible approaches feasible in the framework of DUS examination and in relation to a specific characteristic compared to the version presented to the TWV.

56. The TWV noted that France, at the fifty-first session of the TC, had offered to provide other examples of characteristics based on bulk samples and invited other members to provide examples, particularly for vegetable crops.

57. The TWV further agreed that characteristics to be examined on the basis of bulk samples should be carefully considered before inclusion in Test Guidelines.

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

58. The TWV considered document TWV/49/18.

59. The TWV noted that the TWC and the TWA had agreed that the guidance on "Different forms that variety descriptions could take and the relevance of scale levels", as reproduced in Annex I to document TWV/49/18, should be used as an introduction to future guidance to be developed on data processing for the assessment of distinctness and for producing variety descriptions.

60. The TWV noted that the TWC had agreed to compare the results of the practical exercise presented by the different participants to identify differences in the results obtained for further understanding of the different methodologies, for consideration at the thirty-third session of the TWC, to be held in Natal, Brazil, from June 30 to July 3, 2015.

61. The TWV noted that the European Union had reported to the TC that the project on a ring test on Apple for the management of variety description to be launched in 2015 had been suspended.

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

62. The TWV considered document TWV/49/9.

63. The TWV agreed with the draft guidance for inclusion in a future revision of document TGP/10, as presented in Annexes I and II to document TWV/49/9.

Variety denominations

64. The TWV considered document TWV/49/4.

65. The TWV noted that the TC, at its fifty-first session, and the Administrative and Legal Committee (CAJ), at its seventy-first session, had noted the work on the possible development of a UPOV similarity search tool for variety denomination purposes by the Working Group for the Development of a UPOV Denomination Similarity Search Tool (WG-DST), including the test study, and that the TC had also noted that the result of the test study would be reported to the second meeting of the WG-DST and the most effective search tool would be described and documented, as set out in paragraphs 6 to 13 of document TWV/49/4.

66. The TWV noted that the TC, at its fifty-first session, and the CAJ, at its seventy-first session, had noted the proposed revision of document UPOV/INF/12 in relation to changes of registered variety denominations, as set out in paragraph 18 of document TWV/49/4, and that the CAJ had approved the presentation of that guidance for adoption by the Council at its forty-ninth ordinary session.

67. The TWV noted that the CAJ, at its seventy-first session, had agreed to invite the WG-DST to consider the comments by the Administrative and Legal Committee Advisory Group (CAJ-AG), at its ninth session, on the proposals in document UPOV/INF/12/5 Draft 2 concerning Sections 2.2.2 (b), 2.3.1 (c) and (d), and 2.3.3, in conjunction with the development of an effective UPOV similarity search tool, and any conclusions by the WG-DST to revise document UPOV/INF/12, if appropriate, as set out in paragraph 24 of document TWV/49/4.

68. The TWV noted that the CAJ, at its seventy-first session, had agreed to consider the proposals of the CAJ-AG under Sections 2.2.2 (c), 4(a) and 4(e)(i) at its seventy-second session, as set out in paragraph 25 of document TWV/49/4.

69. The TWV highlighted the importance of developing a harmonized tool for variety denomination purposes, complementary to those currently used.

Definition of color groups from RHS Colour Charts

70. The TWV considered TWV/49/19.

71. The TWV agreed that there was a possibility to use RHS Colour Chart references as a basis for defining color groups for the purposes of grouping of varieties and organization of the growing trial.

72. The TWV agreed that the allocation of UPOV Color Groups for each RHS colour for grouping of varieties and organization of the growing trial, as set out in document TGP/14, was not relevant for the vegetable sector and therefore recommended to refer to color names and to use a simplified scale of color in its Test Guidelines.

Matters concerning variety descriptions

73. The TWV considered document TWV/49/10.

74. The TWV received the following presentations on matters concerning variety descriptions, which focused on the use of information, documents or material provided by the breeder for verifying the maintenance of the variety and how variety descriptions were generated in DUS examination (in order of presentation), as reproduced in the addendum to document TWV/49/10:

Verifying the maintenance of a variety and Matters concerning variety descriptions	Spain
Experience with regard to variety descriptions and verifying the maintenance of the variety at the Community Plant Variety Office of the European Union (CPVO)	European Union
Verifying the maintenance of vegetable varieties	Netherlands
Verification of the maintenance of the variety in the Republic of Korea	Republic of Korea

75. The TWV noted the harmonized approaches in the vegetable sector for verifying the maintenance of varieties and the common understanding and use of variety descriptions within the members of the Union.

Statistical Methods for Visually Observed Characteristics

76. The TWV considered document TWV/49/20.

77. The TWV noted that the TC, at its fifty-first session, had agreed to remove the document “Statistical methods for visually observed characteristics” from the program for the revision of document TGP/8, and to consider the matter under a separate agenda item.

78. The TWV noted that the TWC had invited an expert from China to make a presentation at the thirty-third session of the TWC on the analysis of visually observed characteristics using the DUST China (DUSTC) software package using the data set of meadow fescue provided by Finland.

Experiences with new types and species

79. The TWV received the following presentations, copies of which are provided in document TWV/49/28 Add. (in order of presentation):

- *Zataria multiflora* Boiss. (Shirazi Thyme) (presentation made by an expert from Oman)
- *Solanum pimpinellifolium* x *Solanum habrochaites*: A new interspecific cross for tomato rootstock (presentation made by an expert from Spain)

- Seaweed (*Saccharina latissima)* (presentation made by an expert from Netherlands)
- *Stevia rebaudiana* (presentation made by an expert from France)

Management of reference collections

80. The TWV received a presentation on “DUS Reference collection: French approach” by an expert from France as reproduced in the addendum to document TWV/49/29.

81. The TWV suggested to use the terminology in UPOV documents in relation to “variety collections” (see document TGP/4).

New issues arising from DUS examination

82. The TWV received a presentation by an expert from the European Union on “Effect of seed Priming on vegetable DUS tests”, a project organized by the Community Plant Variety Office of the European Union (CPVO), as reproduced in addendum of document TWV/49/30. The TWV invited the European Union to make a report on further developments and the final conclusions of the project at its fiftieth session.

83. The TWV received a presentation on “Photos in the variety collection” by an expert from the Netherlands, as reproduced in the addendum to document TWV/49/30.

84. The TWV received an oral presentation on “vegetatively propagated varieties in a normally seed propagated species” by an expert from the Netherlands. The TWV agreed that the issue was relevant for the vegetable sector and that the guidance provided in UPOV documents did not cover the situation. It further invited the expert from the Netherlands, with the support from experts from France, to provide information on the issues for DUS examination caused by vegetatively propagated varieties in a normally seed-propagated species and to investigate potential next steps (e.g. revision of existing guidance) (see paragraph 20 of this Report), for consideration by the TWV at is fiftieth session.

Use of disease resistance characteristics in DUS examination

85. The TWV received a presentation on “Use of disease resistance characteristics in DUS examination” by an expert from the European Union as reproduced in the addendum to document TWV/49/31.

86. The TWV agreed it might be appropriate to review document TGP/7 in order to introduce a delay before asterisked disease resistance characteristics needed to be examined by all members of the Union. It further invited the expert from the European Union, with the support of experts from France, Italy, Netherlands, Oman, Slovakia and Spain to draft a proposal for consideration at is fiftieth session.

87. The TWV highlighted the importance of the explanation provided in the methodology for disease resistance characteristics the Test Guidelines, in order to ensure harmonization within members of the Union in the examination of those characteristics.

88. The TWV invited the European Union to report on matters related to the use of disease resistance characteristics in the European Union at its fiftieth session.

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

89. The TWV noted that the TC, at its fifty-first session, held in Geneva from March 23 to 25, 2015, had adopted the Test Guidelines for Bottle Gourd (document TG/LAGEN(proj.5)) subject to the deletion of Characteristics 17 “Neck: creasing at base” being approved by the TWV by correspondence, as set out in Annex II to document TC/51/39 “Report”.

90. The TWV noted that the Office had issued circular E-15/095 requesting approval by correspondence for the deletion of Characteristics 17 “Neck: creasing at base” and noted that, as no objections had been received by the deadline of May 1, 2015, the Test Guidelines for Bottle Gourd would be adopted.

Discussion on draft Test Guidelines

91. In response to a request from the representative from the European Seed Association (ESA) concerning the procedure to attend subgroup discussion in the TWPs, the TWV noted that TGP/7 states as follows (see document TGP/7 "Development of Test Guidelines", Section 2 "Procedure for the Introduction and Revision of UPOV Test Guidelines", Chapter 2.1.7 "Consultation"):

> "2.1.7 Consultation
>
> "2.1.7.1 The drafts of Test Guidelines, prepared by the Leading Expert in conjunction with the interested experts, are considered at the relevant TWP meetings before submission to the Technical Committee for approval. This procedure involves the main international non-governmental organizations in the field of plant breeding and genetic resource management, by means of their invitation to participate in the meetings of the relevant TWPs and Technical Committee as observers.
>
> "2.1.7.2 In addition, the relevant TWP may enhance the consultation of interested experts for certain Test Guidelines by the arrangement of Test Guidelines Subgroup meetings between the TWP sessions."

*Agaricus (*Agaricus *L.) (Revision)*

92. The subgroup discussed document TG/2591/2(proj.1), presented by Mr. Sergio Semon (European Union), and with the presence of experts invited by the European Union, and agreed the following:

General	- Leading Expert confirmed that all IP rights on photos, illustrations and text have been respected - to review wording "plant" throughout document (to read "fruit bodies")
Cover page	- to check alternative names in GRIN (to check whether to delete Tsukuritake) - French common name to read "Agaricus"
1.	Test Guidelines to cover four Agaricus species: - *Agaricus bisporus* (Lange.) Sing. - *Agaricus arvensis* Schaeff. - *Agaricus bitorquis* (Quél.) Sacc. 1887 - *Agaricus subrufescens* Peck 1894
2.3 (a)	to be completed
2.4	to read "The material supplied…"
3.1.2	- to read "…in the form of two separate cultivations." (to replace "plantings" with "cultivations" throughout the document)
3.3.2	to be deleted
3.4.2	to indicate that 60 fruit bodies should be collected at stage 2 and at stage 5 (see chapter 8.1 (f))
6.4	- to be reviewed, example varieties to be displayed in the Table of Chars. - Mushroom species/ type: Examples, 5. Almond mushroom to read "*Agaricus subrufescens*"
6.5	- key to Agaricus types to be moved to chapter 8.1 in a table - to add life cycle of Agaricus to Chapter 8
Char. 1	- to check whether to read "Mycelium strength" - to be indicated as QN - to have states "weak", "medium", "strong"
Char. 4	to read "Time of beginning of harvest"
Char. 5	to read "For *Agaricus bisporus* only: Stipe: length"
Char. 6	to check whether to read "For *Agaricus bisporus* only: Stipe: diameter at point of attachment" and adapt diagram accordingly
Char. 7	to delete example variety "Broncoh" from state 7
Char. 9	to be deleted
new Char.	to add a new characteristic before Char. 10 on "Cap: color" (see Char. 12 in current TG/259/1)
Char. 10	to review states of expression

**Basil (*Ocimum basilicum *L.) (Revision)*

93. The subgroup discussed document TG/200/2(proj.2), presented by Ms. Swenja Tams (Germany), and agreed the following:

General	Leading Expert confirmed that all IP rights on photos, illustrations and text have been respected
2.2	to read "…in the form of rooted young plants in case of vegetatively propagated varieties."
2.3	to read "…for seed propagated varieties: 6 gr or at least 4000 seeds for vegetatively propagated varieties: 40 young plants per growing cycle."
3.1.2	to be deleted
Char. 1	to check method of observation and states of expression (according to the states not QL)
Char. 4	- state 2 to read "medium elliptic" - state 3 to read "medium ovate"
Char. 8	- to add more example varieties - state 4 to read "throughout"
new Char.	to add a new characteristic after Characteristic 17: - to read "Flowering stem: hairiness of bracts" - to be indicated as QN and VG - to have the following notes, states and example varieties: 1 weak (Grand vert) 2 medium (Thailandais à petites feuilles) 3 strong (Osmin)
Char. 18	to check whether to add example variety for state 2
8.1 (a)	to read "Observations on leaf blades…"
Ad. 1	to add photo for state 2
Ad. 4	- to use standard grid according to TGP/14 - to review order of states
Ad. 8	to read "on basal part" for state 2
Ad. 16	to add Char. 17 and the new char after Char. 17 and move to 8.1
Ad. 17	to read "The length of the internodes is observed as an average of all internodes on the main flowering stem."
9.	to order literature references alphabetically
TQ 6	to add example
7.4	to be deleted

**Brassicas (Partial Revision: Male Sterility)*

94. The subgroup discussed document TWV/49/23 on the partial revision of the following Test Guidelines, presented by Ms. Amanda van Dijk (Netherlands), and agreed with the proposed revisions subject to the following amendments:

- Cauliflower (*Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *botryris* L.) (document TG/45/7)
- Cabbage (*Brassica oleracea* L.: *Brassica* (White Cabbage Group); *Brassica* (Savoy Cabbage Group); *Brassica* (Red Cabbage Group)) (document TG/48/7)
- Brussels Sprout (*Brassica oleracea* L. var. *gemmifera* DC.) (document TG/54/7)
- Kohlrabi (*Brassica oleracea* L. convar. *acephala* (DC.) Alef. var. *gongylodes* L.; *Brassica oleracea* L. *Gongylodes* Group) (document TG/65/4)
- Curly Kale (*Brassica oleracea* L. var. *sabellica* L.) (document TG/90/6 Corr.)
- Calabrese, Sprouting Broccoli (*Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *cymosa* Duch. (including *Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *italica*)) (document TG/151/4)

All Ads.	- to replace "PCR trial" by "DNA marker test" throughout the explanations - beginning of paragraph PCR and/or field trial" to read "… on the TQ can be examined in a field trial or in a DNA marker test. In the case of a DNA marker test, if…"

95. The TWV agreed that the methods of observation of the characteristic “Male sterility” should read as follows in the relevant Test Guidelines:

- Cauliflower: MS/VS
- Cabbage: VG/MS
- Brussels Sprout: VG/MS
- Kohlrabi: VG/MS
- Curly Kale: VG/MS
- Calabrese, Sprouting Broccoli: VG/MS

96. The TWV agreed that the following explanation be added to the Addendums to the characteristics for male sterility in Chapter 8.2 to all relevant Test Guidelines, except for Cauliflower:

“In case of a field trial, type of observation is VG. In case of a DNA-marker test, type of observation is MS.”

97. The TWV agreed that in the case of cauliflower, the explanation to be added to the Addendums to the characteristics for male sterility in Chapter 8.2 should read:

“In case of a field trial, type of observation is VS. In case of a DNA-marker test, type of observation is MS.”

**Brown Mustard (*Brassica juncea *(L.) Czern.)*

98. The subgroup discussed document TG/BRASS_JUN(proj.3), presented by Mr. Yoshiyuki Ohno (Japan), and agreed the following:

General	Leading Expert to confirm that all IP rights on photos, illustrations and text have been respected
4.2.3	to complete with a paragraph on self-pollinated varieties for uniformity standard
5.3	to check whether to keep (e) and (f) as types are excluded
Table of Chars.	- to check number of (*) - to review example varieties throughout the Table of characteristics - to follow the same approach as for TG *Cucurbita maxima* X *Cucurbita moschata* for synonym for example varieties (see Chapter 8.3)
Char. 1	- example varieties for state 2 to read “Akaoba Takana(Red Giant), Esperance, Miike Takana” - example varieties for state 3 to read “Chaplin, Hagarashina”
Char. 5	to be deleted
Char. 6	- to delete Char. 6 from Chapter 5.3 grouping characteristics - to review example varieties
Char. 7	to review example varieties
Char. 8	to review example varieties
Char. 12	- to clarify what “size” refers to (total surface?) - to check whether to read “Only for type 1: Leaf blade…”
Char. 13	- to review scale and example varieties - state 1 to read “absent or very few”
Char. 15	to be deleted
Char. 16	- to read “Leaf blade: anthocyanin coloration” - note (e) to be an individual explanation (to add (+))
Char. 17	- to read “Only varieties with anthocyanin coloration absent or very weak: Leaf blade: intensity of green color” - to check whether to add state for “not visible” - to add a (+) and explanation on where to observe (to be observed on old leaves) - to review example varieties
Char. 19	to review example varieties
Char. 21	- to check whether to rephrase the title of the characteristic - to review example varieties
Char. 23	to read “Head: height”
Char. 24	- to read “Head: diameter” - to check whether to replace “diameter” by “width”
Char. 25	to read “Head: number of leaves”
Char. 26	to read “Head: internal color”

Char. 27	to be reviewed (explanation of differences is needed)
Char. 28	- to be indicated as MG - growth stage to be indicated as 31
Char. 29	- to be indicated as MG - to check whether growth stage to be indicated as 50 or 55
Char. 30-36	to add example varieties
Char. 30	growth stage to be indicated as 61
Char. 31	- growth stage to be indicated as 61 - to add (+) and explanation to indicate where and how to observe
Char. 32	- growth stage to be indicated as 61 - to add (+) and explanation to indicate where to observe
Char. 33	- growth stage to be indicated as 61 - to add (+) and explanation to indicate where to observe
Char. 34	- growth stage to be indicated as 61 - to add (+) and explanation to indicate where to observe
Char. 35	to add (+) and explanation
Char. 36	- to clarify method of observation - to be moved after Char. 29 - to check whether to be indicated as QL with states “absent” and “present”
8.1 (b)	to be reviewed
8.1 (c)	to read “Cotyledon:…”
8.1 (d)	to read “Leaf/ leaf blade:…”
Ad. 27	to be reviewed
9.	to order literature references alphabetically

**Leaf Chicory (*Cichorium intybus *L. var.* foliosum *Hegi)*

99. The subgroup discussed document TG/154/4(proj.3), presented by Ms. Stéphanie Christien (France) and Ms. Romana Bravi (Italy), and agreed the following:

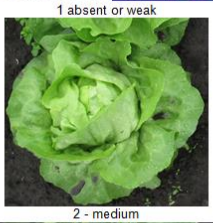
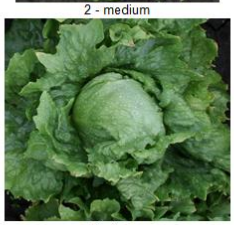
General	Leading Expert to confirm that all IP rights on photos, illustrations and text have been respected
2.3	to delete “or 120 plants of normal transplantation size in the case of vegetatively propagated varieties”
4.2.3	to be deleted
Char. 1	to be indicated as QL
Char. 6	- state 4 to read “circular” (see TGP/14) - to check whether to add “transverse broad elliptic” as state 5
Char. 7	to read “Leaf: color (excluding midrib)”
Char. 8	- to check whether to delete (a) - to check example varieties
Char. 9	to delete “(as for 4)”
Char. 12	- to check whether to reduce the scale to notes 1, 3, 5 - to check whether state 1 to read “absent or weak”
Char. 16	to add (+) and explanation/drawing
Char. 18	state 1 to read “very weak”
Char. 19	to read “Time of head formation”
Char. 23	to review order of states (see TGP/14)
Char. 24	to read “Head: shape of upper part”
Char. 25	to read “Head: color of outer leaves”
Char. 26	to check whether to be deleted
Char. 27	to check whether to add “Rosa isontina” as example variety for state 1
Char. 28	- to read “Plant: formation of stem” - to add (+) and explanation
8.1 (a)	to improve table and check where in the document it should be located
8.1 (b), (d), (e)	to delete “just”

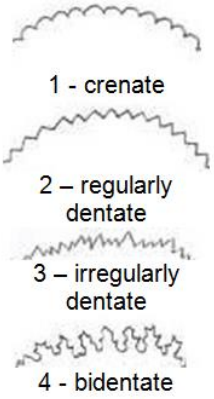
8.1 (c)	to read “Harvest Maturity stage is specific to the plant growth types: - Chioggia, Verone, Pain de sucre / Pan di Zucchero, Variegata and Rossa di Treviso (early type) are harvested when a head has been formed; - Catalogna puntarelle is harvested when stems (puntarelle shoots) are formed and the leaves development is complete; - All other types: when the leaves are at the stage of complete growth.”
Ad. 7	to be deleted
Ad. 21	to improve or delete illustration
Ad. 23	to place illustrations in a grid according TGP/14
Ad. 25	to be deleted

**Lettuce (*Lactuca sativa *L.) (Revision)*

100. The subgroup discussed document TG/13/11(proj.2), presented by Ms. Amanda van Dijk (Netherlands), and agreed the following:

General	- Leading Expert confirmed that all IP rights on photos, illustrations and text have been respected - to replace “Plant: growth types” and “growth types” by “types” (table in Chapter 8.1, etc.) - to put all botanical names in italics (including disease resistances)
5.3 (e)	to be deleted
Table of Chars.	to only have label (a) for the characteristics mentioned in the table in Chapter 8.1 and for Char. 7
Char. 3	- to be combined with Char. 28 - to be indicated as QN - to read “Plant: degree of overlapping of upper part of leaves” - to have the following states of expression and example varieties: 1 absent or weak (Blonde à couper ameliorée, Lollo rossa, Actarus, Aquarel, Curtis) 2 medium (Augusta, Clarion, Fiorella) 3 strong (Roxette, Vanguard 75)
Char. 4	- to be indicated as MS/VG - to read “Only varieties with degree of overlapping of upper part of leaves absent or weak: Plant: number of leaves”
Char. 9	to add state 3 “obcordate” with example variety “PS 6545691”
Char. 14	- to be combined with Char. 15 and keep grid as explanation - to have the states of expression which have example varieties in current Ad. 14, 15 - add states “dark yellowish green” and “very dark greyish green” - to read “Leaf: color”
Char. 15	to be deleted
Char. 19	- to add (+) and explanation - to be indicated as VG/VS
Char. 20	to be indicated as VG/VS
Char. 22	- to be moved before Char. 21 - to have the following notes, states of expression and example varieties: 1 crenate (Gloire du Dauphiné) 2 regularly dentate (Soliflore) 3 irregularly dentate (Rodagio) 4 bidentate (Great Lakes 118) 5 tridentate (Expedition)
Char. 23	to read “Only varieties with type of incisions bi- or tridentate: Leaf: depth of secondary incisions of margin”
Char. 26	to read “Only varieties with degree of overlapping of upper part of leaves medium or strong: Head: size”
Char. 27	to read “Only varieties with degree of overlapping of upper part of leaves medium or strong: Head: shape”
Char. 28	to be deleted
Char. 29	to read “Only varieties with degree of overlapping of upper part of leaves medium or strong: Head: density”

Char. 31	to read “Only varieties with degree of overlapping of upper part of leaves medium or strong: Time of harvest maturity”
Char. 32	- to check whether to adapt the scale in a future revision
Char. 44	to delete (*)
Char. 47	- to read “Resistance to "Lettuce mosaic virus" (LMV) pathotype II” - to add example varieties “Sucrine” for state 1 and “Capitan” for state 9
Char. 48	to add example variety “Bedford” for state 9
Char. 49	to be indicated as VG/MS
8.1 (a)	- to review table according to changes in the table of characteristics - to add explanation on the use of the table - to add missing illustrations for growth types
8.1 (b), (c)	to replace “non-heading” varieties by “varieties with degree of overlapping upper part of leaves: absent or weak”
8.1 (c)	to replace “a closed head” by “varieties with degree of overlapping of upper part of leaves: medium or strong”
8.2	general comment: explanations to read “Observations should be made…”
Ad. 3	- to delete current text - to add “Observations should be made on leaves at the heart of the plant to form a head” - to have the following illustrations:  1 absent or weak  2 - medium  3 strong
Ad. 6	- to improve illustration on difference between divisions and incisions - to have the following illustrations for states 3 and 5  3 few  5 – medium
Ad. 8	to place illustrations in a grid (see TGP/14)
Ad. 9	- to delete wording - to add illustration for new state 3 “obcordate”: 

Ad. 13	to be clarified
Ad. 14, 15	- to delete from the table the reference to Chars. 14 and 15 - state 2 to read “yellowish green” - state 3 to “greyish green”
Ad. 21	- to improve illustration on difference between divisions and incisions - last sentence to read “For varieties with irregularly dentate, bidentate or tridentate incisions describe the deepest incisions and use Char. 23 for the secondary incisions.”
Ad. 22	to have the following illustrations  - to add illustration for new state 5 “tridentate”
Ad. 23	to add “In case of tridentate incisions not to observe tertiary incisions of the margin (the most shallow ones).”
Ad. 24	to read “Observations should be made on all incisions of the margin at distal half, less than halfway to the midrib, so in case of irregularly dentate or bidentate both primary and secondary incisions, in case of tridentate also tertiary incisions.”
Ad. 32	to read “Observations should be made in a trial with more than 12 hours of day light as lettuce varieties need a long photoperiod to induce bolting. To observe when 50% of the plants start to bolt. The top of the bolting stem can be seen or felt at the top of the plant.”
Ad. 33	to have the following illustrations: 
Ad. 34	- to delete wording above table - to add missing points 11.2 to 13 after 11.1 - to check whether to be moved to Chapter 8.1
Ad. 34 – 5.	to read “BI: 16, 17, 20-27, 29-31”
Ad. 44	to be deleted
Ad. 47	to be reviewed
Ad. 47 – 5.	to read “pathotype II (isolates LMV-0 and Ls 1 belong to the same pathotype)”
Ad. 47 – 8.5	to read “rubbing; optionally repeat after 4 d; 1-2 h high humidity after inoculation”
Ad. 48 – 7.	to read “with susceptible control Abel or Green Towers”
Ad. 48 – 8.2	to read “Abel or Green Towers”
Ad. 48 – 9.3	resistant varieties to read “Barcelona, Bedford, Dynamite, Silvinas”
Ad. 49 – 9.6	to read “25-28 ^{o}C (day) / 20 ^{o}C (night)”
Ad. 49	footnote 9 to read “romana.bravi@entecra.it, scs.sa@entecra.it”
9.	to add Pink, D.A.C.…
TQ 5.6	to be moved to Chapter TQ 7 with an option “not tested”

101. During the technical visit, the TWV visited a Lettuce trial, set up by the Leading Expert of the draft Test Guidelines for Lettuce and planted by different examination offices. This trial helped in the examination of new characteristics proposed by the Leading Expert for the discussion on the Test Guidelines for Lettuce. The TWV acknowledged the work done by the experts and agreed that this kind of exercise assisted in harmonizing the approach for variety descriptions.

Onion; Shallot (Partial revision: Characteristic 27)

102. The subgroup discussed document TWV/49/24, presented by Mr. Kees van Ettekoven (Netherlands), and, following the Leading Expert's proposal, agreed that a full revision of the Test Guidelines for Onion, Shallot be considered at the fiftieth session of the TWV.

*Pepino (*Solanum muricatum*)*

103. The subgroup discussed document TG/PEPIN(proj.1), presented by Mr. Jun Araseki (Japan), and agreed the following:

General	Leading Expert to confirm that all IP rights on photos, illustrations and text have been respected
Cover page	to add French alternative name "Pepino"
1.	to delete second sentence (see TGP/7) TG to cover all varieties, not to exclude a type of propagation (ASW 0)
5.3 (b)	to delete color groups and move them as states of expression to Characteristic 21
Table of chars.	to add and review example varieties
Char. 2	to read "Stem: anthocyanin coloration"
Char. 4	to add (+) and explanation
Char. 5	to be indicated as VG/MS
Char. 6	to be indicated as VG/MS
Char. 7	to read "medium lanceolate"
Char. 9	to be indicated as VG/MS
Char. 10	- to read "Flower: width" - state 3 to read "narrow", state 7 to read "broad"
Char. 11	to add explanation of main color (see TGP/14)
Char. 12	- to add explanation of secondary color (see TGP/14) - to be indicated as PQ
Char. 13	- to add explanation of ground color (see TGP/14) - to read "Young fruit: ground color of skin" - to check whether state 4 to read "medium green" or "dark green"
Char. 14	to be indicated as VG/MS
Char. 15	- to read "Fruit: diameter" - to be indicated as VG/MS - to add (+) and explanation that observations are to be made on the broadest part
Char. 16	- to read "Fruit: ratio length/diameter" - to be indicated as VG/MS
Char. 17	- state 4 to read "cordate" (see TGP/14) - to clarify what the differences between the states are (length/width ratio; shape of base; shape of apex?) (see also Ad. 17)
Char. 18	to check correlation with Char. 17 (see comment on Char. 17)
Char. 19	- state 2 to read "flat" - to check correlation with Char. 17 (see comment on Char. 17)
Char. 20	- to add (+) and explanation on what size refers to - to delete "maximum"
Char. 21	- to add explanation of ground color (see TGP/14) - to read "Fruit: ground color" - to have states "white" (1), "light yellow" (2), "medium yellow" (3), "orange" (4) - to check whether to add example varieties
Char. 22	- read "Fruit: area of stripes" - to correct spelling of state 7 to read "large"
Char. 23	to check whether to add color states of expression and not to refer to RHS Colour Chart
Char. 25	- to check method of observation (how is the char. observed?) - to add (+) and explanation
Char. 26	to add (+) and explanation
Char. 27	to check whether to delete VG (MS according to explanation)

8.1 (b)	to be reviewed
Ad. 7	to be presented in a grid (see TGP/14)
Ad. 17	to be clarified: what are the differences between the states (length/width ratio; shape of base; shape of apex?)
Ad. 22	to be improved (how is the assessment made?)
Ad. 27	to be improved

Radish, Black Radish (Partial revision: TQ and grouping characteristics)

104. The subgroup discussed document TWV/49/25, presented by Ms. Swenja Tams (Germany), and agreed with the proposed revisions.

*Spinach (*Spinacia oleracea *L.) (Partial revision: Characteristic and Ad. 18)*

105. The subgroup discussed document TWV/49/26, presented by Ms. Marian van Leeuwen (Netherlands), and agreed with the proposed revisions.

Tomato Rootstocks (Partial Revision: disease resistance characteristics)

106. The subgroup discussed document TWV/49/27, presented by Mr. Sergio Semon (European Union).

107. The TWV agreed with the proposal to delete the asterisk from Characteristic 28 “Resistance to *Pyrenochaeta lycopersici* (PI)”.

108. The TWV agreed to maintain the asterisk for Characteristic 23 “Resistance to *Verticillium* sp. (Va and Vd) – Race 0”.

*Turnip (*Brassica rapa *L. var*. rapa *L.) (Revision)*

109. The subgroup discussed document TG/37/11(proj.1), presented by Ms. Stéphanie Christien (France), and agreed the following:

General	- Leading Expert to confirm that all IP rights on photos, illustrations and text have been respected - to include that both types of varieties (root and leaf) are covered
1.	to check the coverage of the Test Guidelines
2.3	to read “… 50 g or 25,000 seeds”
4.2.2	to specify in both paragraphs which kinds of hybrids
Char. 1	to add (+) , to clarify the method
Char. 2	to read “Petiole: anthocyanin coloration”
Char. 4	- to read “Leaf: degree of recurving” (see TGP/14 reflexed vs. recurved) - to add example variety “Fuku Komachi” for state 3 - to add example variety “Delilah” for state 5
Char. 5	- to read “Leaf: intensity of green color” - to add example variety “Civasto R” for state 5
Chars. 6, 7	to check whether to combine Chars. 6 an 7 to read “Leaf: number of lobes”
Char. 8	- to be reviewed according to changes to Chars. 6 and 7 - to check wording incisions vs. dentations and whether an additional char. needs to be added (see illustration in 8.1 (b)) - to have characteristics on incisions together
Char. 13	to check wording (see Ad. 6)
Char. 16	- to check whether 9 states are appropriate - to check whether example varieties are available - to check whether leaf or leaf blade - to check whether intensity or distribution of anthocyanin coloration

	- to add example variety “Rondo” for state 5
Char. 20	to add example variety “Goldana” for state 2
Ad. 4	to be improved (what is observed?)
Ad. 6	to be improved
Ad. 7	to check whether to improve to further clarify difference between lobes and incisions
Ad. 25	see Char. 25
Ad. 29	to be clarified

*Witloof Chicory (*Cichorium intybus *L. partim) (Revision)*

110. The subgroup discussed document TG/173/4(proj.3), presented by Ms. Stéphanie Christien (France), and agreed the following:

General	Leading Expert to confirm that all IP rights on photos, illustrations and text have been respected
Cover page	- to check UPOV Code/ coverage of TG - Spanish common name to read “Endivia”
3.4	to explain bolting trial (see 8.1 (c))
4.2	to read as in document TG/173/4(proj.2)
5.3 (a)	not in T.Q.
Table of characteristics	check all method of observation (especially MS+VS)
Char. 2	to review order of states (to have states 1 “rounded”, 2 “truncate”, 3 “obcordate”
Char. 3	to add (a)
Char. 5	- to be added to TQ - to add (b)
Char. 7	to add (+) and illustration of ratio - to delete (b)
Char. 8	state 1 to read “only green”, state 3 to read “only red”
Char. 9	- to check whether to split in 2 characteristics: intensity of green color and intensity of red color - to check whether 9 states are appropriate
Char. 10	to have states “absent to very weak” (1), “weak” (2), “medium” (3), “strong” (4), “very strong” (5)
Char. 11	to be indicated as QN
Char. 15	- to check whether to add (+) and explanation - to read “Leaf: incisions of basal part” - to have states “absent or very few” (1), “few” (3), “medium” (5), “many” (7)
Char. 16	- to check whether to add (+) and explanation
Char. 17	to read “Leaf: incisions of margin of upper third”
Char. 19	- to read “Time of bolting” - to have states “early” (3), “medium” (5), “late” (7) - to check example varieties
Char. 20	- to be indicated as VG/MS - to deleted states 1 and 9
Char. 21	to be indicated as VG/MS
Char. 22	to be indicated as VG
Char. 23	to be indicated as VG/MS
Char. 24	- to clarify what a small dentation is (is it shallow/deep?) - to add an illustration
Char. 25	to be indicated as VG
Char. 26	to be indicated as VS
Char. 30	to add (+) and explanation
Char. 33	- to read “Head: color of leaf blade (excluding midrib)” - state 1 to read “only yellow”, state 3 to read “only red” - to check whether to split in 2 characteristics: intensity of green color and intensity of red color (see Char. 34)
Char. 34	to read “Head: intensity of color of leaf blade (excluding midrib)”
Char. 36	- to reverse order of states of expression - to add (+) and explanation

8.1 (a)	to read “Observations should be done when the leaves are fully developed”
8.1 (b)	to delete wording and keep illustration only
8.1 (d)	to read “Head: observations should be done after a forcing period in a completely dark environment and before exposure to daylight.”
8.1 (e)	method to be reviewed and agreed with Interested Experts
Ad.1	to improve illustration (no clear difference between photo 1 and 2)
Ad. 2	to improve illustration (focus on apex only)
Ad. 3	to delete sentence
Ad. 5	to be deleted
Ad. 18	to delete sentence
Ad. 19	to be deleted
Ad. 20	to be deleted
Ad. 21	to be deleted
Ad. 26	to keep one picture only per state and to indicate what to look at
Ad. 27	to read “Observations should be made on harvested seeds.”
Ad. 31	to review grid according TGP/14
Ad. 37	to be reviewed
TQ 1	to check botanical and common name
TQ 4.1.1	to delete (a), (b), (c)
TQ 5.1	to replace Char. 6 with Char. 5
TQ 7	to delete wording relating to photographs

Information and databases

(a) UPOV information databases

111. The TWV considered document TWV/49/5.

GENIE database

112. The TWV noted the information on allocation of crop type(s) for UPOV codes used in the PLUTO database as of June 26, 2014.

113. The TWV noted that information on crop type(s) had been introduced in the GENIE database and that the GENIE database had been modified to show the crop type(s) for each UPOV Code.

114. The TWV noted that a standard report for TWP allocations for UPOV codes had been introduced on the GENIE webpage.

115. The TWV noted that allocation of crop type(s) for further UPOV codes would occur when UPOV codes were used in the PLUTO database for the first time.

116. The TWV agreed to check the UPOV codes used in the PLUTO database for the first time, since June 26, 2014, which were provided in Annex III, part C to document TWV/49/5 (available on the TWV/49 website) and to submit comments to the Office of the Union by July 31, 2015.

UPOV code system

117. The TWV noted the request to check the amendments to UPOV codes, as provided in Annex III, part A, to document TWV/49/5.

118. The TWV agreed to check the new UPOV codes or new information added for existing UPOV codes, as provided in Annex III to document TWV/49/5 and agreed to submit the comments to the Office of the Union by July 31, 2015.

119. The TWV received information from an expert from the European Union on the proposal for a development of the third part of the UPOV codes (subspecies element) to indicate different types within a species (e.g. determinate/indeterminate type in tomato) and agreed to invite the expert from the European Union to make a proposal at its fiftieth session.

PLUTO database

120. The TWV noted the summary of contributions to the PLUTO database from 2012 to 2014 and the current situation of members of the Union on data contribution, as presented in Annex II to document TWV/49/5.

121. The TWV noted that an additional column in the PLUTO search screen, showing the date on which the information was provided, had been introduced.

122. The TWV noted that both the “Denomination” and “Breeder’s Ref” fields had been made searchable, independently or in combination, by denomination search tools on the “Denomination Search” page of the PLUTO database.

123. The TWV noted the information concerning the training course “Contributing data to the PLUTO database”, held in Geneva in December 2014 and the plans to organize three further courses, in English, French and Spanish, from September 7 to 9, 2015, from November 23 to 25, 2015, and from October 5 to 7, 2015, respectively (dates to be confirmed).

(b) Variety description databases

124. The TWV considered document TWV/49/6.

125. The TWV noted that the TWC had invited an expert from China to present the analysis of variance for the interaction “variety x location” (environment) of the QN characteristics considered in the study using the statistical module of the new software “DUSTC” developed by China for presentation at its thirty-third session.

126. The TWV noted that the TC had agreed to include a discussion item on facilitating the development of databases at its fifty-second session.

(c) Exchange and use of software and equipment

127. The TWV considered document TWV/49/7.

128. The TWV noted that the Council, at its forty-eighth ordinary session had adopted the revision of document UPOV/INF/16 “Exchangeable Software” (document UPOV/INF/16/4 on the basis of document UPOV/INF/16/4 Draft 1.

129. The TWV noted that discussions on the inclusion of the SISNAVA software in document UPOV/INF/16 would be continued in the TWC, subject to the conclusion on discussions on the variation of variety descriptions over years in different locations.

130. The TWV noted that the TC, at its fifty-first session, and the CAJ, at its seventy-first session, had agreed the proposed revision of document UPOV/INF/16/4 concerning the inclusion of information on the use of software by members of the Union in conjunction with the comments of the TC, as set out in Annex I to document TWV/49/7 and that a draft of document UPOV/INF/16/5 “Exchangeable Software” would be presented for adoption by the Council at its forty-ninth ordinary session.

131. The TWV noted that the Council, at its forty-eighth ordinary session had adopted document UPOV/INF/22 “Software and equipment used by members of the Union” (document UPOV/INF/22/1).

132. The TWV noted that the TC, at its fifty-first session, and the CAJ, at its seventy-first session, had agreed the proposed revision of document UPOV/INF/22/1 concerning software and equipment used by members of the Union in conjunction with the comments of the TC, as set out in Annex II to document TWV/49/7. The TWV noted that a draft of document UPOV/INF/22 would be presented for adoption by the Council at its forty-ninth ordinary session.

(d) Electronic application systems

133. The TWV noted the information provided in document TWV/49/8 and in a presentation from the Office of the Union on the developments concerning the development of a prototype electronic form, a copy of which will be provided in document TWV/49/8 Add.

Recommendations on draft Test Guidelines

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

134. The TWV agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-second session, to be held in Geneva from March 14 to 16, 2016, on the basis of the following documents and the comments in this report:

Subject	Basic Document (2015)
*Basil (*Ocimum basilicum* L.) (Revision)	TG/200/2(proj.2)
*Brassica (Partial revision: male sterility) = • Cauliflower (*Brassica oleracea* L. convar *botrytis* (L.) Alef. var. *botryris* L.), • Cabbage (*Brassica oleracea* L.), • Brussels Sprout (*Brassica oleracea* L. var.*gemmifera* DC.), • Kohlrabi (*Brassica oleracea* L. convar. *acephala* (DC.) Alef. var. *gongylodes* L.; *Brassica oleracea* L. *Gongylodes* Group), • Curly Kale (*Brassica oleracea* L. var. *sabellica* L.), • Calabrese- Sprouting Broccoli (*Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *cymosa* Duch. (including *Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *italica*))	TWV/49/23 TG/45/7, TG/48/7, TG/54/7, TG/65/4, TG/90/6 Corr. TG/151/4
*Lettuce (*Lactuca sativa* L.) (Revision)	TG/13/11(proj.2)
Radish, Black Radish (Partial revision: TQ and grouping characteristics)	TG/63/7 - TG/64/7, TWV/49/25
Spinach (*Spinacia oleracea* L.) (Partial revision: Characteristic 18)	TG/55/7 Rev.3, TWV/49/26
Tomato Rootstocks (Partial Revision: disease resistance characteristics)	TG/294/1, TWV/49/27

(b) Test Guidelines to be discussed at the fiftieth session

135. The TWV agreed to discuss the following draft Test Guidelines at its fiftieth session:

Subject
Agaricus (*Agaricus* L.) (Revision)
Calabrese, Sprouting Broccoli (Revision)
*Brown Mustard (*Brassica juncea* (L.) Czern.)
*Leaf Chicory (*Cichorium intybus* L. var. *foliosum* Hegi) (Revision)
Onion, Shallot (Revision)
Pepino (*Solanum muricatum*)
Tomato Rootstocks (Partial revision: coverage of Test Guidelines, Characteristic 16)
Turnip (*Brassica rapa* L. var. *rapa* L.) (Revision)
Watercress (NASTU_MIC, NASTU_OFF)
*Witloof Chicory (*Cichorium intybus* L. partim) (Revision)

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

Guidance for drafters of Test Guidelines

137. The TWV considered document TWV/49/11.

138. The TWV agreed with the plan to update the TG drafters' webpage to provide the following information:

Web-based TG Template
Additional characteristics
Summary information on quantity of plant material required on adopted Test Guidelines
Test Guidelines under development (reference to document TC/[xx]/2)
Shapes extract from document TGP/14

New issues arising for DUS examination

139. The TWV agreed that the following issue should be considered further at its fiftieth session:

- seed Priming project (see paragraph 82 of this document)

Date and Place of the Next Session

140. At the invitation of the Czech Republic, the TWV agreed to hold its fiftieth session in Brno, Czech Republic, from June 27 to July 1, 2016, with the preparatory workshop on June 26, 2016.

Future program

141. The TWV 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
   (b) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques
   (a) Developments in UPOV (document to be prepared by the Office of the Union)
   (b) Presentation on the use of molecular techniques in DUS examination (presentations invited from members of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
   (a) UPOV information databases (document to be prepared by the Office of the Union)
   (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
   (c) Exchange and use of software and equipment (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. Uniformity assessment (document to be prepared by the Office of the Union)
9. Experiences with new types and species (oral reports invited)
10. New issues arising for DUS examination (presentations invited from members of the Union)
11. Use of disease resistance characteristics in DUS examination (document to be prepared by the European Union and presentations invited)
12. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)

13. Discussions on draft Test Guidelines (Subgroups)
14. Recommendations on draft Test Guidelines
15. Guidance for drafters of Test Guidelines
16. Date and place of the next session
17. Future program
18. Report on the session (if time permits)
19. Closing of the session

Visit

142. On the afternoon of June 17, 2015, the TWV visited the Brion testing station of the *Groupe d'étude et de contrôle des variétés et des semences* (Variety and Seed Study and Control Group, GEVES), where it was welcomed by Mr. Pascal Coquin, Director of the Brion station. Under the guidance of Mr. Coquin, Ms. Stéphanie Christien, Manager of DUS Studies, Ms. Sophie Perrot, Responsible for disease resistance testing, Mr. Jean-Yves Le Breton and Mr. Eric Senée, crop experts, the TWV visited DUS trials of lettuce, shallots, peas and quinoa, and disease resistance tests on Lettuce. The TWV also visited the ring trial organized in conjunction with the revision of the Test Guidelines for Lettuce. The TWV also visited the business unit HM.Clause of the Limagrain seed company, in La Bohalle. The TWV was welcomed by Ms. Maria José Lillo, Site Manager, and received a presentation on the activities of Limagrain and HM.Clause, which specialized in the breeding and production of vegetable seeds for nine species including tomato, pepper and melon. A copy of the presentation is provided in Annex III to this report. The TWV further visited the breeding facilities (brassica, corn salad, fennel), as well as the laboratories for molecular markers and cell biology and pathology.

143. The TWV adopted this report at the close of its session.

[Annex I follows]

ANNEX I

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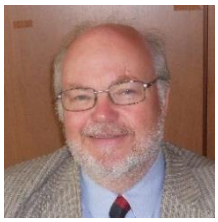

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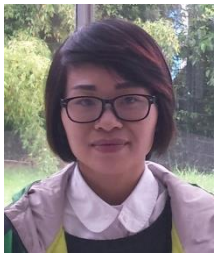

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[Annex II follows]

ANNEX II

CPVO
Community Plant Variety Office

The EU PVR System

Martin EKVAD
President

UPOV TWV, Angers 15 June 2015

@CPVOTweets

Outline

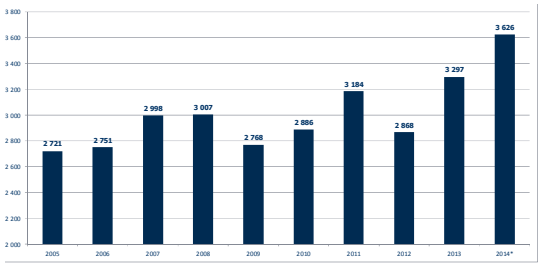
1. The CPVO
2. The EU system on plant variety protection
3. Technical examinations
4. Scope / Enforcement
5. The CPVO vegetable sector
6. Final remarks

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 (AC).

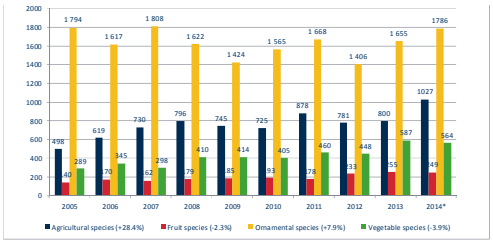
#CPVO20

Applications from 2005 to 2014



NB: (*) comparison with 2013: +10,0 %

Applications from 2005 to 2015, by crop sector



NB: (*) Comparison with 2013 indicated in percentage in the legend

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 more than **1800** different plant species.
- **Duration** of the Community right: 25 years (30 for vines, trees and potato varieties)
- **Provisional protection** covering the time from publication of the application until the grant of the Community right.

3. EU Technical Examinations

- The CPVO technical examinations are based on UPOV guidelines. The CPVO has not created its own technical infrastructure.
- Entrusted examination offices (EOs) which are independent from commercial breeding companies, test the distinctness, uniformity & stability of varieties.

Technical Examinations in the EU System

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

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 full member of UPOV as an inter-governmental organisation

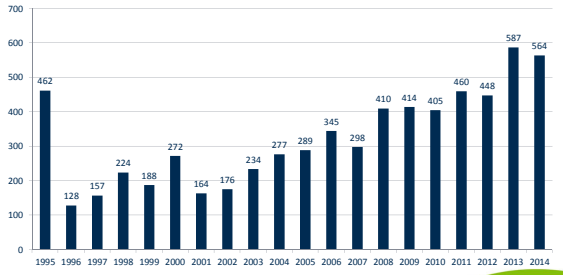
4. Scope & Enforcement

- 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.

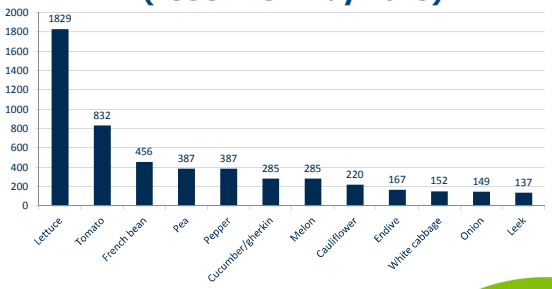
5. Details of CPVO vegetable sector

- Vegetable apps, now accounts for 16% of all annual apps
- Lettuce & tomato dominate, followed by other salad crops
- Large increase in hybrid apps over the past decade:
  - ✓ Breeders seek protection against illegal vegetative propagation
- Sector characterised by concentration:
  - ✓ Few companies (multinational), mainly Dutch based
  - ✓ Two thirds of DUS tests undertaken by Naktuinbouw (NL)
- Current issues:
- Disease resistance characteristics
- Greater collaboration amongst EU EOs
- Shallot debate !

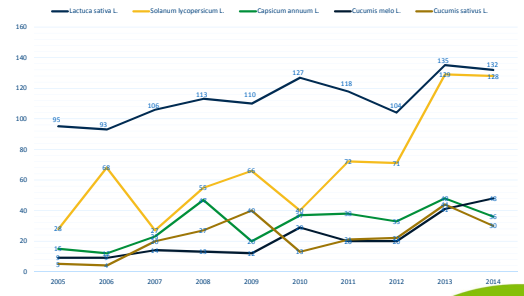
Apps in the vegetable sector (1995 – 17 October 2014)



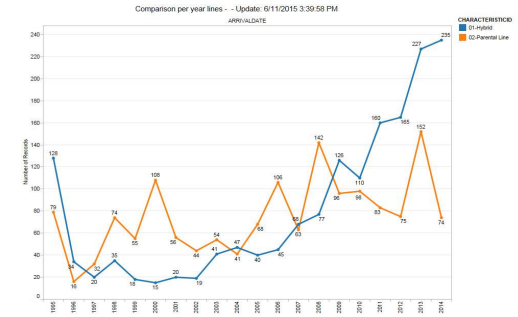
Main species in vegetable sector per number of applications (1995 – 31 May 2015)



Evolution of apps for the 5 main vegetable species 01/05 – 09/14



Evolution of Vegetable Hybrid v Parent line applications



Main vegetable applicants 2014

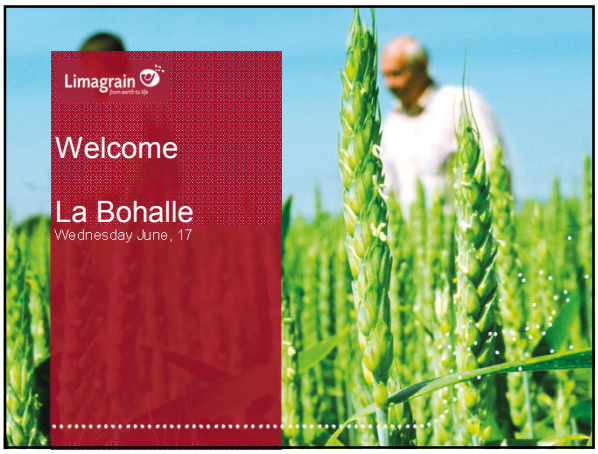
Applicant	Country	N° applications
Monsanto Vegetable IP Management BV	Netherlands (USA)	116
Rijk Zwaan Zaadteelt en Zaadhandel BV	Netherlands	84
Syngenta Seeds BV	Netherlands	80
Nunhems BV	Netherlands	75
Enza Zaden BV	Netherlands	69
Vilmorin SA	France	36
H.M. Clause SA	France	15
Gautier Semences SA	France	10
Van Waveren SaatenGmbH	Germany	10
Bejo Zaden BV	Netherlands	9
Others	--	60

6. Final Remarks

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

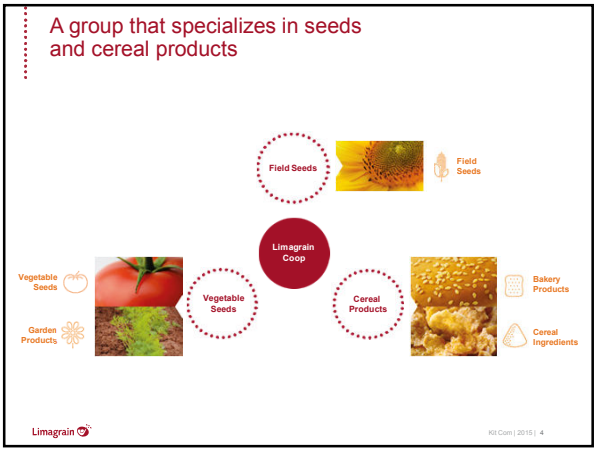
[Annex III follows]

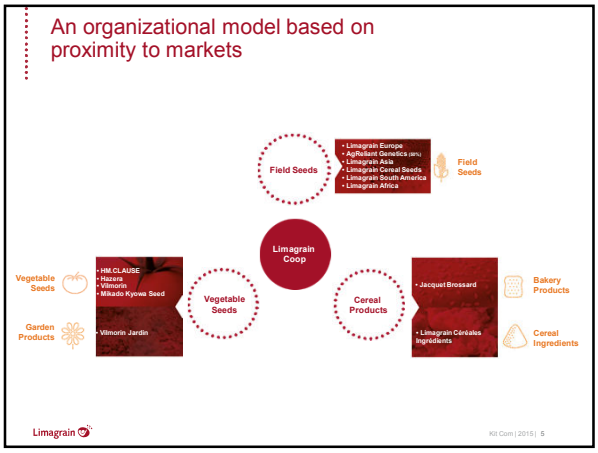
ANNEX III


Limagrain
Welcome
La Bohalle
Wednesday June, 17


1
Who are we?
Our Parent Company: LIMAGRAIN
Our Business Unit: HM.CLAUSE
HM•CLAUSE


An international agricultural cooperative group
4th largest seed company worldwide
Sales of nearly 2 billion Euros
Subsidiaries in 42 countries
Nearly 2,000 farmer members
Nearly 9,000 employees
13.5% of turnover re-invested in research
A portfolio of strong brands
Limagrain
Kit Com | 2015 | 3


A group that specializes in seeds and cereal products
Field Seeds
Field Seeds
Limagrain Coop
Vegetable Seeds
Vegetable Seeds
Garden Products
Cereal Products
Bakery Products
Cereal Ingredients
Limagrain
Kit Com | 2015 | 4


An organizational model based on proximity to markets
Field Seeds
• Limagrain Europe
• AgReliant Genetics (50%)
• Limagrain Asia
• Limagrain Cereal Seeds
• Limagrain South America
• Limagrain Africa
Field Seeds
Limagrain Coop
Vegetable Seeds
• HM.CLAUSE
• Hazera
• Vilmorin
• Mikado Kyowa Seed
Garden Products
• Vilmorin Jardin
Vegetable Seeds
Cereal Products
• Jacquet Brossard
• Limagrain Céréales Ingrédients
Bakery Products
Cereal Ingredients
Limagrain
Kit Com | 2015 | 5


Our position in the seeds market
4th largest seed company worldwide
2nd largest seed producer in Vegetable Seeds in the world
Largest European seed producer on the wheat market
N°1 European player in the seed packet consumer market
Limagrain
Kit Com | 2015 | 6

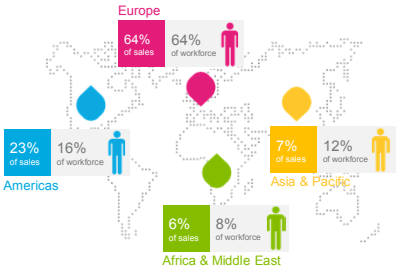
Our positions in the cereal products market

European **Leader** in functional flours

Largest French industrial producer of bakery products

Limagrain

A European group open to the world



Nearly **9,000** employees

66 nationalities

69% of sales achieved outside France

Subsidiaries in **42** countries

Limagrain

A singular cooperative governance

A group founded and managed by farmers — Nearly 2,000 farmer members

The tandem of an elected Director and a salaried CEO is reproduced in the Board of Directors of each subsidiary

Executives with a stake in the capital of the Cooperative

Accessibility to minority shareholders

Farmer Chairman | Salaried CEO

Jean-Yves FOUCAULT, Chairman

Daniel CHÉRON, CEO

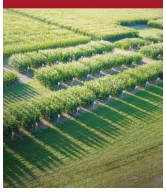
Limagrain

An innovative group

More than **1,800** employees in research

Close to **500** new varieties created

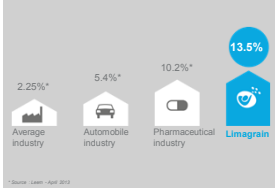
Close to **110** research stations and centers around the world



Limagrain

An innovative group

13.5% of turnover invested in research



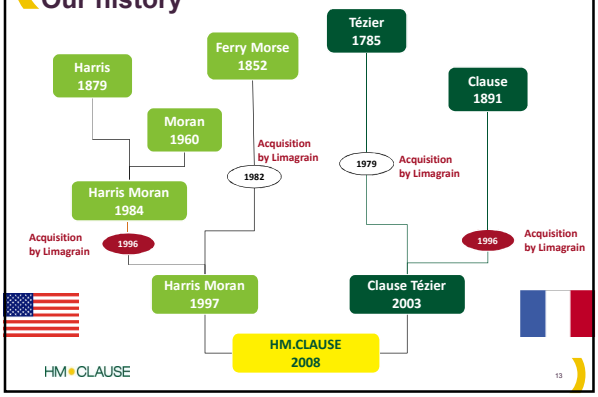
200 M€ invested in research (270 M€ with collaborations)

Limagrain

HM • CLAUSE

Formed in 2008 as a Business Unit of Limagrain Vegetable Seeds

Our history



HM•CLAUSE

13

2 Our Key Figures

HM•CLAUSE

Research Effort

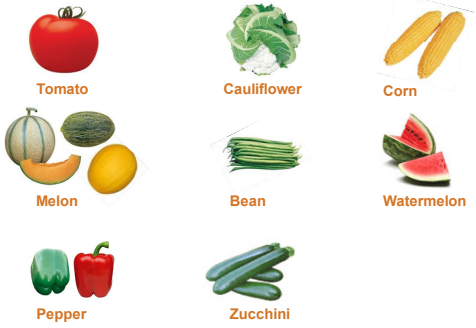
Research and Development accounts for 27% of the workforce and 15% of annual sales revenue. We boast:

- Two main research laboratories in France and California and
- 12 varietal breeding centers across the globe (Australia, Thailand, India, Mexico, California, Florida, Wisconsin, Poland, Spain, France).

HM•CLAUSE

15

We Breed 23 Species Global Varietal Species Include:



HM•CLAUSE

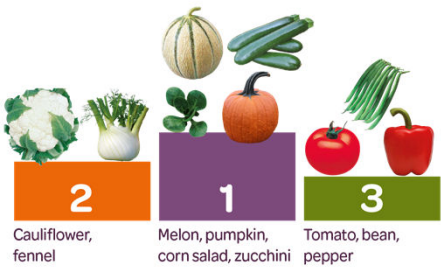
16

Local Varietal Species Include:

HM•CLAUSE

17

Worldwide Position By Species



HM•CLAUSE

18

Our main countries

TOP 5 countries represent 59% of sales revenue

HM•CLAUSE 19

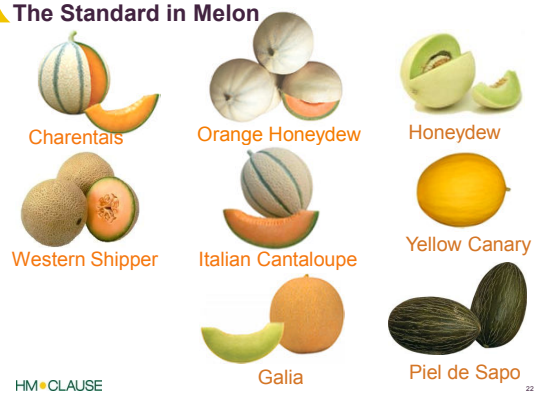
3 Our Products

HM•CLAUSE

Specialist in tomatoes

HM•CLAUSE 21

The Standard in Melon

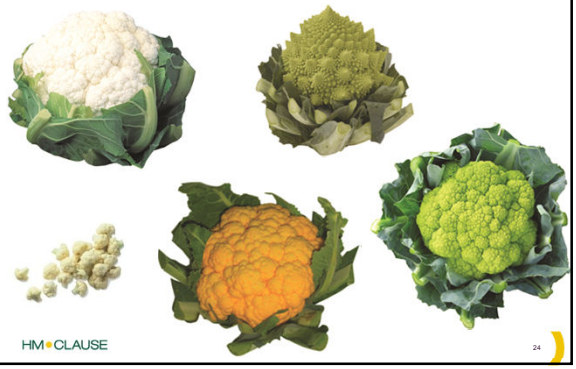


HM•CLAUSE 22

Key actor in pepper

HM•CLAUSE 23

Leader in Cauliflower



HM•CLAUSE 24

World Leader in Squash

HM•CLAUSE 25

Innovative Specialty & Regional Products

HM•CLAUSE 26

4 La Bohalle

HM•CLAUSE

Today

En 2007

En 2010

Today

HM•CLAUSE 28

Today

	SURFACES		COMMENTAIRES
SITE SUR 7 hectares			
BATIMENT LABORATOIRE	3,000 m2		
LOCAUX COMMUNS	450 m2		Hall, cafeteria,,,,
BATIMENT EXISTANT	1,400 m2	TOTAL CONSTRUIT	Travaux sur 9 mois, débutant le 1er novembre 2011
HANGAR AGRICOLE	370 m2	5,220 m2	
SERRE SELECTION	3,600 m2		
SERRE LABORATOIRE	1,400 m2		
MULTICHAPELLE	3,740m2		
9 TUNNELS	2,900 m2		Reste place et réseaux pour 1 tunnel
70 ABRIS	6,400 m2	TOTAL STRUCTURES	
2 AIRES DE DURCISSAGE	600 m2	19,640 m2	
ANCIENS TUNNELS ABRIS	1,000 m2		
PLEIN CHAMP (extérieur)	**3 hectares**		

HM•CLAUSE 29

Thank you

Limagrain

[Annex IV follows]

ANNEX IV

LIST OF LEADING EXPERTS

DRAFT TEST GUIDELINES TO BE SUBMITTED TO THE TECHNICAL COMMITTEE IN 2016

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

before July 31, 2015

Species	Basic Document	Leading Expert(s)
*Basil (*Ocimum basilicum* L.) (Revision)	TG/200/2(proj.2)	Ms. Swenja Tams (DE)
*Brassica (Partial revision: male sterility) = • Cauliflower (*Brassica oleracea* L. convar *botrytis* (L.) Alef. var. *botryris* L.), • Cabbage (*Brassica oleracea* L.), • Brussels Sprout (*Brassica oleracea* L. var.*gemmifera* DC.), • Kohlrabi (*Brassica oleracea* L. convar. *acephala* (DC.) Alef. var. *gongylodes* L.; *Brassica oleracea* L. *Gongylodes* Group), • Curly Kale (*Brassica oleracea* L. var. *sabellica* L.), • Calabrese- Sprouting Broccoli (*Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *cymosa* Duch. (including *Brassica oleracea* L. convar. *botrytis* (L.) Alef. var. *italica*))	TWV/49/23 TG/45/7, TG/48/7, TG/54/7, TG/65/4, TG/90/6 Corr. TG/151/4	Ms. Amanda van Dijk (NL)
*Lettuce (*Lactuca sativa* L.) (Revision)	TG/13/11(proj.2)	Ms. Amanda van Dijk (NL)
Radish, Black Radish (Partial revision: TQ and grouping characteristics)	TG/63/7 - TG/64/7, TWV/49/25	Ms. Swenja Tams (DE)
Spinach (*Spinacia oleracea* L.) (Partial revision: Characteristic 18)	TG/55/7 Rev.3, TWV/49/26	Ms. Marian van Leeuwen (NL)
Tomato Rootstocks (Partial Revision: disease resistance characteristics)	TG/294/1, TWV/49/27	Sergio Semon (QZ)

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWV/50
(* indicates possible final draft Test Guidelines)

(Guideline date for Subgroup draft to be circulated by Leading Expert: March 18, 2016
Guideline date for comments to Leading Expert by Subgroup: April 15, 2016)

New draft to be submitted to the Office of the Union
by May 13, 2016

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization) [1]
Agaricus (*Agaricus* L.) (Revision)	TG/259/2(proj.1)	Sergio Semon (QZ)	FR, HU, JP, KR, ESA, ISF, Office
*Brown Mustard (*Brassica juncea* (L.) Czern.)	TG/BRASS_JUN (proj.3)	Mr. Yoshiyuki Ohno (JP)	TWA, CA, CZ, DE, FR, KR, NL, PL, QZ, ZA, CropLife, ESA, ISF, Office
Calabrese, Sprouting Broccoli (Revision)	TG/151/4	Ms. Marian van Leeuwen (NL)	CZ, ES, FR, GB, IT, JP, PL, QZ, RO, CropLife, ESA, ISF, Office
*Leaf Chicory (*Cichorium intybus* L. var. *foliosum* Hegi) (Revision)	TG/154/4(proj.3)	Ms. Romana Bravi (IT)	FR, NL, QZ, CropLife, ESA, ISF, Office
Onion, Shallot (Revision)	TG/46/7, TWV/49/24	Kees van Ettekoven (NL)	CZ, DE, ES, FR, GB, HU, IT, JP, KR, PL, QZ, RO, SK, CropLife, ESA, ISF, Office
Pepino (*Solanum muricatum*)	TG/PEPIN(proj.1)	Mr. Jun Araseki (JP)	FR, NL, NZ, CropLife, ESA, ISF, Office
Tomato Rootstocks (Partial revision: coverage of Test Guidelines, Characteristic 16)	TG/294/1 Corr.	Mr. David Calvache (Spain)	FR, JP, KR, NL, QZ, TN, CropLife, ESA, ISF, Office
Turnip (*Brassica rapa* L. var. *rapa* L.) (Revision)	TG/37/11(proj.1)	Ms. Stéphanie Christien (FR)	TWA, CA, CZ, DE, ES, GB, IT, JP, KR, NL,PL, QZ, ZA, CropLife, ESA, ISF, Office
Watercress (NASTU_MIC, NASTU_OFF)	NEW	Mr. Tom Christie (GB)	FR, JP, NL, QZ, US, ESA, ISF, Office
*Witloof Chicory (*Cichorium intybus* L. partim) (Revision)	TG/173/4(proj.3)	Ms. Stéphanie Christien (FR)	IT, NL, QZ, CropLife, ESA, ISF, Office

[End of Annex IV and of Report]

[1] for name of experts, see list of participants