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 Geneva, October 25, 2023

MOLECULAR TECHNIQUES

Document prepared by the Office of the Union

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EXECUTIVE SUMMARY

1. The purpose of this document is to report to the TC and the CAJ developments concerning molecular techniques and to invite the TC to consider proposals concerning confidentiality of molecular information and to note that a discussion session on molecular techniques in DUS examination will be organized at the fifty-ninth session of the TC.

2. The TC is invited to:

(a) note the policies reported and discussions on confidentiality of molecular information at the TWP sessions in 2023;

(b) consider whether to continue the invitation for members and observers to report existing policies on confidentiality of molecular information at the TWPs, at their sessions in 2024;

(c) note that a discussion session on molecular techniques in DUS examination will be organized at its fifty-ninth session; and

(d) note the matters for information provided in this document.

3. The following abbreviations are used in this document:

- BMT: Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular
- CAJ: Administrative and Legal Committee
- ISTA: International Seed Testing Association
- OECD: Organization for Economic Co-operation and Development
- TC: Technical Committee
- TWA: Technical Working Party for Agricultural Crops
- TWF: Technical Working Party on Fruit Crops
- TWM: Technical Working Party on Testing Methods and Techniques
- TWO: Technical Working Party on Ornamental Plants and Forest Trees
- TWPs: Technical Working Parties
- TWV: Technical Working Party for Vegetables

4. The structure of this document is as follows:

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CONFIDENTIALITY & OWNERSHIP OF MOLECULAR INFORMATION

Background

5. The TC, at its fifty-eighth session¹, noted discussions held at the TWPs, at their sessions in 2022, on “Confidentiality & Ownership of Molecular Information” (see document TC/58/31 “Report”, paragraphs 48 to 50).

6. The TC noted the concerns expressed by breeders’ organizations at the TWM that molecular information provided for the examination of a variety should not be provided to others outside the authority that received the application without the permission of the breeder.

7. The TC agreed to invite members and observers to report existing policies on confidentiality of molecular information at the TWPs, at their sessions in 2023.

8. Further background to this matter is provided in document TC/58/7 “Molecular Techniques”.

Developments at the Technical Working Parties at their Sessions in 2023

9. At their sessions in 2023, the TWV², TWA³, TWO⁴ and TWF⁵ considered document TWP/7/3 “Molecular Techniques”⁶.

Existing policies on confidentiality of molecular information

10. The TWV, TWA, TWO and TWF noted that experts from members and observers at the TWPs had been invited to report existing policies on confidentiality of molecular information⁷.

11. The TWV noted that the Community Plant Variety Office of the European Union (CPVO) created a Working Group to revise the CPVO policy on the status of plant material used for DUS testing purposes. The TWV noted that South Africa and Türkiye had policies on confidentiality of molecular information and only shared information with the consent of the breeders.

12. The TWA noted the report from the European Union that a working group had been established to discuss matters related to confidentiality of molecular information.

13. The TWF noted the report from France that a policy on confidentiality and ownership of molecular information was being discussed in the framework of a regional project (INVITE project).

¹ TC, fifty-eighth session, held in Geneva, on October 24 and 25, 2022

² TWV, fifty-seventh session, held in Antalya, Türkiye, from May 1 to 5, 2023.

³ TWA, fifty-second session, held via electronic means, from May 22 to 26, 2023.

⁴ TWO, fifty-fifth session, held via electronic means, from June 12 to 16, 2023.

⁵ TWF, fifty-fourth session, held at Nîmes, France, from July 3 to 7, 2023

⁶ see documents TWV/57/26 “Report”, paragraph 31; TWA/52/11 “Report”, paragraph 34; TWO/55/11 “Report”, paragraph 38; and TWF/54/13 “Report”, paragraph 33

⁷ see documents TWV/57/26 “Report”, paragraph 32 and 35; TWA/52/11 “Report”, paragraphs 36 and 37; TWO/55/11 “Report”, paragraph 39; and TWF/54/13 “Report”, paragraphs 34 and 37

Presentation on “Confidentiality of Molecular Information”

14. The TWV, TWA, TWO and TWF received a presentation on “Confidentiality of Molecular Information” by an expert from 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 presented in documents TWV/57/25, TWA/52/8, TWO/55/4 and TWF/54/4⁸.

15. The TWV noted the proposals from the breeders’ organizations on the situations when they would wish authorization from the breeder to be, or not to be, required prior to disclosing molecular information with any third parties. TWV participants requested clarification on the particular situations described in the proposals, including how to obtain authorization for the constitution of shared databases containing molecular information.

16. The TWO considered the proposed situations when authorization from the breeder would and would not be required in relation to molecular information. The TWO agreed to invite the breeders’ organizations to consider simplifying the proposals and to clarify the situations where it would be harmful to the breeder to disclose molecular information of a protected variety.

17. The TWF requested clarifications on the situations described in the presentation and noted the particular concern from breeders’ organizations in relation to the disclosure of molecular information of parent lines of hybrid varieties. The TWF noted the encouragement from breeders’ organizations for members to provide information on their policies on confidentiality of molecular information.

18. *The TC is invited to:*

(a) *note the policies reported and discussions on confidentiality of molecular information at the TWP sessions in 2023; and*

(b) *consider whether to continue the invitation for members and observers to report existing policies on confidentiality of molecular information at the TWPs, at their sessions in 2024.*

DISCUSSION ON MOLECULAR TECHNIQUES IN DUS EXAMINATION

19. The TC, at its fifty-eighth session⁹ agreed to invite presentations at its fifty-ninth session for a discussion session on molecular techniques in DUS examination¹⁰.

20. On August 22, 2023, the Office of the Union issued Circular E-23/130 inviting members of the Union to make a presentation on their use of molecular techniques in DUS examination during the fifty-ninth session of the Technical Committee (TC) on October 24, 2023. The objective is to provide the TC with information on the policies, current practices and future plans concerning the use of molecular markers in DUS examination.

21. *The TC is invited to note that a discussion session on molecular techniques in DUS examination will be organized at its fifty-ninth session.*

MATTERS FOR INFORMATION

Second session of the Technical Working Party on Testing Methods and Techniques (TWM)

22. The second session of the Technical Working Party on Testing Methods and Techniques (TWM) will be held as a virtual meeting from April 8 to 12, 2024. Documents for its second session should be submitted to the Office of the Union by February 23, 2024.

⁸ see documents TWV/57/26 “Report”, paragraphs 33 and 34; TWA/52/11 “Report”, paragraph 35; TWO/55/11 “Report”, paragraphs 40 and 41; and TWF/54/13 “Report”, paragraphs 35 and 36

⁹ TC, fifty-eighth session, held in Geneva on October 25 and 26, 2022

¹⁰ see document TC/58/31 “Report”, paragraph 107

23. The TWM will discuss the following items at the second session:
1. Opening of the Session
 2. Adoption of the agenda
 3. 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 (report by the Office of the Union)
 4. Guidance and cooperation
 - (a) Development of guidance and information materials (document to be prepared by the Office of the Union)
 - (b) Increasing participation in the work of the TC and the TWPs (document to be prepared by the Office of the Union)
 - (c) Cooperation in examination (document to be prepared by the Office of the Union)
 - (d) Information and databases
 - UPOV PRISMA (document to be prepared by the Office of the Union)
 - UPOV information databases (document to be prepared by the Office of the Union)
 - Variety description databases including databases containing molecular data (document to be prepared by the Office of the Union and papers invited)
 - Variety denominations (document to be prepared by the Office of the Union)
 5. Software and statistical analysis methods for DUS examination
 - (a) Statistical tools and methods for DUS examination (papers invited)
 - The Combined-Over-Years Uniformity Criterion (COYU) (document to be prepared by the Office of the Union)
 - Development of software for the improved COYU method (splines) (document to be prepared by the United Kingdom)
 - Extrapolation in relation to COYU (document to be prepared by the United Kingdom and papers invited)
 - Comparison of results obtained for COYD and COYU procedures using different software (document to be prepared by France)
 - Development of Big Data platform for DUS examination (document to be prepared by China)
 - (b) Exchange and use of software and equipment (document to be prepared by the Office of the Union and papers invited)
 - Development of Statistical Analysis Software: DUSCEL (document to be prepared by China)
 6. Phenotyping and image analysis (papers invited)
 - Assessment of color characteristics using image analysis (papers invited)
 7. Developments in molecular techniques and bioinformatics
 - (a) Latest developments in molecular techniques and bioinformatics (papers invited)
 - (b) Cooperation between international organizations (document to be prepared by the Office of the Union and papers invited)
 - (c) Report of work on molecular techniques in relation to DUS examination (papers invited)
 - (d) Methods for analysis of molecular data, management of databases and exchange of data and material (papers invited)
 - (e) Confidentiality, ownership and access to molecular data, including model agreement template¹ (papers invited)
 - Examples of policies on confidentiality and access to molecular information data (papers invited)
 - (f) The use of molecular techniques in examining essential derivation¹¹ (papers invited)
 - (g) The use of molecular techniques in variety identification¹ (papers invited)
 - (h) The use of molecular techniques for enforcement¹ (papers invited)

¹¹ "Breeders day" April 11, 2024

8. Date and place of the next session
9. Future program
10. Adoption of the Report on the session (if time permits)
11. Closing of the session

Presentations on the use of molecular techniques in DUS examination

24. The TWA¹² received a presentation on the “Argentine experience in rice genotyping” by an expert from Argentina. A copy of the presentation is provided in Annex I to document TWA/52/6¹³.

25. The TWA received a presentation on the “Use of molecular techniques in DUS examination: Field trials details of the Argentine Soybean experience” by an expert from Argentina. A copy of the presentation is provided in Annex II to document TWA/52/6.

26. The TWF¹⁴ received a presentation on the use of molecular markers in support of DUS examination in France, a copy of which would be provided in document TWF/54/3¹⁵.

Cooperation between international organizations

27. The background to this matter is provided in document TC/58/7 “Molecular Techniques”.

28. The TC, at its fifty-fourth session¹⁶, agreed that UPOV and OECD should make progress on the matters previously agreed by the TC, namely (see document TC/54/31 “Report”, paragraph 268):

(a) to develop a joint document explaining the principal features of the systems of the OECD, UPOV and ISTA;

(b) to develop an inventory on the use of molecular marker techniques, by crop, with a view to developing a joint OECD/UPOV/ISTA document containing that information, in a similar format to UPOV document UPOV/INF/16 “Exchangeable Software”, subject to the approval of the Council and in coordination with OECD and ISTA; and

(c) the BMT to develop lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques for consideration by the TC.

Inventory on the use of molecular marker techniques, by crop

29. The background to this matter is provided in document TC/58/7 “Molecular Techniques”.

30. The TC, at its fifty-eight session¹⁷, noted the results of the surveys on the use of molecular marker techniques by members, per crop, as set out in the Annex to document TC/58/7¹⁸. The results of the survey are available as an Excel file on the TC/58 page of the UPOV website (available at: https://www.upov.int/meetings/en/doc_details.jsp?meeting_id=67786&doc_id=586962).

31. On December 13, 2021, the Office of the Union informed the results of the survey to OECD.

¹² TWA, fifty-second session, held via electronic means, from May 22 to 26, 2023.

¹³ See document TWA/52/11 “Report”, paragraphs 38 and 39

¹⁴ TWF, fifty-fourth session, held at Nimes, France, from July 3 to 7, 2023

¹⁵ See document TWF/54/13 “Report”, paragraph 32

¹⁶ TC, fifty-fourth session, held in Geneva, on October 29 and 30, 2018

¹⁷ TC, fifty-eight session, held in Geneva on October 25 and 26, 2022

¹⁸ See document TC/58/31 “Report”, paragraph 42

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

32. The TC, at its fifty-seventh session, noted that it had approved by correspondence the draft joint document explaining the principal features of the systems of OECD, UPOV and ISTA. The TC requested the Office of the Union to inform OECD and ISTA accordingly (see document TC/57/25 "Report", paragraph 52).

33. On December 13, 2021, the Office of the Union transmitted the draft joint document to OECD and ISTA.

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

34. The TC, at its fifty-seventh session, agreed to propose the following topics for a future joint UPOV/OECD/ISTA workshop:

- (i) providing information on the use of molecular techniques in each organization;
- (ii) procedure for approval of biochemical and molecular methods in each organization; and
- (iii) possibilities for harmonizing terms, definitions and methods between UPOV, OECD and ISTA.

35. The TC agreed to request the Office of the Union to contact OECD and ISTA to explore suitable dates for a future joint workshop, such as in conjunction with the first session on the TWM, to be held in September 2022.

36. On December 13, 2021, the Office of the Union communicated an invitation to OECD and ISTA to hold another joint workshop on molecular techniques, in conjunction with the first session of the TWM, to be held on September 21, 2022, via electronic means, to include consideration of the topics (i) to (iii) above.

37. On May 15, 2022, the Office of the Union met with OECD and ISTA at the fringes of the International Seed Federation World Seed Congress and discussed cooperation between OECD, ISTA and UPOV in relation to BMT. UPOV had raised the idea of a joint OECD/ISTA/UPOV workshop in conjunction with the TWM, which would be held in September 2022. It was agreed that there were no significant developments to discuss at this time and that it might be better to plan a joint workshop in 2023 at the earliest.

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

38. The TC, at its fifty-fourth session¹⁹, agreed that discussion groups should be formed for the main crops at each TWP to allow participants to exchange information on their work and explore areas for cooperation (see document TC/54/31 "Report", paragraph 281).

39. The TC, at its fifty-eight session²⁰, noted the reports from the TWPs on the organization of discussion groups at their sessions in 2022. The TC agreed that the chairpersons should have flexibility to consider whether to organize discussion groups during TWP sessions to allow participants to exchange information on their work and explore areas for cooperation on the use of biochemical and molecular techniques in DUS examination²¹.

40. At their sessions in 2023, the TWPs did not organize discussion groups to exchange information and explore areas for cooperation on the use of biochemical and molecular techniques in DUS examination.

41. The TC is invited to note the matters for information provided in this document.

[End of document]

¹⁹ TC, fifty-fourth session, held in Geneva, on October 29 and 30, 2018

²⁰ TC, fifty-eight session, held in Geneva on October 25 and 26, 2022

²¹ See document TC/58/31 "Report", paragraph 47