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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

TECHNICAL COMMITTEE

Thirty-Ninth Session
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**MATTERS ARISING FROM THE 2002 SESSIONS
OF THE TECHNICAL WORKING PARTIES**

Document prepared by the Office of the Union

1. This document summarizes certain matters arising from the 2002 sessions of the Technical Working Parties (hereinafter referred to as “the TWPs”) which require consideration by the Technical Committee (hereinafter referred to as “the TC”).
2. The TC is invited to note that this document is somewhat shorter than in previous years, for two reasons. Firstly, the issues under discussion by the TWPs are increasingly incorporated in the development of the TGP documents. This can be seen, for example, from the series of end notes provided in TGP/7 draft 2 and will be reflected in a similar way in the drafts of further TGP documents in future. Secondly, certain matters which have been the subject of discussion by the TWPs and TC, have also been the subject of discussion by the Administrative and Legal Committee (hereinafter referred to as “the CAJ”) and have been presented in separate documents to allow the issues to be reported in full. Such matters concern: the publication of variety descriptions; issues concerning the use of material submitted for the examination of distinctness, uniformity and stability; extension of protection to hybrid varieties through parental lines; and the notion of “essentially derived variety” in the breeding of ornamental varieties.
3. The matters covered by this document are presented in the Annex to this document and are contained in two sections. The first section, “Matters for information and for a possible decision to be taken by the Technical Committee, ” identifies matters raised by the TWPs, which may require a decision to be taken by the TC. The Office of the Union (hereinafter

referred to as “the Office”) has highlighted aspects where the TC may wish to take a decision by introducing a proposed decision paragraph shown in italics. The second section, “Matters for information,” is provided for the information of the TC but does not require decisions at this stage.

4. A table of contents, specifying the items covered, is provided in the Annex.

5. The following codes are used in this document:

CAJ: Administrative and Legal 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

BMT: Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular

[Annex follows]

ANNEX

MATTERS ARISING FROM THE 2002 SESSIONS
OF THE TECHNICAL WORKING PARTIES

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I. MATTERS FOR INFORMATION AND FOR A POSSIBLE DECISION TO BE TAKEN BY THE TECHNICAL COMMITTEE

Developments in UPOV Concerning the Use of Molecular Techniques in DUS Testing

1. The TWPs were provided with a report on the latest developments concerning biochemical and molecular techniques within UPOV, in the form of document TC/38/14 Add.-CAJ/45/5 Add.
2. At the TWA, the experts from France and the United Kingdom made presentations on the three options for the possible use of molecular techniques in DUS testing, as they had been presented to the BMT Review Group during its meeting in April 2002. The expert from France confirmed that the GAIA software, used in the French proposal for Option 2, would be made available for testing by members of the Union by the end of 2002 and should be ready for delivery by April 2003.
3. The TWF proposed that the Office should produce a document for interested parties, and in particular breeders, clearly explaining the current UPOV position on the possible use of molecular techniques in DUS testing. This should explain the possible approaches set out in options 1, 2 and 3 and the view within UPOV on each of these options. It should also explain the current situation regarding developments in the *Ad hoc* Crop Subgroups on Molecular Techniques (hereinafter referred to as "Crop Subgroups") and explain how work on other crops could be initiated. It was emphasized that this document should make clear that it did not address the possible use of molecular characteristics in other areas, such as variety identification, or judgement of essential derivation. The Office suggested that it could draft such a document in consultation with the Chairpersons of the TC, CAJ and BMT, but nevertheless considered that it might be appropriate to submit the draft for approval to the TC and CAJ before it was more widely circulated.

4. *The TC is invited to:*

(a) *note the offer from experts from France to make the GAIA software available to members of the Union; and*

(b) *comment on the proposal from the TWF for the Office to prepare a document on the possible use of molecular characteristics in DUS examination.*

Ad hoc Crop Subgroup on Molecular Techniques

Chairpersons of the New Crop Subgroups

5. At its thirty-eighth session, held in Geneva from April 15 to 17, 2002, the TC agreed to the establishment of new Crop Subgroups for Mushroom, Potato, Soybean and Sugarcane. The TC agreed that interim Chairpersons of the new Crop Subgroups should be agreed between the Chairman of the TC and the Chairperson of the relevant TWP and that these positions should then be considered for approval by the TC at its meeting in Spring 2003. This matter is presented for consideration by the TC in document TC/39/7.

Report on Work of the Crop Subgroups in 2002

6. The TWPs reviewed the following program for the existing Crop Subgroups and the establishment of new Crop Subgroups as proposed by the TC in document TC/38/14 Add.-CAJ/45/5 Add., paragraphs 8 and 9:

Program for the existing Crop Subgroups:

- (a) Maize: no future meeting to be planned at this stage, subject to consideration by the TWA;
- (b) Oilseed Rape: to meet sometime after (not in conjunction with) the TWA meeting in 2002, but before the next session of the BMT;
- (c) Rose: to meet before the TWA meeting in 2002;
- (d) Tomato: no future meeting to be planned at this stage, subject to consideration by the TWA;
- (e) Wheat: to meet sometime after (not in conjunction with) the TWA meeting in 2002, but before the next session of the BMT.

Establishment of the following new Crop Subgroups:

- (a) Sugarcane: to hold its first meeting immediately after, and in association with, the TWA meeting in 2002;
- (b) Potato: to hold its first meeting immediately after, and in association with, the TWA meeting in 2002;
- (c) Mushroom: to hold its first meeting immediately after, and in association with, the TWA meeting in 2002;
- (d) Soybean: to hold its first meeting immediately after, and in association with, the TWA meeting in 2002, if there is sufficient interest amongst experts.

7. The outcome of the proposed program is summarized below:

Maize

8. The TWA agreed that the Maize Crop Subgroup should not meet at this time.

Oilseed Rape, Wheat and Potato Crop Subgroups

9. The TWA noted that the meeting of the Potato Crop Subgroup had been postponed because of the absence of papers to be discussed. The TWA proposed that the Oilseed Rape, Wheat and Potato Crop Subgroups should meet consecutively, at the same venue, in May or June 2003, by which time papers should, in particular, be available from the United Kingdom for Oilseed Rape and Wheat and from France for Potato.

Rose

10. The TWO received an oral report from the Chairman of the Rose Crop Subgroup. It was reported that the meeting of the Rose Crop Subgroup, planned to take place prior to the meeting of the TWO, had been postponed because only one paper had been proposed. The TWO noted that further papers were likely to be available in the following year which, in particular, would look at an option 2 approach for Rose. It agreed that a suitable date for the meetings should be arranged when these papers were forthcoming.

Mushroom

11. The TWV noted that the first meeting of the Mushroom Crop Subgroup would be held immediately after the TWV session .

12. The TWV agreed that Option 1 (a) (Use of molecular characteristics which are directly linked to traditional characteristics) as explained in document TC/38/14 -CAJ/45/5, would be useful for the detection of certain vegetable characteristics , such as disease resistance and male sterility, and could be considered in conjunction with the discussion of individual Test Guidelines documents.

13. The TWV observed that the usefulness of Option 2 (Calibration of threshold levels for molecular characteristics against the minimum distance in traditional characteristics) for the management of reference varieties in DUS testing for vegetable varieties was worthy of examination. However , the examination by the TWV in this area would depend on the availability of data on both molecular and phenotypic distances.

14. The TWV noted the concern about possible effects of the introduction of molecular techniques for DUS testing on the work of certifying agencies responsible for checking the maintenance (uniformity and stability) of varieties.

15. The TWV recalled that , in the case of Mushroom, the small number of available morphological assessment methods justified the consideration of the introduction of molecular techniques for DUS testing of that species. The TWV considered that real needs for the introduction of biochemical and molecular techniques to DUS testing for other vegetable species should be identified before further work is proposed.

16. The Mushroom Crop Subgroup held its first session in Tsukuba, Japan, on the afternoon of September 13, 2002 under the interim Chairmanship of Mr. Nico van Marrewijk (Netherlands).

17. The Mushroom Crop Subgroup considered the following documents:

BMT-TWV/Mushroom/02/2Rev. AFLP technique useful for strain -typing of *Lentinula edodes* (shiitake mushroom) cultivars (document prepared by the expert from Japan)

BMT-TWV/Mushroom/02/3 Strain Identity of Mushrooms (document prepared by the expert from the Netherlands)

18. The Mushroom Crop Subgroup noted the different situation for shiitake mushroom, on the one hand, and button mushroom on the other. In the case of shiitake mushroom, a wide range of variability existed and 50 different strains could be differentiated, using RAPD, or more than 100 strains, by applying a more detailed approach. All these strains could also be differentiated by using phenotypic characteristics. In the case of button mushrooms neither phenotypic nor molecular characteristics could clearly differentiate the varieties available on the world market.

19. The Mushroom Crop Subgroup noted that the purpose of plant variety protection was to encourage breeders to continue their breeding activities and considered that the introduction of molecular techniques for DUS testing of button mushroom might be justified on that basis. It contrasted this to the case of other crops where the introduction of molecular characteristics was being considered for facilitating or refining the DUS testing, but not as a basis for encouraging breeding activities.

20. The Mushroom Crop Subgroup considered that, in the absence of significant morphological differences between varieties, breeding objectives for button mushroom might be centered on increased disease resistance (viral and fungal diseases), or other agronomic characteristics such as an enhanced growth rate at a lower temperature. This raised the question as to whether such characteristics could be detected easily by the use of molecular characteristics.

21. The Mushroom Crop Subgroup considered that the introduction of molecular techniques to the DUS testing for button mushroom was not sufficiently covered by any of the options included in documents TC/38/14 -CAJ/45/5 and TC/38/14 Add.-CAJ/45/5 Add., given the fact that the genetic variation of commercial button mushroom varieties had proven, both by using phenotypic and molecular characteristics, to be extremely small.

22. It was agreed that the Mushroom Crop Subgroup should report to the BMT and TWV on the outcome of its discussion and ask for further guidance, in particular, on how the use of molecular characteristics should be considered in the work of the preparation of Test Guidelines for Mushroom.

Soybean

23. The TWA noted that the first meeting of the Soybean Crop Subgroup would be held immediately after the TWA session .

24. The Soybean Crop Subgroup held its first session in Rio de Janeiro, Brazil, on the afternoon of September 27, 2002, under the interim Chairmanship of Mr. Marcelo Labarta (Argentina). The report of the meeting is presented in document BMT-TWA/Soybean/1/4 Prov.

25. The Soybean Crop Subgroup considered the following documents:

BMT-TWA/Soybean/1/2 Summary of the SSR Soybean Research for DUS Testing Developed by the Molecular Markers Laboratory at the Former *Instituto Nacional De Semillas* (INASE), Argentina (document prepared by experts from Argentina)

BMT-TWA/Soybean/1/3 Development and Genetic Analysis of a Database of Multi-locus Micro-satellite DNA Fingerprints of the Brazilian Protected Soybean Varieties (document prepared by experts from Brazil)

26. On the basis of discussions on the documents above, the Crop Subgroup proposed the following future program of work:

(a) the experts from Argentina and Brazil to exchange information on molecular markers used in their respective studies and to seek to develop a common set of molecular markers for use in future studies;

(b) the experts from Argentina and Brazil to study the correlation between morphological data and molecular markers, in the frame of an "Option 2" approach. This study would include morphological data to be provided by the experts from France and would use the GAIA software for the assessment of phenotypic distance, also to be provided by experts from France;

(c) subject to progress on points (a) and (b) above, the Soybean Crop Subgroup to hold another meeting in association with the thirty-second session of the TWA to be held in Tsukuba, Japan, from September 8 to 12, 2003.

Sugarcane

27. The TWA noted that the Sugarcane Crop Subgroup would be meeting immediately after the TWA session.

28. The Sugarcane Crop Subgroup held its first session in Rio de Janeiro, Brazil, on the morning of September 28, 2002 under the interim Chairmanship of Mr. Luis Salaices (Spain). The report of the meeting is presented in document BMT-TWA/Sugarcane/1/4 Prov.

29. The Sugarcane Crop Subgroup considered the following documents:

BMT-TWA/Sugarcane/1/2 Analysis of Genetic Similarity Detected By AFLP and the Coefficient of Parentage Among Genotypes of Sugarcane (*Saccharum Spp.*) (document prepared by experts from Brazil)

BMT-TWA/Sugarcane/1/3 DNA Profiling in Sugarcane: Progress Towards Evaluation of SSR as a Tool (document prepared by experts from Australia)

30. On the basis of discussions on the documents above, the Sugarcane Crop Subgroup proposed the following future program of work:

(a) UPOV to produce an updated explanation and analysis of available molecular methods, summarizing their advantages and disadvantages for use in DUS testing;

(b) the expert from Australia to prepare a draft standard protocol for the use of molecular markers, to be submitted to the BMT. The requirements for a standard protocol were likely to include: primers with simple profiles, limiting the range of scoring markers,

and the need to specify PCR components and conditions. The standard protocol would also address issues such as: the scanning of images; different marker sizes; incorrect scoring and data entry; scoring outside the expected range; and mislabeling of varieties;

(c) the experts from Australia and Brazil to study the correlation between morphological data and molecular markers, in the frame of an "Option 2" approach. The initial aim would be to include 20-30 varieties representing the range of variation within UPOV and for the samples to be obtained from a single source to minimize environmental variation. It was hoped that it would be possible to include (a) pair(s) of varieties which were not distinct on the basis of morphological characteristics. The study would use the GAIA software, to be provided by experts from France, for the assessment of phenotypic distance;

(d) the experts from Australia and Brazil to collaborate in the development of a common, world-wide set of example varieties for which morphological descriptions will be developed, to be completed by 2004;

(e) subject to progress in the study of a possible "Option 2" approach, the Soybean Crop Subgroup to hold another meeting in association with the thirty-second session of the TWA to be held in Tsukuba, Japan, from September 8 to 12, 2003.

31. The TC is invited to:

(a) note the work of the Crop Subgroups in 2002;

(b) consider the Crop Subgroup proposals for their programs of work in 2003;

(c) comment on the request from the Mushroom Crop Subgroup for further guidance on how the use of molecular characteristics should be considered in the work of the preparation of Test Guidelines for Mushroom;

(d) consider the proposal from the Sugarcane Crop Subgroup for the production of an updated explanation and analysis of available molecular methods, summarizing their advantages and disadvantages for use in DUS testing; and

(e) consider the proposal from the Sugarcane Crop Subgroup to prepare a draft standard protocol for the use of molecular markers, to be submitted to the BMT.

Project to Consider the Publication of Variety Descriptions

32. At its thirty-eighth session, held in Geneva from April 15 to 17, 2002 the TC considered, on the basis of document TC/38/10, the particular technical aspects which would need to be developed for a model study on the publication of variety descriptions. It decided to invite the TWPs to make proposals for species and to identify which members of the Union and other interested parties would wish to contribute to a model study on these species. The TC further agreed that the TWPs should, for the species concerned, be invited to consider means of separating the varieties of common knowledge into agronomic groupings. The TC would then consider the proposals for species on which the model study should be based at its thirty-ninth session in Spring 2003 and select a short list on which to base the model study.

33. The TC is invited to note that document TC/39/9 contains the proposals made by the TWPs during their sessions in 2002 and identifies the next steps in the project to be considered by the TC at its April 2003 session. That document is to be considered under agenda item 10.

TGP Documents

34. At its thirty-eighth session, held in Geneva from April 15 to 17, 2002, the TC agreed the timetable for the development of the TGP documents, as summarized in Annex II of document TC/38/7. During their sessions in 2002, the TWPs considered the draft TGP documents presented according to this schedule.

35. The TC is invited to note that all matters concerning the development of TGP documents are to be considered under agenda item 9.

II. MATTERS FOR INFORMATION

Plant Variety Description and Environmental Effects

36. The TWA agreed that the results of a project on variety descriptions of oilseed rape, presented by the expert from Germany in document TWA/31/9, demonstrated the need for greater care when selecting and describing grouping characteristics in the Test Guidelines, in order to reduce observer error. In addition, it noted that consideration needed to be given to the conversion of recorded data into variety descriptions. It was agreed that the results of this study should be presented to the TC and the CAJ to demonstrate the difficulties in harmonizing variety descriptions.

37. The TWA considered a report, by an expert from the United Kingdom, on variety descriptions of wheat, based on document TWA/31/7. It noted that it had considered the possibility of including gliadin composition in the Test Guidelines for wheat, but had decided against this because of the problems in obtaining agreement between laboratories.

38. The expert from France suggested that it would be useful to compare differences in the “phenotypic distance” measurements between varieties obtained from different countries.

Project for Exchanging Seed of Selected Varieties Between Interested Countries

39. The TWA considered a report on a planned project for exchanging seed of selected varieties between interested countries, presented by the expert from Sweden on the basis of document TWA/31/2.

40. An expert from Japan reported that only six countries had provided seed for the project on rice.

41. After discussion, it was agreed that this project should be aimed at improving the development of suitable grouping and asterisked characteristics in the Test Guidelines and, as such, should become a part of the process of revising or developing Test Guidelines described in document TGP/7 “Development of Test Guidelines.” It should also seek to identify the extent to which the example varieties would be appropriate within, or beyond, a region.

42. It was agreed that the project should continue on white clover, lupin and rice and that a report on progress would be made at the next TWA session.

Statistical Methods for Data Produced by Biochemical and Molecular Methods

43. The TWC considered a proposal, from the expert from France, for the application of statistical methods for data produced by biochemical and molecular methods, based on document TWC/20/2. Some experts proposed that the information related to databases should be included in a separate document. One expert considered that the measurement of distances in morphological characteristics would not be as easy as for molecular markers and, therefore, correlation between these two variables could present some difficulties. Some amendments in the wording were proposed and it was agreed that these would be reflected in a new draft.

Uniformity Standards for COY

44. The TWC reviewed document TWC/20/3, which included the information on the standards used for COYU and COYD sent in reply to a questionnaire issued to members of the Union. An expert from the Netherlands proposed the inclusion of information on the LSD value in the table. An expert from Germany informed the TWC that some work had been done in the TWA, in relation to the harmonization of plant variety descriptions, and further development of this investigation could include the analysis of the LSD used in different countries and its impact on the descriptions obtained.

45. The TWC agreed that further information was necessary to be able to propose a recommendation. It decided to repeat the survey and to have a new edition of the document for the following session and to improve the layout of the table as follows:

| Probabilitylevels | | | | | | | |
|-------------------|----------|------|-----|----|------|-----|----|
| | | COYU | | | COYD | | |
| | | +2 | (3) | +3 | +2 | (3) | +3 |
| Species | Country1 | | | | | | |
| | Country2 | | | | | | |
| | Country3 | | | | | | |

+2: Acceptanceafter2years

(3): Goto3rdyeartest

+3: Acceptanceafter3years

Questionnaireon“TestingofSeed -PropagatedOrnamentalVarieties”

46. TheTWOconsideredddocumentTWO/35/16,containingtheresultsofthequestionnaire ontestingofseed -propagatedornamental varieties. It was agreed thatthis survey shouldbe repeatedoverthenext3years.

[EndofAnnexandofdocument]