



CAJ/65/7

ORIGINAL: English

DATE: February 9, 2012

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

ADMINISTRATIVE AND LEGAL COMMITTEE

Sixty-Fifth Session
Geneva, March 29, 2012

MOLECULAR TECHNIQUES

Document prepared by the Office of the Union

1. The purpose of this document is to present developments concerning document BMT/DUS "Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)" and document TGP/15 "Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)". This document also provides information concerning the thirteenth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) held in Brasilia, Brazil, from November 22 to 24, 2011.

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. That overview is also attached as the Annex to this document.

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
BMT Review Group:	<i>Ad Hoc</i> Subgroup of Technical and Legal Experts on Biochemical and Molecular Techniques
Crop Subgroup:	<i>Ad Hoc</i> Crop Subgroup on Molecular Techniques

CONTENTS

DOCUMENT BMT/DUS “POSSIBLE USE OF MOLECULAR MARKERS IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY (DUS)”	2
DOCUMENT TGP/15	2
WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR (BMT)	2
ANNEX UPOV STRUCTURE: BIOCHEMICAL AND MOLECULAR TECHNIQUES	

DOCUMENT BMT/DUS “POSSIBLE USE OF MOLECULAR MARKERS IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY (DUS)”

4. At its forty-fifth ordinary session, held on October 20, 2011, the Council adopted document BMT/DUS/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.

5. In accordance with the sequential numbering of information materials, the reference for document “Possible use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” has been changed from “BMT/DUS/1” to “UPOV/INF/18/1”.

6. The CAJ is invited to note the adoption of document UPOV/INF/18/1 “Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”.

DOCUMENT TGP/15

7. The CAJ will be invited to consider document TGP/15/1 Draft 2, in conjunction with the conclusion of the TC at its forty-eighth session, under agenda item 5 “TGP documents (document CAJ/65/3)”.

8. The CAJ is invited to note that document TGP/15/1 Draft 2 will be considered under agenda item 5 “TGP documents (document CAJ/65/3)”.

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

9. It is recalled that, in order to encourage the presentation of information in relation to the use of molecular techniques in the consideration of essential derivation and in variety identification, the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) agreed at its tenth session that it would be appropriate to dedicate a specific day to the agenda items “The use of molecular techniques in the consideration of essential derivation” and “The use of molecular techniques in variety identification”, at the eleventh session of the BMT. In particular, breeders and other experts would be offered the possibility to attend for that specific day (the “Breeders’ Day”).

10. The thirteenth session of the BMT was held in Brasilia, Brazil, from November 22 to 24, 2011, with the preparatory workshop on November 21, 2011. The specific day for the agenda items “The use of molecular techniques in the consideration of essential derivation” and “The use of molecular techniques in variety identification” (the “Breeders’ Day”) was November 22, 2011.

11. At its thirteenth session, the BMT took note of the report from the Office of the Union that contact had been made between UPOV and the International Seed Testing Association (ISTA) to explore the possibility of a coordinated meeting of the BMT and the Working Group on DNA Methods of the Variety Committee of ISTA for the fourteenth session of the BMT, to be held in 2013.

12. The conclusion of the TC at its forty-eighth session, concerning the possibility of a coordinated meeting between UPOV and ISTA, will be reported to the CAJ at its sixty-fifth session.

13. During its fourteenth session, the BMT planned to discuss the following items:

1. Opening of the session
2. Adoption of the agenda
3. Reports on developments in UPOV concerning biochemical and molecular techniques
4. Reports on the work of the *Ad Hoc* Crop Subgroups on molecular techniques (Crop Subgroups)
5. Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations
6. Report of work on molecular techniques on a crop-by-crop basis:
 - (a) vegetatively propagated crops
 - (b) self-pollinated crops
 - (c) cross-pollinated crops
7. International guidelines on molecular methodologies
8. Variety description databases
9. Methods for analysis of molecular data
10. The use of molecular techniques in examining essential derivation
11. The use of molecular techniques in variety identification
12. Recommendations on the establishment of new crop specific subgroups
13. Date and place of next session
14. Future program
15. Report of the session (if time permits)
16. Closing of the session

14. The BMT requested the TC to consider the possibility to arrange the order of the agenda items to reflect the organization of the meeting, in particular, the items for the "Breeder's Day" to be placed after agenda item 5.

15. The BMT proposed to the TC to consider the possibility of the discontinuation of the meeting of the *Ad-hoc* Crop Subgroups and to include the individual species discussion within the BMT sessions.

16. The CAJ, at its sixty-fourth session, held in Geneva on October 17, 2011, requested that a presentation on matters considered by the BMT, at its thirteenth session, with particular regard to the use of molecular techniques in the consideration of essential derivation and in variety identification, be made at the sixty-fifth session of the CAJ in March 2012 (see document CAJ/64/11 "Report on the Conclusions", paragraph 19).

17. In that regard, a presentation, summarizing presentations made at the thirteenth session of the BMT, will be made at the sixty-fifth session of the CAJ. At the thirteenth session of the BMT, the following presentations were made with regard to the use of molecular techniques in the consideration of essential derivation and in variety identification:

The use of molecular techniques in the consideration of essential derivation

Use of molecular markers for infringement detection in hybrid crops (document BMT/13/19)

An EDV Court Case in Wheat in Germany (document BMT/13/35)

Molecular markers used to distinguish essentially derived varieties obtained by repeated backcrossing (document BMT/13/20)

The use of molecular techniques in variety identification

Development of functional markers associated with phenotypic traits for identification of rice varieties (document BMT/13/8)

Development of functional markers associated with phenotypic traits for varietal identification in soybean (document BMT/13/9)

SSR markers in Brazilian soybean (document BMT/13/13)

SSR markers in Brazilian wheat (document BMT/13/14)

The use of molecular techniques in variety verification of Rosa L. varieties (document BMT/13/21)

An overview of DNA-based methods for variety identification at INRAN-ENSE (Italian Seed Testing Agency) (document BMT/13/22)

The probability of random identity: a method for molecular data analysis in variety characterization (document BMT/13/23)

Use of molecular markers to identify soybean varieties: the experience of a public soybean breeding program (document BMT/13/25)

Use of molecular marker to identify sugarcane varieties (document BMT/13/27)

Surveillance: three approaches to using SNPs (Single Nucleotide Polymorphism) to identify variety (inbred line) usage (document BMT/13/29)

Developments concerning the variety tracer procedure (document BMT/13/32)

Development of an International Seed Testing Association (ISTA) DNA-based approach for testing variety identity (document BMT/13/33)

Wheat Genome Sequencing Consortium (IWGSC): Building the Foundation for a Paradigm Shift in Wheat Breeding (document BMT/13/34)

18. The CAJ is invited to note:

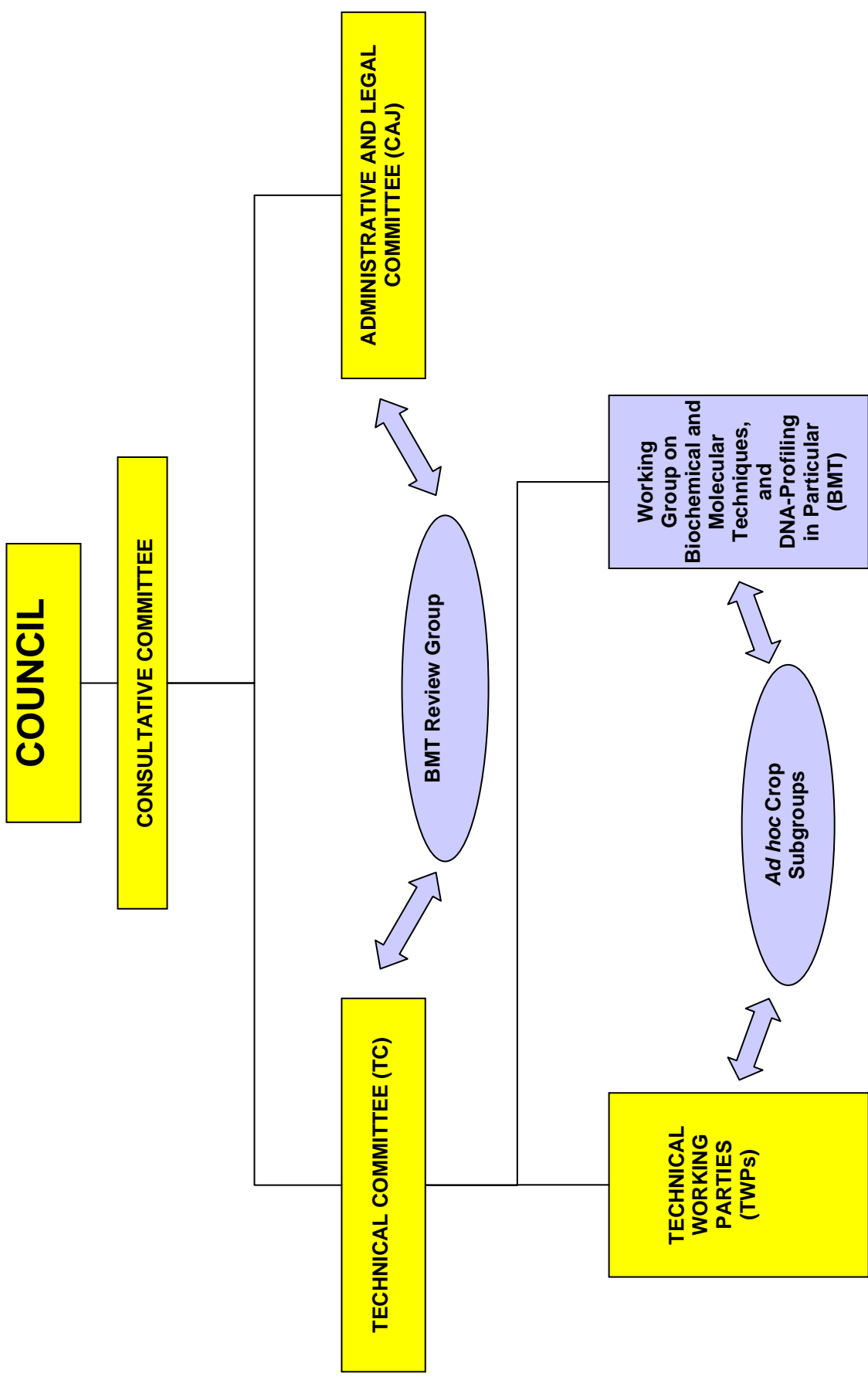
(a) that the program for the fourteenth session of the BMT, to be held in 2013, including the dedication of a particular date ("Breeders' Day"), for the items on the use of molecular techniques in the consideration of essential derivation and in variety identification, will be considered by the TC, as set out in paragraphs 11 to 14 of this document;

(b) that a proposal to consider the possibility of the discontinuation of the meeting of the Ad-hoc Crop Subgroups and to include the individual species discussion within the BMT sessions, will be considered by the TC, as set out in paragraph 15 of this document; and

(c) the presentation on matters considered by the BMT, at its thirteenth session, with particular regard to the use of molecular techniques in the consideration of essential derivation and in variety identification, as set out in paragraphs 16 and 17 of this document.

[Annex follows]

UPOV Structure: Biochemical and Molecular Techniques



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

*(as agreed by the Technical Committee at its thirty-eighth session, held in Geneva,
from April 15 to 17, 2002 (see document TC/38/16, paragraph 204))*

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.

**TERMS OF REFERENCE OF *AD HOC* SUBGROUP OF TECHNICAL AND LEGAL EXPERTS ON
BIOCHEMICAL AND MOLECULAR TECHNIQUES
("BMT REVIEW GROUP")**

*(as agreed by the Administrative and Legal Committee at its forty-third session,
held on April 5, 2001 (see document CAJ/43/8, paragraph 58))*

1. The BMT Review Group should assess possible application models proposed by the Technical Committee, on the basis of the work of the BMT and crop subgroups, for the utilization of biochemical and molecular techniques in the examination of Distinctness, Uniformity and Stability in relation to the following:
 - (a) conformity with the UPOV Convention, and
 - (b) potential impact on the strength of protection compared to that provided by current examination methods and advise if this could undermine the effectiveness of protection offered under the UPOV system.
2. In conducting its assessment, the BMT Review Group may refer specific aspects to the Administrative and Legal Committee or the Technical Committee for clarification or further information as considered appropriate.
3. The BMT Review Group will report its assessment, as set out in paragraph 1 above, to the Administrative and Legal Committee, but this assessment will not be binding for the position of the Administrative and Legal Committee.

**AD HOC CROP SUBGROUPS ON MOLECULAR TECHNIQUES
(CROP SUBGROUPS)**

At its thirty-sixth session, held in Geneva, from April 3 to 5, 2000, the Technical Committee agreed to the creation of the *Ad hoc* Crop Subgroups proposed by the BMT at its sixth session, held in Angers, France from March 1 to 3, 2000 (see document TC/36/11, paragraph 123).

Extract from document TC/36/3 Add.

“23. [At its sixth session, held in Angers, France from March 1 to 3, 2000] The BMT agreed that real progress could not be expected without intensive discussion in small groups on specific species. It therefore decided to propose establishing *ad hoc* crop subgroups during the eighteen month interval until the next session to make real progress in discussions on possibilities and consequences of the introduction of molecular techniques in DUS testing, the management of reference collection and the judgement of essential derivation.

“24. The BMT discussed the role of *ad hoc* crop subgroups and its relationship with the Technical Working Parties. It agreed that testing experts in the Technical Working Party should be involved with the discussion in the *ad hoc* crop subgroups. It also agreed that the chairmen of the *ad hoc* crop subgroups should be chosen from experts in the Technical Working Party in question. The role of the *ad hoc* crop subgroups would not be to make any decisions, but to prepare documents that could be a basis of further discussions in the BMT, the Technical Working Parties and the Technical Committee. The BMT confirmed that the Technical Working Parties should be the decision-making bodies for the introduction of new characteristics into DUS testing for each species.

[...]

“26. The BMT discussed the selection of species for the subgroups. A majority of experts supported two criteria, (i) the need for the introduction of molecular techniques in DUS testing (species for which a limited number of characteristics are available and species which urgently need effective methods for the management of reference collection) and (ii) the availability of DNA profiling data and on-going studies.”

At its forty-third session, held in Geneva, from March 26 to 28, 2007, the Technical Committee agreed to invite the Crop Subgroups to develop proposals concerning the possible use of molecular tools for variety identification in relation to the enforcement of plant breeders' rights, technical verification and the consideration of essential derivation.

The list of Crop Subgroups established by the Technical Committee (TC) is as follows:

<u>Crop Subgroup for:</u>	<u>TWP</u>	<u>Chairperson</u>	<u>TC Session which established</u>
Maize	TWA	Mrs. Beate Rücker (Germany)	thirty-sixth session (2000)
Oilseed Rape	TWA	Mrs. Laetitia Denecheau (France)	thirty-sixth session (2000)
Potato	TWA	Mrs. Beate Rücker (Germany)	thirty-eighth session (2002)
Rose	TWO	(vacant)	n/a
Ryegrass	TWA	Mr. Michael Camlin (United Kingdom)	forty-second session (2006)
Soybean	TWA	Mr. Marcelo Labarta (Argentina)	thirty-eighth session (2002)
Sugarcane	TWA	Mr. Luis Salaices (Spain)	thirty-eighth session (2002)
Tomato	TWV	Mr. Richard Brand (France)	thirty-sixth session (2000)
Wheat and Barley	TWA	Mr. Michael Camlin (United Kingdom)	thirty-sixth session (2000) / forty-second session (2006)

[End of Annex and of document]