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UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

COUNCIL

Eleventh Ordinary Session
Geneva, December 6 to 9, 1977

PROGRESS REPORT ON THE WORK OF THE TECHNICAL STEERING COMMITTEE

prepared by the Office of the Union

1. The Technical Steering Committee, hereinafter referred to as "the Committee," held its ninth session from November 17 to 19, 1976, its tenth session from May 16 to 18, 1977, and its eleventh session from November 15 to 17, 1977, under the chairmanship of Dr. D. Böringer (Federal Republic of Germany), with the exception of the last one and a half days of the eleventh session (November 16 and 17, 1977) where the Committee was presided over by Mr. A.F. Kelly as Acting Chairman. The respective reports of these sessions are contained on documents ST/IX/4, ST/X/7 and ST/XI/6*.

2. The main results achieved during the three sessions are set forth hereinafter.

Data Recording and Interpretation

3. The Committee discussed at length the different methods used in the member States for the testing of distinctness and partly for the testing of maize hybrids. These discussions took place in all three of the above-mentioned sessions and the results achieved so far have been sent to the professional organizations for comments. They are reproduced in Annex I to this report.

4. During its eleventh session the Committee started discussions on the testing of homogeneity and stability. These discussions will continue during the coming sessions. Once the discussions on the data recording and interpretation with respect to distinctness, homogeneity and stability have been completed, it is intended to include their results in a revised version of the General Introduction to the Guidelines for the Examination of Distinctness, Homogeneity and Stability of New Varieties of Plants (at present, document TG/1/1).

Test Guidelines

5. As a result of the successful conclusion of the work of the Technical Working Parties, the Committee adopted during its ninth session test guidelines for 20 new species, during its tenth session test guidelines for three further species and during its eleventh session test guidelines for seven further species. With the 30 new test guidelines adopted since the last ordinary session of the Council, there are now test guidelines adopted for a total of 53 species. (For details, see Annex III to this document).

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* Still under preparation at the time of issuing this report.

6. Recently the different Technical Working Parties have prepared first drafts for seven further test guidelines. These drafts have already been, or will soon be, sent to the professional organizations in the field of plant breeding and the seed trade for comments.

Technical Questionnaires

7. During its seventh session the Committee had started to discuss the possibility of harmonizing forms for technical questionnaires. These discussions had been continued during the Committee's ninth session and led to the publication of technical questionnaires for all species for which up to that date test guidelines had been adopted by the Committee. All test guidelines adopted by the Committee after these dates already contained a form for a technical questionnaire for the species concerned.

Report on Technical Examination

8. During its ninth session the Committee adopted a UPOV Model for Reports on Technical Examination. It was approved in principle by the Council during its ninth ordinary session. This Model is reproduced in Annex II to this document.

Standardization of the Terminology of Simple Symmetrical Plane Shapes

9. During its ninth, tenth and eleventh sessions the Committee discussed the possibility of standardizing the terminology of simple symmetrical plane shapes and received several proposals from a number of delegates. None of them met with the unanimous approval of the Committee, which decided that the present practice be continued whereby a loose standard is used which is controlled by the Editorial Committee of the Technical Steering Committee when editing the various test guidelines before publication.

Question of Multiline Varieties

10. During its tenth and eleventh sessions the Committee discussed problems in connection with multiline varieties. It finally agreed that with respect to the granting of plant breeders' rights each line of the multiline varieties would have to be considered as a separate variety and would have to be treated in the same way as other varieties. It did not consider it necessary to protect also the mixture of those varieties and to adopt international rules on the fees to be charged for applications concerning multiline varieties.

11. With respect to the denomination of a multiline variety, the Committee studied the question whether the same rules for denominations could be applied for lines of multiline varieties as were currently applied for inbred lines for maize and rootstocks. The Committee finally decided that it could not agree to such an exception and proposed that the denomination of each line would have to be in conformity with the requirements for denominations of any other--normal--variety.

Determination of Colors

12. During its ninth and tenth sessions the Committee discussed the possibility of improving the present determination of colors in the different test guidelines. Several experts from different member States studied the possibilities for determining color by means other than the Colour Chart of the Royal Horticultural Society. Finally, however, it was agreed that at present the above-mentioned Chart would still be preferable to all other practicable possibilities studied, although it did not fully satisfy the needs.

Participation of the Chairmen of the Technical Working Parties in Sessions of the Committee

13. During its tenth session the Committee noted with regret that at recent sessions of the Committee only a few Chairmen of the various Technical Working Parties had participated. Others had been unable to travel to Geneva for lack of necessary funds. That was considered regrettable since UPOV's progress in

the technical field largely depended on direct contacts between the Committee and the Technical Working Parties represented by their Chairmen. Since the Chairmen were not representing the country from which they came but their Working Party, the question whether UPOV should bear their travel expenses was raised. The Chairman of the Committee stated that the question was one that might be discussed by the Council.

Answers to Questions Raised in the Technical Working Parties

14. During all three sessions the Committee received several questions from the different Technical Working Parties which were all answered after discussion.

15. The Council is invited to take note of the progress made by the Committee since the Council's last ordinary session.

[Three Annexes follow]

DATA RECORDING AND INTERPRETATION

Testing of Distinctness

As regards standardizing the methods used for testing in the various member States, the Technical Steering Committee reached the following provisional understanding, which it decided to study further at the national level before discussing the matter again at its next session:

General

1. The varieties with which a new variety has to be compared are the varieties of common knowledge as defined in the Convention. A first basis of comparison is normally those varieties maintained in the reference collection of the examining State.

2. For a better definition of the state of a characteristic in the Test Guidelines, example varieties are given whenever possible.

True Qualitative Characteristics

3. In the case of true qualitative characteristics (in the sense of discrete, discontinuous characteristics), two varieties have to be considered distinct if they show expressions which fall into two different states of the respective characteristics.

True Quantitative Characteristics

4. In the case of true quantitative characteristics--that is, measurable characteristics on a one-dimensional scale--two varieties have to be considered distinct if they are distinct at one testing place at least, provided that the difference between them is clear and consistent. In order to obtain comparable results in the various member States, the number of observations has to be fixed. It is desirable to make a direct comparison between two such varieties. A difference occurring in two consecutive, or in two out of three, growing seasons with one percent significance, based for instance on the application of the Least Significant Difference, is considered a clear difference.

Characteristics Observed Visually

5. Visual characteristics are characteristics that are or can be made visible. Differences in taste, smell, feeling, etc., can be dealt with in the same way as visible characteristics.

6. A quantitative characteristic which is normally observed visually but is capable of being measured should be measured, in cases of doubt, if it is the only distinguishing characteristic in relation to another variety. When interpreting visual assessments, two varieties are to be considered distinct if they are distinct at one testing place at least, provided that the difference between them is clear and consistent. In order to obtain comparable results in the various member States, the number of observations has to be fixed. It is desirable to make a direct comparison between two such varieties. When statistical methods are used, the properties of the scale are taken into account and the same confidence levels are borne in mind as for true quantitative characteristics.

7. Quantitative characteristics recorded by visual assessment could be measured given time and adequate facilities. In many cases (e.g. hairiness, glaucosity, curvature, etc.) this would involve quite sophisticated techniques but, in theory, it is possible.

8. Instead of counting the exact number of hairs or measuring the thickness of the wax layer, the varieties are classified on the basis of eye observations. A trained observer can make rapid and reliable classifications. It is indispensable to define the characteristic in question (e.g., either density of hairs or length of hairs).

9. When a fixed scale is used throughout the trials and years, the environmental influence on the varieties is reflected in the figures. Statistical operations on these figures must be preceded by a test on the properties of the scale; e.g., do the observations show normal (Gaussian) distributions and, if not, why not? The states on the scale should be illustrated by example varieties.

10. Visual characteristics are often recorded on a scale that does not satisfy the assumptions of the usual parametric statistics. Even the simple operation of calculating a mean value is not allowed if the notes are taken on a ranking scale not having equal intervals throughout the scale. In this situation, generally only non-parametric statistical procedures are applicable. In such cases it is advisable to use a scale established on the basis of example varieties representative of the different levels of the characteristic. One and the same variety should then always receive the same note and thus facilitate the interpretation of data.

11. Whatever the scale, direct pairwise comparisons are recommended because these have the least bias. In each comparison, it is acceptable to note a difference between two varieties as soon as this difference can be seen with the eye and the observer is convinced that it could be measured if the facilities were available. The simplest criterion for establishing distinctness is of course to require consistent differences (differences with the same sign) in pairwise comparisons, provided that they can be expected to recur in following trials.

Combination of Characteristics

12. When having to decide whether two varieties are distinct from one another, cases may arise where two varieties differ in two or more separately assessed characteristics, each below the agreed level of significance.

13. In these cases the combination of characteristics might be a way to establish distinctness. In practice this possibility has already been used when examining the relation between two characteristics as a new characteristic (e.g., length/width ratio).

14. It is often seen that the relation between two characteristics is stable and may show significance when the separate characteristics do not. There are, however, some statistical traps with ratios. It should be checked that the assumptions of the statistical method used are really satisfied.

15. If two characteristics are combined to form one new characteristic and the difference reaches at least the agreed level of significance (1% in at least two years), it is acceptable to use this finding as a basis for establishing distinctness.

16. Another possibility might be to establish distinctness on the basis of a multivariate analysis, e.g., by combining the data of two or more characteristics by Hotellings T^2 or a discriminant function analysis. Care should be taken to avoid the introduction of an artificial combination resulting from the analysis of a limited set of data without having enough experience of its repeatability. The question has also still to be studied whether, in such cases a minimum level of confidence for each individual characteristic should be required which could be lower than normal.

17. For the time being, no solution can be proposed for the case where two or several characteristics could not be combined. But it might be considered whether in such cases a sufficient number of characteristics might reveal a difference which has to be taken into consideration.

Testing of Maize Hybrids

18. Inbred lines and single crosses of maize are considered to form part of the hybrid variety according to the formula indicated. As part of the testing of hereditary components this includes the testing of the seed received from the crossing of the female component. If the expressions of the characteristics of the seed of female single crosses change from year to year, this indicates that the female single cross is not stable.

19. A difference in the formula of a maize hybrid is not enough by itself and the protection of a hybrid variety of maize requires that it be sufficiently different in its characteristics when compared with other varieties. If an application is filed for protection of a hybrid variety of maize which is based on a formula already existing, the applicant has to be informed of the fact and given the possibility of withdrawing his application. If he does not withdraw his application, the authority has to test the variety.

20. A reciprocal cross of a maize hybrid is acceptable as a new variety if it is distinct in its varietal characteristics.

21. If the maize hybrid itself does not show any differences when reciprocal crosses are made and only the seed leading to the hybrid is different, only one title of protection should be granted.

22. It is essential that the user of the maize hybrid should not be misled when different types of seed are commercialized under one and the same variety denomination.

23. Maize hybrids can also be produced on a reciprocal basis as long as this does not change the characteristics of the plants of the hybrid. The breeder has, however, to indicate both formulas and, if the characteristics of the sowing seed of the hybrid differ, he has also to describe the differences in the seed (e.g., whether the seed is of flint, dent or intermediate type). The breeder also has to ensure that the type of sowing seed commercialized is always clearly indicated to the user.

24. The characteristics establishing distinctness between two hybrid varieties of maize have to be homogeneous or, if heterogeneous, have to have segregated according to predictions made on the basis of the formula of the hybrid. For segregating characteristics of maize hybrids, use has to be made of the knowledge received from components which predict a certain segregation. Clear-cut segregating characteristics have therefore to be treated as qualitative characteristics. (The Technical Working Party for Agricultural Crops is to prepare a special Annex to the Test Guidelines for Maize in which it will group all those characteristics whose hereditary aspects are well known or where, from experience, a clear cut segregation can be expected.)

25. For three-way or double-cross varieties of maize, at least the main characteristics or grouping characteristics have to be described. (The Technical Working Party for Agricultural Crops will revise the existing Test Guidelines for Maize and indicate in the revised version which of the characteristics have to be given an asterisk (*) (compulsory characteristics).)

26. The methods and type of testing of maize have to be harmonized. A minimum of 3 kg of seed has to be requested for the variety under examination and at least fifty plants have to be observed on one station. For the observations, the characteristics of the Test Guidelines for Maize have to be used. In addition to the hybrid itself, the components also have to be tested.

[Annex II follows]

0211

UPOV MODEL FOR A REPORT ON TECHNICAL EXAMINATION

Requesting Authority	Application No. .....
Reporting Authority	Reference No. .....

GENERAL INFORMATION

1. Species (common and Latin names):	2. Date of application (in requesting State):
3. Applicant (name and address):	
4. Proposed denomination:	Breeder's reference:
5. Testing station:	6. Site(s) and year(s) of tests:

RESULTS OF THE TECHNICAL EXAMINATION

(add further sheets if necessary)

7. Report on distinctness:

8. Report on homogeneity:

9. Report on stability:

CONCLUSION

10. Conclusion of the reporting authority on the basis of the results of the technical examination:

(a) The variety

☐ is distinguishable from any other variety

☐ is not distinguishable from all varieties whose existence is known to us.

(b) The variety

☐ is sufficiently homogeneous

☐ is not sufficiently homogeneous

having regard to the particular features of its sexual reproduction or vegetative propagation.

(c) The variety

☐ is stable

☐ is not stable

in its essential characteristics.

In the case of a positive conclusion, a description of the variety is given in an annex to this report.

Place and date: ..... Signature: .....

ANNEX TO THE REPORT ON TECHNICAL EXAMINATION

Requesting Authority	Application No. .....
Reporting Authority	Reference No. .....

DESCRIPTION OF THE VARIETY

A. Characteristics, mentioned in the UPOV Test Guidelines TG/..../.... (dated 1976-..-..)

Characteristic	Note*	Remarks
(as an example: wheat) 1. Coleoptile: anthocyanin coloration (in laboratory)	1. 9. ☐	
2. Coleoptile: intensity of anthocyanin coloration (in laboratory)	1.2.3.4.5.6.7.8.9./☐/	
3. Plant: growth habit	1.2.3.4.5.6.7.8.9./☐/	
4. Flag leaf: attitude	1.2.3.4.5.6.7.8.9./☐/	
Other characteristics	etc.	

B. Differences from those varieties which most closely resemble the variety

Variety denomination	Differences

C. Additional data

* To avoid errors the correct figure should be circled and the figures should be written in the box. A cross in the box means that this characteristic has not been observed.

[Annex III follows]

C/XI/8

ANNEX III

Document Number of the Test Guidelines or Draft Test Guidelines (the latter with the indication "(proj.)" after the Document Number) Prepared or to be Prepared by the Office of the Union (as of November 17, 1977)

	Number	
*	TG/1/1	General Introduction/Introduction Générale/Allgemeine Einführung
*	TG/2/1	Maize/Maïs/Mais
*	TG/3/1	Wheat/Blé/Weizen
*	TG/3/5	Wheat/Blé/Weizen (Triticum aestivum)
*	TG/4/1	Ryegrass/Ray-grass/Weidelgras
*	TG/II/4	Red Clover/Trèfle violet/Rotklee
*	TG/II/5	Lucerne/Luzerne
*	TG/7/1	Garden Pea/Pois Potager/Gemüseerbsen
*	TG/III/2	Broad Bean/Fève/Puffbohne
*	TG/III/4	Runner Bean/Haricot d'Espagne/Prunkbohne
*	TG/V/2	Euphorbia fulgens/Euphorbe/Korallenranke
*	TG/11/1	Rose/Rosier/Rose
*	TG/12/1	French Bean/Haricot/Bohne
*	TG/13/1	Lettuce/Laitue/Salat
*	TG/14/1	Apple/Pommier/Apfel
*	TG/15/1	Pear/Poirier/Birne (+ TG/15/1 Corr.)
*	TG/16/1	Rice/Riz/Reis
*	TG/17/1	African Violet/Saintpaulia/Usambaraveilchen
*	TG/18/1	Elatior Begonia/Begonia elatior/Elatior Begonie
*	TG/19/4	Barley/Orge/Gerste
*	TG/20/4	Oats/Avoine/Hafer
*	TG/21/4	Poplar/Peuplier/Pappel
*	TG/22/3	Strawberry/Fraisier/Erdbeere
*	TG/23/2	Potato/Pomme de terre/Kartoffel
*	TG/24/2	Poinsettia/Poinsettie
*	TG/25/3	Carnation/Oeillet/Nelke
+	TG/26/2 (proj.)	Chrysanthemum (Perennial)/Chrysanthème/Chrysantheme
*	TG/27/3	Freesia/Freesie
-	TG/28/2(proj.)	Pelargonium/Pelargonie
*	TG/29/3	Alstroemeria/Alstroemère/Inkalilie
*	TG/30/3	Bent/Agrostide/Straussgras
*	TG/31/3	Cocksfoot/Dactyle/Knaulgras
*	TG/32/3	Common Vetch/Vesce commune/Saatwicke
*	TG/33/3	Kentucky Bluegrass/Pâturin des prés/Wiesenrispe
*	TG/34/3	Timothy/Fléole des prés, Fléole diploïde/ Wiesen-, Zwiebellieschgras
*	TG/35/3	Cherry/Cerisier/Kirsche
*	TG/36/3	Rape/Colza/Raps
*	TG/37/3	Turnip/Navet/Herbst-, Mairübe
*	TG/38/3	White Clover/Trèfle blanc/Weissklee
*	TG/39/3	Meadow -, Tall Fescue/Fétuque des prés, Fétuque élevée/Wiesen-, Rohrschwingel
*	TG/40/3	Black Currant/Cassis/Schwarze Johannisbeere
*	TG/41/4	European Plum/Prunier européen/Pflaume
*	TG/42/3	Rhododendron
*	TG/43/3	Raspberry/Framboisier/Himbeere
*	TG/44/3	Tomato/Tomate
*	TG/45/3	Cauliflower/Chou-fleur/Blumenkohl
*	TG/46/3	Onion/Oignon/Zwiebel
*	TG/47/2	Streptocarpus/Drehfrucht
*	TG/48/3	Cabbage/Chou pommé/Kopfkohl
*	TG/49/3	Carrot/Carotte/Möhre
*	TG/50/3	Vine/Vigne/Rebe
*	TG/51/3	Gooseberry/Groseillier à maquereau/Stachelbeere
*	TG/52/2	Red and White Currant/Groseillier à grappes/Rote und Weisse Johannisbeere
*	TG/53/3	Peach/Pêcher/Pfirsich
*	TG/54/3	Brussels Sprouts/Chou de Bruxelles/Rosenkohl
*	TG/55/3	Spinach/Epinard/Spinat
-	TG/56/1(proj.)	Almond/Amandier/Mandel
-	TG/57/1(proj.)	Flax, Linseed/Lin/Lein
-	TG/58/1(proj.)	Rye/Seigle/Roggen
-	TG/59/1(proj.)	Lily/Lis/Lilie
-	TG/60/1(proj.)	Beetroot/Betterave rouge/Rote Rübe
-	TG/61/1(proj.)	Cucumber,Gherkin/Concombre,Cornichon/Gurken
-	TG/62/1(proj.)	Rhubarbe/Rhubarbe/Rhabarber

* Adopted
\+ Technical Steering Commitee to adopt
\- Professional Organisations to comment

Stages of Test Guidelines (as of November 17, 1977)

Technical Working Party / Stage	Agricultural Crops	Forest Trees	Fruit Crops	Ornamental Plants	Vegetables
adopted (total 53)	Barley Bent Cocksfoot Common Vetch Kentucky Bluegrass Lucerne Maize Meadow Fescue, Tall Fescue Oats Potato Rape Red Clover Rice Ryegrass Timothy Turnip White Clover Wheat (Triticum aestivum) Wheat	Poplar	Apple Black Currant Cherry European Plum Gooseberry Peach Pear Raspberry Red and White Currant Strawberry Vine	African Violet Alstroemeria Carnation Elatior Begonia Euphorbia fulgens Freesia Poinsettia Rhododendron Rose Streptocarpus	Broad Bean Brussels Sprouts Cabbage Carrot Cauliflower French Bean Garden Pea Lettuce Onion Runner Bean Spinach Tomato
Technical Steering Committee to adopt (total 1)				Chrysanthemum	
Professional Organizations to comment (total 7)	Flax, Linseed Rye		Almond	Lily	Beetroot Cucumber Rhubarb
in preparation (total 14)	Small leafed Fescue	Picea abies Willow	Apricot Blackberry Citrus Hazelnut	Berberis Forsythia Narcissus Pelargonium Thuja	Black Radish Radish
planned	Lupin Oil Radish Poppy (Sugar Beet) Tobacco	Abies Douglas fir Larix conifers Pinus nigra		Anthurium Chamaecyparis Cypress Dahlia Fuchsia Gladiolus Iris Juniper Tulip	Celeriac Celery Cornsalad Dill Kohlrabi Parsley

[End of Annex III and of document]