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UPOV

TC/XXII/3

ORIGINAL: English

DATE: October 15, 1986

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL COMMITTEE

Twenty-Second Session
Geneva, November 20 and 21, 1986

MATTERS ARISING FROM THE 1986 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 1986 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.

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 1986 SESSIONS OF THE TECHNICAL WORKING PARTIES
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Standard Test Guidelines

1. Having tried to apply the new layout of Standard Test Guidelines to several draft Test Guidelines or Working Papers on Test Guidelines, the Technical Working Parties agreed on the following (see documents TWA/XV/7 Prov., TWF/XVII/23 Prov., TWO/XIX/23 Prov. and TWV/XIX/27 Prov.):

(i) Chapter I (Subject of these Test Guidelines): This chapter should contain a standard sentence for all cases where no special information is necessary. This standard sentence could read as follows: "These Test Guidelines apply to all varieties of ... (here the Latin name of the species or genus to which the guidelines apply would follow)" (TWA and TWO).

(ii) In Chapter II (Material Required): The sentence "Unless the competent authorities make an exception, the seed to be supplied for each examination must originate from the preceding growing season." should be deleted. In paragraph 2, the words "which may affect the subsequent growth of the plants" should also be deleted (TWA).

(iii) Chapter III (Conduct of Tests):

(a) This chapter and Chapter IV (Methods and Observations) should be clearly separated so that in Chapter III information on the layout is given while in Chapter IV information on what should be observed and the way in which it should be observed is indicated. Thus, under Chapter III, information on the minimum duration of the tests, on the minimum number of locations and on the general layout should be grouped together (TWA).

(b) The last sentence of the present paragraph under Chapter III should be replaced by a separate paragraph reading: "Additional tests for special purposes may be established." In the penultimate sentence of the same paragraph, the words "exactly the same" should be replaced by "similar" (TWA).

(c) For vegetatively propagated pot plants, there are no replicates as each pot is already a replicate in itself. Thus the sentence on the minimum number of plants should read: "As a minimum, each test should include a total of .. plants" (TWO)"

(d) For tree varieties, the sentence on the removal of plants or plant parts and on separate plots should be deleted (TWO).

(e) In the fourth sentence, the words "strictly the same" should be replaced by "a similar" (TWV).

(iv) In Chapter IV (Methods and Observations):

(a) The first and third paragraphs should be deleted and paragraph 2 should be inserted in Chapter III (TWA).

(b) Paragraph 1 should be deleted (TWV).

(c) The last part of paragraph 3 should read: "plants or parts of plants" (TWV).

(d) The paragraph on the minimum sample size should read: "All observations should be made on .. plants or parts of .. plants" (TWO) or "..... should be made from a sample of ... plant parts" (TWF).

(e) The paragraph on colors should read: "Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room (TWO: facing north), (TWF: without direct sunlight). The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in British Standard 950, Part I. These determinations should be made with the plant part placed against a white background" (TWO).

(v) Chapter V (Variety Grouping): The title should be changed to "Grouping of Varieties" (TWA, TWV and TWO).

(vi) The TWA proposed avoiding in the Test Guidelines any reference which would only lead to another reference. It therefore proposed to delete at the bottom of the first page of the Table of Characteristics all references to legends and to amend Chapter VI (Characteristics and Symbols) as follows:

(a) paragraph 1 should contain the first sentence of the former paragraph 1,

(b) paragraph 2 should remain unchanged, but the English might be improved,

(c) in paragraph 3, the legend should read as follows:

"(*) Characteristics which should be used every growing period for the examination of all varieties and should always be included in the description of the variety, except when the state of expression of a preceding characteristic renders this impossible."

"(+ See Explanations on the Table of Characteristics in Chapter VIII" (TWA).

(vii) The above comments refer to Alternative A mentioned in document TC/XXI/8. Alternative B should be amended accordingly (TWA).

(viii) During the discussions on the Test Guidelines for Apple, the TWF was reminded again that the characteristics which are split for different variety groups were separated because the same word would represent a different fact inside each group (i.e. characteristic 49 "Fruit: size," a small fruit of an ornamental apple would have a different diameter than a small fruit of a fruit variety). On the other hand, if a characteristic were not split, the same word would represent the same fact and an example variety of one group could be used at the same time as an example variety for the other groups (i.e. characteristic 41 "Leaf blade: pubescence of lower side," James Grieve, a fruit variety with strong pubescence, could also serve as an example variety for strong pubescence of an ornamental variety).

(ix) The TWF agreed to recommend the Committee to delete in future all underlinings of words in the Table of Characteristics in order to avoid confusion.

(x) There were different opinions within the TWA on the usefulness of a special chapter on literature and what kind of literature should be included. Several Test Guidelines established by the TWA would therefore contain no specific literature.

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

3. The TWA asked the Committee to include in the revision of the General Introduction to Test Guidelines the following sentence: "The first sample shall be designated as the definitive or reference sample of the variety." In addition, it proposed that all general information included in a number of Test Guidelines should be transferred to the General Introduction to the Test Guidelines to avoid repetition in the separate documents (see document TWA/XV/7 Prov., paragraph 9(viii)).

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

Negative List Indicating Characteristics That Should not be Used for a Given Group of Varieties Within a Species Covering Several Different Groups

5. The TWF and TWO noted paragraph 36 of document TC/XXI/7 and discussed the possibility of a negative or positive list of characteristics in connection with the discussions on the draft for revised Test Guidelines for Apple. They finally agreed to positive lists for the various groups (fruit varieties, ornamental varieties, rootstock varieties) and to the following wording in the beginning of the Test Guidelines (see document TWF/XVII/23 Prov., paragraph 7, and TWO/XIX/23 Prov., paragraphs 9 and 14(i)): "A single combined table of characteristics has been drawn up for all three variety groups indicating in front of each number of the characteristics the variety group or groups for which the respective characteristic is considered important for distinctness."

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

Characteristics with an Asterisk (*) Which for Climatic Reasons Might not be Observable in Some Member States

7. In connection with the discussion on whether or not an asterisk should be included in characteristics 71, 72, 73 of the Test Guidelines for Vegetable Marrow, Pumpkin, the TWV agreed to ask the Committee to study the possibility of including an asterisk in those characteristics which are considered to be useful by certain countries, although for climatic reasons they might not be observable in other member States (see document TWV/XIX/27 Prov., paragraph 24).

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

Concept of Distinctness and Homogeneity with Respect to Discontinuous Characteristics of not Truly Self-Pollinated Varieties and of Cross-Pollinated Varieties

9. Mr. R. Duyvendak (Netherlands) gave a preliminary explanation of the possible ways of treating the three different types of varieties, namely self-fertilized varieties, cross-fertilized varieties and varieties which were

in-between these two types. He is to prepare a working paper on the subject for distribution to the members of the Working Party asking for comments and will then prepare a summary of the comments for distribution and discussion during the TWA's subsequent session (see document TWA/XV/7 Prov., paragraph 24).

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

Testing of Distinctness

11. The TWO noted paragraph 21 of document TC/XXI/7 and agreed to the position taken by the Committee that "..... when one candidate variety was considered not to be homogeneous because of the existence of off-types, those off-types should be considered as distinguishable from the candidate variety and should be accepted as a further new variety for which protection was granted if all other conditions for protection were fulfilled" (see document TWO/XIX/23 Prov., paragraph 7).

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

Testing of Homogeneity in Cross-Pollinated Plants

13. During the third session of the TWC, a new criterion for the testing of homogeneity in cross-pollinated plants had been explained (see document TWC/III/10). The program described in that document had in the meantime been distributed to experts from several member States for study. The results of this study are reproduced in document TWC/IV/10. As a result of the discussion on the above information, the TWC will rediscuss the subject during its next session on the basis of the results of an amended version of the program which included the possibility of taking decisions after two years of testing. The TWC expressed the hope that more member States than in the past would be able to apply the program and send their results for comparison. Attention was also drawn to the need to check the probability level required to approximate the results obtained using the present UPOV criteria for homogeneity (see document TWC/IV/13 Prov., paragraphs 17 and 18).

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

Testing of Homogeneity in Self-Pollinated Plants

15. The TWC noted the summary of the results of the questionnaire on the testing of homogeneity in self-pollinated plants reproduced in document TWC/IV/9, as well as further updated tables which are reproduced in Annex II to document TWC/IV/13 Prov. (see document TWC/IV/13 Prov., paragraph 19). It noted that although a large part of the harmonization had already been achieved and member States were abiding by the decisions reproduced in the General Introduction to Test Guidelines (document TG/1/2), there were nevertheless differences caused by the various sample sizes used and the different maximal number of off-types accepted, which affected the probability of acceptance of lots with different numbers of off-types.

16. Working standards for testing homogeneity of wheat, for example, are described in UPOV document TG/3/8 [Test Guidelines for Wheat] which states in paragraph 5: "For homogeneity 3 in 100" Tables 1 and 2 of Annex II of document TWC/IV/13 Prov. show that the most commonly used standards in the seven countries listed are 3 off-types in 100 ear-rows and 5 off-types in 2,000 plants.

17. In reporting current practice, some countries also quoted a 'nominal standard' which seemed to be close to, or less than, the maximum permitted percentage of off-types. There are different interpretations of 'nominal standard' and some discussion is needed to clarify this. The statistician usually defines a nominal standard as that percentage of off-types in the population (of ears or plants) which would result in a 50% probability of samples being accepted under a given sampling scheme. As the graphs presented in Annex II of document TWC/IV/13 Prov. show, the sampling schemes used in different countries have different nominal standards corresponding to the 50% ($P = 0.05$) acceptance probability. This also implies that the sampling schemes differ in the risks they carry of making wrong decisions - that is, risks of wrongly accepting non-homogeneous lots or of rejecting sufficiently homogeneous lots.

18. The TWC suggested to the Committee that the schemes in use should be examined and the nominal standards and associated risks of wrong decisions should be defined (see Annex II of document TWC/IV/13 Prov.).

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

Homogeneity of Hilum Color in Broad Bean and Field Bean

20. The TWV noted that in the United Kingdom one breeder had expressed strong opposition to the requirement for 100% homogeneity in hilum color in field bean varieties. The same breeder now also objects to the requirement for homogeneity in testa color and flower color in the same crop. The main reason for such opposition was that those characteristics had no practical value as long as the varieties were cultivated as an agricultural crop and that any effort to establish homogeneity in those characteristics would be considered by breeders as a waste of time. Dr. Valvassori (Commission of the European Communities) informed the TWV that in EC Directives at present being prepared hilum color was included as a characteristic to be observed, but for synthetic varieties homogeneity in that characteristic was not required. The Working Party was reminded that the same testing standard should be applied to Field Bean and Broad Bean and the discussion focused on whether or not it would be necessary to rediscuss the agreement reached during the last session of the Committee to include an asterisk for hilum color, a characteristic which is important for varieties cultivated as vegetables. Some experts feared that it might be possible to create new population varieties by combining at any rate two or more different varieties, if those varieties in which segregation occurs at a fixed rate were considered to be subject to protection.

21. The TWV finally recommended to the Committee that segregation in discontinuous characteristics should be regarded as grounds for refusal to grant a plant breeders' right if varieties could be made homogeneous in that characteristic as a result of reasonable efforts, otherwise the whole plant variety

protection system could be undermined. The Technical Committee should therefore rediscuss the question of the hilum color for broad bean during its next session (see document TWV/XIX/27 Prov., paragraph 6).

22. The TWA noted the results of the discussions held during the last session of the TWV with respect to the question of hilum color in broad bean and field bean reproduced in paragraphs 20 and 21 of the present document. The TWA asked the Committee to await the outcome of its discussion on the concept of distinctness and homogeneity with respect to discontinuous characteristics of not truly self-pollinated varieties and of cross-pollinated varieties (see paragraph 9 above) before rediscussing the subject (see document TWA/XV/7 Prov., paragraph 23).

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

Homogeneity in Resistance Characteristics

24. The German expert reported on a synthetic variety of spinach which was homogenous in all morphological characteristics, but which separated in its resistance to powdery mildew into three components. In this connection, the Technical Committee was asked to study the question whether homogeneity in a resistance characteristic should be required even if the breeder states that the variety is not resistant (see document TWV/XIX/27 Prov., paragraph 7).

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

List of Resistance Genes in Barley Varieties

26. The expert from Denmark introduced updated information on the list of powdery mildew resistance sources and genes in spring barley varieties. At the request of the Working Party, she is to supplement the list with an additional table and an introduction in order to prepare a separate draft with a view to proposing to the Committee that it should be distributed as a source of information for scientists in universities and other institutes or the breeder at national level (see document TWA/XV/7 Prov., paragraph 20).

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

Resistance/Susceptibility to Diseases

28. The TWA asked the Technical Committee to approve the proposal of the subgroup to change the characteristic on the resistance to *Verticillium albo-atrum* in the draft Test Guidelines for Lucerne into "Susceptibility to ..." reversing the order of the states of expression and with the new states ranging from very low (1) to very high (9), a very resistant variety thus becoming a very low (susceptible) variety (see document TWA/XV/7 Prov., paragraph 11). If the Committee accepts that proposal, it will have to decide whether the decision should be considered as an exception or how in future other resistance characteristics should be handled.

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

Testing of Bremia lactucae in Lettuce

30. The TWV agreed to set up a subgroup to discuss the most appropriate methods for the testing of resistance to downy mildew of lettuce (Bremia lactucae). It also agreed to ask the Committee to approve the establishment of a subgroup so as to facilitate the participation of experts from the Working Party. The subgroup should consist of phytopathologists and those working with plant breeders' rights offices and it would be organized by Mr. Evans as soon as the Technical Committee had approved its establishment (see document TWV/XIX/27 Prov., paragraph 18).

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

Sanitary Status of Plant Material Sent in for Examination

32. The TWO noted the difficulty of collecting adequate information on the sanitary status of plant material sent in for examination. Although some experts expressed their feeling that such a task should not be UPOV's concern, the TWF agreed that this work be continued as it held that any lack of information in the field of plant variety protection was the concern of UPOV. It therefore agreed to the following:

(i) Diseases affecting the description of the variety should be discussed species by species when Test Guidelines are established or revised.

(ii) The Committee should be invited to collect information on plant sanitary regulations and the addresses of the national authorities of the member States responsible for the import restrictions on plant material affected by diseases or pests (see document TWF/XVII/23 Prov., paragraph 13).

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

Cooperation Between Technical Working Parties

34. In connection with the planning of its program, the TWA stressed the need to carry out more of the work on Test Guidelines in subgroups in the future and to restrict discussions in the Working Party itself to more general items. Where certain species were handled by more than one Technical Working Party, as for example in the case of Turnip, Turnip Rape, both the experts of the TWA and those of the TWV were of the opinion that two Working Parties should work together in a joint Subgroup and the document should only be discussed in the Working Party itself if the Subgroup drew up a working paper. The Technical Working Parties asked the Committee to approve that idea and to recommend it also to the other Technical Working Parties. The TWV further recommended that experts from member States should first try to adopt a common approach at national level before discussing a subject in the different Working Parties (see documents TWA/XV/7 Prov., paragraph 30 and TWV/XIX/27 Prov., paragraph 37).

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

Participation of Technical Experts from Professional Organizations in Sessions of the Technical Working Parties or their Subgroups

36. Having decided that the real work on the establishing of Test Guidelines should take place in subgroups, the TWA discussed the possibility of inviting technical experts from professional organizations or other institutes to participate in the work of the subgroups. It finally considered this to be an appropriate measure and asked the Committee to approve its decision. The next occasion on which technical experts would be invited would therefore be the meeting of the Subgroup on Triticale and Triticum durum. The invitation of technical experts from professional organizations or other institutes to meetings of subgroups would not, however, make it superfluous to invite them to sessions of the TWA as decided by the Committee. Therefore, for those species which are to be discussed at the forthcoming session of the Working Party and for which working papers are drawn up beforehand, technical experts from professional organizations should be invited (see document TWA/XV/7 Prov., paragraph 31).

37. As the TWO dealt with so many different species and often breeders were experts in one species only, to have technical experts travel for only a very short part of the meeting might not be financially justifiable in some cases. The TWO therefore proposed that the professional organizations should be informed each year as to the venues for the meetings of the Technical Working Parties to be held in the coming year, thus giving them the possibility of nominating technical experts from the country in which the respective session was taking place or that at least lived close to the meeting place. In addition, the TWF and TWO would in future make more use of technical experts from governmental institutes or organizations or other national bodies to improve the discussions on certain species or subjects (see documents TWF/XVII/23 Prov., paragraph 14, and TWO/XIX/23 Prov.).

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

Confidentiality of Documents for Sessions of the Technical Working Parties

39. The invitation of technical experts from professional organizations to sessions of the Technical Working Parties or subgroup meetings raised the question of the confidentiality of the documents. While some experts of the TWA thought that all documents should be treated as confidential, others were of the opinion that it would be impossible to ask the technical experts for real contributions if they were forbidden to discuss the documents with their colleagues before the session. Documents of the Technical Working Parties or the subgroups should therefore in general not be confidential. They should nevertheless have limited distribution and it should be made clear that they did not represent UPOV's opinion, but mainly the opinion of the experts or the subgroups which prepared them (see document TWA/XV/7 Prov., paragraph 32).

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

Difficulties in Identifying the Real Breeders

41. The TWV took note of the considerable difficulties encountered in the United Kingdom in identifying the true breeders of new hybrid varieties of onion for which applications for plant breeders' rights had been made by two different Japanese companies stating different breeders (see document TWV/XIX/27 Prov., paragraph 8).

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

Difficulties in Identifying Mushroom Varieties

43. The expert from the Netherlands in the TWV reported that the testing authority in his country was facing difficulties in identifying mushroom varieties for which an application for plant breeders' rights had been made. The case was at present before the courts and he would report on its outcome during the next session of the Working Party. He therefore proposed for the time being to delete mushrooms from the list of species for which Test Guidelines were planned (see document TWV/XIX/27 Prov., paragraph 9).

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

Difficulties in Cross Referencing of Varieties in National Gazettes

45. The expert from Israel in the TWC wanted easier cross referencing of varieties in the various issues of the gazettes of one and the same member State and also of those of other member States. He is to prepare a summary of the difficulties encountered for distribution to members of the TWC (see document TWC/IV/13 Prov., paragraph 23).

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

Testing of Stability

47. The TWV noted that most member States did not separately test stability, but took decisions on stability in connection with the testing of homogeneity. Some experts expressed the opinion that stability was a problem of reproduction and not of genetics and that it was not possible to test stability to the same degree as distinctness and homogeneity in the normal two years of test before granting protection. If a variety was not found to be stable after having been admitted, its protection would be annulled. The TWV agreed to ask the Committee to discuss the testing of stability during its next session (see document TWV/XIX/27 Prov., paragraph 17).

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

Intercommunication Network

49. The TWC noted documents TWC/IV/11 and 11 Rev. containing an updated summary of possible computer center communications prepared by Mr. Talbot (United Kingdom). Mr. Baltjes (Netherlands) and Mr. Talbot will try to exchange the table of data distributed during the current session via electronic mail. Mr. Talbot will also initiate an electronic exchange of information with other member States and will report on its outcome to the next session of the Working Party (see document TWC/IV/13 Prov., paragraph 32).

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

Annual List of Varieties Under Test

51. The TWC noted that the annual list of varieties under test from France also contained decisions on varieties which had been included in the previous year's list. This information was considered to be very helpful and other member States were asked to study the possibility of including similar information in their lists (see document TWC/IV/13 Prov., paragraph 22).

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

Color Charts and Connected Questions

53. The TWO noted documents TC/XXI/5, TC/XXI/7, paragraphs 48 to 50, and a letter from Japan as reproduced in Annex III to document TWO/XIX/23 Prov. The TWF and TWO expressed their gratitude for the efforts made to reprint the RHS Colour Chart. They recalled that already in the past there had been slight differences between various copies of the RHS Colour Chart depending on how often a certain copy had been used. These differences will also appear when comparing the reprinted RHS Colour Chart with some older copies still used by the competent authorities. Different color charts can, however, only have the effect which in other cases a reference collection will have. For the final decision on distinctness, the different varieties will always have to be compared with one and the same copy of the color chart.

54. The TWF and TWO expressed their satisfaction with the reprinted RHS Colour Chart and saw little possibility in the near future for further studying the question of colors and any possibilities of improving the RHS Colour Chart or preparing any other color chart.

55. The TWF and TWO noted that in the Federal Republic of Germany work was under way to prepare groups of colors within the RHS Colour Chart in an empirical way screening varieties by computer. The TWO asked the expert from the Federal Republic of Germany to prepare a short explanation on that grouping and to circulate the list of grouping of numbers of the RHS Colour Chart or a part of that list to the members of the TWO for comments.

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

Plant Variety Protection and Virus Diseases

57. The TWO noted paragraph 52 of document TC/XXI/7. It noted that in the Federal Republic of Germany it had not been necessary to take a decision in this field with respect to six applications for pelargonium varieties as these varieties had not been homogeneous. As the Working Party had not enough information on the background of the subject, it postponed its discussion until a further date (see document TWO/XIX/23 Prov., paragraph 10).

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

Over-Years-Analysis

59. The TWC based its discussions on document TC/XX/5 and on the results of a study made with the COY program and reproduced in documents TWC/IV/5, TWC/IV/6, TWC/IV/7 and TWC/IV/8. It recalled that, when replacing the present UPOV criteria by the COY analysis, the following practical problems had to be studied and solved:

(i) the present differences between countries in estimating the standard error based on the analysis of variance of single plants or plots,

(ii) the need to keep the continuity of distinctness decisions when introducing the COY analysis, and

(iii) the need to maintain the present possibility of deciding on distinctness after two years of tests (see document TWC/IV/13 Prov., paragraphs 6 and 7).

60. The TWC noted that the results of the application of the COY analysis by experts from five member States to sets of data using a computer program supplied by Dr. Weatherup (United Kingdom) had shown differences which resulted partly from the fact that:

(i) some member States used the variation between plants rather than plots,

(ii) in some member States, the high variety x year interaction resulted in rather high values of λ .

61. Dr. Weatherup (United Kingdom) estimated that the 2x1% test based on plant variation was approximately equivalent to a 2x10% test based on plot variation. To ensure continuity with the previous decision, taking standards based on plant variation, member States might at the beginning have to use a COY criterion of 10%, gradually tightening up the standard over the years (see document TWC/IV/13 Prov., paragraphs 8 and 9).

62. During the subsequent discussions, the TWC agreed that the plot variation was statistically the correct and valid basis for the present UPOV tests on distinctness (2x1%, T-score) (see document TWC/IV/13 Prov., paragraph 10).

63. Measures to control and reduce the variety x year interaction should be applied whenever possible. These included the grouping of varieties according to major characteristics associated with high λ -values, e.g. maturity date. Dr. Laidig (Federal Republic of Germany) proposed the application of the "Modified Joint Regression Analysis (M.J.R.A.) for incomplete variety x

environment data" as reported by P. Digby, in the "Journal of Agricultural Sciences 93," Cambridge, 1979, pages 81 to 86. The TWC agreed that this technique was an appropriate one to use (see document TWC/IV/13 Prov., paragraph 11).

64. The TWC concurred that it was necessary to maintain some continuity with the past decision level. It therefore agreed that, for an initial period of three years, there should be some flexibility in the probability levels which member States used when taking distinctness decisions. A 5% level should, in general, be achieved for three years data. Decisions might be based on the establishment of significant variety differences in more than one characteristic; but that requirement affected the probability of wrongly accepting a variety as distinct. However, it was important to check the extent to which characteristics were correlated. The stricter tests would require significant differences between varieties in uncorrelated, rather than in highly-correlated, characteristics (see document TWC/IV/13 Prov., paragraph 12).

65. Mr. Baltjes (Netherlands) proposed that distinctness decisions using the COY analysis should take account of the specific variety x year effect for varieties under consideration. Where this specific interaction, as measured by the ratio F_3 , was reached by probability level λ and the variety difference was significant at the same probability level, Mr. Baltjes considered that the evidence for distinctness was not sufficient (see TWC/IV/7) (see document TWC/IV/13 Prov., paragraph 13).

66. The TWC agreed that the calculations of F_3 and associated probabilities should be clearly presented in the computer output from the COY analysis. Dr. Weatherup (United Kingdom) agreed to amend the output as necessary and to provide a user description of the way to use and interpret the COY results. The TWC agreed that this program and documentation should be supplied to all member States and used by them to provide statistics for later use by agronomists taking decisions on distinctness (see document TWC/IV/13 Prov., paragraph 14).

67. As a result of the discussions mentioned above, the TWC recommended to the Committee that for grass species, where experience had already been accumulated, the COY analysis should be used to assess distinctness and the test results would be presented in the form shown in Annex II to this document. The TWC recognized that high varieties x years interaction can make distinctness more difficult to achieve when using the COY analysis rather than the present UPOV distinctness criteria (2x1%, t-score). The TWC suggested that variety differences should, in general, achieve at least the 5% level of significance for distinctness in a minimum of one characteristic (see document TWC/IV/13 Prov., paragraph 15).

68. The TWC also suggested to the Committee that, for a three-year initial period, member States should use the COY analysis and consider whether or not it was appropriate to require that differences between varieties should achieve the 1% level of significance in order to be accepted as distinct. During the next three years, experience in applying the COY analysis to grass species and other cross-fertilized species will indicate how best to refine the technique in order to specify more precisely the UPOV distinctness criterion based on the COY analysis, for subsequent use (see document TWC/IV/13 Prov., paragraph 16).

69. The TWA held a short discussion on the proposed introduction of the combined over-years (COY) analysis. It recommended that all member States should study this method during the coming three years with respect to grasses

and other cross-fertilized species in order to find the right significance level for the decision on distinctness (see document TWA/XV/7 Prov., paragraph 6).

70. The TWV discussed whether COY analysis could also be applied to the testing of vegetable varieties. Some experts pointed out that, for vegetable varieties in general, statistical processing should only be used to confirm the visible distinctness. Its application in cases in which such distinctness could not be observed visually should be handled with caution. That meant that the application of COY analysis would only be meaningful for cross-pollinated vegetable species like onions. Finally, the TWV wished to inform the Committee that it would first have to study whether the COY analysis could be directly applied when testing the distinctness of vegetable varieties. The expert from the Netherlands would try to apply that analysis to test results for onion varieties and would report on its outcome during the next session of the Working Party (see document TWV/XIX/27 Prov., paragraph 16).

71. The Committee is invited to take the necessary decisions, especially with respect to the recommendations mentioned in paragraphs 67 and 68 and in Annex II to this document.

List of Reference Books or Other Documents Useful in Connection with the Testing of Varieties

72. The Technical Working Parties recalled that, during its last session, the Technical Committee had asked the various experts to check the list once again for content and any corrections still to be made or additional information to be added. They therefore asked all their members to re-check the list and to inform the Office of UPOV of any corrections or additional information. They also noted that the Committee had decided to update the list annually. They consequently asked their members to communicate to the Office of the Union any new information which they might consider it worthwhile to include in the list. The updated list is reproduced in document TC/XXII/4 (see documents TWA/XV/7 Prov., paragraph 22, TWC/IV/13 Prov., paragraph 39, TWF/XVII/23 Prov., paragraph 10, TWO/XIX/23 Prov., paragraph 20, and TWV/XIX/27 Prov., paragraph 12).

73. The TWO proposed to the Committee that once books are mentioned in the Test Guidelines, they should be deleted from the large list of books.

74. The Committee is invited to take the necessary decisions on document TC/XXII/4.

Revision of the UPOV Model for a Report on Technical Examination

75. Having examined documents TWC/IV/12, TWC/III/13, Annex III, TC/XXI/6 and TC/XXI/7, paragraph 43 to 45, the TWC finally agreed to recommend the following to the Committee (see document TWC/IV/13 Prov., paragraphs 24 to 31):

(i) At the top of the table of characteristics, information on the following should be requested:

- species (latin and common name)
- breeder's reference
- variety denomination
- application number
- reference number assigned by the testing authority
- testing authority
- testing place
- period of testing (19.. to 19..)
- date of preparation of the documents
- UPOV Test Guidelines (document no. and date)
- space for national Test Guidelines (date)
- applicant

It would have to be decided whether items that are not fixed (applicant, application number of requesting authority) should be located on a different sheet or at the very top of the form.

(ii) In the Table of Characteristics in Annex II to document TC/XXI/6, the following should be amended:

- There should be a small column for brief remarks or for a reference to lengthier remarks to be contained in a footnote.
- National numbers of characteristics should be placed in a separate column and do not need to be specially marked.
- Additional national characteristics should not be placed after the UPOV characteristics, but in the natural sequence, as the main use of the form would still be for national purposes.
- States should not have a box which could simply be marked
- The asterisks from the UPOV Test Guidelines should be repeated in the form.
- The grouping characteristics should also have their characteristic number if it exists.
- Characteristics not observed should not be mentioned.
- Most experts thought that characteristics not applicable should nevertheless be mentioned.
- Some experts warned against overloading the form with too much information.

76. The TWC agreed that fairly comprehensive information on each characteristic observed should be included in an exchange of variety descriptions between member States. Most experts considered that it would not be useful to include all states of expression in the form used for that purpose as it would become too long (see document TWC/IV/13 Prov., paragraph 29).

77. The TWA, TWF, TWO and TWV agreed to almost all of the proposals made by the TWC reproduced in paragraph 75 of this document with the exception of the following (see documents TWA/XV/7 Prov., paragraph 25, TWF/XVII/23 Prov., paragraph 11, TWO/XIX/23 Prov., paragraph 19 and TWV/XIX/27 Prov., paragraph 13):

(i) The breeder should be requested to state on the form first the botanical name of the taxon and then the common name (TWO). The word "species" should be understood as "botanical name of taxon" (TWF).

(ii) The wording "date of preparation of the documents" should read "date of issuing of the document."

(iii) The grouping characteristics at the front of the Table of Characteristics should be deleted as they are repeated in the Table itself (TWA).

(iv) The grouping in front of the Table of Characteristics should be maintained as often internationally accepted classifications were used in the ornamental field which were not characteristics (TWO).

(v) The TWO wished to state that in its field of competence the UPOV Test Guidelines were applied in their entirety and the national authorities did not use any national characteristics additional to those mentioned in the UPOV Test Guidelines (TWO).

(vi) The asterisk from the UPOV Test Guidelines should not be repeated in the form (TWO).

(vii) All characteristics should be indicated in the form, also those not tested (TWO).

(viii) The TWA did not take a decision on whether all characteristics should be included in the List of Characteristics or only those which had been observed. Some member States were in favor of all characteristics, others were only in favor of those observed (TWA).

(ix) The name of the testing authority should not be included (TWV).

(x) Whole states of expressions of characteristics should be included, but the Working Party left it to member States' discretion whether or not to include boxes for states which could just be marked (TWV).

(xi) Similar varieties should be understood to mean those most closely resembling varieties and the difference should be described in words as in the present model (see document TWV/XIX/27 Prov., paragraph 13) (TWV).

(xii) The Working Party proposed to the Committee that on each page of the report the reference number of the testing authority should be repeated (TWO).

78. The Committee is invited to take the necessary decisions on the basis of document TC/XXII/5 prepared by the Office of the Union according to the above comments.

Electrophoresis Test on Wheat

79. The TWA noted that the results of the second year of the UPOV collaborative study on the electrophoresis test on wheat confirmed what had already emerged from the first year of testing, namely, that there was no narrow correlation between characteristics obtained by the application of electrophoresis and the morphological characteristics of the variety. It also noted

that each method used showed other differences between varieties and that some differences which had been included in the test intentionally were not detected by some methods, but were detected by others. Therefore, at present, it was not possible to use characteristics obtained by the application of electrophoresis for a decision on distinctness for the purpose of granting plant variety rights, unless a well-defined method was established and applied within UPOV (see document TWA/XV/7 Prov., paragraph 15).

80. Some of the differences in the results of last year's study were not only due to the different methods used, but also to different interpretations of results obtained by the electrophoretic methods. It was therefore agreed that each member State would supply information on the method used and on its interpretation. The results of the test on electrophoresis also showed that certain clear variants intentionally introduced into the study were found neither by laboratory tests nor by the field test with the traditional characteristics. This was slightly disappointing, and the TWA discussed whether these results made it necessary to conduct a further study on the traditional characteristics with an exchange of plant material. It decided that for the time being, however, it would not undertake such a study, but would take more time to examine and analyse the data of the two years of testing and if possible also conclude tests with a second grain of the first year, if this had not already been done. Only further study and a statistical evaluation of the results would enable it to decide whether a study on the traditional characteristics of the UPOV Test Guidelines for Wheat would be necessary (see document TWA/XV/7 Prov., paragraph 16).

81. With respect to the electrophoretic methods themselves, the TWA agreed to make a new study of certain methods. This should however be based on ten samples of wheat flour instead of grains in order to eliminate as far as possible any other source of variation and it should therefore not include morphological characteristics. All member States will be invited to participate in the trial and the United Kingdom experts will prepare a letter explaining the aims and meaning of the study. Its aim would be to find a simple electrophoretic method as a basis for the decision on distinctness for the granting of plant variety rights. It should be a method that is repeatable, rapid and foolproof and not lead to different results when slightly changed. It should be a rapid method, it should not be too expensive not show too much heterogeneity in existing varieties, and it should be limited to the measuring of the storage protein and not the enzymes. For the time being, methods using starch gel and electro-focusing should be excluded from the study. Since ISTA might propose a method during its forthcoming Congress, this ISTA method should be included in the study as the basic method (see document TWA/XV/7 Prov., paragraph 17).

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

Chairmanship

83. The TWC noted that the chairmanship of Mrs. Silvey would end with the closing of this year's ordinary session of the Council. The terms of office of the chairmen of all the other Technical Working Parties would end in 1987. The TWC was very satisfied with the present chairmanship and proposed to the Committee that it should recommend that the Council should appoint Mrs. Silvey as chairman for one more year (see document TWC/IV/13 Prov., paragraph 40).

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

[Annex II follows]

Note by the Chairman of the TWC on Nominal Standards
for Self-Pollinated Crops

USE OF F_3 STATISTIC WITH THE COY CRITERION

The F_3 statistic for a particular variety pair on a specified character is defined as:

$$\frac{\text{varieties} \times \text{years mean square specific to the variety pair}}{\text{varieties} \times \text{years mean square for all varieties}}$$

The Technical Working Party considered that this statistic was useful in identifying variety pairs which although distinct using the COY criterion show sufficient inconsistencies over years compared with other varieties of the same species to indicate that their apparent distinctness may not be reproducible in later years. Attached is a copy of the TVAL output modified to include a significance test for F_3 . Critical values for F_3 are obtained from the F table with $(NY-1)$ and $(NY-1) (NV-1)$ degrees of freedom where NY and NV are the numbers of years and varieties respectively. The Working Party agreed that a significant COY result with a non significant F_3 value could be accepted as evidence of distinctness without further investigation. However it considered that a variety pair having a significant COY result and also a significant F_3 value could not be immediately accepted as distinct due to the possibility that the COY result may not be reproducible. The Working Party agreed that such a result should be examined in more detail before accepting the pair as distinct. Such an examination might take into account the actual

significance levels of the COY test and the F_3 value. Thus a just significant F_3 value might be neglected if it occurred in conjunction with a highly significant COY result. The critical levels for significance of F_3 and the COY criterion will be subject of consideration by the Working Group over the next 3 years. As an example using the comparison of variety A v variety B from the attached output, this pair may be declared distinct on character 10 HGTATEE (COY $P < 0.1\%$, F_3 $P < 5\%$) but not on character 14 FLAGLGTH (COY $P < 0.1\%$, F_3 $P < 0.1\%$) due to the very large variation in the within year differences, given by t values, in the case of the latter character.

PRG(DIP) LATES 1982,1983 , 1984

COMPARISONS BETWEEN 42 VAR A AND 33 VAR B
T VALUES POSITIVE IF VAR A LARGER THAN VAR B

	SIGNIFICANCE LEVELS				COMBINED ANALYSIS			T VALUES			T SCORE	F3
	YEARS				T	PROB	SIG	YEARS				
	82	83	84					82	83	84		
4 ANGLEYS	+	+1	-	ND	1.72	18.880	NS	0.89	2.97	-0.95	2.97	2.00 NS
5 SPRNGHT	-	+5	-1	ND	-1.36	-17.744	NS	-0.44	2.28	-6.42	-1.09	5.39 **
8 DATEOFEE	-1	-1	-1	D	-6.83	0.000	***	-4.02	-6.26	-6.17	-10.11	1.04 NS
10 HGDATEE	-1	-1	-1	D	-7.24	0.000	***	-3.96	-4.20	-7.71	-10.11	3.78 *
11 WDTATEE	-	-	-5	ND	-1.76	-8.140	NS	-1.06	-1.00	-2.14	-2.14	0.15 NS
14 FLAGLGTH	-1	-	-1	D	-6.56	0.000	***	-5.30	-1.78	-11.04	-6.74	9.27 ***
15 FLAGWTH	-1	-1	-1	D	-8.34	0.000	***	-8.98	-3.24	-7.73	-9.98	5.13 **
17 SLTEEE30	-1	-1	-1	D	-8.69	0.000	***	-9.28	-3.59	-7.43	-10.11	2.69 NS
19 HEAD/PLT	+	+5	+	ND	1.63	10.599	NS	0.32	2.33	0.00	2.33	1.73 NS
20 HGT AFT	-1	-	-1	D	-4.58	-0.001	***	-4.65	-0.30	-5.44	-6.74	4.95 **
24 EARLGTH	-1	-1	-1	D	-9.75	0.000	***	-10.30	-3.57	-10.25	-10.11	5.07 **
31 SP/SPK	+2	+2	-	D	2.11	3.731	*	2.53	2.38	-0.69	4.91	2.37 NS
32 FLT/SPK	-	+2	-5	ND	-0.92	-35.786	NS	-1.80	2.48	-2.13	0.36	3.49 *
34 GLUMELGT	-1	-1	-1	D	-7.67	0.000	***	-6.68	-5.34	-4.28	-10.11	0.48 NS
35 SPK-AWN	-1	-	-1	D	-5.64	0.000	***	-5.33	-1.12	-5.35	-6.74	4.84 *

COMPARISONS BETWEEN 42 VAR A AND 34 VAR C
T VALUES POSITIVE IF VAR A LARGER THAN VAR C

	SIGNIFICANCE LEVELS				COMBINED ANALYSIS			T VALUES			T SCORE	F3
	YEARS				T	PROB	SIG	YEARS				
	82	83	84					82	83	84		
4 ANGLEYS	+	+5	-	ND	0.94	34.866	NS	0.13	2.12	-0.06	2.12	0.79 NS
5 SPRNGHT	+	-	-1	ND	-2.18	-3.147	*	0.61	-0.94	-7.10	-3.37	4.54 *
8 DATEOFEE	-1	-1	-1	D	-7.02	0.000	***	-4.57	-6.37	-5.98	-10.11	0.57 NS
10 HGDATEE	-1	-1	-1	D	-6.76	0.000	***	-4.55	-3.95	-6.42	-10.11	1.56 NS
11 WDTATEE	-1	-	-2	D	-3.35	-0.119	**	-3.48	-1.78	-2.40	-5.77	0.73 NS
14 FLAGLGTH	-1	-1	-1	D	-4.80	-0.001	***	-2.68	-3.59	-6.94	-9.42	2.28 NS
15 FLAGWTH	-1	-	-1	D	-3.41	-0.097	***	-2.90	-0.41	-4.94	-6.27	2.50 NS
17 SLTEEE30	-1	-1	-1	D	-8.66	0.000	***	-7.96	-4.65	-7.28	-10.11	0.51 NS
19 HEAD/PLT	+	+5	+	ND	2.59	1.124	*	1.72	2.33	0.00	2.33	1.71 NS
20 HGT AFT	-1	-	-1	D	-5.13	0.000	***	-4.64	-1.69	-5.48	-6.74	3.02 NS
24 EARLGTH	-1	-1	-1	D	-7.73	0.000	***	-8.05	-3.68	-7.20	-10.11	1.37 NS
31 SP/SPK	+	+1	+	ND	3.19	0.193	**	1.92	3.67	1.01	3.37	1.25 NS
32 FLT/SPK	+	+1	-	ND	1.58	11.836	NS	0.62	4.69	-0.69	3.37	3.47 *
34 GLUMELGT	-1	-1	-1	D	-7.66	0.000	***	-6.28	-4.53	-5.08	-10.11	1.35 NS
35 SPK-AWN	-1	+	-1	D	-3.23	-0.173	**	-2.86	0.30	-3.94	-6.23	4.11 *