UPOV

International Union for the Protection of New Varieties of Plants

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Technical Working Party for Agricultural Crops **TWA/50/9**

Fiftieth Session
Arusha, United Republic of Tanzania, June 21 to 25, 2021

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REPORT

Adopted by the Technical Working Party for Agricultural Crops

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Opening of the session

1. The Technical Working Party for Agricultural Crops (TWA) held its fiftieth session, hosted by the United Republic of Tanzania and organized via electronic means, from June 21 to 25, 2021. 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.

3. The TWA was welcomed by Mr. Twalib Mustafa Njohole, Registrar of Plant Breeders' Rights, Ministry of Agriculture. A copy of the welcome address is provided in Annex II to this report.

Adoption of the agenda

4. The TWA adopted the agenda as reproduced in document TWA/50/1 Rev.

Short Reports on Developments in Plant Variety Protection

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

5. The TWA noted the information on developments in plant variety protection from members and observers provided in document TWA/50/3 Prov. The TWA noted that reports submitted to the Office of the Union after June 11, 2021, would be included in the final version of document TWA/50/3.

(b) Reports on developments within UPOV

6. 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/50/2.

Development of guidance and information materials

7. The TWA considered documents TWP/5/1 and TWA/50/6.

Program for the development of relevant guidance and information materials

8. The TWA noted the program for the development of relevant guidance and information materials, as set out in document TWP/5/1, Annexes I and II.

(a) Information documents

Exchange and use of software and equipment

9. The TWA considered document TWP/5/5.

Document UPOV/INF/16 "Exchangeable Software"

10. The TWA noted that the Council, at its fifty-fourth ordinary session, had adopted in the procedure by correspondence, on October 25, 2020, document UPOV/INF/16/9 "Exchangeable software".

11. The TWA noted that the Office of the Union had issued on April 8, 2021, Circular E-21/030 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/16/10 Draft 1 "Exchangeable software" to the Office of the Union by May 7, 2021.

12. The TWA noted that the Office of the Union had received a proposal from China to include software "DUS Excel 2.0 - Data Analysis System for DUS Testing of Plant Varieties" in document UPOV/INF/16.

13. The TWA received a presentation on "A Statistical Analysis Software: DUSCEL2.5" by an expert from China. A copy of the presentation is provided in document TWA/50/8.

Document UPOV/INF/22 "Software and equipment used by members of the Union"

14. The TWA noted that the Council, at its fifty-fourth ordinary session, had adopted in the procedure by correspondence, on October 25, 2020, document UPOV/INF/22/7 "Software and equipment used by members of the Union".

15. The TWA noted that the Office of the Union had issued on April 8, 2021, Circular E-21/030 inviting the designated persons of members of the Union in the TC to provide or update information in document UPOV/INF/22/8 Draft 1 "Use of software and equipment" to the Office of the Union by May 7, 2021.

16. The TWA noted that the TC, at its fifty-seventh session, would be invited to consider whether to include any proposed software or equipment in document UPOV/INF/22/8 Draft 1, on the basis of the recommendation of the TWC at its thirty-ninth session, 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

17. The TWA noted that the information in documents UPOV/INF/16 and UPOV/INF/22 had been made available in a searchable format on the UPOV website (see: https://www.upov.int/it_resources/en/exchangeable_software.html and https://www.upov.int/it_resources/en/index.html).

(b) TGP documents

Revision of document TGP/5 "Experience and cooperation in DUS testing", Section 6 "UPOV Report on Technical Examination and UPOV Variety Description"

18. The TWA considered document TWP/5/14.

Testing facility and location

19. The TWA agreed to amend document TGP/5 Section 6, chapters "UPOV Report on Technical Examination" and "UPOV Variety Description", as set out in document TWP/14, to read as follows:

Chapter: UPOV Report on Technical Examination
13. Testing ~~station~~ facility(ie~~s~~) and ~~place~~ location(s)
[…]
16. Date and document number of UPOV Test Guidelines
17. Date and/or document number of Reporting Authority's test guidelines

Chapter: UPOV Variety Description

Item 11 to read “Testing ~~station~~ facility(ies) and ~~place~~ location(s)”

Additional information to be included in DUS test reports

20. The TWA considered the 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. The TWA agreed with the TWV and TWO that the proposed additional information was not useful for individual DUS test reports and presented practical difficulties for reporting authorities. The TWA agreed with the TWO that authorities should communicate with regard to varieties for inclusion in trials before commissioning examination, or request further information for particular cases.

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

(i) Data Processing for the Production of Variety Descriptions for Measured Quantitative Characteristics

21. The TWA considered document TWP/5/10.

22. The TWA noted that the TC had agreed to invite the TC Chairperson in conjunction with the Office of the Union to develop proposals on next steps for developing guidance, to be presented to the TWPs and the TC at their sessions in 2021.

23. The TWA agreed with the inclusion of the guidance on “Different forms that variety descriptions could take and the relevance of scale levels” in document TGP/8 Part I Section 2 “Data to be recorded” as new Section 2.5.

24. The TWA agreed to invite members of the Union to propose the inclusion of software incorporating their methods for converting observations into notes in document UPOV/INF/16 or document UPOV/INF/22, as appropriate, with a reference to the availability of such methods in document TGP/8 Part I, new Section 2.5.

(ii) The Combined-Over-Years Uniformity Criterion (COYU)

25. The TWA considered document TWP/5/11.

26. The TWA considered the proposed revision of document TGP/8, Section 9 “The Combined-Over-Years Uniformity Criterion (COYU);” on the basis of the draft presented in the Annexes to document TWP/5/11.

27. The TWA noted the report from the United Kingdom made at the TWV, at its fifty-third session, that DUS Centers in that country would evaluate the COYU Splines software on a range of crops in 2021 and that the COYU Splines method was likely to be implemented in 2022. The TWA agreed to invite the expert from the United Kingdom at the TWA to make a presentation and report developments at its fifty-first session.

28. The TWA noted that evaluation versions of software for COYU Splines in both “R” and DUSTNT software would be released in 2021. The TWA noted the expression of interest by experts from China, Finland, France and the United Kingdom to review the COYU Splines software. The TWA noted the invitation for members to participate in a test campaign of the COYU Splines software in 2021.

29. The TWA noted the report from an expert from France that the COYU Splines software was under evaluation in that country. The TWA agreed to invite the expert from France to make a presentation and report developments at its fifty-first session.

30. The TWA noted the request that the TWC would prepare a report of the results of the test campaign of the COYU Splines software for consideration by the TC, at its fifty-seventh session, in conjunction with the revision of document TGP/8.

New proposal for the relevant of document TGP/7 “Development of Test Guidelines”

31. The TWA considered the Test Guidelines for Rape Seed and Sunflower and noted that only seed-propagated varieties existed for these crops. The TWA agreed that the following standard wording in the “Uniformity” chapter of Test Guidelines was not appropriate in such cases:

"4.2.2 These Test Guidelines have been developed for the examination of [type or types of propagation] varieties. For varieties with other types of propagation the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species", Section 4.5: "Testing Uniformity" should be followed."

32. The TWA proposed deleting the standard wording in paragraph 4.2.2 from the Test Guidelines for Rape Seed and Sunflower. The TWA proposed converting the standard wording in paragraph 4.2.2 into additional standard wording (ASW) in document TGP/7 "Development of Test Guidelines".

Variety denominations

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

Possible revision of document UPOV/INF/12 "Explanatory Notes on Variety Denominations under the UPOV Convention"

34. The TWA noted the developments concerning a possible revision of document UPOV/INF/12 "Explanatory Notes on Variety Denominations under the UPOV Convention" at the CAJ, at its seventy-sixth session, by correspondence, and at its seventy-seventh session, as set out in document TWP/5/6, paragraphs 9 to 22.

35. The TWA considered the proposal to revise Class 201 in document UPOV/INF/12/5, to include ×*Trititrigia*, as set out in document TWP/5/6, paragraph 23.

36. The TWA noted that UPOV codes had been created for the genus ×*Trititrigia* (TRITT) and certain ×*Trititrigia* species, as provided in document TWP/5/4, Annex IV, Part B "New UPOV codes or new information". The TWA noted that the genus ×*Trititrigia* was the binomial hybrid for *Triticum* × *Elytrigia* in accordance with GRIN. The TWA agreed to propose the revision of the list of classes in document UPOV/INF/12/5 "Explanatory Notes on Variety Denominations under the UPOV Convention", Annex I (Part II: Classes encompassing more than one genus) to include the genus ×*Trititrigia* in variety denomination Class 201, as follows:

LIST OF CLASSES (Part II)

Classes encompassing more than one genus

	Botanical names	UPOV codes
Class 201	*Secale*, *Triticale*, *Triticum,* ×*Trititrigia*	SECAL; TRITL; TRITI; TRITT

Possible development of a UPOV similarity search tool for variety denomination purposes

37. The TWA noted the developments concerning a possible UPOV similarity search tool for variety denomination purposes, as set out in document TWP/5/6, paragraphs 28 to 36.

Cooperation in examination

38. The TWA considered document TWP/5/9 and received a presentation from the Office of the Union on development of the "DUS Exchange Platform" and "DUS Arrangement Tool", a copy of which was provided in document TWP/5/9 Add.

39. The TWA noted that members of the Union have 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

40. 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/5/9, paragraphs 7 to 12.

41. The TWA noted the developments concerning the web-based TG template to enable the drafting of individual authorities' test guidelines (IATG) in different languages, as set out in document TWP/5/9, paragraph 13.

42. 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.

43. The TWA noted that machine translation technology opportunities would be pursued as a matter of priority to reduce translation costs for UPOV documents in UPOV languages and to make UPOV materials available in a wider range of languages, within available resources.

44. The TWA noted that the CAJ, at its seventy-eighth session would consider:

(i) the policy or legal barriers identified by the TC as preventing international cooperation in DUS examination and possible measures to address those barriers; and

(ii) proposals for developing 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.

45. The TWA noted that the impact of the proposed plan 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".

Information and databases

(a) UPOV information databases

46. The TWA considered document TWP/5/4.

GENIE database and UPOV code system

47. The TWA noted that 177 new UPOV codes had been created in 2020 and a total of 9,213 UPOV codes were included in the GENIE database.

Amending the UPOV code system to provide information on variety groups or types

48. The TWA agreed to amending the UPOV code system to provide information on variety types, groups and denomination class, as set out in document UPOV/INF/23/1 Draft 2.

49. The TWA proposed to consider a limit to the number of characters used in the appended element, to avoid unnecessarily long extensions.

Proposals for amending UPOV codes

50. The TWA noted that the proposals for amending UPOV codes for *Beta* and *Zea mays* had been made on the basis that they would be proposed in conjunction with the adoption of document UPOV/INF/23/1.

51. The TWA noted that a timetable for implementing the proposed changes would be presented to the TC for approval at its fifty-seventh session.

UPOV codes for Beta vulgaris

52. The TWA agreed with the proposal to amend the UPOV codes for *Beta vulgaris* subsp*. vulgaris*, as reproduced in document TWP/5/4, Annex I.

53. The TWA agreed to append information on denomination classes to UPOV codes for *Beta vulgaris* subsp*. vulgaris* to establish the following groups:

(i)	Fodder beet group:	Class 2.1 (“21FB”)	UPOV code: BETAA_VUL_VUL_21FB
(ii)	Sugar beet group:	Class 2.1 (“21SB”)	UPOV code: BETAA_VUL_VUL_21SB
(iii)	Beetroot group:	Class 2.2 (“22BR”)	UPOV code: BETAA_VUL_VUL_22BR
(iv)	Leaf beet group:	Class 2.2 (“22LB”)	UPOV code: BETAA_VUL_VUL_22LB

UPOV codes for “ZEAAA_MAY_SAC”, “ZEAAA_MAY_EVE” and “ZEAAA_MAY_MIC”

54. The TWA agreed with the proposal to delete the UPOV Codes ZEAAA_MAY_SAC, ZEAAA_MAY_EVE and ZEAAA_MAY_MIC, that would be covered by the UPOV code ZEAAA_MAY_MAY, as presented in document TWP/5/4, paragraph 71.

55. The TWA agreed that the UPOV code for Durango teosinte should not be changed and should remain as ZEAAA_MAY_MEX.

56. The TWA agreed to append information on variety types or groups to the UPOV code ZEAAA_MAY_MAY to establish the following variety types or groups:

(a) Corn; Maize: “1MA” (UPOV code ZEAAA_MAY_MAY_1MA);
(b) Sweet Corn: “2SW” (UPOV code ZEAAA_MAY_MAY_2SW);
(c) Popcorn: “3PO” (UPOV code ZEAAA_MAY_MAY_3PO).

TWP checking

57. 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/5/4, Annex IV and submit comments to the Office of the Union by December 31, 2021.

PLUTO database

58. The TWA noted the summary of data contributions from members of the Union to the PLUTO database from 2016 to 2020, as presented in document TWP/5/4, Annex V.

(b) Variety description databases

59. The TWA considered document TWP/5/2.

60. The TWA noted the reports made at the TWPs in 2020 on databases containing morphological and/or molecular data.

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

62. The TWA received a presentation on “Integration of molecular data into DUS testing in Durum Wheat” by an expert from Austria. A copy of the presentation is provided in document TWA/50/7. The TWA noted the information provided and agreed to invite the expert from Austria to report further developments at its fifty-first session.

(c) UPOV PRISMA

63. The TWA considered document TWP/5/3 and noted developments on UPOV PRISMA.

64. The TWA noted the information from the United Kingdom that UPOV PRISMA was being used as the only system to submit application data for Plant Breeder’s Rights and National Listing in the United Kingdom.

65. The TWA noted the comment from ISF, CLI and Euroseeds on the usefulness of UPOV PRISMA and the importance of working towards full integration with national/regional PVP systems. It further noted the work of a users’ task force to identify possible improvements to UPOV PRISMA to provide a reliable and robust service.

66. The TWA noted that participating authorities in UPOV PRISMA were invited to check their PVP Office application procedures available in UPOV PRISMA and report any updates required to the Office of the Union by July 30, 2021.

67. The TWA noted the report from ISF on the "ISF Seed Talks Exclusive" web event on "Get to know UPOV PRISMA", held on March 17, 2021, at the World Seed Channel providing testimonials from active UPOV PRISMA users. The interviews are available at: https://youtu.be/jBKL6z1N-j0.

Experiences with new types and species

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

Revision of Test Guidelines

69. The TWA considered document TWP/5/13.

70. The TWA considered the proposals for partial revisions of the Test Guidelines for Maize, Wheat and Hemp to include characteristics from the table of characteristics in the technical questionnaire (TQ) of the Test Guidelines, as set out in document TWP/5/13, paragraph 17 and Annexes I, XI and XII.

71. The TWA noted that proposals on the technical questionnaire of the Test Guidelines for Sunflower were not presented in document TWP/5/13, as the Test Guidelines were already under revision (document TG/81/7(proj.3)).

72. The TWA agreed not to consider the addition of asterisks where the proposed TQ characteristics did not currently have an asterisk in the table of characteristics. The TWA agreed to consider this matter further at the next full revision of the Test Guidelines concerned.

73. The TWA agreed to propose the partial revision of the Test Guidelines for Hemp (document TG/276/1) to include in the TQ the characteristics proposed in document TWP/5/13, paragraph 17 and Annex XII, as reproduced below (characteristics for inclusion indicated with grey highlighting and underline):

Char. No.	(*)	Characteristic Name
8	(*)	Leaf: number of leaflets
10		Central leaflet: width
11	(*)	Time of male flowering
13	(*)	Inflorescence: THC content
14	(*)	Plant: proportion of hermaphrodite plants
15	(*)	Plant: proportion of female plants
16	(*)	Plant: proportion of male plants
17	(*)	Plant: natural height
18	(*)	Main stem: color
24		Seed: color of testa
25		Seed: marbling

74. The TWA noted the expression of interest from the European Union to propose the addition of characteristics from the table of characteristics in the TQ for Maize and Wheat beyond those presented in document TWP/5/13.

75. The TWA agreed that further discussion was required on partial revision of the Test Guidelines for Maize and Wheat and agreed to invite experts that had submitted proposals for Wheat (CZ, DK, GB, IL, JP, MD, QZ, SK, UA) to meet by December 2021, along with any other interested experts (see Annex IV). The TWA agreed to invite the United Kingdom to act as leading expert and present a proposal for partial revision of the Test Guidelines for Wheat at the fifty-first sessions of the TWA.

76. The TWA noted that the TWV had formed a subgroup of experts to discuss the partial revision of the Test Guidelines for Maize (see document TWV/55/16 “Report”, paragraph 110) and agreed to propose that the TWA experts (CZ, DK, GB, IL, JP, MD, QZ, SK, UA and any other interested experts, see Annex IV) join the TWV group. The TWA agreed to invite the European Union to act as leading expert and present a proposal for partial revision of the Test Guidelines for Maize at the fifty-first sessions of the TWA.

77. The TWA agreed that experts discussing the partial revision of the Test Guidelines for Maize and Wheat should consider whether guidance in document TGP/7 “Development of Test Guidelines” concerning the relationship between asterisks in the Test Guidelines and TQ characteristics should be revised. Any proposals should be presented to the TWA at its fifty-first session.

Guidance for drafters of Test Guidelines

78. The TWA considered document TWP/5/8.

79. The TWA noted that the web-based TG template and database of characteristics would be migrated to cloud servers by 2022, 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.

80. The TWA noted that the Office of the Union would issue a circular to identify requirements of UPOV members for the development of individual authorities’ test guidelines using the web-based TG template.

81. The TWA noted that training on the web-based TG template could be organized via electronic means upon experts’ request.

Molecular techniques

(a) Developments in UPOV

82. The TWA considered document TWP/5/7.

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

83. The TWA noted the papers presented at the nineteenth session of the BMT, held in 2020, as set out in document TWP/5/7, paragraph 12. The TWA noted that the BMT would hold its twentieth session jointly with the TWC, during the week of September 20, 2021. The TWA noted the draft agenda for the BMT at its twentieth session, to be held in 2021, as set out in document TWP/5/7, paragraph 14.

Merger of the Working Group on Biochemical and Molecular Techniques and DNA-profiling in Particular (BMT) and the Technical Working Party on Automation and Computer Programs (TWC)

84. The TWA noted that the Council had established the Technical Working Party on Testing Methods and Techniques (TWM) encompassing the work of the TWC and BMT, to take effect from 2022. The TWA noted the terms of reference for the TWM, as reproduced in document TWP/5/7, paragraph 17.

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

85. The TWA noted the information provided by participants at the nineteenth session of the BMT on their work on biochemical and molecular techniques and areas for cooperation, as reproduced in document TWP/5/7, Annex I.

86. On Wednesday, June 23, 2021, 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 for Soybeans, Potato, Oilseed Rape, Hemp, Faba Bean and Wheat. The TWA agreed to invite presentations to be made at its fifty-first session, to be held in 2022, on biochemical and molecular techniques in the different crops discussed.

Review of document UPOV/INF/17 "Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction ('BMT Guidelines')"

87. The TWA agreed with the revision of document UPOV/INF/17/1 on the basis of document UPOV/INF/17/2 Draft 5 and document TWP/5/7, Annex II.

Cooperation between international organizations

Inventory on the use of molecular marker techniques, by crop

88. The TWA noted that, on October 16, 2020, the Office of the Union had issued Circular E-20/189 inviting members to complete the survey on the use of molecular marker techniques, by December 15, 2020. The TWA noted that the results of the survey would be presented to the Technical Committee, at its fifty-seventh session, to be held in 2021.

Lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques

89. The TWA noted that the TC, at its fifty-sixth session, had agreed that another joint OECD, UPOV, ISTA workshop on molecular techniques should be organized in the near future. The TWA noted that the TC had agreed that a joint OECD, UPOV, ISTA workshop on molecular techniques would be an opportunity to discuss the definitions used in molecular techniques with a view to their harmonization.

Joint document explaining the principal features of the systems of OECD, UPOV and ISTA

90. The TWA noted that a draft joint document explaining the principal features of the systems of OECD, UPOV and ISTA would be presented for consideration by the TC at its fifty-seventh session.

(b) Presentation on the use of molecular techniques in DUS examination

91. The TWA received a presentation on "Confidentiality & Ownership of Molecular Information" from the representative of CropLife International on behalf of the African Seed Trade Association (AFSTA), the Asia and Pacific Seed Association (APSA), the International Community of Breeders of Asexually Reproduced Horticultural Plants (CIOPORA), CropLife International, Euroseeds, the International Seed Federation (ISF) and the Seed Association of the Americas (SAA). A copy of the presentation is provided in document TWA/50/4.

92. The TWA considered a proposal to revise document TGP/5, Section 3: Model Application Form, to include a request for confidentiality of molecular information of candidate varieties as follows:

"I/We request that molecular information pertaining to the variety remains confidential and exchange to another UPOV member or examination office is subject to approval by the applicant."

93. The TWA noted the importance of confidentiality of molecular information for breeders and agreed that further discussion would be required on the topic. The TWA noted that confidentiality of molecular information could be subject to legislation in different UPOV members and agreed to invite presentations at its fifty-first session. The TWA noted the expression of interest from Argentina to make a presentation on the topic at the fifty-first session of the TWA.

New technologies in DUS examination

94. The TWA received the following presentations, copies of which are provided in document TWA/50/5:

Annex I "Using new technology in DUS-testing", from an expert from Denmark
Annex II "Image Analysis in United Kingdom Agricultural DUS testing", from an expert from the United Kingdom

95. The TWA noted the work reported agreed to invite the experts from Denmark and the United Kingdom to report developments at its fifty-first session.

Increasing participation in the work of the TC and the TWPs

96. The TWA considered document TWP/5/12.

Participation at the TC and TWP meetings by electronic means

97. The TWA noted the information on participation via electronic means at the TWPs and TC in 2020.

98. The TWA noted the measures to improve virtual meetings held in the future, as set out in document TWP/5/12, paragraphs 14 to 20.

Proposals to encourage participation in TWPs and TC in the future

99. The TWA considered the possible measures for physical and virtual participation at TWP meetings, as set out in document TWP/5/12, paragraph 26 and agreed as follows:

Proposal (according to paragraph 26 in document TWP/5/12)	View of the TWA	Remarks
(a) To organize Test Guidelines subgroup discussions by electronic means prior to the TWPs instead of during the TWPs. The conclusions from the subgroups would be reported to the TWP session in the same way as the current procedure.	Partially supported	- Test Guidelines subgroup discussions should still take place during TWPs - Discussions via electronic means can be organized in addition to discussions at TWPs - Difficulty to find suitable time could prevent equal opportunities to participate - Discussions via electronic means may benefit from participation of experts that may not attend TWPs
(b) To organize virtual preparatory workshops prior to the TWPs. Those preparatory workshops to be recorded and be made available on the UPOV website.	Supported	- Generally considered as effective - Panel discussions were appreciated
(c) To offer the possibility to provide comments and questions on documents in advance of the meeting.	Supported	- Should not preclude discussing same topics at TWPs (as opposed to “consideration of documents by correspondence”) - Deadlines should be agreed in advance - Documents should be published sufficiently in advance to allow comments - Number of members providing comments should be increased
(d) To organize electronic participation during the TWPs, using one of the following options, according to host facilities: (i) The host to provide the platform for virtual participants. (ii) The UPOV Office to provide the platform for virtual participants.	Partially supported	- To consider online participation restricted to listening only (speaking rights restricted to onsite participants) - Meeting to be organized according to onsite participant’s needs - Useful to increase participation in technical work of UPOV and training of staff - Beneficial for promoting participation of experts in selected agenda items (e.g. Test Guidelines, presentations)
(e) To have virtual meeting sessions for part of the day (e.g. 2 sessions of 2 hours per day) with sessions for onsite participants for the following: (i) visits to DUS trials or related facilities; (ii) Pre-organized bilateral discussions/ meetings on cooperation; (iii) Sessions to facilitate discussion on DUS examination.	Partially supported	- To consider alternating one year of physical meeting with one year of virtual meeting - Visits to trials or related facilities are an important part of physical meetings - Further consideration required on activities for onsite participants to justify travel to attend a physical meeting - TWP hosts should participate in deciding whether and how should virtual meetings could be organized

Discussion on draft Test Guidelines

Cocksfoot (Dactylis glomerata L.) (Revision)

100. The subgroup discussed document TG/31/9(proj.1) presented by Ms. Anne-Lise Corbel (France), and agreed the following:

2.3	minimum quantity of plant material to be indicated as 500 grams
3.4.2	to be replaced with "The test may include 8 meters of row plot which should be divided between at least 2 replicates. The sowing density should be such that around 200 plants per meter can be expected."
4.2.2	to read "These Test Guidelines have been developed for the examination of cross-pollinated varieties. …"
Char. 2	to replace "wide" by "broad"
Char. 3	- to delete "absent or" - to underline "without vernalization"
Char. 4	to underline "without vernalization"
Char. 5	to underline "without vernalization"
Char. 6	to underline "without"
Char. 7	- to read "Plant: growth habit after vernalization" - to remove hyphens from states of expression
Char. 8	to read "Leaf: intensity of green color after vernalization"
Char. 10	to underline "at inflorescence emergence"
Char. 11	- to underline "at inflorescence emergence" - to remove hyphens from states of expression
Char. 12	to delete (c) (see comment on 8.1 (c))
Char. 13	- to replace "wide" by "broad" - to delete (c) (see comment on 8.1 (c))
Chars. 15, 16	to delete (d) (see comment on 8.1 (d))
8.1 (a)	to read "Observations should be made…"
8.1 (c)	to be deleted and become explanation Ad. 12; Ad. 13 to read "See Ad. 12"
8.1 (d)	- to be deleted and become explanation Ad. 15; Ad. 16 to read "See Ad. 15" - to invert order of 1 and 2 in the illustration (to follow order of characteristics)
Ad. 1	to read "Ploidy should be assessed…"
Ad. 9	paragraph A: - to delete first sentence - second sentence to read "A single plant is considered to have reached time of inflorescence emergence when…" paragraph B: - first sentence to read "Time of inflorescence emergence is reached when the average plot stage is DC 54."
Ad. 14	to read "Observations should be made on the longest stem…"
TQ 4.2	to be completed

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

101. The subgroup discussed document TG/23/7(proj.2), presented by Ms. Beate Rücker (Germany), and agreed the following:

Table of Chars.	- to indicate all notes for QN characteristics with abbreviated QN scale (all notes from 1 to 9 or 1 to 5) -to check example varieties (replace "Kingston", "Panda", "Rubesse")
Chars. 26 to 29	to read "Corolla: …"
Char. 34	- state 1 to read "light yellow brown" - to check whether to add example varieties "Karo, Velur" for state "reddish brown" - to check whether two states "reddish brown" and "yellowish brown" are needed and check color names
Char. 35	to read "Tuber: texture of skin"
Ad. 32	to improve dimensions of images (same width)

TQ 5.5	to add note 8 to “late to very late”

Rape Seed (Brassica napus L. oleifera) (Revision)

102. The subgroup discussed document TG/36/7(proj.2), presented by Ms. Margaret Wallace (United Kingdom), and agreed the following:

4.2.2	to be deleted
4.2.3	to read “The assessment of uniformity of open pollinated varieties should be ...”
4.2.6	to read “For the assessment of uniformity of inbred varieties and component lines of hybrid varieties …”
Table of Chars.	- to indicate all notes for QN characteristics with abbreviated QN scale (all notes from 1 to 9 or 1 to 5) - to add example varieties (to have separate sets for winter and spring varieties)
8.1 (a)	to be updated according to decision on cotyledon characteristics
8.1 (b)	to be moved to 8.2
Chars. 2 to 8	to check discriminating power of cotyledon chars. and check which ones to maintain or delete (delete 3 and keep 6 or 7?)
Char. 27	to be deleted
Char. 28	- to check whether to be deleted - to check whether to reduce scale (5 notes) - if kept, to add explanation “Observations should be made on the upper two thirds.”
Char. 29	to be deleted
Ad. 20	- to be improved (delete dotted line from main stem) - to replace “shoot” with “branch”
Ad. 26	to check whether to be moved to Chapter 3.4 “Test Design”
TQ 4.2	to be completed

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

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

3.4.2	to read “… on at least 60 plants, which should be divided by at least two replicates.”
Table of Chars.	- to check number of (*) (currently 7 out of 21 chars. have (*)) (LE proposal: to add asterisks to “Pod: color”, “Seed: glossiness” and “Seed: color of testa”) - to add example varieties
Char. 1	- to add example variety “VC 8080IPRO” for state 1 - to check whether to add explanation of method used to observe this characteristic
Chars. 3, 4, 5	to be moved after Char. 9 (see growth stage)
Char. 7	to read “Leaf: shape of lateral leaflet”
Char./Ad. 11	- to add example variety “8473 RSF” for state 11 - to reconsider the equivalence table groups in order to add GM 0000 and possible other groups (GM XI and XII?) - to consider approach used in Maize (this consideration implies reducing the expression levels of the characteristic "Time to maturity" from thirteen to the following nine: “very early”, “very early to early”, “early”, “early to medium”, “medium”, “medium to late”, “late”, “late to very late”, “very late”. This will impact in the new version of the equivalence table with the maturity groups.)
Char. 14	to read “Pod: grey coloration of seed concavity” (to check whether to replace “concavity” by “convexity”)
Char. 15	to check whether seed weight (to be indicated as MG) or seed size
Char. 18	to add the following example varieties: - state 1: “DON MARIO 40R16” and “RA 545” - state 2: “NS 8288” - state 3: “8473 RSF”
Char. 19	to delete (*)
Ad. 3	to be reworded (first part should correspond to TG/80/6; explanation of types should be short and more precise)
Ad. 13	to check whether to add that observations should be made excluding seed concavity (to check whether to replace “concavity” by ”convexity”)

Ad. 14	- to check whether to keep only one illustration and add “Observations should be made on the seed convexity of the pod” - to check whether to use the term “convexity”
Ads. 15 to 22	to delete “Observe on harvested material.”
Ad. 18	to read “A sample of 20 seeds should be illuminated …”
Ad. 19	to check whether to read “The coloration due to peroxidase activity in the seed coat should be observed on 20 seeds. The seed should be placed in water for 2 hours before the seed coat is removed carefully. No piece of cotyledons should remain on the removed seed coat. The seed coat should be placed in a cell box or in tubes (one tube per seed) and 3 to 4 cm3 of 0.5% Guayacol solution should be added. The 0.5% Guayacol solution should be stored in a refrigerator for max. 2 months. After one day at room temperature, it can no longer be used. After 10 minutes, one drop of 0.1% H2O2 solution should be added. The solution changes to dark red/brown color for a positive reaction or remains without color for a negative reaction. In order to check the 0.5% Guaycacol solution, some seeds of a reference variety with a positive reaction should be included. The reaction with H2O2 must be recorded within 60 seconds. Later observations can lead to wrong results. The cell box or the tubes could be softly shaken for a better reaction. The cell box or the tubes should be placed on a white ground for observation. Other standard methods might be used as long as they yield the same results.”
Ads. 21, 22	to improve or delete illustrations
TQ 5	to check whether to display only characteristics used by other UPOV members in the Technical Questionnaire

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

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

2.2	to read “The material is to be supplied in the form of vegetative cuttings which are about 6 to 12 months old.”
2.3	to delete “properly packaged to minimize damage to the buds”
3.4	to read “…a total of at least 24 plants…”
Table of Chars.	- to indicate all notes for QN characteristics with abbreviated QN scale (all notes from 1 to 9 or 1 to 5) - to add example varieties where they are still missing
Char. 1	to read “Plant: growth habit”
Chars. 9, 10	to check whether to add more colors (whitish green, yellow purple, green, green purple, purple)
Char. 12	- to read “Internode: degree of zigzag” - to have notes 1 to 3 with states “absent or weak”, “medium”, “strong”
Char. 14	to be deleted
Char. 15	to be indicated as VG (to check method of observation for all chars. indicated as VS)
Chars. 36, 37	to delete (c) from title and add (c) (explanation covering several chars.)
8.	to add general explanation “Unless otherwise indicated, observations should be made at time of maturity.”
8.1	to add new explanation (e) to read “Observations should be made excluding the bud wings.”
8.1 (a), (b)	(a) and (b) to be added to Characteristics 13, 14, 15, 16, 17, 20, 27, 28, 29 and others to which these explanations apply
8.1 (a)	to read “Observations should be made on the longest internode of a representative culm.” and deleted second sentence
8.1 (b)	to read “Observations should be made on the top visible dewlap (TVD) leaf.”

8.1 (c)	- to simplify illustration (Only dorsal leaf sheath hairs, lateral leaf sheath hairs and ligule hairs should be indicated (no figures); to delete text) - if same illustration is used, to add - to add “Courtesy of (author)”
Ad. 1	- to move line for state 3 to have the same angle between states 1 and 3 and 3 and 5 - to read “Observations should be made…”
Ad. 2	to read “Observations should be made…”
Ad. 4	to read “Measurements should be made…”
Ads. 5, 13 – 17, 20, 27 to 29	To be deleted (see 8.1. (a))
Ads. 7, 18, 21, 34	to place drawings in the usual table with states and notes and improve image quality
Ad. 9	to read “Observations should be made after three days of exposure to the sun on a culm on which the wax has been removed.”
Ad. 10	to read “Observations should be made on a culm protected from the sun, on which the wax has been removed.”
Ad. 12	to be adjusted according to changes to Char. 12: - to delete illustration for current state 3 - illustration for current state 5 to be used for new state 2 “medium”
Ad. 18	to place drawings in the usual table with states and note
Ad. 21	to delete “To be observed excluding the bud wings.” (covered by new 8.1 (e))
Ads. 22, 23	to be deleted (covered by new 8.1 (e))
Ad. 34	Drawings should be placed in the usual table with states and notes.
Ad. 42	to replace by “See Ad. 39.”
TQ 4.2	to be completed
TQ 5.	to add chars. 8 and 20 (grouping characteristics)
TQ 6	to add example (“Node: shape of bud”, “round”, “oval”)

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

105. The subgroup discussed document TG/81/7(proj.3), presented by Mr. Zoltán Csűrös (Hungary), and agreed the following:

4.2.2	to be deleted
4.2.7	to be moved to the Annex as new paragraph after “1. Number of seedlings”
Table of Chars.	- to indicate all notes for QN characteristics with abbreviated QN scale (all notes from 1 to 9 or 1 to 5 - to add 2 new characteristics for anthocyanin coloration of pappi (before Char. 18) and anthocyanin coloration of anther (before Char. 19) with states “absent” (1) and “present” (9)
Char. 6	to check whether to reduce number of states
Char. 7	- state 1 to read “absent or very small” - to correct spelling of “auricles”
Char. 13	to read “Ray floret: type”
Char. 16	state “narrow” to read “moderately narrow” and state “broad” to read “moderately broad”
Char. 21	to have states of expression “narrow acute, broad acute, rounded”
Chars. 25, 26	to check whether to add an explanation on the reason for splitting the chars.
Char. 28	state “overall” to read “throughout”
Char. 30	to delete state 4
8.1 (a), (b)	to read “Observations should be made …”
Ad. 6	to improve illustration for state 1 to clarify difference with state 3 (illustration for state 1 presents the whole leaf)
Ad. 8	to read “Parenchyma”
Ad. 17	to read “…covering the largest area is considered.”
Ad. 19	to read “Observations should be made on the stigma…”
Ad. 21	to add “To be observed excluding differentiated tip.”
Ad. 37	to read “The color with the largest surface area should be observed. In cases where the areas of the colors are too similar to reliably decide which color has the largest area, the darker color is to be observed.”

Zoysia grasses (Zoysia Willd.)

106. The subgroup discussed document TG/ZOYSI(proj.2), presented by Mr. Yoshiyuki Ohno (Japan), and agreed the following:

2.3	to correct spelling of “propagated”
3.1.1	to check whether one or two growing cycles observed on the same planting
3.4.2	to read “…in a total of at least 60 plants…”
4.2.4	to read “…population standard of 95% and an acceptance probability of at least 1%” (to switch the percentage)
Table of Chars.	- to indicate all notes for QN characteristics with abbreviated QN scale (all notes from 1 to 9 or 1 to 5) - to add example varieties - to check whether to add explanation on time of assessment of characteristics
Char. 3	to check whether to read “Plant: width” or whether to add it as additional characteristic
Chars. 10 to 16	to read “Leaf blade: …”
Char. 24	- to check whether to replace “in spring” with “before” vernalization - to check whether to add MS
Char. 25	to check whether to replace “in autumn” with “after vernalization” to check whether to add MS
Char. 26	- to correct spelling of “inflorescence” and “vegetative” - to add “after vernalization”
Char. 31	- to delete “in spring” - to add whether first or second flowering
Char. 32	to delete “in autumn”
Char. 33	- to read “Leaf: …” - to check whether to replace “in autumn” with “after vernalization”
Ad. 1	to move line for state 3 to have same angle between states 1 and 3 and 3 and 5
Ad. 3	to be updated (see comment on Char. 3)
Ad. 8	to read “See Ad. 7”
Ad. 30	to read “Time of greening is reached when…”
Ad. 31	to read “Time of flowering is reached when …(to be completed)”
Ad. 32	to read “Time of senescence of leaves is reached when…”
TQ 1.2	common name to read “Zoysia grasses”
TQ 4.2	to be completed

Recommendations on draft Test Guidelines

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

107. The TWA agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-seventh session, to be held in Geneva on October 25 and 26, 2021, on the basis of the following documents and the comments in this report:

Subject	Basic Document(s) (2021)
Hemp (*Cannabis sativa* L.) (Partial revision: Technical Questionnaire)	TG/276/1, TWP/5/13, Annex XII

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

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

Full draft Test Guidelines

Subject	Basic Document(s) (2021)
*Cocksfoot (*Dactylis glomerata* L.) (Revision)	TG/31/9(proj.1)
Couch Grass, Bermuda Grass (*Cynodon* Rich.)	New

Hemp (*Cannabis sativa* L.) (Revision)	TG/276/1
*Potato (*Solanum tuberosum* L.) (Revision)	TG/23/7(proj.2)
*Rape Seed (*Brassica napus* L. *oleifera*) (Revision)	TG/36/7(proj.2)
*Soya Bean (*Glycine max* (L.) Merrill) (Revision)	TG/80/7(proj.7)
*Sugarcane (*Saccharum* L.) (Revision)	TG/186/2(proj.2)
*Sunflower (*Helianthus annuus* L.) (Revision)	TG/81/7(proj.3)
*Zoysia Grasses (*Zoysia* Willd.)	TG/ZOYSI(proj.2)

Partial revisions

Subject	Basic Document(s) (2021)
Maize (*Zea mays* L.) (Partial revision: Technical Questionnaire)	TG/2/7, TWP/5/13, Annex I
Rye (*Secale cereale* L.) (Partial revision: - 4.2.4 - Chars. 1 - 6: to be observed in special test)	TG/58/7
Wheat (*Triticum aestivum* L. emend. Fiori et Paol) (Partial revision: Technical Questionnaire)	TG/3/12, TWP/5/13, Annex XI

109. 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 2023

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

Subject	Basic Document(s) (2021)
White Mustard (*Sinapis alba* L.) (Revision)	TG/179/3

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

111. 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/55/16 “Report”, Annex III:

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

Date and place of the next session

112. The TWA noted that no invitations for the venue of its fifty-first 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-fifth session, to be held on October 29, 2021.

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

113. 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-fifth session of the Council, the offer could be considered by the Council at its fifty-fifth session.

114. The TWA agreed that its fifty-first session should be held via electronic means, from May 23 to 27, 2022, if no alternative offer was received from a member of the Union.

Future program

115. The TWA agreed that documents for its fifty-fifth session should be submitted to the Office of the Union by March 25, 2022. 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.

116. 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 (presentations from France and 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, France and presentations invited)
9. New technologies in DUS examination (documents to be prepared by Denmark, United Kingdom and documents invited)
10. Big data platform for DUS examination (document to be prepared by China)
11. Examining hybrid varieties (document to be prepared by United Kingdom and documents invited)
12. Cooperation in examination (document to be prepared by the Office of the Union)
13. Increasing participation in the work of the TC and the TWPs
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

Virtual Technical Visit

117. On June 23, 2021, the TWA received a presentation from Ms. Dorah Bivugile, Research Officer, Tanzania Official Seed Certification Institute (TOSCI) on DUS examination in the United Republic of Tanzania. The presentation was followed by a session of questions and answers. A copy of the presentation is provided in Annex III to this report.

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

[Annex I follows]

ANNEX I

LIST OF PARTICIPANTS

I. MEMBERS

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[Annex II follows]

ANNEX II

OPENING SPEECH BY MR. TWALIB NJOHOLE, REGISTRAR OF PLANT BREEDERS' RIGHTS, MINISTRY OF AGRICULTURE, UNITED REPUBLIC OF TANZANIA

Chairperson,

Representative of UPOV Secretariat,

Team of Expertise,

Resource persons,

Distinguished participants,

Members of the Press,

Ladies and Gentlemen,

It is greatly honor for me and the Ministry to have this opportunity to open this very important meeting of the Technical Working Party for Agricultural Crops of the International Union for the Protection of New Varieties of Plants (UPOV).

Let me first and foremost extend my appreciation to all of you for giving this meeting, a priority in your busy schedules; I wish to express my special appreciation to International Union for the Protection of New Varieties of Plants (UPOV) and the Plant Breeders Rights Offices of both parts of the United Republic of Tanzania in collaboration with Tanzania Official Seed Certification Institutes for organizing this important meeting. I am confident that the knowledge and information that you will gain and share by the end of this meeting shall be appropriately applied with a broad understanding of variety protection system as a tool for economic development for UPOV member states.

I know that the aim of this meeting is to develop Test Guidelines for various agriculture crops to be used as a guidance at National level during DUS testing for newly developed varieties of plants.

I also know that the objective of this meeting is to enhance training on plant breeder's rights matters generally and in particular, on National and International Plant Breeders Rights Legal Systems. The meeting will also discuss the role of Plant Breeders Rights in development of agriculture with the aim to create remuneration for plant breeders to ensure their breeding work is continued.

I know the participants are expertise and representative of UPOV member states and organizations dealing with plant breeder's rights. It is my sincere belief that this team has so much to learn from each other for development of plant breeder's rights. I do belief that, Universities, Research Development Institutions, Seed Companies, SMEs, Government Institutions and the like who are virtually present will benefit from this proceedings of the meeting in enhancing awareness of plant breeders rights matters in their respective countries.

A limited number of people are aware of the basic facts on plant breeder's rights, much less on its relationship with their areas of competence and perhaps in all walks of life. In this respect I would like to underscore the importance of the presence of the members of the media as virtual participants in this important meeting.

The Media is the most effective mouthpiece, for, the general public. It would not be possible to accommodate the general public at this virtual meeting on account of the importance of this working party; but with use of the media, a wider range of the population across and beyond the country, could be informed of the various issues relating to Plant Breeders Rights, the subject matter of this five working days of the TWA meeting. I therefore wish to commend the organizers of the meeting for considering the crucial role that the participants can play in sharing information and put forward their own and the national interests in terms of cooperation with the international organizations of competent jurisdictions.

Tanzania being a member of International Union for the Protection of New Varieties of Plants, and having a UPOV compliance legal framework is enabled to grant plant breeders rights to various breeders who could

exercise their rights in the national respective jurisdictions, of which their protection is sought by way of designation.

Chairperson let me assure you that the United Republic of Tanzania is committed to UPOV system of Protection of New Varieties of Plants. I am aware that this working party is organized every year and are held in any UPOV member states. Due to corona pandemic this year was not possible for the delegates to come to our beautiful country. We welcome all of you once again in the near future to visit us.

I will like to invite each of you to visit various attraction of our country such as national park with various wildlife, and you will have the privilege to see the so called the Big five animals and many more others. Tanzania has the tallest mountain in Africa Mount Kilimanjaro also known as the Roof of Africa. The mountain has various waterfall flowing from the mountain creating beautiful sceneries for the climbers. We also have beautiful beaches in beautiful Islands of Zanzibar, Dar es Salaam, Bukoba and Mwanza region. There are various historical sites as well. In general we have all that one could wish for during vacation or family/business tour.

Chairperson, I am optimistic that a way forward shall be drawn at the end of the meeting to give a breakthrough on the appropriate and immediate steps to be taken for better use of the developed test guidelines for each UPOV member states.

At this juncture, Chairperson, Ladies and Gentlemen, allow me then, to wish you all the best in your deliberations and thank you for your attention.

I now have the pleasure to declare this TWA meeting officially open!

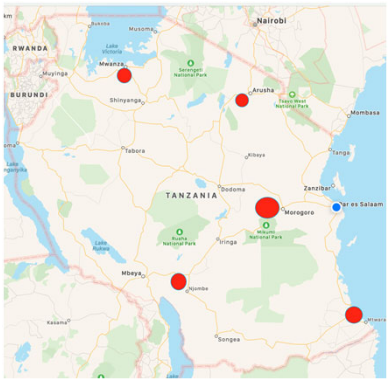
[Annex III follows]

Technical Working Party for Agricultural Crops (Fiftieth Session)
DUS TEST IN TANZANIA

Tanzania Official Seed Certification Institute (TOSCI)
United Republic of Tanzania, June 23, 2021

INTRODUCTION

- Tanzania Official Seed Certification Institute (TOSCI) is a Tanzanian Government Institution under the Ministry of Agriculture (MoA) established under the Seeds Act No. 18 of 2003 amended in 2014, 2020 and its Regulations of 2007 amended in 2017, 2020.
- The major responsibility of the Institute is to certify and promote use of agricultural seeds. It is also entrusted with safeguarding farming community from procuring poor quality Seeds (fake seeds) from vendors of farm inputs.
- TOSCI's headquarter is in Morogoro and it has four Zonal centres distributed throughout the country i.e. Arusha, Mwanza, Njombe and Mtwara.



Distinctness Uniformity and Stability

- DUS Test is performed by TOSCI for purpose of:
  - Variety protection (PBR)
  - Commercialization (National variety list)
- TOSCI performs DUS testing for all crop species which are intended to be grown in Tanzania
- All DUS test procedures are in accordance with UPOV guidelines

Options for DUS Applications in Tanzania

Two options:

A. Conducting DUS Test in Tanzania

B. Take over DUS Test Report from other UPOV Member country

A. Conducting DUS Test in Tanzania

Requirements for DUS Test Application

a) DUS application form (www.tosci.go.tz)
b) Sufficient seed sample for DUS test
c) Variety description & TQ
d) Variety name

(b, c, d: As per UPOV TG)

e) DUS testing fees: TSH 1,200,000 ≈ 560 US dollars

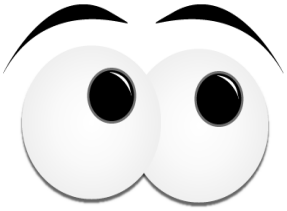
Application Process

- **Where to send the application and materials**
  - Application sent to TOSCI HQ – Morogoro
    - Hand, Poster, Email
    - info@tosci.go.tz, to the Director General P. O. Box 1056, Morogoro, Tanzania.
  - Planting materials: **Morogoro HQ**, Branches, Direct to field/On-site
- **Deadlines for application**

  No deadline: Applications are made all year round but DUS TEST is performed in the appropriate season.

Handling of DUS Application

- **Administrative matters:**
  - Checking on the documents
  - Availability of:
    - Resources
    - Expertise
    - Checks
  - Payments



Organizing DUS test

- Mostly DUS is done at TOSCI experimental field (on station)
- DUS may also be done at applicant's location if
  - Need special condition
  - New crop: Sharing of expertise
  - Perennial crop

Material to be included in the trial

- Candidate varieties
- Reference varieties
  - Example varieties
  - Varieties for comparison (similar varieties)

OBJECTIVE OF DUS TESTS

DUS testing is a way of determining whether:

- A newly bred variety differs from existing varieties within the same species (D)
- Whether the characteristics used to establish Distinctness are expressed uniformly (U)
- These characteristics do not change over subsequent generations (S)

DESIGN OF THE TEST

- Two independent growing cycles
- Layout: Candidate variety and reference varieties are put closer for easy comparison
- Spacing: Allow each plant to be assessed freely, allowing removal of plants or parts of plants
- Consider number of plants required in a test /parts of plants to be examined
- Replications: If resources allows
- There is no randomization

DUS Test Layout

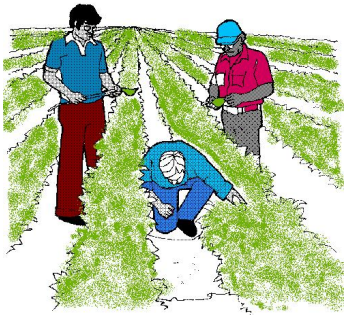
Two replications (No. of rows and plants per plot depends on Crop species)

Example: 9 varieties DUS test Layout

V1	V3	V4
V2	V2	V5
V3	V1	V6
V4	V9	V7
V5	V8	V8
V6	V7	V9

DATA COLLECTION

- Characters, recording details and instructions
  - Done following UPOV Guidelines and National DUS test guidelines which were domesticated from UPOV guidelines by adding example variety found in Tanzania.
- Any variant, diseased and abnormal plants or plants resulting from an adverse reaction to husbandry practice are recorded but excluded from the sample



PARTICIPATION OF APPLICANT

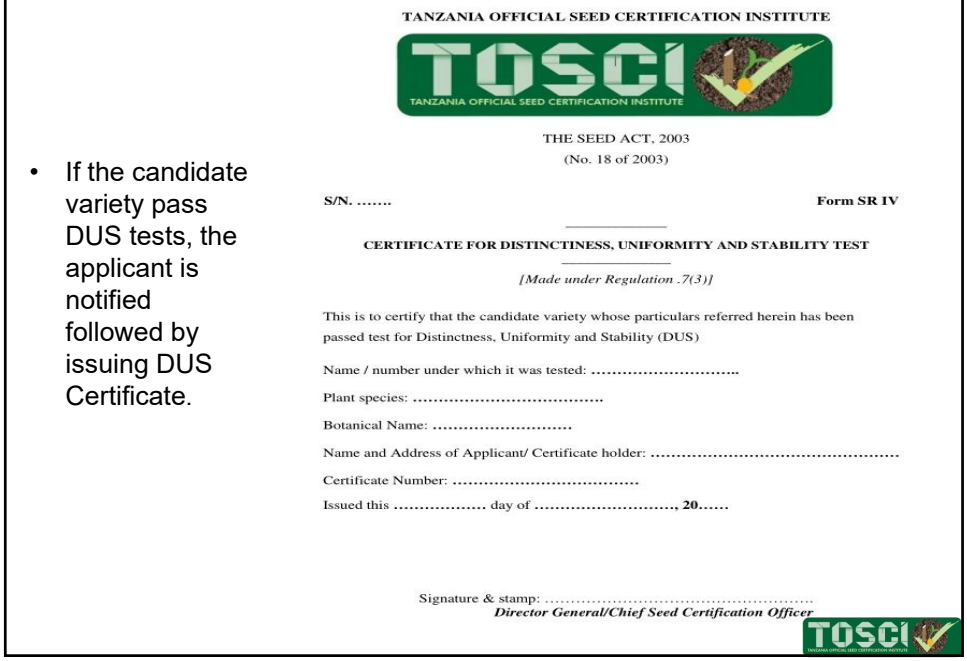
- Applicant is invited from the beginning of the trial for observation the performance the candidate variety.

DUS TEST REPORT

- Two types
  - Interim: At the end of first growing cycle
  - Final: At the end of second growing cycle
- Combined DUS test report according to UPOV submits for granting PBR

• Issuing DUS Certificate

- If the candidate variety pass DUS tests, the applicant is notified followed by issuing DUS Certificate.



TANZANIA OFFICIAL SEED CERTIFICATION INSTITUTE

THE SEED ACT, 2003
(No. 18 of 2003)

S/N. ..... Form SR IV

CERTIFICATE FOR DISTINCTINESS, UNIFORMITY AND STABILITY TEST

[Made under Regulation .7(3)]

This is to certify that the candidate variety whose particulars referred herein has been passed test for Distinctness, Uniformity and Stability (DUS)

Name / number under which it was tested: .....

Plant species: .....

Botanical Name: .....

Name and Address of Applicant/ Certificate holder: .....

Certificate Number: .....

Issued this ..... day of ....., 20.....

Signature & stamp: .....
Director General/Chief Seed Certification Officer

B. TAKE OVER DUS TEST REPORT

- The applicant inform TOSCI of the country and address of the authority where the variety was DUS tested
- TOSCI request the report and descriptor from the stated authority
- The authority send the report and descriptor direct to TOSCI
- TOSCI informs the applicant and submits it to PBR office for decision making on PBR granting

NUMBER OF REGISTERED AND PROTECTED VARIETIES

- **338** vegetable varieties
  - Local **258**
  - Take over report **40**
- **586** varieties of other crops
  - Local **551**
  - Regional agreement (SADC) **35**
- **115** granted protection
  - Local **112**
  - Take over report **3**

Mt. Kilimanjaro

The haven of Red Colobus Monkeys

THANK YOU

&WELCOME TO TANZANIA!

Spices Island

White sand beaches

TOSCI

Annex IV follows

ANNEX IV

DRAFT TEST GUIDELINES TO BE SUBMITTED TO THE TECHNICAL COMMITTEE IN 2021

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

before August 6, 2021

Species	Basic Document(s)	Leading expert
Hemp (*Cannabis sativa* L.) (Partial revision: Technical Questionnaire)	TG/276/1, TWP/5/13, Annex XII	

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWA/51
(* indicates possible final draft Test Guidelines)

Guideline date for Subgroup draft to be circulated by Leading Expert: **February 11, 2022**
Guideline date for comments to Leading Expert by Subgroup: **March 11, 2022**

New draft to be submitted to the Office of the Union
before April 9, 2022

Full draft Test Guidelines

Species	Basic Document	Leading expert	Interested experts (countries/organizations)[2]
*Cocksfoot (*Dactylis glomerata* L.) (Revision)	TG/31/9(proj.1)	Ms. Anne-Lise Corbel (FR)	AR, DE, GB, IT, JP, NZ, PL, QZ, SK, Euroseeds, Office
Couch Grass, Bermuda Grass (*Cynodon* Rich.)	New	Mr. Andrew Hallinan (AU)	BR, CN, FR, IT, JP, Euroseeds, ISF, Office
Hemp (*Cannabis sativa* L.) (Revision)	TG/276/1	Ms. Lysbeth Hof (NL)	AR, AT, AU, CA, ES, FR, HU, IT, NZ, QZ, Euroseeds, ISF, Office
*Potato (*Solanum tuberosum* L.) (Revision)	TG/23/7(proj.2)	Ms. Beate Rücker (DE)	AU, AT, BR, CA, CN, CZ, DK, ES, FR, GB, IR, IT, JP, KE, KR, NL, NZ, PL, QZ, SK, TZ, AFSTA, CLI, Euroseeds, ISF, Office
*Rape Seed (*Brassica napus* L. *oleifera*) (Revision)	TG/36/7(proj.2)	Ms. Margaret Wallace (GB)	AU, BR, CA, CN, CZ, DE, DK, ES, FI, FR, IT, JP, KR, NZ, PL, QZ, SK, UY, CLI, Euroseeds, ISF, Office
*Soya Bean (*Glycine max* (L.) Merrill) (Revision)	TG/80/7(proj.7)	Mr. Mariano Alejandro Mangieri (AR)	AR, AT, AU, BR, CA, CN, CO, ES, FR, HU, IT, JP, KR, NL, PL, PY, QZ, SK, TZ, US, UY, VN, ZA, AFSTA, CLI, Euroseeds, ISF, SAA, Office
*Sugarcane (*Saccharum* L.) (Revision)	TG/186/2(proj.2)	Mr. Ali Bhatti (AU)	BR, CN, JP, KE, ISF, Office
*Sunflower (*Helianthus annuus* L.) (Revision)	TG/81/7(proj.3)	Mr. Zoltán Csűrös (HU)	AU, AR, BG, BR, CA, CN, DE, ES, FR, IT, JP, KE, QZ, RO, SK, TZ, UY, ZA, AFSTA, ISF, Euroseeds, CLI, Office
*Zoysia Grasses (*Zoysia* Willd.)	TG/ZOYSI(proj.2)	Mr. Yoshiuki Ohno (JP)	AU, BR, ES, KR, ISF, Office

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

Partial revisions

Species	Basic Document	Leading Expert(s)	Interested Experts (State / Organization)[1]
Maize (*Zea mays* L.) (Partial revision: Technical Questionnaire)	TG/2/7, TWP/5/13, Annex I	Ms. Bronislava Bátorová (QZ)	AR, AT, BR, CA, CN, CZ, DE, ES, FR, HU, IT, JP, KE, KR, MX, PT, QZ, SK, TZ, CLI, Euroseeds, ISF, Office
Rye (*Secale cereale* L.) (Partial revision: - 4.2.4 - Chars. 1 - 6: to be observed in special test)	TG/58/7	Ms. Beate Rücker (DE)	AR, AT, BR, CA, DK, FI, FR, IT, JP, KR, QZ, CLI, Euroseeds, ISF, Office
Wheat (*Triticum aestivum* L. emend. Fiori et Paol) (Partial revision: Technical Questionnaire)	TG/3/12, TWP/5/13, Annex XI	Ms. Margaret Wallace (GB)	AR, AT, AU, BR, CA, CN, CZ, DE, DK, ES, FI, FR, HU, IT, JP, KE, KR, PT, SK, CLI, Euroseeds, ISF, Office

Draft Test Guidelines for possible future discussion

Species	Basic Document(s)
White Mustard (*Sinapis alba* L.) (Revision)	TG/179/3

[End of Annex IV and of document]