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

GENEVA

## TECHNICAL COMMITTEE

Twenty-fifth Session  
Geneva, October 5 and 6, 1989

MATTERS ARISING FROM THE 1989 SESSIONS OF THE TECHNICAL WORKING PARTIES  
TO BE DEALT WITH BY THE TECHNICAL COMMITTEE

Document prepared by the Office of the Union

This document summarizes, in its Annex I, matters arising from the 1989 sessions of the Technical Working Parties which have to be dealt with by the Technical Committee (hereinafter referred to as "the Committee"). They comprise: (i) questions presented by the Technical Working Parties to the Committee; (ii) important decisions taken by the Technical Working Parties and communicated to the Committee for information; (iii) matters dealt with by the Technical Working Parties on the instructions of the Committee or in preparation for discussions planned in the Committee under separate agenda items. The headings of the different items are listed on page 1 of Annex I.

As the TWF meets the week preceding that of the Committee, some further questions may be presented orally during the session or in an addendum to this document.

To shorten references in this document to the various Technical Working Parties, use is made of the codes that designate their documents, namely:

- 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.

[Annex I follows]

MATTERS ARISING FROM THE 1989 SESSIONS OF THE TECHNICAL WORKING PARTIES  
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### Most Similar Variety

1. The TWC noted document TWC/VII/9 comparing the t-value method with the Generalized Distance  $D^2$ -method. The results indicate that in general both approaches provide the same or nearly the same most similar variety. There are, however, some instances where the methods differ. In that case, the  $D^2$  method will provide a more reliable most similar variety. The above method was applicable only to measured characteristics or only with certain reservations to visual observations which can be converted to the continuous 1 to 9 scale. One shortcoming would be that it did not easily allow for weighting different characteristics according to certain criteria as, for example, economic importance. The TWC agreed to make a survey on existing methods in order to identify similar varieties. Experts should send their information to Mrs. Campbell (GB) by March 1990.

(see TWC/VII/20 Prov., paragraphs 33 to 35)

2. The Committee is invited to note the above information.

### Standardized Variety Description

3. The TWC noted document TWC/VII/7 outlining the method for obtaining variety scores from continuous measurements. The document explains that there are three possible methods for deriving scores, the first method being the running score which is fixed once a variety has completed a specified number of years of trials, the second being the best estimate method which is based on all of the available data, and the third method involving reading fixed scores for a few varieties and deriving scores for the remaining varieties from the regression of the fixed scores on the variety means over trials. The TWC encouraged member States to try out the program and to report their findings to the next session of the TWC. The method was held to facilitate the finding of adequate reference examples for the Test Guidelines.

(see TWC/VII/20 Prov., paragraphs 36 and 37)

4. The Committee is invited to note the above information.

### Existing Data Base Management Systems

5. The TWC agreed to recommend to the Technical Committee that it discuss the question of access by authorities of other member States responsible for plant variety protection and testing to data held by the Offices of other member States and that it transmit the question to the Administrative and Legal Committee for further study in order to reach coordinated authorization to access the data of other member States. The TWC agreed that it would be useful to have an international data base structure which all could adopt or, as those which have already implemented their own structure would not easily change it, at least those countries which build up or plan to change existing data base structures. The data to which access would be helpful, would comprise all data from national gazettes (variety denominations, variety descriptions, etc.) as well as technical data (full test reports, etc.). A first draft specifying the requested information has been distributed by circular for comments. A revised paper will be submitted to the Technical Committee for discussion in its October session. The TWC noted that there was a project between the United

Kingdom and The Netherlands to develop a corporate data structure using ORACLE and SQL. The proposals for the project will be presented to the TWC during its next session. For the future, the plan was discussed to develop a distributed data base of information with each member State holding its own information and with a common system of query and retrieval.

(see TWC/VII/20 Prov., paragraphs 38 to 41)

6. The Committee is invited to note the above information and to consider possible steps to be taken.

#### Testing of Homogeneity in Self-Fertilized Plants

7. The TWC noted document TWC/VII/4 prepared by experts from the Federal Republic of Germany and indicating some parameters defining a sample scheme, the role of the sample size, and explanations to the tables in its annex prepared for different acceptance probabilities and population standards. Table 11 of that document would be comparable to the table in the General Introduction to Test Guidelines (TG/1/2). The TWC agreed to present the document to the Committee for approval and thereafter to the individual Technical Working Parties to facilitate their task of choosing the most appropriate levels for each species. The German experts were asked to prepare some further explanations and a recipe for the use of the different tables. The new version of that document is reproduced in document TC/XXV/8.

(see TWC/VII/20 Prov., paragraph 27)

8. The Committee is invited to take the necessary decisions.

#### Testing of Homogeneity in Cross-Fertilized Plants With the Combined Over-Years Uniformity (COU) Criterion

9. The TWC noted document TWC/VII/17 on the comparison of actual homogeneity decisions with those made by the Combined Over Years Uniformity (COU) criterion applied to data of 1988 in the United Kingdom. The TWC also noted document TWC/VII/12, giving the results of the application of that method to data in the Federal Republic of Germany. From the two studies, it was concluded that the comparisons made between the new method for the calculation of homogeneity and the present one applied to data of certain grasses gave a fairly good result if the following options were taken:

	DE	GB
- 3 years rejection level at	0.2%	0.1%
- 2 years rejection level at	0.2%	-
- 2 years acceptance level at	5%	1%

The TWC concluded that the COU criterion was a unique method and that all member States should move towards studying this method in applying it to cross-fertilized species. The method was more objective than the present decision practice used in the different member States. The experts from The Netherlands plan to study the method, the experts from France will study the method on luzerne before the next session. The experts from the Federal Republic of Germany will extend their study to maize. Mr. Talbot will receive all these data at the beginning of March for the preparation of a summary.

10. On the question of whether, for small data sets, less than 9 varieties could be used for the calculation of the moving average, it was replied that a reduction to 5 varieties would not lead to serious consequences, a larger number would however assure a smoother relationship between the moving averages.

(see TWC/VII/20 Prov., paragraphs 24 to 26)

11. The Committee is invited to note the above information and to consider possible steps to be taken.

Combined Over-Years (COY) Analysis

Application of the Combined Over-Years (COY) Analysis to Grasses

12. The TWC noted that, according to the decision taken during its last session, Dr. Weatherup (GB) had amended the program for the calculation of the combined over-years (COY) analysis by including a program for the calculation of significance of joint regression, and a program for the close pair comparison. It noted further results from the different member States and also noted document TWC/VII/10 on the global over-years test for distinctness comparing 5 different proposals for the testing of distinctness, including COY analysis and the 2 x 1% method. The document showed in diagrams the different effects of applying one or the other of the five methods to different sets of data with different interactions. On the question what a distinctness test should prove, consistent differences or genetic differences, the TWC agreed that consistent results were required.

13. The TWC finally noted that it had studied the COY analysis for several years. It had agreed that the method provided a better basis for decision taking from the statistical point of view than the former UPOV method and that it led to more consistent decisions over the years. During this study, each member State had also studied the significance level to be foreseen for a smooth transition to COY analysis. Experience of the member States had led to differences with respect to that significance level, which may partly be caused by different environmental conditions and partly by the fact that the present UPOV methods had been interpreted differently in the different countries. The experts in the TWC stated that based on their experience, they would prefer the following significance levels:

		DK	DE	FR	NL	GB
for a smooth transition	3 years	5	5	5	1	1
	2 years	-	5	5	1	0.5
from statistical point of view	3 years	1	5	1	1	1
	2 years	1	5	1	1	1

14. The above levels called for the following remarks. Some experts stated that the use of different standards in different member States should be avoided, since it could lead breeders to make their first application in member States applying the 5% significance level. Other experts expressed their concern that the application of the COY analysis at the 1% significance level would result in a serious reduction of the number of varieties being declared distinct compared to previous criteria applied in those countries.

The TWC was also conscious of the fact that the risk of 2 identical varieties being considered distinct at the 5% significance level was considerably higher than at the 1% level (for figures see Annex III to document TWC/VII/20 Prov.).

15. Having noted the above, the majority of the TWC recommended to the Committee that distinctness decisions on grasses should be taken with the COY analysis including the Modified Joint Regression Analysis (MJRA) option, using a 1% significance level after 2 years of tests and the same significance level after 3 years of tests.

(see TWC/VII/20 Prov., paragraphs 5, 11, 15 to 17)

16. The Committee is invited to take the necessary decisions.

#### Application of the COY Analysis to Further Agricultural Species

17. After having studied the application of the COY analysis to agricultural cross-fertilized species other than grasses, and especially on sugar beet, as reproduced in document TWC/VII/14, the TWC found that it offered the same advantages for these species as it did for grasses. The TWC therefore recommended to the TWA the introduction of the application of the COY analysis to these species as from 1992. Those member States with enough experience of the COY analysis may apply it to those species. If the TWA had no objections to the above recommendation, and if it supported it, the recommendation should be forwarded to the Committee for presentation during its October session. There has been no objection from the TWA.

(see TWC/VII/20 Prov., paragraphs 22 and 23)

18. The Committee is invited to take the necessary decisions.

#### Application of the COY Analysis to Vegetable Species

19. The TWC noted studies on different vegetable species as reproduced in the documents TWC/VI/11 (Onion), TWC/VII/11 (Leek), TWC/VII/13 (Spring Onion) and TWC/VI/13, Annex III (Red Beet). Having noted that all data available on vegetable species suggest that the COY analysis is also the best method for the analysis of measured characteristics of vegetable species as long as the number of varieties in the trials is not too low, the TWC asked that its findings be presented to the TWV with the proposal that for all vegetable crops the 2 out of 3 method should no longer be applied. The TWC asked the TWV to inform it of any problems it saw with respect to the above proposal and of any further studies the TWV would consider necessary in this respect.

20. The TWC agreed on further studies on the application of the COY analysis to vegetable species. All experts will study it on further species and will also use the long range LSD technique and try to apply it to distinctness.

21. The TWV, having noted the above documents, agreed that also for vegetable species the 2 out of 3 method for measured characteristics should be replaced by the COY-analysis. It will still have to study whether the 1% significance level proposed by the TWA for grasses could also be the right level for vegetable species. This will still take some time.

(see TWC/VII/20 Prov., paragraphs 18 to 21, TWV/XXII/19 Prov., paragraphs 7 and 8)

22. The Committee is invited to note the above information and to take the necessary decisions.

#### Application of the COY Analysis to Small Data Sets

23. The TWC noted document TWC/VII/6 on the estimation of minimum distances from small data sets. It explained the procedure to be followed to calculate a long range LSD from data of the past 3 to 10 years for cases where only few varieties were in trials which would not permit the application of the COY analysis. The TWC agreed that that method might be very helpful and set up a Subgroup with Mr. Talbot as leader and experts from The Netherlands, Denmark and the United Kingdom, to encourage progress before the next session of the TWC.

24. The TWC concluded that the calculation of a long range LSD was not restricted to member States with large computer facilities. The computer program was available on diskettes that could run on micro computers, thus every UPOV member State had the possibility to apply that analysis.

(see TWC/VII/20 Prov., paragraphs 13 and 14)

25. The Committee is invited to note the above information and to consider possible steps to be taken.

#### Color Observations

26. The TWO noted the report of the experts from the Federal Republic of Germany on the progress made in the empirical grouping of the RHS Colour Chart with the aim of facilitating the screening of varieties by computer. It noted similar work going on in the United Kingdom and The Netherlands. It agreed that an attempt should be made to reach a comparable system in which for one RHS number the same other RHS numbers should be compared. For that purpose, a short description of the German program and the list of a total of 98 color groups would be distributed and a Subgroup of experts from the United Kingdom, The Netherlands and the Federal Republic of Germany would meet in March or April 1990 to exchange further information.

27. The TWO also noted that the expert from the Federal Republic of Germany would report during the Workshop on Elatior Begonia and Pelargonium on Friday, June 2, 1989, on the joint trials with the registration group of the Permanent Judgement Committee (VKC) of the Royal Society for Horticulture and Plant Science (KMTP) of The Netherlands on the use of a chromameter for the measuring of colors.

(see TWO/XXII/8 Prov., paragraphs 16 to 17)

28. The Committee is invited to note the above information and to consider possible steps to be taken.

#### Use of Pictures in Variety Applications

29. The TWO discussed the different attitudes with respect to the request to have applications for breeders' rights for ornamental varieties supplemented

by a representative color picture of the variety. It was noted that this was compulsory in Australia, Israel, Italy, Japan, The Netherlands and the United States of America, while further States were considering its introduction. In several countries, plant material is normally only requested for a given time of the year. Requesting a color picture at the date of application, would ensure that the variety existed at that time and that the breeder has not changed it in the meantime. Some experts stated, however, that a mistake by the breeder in his variety description would not lead to rejection of the application, as the plant material was decisive. The TWO concluded its discussions by expressing its preference for the introduction of the request for a color photo in all member States. In the long term this should be made obligatory. As far as possible, standards for the photo might also be set up.

(see TWO/XXII/8 Prov., paragraph 11)

30. The Committee is invited to note the above information and to consider possible steps to be taken.

#### Refusal of Asterisk (\*) for Financial Reasons

31. The TWV was confronted with a problem in the Test Guidelines for Carrot (Characteristic 33: "Time of maturity" with the states from "very early" to "very late") where all experts wanted to give that characteristic an asterisk (\*), but the expert of one member State opposed its obligatory use for financial reasons. In the eyes of that expert, a test which would require sequential harvesting to find the exact maturity date was from the financial point of view considered not to be justified. The TWV stressed however the importance of that characteristic for grouping purposes and asked the Committee to express its opinion on how to handle such cases.

(see TWV/XXII/19 Prov., paragraph 34(iii) characteristic 33)

32. The Committee is invited to consider possible steps to be taken.

#### Hilum Color in Broad Beans

33. The TWV finally accepted the interpretation of the Committee for the use of the hilum color of Broad Beans for distinctness comparisons. It stated that that decision would have, however, the consequence that for the decision on distinctness only those other varieties which showed homogeneity in that characteristic would be taken into account.

(see TWV/XXII/19 Prov., paragraph 14)

34. The Committee is invited to note the above information.

#### Testing of Bremia Lactucae in Lettuce

35. The TWV had asked for amendments to a document established by a Subgroup on Bremia Lactucae which met in 1987. The TWV made a few changes in that amended document, especially deleting the second subparagraph of paragraph 1 and the whole paragraph 7, adding some clarification in paragraph 2 concerning

Dm-genes 16 and 18 and in the table concerning Dm-gene 16. With these changes, the TWV approved the document as reproduced in Annex IV to this document. Mr. Brand (FR), in cooperation with Mr. Evans (GB), will prepare, on the basis of that paper, a document which should be transmitted to the professional organizations for comments.

(see TWV/XXII/19 Prov., paragraph 12)

36. The Committee is invited to note the above information.

#### Proposal to Amend the Technical Questionnaires

37. The TWV asked the Committee to consider including in all Technical Questionnaires a paragraph asking the applicant to indicate whether the variety possessed any special characteristics. The TWV considered this subject not to be covered by paragraph 6 on the differences to similar varieties.

(see TWV/XXII/19 Prov., paragraph 31(vii))

38. The Committee is invited to take the necessary decisions.

#### Proposal to Use Actual Figures in Test Guidelines

39. The TWV had a long discussion on the states of expression to be given to the characteristic 31 (Fruit: number of locules) of the draft Test Guidelines for Tomato (TWV/XXI/5). It finally agreed to indicate the states "very few (1), few (3), medium (5), many (7), very many (9)", but proposed at the same time that in addition to these states and example varieties also actual figures should be indicated in the Table of Characteristics. Being reminded that according to a general decision of the Committee in the past figures should be replaced by words connected with example varieties, as numbers or actual measurements may change from place to place or year to year, the TWV asked that that decision on the use of actual figures should be brought again before the Committee.

(see TWV/XXII/19 Prov., paragraph 32(v) characteristic 31)

40. The Committee is invited to take the necessary decisions.

#### Proposal for a New Chairman of the TWA

41. Mr. Feeley, Chairman of the TWA, informed the TWA that he had been transferred within his Ministry to other tasks and thus would no longer be able to attend and chair sessions of the TWA. The TWA regretted his departure and expressed its thanks for the excellent chairing in the past. It proposed to the Committee that it propose to the Council to elect Dr. M. Camlin (GB) as the new Chairman of the Working Party.

(see TWA/XVIII/9 Prov., paragraph 30)

42. The Committee is invited to take the necessary decisions.

New Methods, Techniques and Equipment in the Examination of Varieties

43. This subject forms item 7 of the draft agenda. Information may be found in documents TC/XXV/4 and TC/XXV/9.

44. The Committee is invited to consider possible steps to be taken.

Cooperation with Breeders in the Testing of Varieties

45. This subject forms item 8 of the draft agenda. Document TC/XXV/5 contains the answers received from the member States on a questionnaire sent out by the Office of the Union pursuant to decisions taken by the Committee. The Working Parties noted that document and asked that it be completed by more member States. An updated version of the table on the first page of the Annex is reproduced in Annex II to this document. The TWA noted further that the results of the second year of the pilot project in Denmark had not been as promising as those of the first year. It seemed that breeders would need more guidance by the competent authorities in the assessment of the characteristics. The expert from France informed the TWA of his country's plans to instruct breeders in testing with the aim to have the breeder do tests for the first year, permitting the competent authority to take decisions already after one year of additional official tests. The TWV left the decision whether or not to involve the applicant in the growing tests to each member State. Some experts expressed, however, their preference for an enlargement or intensification of international cooperation between national testing authorities vis-à-vis the possibility of having the applicant do the growing tests.

(see TWA/XVIII/9 Prov., paragraph 20, TWC/VII/20 Prov., paragraph 46, TWV/XXII/19 Prov., paragraph 24)

46. The Committee is invited to note the above information and to consider possible steps to be taken.

Minimum Distances Between Varieties

47. This subject forms item 9 of the draft agenda. The Technical Working Parties noted document TWC/VII/18 prepared by Mr. Law (GB) and containing a summary of the data supplied as a result of the last session of the Working Parties. Much more data had been received than those treated in that document. However, for lack of time, data received in an untreated form had not been able to be considered. The Working Parties also noted that in certain cases the minimum distance applied had been lower than the Least Significant Difference (LSD). This should not happen, it should always be higher. The TWC considered that the study of the long range LSD from data of past results (see paragraph 23 above) could help in finding a solution to that problem. Several experts of the TWC expressed their concern at minimum distances lower than the observation unit, e.g. less than 1 cm if measurements are taken in cm, or less than 1 day for ear emergence if observations are made on a daily basis. The entire question will have to be studied further. Mr. Talbot (GB) will study the above data supplied by the Technical Working Parties further and will report on further questions contained in those data at the next session of the TWC. The TWO noted that in addition to the difficulty to decide on the minimum distance within a characteristic, there is a problem in that too many characteristics exist. It was hoped that if, in agreement with breeders and growers, certain characteristics were declared not apt for distinguishing, this decision would also be accepted by the courts.

48. The TWV agreed that minimum distances have to be fixed species by species and characteristic by characteristic. In general, minimum distances are not only based on statistical needs for significance. They also take into account matters of policy and they have to be worked out in discussions with breeders at the national level and in agreement with the breeders as a whole.

49. The Committee may also note document TC/XXV/7 containing the summaries of the workshops held before the time of drafting of the present document and oral reports on the workshops taking place during the two weeks preceding the session of the Committee. The Council of UPOV has asked the Committee to submit some proposals as a result of the various workshops.

(see TWC/VII/20 Prov., paragraphs 49 and 50, TWO/XXII/Prov., paragraph 12, TWV/XXII/19 Prov., paragraphs 9 to 11)

50. The Committee is invited to note the above information and to consider possible steps to be taken.

#### Definition and Examination of Hybrid Varieties

51. This subject forms item 10 of the draft agenda. No new information had been received at the time of preparation of the present document. It can however be expected that the subject will be dealt with during the Workshop on the Examination of Varieties of Maize scheduled for October 2 and 3, 1989.

52. The Committee is invited to note the above information.

#### Revision of the UPOV Model for a Report on Technical Examination

53. This subject forms item 11 of the draft agenda. Document TC/XXV/6 contains drafts for the revision of several Model Forms and proposals for changes of these drafts as received by the Office of UPOV. That document has been discussed by the different Technical Working Parties, which made the following comments:

(a) Remarks from the TWA:

(i) General Remarks: The TWA agreed to the proposals 3(iv) to (vii), but disagreed with the proposals 3(iii) and 3(viii). In all forms the items above the heading should be placed below that heading but separated by a line from the rest of the items.

(ii) Report on Technical Examination: The TWA agreed to the comments 1, 1 to 4, 5(i), 6, 8(i), 9 and 10(i) and (iv) on page 2 of Annex I. It furthermore proposed to insert the word "number" after the word "Reference" in lines 1 and 4 of page 1 of Annex I and to replace the words "Application number" in the third line of page 3 of Annex I by "Reference of requesting authority (bilateral agreements only)."

(iii) Interim Report on the Examination of a Variety: The TWA agreed to the changes corresponding to those in Annex I. In addition, it agreed to comments 6(i) and 9(ii).

(iv) Request for Examination Results: The TWA agreed to the comments 1(i) and (ii), 2, 3, 5, 6, 7(i), 8, and 9(ii). It disagreed with the comments 9(i), 9(iii) and 11.

(b) Remarks from the TWC:

The TWC could agree in principle to the proposed amendments and decided that it would leave the details to the other Technical Working Parties. It added that it should be ensured that there was no duplication of information and that all information should be able to be stored by computer. It proposed that each item in the forms should be given a number and that the forms and the different revised versions should be numbered as well. Once the revision was completed, it was important that the revised form should be introduced by all member States within a fixed period of time.

(c) Remarks from the TWO:

(i) General Comments: It agreed to comments (iii) to (viii)

(ii) Report on Technical Examination: It agreed to the following comments: 1, 5(i), 6, 8(i), 9 + 10(i), 9 + 10(iv). In the description form under Part A, the grouping characteristics should be repeated.

(iii) Interim Report on the Examination of a Variety: It agreed to the following comments: 1, 2, 3 + 4(ii), 5(i), 6(ii), 8(i), 9(ii).

(iv) Request for Examination Results: It agreed to the following comments: 1(i), 2, 3, 6 + 7(ii), 8, 10, and 9(ii), as long as it would not lead to 9(iii). There should be an addition reading: "The costs are expected to amount to [ ] the UPOV administrative fee, [ ] the full examination fee."

(d) Remarks from the TWV:

(i) General comments: It agreed to comments (v), (vi), and (vii) and disagreed with comments (ii) and (viii).

(ii) Report on Technical Examination: It agreed to the following comments: 1; order 3, 2, 4, 1; 5(i); 8(i); 9 + 10(i); 9 + 10(iv). It disagreed to comments 6 and 7. It also asked that the application number on page 3 of Annex I be replaced by the reference of the requesting authority.

(iii) Interim Report on the Examination of a Variety: It agreed to the following comments: 1, 2, 3 + 4(ii), 5(ii), 6(ii), 8(i), 9(ii). It disagreed to comment 7.

(iv) Request for Examination Results: It agreed to the following comments: 1(i), 1(ii), 2, 6 + 7(ii), 9(ii), 9(iii), 10, last line of 11. It disagreed to the comments 3, 4, 8 and 9(i).

54. Annex III to this document contains a table summing up all comments for each amendment.

(see TWA/XVIII/9 Prov., paragraph 19, TWC/VII/20 Prov., paragraph 45, TWO/XXII/8 Prov., paragraphs 22 and 23, TWV/XXII/19 Prov., paragraph 23)

55. The Committee is invited to take the necessary decisions.

States of Expression in Test Guidelines

56. This subject forms item 12 of the draft agenda. The TWA noted document TC/XXIV/6, paragraph 61, document TC/XXIII/5 and document TC/XXIV/3, paragraphs 99 to 107. In going through document TC/XXIII/5, it agreed to the examples 7.1 to 7.3, 9.1, 9.2 (with a change of order), 9.3 to 9.5, 10, 11.2 to 11.6, 12.1 to 12.3, 12.4 and 12.5 with reservations, 12.6 to 12.8, 13.2, 14.1, 14.3, 15.1 to 15.3, 16.1 to 16.8. It disagreed with the examples 8.1, 11.1, 12.9, 13.1 and 14.2.

57. The TWO noted document TC/XXIV/6, paragraph 61, and document TC/XXIII/5. The TWO repeated its view taken during its last session, that the possibilities of expression should not be limited too much and that it would be difficult to agree on general proposals. It nevertheless went through document TC/XXIII/5 and finally agreed, subject to the above-mentioned reservations, to the following proposals or examples, depending on the situation in question: 5(i) to (v), Ex.7.1 to 7.3, Ex.9.1 to 9.5, Ex.10, Ex.11.2 to 11.6, Ex.12.1 to 12.7, Ex.12.9, Ex.13.2, Ex.14.1 to 14.3, Ex.15.1 to 15.3. It disagreed with Ex.12.8, Ex.13.1 and Ex.16.1 to 16.7. It had certain reservations on Ex.8.1 and difficulties with Ex.11.1.

58. The TWV had already discussed in 1988 the examples in document TC/XXIII/5 and had agreed to them with the following exceptions: (i) The TWV could not agree with the states and/or Notes in Examples 14.3, 16.3, 16.4, (16.3 and 16.4 should have the Notes from 1 to 9); (ii) The Working Party would not use the states and/or Notes in Examples 9.2, 9.4, 9.5, 11.4, 13.1, 14.1; (iii) The states and/or Notes in Examples 8.1, 11.2, 12.4 to 12.7 depended on the species concerned; (iv) The order of states of Example 12.8 was preferred to that of 12.9; (v) The possibility of using the states/or Notes in Example 16.1 should not be excluded.

59. The TWC noted documents TC/XXIII/5, TC/XXIV/3, paragraphs 99 to 107, and TC/XXIV/6, paragraph 61. Only a few experts had copies available of the documents resulting from previous sessions. Thus a discussion had to be postponed to the next session of the TWC. In the meantime, experts were invited to discuss the documents at national level and send any comments to the Office of UPOV.

60. The TWF had already in 1988 gone through document TC/XXIII/5 and discussed each of the examples given. In most cases, it had been able to agree with the proposals made but in certain cases, for example, in 8.1, 12.6 and 12.7, it had stated that whether it had to be handled in the quantitative or the qualitative way would depend on the expression of the characteristic in the species. The choice of preference on the order of the states in examples 13.8 and 13.9 had been left to the Technical Committee.

61. Annex II to this document contains a table summing up all the above comments separately for each example.

(see TWA/XVIII/9 Prov., paragraph 21, TWC/VII/20 Prov., paragraph 48, TWF/XIX/11 Prov., paragraph 15, TWO/XXII/8 Prov., paragraph 22, TWV/XXI/23, paragraph 12)

62. The Committee is invited to take the necessary decisions.

Proposal to Include a State of Expression "0"

63. The TWO had a long discussion on the Ex. 11.1 in document TC/XXIII/5 "Outer leaf: midrib in cross section" with the states "flat(1)" and "convex(2)". That example with Ex. 11.1 might be very useful for some varieties where the expression can be clearly attributed to one of the two states. There were, however, always cases where the expression varied or was somewhere in between or it was impossible to attribute it to one of the states. The question was what to do in such cases? The TWO finally suggested to the Committee that it investigate whether for cases such as the last mentioned, the introduction of the state "0" should be foreseen, which would indicate that it was not possible to take a clear decision on one or the other state.

(see TWO/XXII/8 Prov., paragraph 22 and 23)

64. The Committee is invited to take the necessary decisions.

[Annex II follows]

COOPERATION OF APPLICANT/BREEDER  
IN GROWING TESTS AND ESTABLISHING OF VARIETY DESCRIPTION  
(Information received by the Office of UPOV)

Growing Tests and description done by:	AU	BE	CH	DE	DK	ES	FR	GB	HU	IE	IL	IT	JP	NL	NZ	SE	US	ZA
Exclusively by applicant/ breeder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
For some species by appli- cant/breeder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Exclusively by authority	-	-	-	X	-	X	-	X	-	X	-	-	X	X	-	X	-	-
Applicants/Breeders pilot tests in progress	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Breeders pilot tests planned (yes/no)	-	-	-	NO	-	NO	-	NO	-	NO	-	-	NO	NO	-	NO	-	-
Applicant/breeders' growing tests + detailed descrip- tion may reduce official growing tests to one vegetation	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
Applicant/Breeder supplies facilities + growing space, authority does observations	-	-	-	X	-	-	X	-	-	X	-	-	-	X	X	-	-	-

→ (fruit and some ornamentals)

→ (if problems of distinction)

Abbreviations of the names of States  
Abréviations des noms des Etats  
Abkürzungen der Namen der Staaten

AU	Australia	Australie	Australien
BE	Belgium	Belgique	Belgien
CH	Switzerland	Suisse	Schweiz
DE	Germany (Federal République of)	Allemagne (République fédérale d')	Deutschland (Bundesrepublik)
DK	Denmark	Danemark	Dänemark
ES	Spain	Espagne	Spanien
FR	France	France	Frankreich
GB	United Kingdom	Royaume-Uni	Vereinigtes Königreich
HU	Hungary	Hongrie	Ungarn
IE	Ireland	Irlande	Irland
IL	Israel	Israël	Israel
IT	Italy	Italie	Italien
JP	Japan	Japon	Japan
NL	Netherlands	Pays-Bas	Niederlande
NZ	New Zealand	Nouvelle-Zélande	Neuseeland
SE	Sweden	Suède	Schweden
US	United States of America	Etats-Unis d'Amérique	Vereinigte Staaten von Amerika
ZA	South Africa	Afrique du Sud	Südafrika

Revision of the UPOV Model for a Report on Technical Examination

+ = agree  
 - = disagree  
 \* = remark

Proposals in document TC/XXV/6	TWA	TWC	TWF	TWO	TWV	Remarks
General Comments	*1	*2				*1
(i)						in all forms, place the items above the heading below the heading but separate them by a line from the rest of items
(ii)					-	
(iii)	-			+		
(iv)	+			+	-	
(v)	+			+	+	*2
(vi)	+			+	+	agree in principle to proposed amendments and propose that i) there should be no duplication of information, ii) all information should be able to be stored by computer, iii) each item in the forms should be given a number, iv) the forms and the different revised versions should be numbered as well.
(vii)	+			+	+	
(viii)	-			+	-	
Report on Technical Examination						
1	+			+	+	*
1,2,3,4	++				+	insert the word "number" after the word "Reference" in the first and fourth line
5(i)	+			+	+	
5(ii)	-			-	-	
6	+			+	-	
7					-	
8(i)	+			+	+	
8(ii)	-			-	-	
9(i)						
9(ii)						
9,10(i)	+			+	+	
9,10(ii)						
9,10(iii)						
9,10(iv)	+			+	+	

Proposals in document TC/XXV/6	TWA	TWC	TWF	TWO	TWV	Remarks
UPOV Variety Description Form	*1			*2	*1	*1 replace the words "Application number" in the third line by the words "Reference of requesting authority (bilateral agreements only)"
Interim Report on Technical Examination	*					*2 repeat the grouping characteristics in Part A
1	+			+	+	* insert the word "number" after the word "Reference" in the first and fourth line
2	+			+	+	
3,4(i)				-	-	
3,4(ii)				+	+	
5(i)	+			+	-	
5(ii)	-			-	+	
6(i)	+			-		
6(ii)	-			+	+	
7					-	
8(i)				+	+	
8(ii)				-	-	
9(i)	-			-	-	
9(ii)	+			+	+	
Request for Examination Results						
1(i)	+			+	+	*1 after this item, add the item wording "The costs are expected to amount to [ ] the UPOV administrative fee, [ ] the full examination fee."
1(ii)	+			+	+	
2	+			+	+	
3	+			+	-	
4					-	
5	+				-	
6,7(i)	+			-	-	
6,7(ii)	-			+	+	
8	+			+	-	
9(i)	-				-	
9(ii)	+			+	+	
9(iii)	-			-	+	*2 last line only agreed
10				++1	+	
11	-				++2	

States of Expression in Test Guidelines

+ = agree  
 - = disagree  
 0 = reservations

Expressions in document TC/XXIII/5	TWA	TWC	TWF	TWO	TWV	Remarks
5(i)	+	Discussion		+		
5(ii)	+	is post-		+		
5(iii)	+	poned un-		+		
5(iv)	+	til the		+		
5(v)	+	next		+		
7.1	+	session	+	+		
7.2	+		+	+		
7.3	+		+	+		
8.1	-		0	+		
9.1	+		+	+		
9.2	+		+	+	0	* change order
9.3	+		+	+		
9.4	+		+	+	0	
9.5	+		+	+	0	
10	+		+			
11.1	-		0*	0*		* long discussion
11.2	+		+	+		TWV proposes add
11.3	+		+	+		Note "0"
11.4	+		+	+		
11.5	+		+	+		
11.6	+		+	+		
12.1	+		+	+		
12.2	+		+	+		
12.3	+		+	+		
12.4	+		+	+		
12.5	+		+	+		
12.6	0		+	+		
12.7	0		+	+		
12.8	0		-	-	+	
12.9	-		+	+	-	
13.1	-		-	-	0	
13.2	0		+	+		
14.1	0		+	+	0	
14.2	-		+	+		
14.3	0		+	+	-	
15.1	+		+			
15.2	+		+			
15.3	+		+			
16.1	+		-	-	0	
16.2	+		-	-		
16.3	+		-	-	-	
16.4	+		-	-	-	
16.5	+		-	-		
16.6	+		-	-		
16.7	+		-	-		
16.8	+		-	-		

## ANNEX V

REPORT OF UPOV SUB-GROUP MEETING - BREMIA LACTUCAE OF LETTUCE  
4 NOVEMBER 1987, NIAB, CAMBRIDGE  
AMENDED IN 1988

1. Nomenclature of Dm-Genes

It was proposed that the system of Dm-gene nomenclature developed by Dr. I.R. Crute *et al* as described in the circulated paper by Dr. J.B. Sweet be accepted as the internationally agreed system to describe the Dm-gene components of lettuce varieties.

In addition it was agreed that lettuce varieties are described as having "at least the Dm-gene component ....." to take account of Dm-genes known and unknown not tested for.

Agronomists, plant breeders and seed merchants would be encouraged to use this nomenclature, and educate farmers/growers.

2. Useful Dm-Genes

It was proposed that European countries of UPOV test for Dm-genes of practical value which are directly involved in giving useful resistance in lettuce varieties, and that obscure or irrelevant Dm-genes are not routinely tested for.

It was suggested that the currently useful Dm-genes are:-

2, 3, 5/8, 6, 7, 11, 16\* and 18\* and that only these will be tested for routinely. This was agreed but it was emphasised that the role of new Dm-genes (\*) should be constantly reviewed.

3. Special Tests

Special tests may be required for Dm1 (useful in Australia) and Dm10 (useful in the USA).

If breeders claim the presence of Dm-genes other than those in 2, then they should state in the Technical Questionnaires, how the presence of these genes is to be detected and, if necessary, submit the relevant Bremia race to the testing centre to verify the claim. Special tests may be carried out for other Dm-genes if claimed by breeders as being necessary for distinctness and uniformity purposes.

4. Bremia Races

It was agreed that the following Bremia races are used to determine whether a lettuce variety possesses the Dm-genes listed in 2: - IL4, S1, NL13, NL12, SF1, NL7, NL15, NL14, TV, CS9.

These races possess the virulences shown in Table 1, and can detect the Dm-genes shown in that table.

5. New Races

Additional races would be added to test for any useful new Dm-genes that might arise.

If new races of Bremia arise that can either detect novel Dm-genes in lettuce varieties or effectively replace a race listed in 4, then these races would be added to the list in 4.

#### 6. Testing of Bremia Races

It was agreed that UK, NIAB, and Netherlands, IPO, would verify and test the races listed in 4 and any new races that are used in routine tests. These centres would make available these verified isolates to other testing centres in UPOV.

It was agreed that reference collections of the verified Bremia races should be held in storage at several centres to ensure the survival of these races.

#### 7. Resistance Testing Methods

The following guidelines were suggested for Bremia testing:

a) Maintenance - Bremia races should be maintained on varieties possessing no known Dm-genes, or only obscure Dm-genes, eg. Cobham Green, Lobjoits Green Cos, Hilde (Dm12), Olof. The purity and quality of these maintenance varieties is important and it may be necessary to commission a seed producer to produce an adequate supply of good quality seed.

b) Test varieties - standard control varieties, that express the resistance genes that are being tested for, should always be used in tests, as a check. These standard varieties are available from the Gene Bank at IHR, Wellesbourne, Warwick, UK, or from NIAB, Cambridge, UK. Stores of seed would be maintained at UPOV testing centres.

c) Sample Size - at least 30 separate plants of each variety should be tested to establish the uniformity of the variety's Dm-gene component.

d) Temperature - incubation of inoculated seedlings or leaf discs should be at 15-18°C.

e) Inoculum Concentration - the optimum is around  $1 \times 10^5$  spores per ml. and at least  $3 \times 10^4$  should be used.

f) Illumination - adequate for good plant growth. Seedlings should have fully expanded cotyledons and plants should not be etiolated.

g) Recording - should be as follows:

- 1st Record - when control has maximum sporulation
- 2nd Record - 3 days after 1st Record
- 3rd Record - 3 days after 2nd Record

At each time - sporulation/not resistant = +  
 - no sporulation/resistant = -  
 - slow sparse sporulation, sometimes associated with leaf necrosis = incomplete resistance = (-)

Proportions of resistant to non resistant should be recorded.

It was agreed that funds should be sought from various sources to finance the additional work proposed above.

Table 1. Ten isolates of *Bremia lactucae* for diagnostic testing of combinations Dm2, Dm3, Dm5/8, Dm6, Dm7, Dm11, Dm16 and Dm18 (?) in lettuce

NL7 <sup>a</sup>	S1	SF1 <sup>b</sup>	NL15 <sup>c</sup>	NL14	NL13	TV	IL4	NL12	CS9	
2	.	2	2	2	.	2	2	.	2	
3	3	3	3	3	3	3	.	.	3	
.	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	
6	6	.	.	6	.	6	.	6	6	
7	7	7	7	.	7	7	7	7	7	
.	.	.	11	11	11	.	11	11	11	
.	.	16	.	.	16?	16	16?	16?	.	
.	.	.	.	.	.	.	.	.	.	Some examples of Dm-gene combinations
+	-	+	+	+	-	+	-	-	+	2+3
+	-	+	+	-	-	+	+	-	+	2+7
-	-	-	+	+	-	-	+	-	+	2+11 (+5/8) <sup>d</sup>
-	+	+	+	+	+	+	-	-	+	3+5/8
+	+	+	+	-	+	+	-	-	+	3+7
-	-	-	+	+	+	-	-	-	+	3+11 (+5/8) <sup>d</sup>
+	+	-	-	-	-	+	-	+	+	6+7
-	-	-	-	+	-	-	-	+	+	6+11 (+5/8) <sup>d</sup>
-	+	+	+	-	+	+	+	+	+	5/8+7
-	+	-	-	+	-	+	-	+	+	5/8+6
-	-	-	-	-	+?	-	+	+	-	11+16 (+5/8 and/or 7)
-	-	-	-	-	-	+	-	+	-	6+16 (at least)
+	-	+	+	-	-	+	-	-	+	2+3+7
-	-	-	+	+	-	-	-	-	+	2+3+11 (+5/8) <sup>d</sup>
-	+	+	+	-	+	+	-	-	+	3+5/8+7
-	-	+	-	-	-	+	-	-	-	2+3+16 (at least)
-	-	+	-	-	+?	+	-	-	-	3+16 (+5/8 and/or 7)
-	+	-	-	-	-	+	-	+	+	5/8+6+7
-	-	+	+	+	-	+	-	-	+	2+3+5/8
+	-	-	-	+	-	+	-	-	+	2+3+6 or 2+6
-	-	-	-	+	-	-	-	-	+	2 and/or 3+6+11 (at least)
-	-	-	-	-	-	+	-	-	-	2 and/or 3+6+16 (at least)
+	+	+	+	+	+	+	+	+	+	0

a also lacks v 10 )

b also lacks v 4 ) needs checking

c also lacks v 14 )

d There is need for an isolate lacking v 5/8 but carrying v 11 and v 16

? Needs checking