UPOV
International Union for the Protection of New Varieties of Plants

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Technical Working Party for Agricultural Crops **TWA/51/11**

Fifty-First Session
Cambridge, United Kingdom, May 23 to 27, 2022

Original: English
Date: May 27, 2022

DRAFT REPORT

Adopted by the Technical Working Party for Agricultural Crops

Disclaimer: this document does not represent UPOV policies or guidance

Opening of the session

1. The Technical Working Party for Agricultural Crops (TWA) held its fifty-first session in Cambridge, United Kingdom, from May 23 to 27, 2022. The list of participants is reproduced in Annex I to this report.

2. The session was opened by Ms. Renée Cloutier (Canada), Chairperson of the TWA, who welcomed the participants and thanked the United Kingdom for hosting the TWA session.

3. The TWA was welcomed by Ms. Nicola Spence, Chief Plant Health Officer and Deputy Director Plant and Bee Health, Varieties and Seeds, Department for Environment, Food and Rural Affairs (DEFRA), via video message, and by Ms. Fiona Hopkins, Plant Varieties and Seeds Policy, Animal and Plant Health and Welfare Directorate, DEFRA.

4. The TWA received a presentation on plant variety protection in the United Kingdom from Mr. Richard McIntosh, Controller of Plant Variety Rights, DEFRA, a copy of which is provided in Annex II to this report.

Adoption of the Agenda

5. The TWA adopted the agenda as presented in document TWA/51/1 Rev.

Short Reports on Developments in Plant Variety Protection

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

6. The TWA noted the information on developments in plant variety protection from members and observers provided in document TWA/51/3 Prov. The TWA noted that reports submitted to the Office of the Union after May 13 and until May 27, 2022, would be included in the final version of document TWA/51/3.

(b) Reports on developments within UPOV

7. The TWA received a presentation from the Office of the Union on latest developments within UPOV, a copy of which is provided in document TWA/51/2.

Cooperation in examination

8. The TWA considered document TWP/6/9.

9. The TWA noted that members of the Union had the possibility to update information on a person(s) to be contacted for matters concerning international cooperation in DUS examination by:

(i) updating information when invited to provide information for document TC/[xx]/4 “List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability”; and/or

(ii) notifying the Office of the Union by sending an e-mail to upov.mail@upov.int.

10. The TWA noted the development of a package of compatible IT tools to address the technical and related administrative concerns that prevent cooperation in DUS examination, as reported in document TWP/6/9, paragraphs 9 to 14.

11. The TWA noted that a presentation on e-PVP Asia would be made to the TWPs, at their sessions in 2022.

12. The TWA noted that the development of a platform for UPOV member databases containing variety description information would depend on UPOV members indicating which databases they would wish to share.

13. The TWA noted that the use of machine translation technology would be considered within a review of UPOV’s policy on translation.

14. The TWA noted that the CAJ, at its seventy-eighth session:

(i) had agreed to include possible “guidance to encourage members of the Union, on a voluntary basis, to take over DUS test reports when the applicants could not submit plant material due to phytosanitary or other related issues where acceptable to the members of the Union concerned” as part of the work to be agreed by the CAJ; and

(ii) agreed measures to address policy or legal barriers that the TC had identified as preventing international cooperation in DUS examination, as set out in document TWP/6/9, paragraph 34.

15. The TWA noted that the impact of the proposed measures would be assessed on the basis of the number of cooperation agreements reported by members of the Union, as presented in document C/[xx]/INF/5 “Cooperation in examination”.

16. The TWA noted the procedures described by Canada, Czech Republic, Germany and Slovakia to identify experience and cooperation in DUS examination. These countries complement information provided in the GENIE database with that provided in the PLUTO database. The TWA agreed to propose that information available in both databases was further integrated to provide a single entry point to identify cooperation.

Increasing participation in the work of the Technical Working Parties and the Technical Committee

17. The TWA considered document TWP/6/12.

Participation at TWP meetings by electronic means

18. The TWA noted the participation at the TWP sessions in 2021, as presented in document TWP/6/12, Annex I.

Measures for physical and virtual participation at TWP meetings

19. The TWA noted the measures agreed by the TC for physical and virtual participation at TWP meetings, as set out in document TWP/6/12, paragraphs 9 to 12.

20. The TWA noted that the Office of the Union would interview members and observers and report outcomes to the TC, at its fifty-eighth session, along with options for improving the support provided by UPOV for DUS examination.

21. The TWA noted that its fifty-first session was held as a hybrid meeting with participants both on-site and via electronic means. The TWA agreed to invite the Office of the Union to survey participants’ satisfaction in relation to the hybrid meeting format.

Development of guidance and information materials

22. The TWA considered document TWP/6/1.

Matters for consideration by the Technical Working Parties

Document UPOV/INF/23 “UPOV Code System”

23. The TWA agreed to revise document UPOV/INF/23 “Guide to the UPOV Code System” as set out in document TWP/6/1, paragraph 13.

Document TGP/7 “Development of Test Guidelines”

Example varieties for asterisked quantitative characteristics when illustrations are provided

24. The TWA considered the proposal to amend document TGP/7 to remove the requirement to provide example varieties for asterisked quantitative characteristics if illustrations are provided, as set out in document TWP/6/1, paragraphs 18 and 19.

25. The TWA agreed example varieties should continue to be required for asterisked quantitative characteristics. The TWA agreed that illustrations were useful and that characteristics should be illustrated as much as possible, in addition to having example varieties. The TWA agreed that example varieties for asterisked quantitative characteristics could be replaced by illustrations under exceptional circumstances when it was not possible to provide example varieties.

26. The TWA considered the Flow Diagram 2 “*Deciding if example varieties are needed: Regional sets of example varieties*”, provided in document TGP/7, GN 28. The TWA agreed that the procedure to decide whether example varieties were needed for regional sets of example varieties was the same as for the Test Guidelines. The TWA agreed to propose deleting the “Flow Diagram 2” and amending Flow Diagram 1 to remove the mention to regional sets of example varieties.

Indication of grouping characteristics in UPOV Test Guidelines (Table of characteristics and TQ 5)

27. The TWA considered the proposal to revise document TGP/7 “Development of Test Guidelines” to indicate characteristics in the table of characteristics and technical questionnaire used as grouping characteristics, as set out in document TWP/6/1, paragraph 22.

28. The TWA agreed that no revision of document TGP/7 would be required as information on grouping characteristics was not relevant in the technical questionnaire and it would not be necessary to repeat information from Section 5 in the table of characteristics.

Converting standard wording in Test Guidelines into optional wording

29. The TWA agreed to amend document TGP/7 “Development of Test Guidelines” to convert the standard wording in the Test Guidelines template, paragraph 4.2.2, into additional standard wording (optional), as set out in document TWP/6/1, paragraph 25.

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

The Combined Over Years Uniformity Criterion (COYU)

30. The TWA considered document TWP/6/11.

31. The TWA noted that software for COYU Splines was under evaluation and planned to be implemented in the United Kingdom from 2022.

32. The TWA noted that evaluation versions of software for COYU Splines had been made available in August 2021.

33. The TWA noted the invitation for members of the Union to participate in the test campaign of the COYU Splines software and report outcomes to the expert from the United Kingdom.

34. The TWA noted the request for the TWM to prepare a report of the results of the test campaign of the software for COYU Splines for consideration by the TC, at its fifty-eight session, in conjunction with the revision of document TGP/8.

Using the COYU-Splines method in DUS examination

35. The TWA received a presentation on "COYU Splines: Path to implementation in the United Kingdom" by an expert from the United Kingdom. A copy of the presentation is provided in document TWA/51/8. The TWA noted the work reported and agreed to invite the expert from the United Kingdom to report developments at its fifty-second session.

Document TGP/12 'Guidance on certain physiological characteristics'

Word "highly" in only one state of expression

36. The TWA noted discussions on whether to revise the states of expression in the example characteristic in document TGP/12/2, Section 2.3.2, to address the use of the word "highly" in only one state of expression.

Matters for information

37. The TWA noted the following matters for information presented in document TWP/6/1:

- The outcomes of discussion on a proposal to revise document TGP/5, Section 6 "UPOV Report on Technical Examination and UPOV Variety Description" to include additional information in DUS test reports and alternative approaches to enhance the use of existing DUS test reports, as presented in Annex VI;

- Discussions on a proposal for the addition of state of expression and placement of non-asterisked disease resistance characteristics in the Technical Questionnaire, Section 5, as presented in Annex VII;

- Matters for adoption by the Council in 2022, as presented in Annex VIII; and

- The program for the development of relevant guidance and information materials, as presented in Annexes IX and X.

New technologies in DUS examination

38. The TWA received a presentation on "Estimation of plant length in winter wheat by drone imaging" by an expert from Denmark. A copy of the presentation is provided in document TWA/51/6. The TWA noted the work reported and agreed to invite the expert from Denmark to report developments at its fifty-second session.

Big data platform for DUS examination

39. The TWA received a presentation on "Big Data Platform for DUS Examination" by an expert from China. A copy of the presentation is provided in document TWA/51/7. The TWA noted the work reported agreed to invite the expert from China to report developments at its fifty-second session.

Examining hybrid varieties

40. The TWA received a presentation on "Examining Wheat Hybrids" by an expert from the United Kingdom. A copy of the presentation is provided in document TWA/51/10. The TWA agreed that there was not enough experience with DUS examination of wheat hybrids produced through different methods of propagation to consider amending uniformity standards in the Test Guidelines.

Experiences with new types and species

41. The TWA noted that no new experiences with new types and species had been reported.

Information and databases

(a) UPOV information databases

42. The TWA considered document TWP/6/4.

GENIE database

43. The TWA noted that 131 new UPOV codes were created in 2021 and a total of 9,342 UPOV codes are included in the GENIE database.

Proposals for amending UPOV codes

44. The TWA noted the amendments agreed by the TC, at its fifty-seventh session, to the UPOV codes for *Beta vulgaris*, *Brassica oleracea*, *Citrus*, *Zea mays*, *Aloe aristata* and *Dicentra spectabilis* as set out in paragraphs 15 to 26 of document TWP/6/4.

45. The TWA noted that members of the Union and contributors of data to the PLUTO database would be informed of the changes to UPOV codes and the date of the changes by means of a circular in advance.

TWP checking

46. The TWA noted the invitation to check the amendments, new UPOV codes or information, and UPOV codes used in the PLUTO database for the first time, as reproduced in document TWP/6/4, Annex IV, and submit comments to the Office of the Union by December 31, 2022.

PLUTO database

47. The TWA noted the summary of data contributions from members of the Union to the PLUTO database from 2017 to 2021, as presented in document TWP/6/4, the Annex V.

(b) Variety description databases

48. The TWA considered document TWP/6/2.

49. The TWA noted the reports made at the TWPs in 2021 on databases containing morphological and/or molecular data.

50. The TWA noted that members of the Union would be invited to report to the TWPs on work concerning the development of databases containing morphological and/or molecular data.

(c) Exchange and use of software and equipment

51. The TWA considered document TWP/6/5.

Document UPOV/INF/16 “Exchangeable Software”

52. The TWA noted that the Council had adopted by correspondence, on September 21, 2021, document UPOV/INF/16/10 “Exchangeable Software”.

53. The TWA noted that the Office of the Union had issued on January 18, 2022, Circular E-22/002 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/16/11 Draft 1 “Exchangeable Software” to the Office of the Union by February 28, 2022.

54. The TWA noted that information from China, the Czech Republic, France, Poland and Uzbekistan had been received to update document UPOV/INF/16.

55. The TWA noted that the TWM, at its first session, would be invited to review the software proposed by China, Czech Republic, France, Poland and Uzbekistan and make a recommendation to the TC, at its fifty-eighth session, on whether to include the proposed software in document UPOV/INF/16.

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

56. The TWA noted that the Council had adopted by correspondence, on September 21, 2021, document UPOV/INF/22/8 “Software and Equipment Used by Members of the Union”.

57. The TWA noted that the Office of the Union had issued on January 18, 2022, Circular E-22/002 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/22/9 Draft 1 “Use of software and equipment” to the Office of the Union by February 28, 2022.

58. The TWA noted that information from the Czech Republic, the Netherlands, Poland and Uzbekistan had been received to update document UPOV/INF/22.

59. The TWA noted that the TC, at its fifty-eighth session, would be invited to consider whether to include the proposed software or equipment in document UPOV/INF/22/9 Draft 1, or whether to request further guidance from other relevant bodies.

Availability of documents UPOV/INF/16 “Exchangeable Software” and UPOV/INF/22 “Software and Equipment Used by Members of the Union” in a searchable form

60. The TWA noted that the information in documents UPOV/INF/16 and UPOV/INF/22 was available in a searchable format on the UPOV website

(d) UPOV PRISMA

61. The TWA considered document TWP/6/3 and noted the developments concerning UPOV PRISMA.

Variety denominations

62. The TWA considered document TWP/6/6 and noted developments concerning the “Explanatory Notes on Variety Denominations under the UPOV Convention” (document UPOV/EXN/DEN/1), the possible development of a UPOV similarity search tool for variety denomination and the expansion of the content of the PLUTO database.

Revisions of Test Guidelines

63. The TWA considered document TWP/6/10.

Relationship between Asterisked, Grouping and TQ characteristics

64. The TWA noted that no proposals had been received to revise document TGP/7 “Development of Test Guidelines” to clarify the relationship between asterisks in the Test Guidelines and characteristics in the technical questionnaires.

Proposals for partial revisions of Test Guidelines

65. The TWA considered the proposals for partial revisions of the Test Guidelines for Maize and Wheat, as set out in document TWP/6/10, paragraph 23 and Annexes I and XI.

66. The TWA agreed to propose the partial revision of the Test Guidelines for Wheat, as set out in document TWP/6/10, paragraph 23 and Annex XI.

67. The TWA agreed to continue discussions on the partial revision of the Test Guidelines for Maize at its fifty-second session and agreed to invite Ms. Bronislava Bátorová (European Union) to present a new draft to clarify the wording of options “not applicable”; and to revise characteristic 24.1 and 24.2 “Plant: length”.

Molecular techniques

68. The TWA considered document TWP/6/7.

Session to facilitate cooperation in relation to the use of molecular techniques

69. The TWA held a discussion session to allow participants to exchange information on their work on biochemical and molecular techniques and explore possible areas for cooperation. The TWA considered whether UPOV could support harmonization and cooperation between members already using molecular markers in DUS examination or making information or BMT services available to other UPOV members.

70. The TWA agreed that the Technical Working Parties were a platform for exchanging information about molecular markers in DUS examination, including projects, collaborations and services eventually provided by members. The TWA agreed that UPOV should continue to encourage presentations on using molecular markers in DUS examination, including technical aspects, confidentiality and access to data.

Cooperation between international organizations

71. The TWA noted that the results of the survey on the use of molecular marker techniques had been made available on the webpage of the fifty-seventh session of the Technical Committee, as set out in document TWP/6/7, paragraph 28.

72. The TWA noted that on February 1, 2022, the Office of the Union had issued Circular E-2/009 inviting members to continue the survey on the use of molecular marker techniques.

73. The TWA noted the draft joint document explaining the principal features of the systems of OECD, UPOV and ISTA, as set out in the Annex to document TWP/6/7.

74. The TWA noted the topics proposed by the TC for a future joint UPOV/OECD/ISTA workshop, as set out in document TWP/6/7, paragraph 35.

75. The TWA noted that on December 13, 2021, the Office of the Union had informed OECD and ISTA of the result of the survey, draft joint document and proposed topics for a future joint UPOV/OECD/ISTA workshop. Responses from OECD and ISTA, when available, would be reported to the Technical Working Parties and the Technical Committee.

Developments at the twentieth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular

76. The TWA noted the papers presented at the twentieth session of the BMT and the program of work for the first session of the TWM.

Confidentiality & ownership of molecular information

77. The TWA noted discussions held at the TWPs and the BMT, at their sessions in 2021, on “Confidentiality & Ownership of Molecular Information”.

78. The TWA noted the report from the joint breeders’ organizations that a survey on confidentiality of molecular data was being conducted among plant breeding companies across different organizations. The TWA noted that the outcomes of the survey would be presented to the TWM, at its first session. The TWA agreed to invite the joint breeders’ organizations to report developments at its fifty-second session.

Review of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”

79. The TWA noted that a revision of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (“BMT Guidelines”) had been adopted by the Council, in 2021.

Presentation on the use of molecular techniques in DUS examination

80. The TWA received a presentation on the “Use of molecular techniques in DUS examination: Report from Argentina” by an expert from Argentina. A copy of the presentation is provided in document TWA/51/4.

81. The TWA received a presentation on “Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing” by an expert from France. A copy of the presentation is provided in document TWA/51/4 Add.

Discussion on draft Test Guidelines

Full draft Test Guidelines

*Cocksfoot (*Dactylis glomerata* L.) (Revision)

82. The subgroup discussed document TG/31/9(proj.2) presented by Ms. Anne-Lise Corbel (France), and agreed the following:

2.3	to read "…500 grams of seed"
Char. 15	to add (*)
TQ 4.2	to use complete standard breeding scheme (crossing: controlled cross, partially known cross, unknown cross)

Hemp, Cannabis (*Cannabis sativa* L.) (Revision)

83. The subgroup discussed document TG/276/2(proj.1) presented by Ms. Lysbeth Hof (Netherlands), and agreed the following:

General	to harmonize spelling of for "feminized"
Cover page	to add "Cannabis" as common name besides "Hemp"
2.3	to review diagram (exclude THC threshold)
3.1.3	to replace "indoors" by "in a controlled environment"
4.2.3	to check whether to be revised/simplified (e.g remove COYU)
Table of chars.	- to check whether to add new characteristic on the thickness of the apical inflorescence - to add a new characteristic considering CBG content
Char. 4	to check whether to be deleted completely or to restrict to types C and D
Char. 7	to add (*) (grouping char.)
Char. 9	to add (*) (grouping char.)
Char. 12	to check stability of characteristic
Char. 19	to add (*) (grouping char.)
Char. 25	- to indicate that only to be observed for types A, D, E and to update example varieties - to delete "D" from example variety "HURV2019PL" (it is type E)"
Char. 26	to check whether to be combined with Char. 27
Ad. 12	to check whether to be improved

*Potato (*Solanum tuberosum* L.) (Revision)

84. The subgroup discussed document TG/23/7(proj.3), presented by Ms. Beate Rücker (Germany), and agreed the following:

Char. 2	- state 1 to read "globose" - state 3 to read "conic"
Char. 4	state 3: to delete example variety "Red Emmalie" and add "Purple Majesty"
Ad. 19	to read "… on the upper side of the leaf." (typo)
Ad. 32	to read "The shape is defined by length to width ratio. The predominant shape should be observed."

*Oilseed Rape (*Brassica napus* L. *oleifera*) (Revision)

85. The subgroup discussed document TG/36/7(proj.3), presented by Ms. Margaret Wallace (United Kingdom), and agreed the following:

Cover page, TQ 1	main common name to read "Oilseed Rape"
2.3	to read "…Component of controlled-cross pollination hybrids: 50g"
4.2.3	to add "varieties" after "cross-pollinated"
6.4	to add "the varieties are indicated as follows: (S) – spring (W) - winter
7.	to update example varieties with indication of seasonal type and to present in the following format (S) …, (W) …

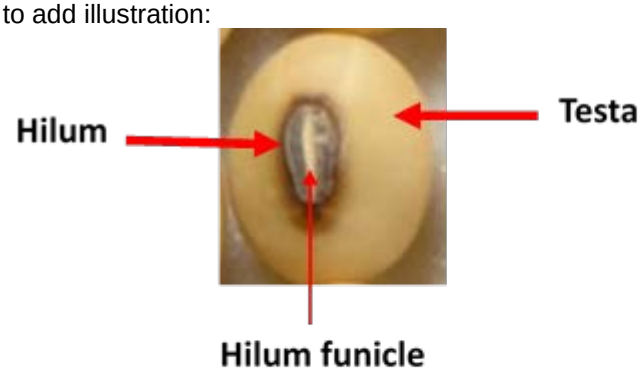
Char. 2	to read “Cotyledon: ratio saddle height/width”
Char. 3	- to have states “very shallow” to “very deep” (depth) - to add (a)
Char. 6	to be deleted
Char. 7	to read “Cotyledon: ratio saddle height/ lamina length”
Char. 11	to delete “Only for varieties with Leaf: lobes: present:”
Char. 14	- to replace “cream” with “yellowish white” - to be moved after 18 - growth stage to be indicated as 62-65
Char. 25	to delete “when sown”
8.1	- to add new explanation label “Observations should be made on the largest, fully expanded leaf from the lower part of the plant showing no indication of senescence.” for characteristics 11 and 12 - to reorder labels to follow alphabetical order in the table of characteristics
8.1 (a)	- to replace the illustration - sentence to read “Observations should be made on…”
8.1 (b)	- legend: to replace a. – d. with corresponding characteristic numbers and wording to read the same as characteristic names - sentence to read “Observations should be made on siliques from the midpart of the inflorescence of the main stem.”
Ad. 1	to read “2.0%” instead of “2%”
Ads. 2, 4	to be deleted
Ad. 10	- to delete first paragraph - to delete first sentence of second paragraph (“Absence or presence of lobing should be observed on the whole plant at rosette stage.”) - last sentence to read “Secondary structures (indicated by a “s”) are not counted”.
Ad. 11	to add corresponding states of expression and notes to the illustration
Ad. 12	- to add corresponding states of expression and notes to the illustration - to read “Observations should be made on the upper third of the leaf as indicated by a:” use improved illustrations (lower two thirds shaded)
Ad. 13	to read “When assessed on whole plots, time of flowering is reached when 10% of all plants have at least one flower open. When assessed on individual plants, time of flowering is reached when 50% of all plants have at least one flower open.”
Ad. 17	to replace a. and b. with characteristic numbers in the illustration
Ad. 19	to read “To measure total length all side branches should be raised to vertical orientation (position 1 to 2). The measurement should be taken from the base of the plant to the tip of the longest branch.” - to update legend of drawing (replace “side shoot” by “side branch”)
Ad. 25	to read “Tendency to form inflorescence in alternate season should be calculated from the growth stage reached in relation to example varieties. For winter oilseed rape varieties, observations should be made in summer when late spring oilseed rape varieties are flowering (on spring sown plots). For spring oilseed rape varieties, observations should be made in autumn, when their development stagnates (late summer sown plots).”

*Soya Bean (*Glycine max* (L.) Merrill) (Revision)

86. The subgroup discussed document TG/80/7(proj.8), presented by Mr. Mariano Alejandro Mangieri (Argentina), and agreed the following:

3.4.2	to read “The assessment of the characteristic ‘Plant: growth type’ should be carried out on a total of at least 60 plants, which should be divided between at least two replicates.”
Char. 4	- to add (*) and add to TQ 5 - to have the same states of expression as in the current version of the TG and the following example varieties:

lanceolate	Crina F, Opaline
triangular	Sponsor
pointed ovate	Es Gladiator, RGT Speeda
rounded ovate	Córdoba, ES Mentor, RGT Shouna

<table>
<tr><td>Char. 7</td><td>to delete state 3</td></tr>
<tr><td>Char. 11</td><td>to have nine states from “very early” to “very late”</td></tr>
<tr><td>Char. 13</td><td>to delete state 1 “yellow brown”</td></tr>
<tr><td>Char. 17</td><td>to add variety example “Befine” to state 2 “yellow green”</td></tr>
<tr><td>Char. 18</td><td>to add example variety “TMG1155RR” for state 3 “strong”</td></tr>
<tr><td>Char. 20, 21</td><td>- to be combined to read “Seed: coloration of hilum”
- to have the following states, example varieties and notes:
<table>
<tr><th>20</th><th>(*)</th><th>PQ</th><th>VG</th><th>(+)</th><th></th><th>89</th></tr>
<tr><td></td><td></td><td colspan="2">Seed: coloration of hilum</td><td colspan="3"></td></tr>
<tr><td></td><td></td><td colspan="2">imperfect yellow</td><td>Ajico, OAC Strive</td><td></td><td>1</td></tr>
<tr><td></td><td></td><td colspan="2">yellow</td><td>RA 545</td><td></td><td>2</td></tr>
<tr><td></td><td></td><td colspan="2">light brown</td><td>NS 6448</td><td></td><td>3</td></tr>
<tr><td></td><td></td><td colspan="2">red brown</td><td>5407IPRO</td><td></td><td>4</td></tr>
<tr><td></td><td></td><td colspan="2">dark brown</td><td>53I53 RSF IPRO</td><td></td><td>5</td></tr>
<tr><td></td><td></td><td colspan="2">grey</td><td>TMG1155RR</td><td></td><td>6</td></tr>
<tr><td></td><td></td><td colspan="2">imperfect black</td><td>RA 750</td><td></td><td>7</td></tr>
<tr><td></td><td></td><td colspan="2">black</td><td>DON MARIO 40R16</td><td></td><td>8</td></tr>
</table></td></tr>
<tr><td>Char. 22</td><td>- to add example varieties “Córdoba, Es Mentor, RGT Shouna” to state 1
- to add example varieties “Amarok, SY Livius” to state 2
- to add illustration:
 

Courtesy of the Canadian authorities.</td></tr>
<tr><td>Ad. 1</td><td>to read “Germinate 20 seeds in substrate. Seedlings should receive at least five hours of intense sunlight since emergence. Seedlings should be exposed to artificial lighting at night. Observations should be made three to five days after emergence.”</td></tr>
<tr><td>Ad. 4</td><td>to add arrow to lateral leaflets</td></tr>
</table>

Ad. 7	to read • Test design: Plant growth type should preferably be assessed in a special trial with 2 replicates of 30 plants each with about 9 cm between plants in the rows. Any border effect should be avoided. • Plant material: Candidate and example varieties should be grown in groups according to their earliness at maturity (characteristic 11). • Observation: At the beginning of flowering time (1 flower at any level of the main stem), the apex of the plant should be identified with a mark. At maturity (free kernels in the pod), the number of nodes between the mark and the top of the plant is counted. The average number of nodes per variety, in comparison with the example varieties, allows for the appropriate rating of this characteristic. Determinate varieties: • The main stem ends in a floral bud (the terminal cluster is long and with many flowers). • The growth stops with the flowering of the terminal bud. • The size of the terminal leaf is the same as the lower leaves in growth stage 60. Semi determinate varieties: • The main stem ends in a floral bud (the terminal cluster is short and with few flowers). • The growth stops with the flowering of the terminal bud. • The size of the terminal leaf is smaller than the lower leaves in growth stage 60. Indeterminate varieties: • The main stem ends in a vegetative bud. • The growth continues after flowering. • The apical meristem remains vegetative and continues to differentiate nodes and leaves when flowers are being differentiated in the rest of the plant. • The terminal leaf is smaller than the lower leaves in growth stage 60.
Ad. 9	to read “Observations should be made on the middle third of the main stem.”
Ad. 11	to delete equivalence table to maturity groups and sentence below the table
Ad. 14	to read “… (shown with black arrows)”
Ad. 20	to delete illustration (see TGP/7 GN36)
Ad. 21	to delete references to Ad. 20
9.	to add literature reference regarding state “red brown” of characteristic 20 (format of references to be adjusted): Soybean Hilum Examination: Morphology of Hilum Development Jensina Davis & Tim Gutormson. 2021. SoSak Labs, Inc. Fehr, W. R., Fehr, E. L., & Jessen, H. J. 1987. *Principles of cultivar development* (Vol. 1). New York: Macmillan.
TQ 7	to add 7.3 Indicate maturity group and subgroup of the variety Group [ ] Subgroup [ ]

*Sugarcane (*Saccharum* L.) (Revision)

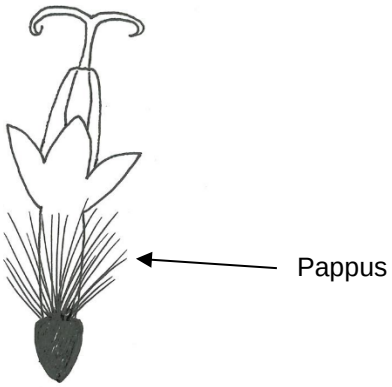
87. The subgroup discussed document TG/186/2(proj.3), presented by Mr. Muhammad Ali Bhatti (Australia), and agreed the following:

4.1.4	second paragraph to read “Unless otherwise indicated, all observations for quantitative characteristics should be made on 23 culms or parts taken from each of 23 culms.”
4.1.6	to be deleted

Table of Chars.	- to check whether to replace VS with VG (in all characteristics currently indicated as VS) - to harmonize example varieties (to minimize number and use same varieties in a maximum of chars.)
Char. 2	to be indicated as VG instead of VS
Char. 4	to read “Culm: length”
Char. 5	to delete “the”
Char. 6	to have states from “very small” to “very large”
Char. 8	- to read “Internode: shape in cross section” - to add explanation “Observations should be made in the central part of the internode.”
Char. 11	to replace current example varieties
Char. 12	to have the following example varieties absent or weak: Q124, Q135 medium: Q117, Q152 strong: H56-752
Char. 15	to be moved after characteristic 11
Char. 16	to replace “wide” with “broad”
Char. 17	to delete state 1 “tall”
Char. 18	- to be indicated as VG - to replace “wide” with “broad”
Char. 19	to be deleted
Char. 20	- to check whether to improve illustration to explain the differences between different shapes (e.g. ratio, position of broadest part, outline, apex/bottom features or other) - to check whether to reduce number of states (combine states 2 and 3?) - to add explanation “Observations should be made excluding the wing.”
Char. 21	to add explanation “Observations should be made vertically through the bud.”
Char. 22	- to add explanation “Measurements should be taken horizontally through the bud.” - to replace “wide” with “broad”
Char. 24	state 2 to read “same level”
Char. 25	to replace “wide” with “broad”
Char. 26	- to add explanation “Observations should be made at the broadest part of the wing.” - to check whether to add (*) and to become a grouping char. - to be moved after Char. 22
Char. 27	- to add state 5 “green and purple” (missing) - to add explanation “The color covering the largest area should be observed.”
Char. 28	to add explanation “The color covering the largest area should be observed.”
Char. 32	to replace current example varieties
Char. 33, 35	to delete (c) from characteristic title
Char. 36	- to add explanation “Observations should be made at the broadest part of the ligule, vertically.” - to replace “wide” with “broad”
Char. 38	- to delete (*) - to correct spelling of “calcariform”
Char. 39	to reduce scale to 5 notes
Char. 41	to delete (*)
Char. 44, 45	to delete “the”
8.1 (c)	- to replace “groups 57 and 60” and “group 61” by “a and b” and “c” - to be reviewed
8.1 (d)	to include more information to clarify where cross-section is to be observed (see characteristics 48 and 49)
Ad. 4	in the illustration: to replace “measured height” by “measured length”
Ad. 9	to add “The color covering the largest area should be observed.”
Ad. 10	- to check whether to read “… from which the wax has been removed” - to add “The color covering the largest area should be observed.”
Ad. 15	to check whether to read “Observations should be made along the whole length of the culm.”
Ad. 23	to check whether to read “Observations should be made below the node to which the second senescent leaf from the top was attached.”

*Sunflower (*Helianthus annuus* L.) (Revision)

88. The subgroup discussed document TG/81/7(proj.4), presented by Mr. Zoltán Csűrös (Hungary), and agreed the following:

2.3	to replace “grains” by “seeds”
Char. 5	to have states “strongly concave”, “weakly concave”, “flat”, “weakly convex”, “strongly convex”
Char. 18	- to add explanation “Observations should be made on the inner third of the flower head.” - to read “Disk floret: anthocyanin coloration of pappus” - to add illustration 
Chars. 19-22	to read “Disk floret:…”
Char. 20	to read “Disk floret: anthocyanin coloration of anthers”
Char. 23	to be indicated as PQ
8.1 (a)	to become an explanation covering all characteristics without a label and to read “Unless otherwise indicated, observations should be made on the main stem.” ((a) to be removed from table of characteristics)
8.1 (b)	to become (a) and to read “Observations should be made on fully developed leaves on the upper third of the plant.” ((b) to become (a) in table of characteristics)
Ad. 7	to rotate illustrations to have the point of attachment at the bottom
Ad. 17	to read “If more than one color occurs, …”
Ad. 23	states to read as in characteristic 23
Ad. 32	to read “Observations should be made on the upper third of the stem below the head.”
8.3	growth stages 65, 67: to correct spelling of “stamens” growth stages 63, 65, 67: to replace “stigmata” by “stigma”
9.	to correct spelling of “North Dakota” in last literature reference
TQ 5.6	to add option “the variety is not an inbred line” with tick box below characteristic name
TQ 5.7	to add option “the variety is not a hybrid or open-pollinated” with tick box below characteristic name
TQ 7.3	- to add tick boxes to all options and space where “to specify” - (2): to correct spelling of “and”
Annex	formatting: certain chemical formulas require subscript (e.g. MgCl2 to read $MgCl_2$?)

*Zoysia grasses (*Zoysia* Willd.)

89. The subgroup discussed document TG/ZOYSI(proj.3), presented by Mr. Toru Watanabe (Japan), and agreed the following:

2.2	to delete “or seeds”
2.3	to delete “seed-propagated varieties: 500 g of seed.” and last paragraph “The material supplied…”
3.1.2	to be deleted
3.4.1	to read “Each test should be designed to result in a total of at least 15 plants which should be divided between at least 3 replicates.”
3.4.2	to be deleted

4.1.4	- first paragraph to read “Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observation made on all plants in the test, disregarding any off-type plants.” - second paragraph to be deleted
4.2.3	to be deleted
5.3	grouping characteristics to be checked
Table of Chars.	- to add more example varieties (particularly for characteristics 2, 4, 7, 9, 12, 13, 17, 19, 22, 23, 26, 27 - to check whether to replace indication of seasons by indication of growth stage (e.g. months after planting or other)
Char. 2	to add (a)
Char. 3	to read “Plant: density of stolons”
Char. 10	- to have states “light”, “medium”, “dark” - to underline “Only varieties with stolon anthocyanin coloration absent”
Char. 15	to read “Flower: tendency to flower” with states from “low” to “high”
Char. 16	to check whether to replace “Only varieties with…” by explanation in 8.1
Char. 19	to check whether to replace “in spring” with “after flowering in spring” or growth stage
Char. 21	- to read “Inflorescence: position relative to foliage” - state 2 to read “same level”
Char. 25	to read “Time of vegetative growth after overwintering”
8.1 (a)	- to check whether to replace “early summer” with “4 months after overwintering” or growth stage key - to read “Observations should be made…”
8.1 (b)	to delete text “Explanation on…”
8.1 (c)	to read “Observations should be made on culms from the middle third of the plant.”
8.1 (d)	to read "Observations should be made at the time of flowering.”
Ad. 1, 2	- to check whether to replace “early summer” with “4 months after overwintering” or growth stage key - to read “Observations should be made…”
Ad. 4, 5, 6, 7, 8, 9, 10	to read “Observations should be made…”
Ad. 15	to be updated according to changes to characteristic 15
Ad. 25	to read “The time of appearance of new leaves is reached when new leaves can be seen on the stems of about 50% of the plants after vernalization.”
TQ 4.2	to be completed
TQ 5.	to add Char. 15 (grouping characteristic)
TQ 5.3, 5.4	to check whether to add option “not applicable”

Partial revisions

Rye (*Secale cereale* L.) (Partial revision)

90. The subgroup discussed document TWA/51/5, presented by Ms. Beate Rücker (Germany), and agreed with the proposed changes.

Wheat (*Triticum aestivum* L. emend. Fiori et Paol.) (Partial revision)

91. The subgroup discussed document TWP/6/10, Annex XI, presented by Ms. Margaret Wallace (United Kingdom), and agreed the following:

TWP/6/10, Annex XI, TQ 5.9 (20)	to correct title of characteristic to read “Ear: shape in profile”

Recommendations on draft Test Guidelines

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

92. The TWA agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-eighth session, to be held in Geneva on October 24 and 25, 2022, on the basis of the following documents and the comments in this report:

Full draft Test Guidelines

Subject	Basic Document(s) (2022)
*Cocksfoot (*Dactylis glomerata* L.) (Revision)	TG/31/9(proj.2)
*Potato (*Solanum tuberosum* L.) (Revision)	TG/23/7(proj.3)
*Soya Bean (*Glycine max* (L.) Merrill) (Revision)	TG/80/7(proj.8)
*Sunflower (*Helianthus annuus* L.) (Revision)	TG/81/7(proj.4)

Partial revisions

Subject	Basic Document(s) (2022)
Rye (*Secale cereale* L.) (Partial revision: - 4.2.4, Chars. 1 - 6: to be observed in special test)	TG/58/7, TWA/51/5
Wheat (*Triticum aestivum* L. emend. Fiori et Paol) (Partial revision: Technical Questionnaire)	TG/3/12, TWP/6/10, Annex XI

(b) Test Guidelines to be discussed at the fifty-second session

93. The TWA agreed to discuss the following draft Test Guidelines at its fifty-second session:

Full draft Test Guidelines

Subject	Basic Document(s) (2022)
Couch Grass, Bermuda Grass (*Cynodon* Rich.)	New
Fodder Beet (*Beta vulgaris* L.) (Revision)	TG/150/3
Hemp, Cannabis (*Cannabis sativa* L.) (Revision)	TG/276/2(proj.1)
Mung Bean (*Vigna radiata* (L.) R. Wilczek)	New
*Oilseed Rape (*Brassica napus* L. *oleifera*) (Revision)	TG/36/7(proj.3)
Safflower (*Carthamus tinctorius* L.) (Revision)	TG/134/3
*Sugarcane (*Saccharum* L.) (Revision)	TG/186/2(proj.3)
*Zoysia Grasses (*Zoysia* Willd.)	TG/ZOYSI(proj.3)

Partial revisions

Subject	Basic Document(s) (2022)
*Barley (*Hordeum vulgare* L.) (Partial revision: Technical Questionnaire)	TG/19/11
*Maize (*Zea mays* L.) (Partial revision: Char. 24, Technical Questionnaire)	TG/2/7, TWP/6/10, Annex I

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

(c) Possible Test Guidelines to be discussed in 2024

95. The TWA agreed that it should consider the development of Test Guidelines for the following at a future session:

Subject	Basic Document(s) (2022)
White Mustard (*Sinapis alba* L.) (Revision)	TG/179/3
Festulolium (×*Festulolium* Aschers. et Graebn.)	TG/243/1 (CZ)

(d) Participation in discussions of Test Guidelines from other TWPs

96. The TWA agreed to propose that the following experts be added as interested experts to the following draft Test Guidelines being discussed by the Technical Working Party for Vegetables (TWV), subject to the deadlines agreed in document TWV/56/22 "Report", Annex II:

Subject	Interested experts (countries/organizations) [1]
*Kale (*Brassica oleracea* L. var. *costata* DC.; *B. oleracea* L. var. *medullosa* Thell.; *B. oleracea* L. var. *sabellica* L.; *B. oleracea* L. var. *viridis* L.; *B. oleracea* L. var. *palmifolia* DC.) (Revision)	CN, FR, GB, NZ

Guidance for drafters of Test Guidelines

97. The TWA considered document TWP/6/8.

98. The TWA noted that the web-based TG template and database of approved characteristics was currently being migrated to cloud servers, including an upgrade to new technologies in infrastructure and program to address issues reported by users and enabling use for drafting individual authorities' test guidelines.

99. The TWA noted that interviews would be conducted in 2022 to collect requirements for the development of individual authorities' test guidelines using the web-based TG template.

100. The TWA noted that training on the web-based TG template could be organized upon request.

Chairperson

101. The TWA agreed to propose to the TC that it recommend to the Council to elect Mr. Ľubomir Basta (Slovakia) as the next chairperson of the TWA.

Date and place of the next session

102. The TWA noted that no invitations for the venue of its fifty-second session had been received. The TWA noted that a decision on the date and place of its next session would be taken by the Council, at its fifty-sixth session, to be held on October 28, 2022.

103. The TWA noted that UPOV members could contact the Office of the Union with offers of date and place to host the next TWA session. If an offer was received sufficiently before the fifty-sixth session of the Council, the offer could be considered by the Council at its fifty-sixth session.

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

104. The TWA agreed that its fifty-second session should be held via electronic means, from May 22 to 26, 2023, if no alternative offer was received from a member of the Union.

Future program

105. The TWA agreed that documents for its fifty-second session should be submitted to the Office of the Union by April 7, 2023. The TWA noted that items would be deleted from the agenda if the planned documents did not reach the Office of the Union by the agreed deadline.

106. The TWA proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
   (a) Reports from members and observers (written reports to be prepared by members and observers)
   (b) Report on developments within UPOV (document to be prepared by the Office of the Union)
4. Development of guidance and information materials (documents to be prepared by the Office of the Union)
5. Using the COYU-Splines method in DUS examination (presentation from the United Kingdom and presentations invited)
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 and documents invited)
   (d) UPOV PRISMA (document to be prepared by the Office of the Union)
8. 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 by Argentina, Australia and Breeders' Associations and presentations invited)
9. New technologies in DUS examination, e.g. image analysis (documents to be prepared by China, Denmark, United Kingdom and documents invited)
10. DUSCEL statistical analysis software (document to be prepared by China)
11. Examining hybrid varieties (documents to be prepared by Australia and United Kingdom and documents invited)
12. Cooperation in examination (document to be prepared by the Office of the Union and documents invited)
13. Increasing participation in the work of the TC and the TWPs (document to be prepared by the Office of the Union)
14. Experiences with new types and species (oral reports invited)
15. Revision of Test Guidelines (document to be prepared by the Office of the Union)
16. Guidance for drafters of Test Guidelines (document to be prepared by the Office of the Union)
17. Discussion on draft Test Guidelines (Subgroups)
18. Recommendations on draft Test Guidelines
19. Date and place of the next session
20. Future program
21. Adoption of the Report on the session (if time permits)
22. Closing of the session

Technical visit

107. On the afternoon of May 25, 2022, the TWA visited NIAB headquarters in Cambridge. The TWA was welcomed by Mr. Mario Caccamo, CEO, and Mr. Stuart Knight, Deputy Director and Director of Agronomy, NIAB, and received a presentation from Mr. Knight on the activities of NIAB. A copy of the presentation is provided in Annex III to this report. The TWA visited DUS trials for Barley, Oilseed Rape and Wheat and visited the greenhouses and laboratories of NIAB. The TWA received information on phenotyping based on unmanned aerial vehicles and image analysis.

108. The TWA adopted this report at the end of the session.

[Annex I follows]

ANNEX I

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Romy OERTEL (Ms.), Secretary II

Jessica MAY (Ms.), Secretary I

[Annex II follows]

ANNEX II

PRESENTATION ON PLANT VARIETY PROTECTION IN THE UNITED KINGDOM FROM MR. RICHARD MCINTOSH, CONTROLLER OF PLANT VARIETY RIGHTS, DEFRA

Department for Environment Food & Rural Affairs

United Kingdom Introduction

51st Session of the TWA, Cambridge, United Kingdom

23 May – 27 May

Richard McIntosh

United Kingdom Controller of Plant Variety Rights

Welcome!

Welcome to Cambridge in the United Kingdom!

The United Kingdom is very pleased to be hosting the first in-person since the start of the pandemic.

United Kingdom colleagues from Defra, APHA and NIAB will be on hand throughout the week.

Department
for Environment
Food & Rural Affairs

Richard McIntosh

United Kingdom Controller of Plant Variety Rights

United Kingdom of Great Britain and Northern Ireland

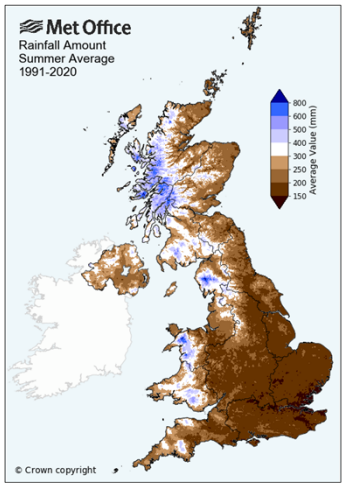
One of the world's largest economies
Population 67.1m

Service sector	80% of GDP
Manufacturing	10
Construction	6
Agriculture	0.6

Climate

- Average summer maximum
  19ºC
- Average winter minimum
  1ºC
- Average annual rainfall
  1163 mm
- Average annual sunshine
  1400 hours

1991-2020



Source: www.metoffice.gov.uk



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Agricultural and Horticultural Production

	Area (1,000ha)
Cereals	3,038
Oilseeds	415
Potatoes	142
Other arable*	120
Horticulture**	166

*includes sugar beet, field beans, peas, maize and root crops

**includes vegetables, orchard fruit, soft fruit and ornamental

Source: Defra Farming Statistics 2020

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Origins of modern plant breeding in the United Kingdom

1843	The world's oldest agriculture research station was established in Rothamsted
1910	John Innes Horticultural Research Institution founded
1912	Plant Breeding Institute, department of Agriculture of the University of Cambridge
1919	NIAB is founded to promote the improvement of British crops

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Evolution of Plant Variety Protection in the United Kingdom

1964	Plant Varieties and Seeds Act, implementing the 1961 UPOV Convention
1968	The United Kingdom joined UPOV on Aug 10, 1968, celebrating 54 years as a member in 2022
1997	The United Kingdom ratified the 1991 UPOV Act by passing the Plant Varieties Act

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Plant breeding successes

- Improvements in cereal yields
- Low glycosidic nitrile barley
- Extended season production in strawberries
- Researchers at The Sainsbury Laboratory have created a tomato that is resistant to powdery mildew infection
- Research in wheat to reduce the potential for acrylamides

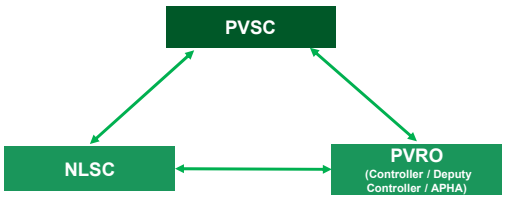
Plant variety testing in the United Kingdom

The United Kingdom provides a national system of plant variety protection through the Plant Variety Rights Office (PVRO) that administers Plant Breeders' Rights on behalf of the United Kingdom.

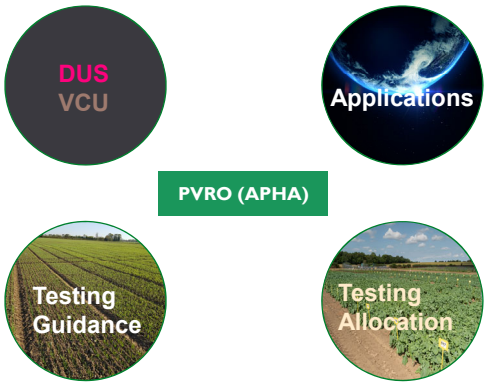
The PVRO is made up of the Controller, Defra's Animal and Plant Health Agency (APHA) and the decision-making United Kingdom National Lists and Seeds Committee (NLSC) body.

PVRO = APHA, Controller and Deputy Controller

NLSC - decision making



United Kingdom authority for plant variety testing



Supervision and administration

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Defra

Animal & Plant Health Agency

APHA is the coordinating centre for DUS & VCU testing in the United Kingdom

APHA has contracts with the test centres and BSPB

DUS
VCU

United Kingdom DUS Test Centres:

NIAB

(England)

AFBI

(Northern Ireland)

SASA

(Scotland)

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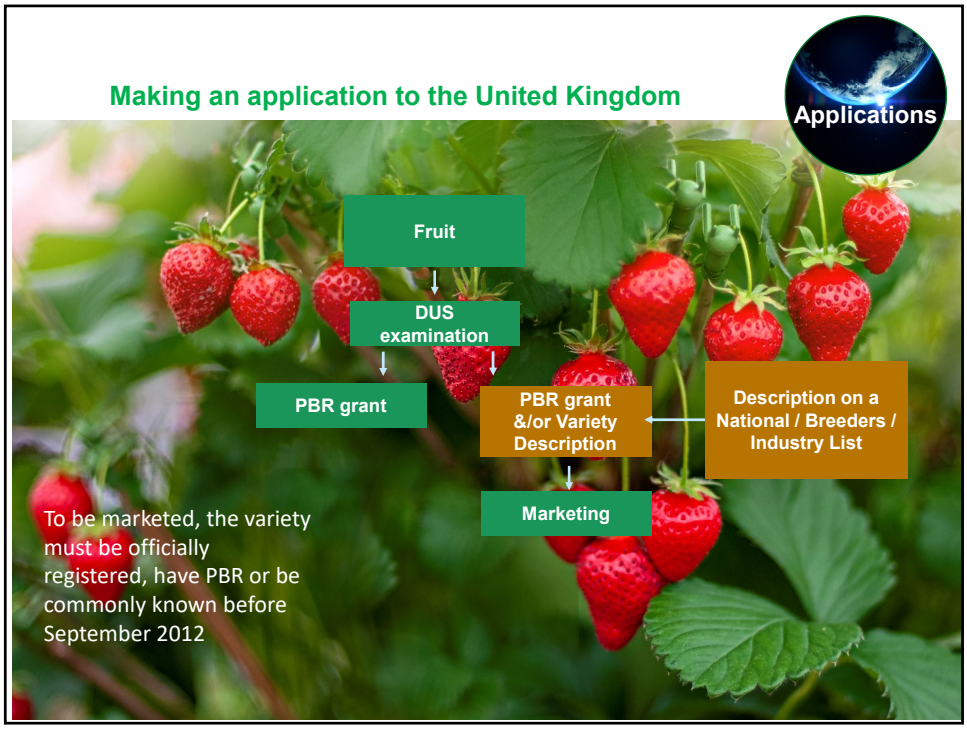
Making an application to the United Kingdom
PBR & Variety Listing
Agricultural crops
Vegetables
VCU examination
DUS examination
DUS examination
+ DUS result
PBR grant
Variety listing
Variety listing
PBR grant
Marketing
Marketing
Image: NIAB


Making an application to the United Kingdom
Applications
It is the breeder's choice to have PBR for an ornamental variety
Ornamentals
DUS examination
PBR only
Image: S Ramans-Harborough



European Union Exit and what that meant for the United Kingdom PBR system

- The United Kingdom left the European Union at the end of 2020
- Prior to this, the majority of PVR applications were made via the European Union's CPVO
- The United Kingdom's existing PVR system has been reinvigorated to manage the significant uptick in PBR applications
- All applications for PVR are now made through the UPOV PRISMA system

PBRs and European Union Exit

- All existing European Union Plant Variety Rights were brought under United Kingdom legislation to maintain protection in the United Kingdom territory
- APHA copied all existing European Union rights to the United Kingdom system – about 31,000 varieties
- For new varieties, protection in the United Kingdom requires an application to the PVRO via APHA

CPVO
Community Plant Variety Office

Retained EU Rights.....

Animal & Plant Health Agency

New UK Rights.....

Animal & Plant Health Agency

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Overview : PBR and National Listing Applications in the United Kingdom

Year	PBR - PRISMA	NLI - PRISMA
2018	3	0
2019	18	0
2020	22	0
2021	1497	641
2022 (as of March 31)	202	164

European Union Common Catalogue to United Kingdom National List transfer exercise

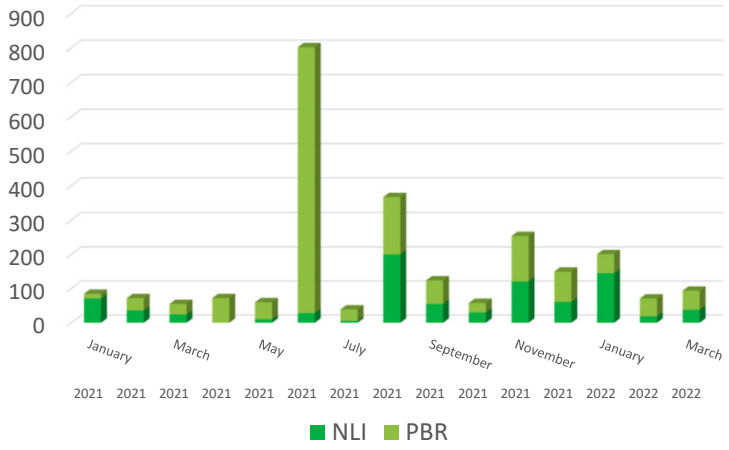
2020 -1134 transfers/applications

Retained European Union PBRs

2020 - 31,000

Data supplied courtesy of UPOV

Overview : 2021/2022 – Monthly breakdown



Data supplied courtesy of UPOV

The Common Framework

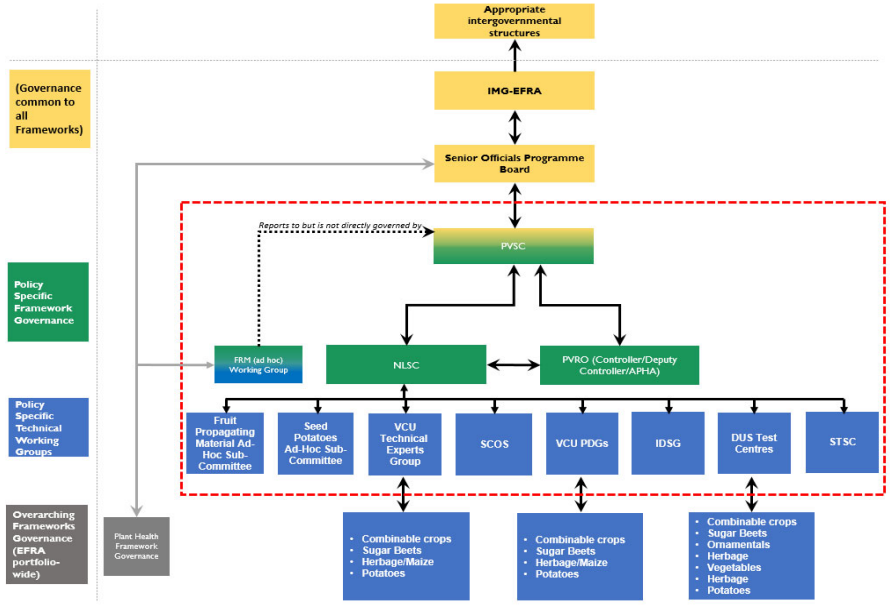
Following the UK's departure from the European Union, Defra, DAERA, Scottish Government and Welsh Government have developed a non-legislative provisional framework for Plant Varieties and Seeds policy area.

This framework formalises existing mechanisms for the authorities to work together, with their delivery bodies, to provide United Kingdom protection for Plant Breeders' Rights, set standards for marketing and certification of seed and other plant propagating material, ensuring these standards are upheld, and the administration and management of plant variety registration.

Responsibility for PVS in the UK

- Defra (England)
- Welsh Government (Wales)
- Scottish Government (Scotland)
- DAERA (Northern Ireland)

PVS Governance in the United Kingdom



Decision-making in the United Kingdom

- The main fora for official level discussion and decision-making are the PVSC and the NLSC.
- The key decisions that could be taken are:
  - policy decisions concerned with legislative amendments,
  - temporary marketing derogations,
  - equivalence recognition requests;
  - international representation;
  - resolution of issues;
  - reviewing and amending the Common Framework;
  - and procurement of services for PBR and variety registration.

Department for Environment Food & Rural Affairs
Llywodraeth Cymru Welsh Government
Scottish Government Riaghaltas na h-Alba gov.scot
Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

	Plant Varieties and Seeds Committee (PVSC)	National Lists and Seeds Committee (Including Plant Propagating Material and Plant Breeders' Rights) (NLSC)
Role	The PVSC coordinates UK policy on variety registration, Plant Breeders' Rights (PBR) and the certification of seeds and other plant propagating material. It has overall responsibility for variety registration and UK PBR. It has responsibility for the NLSC.	The NLSC manages variety registration, including making registration decisions, and advising on technical aspects of National Listing referred to it by the PVSC. The NLSC has responsibility for a number of technical sub-groups to support its delivery.
Representation	Membership covers the entire policy remit for plant varieties and marketing of seed and other plant propagating material across the UK. Officials are in attendance from each administration	Membership covers the entire technical remit for plant varieties and marketing of seed and other plant propagating material across the UK. Officials are in attendance from each administration
Frequency	The PVSC currently meets every four weeks and a minimum four times a year.	The NLSC currently meets every four weeks and a minimum of four times a year.

To conclude..

- The United Kingdom Plant Varieties Rights Office has been reinvigorated to manage the uptick in PVR applications since the United Kingdom's departure from the EU
- The United Kingdom Common framework for Plant Varieties and Seeds formalises existing mechanisms for the authorities to work together, with their delivery bodies, to provide United Kingdom protection for Plant Breeders' Rights
- United Kingdom colleagues are on hand during this week in case you have any questions
- Once again, welcome and enjoy the week and your stay in Cambridge!

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[Annex III follows]

ANNEX III

PRESENTATION BY MR. STUART KNIGHT ON THE ACTIVITIES OF NIAB

LEADING IN CROP INNOVATION

Stuart Knight
Deputy Director

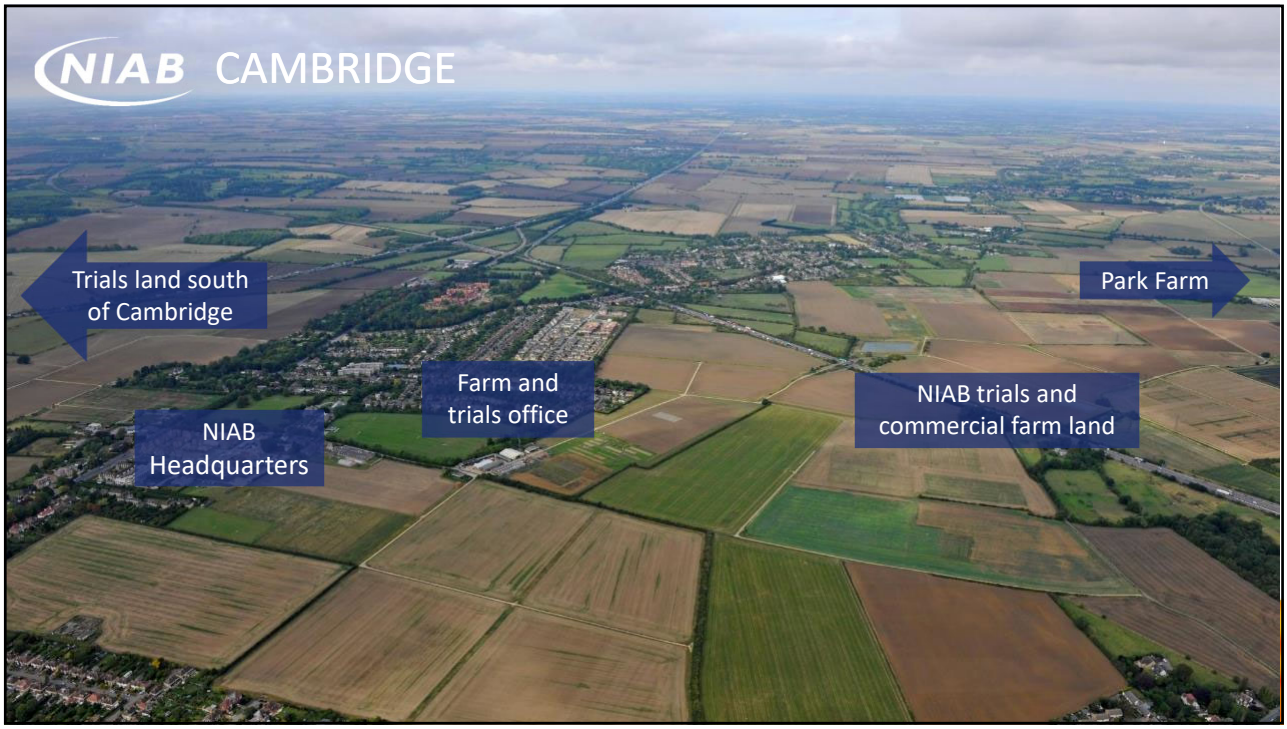
MISSION

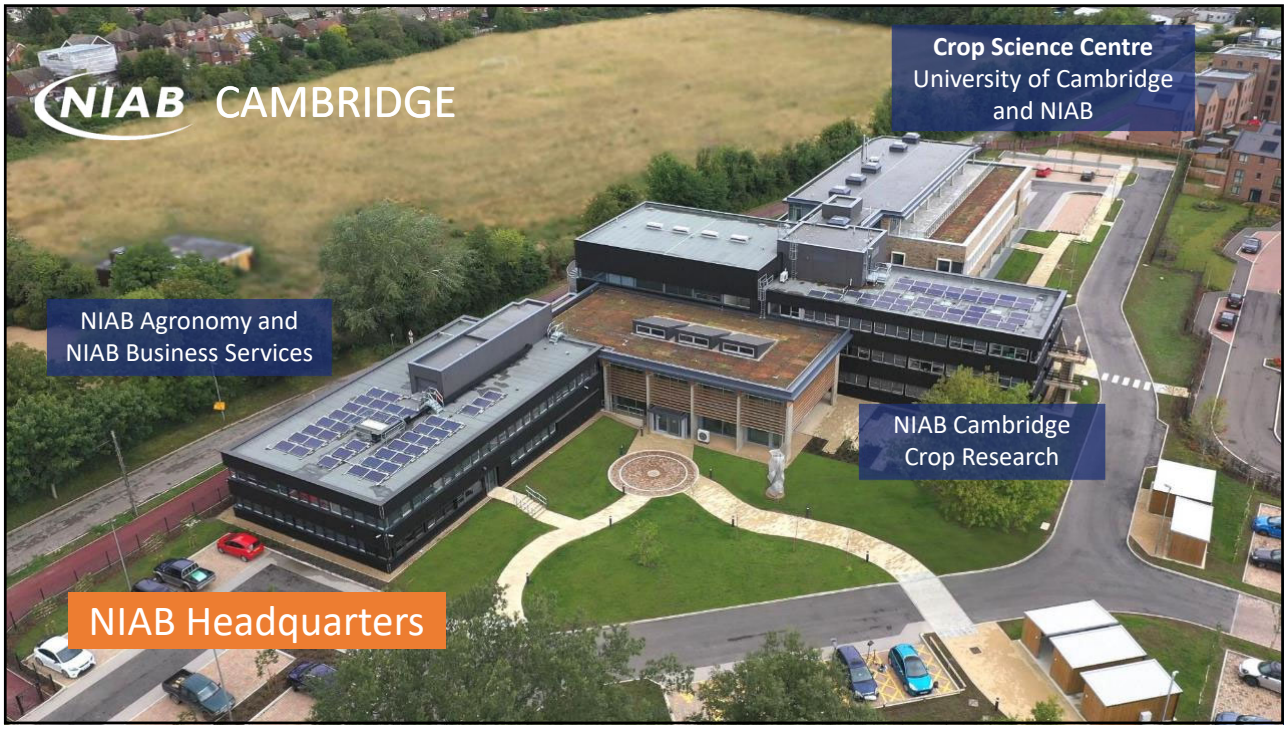
To provide independent, science-based research and information to support, develop and promote agriculture and horticulture; helping the industry to fulfil its potential in supplying food and renewable resources, while respecting the natural environment.

ABOUT NIAB

- Headquarters in Cambridge
- Horticultural R&D centre at East Malling in Kent
- £28M turnover
- 13 United Kingdom regional field trials centres
- 100+ United Kingdom field trial sites, 140,000 plots
- 400 staff (including crop scientists, plant breeders, agronomists, crop specialists, pathologists, data scientists, laboratory analysts and trials teams)

NIAB world-class experience, skills and resources


NIAB CAMBRIDGE
Trials land south of Cambridge
Park Farm
Farm and trials office
NIAB trials and commercial farm land
NIAB Headquarters

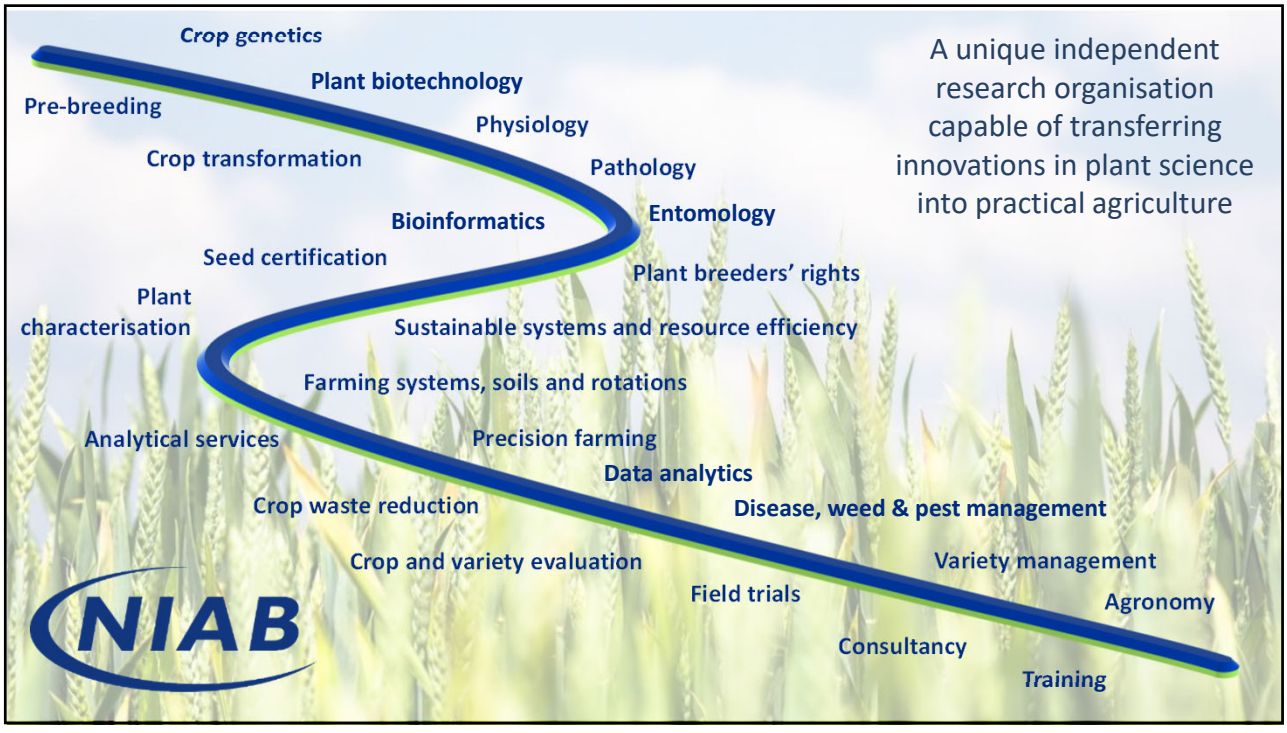

NIAB CAMBRIDGE
Crop Science Centre
University of Cambridge and NIAB
NIAB Agronomy and NIAB Business Services
NIAB Cambridge Crop Research
NIAB Headquarters

OPPORTUNITIES FOR NIAB

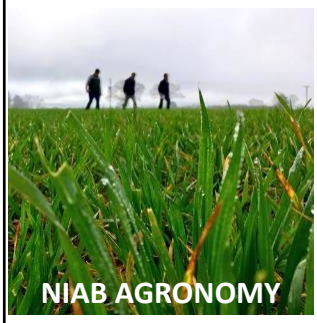
- Global challenges in food and farming – food security, climate change, health and nutrition, sustainable resources, green energy
- Raising productivity sustainably: bringing together breeding, agronomy and informatics
- Advancing knowledge base in genetic, agronomic and data science
- Renewed focus on industry-facing research to deliver impact
- Political recognition of agritech as an economic driver

WHAT MAKES US DIFFERENT

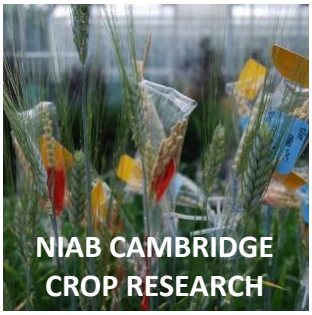
Within NIAB we have the skills to understand the contributions made by the **crop varieties**, **environment** and **management**, individually and interactively, to improve crop production



NIAB BUSINESS

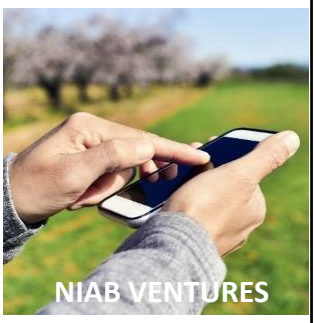


Transferring innovation in plant science into practical agriculture



A global leader in crop transformation, crop genetics and pre-breeding

United Kingdoms's largest horticultural R&D organisation and an international leader in top and soft fruit



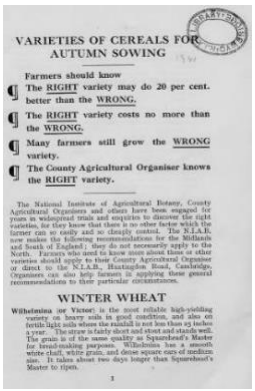
Working with the agritech industry to invest and develop new sources of business and innovation

NIAB InnovationFarm · BCPC · Eastern AgriTech Innovation Hub · ARTIS · CROP SCIENCE CENTRE · NIAB · GROWING KENT & MEDWAY · Malling FRUITS · BARN4

NIAB world-class experience, skills and resources

NIAB RESEARCH… AND KNOWLEDGE EXCHANGE

2022 Member Publication


VARIETIES OF CEREALS FOR AUTUMN SOWING

Farmers should know

- The RIGHT variety may do 20 per cent. better than the WRONG.
- The RIGHT variety costs no more than the WRONG.
- Many farmers still grow the WRONG variety.
- The County Agricultural Organiser knows the RIGHT variety.

WINTER WHEAT

1931 Farmer Leaflet

NIAB world-class experience, skills and resources

30,000 social media followers

150 plots on the NIAB Cereals Event stand

NIAB TAG members achieve **8%** higher wheat yields than the United Kingdom average

2,500 NIAB TAG members in 18 groups across United Kingdom

Run 1,000+ training places annually

400 staff across 13 sites

20 membership publications

3,330 seed certification plots, covering 38 crop species

140,000 crop plots over 100 sites across England & Wales

£28m NIAB 2019/20 turnover

1,300 visitors to 15 NIAB summer field events

30 open field events & conferences

50+ arable, forage, horticultural & ornamental crops in NIAB field trials

300,000 tonnes seed certified annually, with over 1,200 inspections

100+ years of progress in crop and seed improvement

<£1/ha cost of annual NIAB TAG Farm Local Membership

established in **1919**

privatised in **1996**

NIAB world-class experience, skills and resources

[Annex IV follows]

ANNEX IV

DRAFT TEST GUIDELINES TO BE SUBMITTED TO THE TECHNICAL COMMITTEE IN 2022

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

before July 8, 2022

Full draft Test Guidelines

Species	Basic Document(s)	Leading expert
*Cocksfoot (*Dactylis glomerata* L.) (Revision)	TG/31/9(proj.2)	Ms. Anne-Lise Corbel (FR)
*Potato (*Solanum tuberosum* L.) (Revision)	TG/23/7(proj.3)	Ms. Beate Rücker (DE)
*Soya Bean (*Glycine max* (L.) Merrill) (Revision)	TG/80/7(proj.8)	Mr. Mariano Alejandro Mangieri (AR)
*Sunflower (*Helianthus annuus* L.) (Revision)	TG/81/7(proj.4)	Mr. Zoltán Csűrös (HU)

Partial revisions

Species	Basic Document(s)	Leading expert
Rye (*Secale cereale* L.) (Partial revision: - 4.2.4 - Chars. 1 - 6: to be observed in special test)	TG/58/7, TWA/51/5	Ms. Beate Rücker (DE)
Wheat (*Triticum aestivum* L. emend. Fiori et Paol) (Partial revision: Technical Questionnaire)	TG/3/12, TWP/6/10, Annex XI	Ms. Margaret Wallace (GB)

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWA/52
(* indicates possible final draft Test Guidelines)

Guideline date for Subgroup draft to be circulated by Leading Expert: **February 9, 2023**
Guideline date for comments to Leading Expert by Subgroup: **March 9, 2023**

New draft to be submitted to the Office of the Union
before April 7, 2023

The procedure for the introduction and revisions of Test Guidelines is provided in document TGP/7 "Development of Test Guidelines", Section 2

Full draft Test Guidelines

Species	Basic Document	Leading expert	Interested experts (countries/organizations)[2]
Couch Grass, Bermuda Grass (*Cynodon* Rich.)	New	Mr. Andrew Hallinan (AU)	BR, CN, FR, IT, JP, QZ, Euroseeds, ISF, Office
Fodder Beet (*Beta vulgaris* L.) (Revision)	TG/150/3	Ms. Anne-Lise Corbel (FR)	DE, DK, ES, GB, JP, QZ, Euroseeds, Office
Hemp, Cannabis (*Cannabis sativa* L.) (Revision)	TG/276/2(proj.1)	Ms. Lysbeth Hof (NL)	AR, AT, AU, CA, DE, ES, FR, GB, HU, JP, IT, NZ, QZ, ZA, CIOPORA, Euroseeds, ISF, Office
Mung Bean (*Vigna radiata* (L.) R. Wilczek)	New	Mr. Xiongfei Jiao (CN)	TWV, AR, AU, FR, JP, KR, Euroseeds, Office
*Oilseed Rape (*Brassica napus* L. *oleifera*) (Revision)	TG/36/7(proj.3)	Ms. Margaret Wallace (GB)	AR, AU, BR, CA, CN, CZ, DE, DK, ES, FI, FR, IT, JP, KR, NZ, PL, QZ, SK, UY, CLI, Euroseeds, ISF, Office
Safflower (*Carthamus tinctorius* L.) (Revision)	TG/134/3	Ms. Beate Rücker (DE)	CZ, ES, FR, JP, QZ, Euroseeds, Office
*Sugarcane (*Saccharum* L.) (Revision)	TG/186/2(proj.3)	Mr. Ali Bhatti (AU)	AR, BR, CN, JP, KE, TZ, ISF, Office
*Zoysia Grasses (*Zoysia* Willd.)	TG/ZOYSI(proj.3)	Mr. Toru Watanabe (JP)	AU, BR, ES, KR, Euroseeds, ISF, Office

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

Partial revisions

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization)[1]
*Barley (*Hordeum vulgare* L.) (Partial revision: Technical Questionnaire)	TG/19/11	Ms. Margaret Wallace (GB)	AR, AT, AU, CA, CZ, DE, DK, ES, FI, FR, HU, JP, KR, NZ, QZ, SK, UY, CLI, Euroseeds, Office
*Maize (*Zea mays* L.) (Partial revision: Char. 24, Technical Questionnaire)	TG/2/7, TWP/6/10, Annex I	Ms. Bronislava Bátorová (QZ)	TWV, AR, AT, BR, CA, CN, CZ, DE, ES, FR, HU, IT, JP, KE, KR, MX, PT, QZ, SK, TZ, CLI, Euroseeds, ISF, Office

Draft Test Guidelines for possible future discussion

Species	Basic Document(s)
Festulolium (×*Festulolium* Aschers. et Graebn.)	TG/243/1 (CZ)
White Mustard (*Sinapis alba* L.) (Revision)	TG/179/3

[End of Annex IV and of document]