

**Working Group on Biochemical and Molecular Techniques  
and DNA-Profiling in Particular****BMT/20/12****Twentieth Session  
Alexandria, United States of America, September 22 to 24, 2021****Original:** English  
**Date:** September 24, 2021

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**REPORT**

*adopted by the Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular*

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Opening of the session

1. The Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular (BMT) held its twentieth session, hosted by the United States of America and organized by electronic means, from September 22 to 24, 2021. The list of participants is reproduced in Annex I to this report.
2. The session was opened by Ms. Beate Rücker (Germany), Chairperson of the BMT, who welcomed the participants and thanked the United States of America for hosting the BMT session.
3. The BMT was welcomed by Mr. Jeffery Haynes, Commissioner, Plant Variety Protection Office, AMS, Science & Technology Program, United States Department of Agriculture (USDA) and received a video presentation on Plant Variety Protection in the United States of America.

Adoption of the agenda

4. The BMT adopted the agenda as reproduced in document BMT/20/1 Rev.

Reports on developments in UPOV concerning biochemical and molecular techniques

5. The BMT received a presentation from the Office of the Union on developments in UPOV concerning biochemical and molecular techniques, a copy of which is provided in document TWC/39/2-BMT/20/2.

Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations

6. The BMT noted the intervention from France that a training course on the use of molecular techniques in support of DUS examination would be organized by GEVES in March 2022.

Report of work on molecular techniques in relation to DUS examination*Update on IMODDUS activities*

7. The BMT received a presentation on "Update on IMODDUS activities" from Ms. Cécile Collonnier (European Union), a copy of which is reproduced in document BMT/20/7.

*Identifying levels of diversity and developing markers to assist in managing the DUS reference collection of field beans (Vicia faba)*

8. The BMT received a presentation on "Identifying levels of diversity and developing markers to assist in managing the DUS reference collection of field beans (*Vicia faba*)" from Ms. Margaret Wallace (United Kingdom), a copy of which is reproduced in document BMT/20/8.

*Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing*

9. The BMT received a presentation on "Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing" from Mr. Marc Delêtre (France), a copy of which is reproduced in document BMT/20/9.

Review of document UPOV/INF/17 "Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction" ("BMT Guidelines") (documents BMT/20/3 and UPOV/INF/17/2 Draft 5)

10. The BMT considered documents BMT/20/3 and UPOV/INF/17/2 Draft 5.

11. The BMT agreed with the revision of document UPOV/INF/17/2 on the basis of document UPOV/INF/17/2 Draft 5 and the Annex to document BMT/20/3.

12. The BMT noted the comments provided by ISF in advance of the session in relation to possible improvements to document UPOV/INF/17 regarding certain technical matters. The BMT agreed to invite ISF to make a presentation on these matters at the first session of the TWM.

Cooperation between international organizations (document BMT/20/4)

13. The BMT considered document BMT/20/4.

*Inventory on the use of molecular marker techniques, by crop*

14. The BMT noted that the Office of the Union had issued a survey inviting members to report on the use of molecular marker techniques, by crop, as reproduced in the Annex to document BMT/20/4. The BMT noted that the results of the survey would be presented to the Technical Committee, at its fifty-seventh session.

15. The BMT noted that the Technical Committee (TC), at its fifty-seventh session, would be invited to request the Office of the Union to inform OECD of the result of the survey and report developments to the TC, at its fifty-eighth session.

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

16. The BMT 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 BMT 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.

17. The BMT noted that a poll had been conducted during its twentieth session to assess the following information from participants:

- What are the areas of common interest between UPOV, OECD and ISTA on the use of BMT?
- What would be suitable topics for a joint UPOV/OECD/ISTA workshop on BMT?

18. The BMT considered the responses to the poll, as reproduced in Annex II to this document, and agreed to propose the following possible topics for a future joint UPOV/OECD/ISTA workshop:

- providing information on the use of molecular techniques in each organization;
- procedure for approval of biochemical and molecular methods in each organization; and
- possibilities for harmonizing methods between UPOV, OECD and ISTA.

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

19. The BMT 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, as reproduced in document BMT/20/4.

20. The BMT noted that, subject to approval by the TC of the draft joint document, the TC would be invited to request the Office of the Union to inform OECD and ISTA accordingly.

*International Seed Testing Association*

21. The BMT received a presentation from Ms. Ana Laura Vicario (International Seed Testing Association (ISTA)) on "ISTA report on biochemical and molecular techniques", a copy of which is reproduced in document BMT/20/11.

22. The BMT agreed that it was useful to learn about the progress in ISTA validation methods, as reported in the presentation.

*Organisation for Economic Co-operation and Development*

23. The BMT received a presentation from Mr. Csaba Gaspar (Organisation for Economic Co-operation and Development (OECD)) on "Current status of BMT under the OECD seed Schemes", a copy of which is reproduced in document BMT/20/10.

24. The BMT noted the expression of interest by OECD to continue collaborating with UPOV on matters relating to the use of molecular markers in the organizations and agreed that the joint initiatives should be continued.

Confidentiality, ownership and access to molecular data, including model agreement template*Confidentiality, ownership and access to molecular data, including model agreement template (document BMT/20/5)*

25. The BMT received a presentation on "Confidentiality, ownership and access to molecular data, including model agreement template" 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 reproduced in document BMT/20/5.

26. The BMT noted that discussions on confidentiality, ownership and access to molecular data had been held at the Technical Working Parties, at their sessions in 2021. The BMT noted that the TWPs had invited further discussions on this topic for their next sessions.

27. The BMT agreed to invite presentations on current practices on confidentiality and access to molecular data to be made at the first session of the TWM. The BMT agreed that current practices in UPOV members and observers could provide a suitable basis for further discussions on the topic.

Session to facilitate cooperation

28. The BMT considered document BMT/20/6.

29. The BMT recalled 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 the Annex to document BMT/20/6.

30. The BMT noted the information on the discussion groups that had been formed at the Technical Working Parties, at their sessions in 2021, to allow participants to exchange information on their work on biochemical and molecular techniques and explore areas for cooperation.

31. On Friday, September 24, 2021, the BMT held a discussion session to allow participants to exchange information on their work on biochemical and molecular techniques and explore possible areas for cooperation.
32. The BMT 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.
33. The BMT agreed that information on the use of molecular markers by crop was important to promote cooperation between UPOV members and agreed to propose that the survey on the use of molecular markers was continued to obtain information from a greater number of UPOV members.
34. The BMT agreed that it would be useful to confirm the reasons for not responding to the first survey.
35. The BMT agreed that the possibility to form discussion groups during the sessions should be maintained.

Variety description databases including databases containing molecular data

36. No documents were received for this agenda item.

Methods for analysis of molecular data, management of databases and exchange of data and material

37. No documents were received for this agenda item.

The use of molecular techniques in examining essential derivation

38. No documents were received for this agenda item.

The use of molecular techniques in variety identification

39. No documents were received for this agenda item.

Date and place of next session

40. The BMT noted that no invitations for the venue of the first session of Technical Working Party on Testing Methods and Techniques (TWM) had been received. The BMT noted that a decision on the date and place of the first session of TWM would be taken by the Council, at its fifty-fifth session, to be held on October 29, 2021.
41. The BMT noted that UPOV members could contact the Office of the Union with offers of date and place to host the session of TWM in 2022. 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.
42. The BMT considered the proposal by the TWC and agreed to hold the first session of TWM via electronic means from September 19 to 23, 2022, if no alternative offer was received from a member of the Union.

Future program

43. The BMT agreed that documents for the first session of TWM should be submitted to the Office of the Union by July 21, 2022. The BMT 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.
44. The BMT proposed to discuss the following items at the first session of TWM:
  1. Opening of the session
  2. Adoption of the agenda
  3. Reports on developments in UPOV concerning biochemical and molecular techniques (document to be prepared by the Office of the Union)

4. Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations (reports by participants)
5. Report of work on molecular techniques in relation to DUS examination (document prepared by breeders' organization and papers invited)
6. Variety description databases including databases containing molecular data (papers invited)
7. Methods for analysis of molecular data, management of databases and exchange of data and material (document prepared by breeders' organization and papers invited)
8. The use of molecular techniques in examining essential derivation<sup>1</sup> (papers invited)
9. The use of molecular techniques in variety identification<sup>1</sup> (papers invited)
10. The use of molecular techniques for enforcement<sup>1</sup> (papers invited)
11. Cooperation between international organizations (document to be prepared by the Office of the Union and papers invited)
12. Confidentiality, ownership and access to molecular data, including model agreement template<sup>1</sup> (papers invited)
13. Session to facilitate cooperation (possible break-out sessions)
14. Date and place of next session
15. Future program
16. Report of the session (if time permits)
17. Closing of the session

*45. The BMT adopted this report at the end of the Session.*

[Annex I follows]

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<sup>1</sup> Breeders' Day

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[Annex II follows]

## SURVEY ON BMT FOR COOPERATION WITH OECD AND ISTA

**1. WHAT ARE THE AREAS OF COMMON INTEREST BETWEEN UPOV, OECD AND ISTA ON THE USE OF BMT?**

- Seed purity/uniformity
- Harmonization of SNP marker sets in specific crops for identification purposes
- variety verification tools
- Identifying off-types/impurities. Identifying and describing a variety.
- Harmonization of molecular markers.
- To have sets of validated markers to be used for the purpose of each organization. Discuss how to work together to take advantage of each organization potential.
- guidance on how to validate an alternative method against a reference method ; variety identity
- standards for Uniformity, variation thresholds, use of MM to support uniformity (lessen impact of environmental influence or variable expertise/training for data collectors)
- Variety identity
- new variety of plants
- Agreement, harmonization of definitions. Knowledge sharing and creating common database of used methods for various purposes in the member countries
- The use DNA markers for DUS of grain and oil crops
- Use of validated methods for the identification of varieties
- variety identification
- There might be an interest for UPOV and OECD to apply comparable marker sets for identity issues.
- The effectiveness of the use of DNA technology is in identifying the variety
- Variety verification, Description, and also PBR
- Cooperation, information sharing
- technology
- list of agreed markers and procedures to identify a variety
- DNA variety identification
- Enforcing PVP in connection with seed certification, developing identification methods for protected varieties.
- variety identification
- recognition of methods; joint research effort

**2. WHAT WOULD BE SUITABLE TOPICS FOR A JOINT UPOV/OECD/ISTA WORKSHOP ON BMT?**

- The use of Markers for variety identification
- how to harmonize methods and test for consistency
- Applied methods, current hot topics and future work.
- Study on relationship between molecular markers and DUS characteristics.
- Validation scheme of ISTA, UPOV use of molecular markers, OECD use of molecular markers. Discussion on which are the best molecular markers for different crops and uses.
- new technologies and potential uses
- Standards for Uniformity determination, variation thresholds
- identity - distinctness - methods
- the rules regarding seed propagation and processing are prescribed by the OECD
- Limitations and potentials of using molecular markers for seed testing, varietal certification and PVP purposes. Common areas of concerns and ways for further developments
- Type of DNA markers for different crops
- Comparison between systems and activities involving BMT, possible areas of harmonization, ways of developing cooperation and exchange of information
- clarify the positions of the various associations regarding the use of molecular markers, evaluate available methodologies, make practical examples of their use by seed certification and examination office. How to harmonize these methodologies among offices to obtain comparable results?

- Common markers database per specie / validation and recognition of current techniques and protocols / Thresholds / private sector initiatives already in place with markers
- development
- harmonization of suitable markers and procedures for the DNA profile of varieties so that the profiles could be exchanged or compiled in databases of common use
- Scenes where DNA variety identification is required
- variety identification
- respective strategy on the use of BMT; organization of BMT expertise; method validate

[End of Annex II and of document]