

Technical Working Party on Automation and Computer Programs TWC/36/15**Thirty-Sixth Session
Hanover, Germany, July 2 to 6, 2018****Original:** English
Date: July 12, 2018

REPORT*Document prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance*Opening of the session

1. The Technical Working Party on Automation and Computer Programs (TWC) held its thirty-sixth session in Hanover, Germany, from July 2 to 5, 2018. The list of participants is provided in Annex I to this report.
2. The session was opened by Mr. Christophe Chevalier (France), Chairperson of the TWC, who welcomed the participants and thanked Germany for hosting the TWC session.
3. The TWC was welcomed by Ms. Beate Rücker, Head of Department, Bundessortenamt, Germany.
4. The TWC received a presentation on Bundessortenamt by Ms. Beate Rücker, Head of Department, Bundessortenamt, a copy of which is provided in Annex II to this report.

Adoption of the Agenda

5. The TWC adopted the agenda as presented in document [TWC/36/1 Rev.2](#).

Short Reports on Developments in Plant Variety Protection*(a) Reports on developments in plant variety protection from members and observers*

6. The TWC noted the information on developments in plant variety protection from members and observers, provided in document TWC/36/3 Prov. The TWC noted that reports submitted to the Office of the Union after June 21, 2018, would be included in the final version of document TWC/36/3.

(b) Reports on developments within UPOV

7. The TWC received a presentation by the Office of the Union on latest developments within UPOV, a copy of which is provided in document [TWC/36/11](#).

Molecular Techniques

8. The TWC considered documents [TWP/2/7 Rev.](#) and [TGP/15/2 Draft 1](#) and noted the report on developments in the TWPs and BMT, as set out in paragraphs 6 to 37 of document TWP/2/7 Rev.
9. The TWC noted that the Office of the Union planned to invite members of the Union to provide sample database models currently in use as a basis to develop further guidance for document UPOV/INF/17 Section 6 "Databases", including to assess whether the ST-26 standard would be suitable for UPOV purposes or whether a different model would need to be proposed.
10. The TWC considered document [TWC/36/9](#) "An Introduction of Molecular Markers used in DUS research in the Netherlands" and received a presentation by an expert from the Netherlands.

11. The TWC noted the different types of molecular markers used in the Netherlands. The TWC noted the different characteristics and uses of AFLP, SSR and SNP markers. The TWC noted the importance of statistics and databases for using molecular markers in DUS examination.
12. The TWC considered document [TWC/36/10](#) "Selection of similar varieties for maize using a DNA database" and received a presentation by an expert from China.
13. The TWC noted that the correlation between genetic similarity and phenotypic similarity could vary for different molecular markers and different numbers of molecular makers.
14. The TWC considered document [TWC/36/12](#) "Statistical methods and software tools for molecular techniques in DUS examination" and received a presentation by an expert from France, a copy of which would be provided as document TWC/36/12 Rev..
15. The TWC noted the report that some breeders preferred to keep molecular information of their varieties confidential.
16. The TWC agreed to recommend that databases should store the "meta-data" or "reference data" of the original data on the observed characteristics to facilitate future exchange and data comparison.

Method of calculation of the Combined-Over-Years Uniformity Criterion (COYU)

17. The TWC considered document [TWC/36/4](#) "Method of calculation of the Combined-Over-Years Uniformity Criterion (COYU): an update on progress" and received a presentation by an expert from the United Kingdom.
18. The TWC noted the invitation by the United Kingdom for interested experts to get in contact for testing the new software containing the improved method of calculation of COYU. The TWC noted the interest of experts to integrate the new method into software packages other than the software "R".
19. The TWC agreed to invite the expert from the United Kingdom to draft a replacement section for document TGP/8 on the method of calculation of the Combined-Over-Years Uniformity Criterion.

Compilation of explanations on methods for producing varieties descriptions for measured characteristics, and clarification of differences

20. The TWC considered document [TWC/36/2](#) "Compilation of explanations on methods for producing varieties descriptions for measured characteristics, and clarification of differences" and received a presentation by an expert from the United Kingdom, a copy of which would be provided as document TWC/36/2 Add..
21. The TWC agreed that document TWC/36/2 was an appropriate summary of the different approaches used by members of the Union and that it clarified the differences between the methods.
22. The TWC agreed to propose that document TWC/36/2 be considered by the Technical Committee as the basis for the possible development of general guidance on different approaches used for converting observed data into notes.
23. The TWC noted that one of the differences between the approaches was how genotype-by-environment interaction was managed. The TWC agreed that discussions on genotype-by-environment interaction should be continued and agreed to invite a paper to be prepared by Italy and Finland taking into consideration other types of characteristics and not only measured quantitative characteristics.

Impact of the number of growing cycles on variety descriptions and discrimination power

24. The TWC considered documents [TWC/36/6](#) and [TWC/36/6 Add.](#) "Impact of the number of growing cycles on variety descriptions and discrimination power" and received a presentation by an expert from Germany.

25. The TWC welcomed the statistical analysis quantifying the genotype-by-environment interaction for descriptions generated over years.
26. The TWC agreed that variety descriptions generated over two growing cycles were more robust than those generated in one growing cycle only.
27. The TWC agreed that it should be clarified that documents TWC/36/6 and TWC/36/6 Add. analyzed differences in individual characteristics over cycles and did not assess differences of varieties over all characteristics.
28. The TWC noted the oral report by the Netherlands that a study was being conducted on the use of DNA-markers as supporting information for decisions on distinctness and the TWC agreed to invite the Netherlands to report their work in a future meeting.

Experience with using two locations by one year for DUS decisions

29. The TWC considered document [TWC/36/5](#) "Experience with using two locations by one year for DUS decisions" and received a presentation by an expert from the Netherlands.
30. The TWC noted that the Netherlands has formal collaboration with other examination offices for second location for growing trials.
31. The TWC noted the report by the Netherlands about the increasing demand by vegetable breeders to have two growing cycles in one year.
32. The TWC agreed to invite France and Kenya to make presentations at its next session on using different locations in one year for DUS growing trials.

TGP documents

33. The TWC considered document [TWP/2/1](#).

Matters for adoption by the Council in 2018

34. The TWC noted the revisions of TGP documents previously agreed by the TC on the following matters:
- (i) Drafter's Kit for Test Guidelines (document TGP/7)
 - (ii) Presentation of different types of example varieties (document TGP/7)
 - (iii) Examining DUS in Bulk Samples (document TGP/8)
 - (iv) Illustrations for shape and ratio characteristics (document TGP/14)

Matters to be considered by the Technical Committee

TGP/5: Section 1: "Model administrative agreement for international cooperation in the testing of varieties"

35. The TWC noted that the proposed revision of document TGP/5 Section 1 for the inclusion of guidance on confidentiality of molecular information would be put forward for adoption by the Council, at its session in 2018, subject to approval by the TC and the CAJ.

Future revisions of TGP documents

36. The TWC noted that the following matters concerning a possible revision of TGP documents, would be considered by the TC, at its fifty-fourth session:
- (i) Characteristics which only apply to certain varieties (document TGP/7);
 - (ii) The Combined-Over-Years Uniformity Criterion (COYU) (document TGP/8);
 - (iii) Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions (document TGP/10);
 - (iv) Assessing Uniformity by Off-Types on Basis of More than One Growing Cycle or on the Basis of Sub Samples (document TGP/10).

Possible future revisions of TGP documents

TGP/7: Development of Test Guidelines

Procedure for the adoption of draft Test Guidelines

37. The TWC noted that the Council, at its thirty-fourth extraordinary session, had established a procedure for the adoption of Test Guidelines by correspondence. The TWC noted that further amendments to document TGP/7 Section 2.2.8 "Adoption of Draft Test Guidelines by the Technical Committee" would be required to reflect the introduction of the procedure for the adoption of Test Guidelines by correspondence.

38. The TWC noted the recommendation by the TC-EDC for implementing the procedure for adoption of Test Guidelines by correspondence as follows:

- The draft Test Guidelines would be circulated to the TC for adoption by correspondence along with the recommendations by the TC-EDC;
- The draft Test Guidelines would be considered as adopted if no comments were received within six weeks;
- In case any comments were received, the draft Test Guidelines would be referred to the relevant TWP to address those comments.

39. The TWC noted that the new procedure of adoption of Test Guidelines by correspondence could accelerate the adoption of Test Guidelines and agreed to propose that this be monitored.

Proprietary method of assessment for male sterility

40. The TWC noted that the TC-EDC had recommended that the TC consider the possibility to accept the use of any method other than the proprietary method for the assessment of male sterility in Broccoli, including alternative markers for the DNA marker test, where validated by the testing authorities in UPOV members.

Suitability of characteristics in previous versions of Test Guidelines

41. The TWC noted that the TC-EDC had agreed to recommend to the TC to consider a situation where existing Test Guidelines characteristics did not meet the requirements set out in document TGP/7.

TGP/12: Guidance on Certain Physiological Characteristics

42. The TWC noted that the TC-EDC had agreed to invite the TC to consider whether to provide further guidance on elements that would not need to be completed in explanations for disease resistance characteristics in Test Guidelines using the Standard Resistance Protocol provided in document TGP/12 "Guidance on certain physiological characteristics".

43. The TWC noted that the TC-EDC had recommended that the TC considered providing training at relevant TWPs on providing explanations for disease resistance characteristics in Test Guidelines.

TGP/15: Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)

44. The TWC noted that the BMT had agreed to propose a revision to document TGP/15 in order to:

(i) reflect the refinements that had been made in France on the basis of its experience in the application of the Model "Combining Phenotypic and Molecular Distances in the Management of Variety Collections"; and

(ii) to include the approach presented by the Netherlands in documents BMT/16/19 "Genetic selection of similar varieties for the first growing cycle: example French bean" and BMT/16/19 Add.

Program for the development of TGP documents

45. The TWC noted the program for the development of TGP documents, as set out in Annex IV to document TWP/2/1.

TGP/7: Development of Test Guidelines

Duration of DUS tests

46. The TWC considered document [TWP/2/9](#).
47. The TWC considered the proposal to amend guidance in document TGP/7 GN8 to clarify that “the testing of a variety may be concluded earlier or later at the moment when the competent authority can determine with certainty the outcome of the test”.
48. The TWC agreed with the TWA that the proposed text for a guidance note (GN8) should read as follows:
- “The testing of a variety may be concluded ~~earlier or later at the moment~~ when the competent authority can determine with certainty the outcome of the test.”
49. The TWC noted that the proposed text for a guidance note (GN8) should be featured as standard or additional wording in Test Guidelines in order to be seen by readers of Test Guidelines.

Assessing Uniformity by Off-Types on the Basis of More than One Growing Cycle or on the Basis of Sub-Samples

50. The TWC considered document [TWP/2/10](#) “Uniformity assessment on the basis of off-types: Method for more than one single test (year)” and the draft proposal for the revision of guidance in document TGP/8/2: Part II: Section 8: Subsection 8.1.7: “Method for more than one single test (year)” as set out in document TWP/2/10, Annex II.
51. The TWC agreed with the draft proposal for the revision of guidance in document TGP/8/2: Part II: Section 8: Subsection 8.1.7: “Method for more than one single test (year)” by the expert of the United Kingdom.
52. The TWC agreed with the TWA that the results from different growing cycles should only be combined if the tests are done with the same submission of plant material.
53. The TWC agreed to propose that the two-stage test described in paragraph 8.1.8 should be clarified to state that it is for testing in a single growing cycle.
54. The TWC considered document [TWC/36/7](#) “Risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle” and received a presentation by experts from Germany and the United Kingdom, a copy of which would be provided as document TWC/36/7 Add..
55. The TWC agreed to invite the experts from Germany and the United Kingdom to develop examples demonstrating the risks and consequences for decisions on uniformity to be presented at its next session.
56. The TWC noted the importance of considering the risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle and agreed that it would not be practical to develop tables with the allowed number of off-types for such cases. The TWC noted that, in future, software might be needed to calculate such risks.

TGP/14: Glossary of Terms Used in UPOV Documents

Illustrations for shape and ratio characteristics

57. The TWC considered document [TWP/2/11](#).
58. The TWC noted the comments by the TWPs, at their sessions in 2017, and by the TC-EDC, at its meeting in March 2018.

UPOV color groups

59. The TWC considered document [TWP/2/12](#).
60. The TWC noted that the UPOV Color groups and lists of names associated with RHS Colour Charts could be used in databases and agreed to request that consideration be given to the provision of a specific web service providing this information to users.
61. The TWC noted that, in some cases, the new UPOV Color groups changed the names previously attributed to the same RHS Colour chart references (e.g.: 1A = “yellow” (previous); “medium yellow green” (new)).
62. The TWC noted the proposal by the TC-EDC that the edition of an RHS Colour Chart should be indicated when used in a variety description.

Software, Information and databases

(a) UPOV information databases

63. The TWC considered document [TWP/2/4](#).

GENIE database

64. The TWC noted that 440 new UPOV Codes had been created in 2017 and a total of 8,589 UPOV Codes were included in the GENIE database.
65. The TWC noted that the European Commission Directorate General SANTE (DG SANTE) had proposed the establishment of an administrative arrangement between the Office of the Union and the European Commission to cover collaboration in scientific names of plant species present in each other's databases and, in particular, regarding the attribution of UPOV Codes to plant species in the Forest Reproductive Material Information System (FOREMATIS).
66. The TWC noted the procedure for the amendments of UPOV Codes, as provided in the Section 3.3 of the “Guidance on UPOV Code system”, as follows:

“Amendments to UPOV codes will be handled by the same procedure as the introduction of new UPOV codes [...]. However, in addition, all members of the Union and contributors of data to the Plant Variety Database will be informed of any amendments”.

67. The TWC noted the report by the European Union that UPOV Codes were also used to obtain information about varieties of common knowledge and grouping varieties for organizing the growing trials, such as for sweet corn and popcorn maize varieties.

PLUTO database

68. The TWC noted the summary of contributions to the PLUTO database from 2014 to 2017 and the current situation of members of the Union on data contribution, as presented in document TWP/2/4, Annex IV.
69. The TWC noted that the WG-DEN, at its fourth meeting, held in Geneva on October 27, 2017, had agreed that matters under agenda item 5 “Expansion of the content of the PLUTO database” would be considered at a later meeting.

(b) Variety description databases

70. The TWC considered document [TWP/2/2](#).
71. The TWC noted the report on presentations made on variety description databases containing molecular information during the BMT and the TWC, at their sessions in 2017.

72. The TWC noted the report on discussions at the TWF about the work conducted by France for the establishment of a database for Peach varieties using the GEMMA database and agreed to clarify that data for any crop or species could be stored using GEMMA.

73. The TWC noted the report by the European Union that a GEMMA database for potato varieties containing molecular information was being currently developed with the support of information technology experts from France and the participation of several PVP offices.

(c) *Exchange and use of software and equipment*

74. The TWC considered document [TWP/2/5](#).

Document UPOV/INF/16 “Exchangeable Software”

75. The TWC noted that the Council, at its fifty-first ordinary session, held in Geneva, on October 26, 2017, had adopted document UPOV/INF/16/7 “Exchangeable Software.”

76. The TWC noted that the Office of the Union had issued circular E-18/042, inviting the designated persons of the members of the Union in the TC to provide or update information regarding the use of the software included in document UPOV/INF/16.

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

77. The TWC noted that the Council, at its fifty-first ordinary session, held in Geneva, on October 26, 2017, had adopted document UPOV/INF/22/4 “Software and equipment used by members of the Union”.

78. The TWC noted the Office of the Union had issued circular E-18/042, inviting the designated persons of the members of the Union in the TC to provide or update information for document UPOV/INF/22.

79. The TWC considered the use of equipment for data collection in DUS trials and agreed to invite members to provide additional information on equipment that could meet robustness requirements and usefulness in outdoor conditions, such as dust and water resistance and brightness of screen.

80. The TWC noted the reports from Finland and Germany on the exploration of new possibilities of hardware for field data collection, including devices with voice recognition capability.

81. The TWC noted that France was testing the use of GPS to precisely locate plots within DUS trials. The TWC noted that the high level of precision required to locate small plots was still limiting its use in practice.

82. The TWC noted that the Community Plant Variety Office of the European Union (CPVO) was considering the use of image capture devices to automate the observation of certain characteristics in fruit crops.

(d) *Electronic application systems*

83. The TWC received a presentation by the Office of the Union on UPOV PRISMA, a copy of which was provided in document [TWC/36/11](#). The TWC noted the developments concerning UPOV PRISMA.

(e) *Implementation of a document management system for variety files*

84. The TWC considered document [TWC/36/14](#) “Implementation of a document management system for variety files”.

85. The TWC noted the developments concerning the variety file system in Germany.

(f) *Web services provided by UPOV and members of the Union*

86. The TWC considered document [TWC/36/8](#) “Web services provided by UPOV and members of the Union” and received a presentation by the Office of the Union, a copy of which would be provided as document TWC/36/8 Add..

87. The TWC noted the progress in the development of a new WIPO standard designed to guide Web Application Programming Interface (API) implementation.

(g) *Experience in the management of reference collections with the SELECT method*

88. The TWC considered document [TWC/36/13](#) “Experience in the management of reference collections with the SELECT method” and received a presentation by an expert from Germany, a copy of which would be provided as document TWC/36/13 Add.

89. The TWC noted that the SELECT method was used for cereals with a high number of applications filed per year to select varieties from the collection of varieties for the growing trial, by attributing different weights to differences in states of expression for characteristics using non-orthogonal data.

Variety denominations

90. The TWC considered document [TWP/2/6](#).

91. The TWC noted the developments concerning a possible revision of document UPOV/INF/12 “Explanatory Notes on Variety Denominations under the UPOV Convention”, as set out in document TWP/2/6, paragraphs 6 to 10.

92. The TWC noted the ongoing cooperation between UPOV and the Community Plant Variety Office of the European Union (CPVO) on variety denominations and that the CPVO similarity factor was also available for denomination searches on the Plant Variety Database (PLUTO database) on the UPOV website.

93. The TWC noted the developments concerning a UPOV similarity search tool for variety denomination purposes, as set out in document TWP/2/6, paragraph 12.

94. The TWC noted developments concerning the possible expansion of the content of the PLUTO Database, as set out in document TWP/2/6, paragraph 14.

95. The TWC noted developments concerning non acceptable terms, as set out in document TWP/2/6, paragraph 16.

96. The TWC noted that the fifth meeting of the WG-DEN would be held in Geneva, on October 30, 2018.

97. The TWC noted the draft agenda of the fifth meeting of the WG-DEN, as set out in document TWP/2/6, paragraph 18.

Survey on approaches for obtaining plant material from breeders and on deciding on varieties whose existence is a matter of common knowledge

98. The TWC considered document [TWP/2/13](#) and noted the results of a survey on the approaches used by members of the Union for obtaining plant material from breeders and on deciding on varieties whose existence is a matter of common knowledge.

99. The TWC noted that the results of the survey would be considered by the TC at its session in 2018.

Guidance for drafters of Test Guidelines

100. The TWC considered document [TWP/2/8](#).

101. The TWC noted the proposals presented by the TWPs, at their sessions in 2017, for further improvements to the web-based TG template, as set out in document TWP/2/8, paragraphs 7 to 12.

102. The TWC noted the issues on the web-based TG template addressed during 2017, as set out in document TWP/2/8, paragraphs 13 to 22.

103. The TWC noted the issues currently being addressed on the web-based TG template, as set out in document TWP/2/8, paragraph 23.

104. The TWC noted that training on the web-based TG template would be provided to all TWPs, at their sessions in 2018.

105. The TWC noted that the Netherlands welcomed the improved functionalities of the web-based TG template and the report by the Netherlands that the web-based TG template saved time when drafting Test Guidelines.

Date and place of the next session

106. At the invitation of China, the TWC agreed to hold its thirty-seventh session in Hangzhou, China, from October 14 to 16, 2019.

Future program

107. The TWC agreed 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) Report on developments within UPOV (document to be prepared by the Office of the Union)
4. Variety denominations (document to be prepared by the Office of the Union)
5. TGP documents (document to be prepared by the Office of the Union)
6. Assessing Uniformity by Off-Types:
 - Risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle (document to be prepared by Germany and the United Kingdom)
7. Effect of genotype-by-environment interaction in the production of variety descriptions (document to be prepared by Italy and Finland and documents invited)
8. Software, 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 and documents invited)
 - (d) Electronic application systems (document to be prepared by the Office of the Union and documents invited)
 - (e) A single tool for DUS computation process (document to be prepared by France)
 - (f) Management of databases (documents invited)
 - (g) Building a database with molecular marker information for the management of variety collections (documents invited)
 - (h) Web services provided by UPOV and members of the Union (document to be prepared by the Office of the Union)

9. Statistical methods
 - (a) Statistical methods and software for visually observed characteristics (document to be prepared by France and the United Kingdom and documents invited)
 - (b) The Combined-Over-Years Uniformity Criterion (COYU) (document to be prepared by the United Kingdom)
 - (c) Calculated thresholds for excluding varieties of common knowledge from second growing cycle when COYD is used (document to be prepared by the United Kingdom)
10. Image analysis (documents invited)
11. Experience with using two locations by one year for DUS decisions (documents to be prepared by France and Kenya)
12. Number of growing cycles in DUS examination
 - DNA markers as supporting information for DUS decisions in potatoes (document to be prepared by the Netherlands)
13. Molecular Techniques (document to be prepared by the Office of the Union and documents invited)
14. Date and place of the next session
15. Future program
16. Adoption of the Report on the session (if time permits)
17. Closing of the session

Visit

108. On the afternoon of July 5, 2018, the TWC visited the Bundessortenamt headquarters at Hanover. The TWC was welcomed by Mr. Uwe Meyer, Head, Information Technology Section, Bundessortenamt. The TWC received a presentation by Ms. Andrea Menne, Head, Ornamental DUS Section, on the trial station at Hanover, which is presented in Annex III to this report, and visited the DUS trials for ornamental plants. Mr. Burkhard Spellerberg, Head, Woody Ornamental DUS and Genebanks Section, guided the TWC on a visit to DUS trials of woody ornamental plants and the genebank at Bundessortenamt. The TWC visited the facilities where seed lots were handled and was guided by Ms. Beate Ruecker, Head, Department NLI, PBR & genetic resources, Bundessortenamt. The TWC also visited the computer center and received a presentation by Mr. Uwe Meyer, which is presented in Annex IV to this report.

109. The TWC adopted this report at the end of the session.

[Annexes follow]

LIST OF PARTICIPANTS

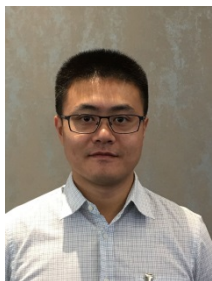
I. MEMBERS

CHILE



Alvaro ULLOA (Mr.), Encargado Área Frutales, Servicio Agrícola y Ganadero, Ministerio de Agricultura, Av. Presidente Bulnes 140, segundo piso, Casilla 4088, Santiago de Chile (tel.: 56 2 2 345 1565 e-mail: alvaro.ulloa@sag.gob.cl)

CHINA



Yang YANG (Mr.), Research assistant, Maize Research Center, Beijing Academy of Agricultural and Forestry Sciences, 7th floor, Room 201, Shuguang Garden Middle Road 9, Haidian District, 100097 Beijing (tel.: +86 105 1503 398 fax: +86 105 1503 986 e-mail: caurwx@gmail.com)

EUROPEAN UNION



Jean MAISON (Mr.), Deputy Head, Technical Unit, Community Plant Variety Office (CPVO), CS 10121, 49101 Angers Cedex 02 (tel.: +33 2 4125 6435 e-mail: maison@cpvo.europa.eu)

FINLAND



Sami MARKKANEN (Mr.), Senior Officer, Control Department, Finnish Food Safety Authority (EVIRA), Tampereentie 51, P.O. Box 111, FI-32201 Loimaa (tel.: +358 40 8294543 fax: +358 29 530 5318 e-mail: sami.markkanen@evira.fi)

FRANCE



Christophe CHEVALIER (Mr.), Manager, IT Department, Groupe d'étude et de contrôle des variétés et des semences (GEVES), rue Georges Morel, BP 90024, 49071 Beaucouzé (tel. : +33 2 41 22 86 36 fax : +33 2 41 22 86 02 e-mail : christophe.chevalier@geves.fr)



Anne-Lise CORBEL (Madame), Responsable DHS colza, crucifères, lin et chanvre, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Domaine de l'Anjouère, 49370 La Pouëze (tel.: +33 24 122 8705 fax: +33 24 122 8660 e-mail: anne-lise.corbel@geves.fr)

GERMANY



Udo VON KRÖCHER (Mr.), Präsident, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover (tel.: +49 511 9566 5603 fax: +49 511 9566 5904 e-mail: Postfach.Praesident@bundessortenamt.de)



Beate RÜCKER (Ms.), Head of Department, Bundessortenamt, Osterfelddamm 80, Postfach 61 04 40, 30627 Hanover (tel.: +49 511 9566 5639 fax: +49 511 956 69600 e-mail: beate.ruecker@bundessortenamt.de)



Uwe MEYER (Mr.), Head of Unit, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover (tel.: +49 511 9566 5689 fax: +49 511 9566 9689 email: uwe.meyer@bundessortenamt.de)



Thomas DROBEK (Mr.), Referat 101, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover (tel.: +49 511 9566 5688 fax: +49 511 9566 9600 e-mail: thomas.drobek@bundessortenamt.de)



Swenja TAMS (Ms.), Head of Section General affairs of DUS testing, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover
(tel.: +49 511 9566 5607 fax: +49 511 9566 9600
e-mail: Swenja.Tams@bundessortenamt.de)



Andrea MENNE (Ms.), Head, Section DUS Testing Ornamentals, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover
(tel.: +49 511 956 65723 fax: +49 511 956 65719
e-mail: andrea.menne@bundessortenamt.de)

Burkhard SPELLERBERG (Mr.), Bundessortenamt, Osterfelddamm 80, D-30627 Hanover
(tel.: +49 513 8608640 fax: +49 513 860 8670
e-mail: burkhard.spellerberg@bundessortenamt.de)



Maryse HUVE (Ms.), Technical Assistant, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover
(tel.: +49 511 9566 5636 fax: +49 511 956 69600
e-mail: maryse.huve@bundessortenamt.de)



Marcus HEINS (Mr.), Technical Assistant, Bundessortenamt, Osterfelddamm 80, D-30627 Hanover
(tel.: +49 511 9566 5614 fax: +49 511 956 69600
e-mail: marcus.heins@bundessortenamt.de)

HUNGARY



Márton PÉCS (Mr.), IT Expert, Directorate of Plant Production and Horticulture, National Food Chain, Safety Office (NÉBIH), Keleti Károly u. 24, 1024 Budapest
(tel.: +36 1 704360680 fax: +36 1 3369098 e-mail: pecsm@nebih.gov.hu)

ITALY



Maurizio GILOLO (Mr.), Senior Scientist, Research Centre for Plant Protection and Certification - CREA DC, Via Marconi 2, LONIGO (VI) 36045
(tel.: +39 0444 1808709 fax: +39 0444 1808722 e-mail: maurizio.giolo@crea.gov.it)

JAPAN



Hideki MAEDA (Mr.), Senior Examiner, Plant Variety Protection Office, Intellectual Property Division, Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries (MAFF), 1-2-1, Kasumigaseki, Chiyoda-ku, 100-8950 Tokyo
(tel.: +81 3 6738 6465 fax: +81 3 3502 6572 e-mail: hideki_maeda860@maff.go.jp)

KENYA



Ouma Samuel OGOLA (Mr.), Biometric statistician, Kenya Plant Health Inspectorate Service (KEPHIS), P.O. Box 49592, 00100 Nairobi
(tel.: +254 713 459 872 e-mail: osamuel@kephis.org)

NETHERLANDS



Kees VAN ETTEKOVEN (Mr.), Senior PVP Policy Advisor, Naktuinbouw NL, Sotaweg 22, 2371 GD Roelofarendsveen
(tel.: +31 71 332 6128 fax: +31 71 332 6363 e-mail: c.v.ettekoven@naktuinbouw.nl)



Bert SCHOLTE (Mr.), Head Department Variety Testing, Naktuinbouw NL, Sotaweg 22, 2371 GD, Roelofarendsveen
(tel.: +31 71 332 6167 fax: +31 71 3326565 e-mail: b.scholte@naktuinbouw.nl)



Lysbeth HOF (Ms.), Specialist, Naktuinbouw NL, Sotaweg 22, 2371 GD Roelofarendsveen
(tel.: +31 6 29 55 06 26 fax: +31 71 3326363 e-mail: l.hof@naktuinbouw.nl)

POLAND



Marcin KRÓL (Mr.), Head, DUS Testing Department, Research Centre for Cultivar Testing (COBORU), 63-022 Slupia Wielka
(tel.: +48 61 285 2341 fax: +48 61 285 3558 e-mail: m.krol@coboru.pl)



Ewa WOJCINSKA (Ms.), Head, Database and Programming Unit, Research Centre for Cultivar Testing (COBORU), 63.022 Slupia Wielka
(tel.: +48 61 28 52 341 fax: +48 61 28 53 558 e-mail: e.wojcinska@coboru.pl)

REPUBLIC OF KOREA



Jin-Seok AN (Mr.), DUS Expert, Korea Seed & Variety Service (KSVS), 119, Hyeoksin 8-ro, Gimcheon-si, Gyeongsangbuk-do 39660
(tel.: +82 54 912 0207 fax: +82 54 912 0210 e-mail: jsa0712@korea.kr)

RUSSIAN FEDERATION



Alexander VASILCHIKOV (Mr.), Head, Department of Methodology and International Cooperation, State Commission of the Russian Federation for Selection Achievements Test and Protection (GOSSORT), 1/11 Orlikov pereulok, 107139 Moscow
(e-mail: dicm@gossort.com)

UNITED KINGDOM



Adrian M. I. ROBERTS (Mr.), External Development Manager, Biomathematics & Statistics Scotland (BioSS), James Clerk Maxwell Building, The King's Buildings, Edinburgh EH9 3JZ Scotland
(tel.: +44 131 650 4893 fax: +44 131 650 4900 e-mail: adrian@bioSS.ac.uk)



Sally WATSON (Ms.), Consultant Statistician, Statistical Services Branch, Agri-Food & Biosciences Institute, 18a, Newforge Lane, Belfast BT9 5PX
(tel.: +44 28902 55 292 fax: +44 28902 55 008 e-mail: sally.watson@afbini.gov.uk)

II. OFFICER



Christophe CHEVALIER (Mr.), Chair

III. OFFICE OF UPOV



Leontino REZENDE TAVEIRA (Mr.), Technical/Regional Officer (Latin America, Caribbean), International Union for the Protection of New Varieties of Plants (UPOV), Geneva 1211, Switzerland
(tel.: +41 22 338 9565 fax: +41 22 733 0336 e-mail: leontino.taveira@upov.int)




Tomochika MOTOMURA (Mr.), Technical/Regional Officer (Asia), International Union for the Protection of New Varieties of Plants (UPOV), Chemin des Colombettes 34, 1211 Geneva 20, Switzerland
(tel.: +41 22 338 7442 fax: +41 22 733 0336 e-mail: tomochika.motomura@upov.int)



Ruixi HAN (Mr.), Fellow, International Union for the Protection of New Varieties of Plants (UPOV), Chemin des Colombettes 34, 1211 Geneva 20, Switzerland
(tel.: +41 22 338 7079 fax: +41 22 733 0336 e-mail: ruixi.han@upov.int)

[Annex II follows]

PRESENTATION BY MS. BEATE RÜCKER, HEAD OF DEPARTMENT, BUNDESSORTENAMT
 "RESPONSABILITIES AND ORGANIZATION OF THE BUNDESSORTENAMT"




Bundessortenamt

**UPOV TECHNICAL WORKING PARTY ON AUTOMATION AND
 COMPUTER PROGRAMS**
 Thirty-sixth Session, Hanover, Germany, July 2 to 6, 2018

**Responsibilities and Organization of the
 Bundessortenamt**

Dr. Beate Rücker

Bundessortenamt, Osterfelddamm 80
 30627 Hannover, Germany
 Website: www.bundessortenamt.de E-Mail: bsa@bundessortenamt.de



Bundessortenamt


Federal Variety Office - Bundessortenamt (BSA)

The BSA is an independent federal authority by order of the Ministry of Food and Agriculture.

Preparation of Legal Matters for the Federal Government	Admission to National List Seed Act Value for cultivation and Use (VCU) Distinctness, Uniformity and Stability (DUS) Maintenance control Variety List	Granting Plant Breeders' Rights Variety Protection Act Novelty; Distinctness, Uniformity and Stability (DUS) Control of continued existence Variety Register	Descriptive Variety List Seed Act
National Coordination in Variety and Seed Matters			Collaboration in National Genebanks

- German representation in international organisations and councils such as
 EU (Commission, Council, AC-CPVO), UPOV, OECD ...


TWC/36 – Hannover - 2018 2

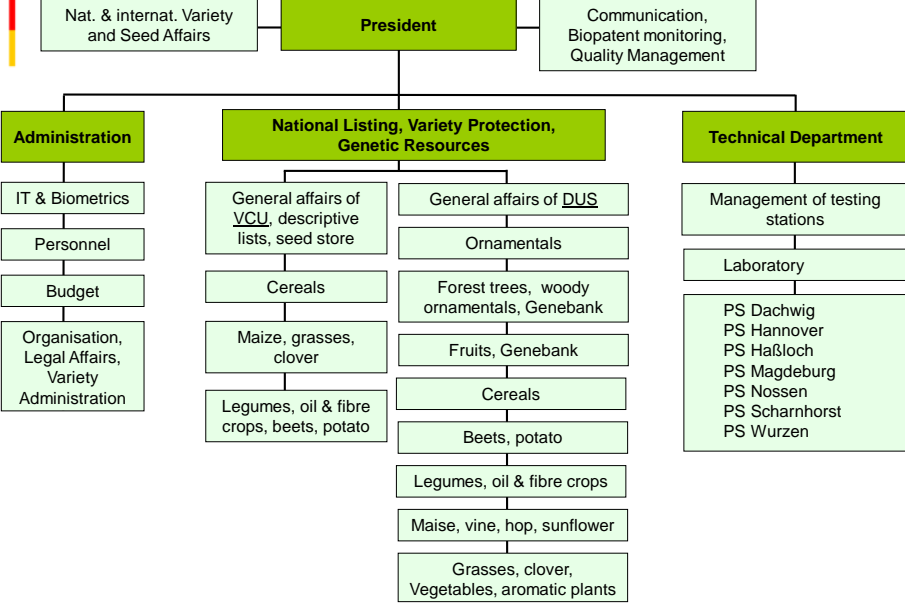
 Bundessortenamt

History of variety testing and Plant breeders rights

1869	Foundation of the world's first seed testing station in Tharandt/Saxony (Standardized rules for seed testing)
1888	Comparative trials by DLG
1905	DLG-Hochzuchtregister (Register for qualified varieties)
1934	Statutory order for admission of varieties and certification of seeds (Reichssortenregister)
1953	Variety and Seed Act (PBR, NL, Certification) Installation of the Bundessortenamt as independent federal authority
1968	Seed Act and Variety Protection Act
1968	Member of UPOV
1985	New Seed Act and Variety Protection Act
1990	Validity of law for the whole of Germany
1997	New Variety Protection Act
1998	Ratification of UPOV Convention 1991

TWC/36 – Hannover - 2018 3


 Bundessortenamt



```


graph TD
    President[President] --- NA[Nat. & internat. Variety and Seed Affairs]
    President --- CM[Communication, Biopatent monitoring, Quality Management]
    President --- Administration[Administration]
    President --- NL[National Listing, Variety Protection, Genetic Resources]
    President --- TD[Technical Department]
    
    Administration --- IT[IT & Biometrics]
    Administration --- Personnel[Personnel]
    Administration --- Budget[Budget]
    Administration --- Org[Organisation, Legal Affairs, Variety Administration]
    
    NL --- VCU[General affairs of VCU, descriptive lists, seed store]
    NL --- DUS[General affairs of DUS]
    
    VCU --- Cereals1[Cereals]
    Cereals1 --- Maize[Maize, grasses, clover]
    Maize --- Legumes1[Legumes, oil & fibre crops, beets, potato]
    
    DUS --- Ornamentals[Ornamentals]
    Ornamentals --- Forest[Forest trees, woody ornamentals, Genebank]
    Forest --- Fruits[Fruits, Genebank]
    Fruits --- Cereals2[Cereals]
    Cereals2 --- Beets[Beets, potato]
    Beets --- Legumes2[Legumes, oil & fibre crops]
    Legumes2 --- Maize2[Maize, vine, hop, sunflower]
    Maize2 --- Grasses[Grasses, clover, Vegetables, aromatic plants]
    
    TD --- Management[Management of testing stations]
    Management --- Laboratory[Laboratory]
    Laboratory --- PS[PS Dachwig, PS Hannover, PS Haßloch, PS Magdeburg, PS Nossen, PS Scharnhorst, PS Wurzen]
    
```

TWC/36 – Hannover - 2018 4



Bundessortenamt

Organization

- Head of Office: President
- 1 Administrative Division,
2 Technical Divisions
- Headquarters located in Hannover
- 7 Testing Stations
(with about 410 ha field, 7000 m² greenhouse)
- Gazette: Blatt für Sortenwesen
- About 280 posts (330 employees, incl. part time
and seasonal staff)
- Expenses ⁽²⁰¹⁷⁾ 22.1 Mio. EUR
Income 12.4 Mio. EUR



TWC/36 – Hannover - 2018
5


Bundessortenamt

Procedure before the Bundessortenamt

Plant Breeders' Rights

National List

Application on official forms of BSA

All plant species (no microorganisms)

Applicant: any breeder or discoverer
(EC resident, others by EC-representative)

Species according to Seed Act

Applicant: any person or company within
EC, others by EC-representative

Publication in the Gazette (dates, name, applicant)

Examination: Tests organized by BSA (DUS & VCU)
Certain requirements for test material

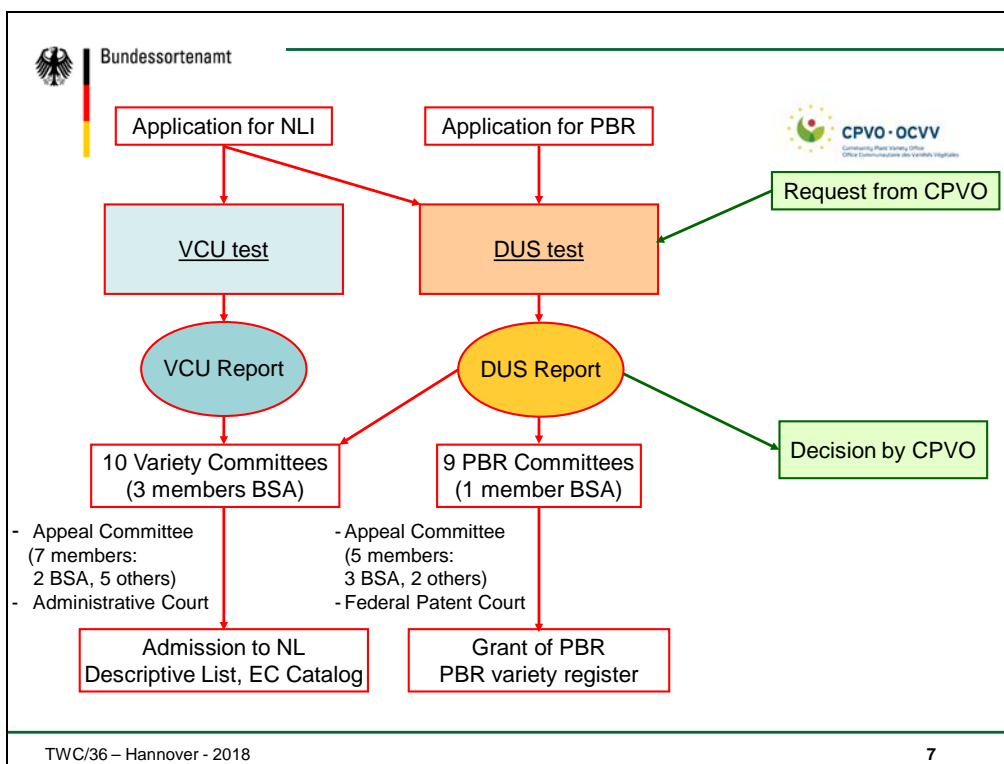
Duration: 25 years
(30 years for potato, vine, hop, trees)

Duration: 10 years (20 years for vine)
Prolongation possible if justified by value

Termination: Variety is not longer U&S
Fees are not paid

Fees: Application fee, Testing fee,
Annual fee for protection/registration year

TWC/36 – Hannover - 2018
6



Bundessortenamt

Number of registered varieties and candidate varieties in DUS tests (30.06.2017)


	Registered		Candidates in DUS tests			
	NLI	PBR	Applied PBR / NLI	For other countries	Total	Number of species
Cereals	860	138	802	96	898	18
Forage Crops	879	234	351	100	451	29
Oil-, Fiber Crops	271	111	217	1	218	6
Beets	377	1	142	0	142	1
Potato	205	29	43	10	53	1
Vine	132	75	17	13	30	2
Vegetable	535	86	50	5	55	22
Fruits	1	117	56	149	205	16
Ornamentals (incl. Roses)	-	489	9	516	525	47
Woody Plants	-	70	2	26	28	9
Others	-	75	11	31	42	12
Total	3260	1435	1700	954	2647	163

Community plant variety protection is granted for about 2700 varieties per year. 25913 varieties protected under the Community system at the end of 2017.

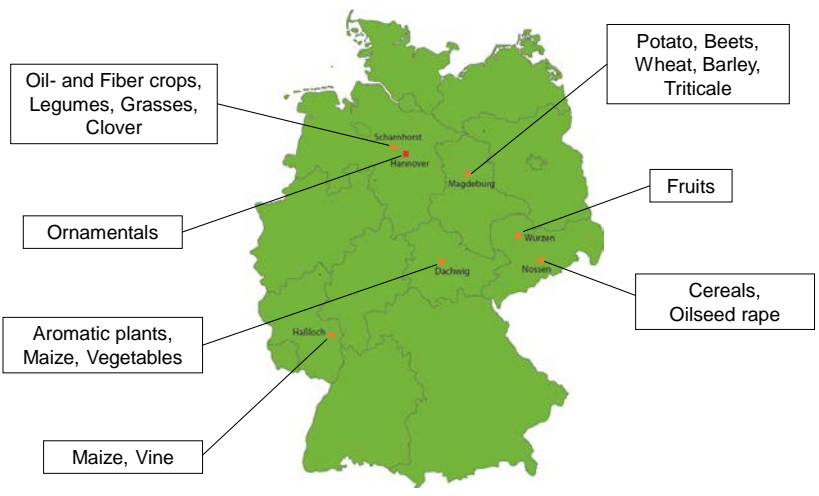
TWC/36 – Hannover - 2018 8

Bundessortenamt	
Main crops:	
Applications PBR/NLI per year (mean 1.7.2014 - 30.6.2017)	
Maize	157
Winter wheat	129
Sugar beet	106
Winter barley	99
Rose	96
Winter oilseed rape	88 (total n > 50 ca. 50%)
Spring barley	48
Petunia	47
Pelargonium	39
Potato	35
Perennial ryegrass	34
Winter rye	33
Kalanchoe	27
Winter triticale	26
Calibrachoa	21
Osteospermum	21 (total n > 20 ca. 70%)
Total (133 species)	1443

Bundessortenamt	
Places and duration of DUS test	
<u>Place of DUS test:</u>	
DUS test is performed for all crops <u>at one BSA location</u> with the following <u>exceptions</u> :	
two locations BSA	- Winter Wheat, Winter Barley, Spring Barley, Winter Triticale, Maize, Winter oilseed rape (each location considered separately)
test in other countries	- 183 varieties in 36 species in 2011-2016 (bilateral cooperation)
non-BSA locations	- Hop, Rhododendron, Azalee, <i>Erica gracilis</i> , <i>Acer rubrum</i> (observations by BSA staff)
<u>Duration of DUS test:</u>	
Cereals	3 years
Ornamentals	1 year
Other species	2 years

 Bundessortenamt


DUS-Testing



The map shows the following crop categories and their associated testing locations in Germany:

- Oil- and Fiber crops, Legumes, Grasses, Clover:** Scharnhorst, Hannover
- Potato, Beets, Wheat, Barley, Triticale:** Magdeburg
- Fruits:** Wurzen
- Cereals, Oilseed rape:** Nottuln
- Ornamentals:** (Location not specified)
- Aromatic plants, Maize, Vegetables:** Halbes
- Maize, Vine:** (Location not specified)

TWC/36 – Hannover - 2018 11

 Bundessortenamt

Places and duration of VCU test

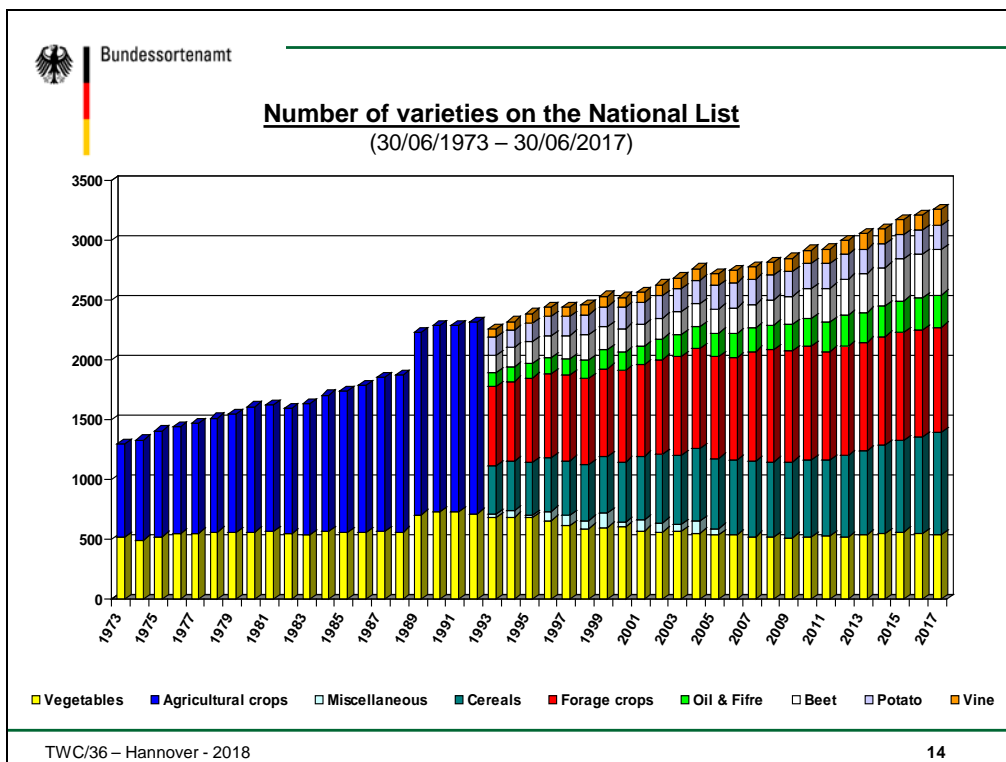
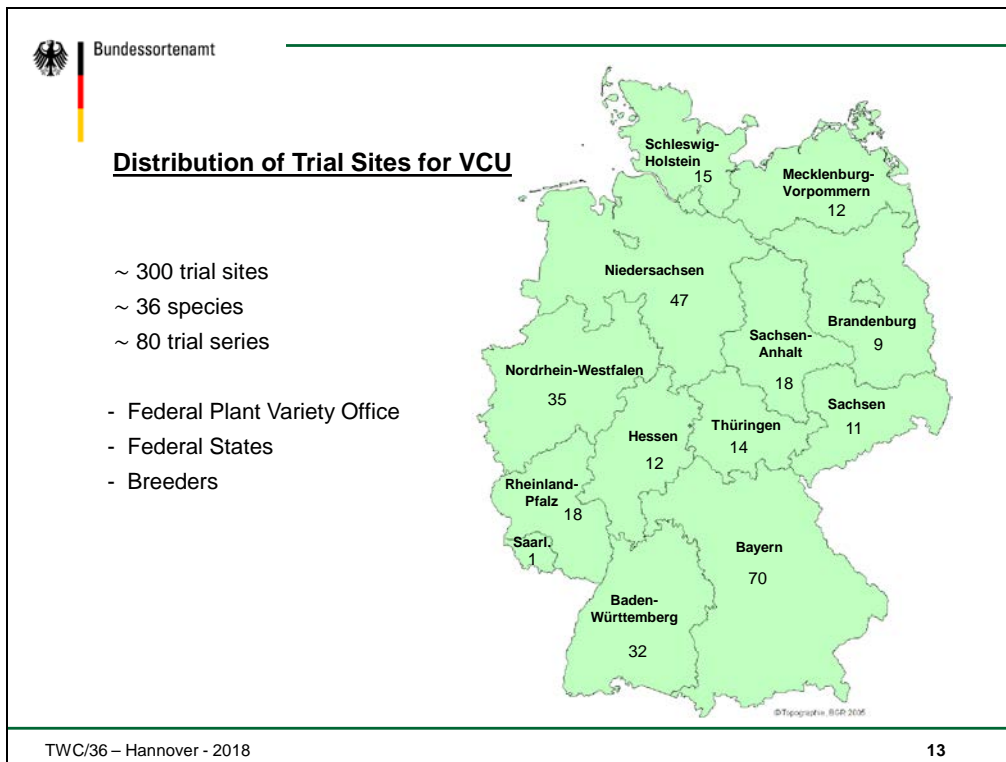
- Value for cultivation and use (VCU) required for National Listing for agricultural crops (species according to Seed Act)

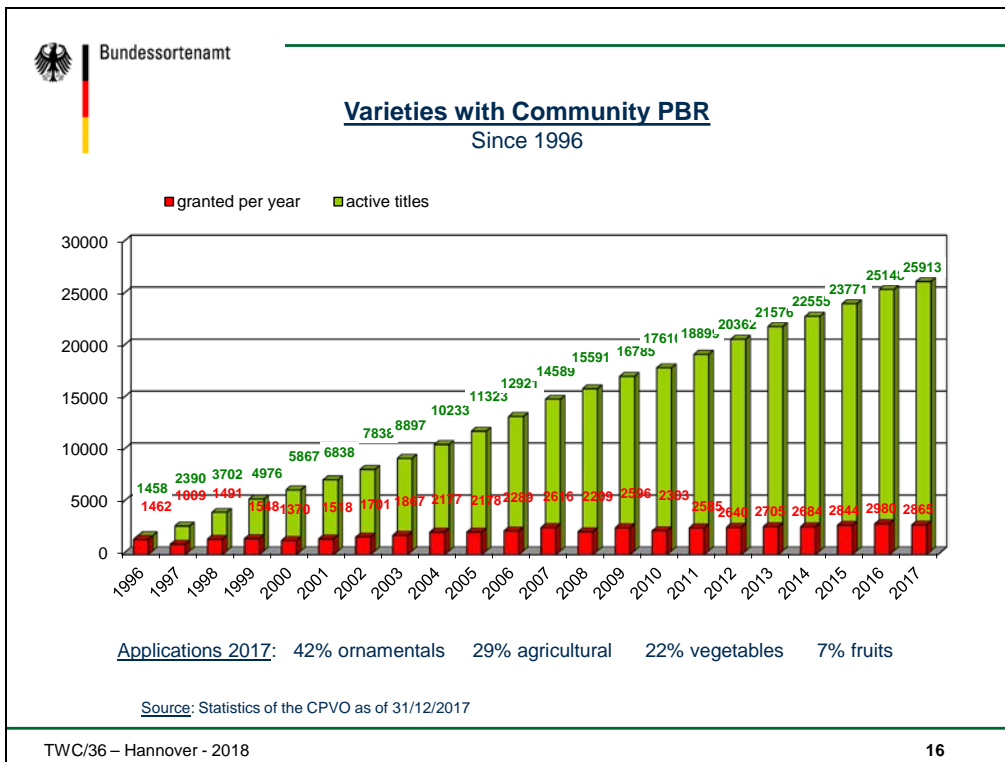
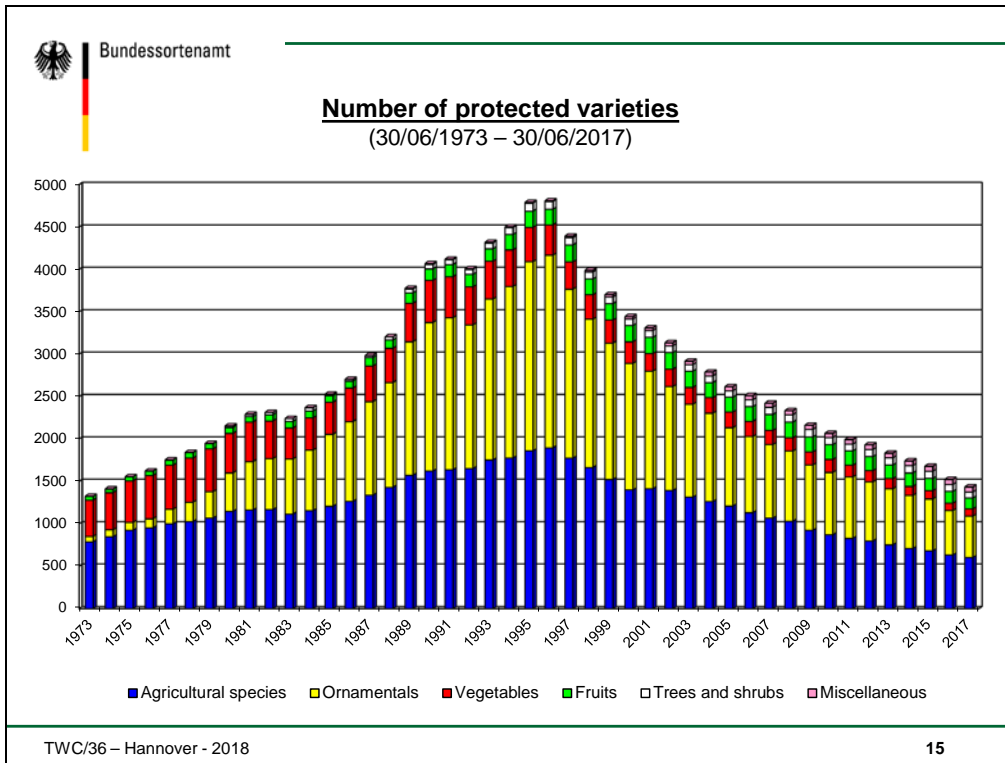
Duration

3 years Cereals, Winter oilseed rape, Perennial fodder plants	2 years All other species
--	-------------------------------------

- Trial series 12-20 locations per year
- Federal Variety Office, Federal States, Breeders

TWC/36 – Hannover - 2018 12







Plant Genetic Resources

The Ministry of Food and Agriculture commissioned tasks in the framework of the National Programm for Maintenance and sustainable Use of Plant Genetic Resources in agricultural and horticultural Crops to the Bundessortenamt in 2011 and 2012.

National coordinator for Plant Genetic Resources and biodiversity is the Bundesanstalt für Landwirtschaft und Ernährung (Federal Office for Agriculture and Food).

The Bundessortenamt collaborates in national genebank networks for several crops. Maintenance of genetic resources in fruit and ornamentals organized in decentralized genebank collections.



Genebank responsibilities of the Bundessortenamt

- Coordination of the German genbank for ornamental species
- Development and Coordination of decentralized genebank networks for
Berry fruits, Pear, Wild fruits,
Seed and vegetatively propagated Ornamentals, Rhododendron
- Maintenance of genebank collections in
Apple, Strawberry, Plum, Grape vine,
Berry fruits, Pear, Wild fruits
Seed and vegetatively propagated Ornamentals, Roses

The screenshot shows the homepage of the Bundessortenamt website. At the top, there is a navigation bar with links for 'New topics', 'Contact', 'Links', 'Imprint', 'Sitemap', and 'German'. Below this is a banner image showing various agricultural scenes. The main content area features a search bar, a list of menu items on the left (About us, Publications, Examination Guidelines, Variety Information, Plant Genetic Resources, Service, Press, Vacancies, Privacy statement), and a central text block. The text block includes a welcome message, a description of the Bundessortenamt's role in plant breeding and variety protection, and a red-bordered box containing the text: 'For more information please see: www.bundessortenamt.de'. The footer of the page includes the Bundessortenamt logo and name.

The image shows a 'Thank you' message from the Bundessortenamt. It features the Bundessortenamt logo and name in the top left corner. The main part of the image is a photograph of a large field of young plants in rows, with a large white text overlay that reads 'THANK YOU!'. The background of the photo shows a forest with autumn foliage. At the bottom of the image, there is a footer with the text 'TWC/36 – Hannover - 2018' on the left and the number '20' on the right.

PRESENTATION BY MS. ANDREA MENNE, HEAD OF DUS TESTING ORNAMENTALS SECTION,
BUNDESSORTENAMT, HANOVER TESTING STATION
"TECHNICAL VISIT TO THE BUNDESSORTENAMT"

 Bundessortenamt

Technical Visit to Bundesortenamt

Introduction to the Test Station Hannover

DUS Testing of Ornamentals
DUS Testing of Woody Ornamentals and work on gene bank

Seed lot handling

Computer Centre


Andrea Menne 1

 Bundessortenamt


Bundessortenamt Test Station Hannover




Andrea Menne 2

 Bundessortenamt

Test Station Hannover



Andrea Menne 3

 Bundessortenamt

Test Station Hannover

Size

Total area	8 ha
Arable land	2.5 ha
Greenhouse area	0.6 ha

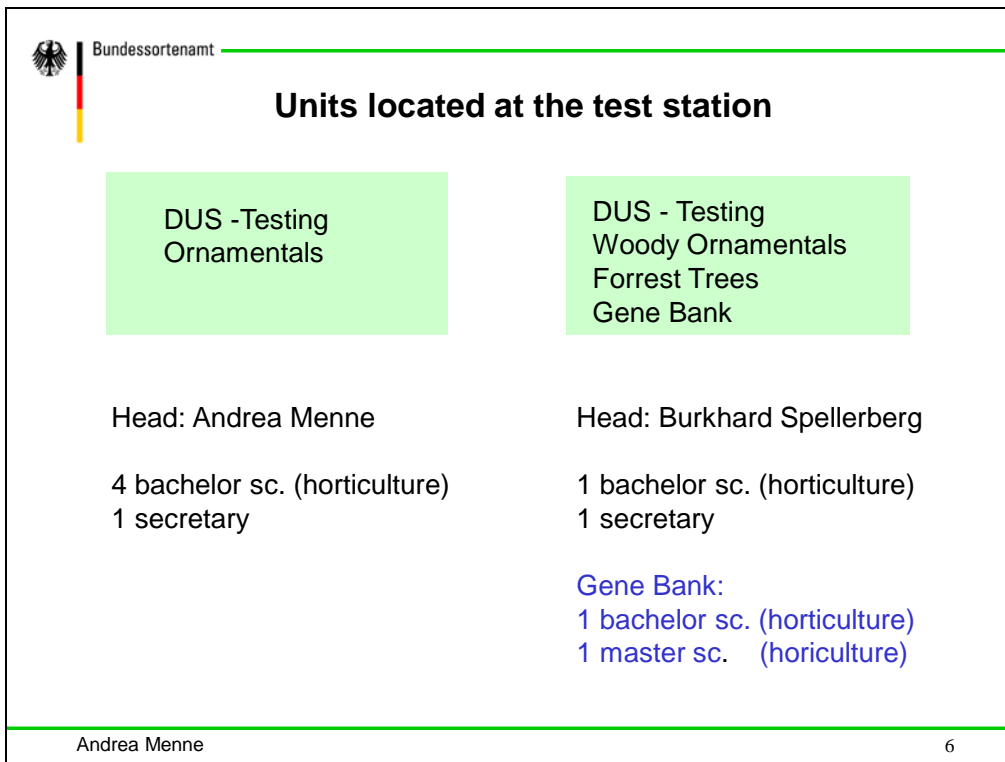
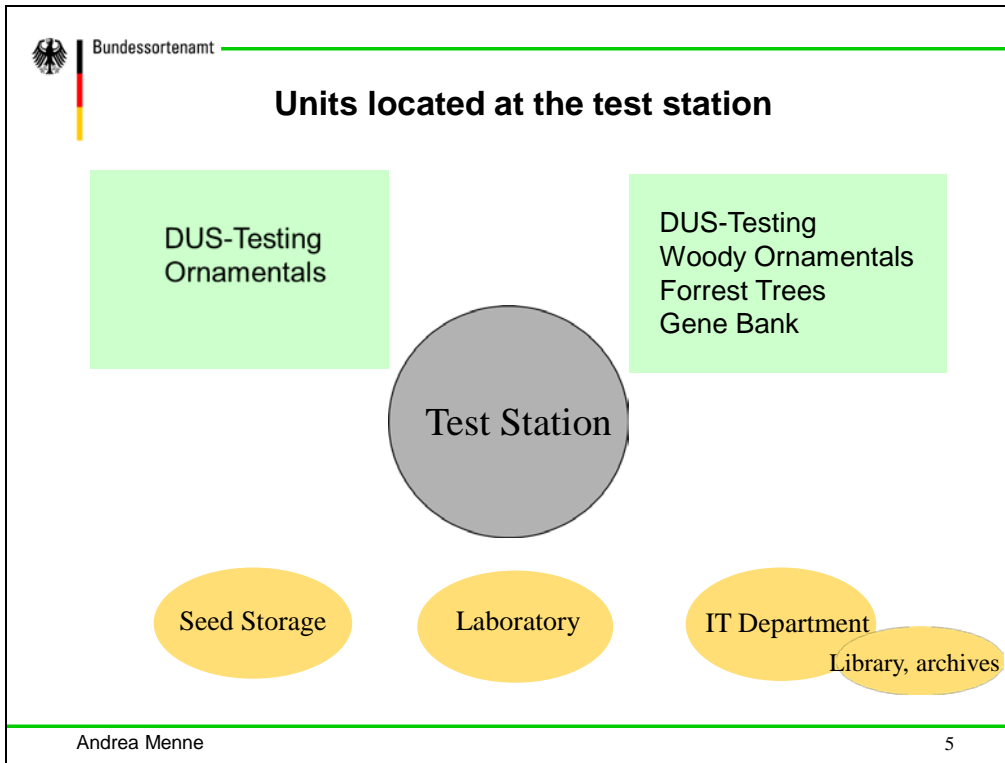
Greenhouses

37 houses	from 30 to 220 m ²
Cover	glass
Computer controlled	heating, ventilation, shading, darkening, artificial lighting, watering, fertilization

Staff

Permanent workers	12
Saisonal workers	5
Trainees	2

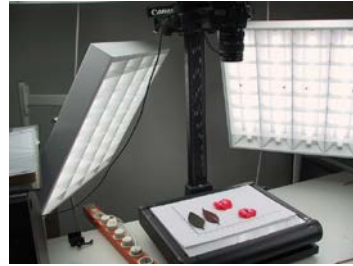
Andrea Menne 4





Special equipment of test station

Two rooms with
equipment to take photos

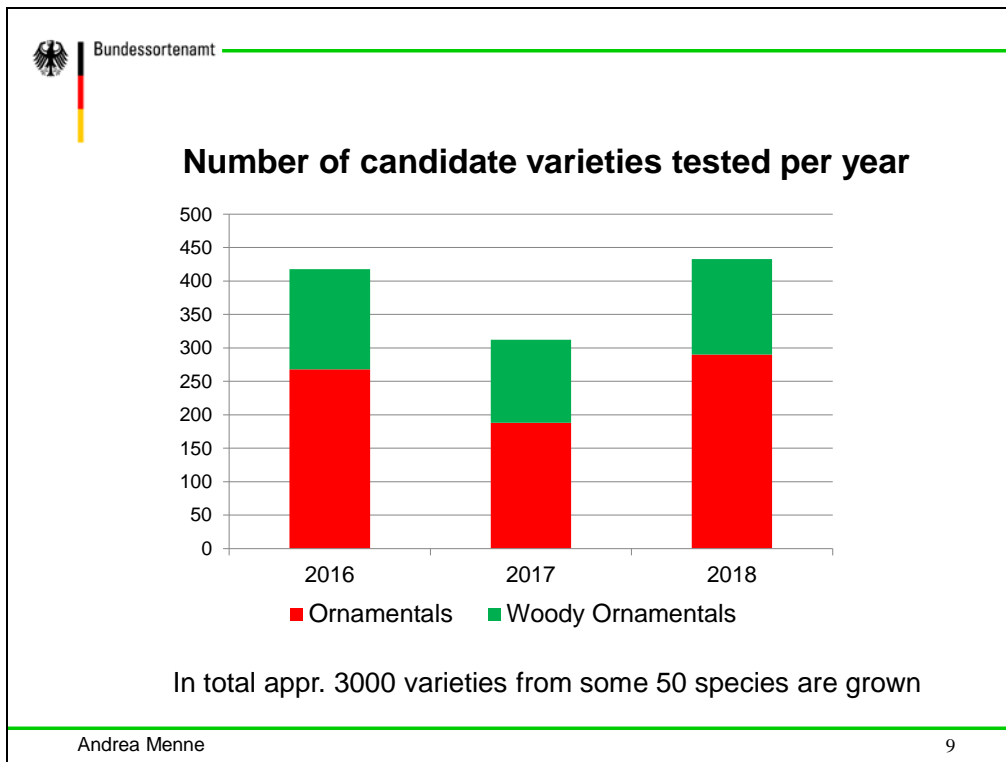



One room for
observation of colours



Co-operation with partners outside BSA




- One greenhouse rented to Geozentrum Hannover for trials with different soils.
- Study on resistance genes in Roses, project of Leibnitz University, Hannover.
- ADR-Rose trials (value testing of new Rose varieties).
- Value trials for woody plants (Gehölzsichtung).



 Bundessortenamt

Main species tested

	Number of new varieties per year (average 2013 – 2017)	Number of varieties in database (01.07.2017)
Rosa	96	5122
Petunia	42	1160
Pelargonium	32	3053

Andrea Menne 10

Main species tested

	Number of new varieties per year (average 2013 – 2017)	Number of varieties in database (01.07.2017)
Calibrachoa	23	503
Kalanchoe	20	1122
Osteospermum	20	732



Main species tested

	Number of new varieties per year (average 2013 – 2017)	Number of varieties in database (01.07.2017)
Calluna	17	585
Impatiens Neuguinea	14	1369
Argyranthemum	10	359



Number of Guidelines used

	2016	2017	2018
Ornamentals	32 (new: 2)	33 (new: 1)	32 (new: 3)
Woody Ornamentals	9	11	11
total	41	44	43

Overall more than 110 guidelines for the testing of varieties of ornamental or woody species have been used at BSA so far.

30 of them are internationally harmonized (either UPOV TG or TP of CPVO).

Species with living reference collection


Species	No of varieties in living reference collection
Rose	1800
Pot Rose	282
Calluna	295
Miscanthus	56
Fargesia	32

Thank you



[Annex IV follows]


PRESENTATION BY MR. UWE MEYER, HEAD OF UNIT, BUNDESSORTENAMT
“BIOSTATISTICS, INFORMATION PROCESSING, COMMUNICATION TECHNOLOGY,
ADMINISTRATIVE DATA”

 Federal Plant Variety Office

Federal Plant Variety Office
Dr. Meyer

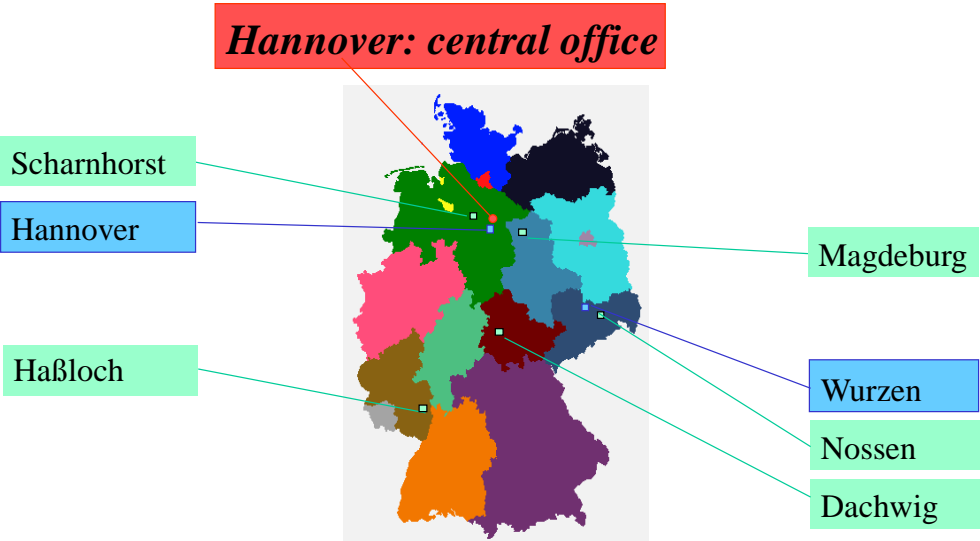
Biostatistics,
Information processing,
Communication technology
Administrative Data

Dr. Meyer Federal Plant Variety Office 04/2018

 Federal Plant Variety Office


Structure of Bundessortenamt

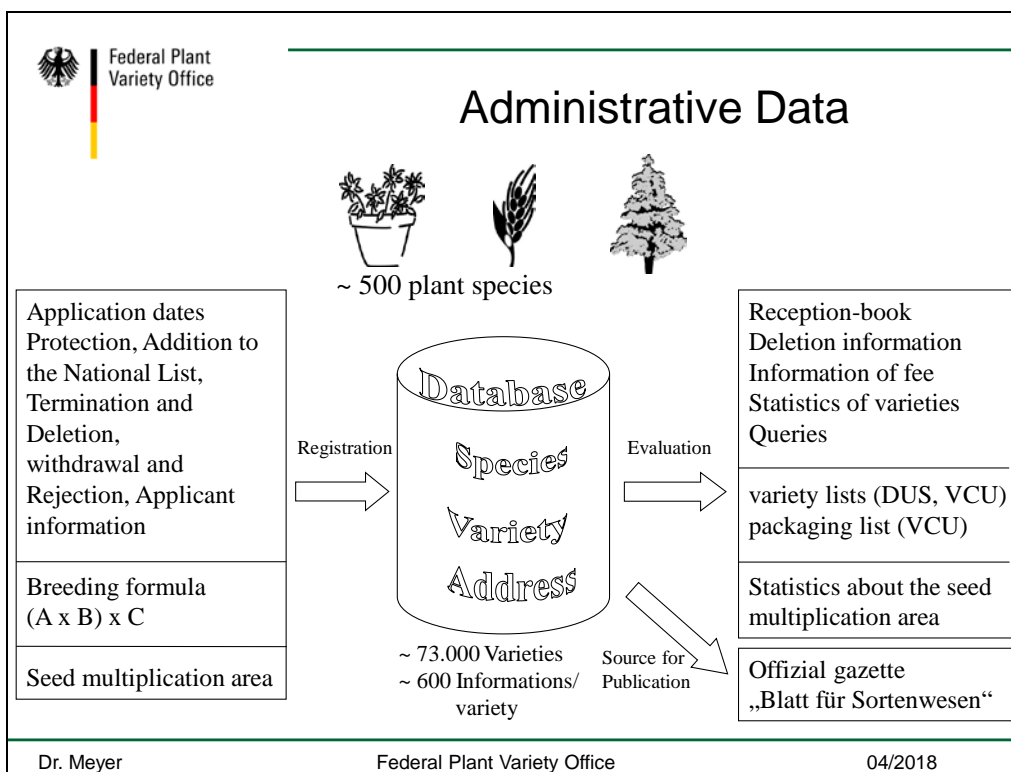
Hannover: central office

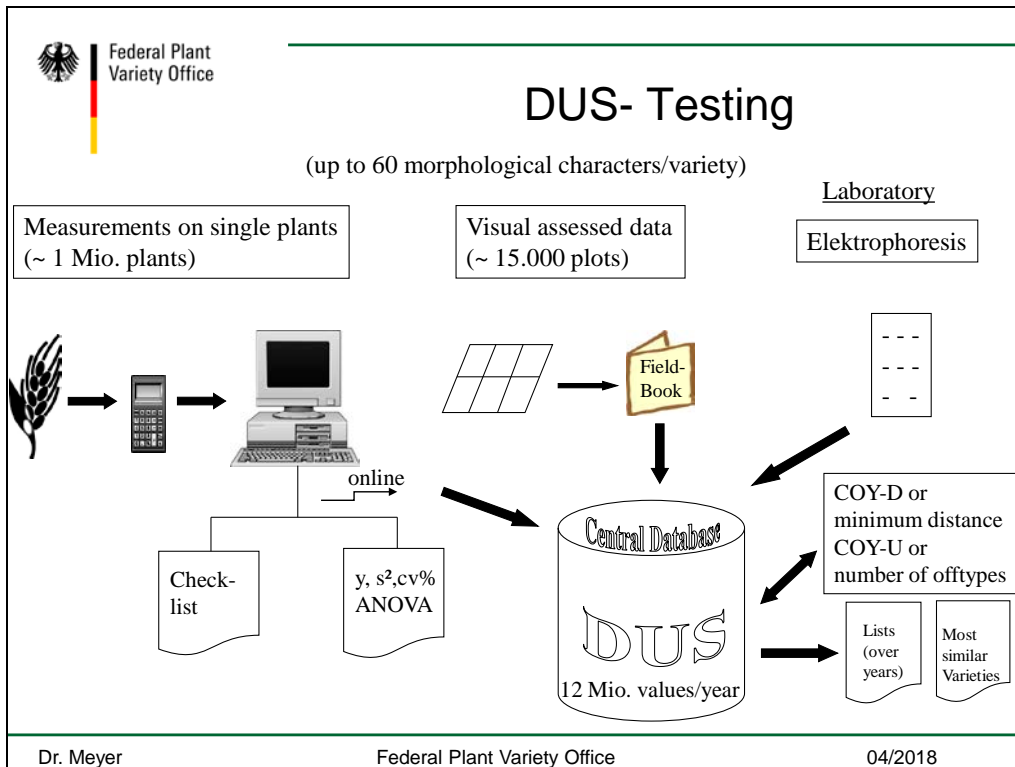
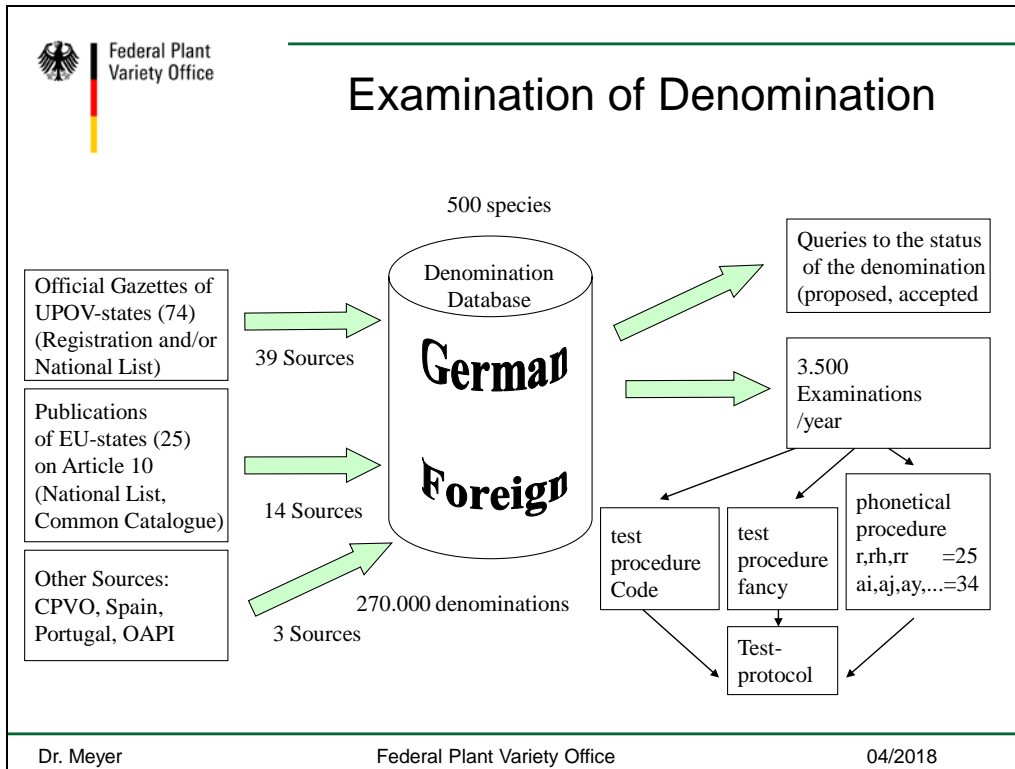


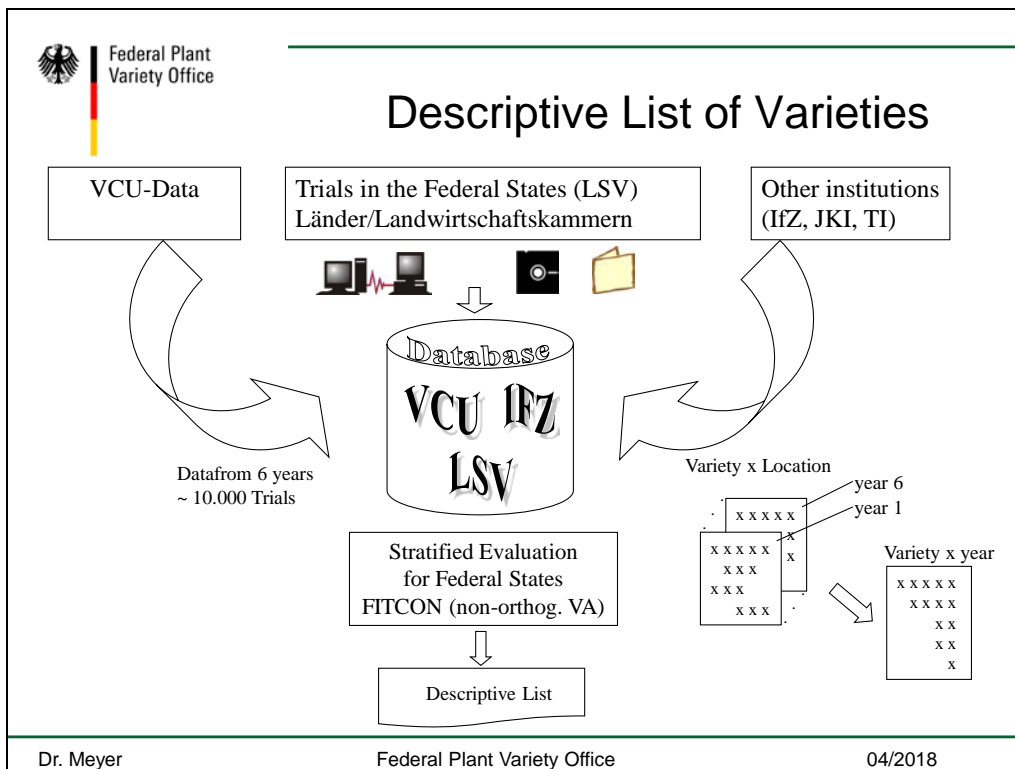
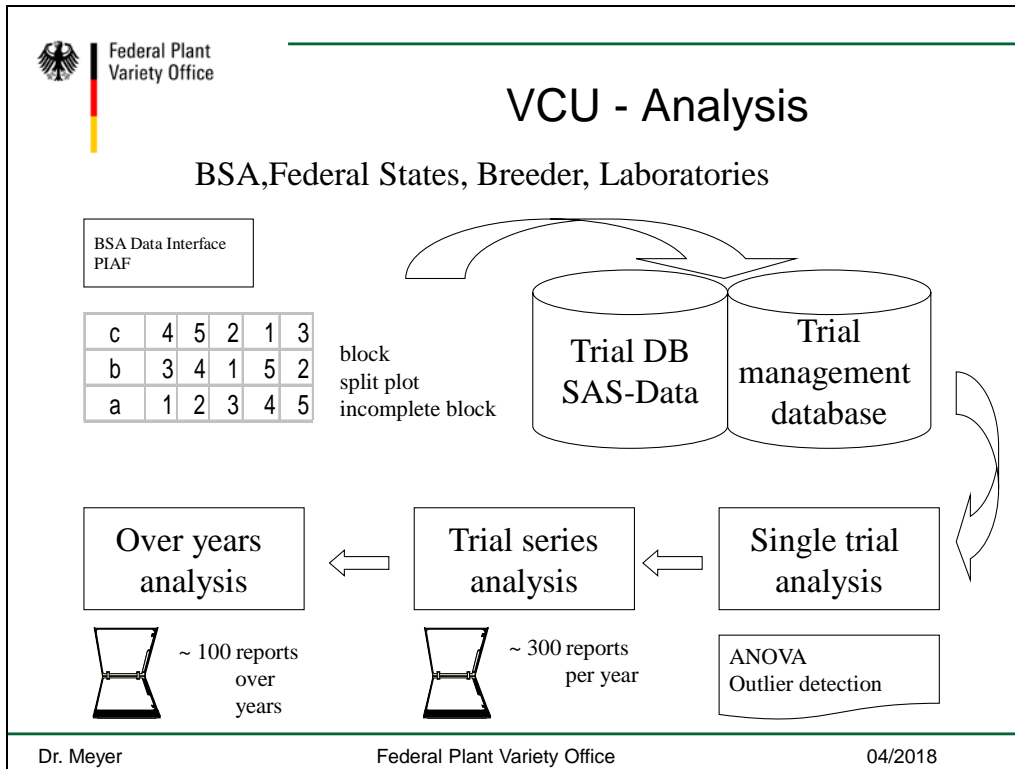
Scharnhorst
Hannover
Haßloch
Magdeburg
Wurzen
Nossen
Dachwig

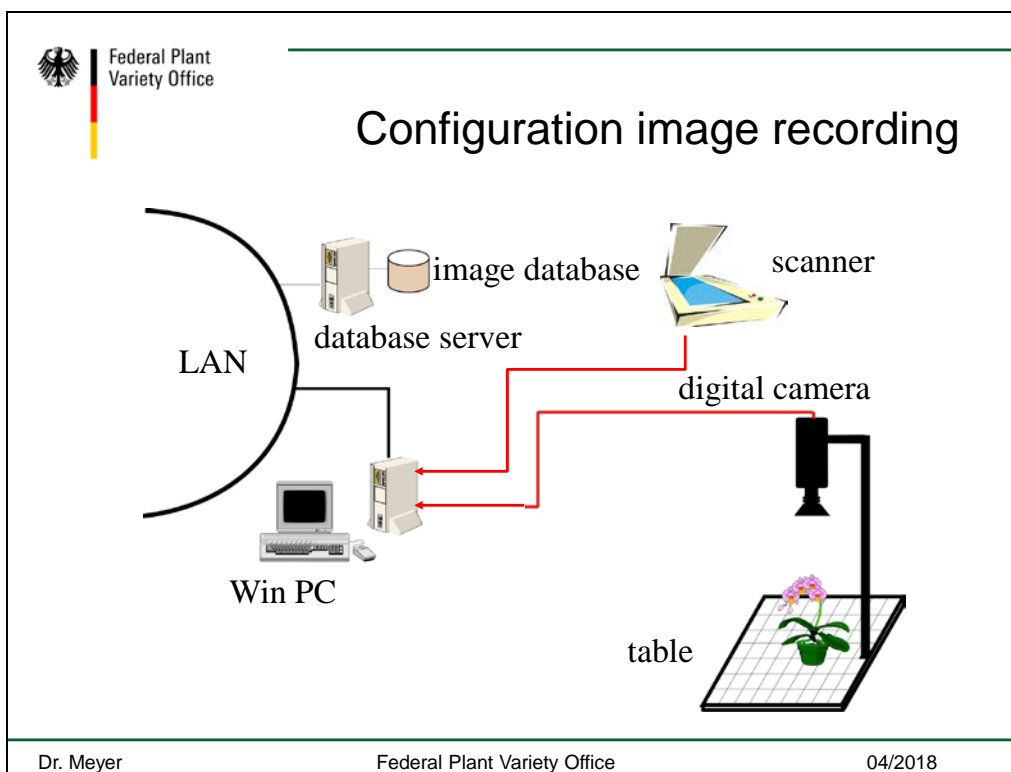
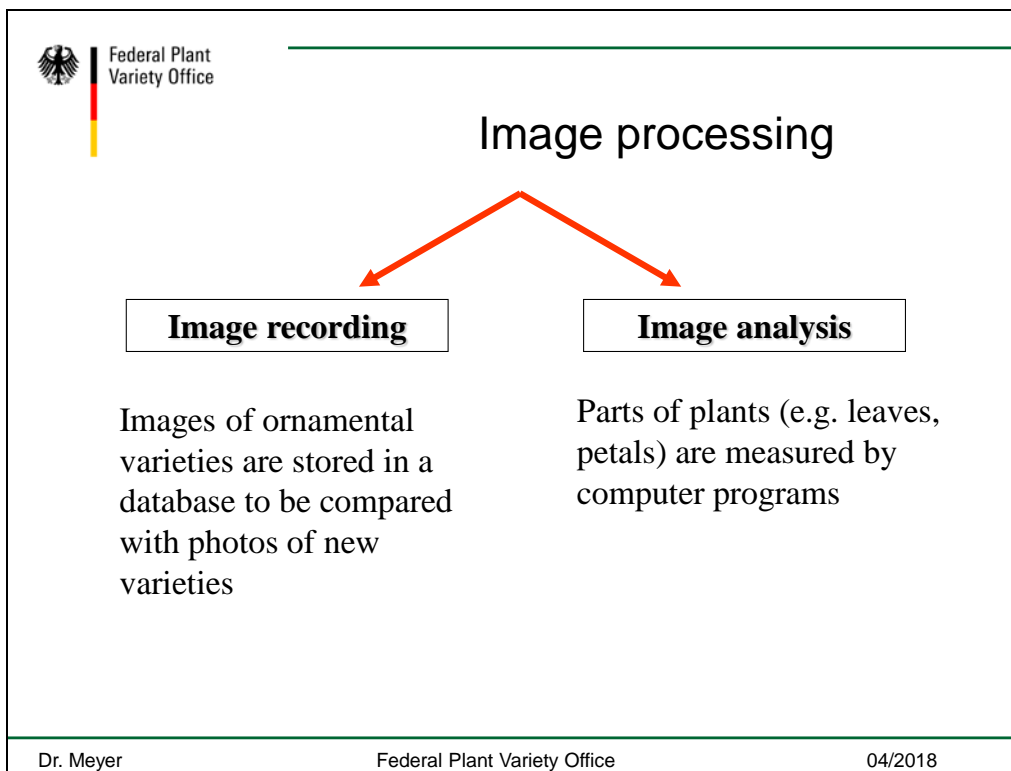
Dr. Meyer Federal Plant Variety Office 04/2018

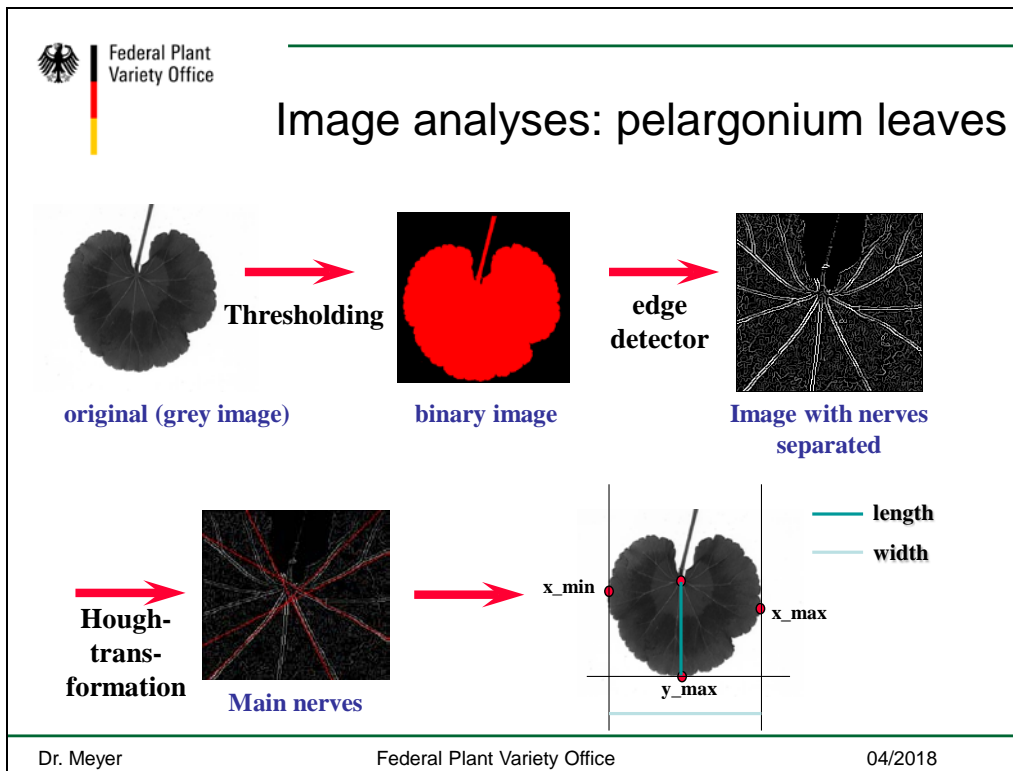
	Federal Plant Variety Office
<h2>Biostatistics, Information processing, Communication technology Administrative Data</h2>	
1	Administrative application
2	Mathematic statistical analysis
3	System technology
4	Image processing
5	Library, archive
Dr. Meyer	Federal Plant Variety Office
	04/2018











Federal Plant Variety Office

Image analysis - applications

Species	Objects
pea	leaves
pelargonium	leaves
impatiens	leaves
willow	leaves
rape, mustard, fodder radish	leaves and flowers
red clover	cotyledon leaves and first leaves

Dr. Meyer Federal Plant Variety Office 04/2018

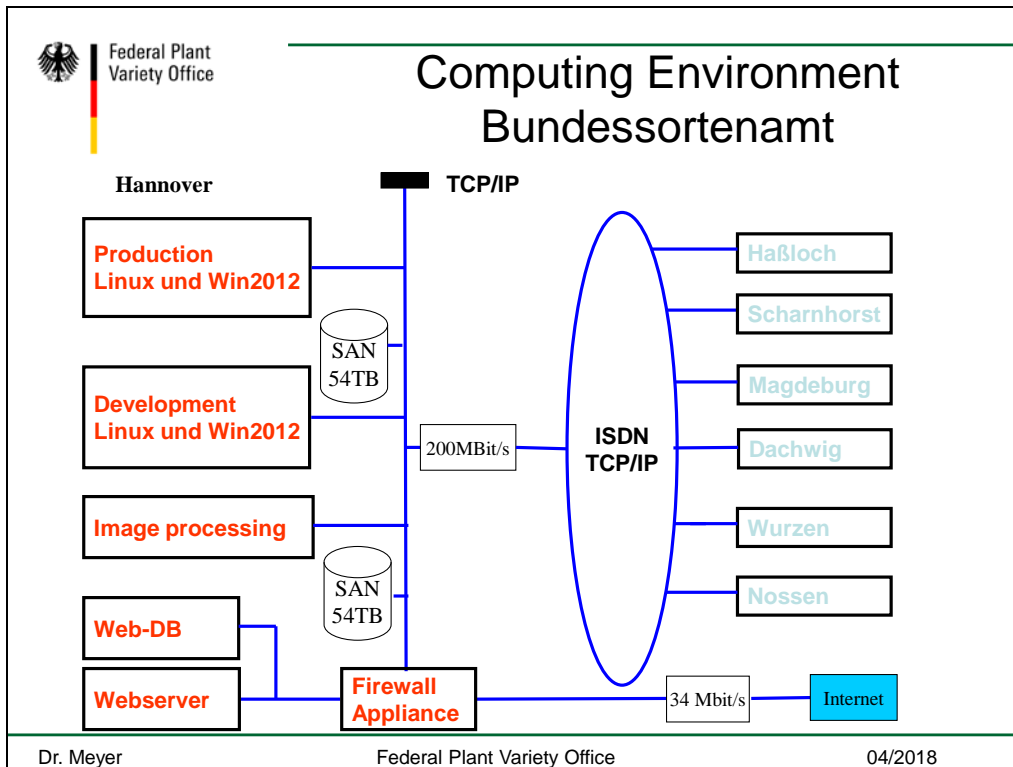


Federal Plant Variety Office

www.bundessortenamt.de



Dr. Meyer
Federal Plant Variety Office
04/2018





Software

Operating System	Linux WINDOWS 7/2012 (Server und Client) VMWare
------------------	---

Database	Informix ODS V11.x Informix 4GL 4J's – Compiler, Genero
----------	---

VCU-Analysis	SAS (Statistical Analysis System)
Trial Management	Informix

MS-Office Applications	Word, Excel, Access, Powerpoint, VBA Visual Basic, JAVA
---------------------------	--