



TWA/42/2

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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

### Forty-Second Session Kyiv, Ukraine, June 17 to 21, 2013

#### MOLECULAR TECHNIQUES

*Document prepared by the Office of the Union*

1. The purpose of this document is to report on developments concerning the:
  - (a) use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS);
  - (b) discussions on molecular techniques at the forty-ninth session of the Technical Committee (TC) on:
    - (i) application of models by members of the Union
    - (ii) the situation with regard to molecular techniques in other international organizations
  - (c) Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT).
  
2. An overview of the UPOV bodies involved in the consideration of biochemical and molecular techniques is provided on the UPOV website at [http://www.upov.int/about/en/pdf/upov\\_structure\\_bmt.pdf](http://www.upov.int/about/en/pdf/upov_structure_bmt.pdf).
  
3. The following abbreviations are used in this document:
 

CAJ:	Administrative and Legal Committee
TC:	Technical Committee
TC-EDC:	Enlarged Editorial Committee
TWA:	Technical Working Party for Agricultural Crops
TWC:	Technical Working Party on Automation and Computer Programs
TWF:	Technical Working Party for Fruit Crops
TWO:	Technical Working Party for Ornamental Plants and Forest Trees
TWV:	Technical Working Party for Vegetables
TWP(s):	Technical Working Party(ies)
BMT:	Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular

## USE OF BIOCHEMICAL AND MOLECULAR MARKERS IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY (DUS)

### Document UPOV/INF/18/1 “Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”

4. The Council, at its forty-fifth ordinary session, held in Geneva on October 20, 2011, adopted document UPOV/INF/18/1 “Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” on the basis of document BMT/DUS/1 Draft 6 (see document C/45/18 “Report”, paragraph 23).

### Document TGP/15/1 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”

5. The TC, at its forty-ninth session, held in Geneva, from March 18 to 20, 2013, agreed, subject to agreement by the CAJ at its sixty-seventh session, to be held in Geneva on March 21, 2013, to submit document TGP/15/1 Draft 5 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” as the basis for adoption of TGP/15 by the Council, at its forty-seventh session, to be held on October 24, 2013 (see document TC/49/41 “Report on the conclusions”, paragraph 27).

6. In agreement with the conclusions of the TC at its forty-ninth session, the CAJ, at its sixty-seventh session, held in Geneva, on March 21, 2013, approved document TGP/15/1 Draft 4 as the basis for the adoption of document TGP/15/1 by the Council at its forty-seventh ordinary session to be held in Geneva on October 24, 2013 (see document CAJ/67/14 “Report on the conclusions”, paragraph 30).

7. The TC, at its forty-ninth session, and the CAJ, at its sixty-seventh session, noted that the editing of the original English text and the French, German and Spanish translations would be checked by the relevant members of the TC-EDC prior to submission of the draft of document TGP/15/1 to the Council (see documents TC/49/41 “Report on the conclusions”, paragraph 27, and CAJ/67/14 “Report on the conclusions”, paragraph 31).

8. They also noted that document TGP/15/1 could be revised in the future, for instance to incorporate additional examples for the models (see document TC/49/41 “Report on the conclusions”, paragraph 28, and CAJ/67/14 “Report on the conclusions”, paragraph 32).

9. *The TWA is invited to note the program for the adoption of document TGP/15/1, as set out in paragraphs 5 to 7 of this document.*

## DISCUSSION ON MOLECULAR TECHNIQUES AT THE TECHNICAL COMMITTEE

### Application of Models by Members of the Union

10. The TC, at its forty-ninth session, received the following presentations from members of the Union (see document TC/49/41 “Report on the conclusions”, paragraphs 127 to 130), copies of which are posted on the UPOV website at [http://upov.int/meetings/en/details.jsp?meeting\\_id=28343](http://upov.int/meetings/en/details.jsp?meeting_id=28343) :

Introduction to the use of biochemical and molecular markers in the DUS examination	The Office of the Union
Use of characteristic specific molecular markers to assess seasonal type in Barley	Mr. Andrew Mitchell (United Kingdom)
Applications of molecular data in DUS testing	Mr. Joel Guiard (France)
Use of molecular techniques in the renewal of reference material	Mr. Kees van Ettehoven (Netherlands)
Use of molecular techniques in Brazil	Mr. Fabricio Santana Santos (Brazil)

Presentation of the Situation with Regard to Molecular Techniques in other International Organizations

11. The TC, at its forty-ninth session, received the following presentations from relevant international organizations (see document TC/49/41 "Report on the conclusions", paragraphs 131 to 133), copies of which are posted on the UPOV website at [http://upov.int/meetings/en/details.jsp?meeting\\_id=28343](http://upov.int/meetings/en/details.jsp?meeting_id=28343) :

Situation with regard to use of molecular techniques in relation to seeds in the International Organization for Standardization (ISO)	Presented by Mr. Paul Zankowski (United States of America) (Prepared by Mr. Michael Sussman (ISO))
Situation with regard to use of molecular techniques in the International Seed Association (ISTA)	Ms. Rita Zecchinelli (ISTA)
Situation with regard to use of molecular techniques in the Organisation for Economic Co-operation and Development (OECD)	Mr. Michael Ryan (OECD)

12. The TC recalled that the BMT is a group open to DUS experts, biochemical and molecular specialists and plant breeders, whose role is to:

- (i) Review general developments in biochemical and molecular techniques;
- (ii) Maintain an awareness of relevant applications of biochemical and molecular techniques in plant breeding;
- (iii) Consider the possible application of biochemical and molecular techniques in DUS testing and report its considerations to the TC;
- (iv) If appropriate, establish guidelines for biochemical and molecular methodologies and their harmonization and, in particular, contribute to the preparation of document TGP/15, "New Types of Characteristics." These guidelines to be developed in conjunction with the Technical Working Parties;
- (v) Consider initiatives from TWPs, for the establishment of crop specific subgroups, taking into account available information and the need for biochemical and molecular methods;
- (vi) Develop guidelines regarding the management and harmonization of databases of biochemical and molecular information, in conjunction with the TWC;
- (vii) Receive reports from Crop Subgroups and the BMT Review Group;
- (viii) Provide a forum for discussion on the use of biochemical and molecular techniques in the consideration of essential derivation and variety identification.

13. In that regard, it endorsed the initiative for a joint meeting with ISO, ISTA and OECD and including breeders, as a means of supporting the role of the BMT in relation to (i), (ii), (iv), (vi) and particularly (viii) above.

14. The TC agreed that there was a need to provide suitable information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general. That information should explain the potential advantages and disadvantages of the techniques, and the relationship between genotype and phenotype, which lay behind the situation in UPOV.

*15. The TWA is invited to note the discussion on molecular techniques at the forty-ninth session of the TC, as set out in paragraphs 10 and 11 of this document.*

WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR (BMT)

16. The TC, at its forty-eighth session, approved the program for the fourteenth session of the BMT, including the dedication of a particular date ("Breeders' Day"), for the items on the use of molecular techniques in the consideration of essential derivation and in variety identification (see document TC/48/22 "Report on the Conclusions", paragraph 86).

17. The TC, at its forty-eighth session, agreed that it would be appropriate for the Office of the Union to investigate the possibility of a coordinated meeting of the BMT and the Working Group on DNA Methods of the Variety Committee of the International Seed Testing Association (ISTA), for the fourteenth session of the BMT (see document TC/48/22 "Report on the Conclusions", paragraph 85).

18. The TC, at its forty-ninth session, held in Geneva, from March 18 to 20, 2013, agreed to propose to hold a coordinated meeting of the fourteenth session of the BMT with meetings of other relevant international organizations in 2014, as set out in paragraph 14 of this document. It also agreed that, if it was not possible to organize a joint meeting with other organizations in 2014, a meeting of the BMT should be organized in the meantime (see document TC/49/41 "Report on the conclusions", paragraph 126).

19. The CAJ, at its sixty-seventh session, held in Geneva, on March 21, 2013, noted that the TC had agreed to the possibility of holding a coordinated meeting of the fourteenth session of the BMT with meetings of other relevant international organizations (see document CAJ/67/14 "Report on the conclusions", paragraph 42).

20. *The TWA is invited to note that:*

*(a) the TC proposed to hold a coordinated meeting of the BMT with ISO, ISTA and OECD and including breeders; and that*

*(b) if it was not possible to organize a coordinated meeting in 2014, a meeting of the BMT would be organized in the meantime, as set out in paragraph 18 of this document.*

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