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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL COMMITTEE

Forty-Fourth Session
Geneva, April 7 to 9, 2008

MATTERS ARISING FROM THE TECHNICAL WORKING PARTIES

Document prepared by the Office of the Union

1.   This document summarizes certain matters arising from the 2007 sessions of the Technical Working Parties (TWPs) which are not expressly covered by specific agenda items. The matters arising are presented in two sections. The first section, "Matters for information and for a possible decision to be taken by the Technical Committee (TC)", identifies matters raised by the TWPs, which may require a decision to be taken by the TC. The Office of the Union (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.

2.   The following abbreviations are used in this document:

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
TWPs:	Technical Working Parties
TWV:	Technical Working Party for Vegetables

3.   The following table of contents specifies the items covered in this document:

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

Test Guidelines

Practical Guide for Drafters of UPOV Test Guidelines

4.   At its forty-third session, held in Geneva, from March 26 to 28, 2007, the Technical Committee (TC) noted that the Office of the Union (Office) had observed that the procedure for preparing Test Guidelines for consideration by the TWPs and by the TC was not always clear for new drafters (see document TC/43/3, paragraph 13). On that basis, the TC agreed that the Office should develop a practical guide for drafters of Test Guidelines (Practical Guide), which would be made available as a part of the "Drafter's kit" on the first restricted area of the UPOV website (see *http://www.upov.int/restrict/en/index_drafters_kit.htm*). That Practical Guide would reflect the procedure set out in document TGP/7 "Development of Test Guidelines", Section 2 "Procedure for the Introduction and Revision of UPOV Test Guidelines", but would provide more practical guidance in response to the questions which the Office regularly received. The Office prepared a draft Practical Guide for consideration by the TWPs at their sessions in 2007. The Practical Guide, presented in Annex I to this document, was produced on the basis of the comments made by the TWPs. The TC is invited to note that this matter will also be considered under agenda item 6 "TGP documents" (see document TC/44/5, paragraph 26(f)).

TG webpage

5.   The TC is invited to note that the Office is proposing to assist the drafters of Test Guidelines (i.e. Leading Experts) by the creation of a new web page (TG webpage), which would be accessible by a password issued to all Leading Experts. The TG webpage would contain the following:

(a)   General information:

(i)   practical guide for drafters of Test Guidelines (Practical Guide) (see paragraph 4);

(ii)   all items included in the TG Drafters Kit (i.e. General Introduction, adopted Test Guidelines in Word format, Electronic TG Template, Collection of Approved Characteristics, Additional Characteristics)

(b)   TWP-specific information:

(i)   Word versions of the draft Test Guidelines presented at the TWP (these would be posted on the TG webpage at the same time as they were posted on the TWP webpage);

(ii)   TWP comments on the draft Test Guidelines (extracted from the TWP report);

(iii)   list of TWP participants (extracted from the TWP report: to provide contact details for the subgroups of interested experts); and

(iv)   Annex from the TWP report with Leading Expert, Interested Experts and timetable for the preparation of drafts.

6.   The purpose of this initiative is to make relevant information available to Leading Experts as soon as possible and to provide that information in a way which is more efficient for the Office.

Guidance for the Development of Authority Test Guidelines

7.   At its forty-first session, held in Nairobi, Kenya, from June 11 to 15, 2007, the TWV (Technical Working Party for Vegetables) agreed that it would be useful to consider developing a more detailed section within document TGP/7 for guidance on the development of an individual authority's test guidelines (authority test guidelines) in the absence of UPOV Test Guidelines and, in particular, to include the possibility of providing a list of experts willing to provide guidance in the development of such guidelines. At their thirty-sixth and fortieth sessions, respectively, the TWO (Technical Working Party for Ornamental Plants and Forest Trees) and TWF (Technical Working Party for Fruit Crops) agreed with the approach proposed by the TWV and the following experts agreed to the inclusion of their names on such a list of experts:

> TWF: Mr. Erik Schulte (Germany)
> TWO: Mr. Henk de Greef (Netherlands)
>   Mr. Ton Kwakkenbos (European Community)
>   Mr. Jean Maison (European Community)
>   Ms. Andrea Menne (Germany)

8.   It is proposed that, subject to the agreement of the TC, the Office will establish a list of experts willing to provide guidance in the development of authority test guidelines and will provide the contact details of relevant experts in response to requests for assistance, as appropriate. Experts would be added to, or removed from, the list upon their request.

9.   The TC is invited to note that this matter will also be considered under agenda item 6 "TGP documents" (see document TC/44/5, paragraph 26(b)).

Shape and Color Characteristics

10.   At the forty-first ordinary session of the Council, held in Geneva on October 25, 2007, the Delegation of the Republic of Korea reported on the exercise concerning characteristics for plant shape in onion and *Cucurbita maxima* Duch., which had been discussed at the forty-first session of the TWV. It noted that that exercise, involving an exchange of photographs and descriptions between members of the Union, had been very helpful and suggested that a similar exercise might be undertaken for other crops and TWPs. The Council agreed that that matter should be considered by the TC and the TWPs.

11.   At its fortieth session, held in Kunming, China, from July 2 to 6, 2007, the TWO noted that the discussions on draft Test Guidelines at its fortieth session had identified the following issues which needed to be resolved with regard to the development of document TGP/14/1 Draft 3: Section 2, Subsection 3(1) "Color characteristics":

(a)   characteristics for "number of colors";
(b)   strategies for sets of characteristics to describe color patterns;
(c)   describing color patterns where those are in addition to the variegation in variegated varieties;

(d)   the consideration of whether pigments, such as anthocyanin, should be considered as a color; and

(e)   explanation of conspicuousness (e.g. whether it relates to color per se, color contrast, etc. and excludes the area covered by the color).

12.   The TWO agreed that it would be difficult to make progress on those matters within the TWO session in a timely and effective way and agreed to propose to hold a separate meeting to discuss the development of TGP/14/1 Section 2, Subsection 3 "Color" on the Friday afternoon and Saturday morning immediately prior to the TWF or TWO session in 2008, whichever was the earliest. It suggested that an invitation to that meeting could be sent to all TC and TWP experts. The TWF, at its thirty-eighth session, supported the TWO proposal to hold a separate meeting to discuss the development of TGP/14/1 Section 2, Subsection 3 "Color".

13.   The TC is invited to note that it will be invited to consider the following matters with regard to shape and color characteristics as part of its consideration of document TGP/14 "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents: Botanical Terms":

(a)   to recommend to the TWPs, at their sessions in 2008, to consider the results of the shape exercise, as presented in document TWV/41/10 Rev., in conjunction with their discussions on document TGP/14 (see document TC/44/5, paragraphs 48 and 53); and

(b)   to agree to the organization of a meeting to discuss the development of TGP/14/1 Section 2, Subsection 3 "Color" on May 30 and 31, 2008 (see document TC/44/5, paragraphs 49, 50 and 53);

14.   *The TC is invited to:*

(a)   note the practical guide for drafters of Test Guidelines (Practical Guide) presented in Annex I (see paragraph 4);

(b)   note the proposed creation of a new web page (TG webpage), to be accessible by a password issued to all Leading Experts(see paragraph 5);

(c)   consider the establishment of a list of experts willing to provide guidance in the development of authority test guidelines, as set out in paragraphs 7 and 8; and

(d)   note that it will be invited to consider the matters set out in paragraph 13, with regard to shape and color characteristics, as part of its consideration of document TGP/14.

Discriminatory power of morphological characteristics

15.   The *Ad Hoc* Crop Subgroup on Molecular Techniques for Maize (Crop Subgroup for Maize) agreed that its discussions on document BMT-TWA /Maize/2/8 "Examining characteristic sets for DUS testing: introduction to a work in progress" (*http://www.upov.int/restrict/en/bmt_cropsubgroups/docs/bmt_twa_maize_2_8.pdf*), concerning the discriminatory power of morphological characteristics, should be reported to the TWA (see document BMT-TWA /Maize/2/12 "Report", paragraphs 6 and 20).

> *16.   The TC is invited to request the TWA to consider the discussions in the Crop Subgroup for Maize on document BMT-TWA /Maize/2/8 with regard to the discriminatory power of morphological characteristics.*

Matters arising after the grant of a breeder's right

17.   During discussions on document TGP/11 "Examining Stability" at its forty-first session, the TWV agreed that, in addition to continuing the development of TGP/11, it would be of practical assistance to seek to develop a document on how to address problems concerning stability which were brought to the attention of an authority after the grant of a plant breeder's right. It noted that such a document could also be extended to address problems concerning distinctness, uniformity and novelty which were brought to the attention of an authority after the grant of a plant breeder's right and also to consider the status and use of the "official" variety description. The TWV noted that the development of such a document would be outside the framework of the DUS examination and, therefore, outside the scope of the General Introduction and TGP documents. It also noted the need for such a document to be endorsed by the Technical Committee and the Administrative and Legal Committee and agreed to await the views of those committees before starting work on such a document (see document TWV/41/13 "Report", paragraph 33).

18.   The Enlarged Editorial Committee (TC-EDC) discussed document TGP/11 at its meeting on January 8, 2008, and agreed that practical assistance on how to address problems concerning stability which were brought to the attention of an authority after the grant of a breeder's right should not be included in a document entitled "Examining Stability". However, it noted that there would be practical advantages in dealing with all aspects of stability in a single document. On that basis, it proposed that the TC, in conjunction with the CAJ, might consider an amendment to the title of TGP/11, with the document being clearly separated into two parts:

Part I: Examining Stability (Article 12 "Examination of the Application", of the 1991 Act of the UPOV Convention)

Part II: Stability after the grant of a breeder's right (Article 22(1) "Cancellation of the Breeder's Right", of the 1991 Act of the UPOV Convention).

19.   The TC is invited to note that matters concerning stability will be considered under agenda item 6 "TGP documents" (see document TC/44/5, paragraphs 34, 35 and 38).

20.   The TC is invited to:

(a)   consider the possible development of a document to provide guidance on: matters concerning distinctness, uniformity, stability and novelty which are brought to the attention of an authority after the grant of a breeder's right; and the status and use of the "official" variety description (see paragraph 17); and

(b)   note that the structure and content of document TGP/11 will be considered under agenda item 6.

Exchangeable software and database to search for TWC working documents

Database to search for TWC working documents

21.   It is recalled that, at its forty-third session, held in Geneva, from March 26 to 28, 2007, the TC noted the TWC (Technical Working Party on Automation and Computer Programs) proposal for a prototype of a database to search for TWC documents to be presented to other TWPs for comments. The TC agreed that the TWC should be invited to note the concerns expressed at the TC, in particular the need for care with regard to the use of TWP session documents, which it was noted did not represent an agreed UPOV position and did not contain comments made on those documents by the relevant UPOV bodies (see document TC/43/12 "Report on the Conclusions", paragraph 9).

22.   At its twenty-fifth session held in Sibiu, Romania, from September 3 to 6, 2007, the TWC considered document TWC/25/17, introduced by an expert from Germany.

23.   The TWC noted the concerns of the TC with regard to a database to search for TWC documents and, in particular, the need for care with regard to the use of TWP session documents, which the TC had noted did not represent an agreed UPOV position and did not contain comments made on those documents by the relevant UPOV bodies. In order to address those concerns, the TWC agreed that the title of the database should be amended to "Database to research TWC working documents" and agreed that a warning on the status of the documents and the purpose of the database should be automatically presented at each opening of the database. It also confirmed that the CDs containing the database would only be distributed to the participants at the relevant TWC session. The TWC confirmed the value of the database as a tool for TWC experts to develop new methods.

Exchangeable software

24.   The TWC considered document TWC/25/19, a copy of which is provided as Annex II to this document (English only). The Office explained that the software contained in document TWC/25/19 could be of great interest to members of the Union which did not have experts attending the TWC session, but explained that the Office could not raise awareness of that software because it had not been included in a UPOV approved publication. It noted that any

information on software which was included in the adopted version of document TGP/8 could be promoted within UPOV.

25.   The Chairperson invited the TWC to consider whether it would be appropriate to investigate ways of incorporating information on exchangeable software in document TGP/8. With regard to the need for evaluation of the software before its inclusion in document TGP/8, it was noted that that might be achieved on the basis of the experience of a suitable number of members of the Union. It was noted that, before taking the matter further, it would be necessary for all members of the Union which had provided information on exchangeable software in document TWC/25/19 to consider, subject to agreement by the TWC and the TC, whether they would wish for reference to their software to be included in a UPOV publication and, therefore, made available to all UPOV members.

26.   The TWC agreed that a new questionnaire seeking information on exchangeable software should be prepared for the twenty-sixth session of the TWC. It agreed that that questionnaire should include a request for contributors to provide information on their willingness to make the software available to UPOV members by inclusion in document TGP/8, subject to approval by the TWC and TC. It would also be necessary for contributors to indicate the extent to which they might provide support for the software. It was agreed that the TWC would consider whether and how such information might be provided in document TGP/8 at its twenty-sixth session.

27.   The TC is invited to consider whether the TWC should investigate ways of incorporating information on exchangeable software in document TGP/8, as set out in paragraphs 24 to 26.

II. MATTERS FOR INFORMATION

28. The following matters were considered at the twenty-fifth session of the TWC, held in Sibiu, Romania, from September 3 to 6, 2007:

Development of COY

A rationale for excluding varieties of common knowledge from the second growing cycle when COYD is used

29. The TWC considered document TWC/25/14 and received a presentation from an expert from the United Kingdom, a copy of which is provided as document TWC/25/14 Add.. It was explained that a next step would be to accommodate year-to-year variability in the approach.

Comparison of COYU and a method based on Bennett's test for coefficients of variation

30. The TWC considered document TWC/25/8, introduced by an expert from Poland.

Population standards used for assessing uniformity by off-types

31. The TWC considered the draft questionnaire on off-types contained in document TWC/25/18, as presented by an expert from Germany. The TWC noted that the questionnaire was intended to address only situations where uniformity by off-types was assessed on the basis of more than one sample, or on a sub-sample of a single sample, and agreed that the title of the questionnaire should be amended accordingly.

32. The TWC agreed that the results of the questionnaire should be reviewed with a view to incorporating guidance in document TGP/8, Part II, "1. The Method of Uniformity Assessment on the Basis of Off-Types".

Study on the use of data from multiple locations in DUS testing

33. The TWC considered document TWC/25/16, introduced by an expert from Germany. He explained that the conclusions of the work, as reported in document TWC/24/13, were as follows:

(a)   for the presented data in winter oilseed rape, due to significant variety x location effects, it was not recommended to use combined analyses over locations; and

(b)   the second location provided insurance to achieve results independent of difficult weather conditions or other risks. Furthermore, the high number of candidate varieties to be compared with a large reference collection required a very efficient and reliable testing system to establish distinctness. The use of location and the variety x location interaction effects on varieties was a very efficient element in that respect.

Review of test design: checking levels of quality

34.   The TWC considered document TWC/25/12, introduced by an expert from France, in conjunction with its discussions on document TGP/8/1 Draft 7, Part I. It noted that a revised version of document TWC/25/12, containing certain corrections to the text, would be posted on the UPOV website after the session.

35.   The TWC agreed that Sections I to III of document TWC/25/12 provided the basis for a new section on the quality control of DUS test observations, which had been proposed for inclusion in TGP/8/1 (see comments on document TGP/12 Draft 7, Part I, Section 2.9).

[Annexes follow]

PRACTICAL GUIDE FOR DRAFTERS (LEADING EXPERTS)
OF UPOV TEST GUIDELINES [1]

TEST GUIDELINES FOR DISCUSSION AT THE TECHNICAL WORKING PARTY

(a)   Test Guidelines to be re-discussed by the TWP

> • Please use the Word version of the draft Test Guidelines prepared by the Office for the TWP session as the starting point for the subsequent year's draft (it will be correctly formatted) and incorporate all agreed changes as recorded in the TWP report; then repeat the process in (b) and (c) below
>
> • The necessary information is provide in the UPOV website at [to be provided]:

(b)   Draft for circulation to the subgroup of interested experts:

Timing:	The deadline for circulation by the Leading Expert to the Interested Experts (Subgroup) is provided in an **Annex to the TWP report** (usually at least <u>three months before the TWP session</u>)
Format:	Draft Test Guidelines should be prepared using the **Electronic TG Template** (*http://www.upov.int/* [to be provided])
Sources of information:	**Drafter's kit for TGs** (*http://www.upov.int/* [to be provided]): – adopted TGs in Word format – TGP/7 Annex 4 "Collection of approved characteristics" Subgroup of interested experts / GENIE database (practical DUS experience)
Circulation and comments:	The Leading Expert (not the Office) circulates the draft to the Interested Experts. The list of Interested Experts is provided in an **Annex to the TWP report**. A deadline for comments to be made by the subgroup of Interested Experts is provided in the same **Annex to the TWP report**.

(c)   Draft for the TWP session

Timing:	The deadline for the draft to be submitted to the Office of the Union (Office) is provided in **Annex to the TWP report** (usually at least <u>six weeks before the TWP session</u>)
Format:	Draft Test Guidelines should be prepared with the **Electronic TG Template** (*http://www.upov.int/* [to be provided]) All characteristics in the Table of Characteristics should be numbered in sequence without letters (i.e. 1, 2, 3, <u>not</u> 1, 2, 2(a), 3) (previous numbering can be shown in brackets, e.g. "5 (old 4.)" **Revisions (track change)** mode should **not** be used: <u>Additions</u> can be indicated (manually) by highlighting & underlining ~~Deletions~~ can be indicated (manually) by highlighting & strikethrough Different colored text should **not** be used to indicate comments / changes Illustrations should be inserted as shown in the following page
"Final" drafts:	Drafts at the "final" stage should have no missing information from any chapter of the Test Guidelines and should include, for example, explanations of characteristics contained in the Table of Characteristics and an appropriate set of example varieties.

TEST GUIDELINES TO BE SUBMITTED TO THE TECHNICAL COMMITTEE

> • The **Office will prepare the draft** Test Guidelines for the TC
> • Please provide all missing information requested in the TWP report by the date specified in the **Annex to the TWP report**, but please **do not** provide that information in the form of revised Test Guidelines containing that information

[1]   Note: drafters should read TGP/7 "Development of Test Guidelines", in particular Section 2 "Procedure for the Introduction and Revision of UPOV Test Guidelines"

INSERTING IMAGES INTO THE TEST GUIDELINES

In order to avoid distortions of the illustrations and to minimize the size of the files, please:

(a) – **Use**: JPG, JPEG or PNG format to reduce the size of the images.
        Please do not use: TIF, TIFF, BMP, TGA, PCX or JP2.

(b) – Insert the illustration for each individual state into an individual cell of a table (e.g. by using the command edit; copy and then "paste" or "paste special"). Please see [Appendix] for further guidance.
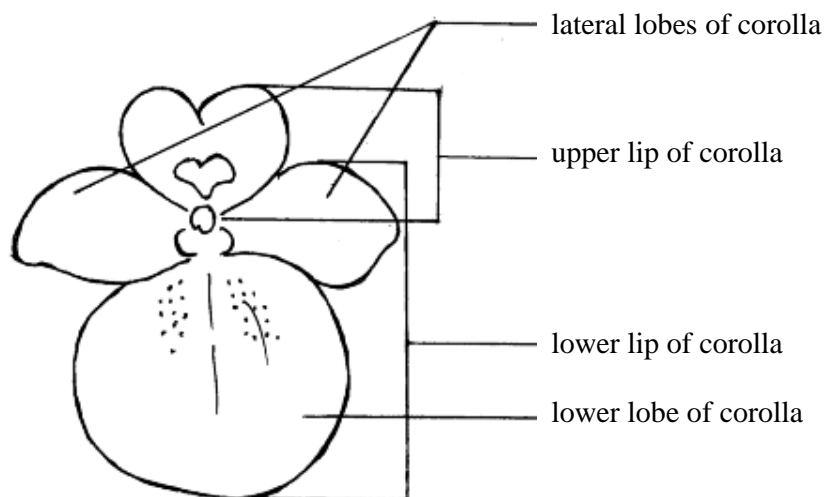
Example

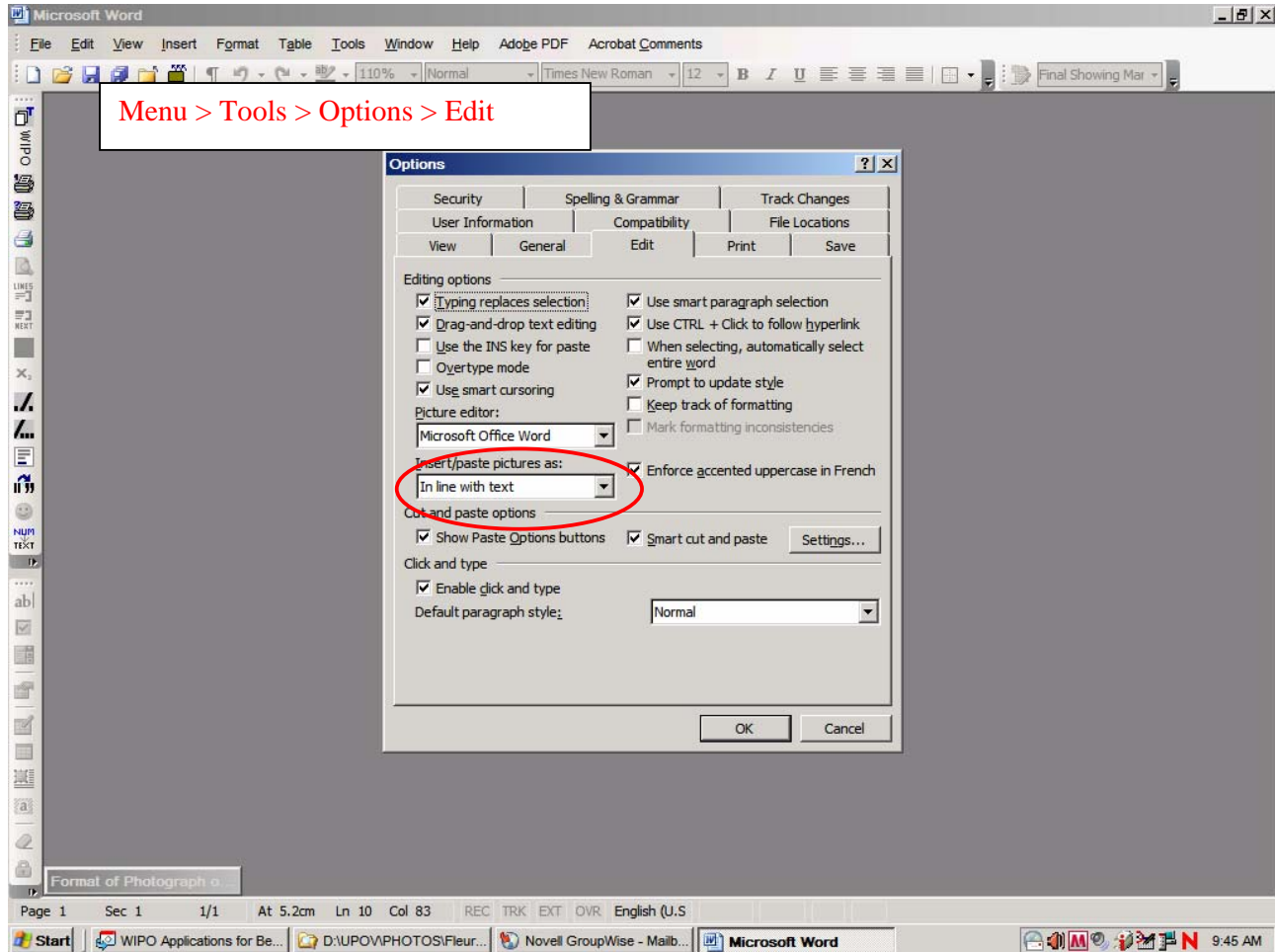| 1	2	3	4	5
cylindrical	narrow ovate	medium ovate	broad ovate	globose

(c) – When an illustration contains several elements (e.g. drawings, arrows, figures, text, etc.) please, fix them in place, by "grouping" or by incorporating them into an image (e.g. by using the command edit; copy and inserting it using "paste special" and PNG format).
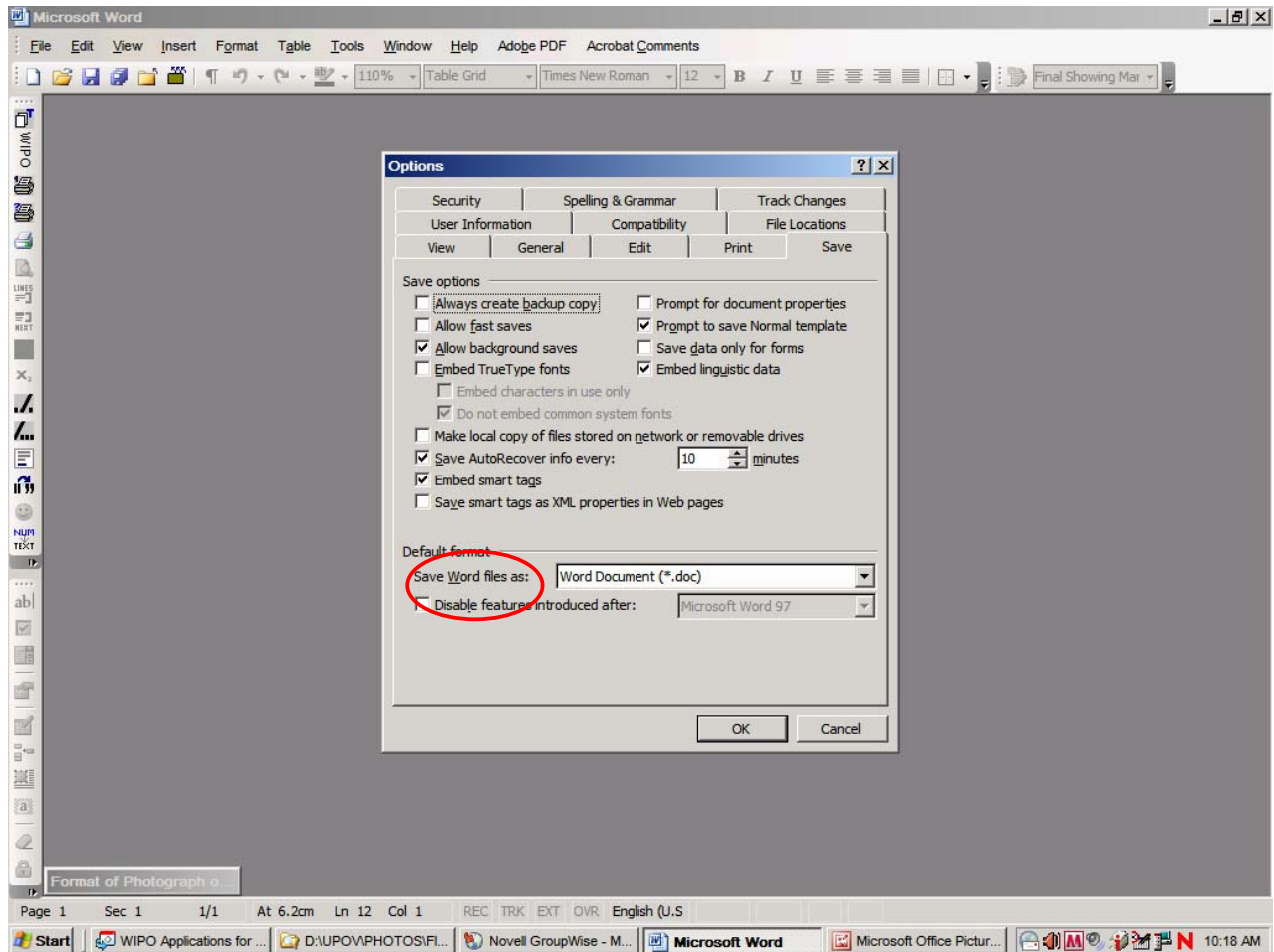
Ad. 21: Corolla: reflexing of lateral lobes
Ad. 22: Corolla: length in relation to width

lateral lobes of corolla

upper lip of corolla

lower lip of corolla

lower lobe of corolla

ANNEX I

APPENDIX

**IN WORD 2003 (AND ALIKE),
CHECK THAT THE FOLLOWING SETTINGS ARE ACTIVATED:**

and

Once the cursor is inside the table, insert the picture (Menu > insert > picture > from file > …).

If picture is already in a word document, cut and paste it in the table.

In previous versions of Word (Word 6.0 1995, or Word 97), use "Paste special" and uncheck the option "floating over text" on the right hand in order to paste the picture inside the table.

[Annex II follows]

TC/44/3

ANNEX II / ANNEXE II / ANLAGE II / ANEXO II

[In English only / En anglais seulement /
Nur auf englisch / En inglés solamente]

EXCHANGEABLE SOFTWARE

CZECH REPUBLIC

Program Name	Function	Programming Language	Available From
FTAB-MAX	Spreadsheet with statistical functions, for example: * Finding most similar varieties, based on euclidian distance from a target variety in a standardized multidimensional space; * Multidimensional grouping of varieties (hierarchical sorting) based on categorical descriptor values. Stops when distinction of all entries is reached; * Least Squares Analysis of nonorthogonal data, including least significant differences for average number of reps; * Simple statistics of specified rows or columns; * Multidimensional distinctness of measured variables of replicated entries (combined over environments); * Correlation matrices with indicated significance; * Two-dimensional scatter diagrams.	Compiled BASIC	Dr. E. Schwarzbach Brno

DENMARK

Program Name	Function	Programming Language	Available From
	Denmark uses SAS on Pcs for calculation of data from both DUS and VCU trials. Administrative data are stored and retrieved from a database developed in FOXPRO (Dbase IV-like) on Pcs. Macros in SAS are available which convert SAS datasets to files which can be read by DUST and related programs. Procedures using SAS can be copied by other SAS users.	SAS	K. Kristensen Denmark
SAS-SUMMARY	Calculates summary measures.		
SAS-ANOVA	Calculates analyses of variance, variety means and SLD values.		
SAS-GLM			
SAS-PLOT	Residual plots and plots of standard deviations against plot number and/or means.		
SESENS	Convert SAS-files to ascii-files which can be used as input for UNIF3 (Fortran uniformity program supplied by M Talbot).		
SESSELV	Convert SAS-files to ascii-files which can be used as input for TVAL and TSUM (Fortran distinctness programs which are part of the DUST program supplied by S T C Weatherup).		

FRANCE

Program Name	Function	Programming Language	Available From
GAIA	Software with a built-in database and a window user interface. Computes pair comparison on sets of varieties and shows where two varieties have different observed values. Crop experts define weights for observed differences per characteristic. These individual weights and their sum are used to provide assistance to crop expert in finding varieties which are close and need special attention, and varieties which are extremely different and do not need to be further compared in field trials. GAIA helps in management of reference collection.	Windev	Cristophe. chevalier@ geves.fr
LCDMV	LCDMV is a SAS program using SAS-STAT and SAS-IML packages. LCDMV computes genetic distances between varieties when biochemical or molecular markers are available. Markers can be dominant or co-dominant. Varieties can be described with results from groups or from individual plants. Distances can be computed which takes into account the position of the marker on the chromosome (chromosome number, and position on chromosome)	SAS	Cristophe. chevalier@ geves.fr

GERMANY

Program Name	Function	Programming Language	Available From
SAS - COY - D	Distinctness tests for candidate varieties with 3, 2 or 1 year of trial results. Calculation of ANOVA summary statistics, MJRA, LSD-values, outlier checking, residual plots, summary table of distinctness results, similar varieties. Options: long range LSD values, robust estimate of error mean square.	SAS	Bundessortenamt, Hanover
SAS - COY - H	Homogeneity test for candidate varieties with 3 and 2 years of trial results. Functions and output as described in document TC/30/4 (COY-U).	SAS	Bundessortenamt, Hanover
VERA	Generates randomized designs for variety trials with up to 225 entries: complete blocks, with entries arranged in groups (e.g. maturity), split plots (2 factors), split plots where subplots are arranged in an alpha design.	SAS	Bundessortenamt, Hanover

JAPAN

Program Name	Function	Programming Language	Available From
KIRI	General data base software which contains information on applications (such as name and address of applicant, genera and species of variety, proposed denomination, date of application etc.) and registration (denomination, date of registration, characteristics of registered variety etc.).	C	Plant Variety Protection and Seeds Division, MAFF, Tokyo, Japan

NETHERLANDS

Program Name	Function	Programming Language	Available From
Hand held terminal	Programs on hand held terminals Husky FS/2 for field observations with checks on data.	MS-DOS Turbo Pascal VAX Fortran	Gerard Middendorp CPRO-DLO, PO Box 16 6700 AA Wageningen The Netherlands
CIS	Oracle database with applications for DUS and VCU trials data storage and analysis.	Designer 2000	Gerard Middendorp CPRO-DLO
Genstat Procedures	A suite of dedicated procedures for analysis of variety data from the CIS database.	Genstat 4.1	Gerard Middendorp CPRO-DLO
SCIL-Image	Image analysis package with C-command interpreter, menu's, easily expandable large library of imaging functions.	C	Gerie v.d Heijden CPRO-DLO

POLAND

Program Name	Function	Programming Language	Available From
POWT3	Analysis of categorial data; the difference between all pairs of varieties are tested.	FORTRAN F1	W.Pilarczyk COBORU Poland
POWT5	Analysis of variance for cumulative observations over a period of time. Program can be used, for example, for the analysis of heading dates and for so called "dynamics of flowering".	FORTRAN F1	

RUSSIAN FEDERATION

Program Name	Function	Programming Language	Available From
ZAJVKA	Information on applications (name and address of applicant, proposed denomination, date of application etc) and registration (denomination, date of registration)	SQL Windows	Chief of IT Department Valentin Sherbina Moscow (495) 207-6826
OOS	General database software for programming and DUS-analysis of data of plant varieties trials	SQL Windows	Chief of IT Department Valentin Sherbina Moscow (495) 207-6826
PLOD_PLAN	Database software for DUS-analysis and programming of data of fruit- and berry- DUS trials	SQL Windows	Chief of IT Department Valentin Sherbina Moscow (495) 207-6826
ISS (SPRAVKA)	Software for report, calculate and analyze data from plant varieties trials for last 10 years	Borland C (DOS) VBA (In formation)	Chief of IT Department Valentin Sherbina Moscow (495) 207-6826

SLOVAKIA

Program Name	Function	Programming Language	Available From
ANALIST 1.1	Identification of wheat varieties using Image Analysis of 16 morphometrical parameters of wheat seeds, compare morphometrical parameters of tested sample with standard parameters of reference varieties (from catalogue), compute the similarity of varieties and ranking of varieties by level of homology of their shapes.	PASCAL 6.0	Mr.Lubomír Horváth Fax: 0042 07 821763 Slovakia
ANALIST 2.1	Identification of bean varieties using Image analysis of 16 morphometrical parameters of bean seeds, compare morphometrical parameters of tested sample with standard parameters of reference varieties (from catalogue), compute the similarity of varieties and ranking of varieties by level of their homology of shapes.	PASCAL 6.0	
ANALIST 3.1	Identification of individual species of plant seeds and admixtures in tested samples using 5 morphometrical parameters.	PASCAL 6.0	
SPECTRUM 1.1	Identification of varieties using electrophoresis and densitometric data. Standardization of electrophoretic spectra by 3 reference bands, compute relative homology of tested and catalogized spectra and ranking of spectra by level of relative weighted homology.	CLIPPER 5.0	

UNITED KINGDOM

Program Name	Function	Programming Language	Available From
DUST	General program for analysis of data from DUS trials. Includes facilities for COY analysis and a wide range of multivariate analysis techniques. The software package is currently available in a DOS-based version (DUST9) and in a Windows 95/NT version (DUSTNT).	FORTRAN 90	Dr. Sally Watson, Biometrics Branch, Agri-Food & Bioscience Institute, Newforge Lane, Belfast BT9 5PX, UK Tel: (44) 2890 255 292 Fax: (44) 2890 255 008 Email: sally.watson@ afbini.gov.uk

The DUST Software Package

The DUST system was developed specifically to meet the needs of DUS (Distinctness, Uniformity and Stability) testing stations for software, to organize, analyze and report data from DUS field trials. DUST is in routine use at several DUS centers for the management of data from trials of grasses, legumes, vegetables and fodder crops. It incorporates many of the UPOV-recommended statistical procedures for these crops. The DUST package handles data through the stages of collection, storage, single-year summary, and multi-year summary. As well as providing the UPOV-recommended procedures, it includes facilities for:

- identifying most similar varieties based on observations from a number of characters;
- producing variety descriptions.

The DUSTNT system will run on Pentium PCs. The minimum specification of PC needed to run the software is a 486 DX processor with 36 mbyte of memory. For further information and details of availability please contact:

UKRAINE

Program Name	Function	Programming Language	Available From
Microsoft SQL-Server 7.0	Database. Contains administration information and results of DUS & VCU trails.	TRANSACT-SQL	Alex Iluchenko ias@sops.gov.ua
MS Access	Database management system.	MS Visual Basic	
ARM-SORT	Client application for DUS & VCU trails data storage and analysis using statistic methods.	Delphi, MS Visual Basic	

DATABASE MANAGEMENT SYSTEMS IN USE

Name	Hardware - OS	Data used	Interface
Oracle	Vax II - VMS (NL) Dec Alpha - VMS (UK) Sequent - Dynix (UK) Sun - Solaris (UK) Axil - Solaris (FI) PC - Windows NT (F,UK)	Variety (F, FI, NL, UK) Seed Cert (FI, NL, UK) Administrative (F, NL, UK) Photo/slides/herbarium (NL)	Fortran,Pascal, Cobol, C, SQL/NT Servers, Developer 2000, VBA, Access, WP packages
Informix	Hewlett-Packard - HP UX (D)	Admin+Technical (D)	Fortran, C, SAS; VBA links to Word/Excel
dBase III+	PC - Dos (ES) PC (SK)	Technical (ES, SK) Admin (ES, SK)	Assembly Language only
Fox Pro 2	PC - Windows(CZ)	Admin+variety (CZ)	MS Office, dBase, Fortran
Visual Fox Pro	PC - Windows NT(CA) PC - Windows (DK)	Admin (CA) Admin+variety (DK)	WordPerfect, MS Office FoxExpress
RDB	VAX 4300 - VMS (F)	Admin+Technical (F)	-
IDSMA	ICLS39 VME (PL)	Admin+Variety (PL)	COBOL Application Master
Progress	Axil - Solaris (FI)	Admin (FI)	Sylk
MS Access	PC - Windows (D, F, SK, UK)	Variety (UK) Technical (D, F, SK, UK) Admin (F, SK, UK)	-
MS Excel	PC - Windows (HU)	Admin+Tech+Variety (HU)	VBA

[End of Annex II and of document]