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## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

**TECHNICAL WORKING PARTY  
ON  
AUTOMATION AND COMPUTER PROGRAMS****Eleventh Session****Cambridge, United Kingdom, June 2 to 4, 1993****REPORT**

adopted by the Technical Working Party  
on Automation and Computer Programs

**Opening of the Session**

1. The eleventh session of the Technical Working Party on Automation and Computer Programs (hereinafter referred to as "the Working Party") was held in Cambridge, United Kingdom, from June 2 to 4, 1993. The list of participants is reproduced in the Annex to this report.

2. Dr. Keith Doodson, Deputy Director of the National Institute of Agricultural Botany (NIAB), welcomed the participants to his office in Cambridge. The session was opened by Mr. Kristian Kristensen (Denmark), Chairman of the Working Party.

**Adoption of the Agenda**

3. The Working Party adopted the agenda for its eleventh session, which is reproduced in document TWC/11/1, after having agreed to add an additional item "UPOV Central Computerized Data Base" and deleted item 15 (Characteristics of shape).

**Reports on Subjects of Special Interest to the Working Party Raised During the Twenty-eighth Session of the Technical Committee and on Questions Raised by Other Technical Working Parties**

4. Dr. Thiele-Wittig reported on the main subjects of interest to the Working Party raised during the last session of the Technical Committee, referring for further information to the full report of that session reproduced in document TC/28/6. He further reported on the first session of the newly established Working Group on Biochemical and Molecular Techniques and DNA-Profiling in particular (BMT), as well as on the plans regarding the establishment of a UPOV Central Computerized Data Base and the task given to the Working Party in this context by the Consultative Committee.

5. In compliance with the request of the Technical Working Party for Agricultural Crops, Mr. Grégoire (France) reported on the possibilities of sequential analysis. The Working Party agreed to discuss this question during its next session, especially the circumstances under which it could be used, what ISTA used in this respect and what the practical applications could be for its use for UPOV purposes. In preparation for those discussions, Mr. Talbot (United Kingdom) would prepare, by the end of 1993, a paper based on an existing video explanation of that method. In addition, Mr. Grégoire (France) would prepare, by January 1994, a paper on the application of sequential analysis to electrophoresis tests using the ISTA practice.

6. The Working Party received short reports from some of the experts on recent developments in their countries. Dr. Weatherup (United Kingdom) reported on further developments in the multivariate distinctness method, the transfer of available programs to the PC and the follow-up of the COYU analysis. Mr. Talbot (United Kingdom) reported on an efficiency design in DUS tests for vegetables in order to reduce the number of reference varieties to be grown. Mr. Pilarczyk (Poland) reported on the revision of the testing methods in his country in order to bring them into line with UPOV standards, on work on a data base on variety descriptions and on the dynamics of flowering and heading. Mr. Grégoire (France) reported on a new structure within GEVES and on the transfer of the seed testing from Paris to Angers. Dr. Laidig (Germany) reported on the change from mainframe computer to UNIX and INFORMIX. Most of the existing applications required complete reprogramming. They used SAS for VCU trials and COYU and would also use SAS for COYD. The program for COYD would be amended to handle unbalanced data and to cope with long term LSD-values. They planned to use ISDN in future to carry data from field stations to headquarters. Mr. van der Heyden (The Netherlands) reported on his studies on image analysis in field beans, onions and flax as well as on trials with test copies of pictures on CDI (Compact Disk Interactive), which comprised a complete search system combined with pictures and voices. Mr. Kristensen (Denmark) also reported on plans to change from a mainframe computer to PCs.

**Combined Over-Years Distinctness (COYD) Analysis, Including Long-Term LSD**

7. Dr. Weatherup (United Kingdom) introduced document TWC/11/11 containing an updated description of the COYD analysis preceded by a simple and easily understandable summary. He received a few proposals for further improvements (inclusion of a formula for SE(x) and of F3, addition of examples) and would prepare a revised version of the document for the Technical Committee.

8. There was no document on the use of Long-Term LSD. In an ad hoc survey, it appeared that only two countries currently used that method while a few others considered its use for crops with a low number of varieties in test leading to few degrees of freedom, but also as a basis for calculating an LSD value after only one year of tests. For its application after only one year

the standards would still have to be set. The Working Party repeated its recommendation to use the method on a provisional basis if less than 20 degrees of freedom were available. Mr. Talbot (United Kingdom) would prepare, by the end of the year, a new version of the present text for that method in a similar way as for COYD, i.e. a simple, easily understandable explanation and a detailed description of the method comprising the circumstances of its application as well as its limitations and clarifying examples.

#### Combined Over-Years Uniformity (COYU) Analysis

9. The Working Party noted the introduction to document TWC/11/6 prepared by Dr. Weatherup (United Kingdom) on the study of the proposed COYU analysis levels. The document concluded by stating that the probability levels that had been agreed for experiments on grasses for 1991 and 1992 would not allow a smooth transition from the present uniformity criteria to the COYU criteria. Even a level of 0.1% would lead to an increase in the number of rejected varieties. He would consider whether it was possible to discard certain characteristics from the testing as a whole.

10. The Working Party noted the introduction to document TWC/11/9 given by Mr. Falkenberg (Denmark) who concluded that the proposed levels were somehow less stringent. As normally only few varieties were rejected, however, the conclusion should be used with caution.

11. The Working Party noted furthermore the introduction of document TWC/11/10 given by Mr. Falkenberg (Denmark). The document compared in tables the results of different applications by different countries reported upon in the past years in various documents.

12. In an ad hoc survey concerning the levels preferred by the various countries, it appeared that Denmark, Germany, The Netherlands and Spain preferred the levels provisionally proposed in the past, while the United Kingdom saw great difficulties in changing to a method which would increase the number of rejected varieties by about 14%. The expert from France had a slight preference for the 0.1% level.

13. The Working Party recalled the link between the testing of distinctness and uniformity, that the testing of uniformity was an auxiliary requirement for distinctness, and that all characteristics used as a routine for the testing of distinctness, as well as any other used especially for that variety, should also be tested for uniformity.

14. The Working Party finally concluded to propose to the Technical Committee that the COYU method should be applied to all cross-fertilized agricultural species with the following levels:

For a rejection after 3 years: 0.2%  
For a rejection after 2 years: 0.2% (non compulsory)  
For an acceptance after 2 years: 2.0%.

These levels should be final for grass species and provisional for other agricultural cross-fertilized species until confirmation of the possibility of also applying the levels definitively to those other species. For those countries that would encounter difficulties with the change, a transitional period of three years should be foreseen to change to levels of 0.1%, 0.1% and 1.0% and another two years to reach the levels proposed above.

15. Mr. Talbot (United Kingdom) would extend the scope of document TWC/11/2 before mid-September, by including the agreed probability level, the program for the PC as well as more details on the program, the analysis of variance and the formula for the acceptance length, explanations on the one-sided test, and the same examples as those to be included in the COYD analysis document by Dr. Weatherup.

### Testing of Uniformity

16. Mr. Kristensen (Denmark) introduced document TWC/11/8 containing amended proposals for the replacement of paragraph 28 of the General Introduction to the Test Guidelines. He explained the need for revision of the tables for acceptable off-types as reproduced in document TC/XXV/8.

17. The Working Party had a lengthy discussion on the definition of "acceptance probability" and finally agreed on the following definition:

"The acceptance probability is the probability of accepting a variety with P% of off-types. However, the real probability will - because of the discontinuity of the number of achievable off-types - always be greater than or equal to the acceptance probability [A sampling plan is chosen so that the probability of accepting a variety with a low number of off-types is greater than or equal to a predefined probability level]".

18. After a detailed study of document TWC/11/8, the Working Party agreed to amend the document in several parts. Mr. Kristensen (Denmark) would prepare a new version in the week following the session and send it by fax to Messrs. Laidig (Germany), Grégoire (France) and Weatherup (United Kingdom) for comments and one week later to the Office of UPOV to make it available to the experts of the Technical Working Party for Vegetables during that Working Party's session in Menstrup Kro, Denmark, in July. The amendments would comprise explanations of the meaning of "nominal standard" and "acceptance probability," the risk involved when experts chose low sample sizes, would give more information, especially on the Beta risk, add two examples which would be worked through the entire documents, spelling out each step in the procedure, a change in the sequence of the columns of Appendix I and add examples and 90% acceptance probability. As to the sample sizes, it would not restrict them as foreseen in Appendix III, but give instead the Beta risk for those sample sizes, show the Alpha and Beta risks graphically and explain why certain sample sizes should not be used.

### UPOV Central Computerized Data Base

19. Referring to the short report given at the beginning of the session under item 3 of the Agenda, Dr. Thiele-Wittig reiterated the task given to the Working Party by the Consultative Committee, i.e. to solve, if possible, all open technical questions regarding the establishment of a central computerized data base so as to enable the Ad Hoc Working Group, which is to meet in Geneva on July 13 and 14, 1993, to prepare a definite proposal to the Council for a central computerized data base prototype. He referred furthermore to the information contained in document CAJ/32/2-TC/29/2 and the annex to circular U 2028 distributed during the session.

20. Going through the questions contained in the annex to circular U 2028, the Working Party was informed of the provisional answers given by the expert from WIPO. It was generally in agreement with those answers and thus only had the following comments to make.

21. Each member State should be free to decide what information other than the minimum to supply. A Macintosh might be too small to be able to search in the CD-ROM. It would be preferable to decide which fields the experts wished to download. The amount of information to be supplied might, for some countries, be so voluminous that up to 50 floppy disks (approx. 200 megabytes) were needed to transmit it. Therefore, the use of other carriers, such as DAT tapes or GIGA tapes, should also be considered.

22. The Working Party considered the WIPO format in Annex IV of document CAJ/32/2-TC/29/2 as too constraining for UPOV. Discussions therefore were based on document TWC/11/3. An ad hoc subgroup was formed which met in the evening of June 3 in order to adjust the format contained in document TWC/11/3 and an amended version of that document (TWC/11/3 Rev.) distributed during the session. The latter had been prepared in the first instance to serve for a bilateral exchange of information from national gazettes and was now amended to also enable the transfer of national data to the envisaged UPOV central computerized data base.

23. As a result of that ad hoc subgroup meeting, the Working Party was informed of several changes to document TWC/11/3. It agreed to the changes proposed, especially those included in Appendix A1, i.e.

(i) an additional field "unique variety identifier in the country" to combine the information which might be stored in one country for one and the same variety under the three different groups: (a) Plant Variety Protection, (b) National Listing and (c) Other;

(ii) two additional fields before the field "Remarks," namely the "name of unprotected and non listed varieties" and "Source of information of unprotected and non listed varieties."

The Working Party also proposed field lengths for the individual fields.

24. As a result of the discussions in the Working Party, it was furthermore agreed that free fields should be used in the format rather than fixed fields. Mr. Talbot (United Kingdom) would prepare a further amended version of document TWC/11/3 and fax it to the Office of UPOV to enable it to prepare a new document for presentation to the Ad Hoc Working Group meeting in Geneva on July 13 and 14, 1993. That document should also be distributed to the members of the Working Party. Dr. Laidig (Germany) would furthermore check whether Appendix A1 covered all fields needed in a UPOV data base, propose further fields if necessary, and mark those that should be searchable.

25. Messrs. Grégoire (France), Laidig (Germany), del Fresno (Spain) and Pullen (United Kingdom) would then, before October 1993, try out the format on data from the national gazettes and study whether it worked for an exchange of information.

26. In order to come to an agreed common code for the Latin names of the species, the experts from France, Germany, The Netherlands, Spain and the United Kingdom would send their lists of Latin names used at the national level before the end of July 1993 to the Office of UPOV, both in printed and in electronic form, preferably in WordPerfect or ASCII.

27. The Working Party again expressed concern about the amount of data to be supplied each month. It preferred to provide each time, if possible, the full national data base but, if that became too expensive, other solutions should

be sought. Other solutions could be, for instance, to separate the non-protected, non-listed varieties from the rest and issue a separate disk every third month or once a year, or place all information up to a certain date (e.g. the end of the year) on a separate disk and issue on the subsequent disks only the changes to that separate disk.

#### Access to International Data

28. The Working Party noted the information contained in document TWC/11/4. It asked all experts to supply any information or modifications to Mr. Talbot (United Kingdom) before January 1, 1994, for the preparation of an updated version for the next session.

#### Programs Which Can Be Readily Assimilated into Other Plant Variety Computer Systems

29. The Working Party noted the information contained in document TWC/11/5. It asked all experts to supply any information or modifications to Mr. Talbot (United Kingdom) before January 1, 1994, for the preparation of an updated version for the next session. The revised document should then also comprise information on the German programs in SAS and on the PC version of COYD prepared by Dr. Weatherup (United Kingdom).

#### Multivariate Analysis

30. Dr. Weatherup (United Kingdom) introduced document TWC/11/7 on the use of a multivariate criterion in distinctness testing. He concluded that the evaluation of the  $D^2$  profile for particular problem pairs could aid the determination of distinctness by drawing attention to derived univariate characteristics of assistance in specific circumstances. As time did not allow a detailed discussion of the paper, the Working Party would continue its discussions during its next session on the basis of that document and possibly an updated version to be prepared by Dr. Weatherup.

#### Handling of Visually Assessed Characteristics

31. Dr. Laidig (Germany) introduced document TWC/11/12 on the handling of visually observed characteristics. Lack of time allowed only explanations on the research done. Thus the Working Party agreed to discuss the document in further detail during its next session. The Working Party requested the German experts to also present the document to the members of the Technical Working Party for Ornamental Plants and Forest Trees during that Working Party's session in Antibes, France, in October 1993.

32. The Working Party noted furthermore that Mr. Jansen (The Netherlands) intended to finalize his paper on visually assessed characteristics for the Working Party's next session.

**Review of Documents on Statistical Methods Discussed During Past Sessions of the Working Party**

33. The Working Party noted document TWC/11/13 distributed during the session. It agreed to continue working on that document and prepare a more complete version for its next session. That version would in particular comprise, or at least refer to, the amended version of the COYD analysis to be prepared by Dr. Weatherup and the revised versions of the Long-Term LSD and COYU analysis to be prepared by Mr. Talbot. The COYD and COYU versions were also to be presented to the Technical Committee at its session in October 1993.

**Future Program, Date and Place of Next Session**

34. The Working Party noted a letter from Mr. Bar-Tel (Israel) repeating his invitation to hold the 1994 session of the Working Party in Israel. The Working Party accepted that invitation and agreed to meet in Israel from April 12 to 14, 1994. In view of the full agenda for the next session, the Working Party would need three full days for discussions and agreed that the meeting would start on April 12 at 9 a.m. and would close on April 14 at 6 p.m. During its session, the Working Party would either continue or start discussions on the following items:

(i) Report on subjects of special interest to the Working Party raised during the thirtieth session of the Technical Committee and on questions raised by other Technical Working Parties: oral reports;

(ii) Report on new developments in member States: oral reports;

(iii) Long-Term LSD: all experts to study the method on selected species, Mr. Talbot to prepare a paper by the end of 1993;

(iv) Combined Over-Years Uniformity (COYU) Analysis: Mr. Talbot to prepare, by mid-September, a revised document for the Technical Committee; all to check whether the proposed level could also apply to cross-fertilized crops other than grasses;

(v) UPOV Central Computerized Data Base: (a) the Office of UPOV to prepare a report, (b) experts from DE, ES, FR, GB, NL to prepare a report on the application of the harmonized format;

(vi) Sequential Sampling: (a) Mr. Talbot to prepare, by the end of the year, a document on the basis of an existing video explanation, (b) Mr. Grégoire to prepare, by the end of January 1994, a document on the application of the analysis to electrophoresis tests using the ISTA practice;

(vii) Multi-variate analysis: Document TWC/11/7 and, if possible, a new paper prepared by Dr. Weatherup by the end of the year;

(viii) Access to international data: Mr. Talbot to update the list of Computing Center Electronic Communications (document TWC/11/4) on the basis of comments on that list to be sent to him by January 1, 1994;

(ix) Programs which can be readily assimilated into other plant variety computer systems: Mr. Talbot to update document TWC/11/5 on the basis of comments to be sent to him by January 1, 1994;

(x) Review of documents on statistical methods discussed during past sessions of the Working Party: all experts involved with the preparation of document TWC/10/3 and TWC/11/13 to send revised texts to the Office of UPOV by the end of the year;

(xi) Handling of visually assessed characteristics: (a) discussions on document TWC/11/12 prepared by Dr. Laidig, (b) Mr. Jansen to prepare a document by the end of the year;

(xii) Image analysis: Mr. van der Heijden to prepare a document by the end of the year.

The Working Party noted an invitation to meet in 1995 in Poland.

#### New Chairman

35. The Working Party proposed to the Technical Committee and the Council that they elect Mr. Grégoire (France) as Chairman of the Working Party for the coming three years.

#### Visits and Demonstrations

36. On the afternoon of June 3, 1993, the Working Party visited the DUS cereal trials of NIAB, the DUS ornamental trials, saw the image analysis method being applied, watched demonstrations on the PC DUST system and received information on the electrophoresis and DNA research presently going on at NIAB.

37. This report has been adopted by correspondence.

[Annex follows]

TWC/11/14

## ANNEX

**LIST OF PARTICIPANTS  
AT THE TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS  
CAMBRIDGE, UNITED KINGDOM, JUNE 2 TO 4, 1993**

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