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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

ADMINISTRATIVE AND LEGAL COMMITTEE

Sixty-Fourth Session
Geneva, October 17, 2011

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 to consider proposals concerning the development of document TGP/15. This document also provides information concerning the thirteenth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT), to be 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 first restricted area of the UPOV website at http://www.upov.int/restrict/en/upov_structure_index.html. That overview is also attached as the Annex to this document.

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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

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

4. At its sixty-third session, held on April 7, 2011, the CAJ proposed the adoption of document BMT/DUS by the Council on the basis of document BMT/DUS Draft 5, amended as indicated in the document and in accordance with the Technical Committee proposals contained in document CAJ/63/8, paragraph 19. Document BMT/DUS Draft 5, as amended by the TC and the CAJ, will be the basis for adoption of document BMT/DUS by the Council at its forty-fifth ordinary session, to be held in Geneva on October 20, 2011.

DOCUMENT TGP/15

5. The CAJ, at its sixty-third session, agreed that document TGP/15 should be developed separately, but in parallel, to document BMT/DUS “Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” on the basis that document BMT/DUS would provide a report on the development and consideration of all models within UPOV and that document TGP/15 would provide guidance for the use of those models that had received a positive assessment and for which accepted examples could be provided, i.e. Models “Characteristic-specific molecular markers” (Section 3.1.1) and “Combining phenotypic [characteristics] and molecular distances in the management of variety collections” (Section 3.1.2) for the time being. It agreed that the purpose of both documents should be clarified within the documents and noted that both documents would need to be adopted by the Council. The CAJ also agreed that consideration should be given to how to maintain both documents in an efficient way.

6. Document CAJ/64/4 “TGP documents”, Annex, proposes that a first draft of document TGP/15 (Draft 1) be considered by the Enlarged Editorial Committee (TC-EDC) at its meeting on January 11 and 12, 2012, and that document TGP/15 Draft 2 would be considered by the TC at its forty eighth session, in March 2012, and by the CAJ at its sixty-fifth session, in March 2012. It is also indicated that the title of document TGP/15 would need to be amended as a consequence, from “New Types of Characteristics” to possibly “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”.

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

7. 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”).

8. The thirteenth session of the BMT will be held in Brasilia, Brazil, from November 22 to 24, 2011, with the preparatory workshop to be held on November 21, 2011. During its thirteenth session, the BMT plans 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

9. The BMT agreed that, in order to encourage the presentation of information in relation to the use of molecular techniques in examining essential derivation and in variety identification, it would be appropriate to dedicate a specific day to items 10 and 11 at the thirteenth session of the BMT. In particular, breeders and other experts have been offered the possibility to attend for that specific day, which would be November 22, 2011.

10. The CAJ is invited to note:

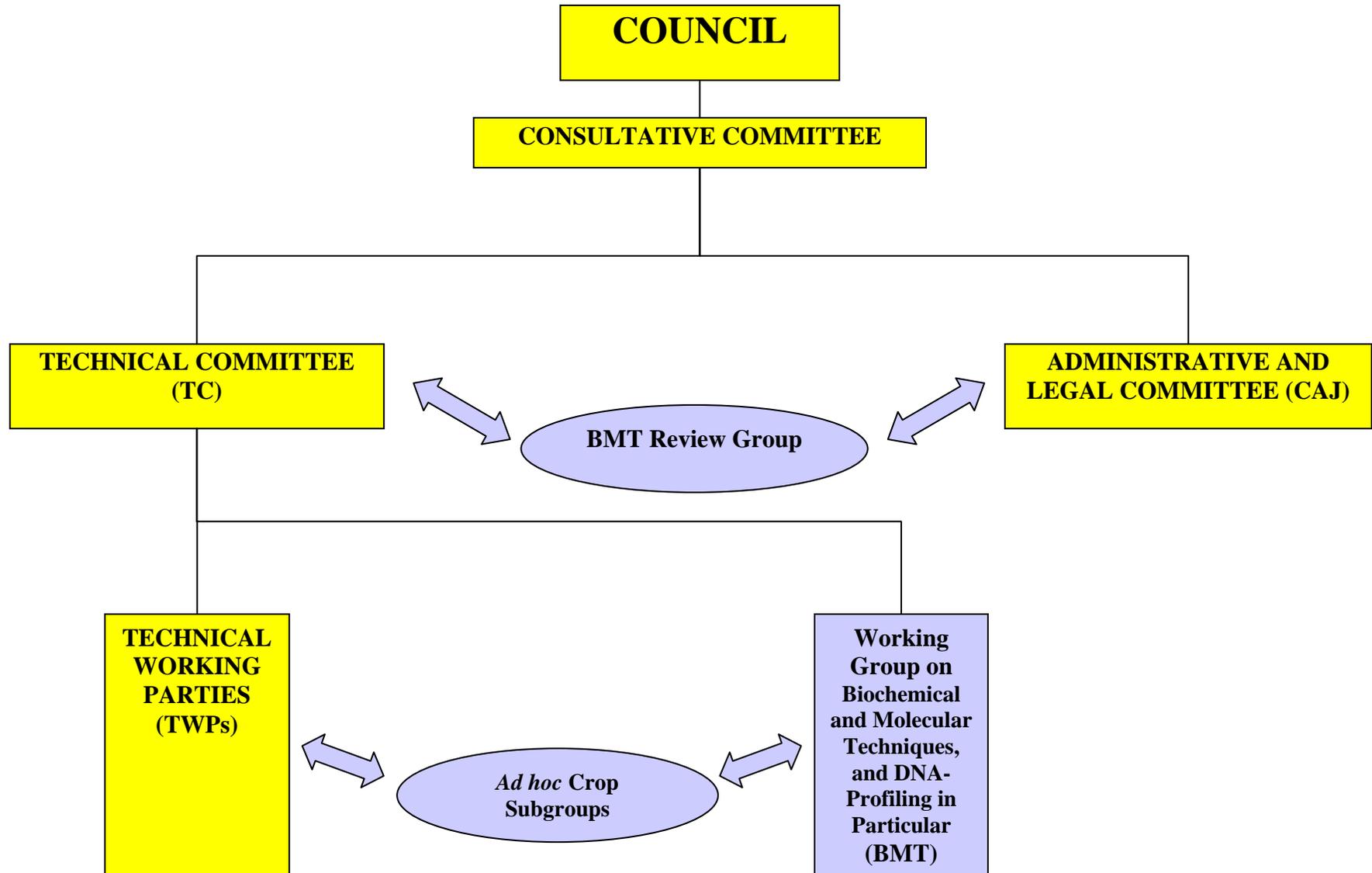
(a) the developments concerning document BMT/DUS “Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”;

(b) that the CAJ will be invited to consider document TGP/15 Draft 2 at its sixty-fifth session, in March 2012, and that the title of document TGP/15, currently “New Types of Characteristics”, will need to be amended; and

(c) the program for the thirteenth session of the BMT, to be held in Brasilia, Brazil, from November 22 to 24, 2011, including the dedication of November 22, 2011 (“Breeders’ Day”), for the items on the use of molecular techniques in examining essential derivation and in variety identification.

[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	Mr. Joost Barendrecht (Netherlands)	thirty-sixth session (2000)
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)