



TWA/34/2

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**TECHNICAL WORKING PARTY
FOR
AGRICULTURAL CROPS**

**Thirty-Fourth Session
Christchurch, New Zealand, October 31 to November 4, 2005**

MOLECULAR TECHNIQUES

Document prepared by the Office of the Union

1. The purpose of this document is to provide an update of developments in the Technical Committee (TC) and the Administrative and Legal Committee (CAJ) regarding: document “Situation in UPOV Concerning the Possible Use of Molecular Markers in DUS Examination”; document “Guidelines for Molecular Marker Selection and Database Construction”; and consideration of 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, and proposals concerning the *Ad hoc* Crop Subgroup on Molecular Techniques (Crop Subgroups).

Document “Situation in UPOV Concerning the Possible Use of Molecular Markers in DUS Examination”

2. At its fortieth session, held in Geneva from March 29 to 31, 2004, the TC agreed a document on the possible use of molecular markers in the DUS examination which it considered would be a suitable summary of the current UPOV position. The resultant document TC/40/9 Add. was presented to the Technical Working Parties at their sessions in

2004. Document TC/40/9 Add. was reproduced as the Annex to document TWA/33/2 for the Technical Working Party for Agricultural Crops (TWA). The TC also agreed that the CAJ should be invited to examine that document.

3. At their sessions in 2004, the TWA, the Technical Working Party for Ornamental Plants and Forest Trees (TWO) and the Technical Working Party for Fruit Crops (TWF) made proposals for some additional text to further clarify the situation in UPOV. The TC discussed those proposals at its forty-first session, held in Geneva, from April 4 to 6, 2005, but agreed that the text of document TC/40/9 Add. should not be amended.

4. Document TC/40/9 Add., presented as the Annex to document CAJ/50/4, was considered by the CAJ at its fifty-first session, held in Geneva on April 7, 2005. Some concerns regarding the document were outlined at the session, and it was agreed that written comments should be sent to the Office of the Union (Office) by the end of April 2005. On the basis of those comments, a new draft was to be prepared by the Office, in conjunction with the Chairperson of the TC, for consideration by the CAJ at its fifty-second session, to be held in Geneva on October 24 and 25, 2005. The conclusions of the CAJ would then be considered by the TC at its forty-second session in April 2006.

Guidelines for Molecular Marker Selection and Database Construction (“BMT Guidelines”)

5. At its fortieth session, the TC heard that the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) had concluded, at its eighth session in Tsukuba, Japan, from September 3 to 5, 2003, that there was an urgent need to harmonize methodologies for the generation of molecular data in order to ensure that the quality of the data produced would be universally acceptable for use in variety characterization. It was also noted that it would be useful to provide guidance on the planning of databases for molecular data based on different types of markers. On that basis, the BMT agreed that the Office should prepare a guidance document (“BMT Guidelines”).

6. In accordance with the request of the BMT, the Office produced a first draft of the BMT Guidelines (document BMT Guidelines (proj.1)) in May 2004 for consideration by the subgroup of interested experts from Australia, France, the Netherlands, the United Kingdom and the International Seed Federation (ISF). On the basis of the comments received from that subgroup, the Office prepared a second draft (document BMT Guidelines (proj.2)) which was considered by the Crop Subgroups for Potato, Sugarcane and Wheat at their sessions on June 28, 2004. The Crop Subgroup for Wheat (see document BMT-TWA/Wheat/2/3), supported by the Crop Subgroups for Potato and Sugarcane (see documents BMT-TWA/Potato/1/7 and BMT-TWA/Sugarcane/2/4) agreed that that document should be redrafted by an expert/experts with suitable knowledge and experience of the use of molecular techniques. On that basis, it agreed that Mr. Robert Cooke (United Kingdom) should undertake the redrafting, with the assistance of Mrs. Françoise Blouet (France) in connection with Section 5.

7. The TC noted that a new draft of the BMT Guidelines would be presented to the ninth session of the BMT, to be held in Washington, D.C., United States of America, from June 21 to 23, 2005, and to the twenty-third session of the TWC, to be held in Ottawa, Canada, from June 13 to 16, 2005. It agreed that, on the basis of the comments received at the BMT and TWC sessions, a new draft would be prepared for consideration by the

Enlarged Editorial Committee (TC-EDC) and by the forty-second session of the TC in April 2006.

Consideration of 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

8. At its fortieth session, the TC agreed to propose to the CAJ that it consider the possible use of molecular tools for variety characterization in relation to the enforcement of plant breeders' rights, technical verification and the consideration of essential derivation. In that respect, it proposed that those might be matters relevant for consideration by the BMT Review Group. The TC noted that work concerning the use of molecular tools for variety characterization was being undertaken by the International Seed Testing Association (ISTA).

9. The TC proposal for the CAJ to consider the possible use of molecular tools for variety characterization and for that matter to be referred to the BMT Review Group was presented to the CAJ at its fiftieth session in document CAJ/50/4. However, the CAJ did not have sufficient time to discuss that document at its fiftieth session and agreed that the item would be dealt with at its fifty-first session of the CAJ to be held in Geneva on April 7, 2005. In advance of that discussion, the TC, at its forty-first session, agreed that the CAJ should be asked to consider the possible use of molecular tools for variety "identification" rather than for variety "characterization".

10. In response to the proposal by the TC, the CAJ, at its fifty-first session, agreed to invite the BMT Review Group to examine 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.

Crop Subgroups

11. In accordance with the proposal of the TWA, the TC agreed that Mr. Robert Cooke (United Kingdom) should be Chairman of the Crop Subgroup for Wheat.

12. The TC noted the report of the TWA that laboratories in Denmark and the United Kingdom were working on molecular tools in ryegrass. The TC observed that ryegrass, being a cross-pollinated species, would pose particular difficulties, but noted the need for tools to help in the management of reference collections and the potential for an Option 2 approach. On that basis, it approved the establishment of a crop subgroup for ryegrass, with Mr. Michael Camlin (United Kingdom) as Chairman.

13. On the basis of the proposal made by the Technical Working Party for Vegetables (TWV), the TC agreed to dissolve the *Ad hoc* Subgroup for Mushroom on the basis that further developments were not expected in the foreseeable future.

14. The TC noted that the TWV had agreed to update the information on work on the use of molecular techniques for the DUS testing of tomato varieties and to keep an item on the agenda for future TWV sessions to exchange information on the use of molecular techniques for the DUS testing of vegetable varieties.

15. The TC agreed that the following Crop Subgroups should meet, subject to the availability of sufficient papers for discussion, at a date and location to be proposed to the TC by the relevant TWP, or at a date and location agreed jointly between the Chairpersons of the TC, the relevant TWP, the relevant Crop Subgroup and the Office:

<i>Crop Subgroup for:</i>	<i>Chairperson</i>	<i>TWP</i>
Maize	Mrs. Beate Rücker (Germany)	TWA
Oilseed Rape	Mrs. Françoise Blouet (France)	TWA
Potato	Mrs. Beate Rücker (Germany)	TWA
Rose	Mr. Joost Barendrecht (Netherlands)	TWO
Ryegrass	Mr. Michael Camlin (United Kingdom)	TWA
Soybean	Mr. Marcelo Labarta (Argentina)	TWA
Sugarcane	Mr. Luis Salaices (Spain)	TWA
Tomato	Mr. Richard Brand (France)	TWV
Wheat	Mr. Robert Cooke (United Kingdom)	TWA

16. At its ninth session, held in Washington D.C., United States of America, from June 21 to 23, 2005, the BMT received reports of work on molecular techniques on a crop-by-crop basis, which included the following reports on TWA-related crops:

Repeatability and Discrimination Power of SSR Data in Vegetatively Reproduced Potato Varieties: Impact of “Weak Alleles” (documents BMT/9/4 and BMT/9/4 Add.);

Assessment of the uniformity of Chinese maize varieties by a set of SSR markers (documents BMT/9/5 and BMT/9/5 Add.);

Research project co-financed by the Community Plant Variety Office (CPVO): “Management of Winter Oilseed Rape Reference Collections” (documents BMT/9/8 and BMT/9/8 Add.);

SNPs in barley: a potential “Option 1” approach (documents BMT/9/9 and BMT/9/9 Add.);

The potential of SNP markers in expressed genes for identification of potato varieties and determination of distinctness (documents BMT/9/13 and BMT/9/13 Add.).

17. The BMT (see document BMT/9/14, paragraph 61) invited the relevant Technical Working Parties and the TC to consider:

(a) *Crop Subgroup for Vegetatively Propagated Varieties*

the establishment of a crop subgroup for a range of vegetatively propagated crops which, in conjunction with all interested parties and breeders in particular, could formulate proposals for consideration by the TC and BMT Review Group;

(b) Crop Subgroup for Wheat and Barley

the extension of the Crop Subgroup for Wheat to cover both wheat and barley;
and

(c) Crop Subgroup for Grapevine

in relation to proposal (a), consideration to be given to the establishment of a
specific crop subgroup for grapevine.

18. At its thirty-sixth session held in Kôfu, Japan, from September 5 to 9, 2005, the TWF supported the proposal from the BMT for the establishment of a crop subgroup for vegetatively propagated crops, on the basis that such a crop subgroup would include fruit species (see document TWF/36/8, paragraph 21). At its thirty-eighth session held in Seoul, Republic of Korea, from September 12 to 16, 2005, the TWO supported the proposal from the BMT for the establishment of a crop subgroup for vegetatively propagated crops, on the basis that such a crop subgroup would then incorporate the Crop Subgroup for Rose (see document TWO/38/12, paragraph 24).

19. The TWA is invited to consider:

(a) the establishment of a crop subgroup for vegetatively propagated crops; and

(b) the extension of the Crop Subgroup for Wheat to cover both wheat and barley,

as set out in paragraph 17.

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