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TWV/27/13

757

ORIGINAL : English

DATE : January 11, 1994

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY
FOR
VEGETABLES

Twenty-seventh Session
Menstrup Kro, Denmark, July 6 to 9, 1993

REPORT

adopted by the Technical Working Party for Vegetables

Opening of the Session

1. The twenty-seventh session of the Technical Working Party for Vegetables (hereinafter referred to as "the Working Party") was held in Menstrup Kro, Denmark, from July 6 to 9, 1993. The list of participants appears in Annex I to this report.

2. Miss Jutta Rasmussen and Mrs. Birthe Hoegh of the Statens Forsøgsstation welcomed the participants. The session was opened by Mr. N.P.A. van Marrewijk (Netherlands), Chairman of the Working Party.

Adoption of the Agenda

3. The Working Party adopted the agenda for its twenty-seventh session, which is reproduced in document TWV/27/1.

Short Reports on Special Problems or Difficulties Encountered

4. The Working Party noted a written report from The Netherlands as reproduced in Annex II to this report. In order to shorten the testing procedure of vegetable varieties for plant breeders' rights, the Dutch authorities accept results from the applicant for so-called "B-list" testing. They also granted protection to an in vitro-maintained cucumber variety. The expert from the United Kingdom reported on difficulties with yellow seed color of turnip rape which, genetically based on eight genes, leads to "non-homogeneous" color with about 60 to 80% of yellow seeds only. In the United Kingdom, seed color would therefore not be used for distinctness testing but only for description purposes, as it would not be justified to reject those varieties. "Mixed" varieties were already accepted in Canada, Finland and Sweden. The Working Party asked that the problem be presented to the Technical Working Party for Agricultural Crops, and Mr. Green (United Kingdom) would prepare a paper for that purpose by the end of September 1993.

Report on the Twenty-Eighth and Twenty-Ninth Sessions of the Technical Committee and Recommendations Resulting from that Session

5. Dr. M.-H. Thiele-Wittig gave a brief report on the main items discussed during the previous sessions of the Technical Committee, referring for further details to the full reports reproduced in documents TC/28/6 and CAJ/32/10-TC/29/9.

Uniformity in Varieties With Both Propagation by Seed and Vegetative Propagation

6. The Working Party agreed that each variety should be judged according to the manner of its propagation. The breeder should consistently use the same method of propagation for a given variety, however.

Asterisk Characteristics and Non-Asterisk Characteristics

7. The Working Party agreed that in future it would try to increase the number of asterisk characteristics in the Test Guidelines for the species in its area of competence. It noted that usually all characteristics in the UPOV Test Guidelines were tested in the framework of bilateral agreements. In most countries a characteristic became a routine characteristic after its first use for distinctness purposes, and all varieties would have to be homogeneous in that characteristic afterwards.

Resistance Characteristics

8. As many resistance characteristics were routine characteristics in vegetable species, they should receive an asterisk in the UPOV Test Guidelines. Many characteristics in UPOV Test Guidelines at present called "resistance" characteristics were in fact tolerance characteristics or, to be even more precise, characteristics of a plant's response to disease. With the exception of purely monogenetically controlled resistances, there were no "black or white" situations but rather, depending on the number of genes present, a range of different degrees of infection. Therefore example varieties and a definition were given in the methods, indicating the degree of symptoms up to which a variety would be considered "resistant" or, better, "tolerant." In

the case of viruses, there was never presence or absence of resistance, only of tolerance. Tests were made under controlled conditions and were repeatable with the same results. UPOV Test Guidelines should reflect that fact, and the proposal was accordingly being applied in the Test Guidelines for French Bean (characteristics 44, 45 and 46), which were among the Test Guidelines to be presented to the Technical Committee in 1993.

9. The Working Party noted that in vegetable species, plant variety protection was often granted in cases where the candidate variety showed uniformity in a new resistance characteristic while the existing variety was heterogeneous. That was contrary to the position of the TWA, according to which a new characteristic could only be used to establish distinctness if both the candidate variety and the existing variety, from which it was otherwise not distinguishable, were homogeneous in that new characteristic. Although that was partly due to lack of knowledge, as the existing variety would be considered not resistant, it was considered justified in the case of polygenic resistance, as a different degree of resistance would mean the addition of one or more other genes.

UPOV Central Computerized Data Base

10. Dr. M.-H. Thiele-Wittig reported on the history of the discussions concerning a possible UPOV central computerized data base, referring to document CAJ/32/2-TC/29/2. Mr. Kristensen (Denmark, Chairman of the TWC) reported on the preparation by the TWC of a format for electronic exchange of information published in national gazettes. He introduced document TWC/11/15 and explained that, although in the first instance not intended for the establishment of the UPOV data base, the document would also be applicable in its present form for that purpose, apart from which especially page 6 of the document took account of the special requirements. Some selected experts would apply the format to a reduced number of data at the national level, exchange those data and improve the format on the basis of the experience gained.

Testing of Homogeneity

11. Mr. Kristensen also introduced document TWC/11/16 on the revision of paragraph 28 of the General Introduction to the Test Guidelines, dealing with the number of off-types tolerated. He explained the recalculation of the tables as contained in the former document TC/XXV/8 as a result of the redefinition of the acceptance probability. The document also explained in more detail the connection between the two risks involved, i.e. the alpha risk of wrongly accepting a heterogeneous variety as homogeneous and the beta risk of wrongly rejecting a homogeneous variety as being heterogeneous. In the past, the importance of the beta risk had not been sufficiently considered, especially in the case of small samples.

12. The Working Party welcomed the document which had been made much more accessible. It agreed to follow the document when preparing or revising Test Guidelines to fix the population standard, the acceptance probability and the number of off-types tolerated with the indicated sample size. In most cases, the population standard would be 1% and the acceptance probability 95%. It noted, however, that different population standards might have to be applied within one species or even for certain characteristics. A certain freedom of adjustment should therefore be allowed for special situations.

13. The Working Party noted that only minimum sample sizes would be indicated in the Test Guidelines. If a country wished to apply higher numbers, the resulting beta risk would be smaller than that for the indicated sample size.

New Methods, Techniques and Equipment in the Examination of Varieties

14. Dr. Thiele-Wittig gave a brief report on the main items discussed during the first session of the newly established Working Group on Biochemical and Molecular Techniques and DNA-Profiling in particular (BMT), referring to the draft report reproduced in document BMT/1/4. The Working Party asked for more information on the work of that Working Group to permit a more active participation. As the experts were ultimately the users of the techniques under discussion, at least the Chairman of the TWV should be invited to future sessions of the BMT Working Group so that the technical aspects and interests of the Working Party might be represented. The Working Party also asked for all experts to discuss the subject at the national level and involve themselves more in the investigations. It was important that a dialogue be initiated between crop experts and experts in the special methods.

Final Discussions of the Draft Test Guidelines

Test Guidelines for Peas (Revision)

15. The Working Party noted the draft Test Guidelines for Peas (Revision) as reproduced in document TG/7/6(proj.) and the fact that no comments had been received on that document. It made the following changes:

(i) Conduct of Tests: Between paragraphs 3 and 4 an additional paragraph to be inserted reading: "For the testing of uniformity, a population standard of 1% and an acceptance probability of 95% should be applied. For the sample size indicated above that would lead to three off-types tolerated."

(ii) Table of Characteristics:

Characteristics

- 20 To have the word "average" deleted
- 43 To have the states 1, 3, 5, 7, 9
- 46 To have the mark "+" deleted and the word "upper" included before the word "calyx"
- 70 To have the word "race" replaced by "pathovar" in English and by "pathotype" in French

(iii) Explanations on the Table of Characteristics: For characteristic 2, to have the wording below the drawings exchanged so that the wording corresponds to the drawing.

(iv) Technical Questionnaire: Under item 7 (1), to have the individual characteristics on resistance repeated in the same way as in the document for Sweet Pepper.

(v) Annex: To have the remarks under "Ad 69, Ad 70" amended to correspond to the wording of the characteristics in the Table of Characteristics.

(vi) Example Varieties: The expert from the United Kingdom to prepare a table indicating the states of expression of the example varieties in the grouping characteristics.

Test Guidelines for French Bean (Revision)

16. The Working Party noted the draft Test Guidelines for French Bean (Revision) as reproduced in document TG/12/5(proj.) and also document TWV/27/10, containing comments received from ASSINSEL. It made the following changes to the main document:

(i) Conduct of Tests: After paragraph 3, a new paragraph to be included indicating for dwarf beans a population standard of 1%, an acceptance probability of 95% with four off-types and for climbing beans a population standard of 2%, an acceptance probability of 95% and three off-types.

(ii) Table of Characteristics:

Characteristics

- 2 To receive an intermediate state reading: "vining dwarf" and example varieties as indicated in a photocopy prepared by experts from France and distributed during the session
- 8 After this characteristic, a new characteristic to be inserted reading: "Terminal leaflet: shape" with the states and example varieties proposed by France, however with Notes from 1 to 5
- 22 To have the word "color" replaced by "hue"
- 26 After this characteristic, a new characteristic to be inserted reading: "Pod: shape of distal part (excluding beak)" with the states "acute (1), obtuse (2), truncate (3)" with the example varieties indicated by France
- 32 To have the states "circular, circular to elliptic, elliptic, narrow kidney-shaped, broad kidney-shaped" with the Notes from 1 to 5 and the example varieties indicated by France
- 35 To have the states "flat, narrow elliptic, elliptic, broad elliptic, circular" with Notes from 1 to 5 and the example varieties indicated by France
- 45 To be separated into two characteristics, the first reading: "Tolerance to Bean Common Mosaic Virus (BCMV)" with the states "absent, present" and the second reading: "Tolerance to Blackroot" with the states "absent, present"
- 46, 47 To have the states "absent, present" and the example varieties of the former states 1 and 3 to be indicated for absent and the remaining for present

In addition, several example varieties were deleted and others included or corrected.

(iii) Explanations on the Table of Characteristics:

- 45 To have the virus strain "Jolanda NL 5" replaced by "NL 3" and the word "resistance" where it appears by "tolerance"
- 46 To have the drawings for the former Notes 1 and 3 presented as "resistance absent" and the drawings of the former Notes 5, 7 and 9 presented as "resistance present"
- 47 To have the drawings for the former Notes 1, 3 and 5 presented as "resistance absent" and the drawings of the remaining Notes 7 and 9 presented as "resistance present"

(iv) Literature: To have further literature added.

(v) Example Varieties: The expert from Germany to prepare a table indicating the states of expression of the example varieties in the grouping characteristics.

Test Guidelines for Lettuce (Revision)

17. The Working Party noted the draft Test Guidelines for Lettuce (Revision) as reproduced in document TG/13/5(proj.) and also document TWV/27/10, containing comments received from ASSINSEL. It made the following changes to the main document:

(i) Conduct of Tests: To have a new paragraph inserted after paragraph 3 comparable to Peas, with a population standard of 1%, an acceptance probability of 95% and three off-types, and to have in paragraph 3 the words "in the open" deleted, the figure "40 plants" changed into "80 plants" and the sentence on the glasshouse deleted.

(ii) Grouping of Varieties: In paragraph 1, to have the word "Rossa" in the example varieties removed and added after the word "Lollo" so that the example variety reads: "Lollo Rossa"

(iii) Table of Characteristics:

Characteristics

- 6 To have the last state read: "deeply divided"
- 9 To read: "Varieties with closed head only: Head: degree of overlapping of upper part of leaves"
- 17,18 To have the words "at harvest maturity" deleted and characteristic 17 to receive a "+"
- 38.10 After this isolate another isolate to be included reading: "Isolate NL-16" with the states "absent, present."

In addition, several example varieties were corrected, added or deleted.

(iv) Explanations on the Table of Characteristics:

- 38 On page 28, to have the isolate "NL-16" (characteristic 38.11) included here too, with all the corresponding figures, pluses and minuses, as well as the gene combination "R 18"

There was a long discussion on whether the DM-gene DM-19 should be retained. It was finally agreed that the Chairman would contact Mr. Michelmore and, depending on his reply, the DM-19 will remain in the document or be deleted.

- 39 The methods for LMV were replaced by a completely new wording.

Test Guidelines for Cucumber and Gherkin (Revision)

18. The Working Party noted the draft Test Guidelines for Cucumber and Gherkin (Revision) as reproduced in document TG/61/4(proj.) and also document TWV/27/10, containing comments received from ASSINSEL. It made the following changes to the main document:

(i) Conduct of Tests: To have an additional paragraph added after paragraph 3, as in the Test Guidelines for Peas, but with a population standard of 1%, an acceptance probability of 95% and for glasshouses one off-type and in the open two off-types.

(ii) Table of Characteristics: To have additional example varieties included for characteristic 14 and corrected for characteristic 38.

(iii) Explanations on the Table of Characteristics:

- 23 To have the order of the drawings changed to correspond to the wording

- 45 Mr. Van Ettehoven to bring the presentation of standard varieties into line with that used in the Test Guidelines for French Bean.

Test Guidelines for Sweet Pepper, Hot Pepper, Paprika (Revision)

19. The Working Party noted the draft Test Guidelines for Sweet Pepper, Hot Pepper, Paprika as reproduced in document TG/76/4(proj.) and also documents TWV/27/9 and TWV/27/9 Add., containing comments from France, document TWV/27/11 containing amendments from Hungary and document TWV/27/10, containing comments from ASSINSEL. It finally made the following changes to document TG/76/4(proj.):

(i) Conduct of Tests: In paragraph 3, the sample sizes were amended to "45 plants in the open or 18 plants in the glasshouse"; after that paragraph a new paragraph was inserted, similar to that included in the Test Guidelines for Peas but with the following figures:

(a) population varieties - population standard 2%, acceptance probability 95%, one off-type

(b) hybrid varieties - population standard 1%, acceptance probability 95%, one off-type in the glasshouse, two off-types in the open.

(ii) Methods and Observations: In paragraph 1, the number of plants was reduced to 18 and, in paragraph 3, the words "normally fertilized" were replaced by "well developed."

(iii) Table of Characteristics:

Characteristics

- 4,5 Both to have the following states: "one or two, three or more," and characteristic 5 to receive explanations as reproduced in document TWV/27/11
- 7 To read: "Leaf: length of blade"
- 10 After this characteristic, a new characteristic to be inserted reading: "Leaf: length of petiole" with the states "short, medium, long"
- 12 To be deleted
- 16 To have the bracketed phrase deleted
- 18 To have the asterisk deleted
- 21 To have the additional states "very weak, very strong"
- 31 To read: "Fruit: predominant number of locules" with the first state to read: "only two"
- 33 To read: "Placenta: diameter compared to fruit diameter"
- 40 To have four characteristics as follows:
40.1 - strain 0
40.2 - strain 0-1
40.3 - strain 0-1-2
40.4 - strain 0-1-2-3
- 41 To have three characteristics as follows:
41.1 - strain 0
41.2 - strain 0-1
41.3 - strain 0-1-2
- 43 To be amended according to document TWV/27/11.

(iv) Explanations on the Table of Characteristics:

Explanations on characteristics 5, 40.1 to 40.4, 41.1 to 41.3 and 42 to be copied from document TWV/27/11.

(v) Literature: Additional literature to be copied from document TWV/27/11.

(vi) Ring Test: The Working Party agreed to continue the ring test done between France, Hungary, The Netherlands and Spain for another year. The expert from The Netherlands would take care of the distribution of the seed.

Test Guidelines for Watermelon

20. The Working Party noted the draft Test Guidelines for Watermelon as reproduced in document TG/142/1(proj.) and the fact that no comments had been received on that document. It made the following changes:

(i) Conduct of Tests: In paragraph 3, the sample size was amended as follows: "35 plants in the open or 20 plants in the glasshouse." After this paragraph, a new paragraph to be inserted, similar to that inserted in the Test Guidelines for Peas, but with a population standard of 1%, an acceptance probability of 95% and one off-type.

(ii) Methods and Observations: To have paragraph 6 deleted.

(iii) Table of Characteristics:

Characteristics

14,15 To have the asterisk deleted

41 To receive an asterisk

53 After this characteristic, a new characteristic to be inserted reading: "Seed: relative area of secondary color" with the states "small (Early Star), medium (Crimson Sweet), large (Resistant)"

In addition, several example varieties were deleted, others included or corrected.

(v) Explanations on the Table of Characteristics:

29 To have the order of the drawings corrected according to the wording.

(vi) Ring Test: The Working Party agreed to start a ring test with seed of selected varieties in order to see the practical application of the Test Guidelines. The experts from France, Israel, Japan, The Netherlands (NAK-G) and Spain agreed to participate in that test. The expert from Israel would coordinate the test and collect seed to be distributed to the other participants.

Test Guidelines for Chick Pea

21. The Working Party noted the draft Test Guidelines for Chick Pea as reproduced in document TG/143/1(proj.) and also document TWV/27/8, containing comments from France. It finally made the following changes to the main document:

(i) Conduct of Tests: To have an additional paragraph after paragraph 3 as in the Test Guidelines for Peas, but with a population standard of 1%, an acceptance probability of 95% and three off-types.

(ii) Table of Characteristics: To have the words "of lateral shoots" deleted in characteristic 3 and characteristic 22 only to be kept if the expert from France indicated the exact method.

(iii) Technical Questionnaire: To have the wording under paragraph 5.3 aligned on that in the Table of Characteristics.

Test Guidelines for Oenothera

22. The Working Party noted the draft Test Guidelines for Oenothera as reproduced in document TG/144/1(proj.) and the fact that no comments had been received on that document. It merely included the new paragraph on population standard (1%), acceptance probability (95%) and off-types (one in 35 plants)

and corrected the spelling of the example variety "Epinal." The Chairman would check the manner of propagation and the population standard with Mr. Evans (United Kingdom).

Status of Test Guidelines

23. The Working Party agreed that the draft Test Guidelines for French Bean (Revision), for Peas (Revision), for Watermelon, for Cucumber, Gherkin (Revision), for Sweet Pepper, Hot Pepper, Paprika, for Chick-pea, for Lettuce (Revision) and for Oenothera should be sent to the Technical Committee for final adoption.

24. The Working Party did not discuss of the working papers for Test Guidelines mentioned under item 7 of the Agenda owing to lack of time.

New Chairman

25. The Working Party proposed to the Technical Committee that it recommend Mrs. Elisabeth Kristof (Hungary) to the Council for election as the Working Party's Chairman for the coming three years.

Future Program, Date and Place of Next Session

26. At the invitation of the expert from the United Kingdom, the Working Party agreed to hold its next session in Edinburgh from September 5 to 9, 1994. The Working Party planned to discuss the following items at that session:

- (i) Short reports on special problems or difficulties encountered;
- (ii) Report on the thirtieth session of the Technical Committee and recommendations resulting from that session;
- (iii) Discussion of the draft Test Guidelines from the Subgroups for
 - (a) Cauliflower (Revision)
 - (b) Broccoli
 - (c) Leaf Chicory
- (iv) Discussion of working papers on Test Guidelines for:
 - (a) Spinach (Revision) (TG/55/3, TWV/XXI/11 + new working paper to be prepared by Dr. Habben (DE))
 - (b) Onion (Revision) and Shallot (TG/46/3, TWV/27/6 + new working paper to be prepared by Mr. Green (GB))
 - (c) Witlof (TWV/XXIII/5 Rev.)
 - (d) Cucurbita maxima (TWV/25/4)
 - (e) Cucurbita moschata (new working paper to be prepared by Messrs. Brand and Breuils (FR))
 - (f) Garlic (working paper to be prepared by Mr. Brand (FR))
 - (g) Beetroot (Revision) (TG/60/3 + new working paper to be prepared by Mr. Van Ettehoven (NL))
 - (h) Chamomile (TWV/27/5)
 - (i) Globe Artichoke (new working paper to be prepared by Mr. Brand (FR))
 - (j) Bunching Onion, Welsh Onion (working paper to be prepared by Mr. Green (GB)).
 - (k) Ginger (working paper to be prepared by experts from Japan)
 - (l) Poppy (working paper to be prepared by Mrs. Kristof (HU))

27. The Working Party agreed to hold a UPOV Subgroup Meeting on Broccoli on October 22, 1993, in connection with the meeting of the EEC Committee of Experts on Vegetable (broccoli) Trials, scheduled to be held in Cavaillon, France, on October 21, 1993. Comments on the present documents for the species concerned should be sent, by the end of August 1993, to Mr. Breuils (FR) for Broccoli, Mr. Van Marrewijk (NL) for Cauliflower and Mr. Van Ettehoven (NL) for Leaf Chicory.

Visits

28. In the morning of July 7, the Working Party visited the Horticultural Center at Aarslev on Funen. On the afternoon of the same day they visited the breeding company L. Daehnfelddt where, in addition to the breeding program, they were shown the trial fields for testing of vegetables for the so-called B-List for vegetables, which in Denmark is done in the trial fields of the breeders and in cooperation with them.

29. This report has been adopted by correspondence.

[Two annexes follow]

ANNEX I

LIST OF PARTICIPANTS AT THE TWENTY-SEVENTH SESSION OF THE
TECHNICAL WORKING PARTY FOR VEGETABLES,
MENSTRUP KRO, DENMARK, JULY 6 TO 9, 1993

I. MEMBER STATESCZECH REPUBLIC

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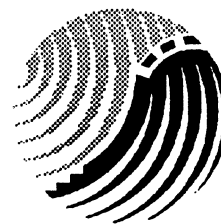
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[Annex II follows]



**Short Report from the PBR/DUS authorities
in The Netherlands**

CPRO - DLO

Shortened testing procedure for grants of Plant Breeders' Rights for vegetable varieties

In February this year the Dutch Board for Plant Breeders' Rights (PBR) has approved a one year official testing period for vegetable applications under a number of conditions.

An applicant who wishes to take advantage of this shortened testing procedure may ask for the inclusion of the test results of the B-list procedure.

This shortened procedure for PBR is:

- application for the grant of PBR with the Board as for a normal testing procedure, including the submission of the standard sample and the payment of fees
- a request to the authority to include the results of the B-list testing at the time of application for PBR
- submission of an approved report for B-listing by the applicant
- in case the testing for the B-list has not yet been completed the applicant may ask for postponement of the official testing by the Permanent Expert of the Board; the standard sample always has to be submitted together with the application
- in case no request for the inclusion of the B-results has been made and/or no approved B-report is submitted a normal procedure of two similar testing cycles will be started immediately
- if after one year of official testing under responsibility of the Permanent Expert insufficient or contradictory results with the B-report have been observed, a second year of official testing will be necessary
- in cases where a second year of official testing will be necessary, except for reasons beyond the responsibility of the applicant, the normal testing fee has to be paid for the second year

During the official testing under responsibility of the Permanent Expert all reported characteristics will be tested independently. The standard sample will be the exclusive basis for advice and decision.

To avoid harm to the 'novelty' (no period of grace in NL) an application has to be filed with the PBR-authority before any commercialisation of the candidate involved is started. For this reason postponement of official testing was introduced.

Grant of Plant Breeders' Rights for an 'in vitro'-propagated cucumber variety (Cambio)

After two years of testing PBR has been granted to a cucumber variety propagated and maintained through 'in vitro' culture. During the first testing cycle considerable differences from the 'parent' variety have been assessed, but these appeared to be epigenetic mostly. It appeared necessary that the candidate and the references were raised completely under the same conditions to exclude any effects of the culture medium or hormones.

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The identity sample of plants submitted by the applicant showed the fruit characteristics of fruits from side shoots and could not be compared to the fruits harvested from the main stem of the reference varieties. These effects and the induction of epi-genetic effects in the expression of characteristics made an extensive and expensive test necessary. To eliminate these effects we tested plants raised from cuttings; two and three 'generations' of cuttings. In these tests most epigenetic effects had disappeared. Only some minor differences appeared to be reliable: shade of green color, glossiness and predominant neck shape of the fruit.

The description of the variety has been based on the phenotype of the standard sample supplied by the applicant; the analysis of distinctness was based on the tests with material raised under equal conditions.

The problem of epigenetic expression of characters may also occur in other species propagated through 'in vitro' or tissue culture. Especially when varietal differences become rather small the induced differences may interfere with the standard DUS testing.

NvM/NL, 93.06.29.

[End of annex and of document]